



EISSN 2791-7940

Volume 4 • Issue 2 • August 2024

Mediterranean Nursing and Midwifery



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Mediterranean Nursing and Midwifery is indexed in **Directory of Open Access Journals (DOAJ)** and **TÜBİTAK/ULAKBİM**.

The journal is published electronically.

Owner: Ali Özgöçmen on behalf of Cyprus Turkish Nurses and Midwives Association

Responsible Manager: Hülya Fırat Kılıç

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REVIEW

Use of Complementary and Integrative Medicine in Women's Health: A Literature Review

Kadın Sağlığında Tamamlayıcı ve Bütünleyici Tıp Kullanımı: Bir Literatür Taraması

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Abstract

Complementary and integrative therapies have been used since the beginning of mankind. Their use has increased especially since the mid-20th century. In parallel to the development in diagnosis, treatment, and care, patients also want to be more involved in their treatments and are more inclined to prefer methods that alleviate their complaints. Reasons such as extended life expectancy, increase in degenerative and malign diseases, high costs of modern treatment methods, patients wanting to feel better psychologically, and symptom management have also led people to choose complementary and integrative medicine. In particular, the interest of women in these therapies has significantly increased. Women are more interested in these therapies because they have a wide range of gender-specific health issues, from premenstrual syndrome to dysmenorrhea, from infertility to pregnancy symptoms, and from postpartum depression to postmenopausal vasomotor symptoms. In their quest to find solutions to their problems, women have become more inclined to use complementary and integrative medicine. Nurses are aware of have knowledge and can evaluate complementary and integrative medicine to protect and improve women's health. This study presents a current literature review to evaluate the use of complementary and integrative medicine in women's health.

Keywords: Women's health, complementary therapies, integrative therapies

Öz

İnsanlığın varoluşundan bu yana tamamlayıcı ve integratif bakım uygulamaları kullanılmaktadır. Özellikle 20. yüzyılın ortalarından itibaren yöntemlerin kullanımlarında artış meydana gelmiştir. Tanı, tedavi ve bakımdaki gelişmelere paralel olarak hastalar da kendi tedavilerinde daha çok sorumluluk almak istemekte ve şikayetlerini azaltan yöntemlere yönelmektedir. Aynı zamanda yaşam ömrünün uzaması, kronik, dejeneratif ve malign hastalıklardaki artış, modern tedavi yöntemlerinin yüksek maliyetleri, hastaların kendilerini psikolojik olarak daha iyi hissetmek istemeleri, semptom yönetimi gibi nedenlerle de bireyler tamamlayıcı ve integratif tedavi uygulamalarına yönelmiş ve bu alandaki ilgi özellikle kadınlarda büyük ölçüde artmıştır. Kadınlarda görülen bu ilginin nedeni ise kadınlarda premenstrual sendromdan dismenoreye, infertiliteden gebelik semptomlarına, postpartum depresyondan postmenopozal vazomotor semptomlara kadar çok geniş bir yelpazede cinsiyete özgü sağlık problemleri görülmesinden kaynaklıdır. Kadınların yaşamış oldukları sorunlarına yönelik çözüm arayışları onları tamamlayıcı ve integratif yöntemlerin kullanımı için zemin hazırlamaktadır. Kadın sağlığının korunması ve geliştirilmesinin sağlanabilmesi amacıyla hemşirelerin tamamlayıcı ve integratif bakım uygulamaları hakkında bilgi sahibi olması ve değerlendirmelerde bulunması önemlidir. Bu derlemede kadın sağlığında tamamlayıcı ve integratif yöntemlerin kullanımı güncel literatür ışığında sunulacaktır.

Anahtar Kelimeler: Kadın sağlığı, tamamlayıcı tedaviler, integratif tedaviler

Introduction

With extended life expectancy, the number of malignancies and chronic diseases that are difficult to treat increases every day. Modern treatments' failure to meet expectations and patients' wanting to feel better physically and mentally further boosts the interest in complementary and integrative

medicine (1). It is a known fact that a holistic approach by nurses toward their patients results in more effective health results (2,3).

A general description of health for women refers to total physical, mental, emotional, spiritual, cultural and social wellbeing (2). Women go through many life stages

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Received: March 21, 2024

Accepted: April 19, 2024

Cite this article as: Altan Denizer GM, Hotun Şahin N. Use of Complementary and Integrative Medicine in Women's Health: A Literature Review. *Mediterr Nurs Midwifery*. 2024; 4(2): 73-80



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including childhood, puberty, sexual maturity, climacterium, and senium (old age) (3). Menstruation, pregnancy, breastfeeding, and menopause are important stages in a woman's life. Women can experience unpleasant symptoms such as pain, nausea, vomiting, and hot flushes during these stages (4,5). Women want to live more comfortably, improve their quality of life, and live longer and healthier without experiencing these symptoms. Women use complementary and integrative medicine to prevent and manage symptoms, reinforce their immune systems, develop healthy behavior (6,7). Complementary and integrative medicine includes non-pharmacological interventions, which are believed to assist in pain relief along with standard drug treatment. While drugs used in pharmacological treatment have an effect on somatic pain, interventions used in non-pharmacological therapies affect emotional, cognitive, behavioral, and sociocultural aspects of pain (3,7). Non-pharmacological interventions allow women to relax and have a reduced perception of pain without using any drug (7,8).

In their study that included 170 pregnant women, Yazdi et al. (8) reported that 46.5% of these women used complementary and integrative medicine during pregnancy and women who had complications during their previous pregnancies were more likely to use complementary and integrative medicine than women without any complications. A study that included infertile couples found that approximately half of 162 infertile couples tried complementary and integrative medicine and almost half of these couples tried herbal medicines at least once, and women were more inclined to use these therapies compared with men (9). A study that included 1106 menopausal women reported that 33.5% of the women used complementary and integrative medicine (10).

The Regulation on Traditional and Complementary Medicine of the Turkish Ministry of Health dated October 27, 2014, describes who can practice complementary and integrative medicine. Among the therapies that nurses can independently administer according to this regulation are massage and yoga. Reflexology, aromatherapy, and musical therapy are administered under the supervision of physicians. Acupuncture, phytotherapy, and hypnosis are therapies that are not administered by nurses (11).

The objective of this literature review was to assess complementary and integrative therapies that women use throughout their life stages.

Herbal Therapies

Aromatherapy: The use of plant-based essential oils for therapeutic purposes. Today, aromatherapy is used for three different purposes: Esthetic, clinical, and holistic (12). There are approximately 400 types of plant-based essential oils, and 300 of these essential oils are used by professional aromatherapists for treating diseases (13). Essential oils are most frequently used for massage. They can also be applied

through inhalation, steam, and baths. Almost 100 of these essential oils are used in aromatherapy, and 46 of them are used for women's health (12,13).

Some of the most frequently used essential oils are listed below:

Bay Laurel (*Laurus Nobilis*): Analgesic, antimicrobial, antifungal, antispasmodic, anti-neurological, antifebrile, appetite stimulant, diuretic, and cognitive enhancer (13).

Juniper: Has analgesic, antimicrobial, antiarthritis, anticeptic, antispasmodic, and diuretic properties; supports the urinary system, helps with chronic skin problems, helps alleviate menstrual pain, helps remove uric acid, helps relax, helps eliminate negative thoughts, and helps reduce fatigue (14).

Bergamot: It has analgesic, antidepressant, antiseptic, invigorative, and regenerative properties. At the same time, it stimulates the release of hormones, improves the quality of sleep, helps to relax, helps with the treatment of cystitis, and has antibacterial and anti-inflammatory properties (15).

Rosemary: Has analgesic, antiarthritic, antibacterial, antioxidant, antirheumatic, antispasmodic, antineurological, aphrodisiac, antiseptic, anticarcinogenic, antifatulent, styptic, antifungal, and antidepressant properties; it helps with hair growth, prevents dysmenorrhea, reduces wrinkles, speeds up wound healing, supports mental activity, and reduces stress and anxiety (13).

Spearmint (*Mentha piperita*): Mint: has analgesic, antibacterial, anticarcinogenic, antifebrile properties; reduces nausea and vomiting, and improves self-confidence (13,14).

Rose: Has anti-inflammatory, antiseptic, antispasmodic, vasoconstrictive, antiviral, antifebrile, antibacterial, anticonvulsant, antidepressant, and aphrodisiac properties; it makes scar tissues and wrinkles less visible, nourishes the skin, balances female hormones, regulates the menstrual cycle, supports liver functions, helps with constipation, improves the quality of sleep, reduces stress and anxiety, helps with anger control, reinforces the feeling of love, and helps with traumatic memories and feelings of loneliness (13).

Thyme: Has analgesic, antiparasitic, antibacterial, antifungal, antiviral, anti-inflammatory, antiarthritic, anesthetic, antimicrobial, antispasmodic, antiviral, antifatulent, diuretic, expectorant, antidepressant, and stimulant properties; reduces scar tissue and wrinkles, supports treatments for injuries, sprains etc, reduces hair loss, speeds up wound healing, relieves headache, boosts memory, increases concentration, and reduces fatigue (13,15).

There are studies in the literature that explore the effects of aromatherapy on nausea-vomiting, fatigue, anxiety, striae gravidarum, itching, and lower back pain during pregnancy (14-17). In their study in 100 pregnant women in Saudi Arabia, Ghani and Ibrahim (16) evaluated the effects of inhalation of a mixture of lavender and mint on nausea-vomiting, fatigue, and energy levels of pregnant women. The study reported that nausea-vomiting and fatigue decreased and energy level increased in pregnant women (16). In a study that included 141 pregnant women in Turkiye, pregnant women received 15 min of massage every day with bitter almond oil to prevent formation of striae gravidarum, and a reduction in striae gravidarum formation was observed (17). In another study conducted in Spain, 198 pregnant women received massage with rosehip seed oil to prevent formation of striae gravidarum, and striae gravidarum formation was reduced (18). A study conducted in 40 pregnant women reported that massage with rose oil twice a day for four weeks reduced lower back pain in these women (19).

Behavioral Methods

Alexander technique: Alexander is a method that inhibits movements of the body that has become an unhelpful habit over time to relieve stress from the body. This technique was discovered by Frederick Matthias Alexander (1869-1955), an Australian actor, when he experienced recurring aphonia (loss of voice) on stage and doctors could not find a cure for this problem, which led him to self-exploration and experimentation for a long time. When this technique proved to be successful for other people, it began to gain popularity fast in the world (20).

The Alexander technique can especially be used as an alternative method to alleviate pain in the lower and upper back in the third trimester of pregnancy (21). More studies are needed to understand the effects of the Alexander technique on women's health.

Dance therapy: A type of psychotherapy that deals with the mind-body connection and uses movements as tools. In this approach, every movement is a correct movement. Dance therapy is a method that is used to help with childbirth and improves the comfort of the mother during delivery. The dance of birth is the Turkish version (adapted by Michal Bardavid) of a program known as "dancing thru pregnancy" which has been used in the USA for 25 years. It is recommended for a healthy and safe pregnancy (21).

A study conducted in 60 primiparas between the ages of 18 and 35 evaluated the effect of dancing on reducing labor pain. The study concluded that dancing reduced the level of pain women experienced during childbirth (22).

More studies are needed to understand the effects of dance therapy on women's health.

Yoga: Is the oldest system in the world, which focuses on the importance of the balance between the body, mind, and

soul for human development. Although it is mostly thought to have benefits for the body, yoga has physiopsychological and psychospiritual aspects and acts as a catalyst for bodily maturation as well as mental, emotional, and spiritual growth (23-26).

Yoga strengthens muscles and improve body's flexibility. Therefore, it plays an effective role in reducing and treating pain caused by postural problems and increased weight and pressure during pregnancy (23,26).

It reduces stress caused by pregnancy and helps to experience a happier pregnancy. Yoga helps the mother accept her body and the baby, which results in better maternal-infant bonding (24). According to studies in the literature, yoga-based techniques are used for treating stress, depression in pregnancy, and maternal anxiety (25-29). Studies that focus on the effects of yoga on menopausal symptoms report that yoga reduces menopausal symptoms (25,26).

Hypnosis: Is an unconscious state in which a person can be influenced to have access to his or her own subconscious mind during an inner journey. Hypnosis is a mental state in which, while still having personal control and cognitive functions, the person responds voluntarily and more willingly to suggestions by the therapist and takes responsibility for his or her own treatment (27).

Hypnosis, as a therapeutic tool, was first used by Fanton Mense in 1748. Later, Sigmund Freud also conducted experiments and used hypnosis to understand the subconscious causes of anxiety in his patients (29). Hypnotherapy is a non-pharmacological treatment used for nausea and vomiting, especially in the first trimester of pregnancy (28,29). In their study Madrid et al. (29) reported that hypnotherapy reduced nausea and vomiting.

Complaints such as dysmenorrhea and premenstrual syndrome experienced by many women can be eliminated or reduced with hypnotic concentration (27). Hypnotherapy is also used for treating sexual dysfunctions and is especially helpful for treating dyspareunia (30). In addition to psychological treatments, hypnosis has recently shown effective results in the treatment of vaginismus (27,30).

Hypnobirth is a childbirth method that uses self-hypnosis techniques; in other words, therapists teach women self-hypnosis. Hypnobirth has several advantages: It is effective in reducing labor pain and does not require pharmacological agents and equipment, and does not have any negative effect on the newborn and fetus. Hypnosis has been shown to shorten the first stage of childbirth, provide better analgesia, and make childbirth a pleasant experience, and it has been demonstrated that women who used hypnotherapy reported a more satisfactory childbirth experience and no side effect was seen in the neonatal period (31).

Cognitive-intellectual Therapies

Meditation: Is described as the name for the mind-controlling techniques and experiences that allow the person to achieve inner peace, calmness, and different consciousness levels and find his inner self (32).

A study investigated the stress level perceived by Indian pregnant women who were past the first trimester. The study included 74 pregnant women and reported that meditation improved the parasympathetic functions of these women (33).

More studies are needed to understand the effects of meditation on women's health.

Music therapy: This is described as the design and use of music by a trained music therapist to improve communication, relationship, learning, organization, and other skills of a person or group of people to meet their physical, emotional, social, and cognitive needs (34). Music can also affect feelings such as happiness, joy, rage, and hate. Music has been used as a therapy for centuries. Plato (400 AD) said that music affects the depths of the soul through rhythm and harmony, increasing tolerance and comfort, and music is accepted as a remedy with healing power (13,35).

Music played to mothers during childbirth helps them gain courage, trust themselves, reduce anxiety, handle pain and supports mother-baby relationship (35). A study that evaluated non-pharmacological pain control methods used during childbirth reported that out of 46 mothers who listened to music, 30% found it very effective, 55% found it somewhat effective, and 15% found it ineffective (36). A study which evaluated physiological measurements, satisfaction, and anxiety levels of women during c-section delivery reported that the women in the experiment group had lower levels of anxiety and higher levels of satisfaction than the women in the control group (37). A study conducted in Malaysia that included 64 postpartum mothers evaluated the effect of music therapy on the mothers' stress level, breast milk amount, and cortisol level through house visits in 2., 6., 12. and 14. weeks. The study reported that the stress and anxiety levels of the mothers in the experiment group were low, the breast milk amount was increased by 59% (mean difference: 329 d/dL), and the cortisol levels in the last breast milk were significantly lower (mean: -44.5%) (38).

Tactile Therapies

Acupuncture: Is a scientific therapy that helps the body find balance by stimulating specific points in the body using needles. Acupuncture can be used in obstetrics and gynecology for example, to help with labor. Factors such as localization of pain, stage of labor, maternal fatigue level, tension or anxiety play an important role when trying to reduce labor pain (39).

In the study, the acupuncture group was compared with the placebo group and minimal acupuncture group (at non-acupuncture points and superficial application). The visual analog scale was used simultaneously to assess pain in both groups, and people in the acupuncture group experienced significant reduction in pain at 30, 60, and 120 min after acupuncture. In the real acupuncture group, pain was low at 2 h postpartum. It was also reported that the acupuncture group required significantly less epidural analgesia (40).

The use of acupuncture in fertility treatment has been increasing in recent years. Acupuncture is applied to meridians that agree with the energy flow along the body. Acupuncture points are selected according to traditional Chinese medicine based on diagnosis and patient-specific symptoms (41). A systematic review that included seven randomized controlled studies evaluated the effects of acupuncture on 1366 patients who received embryo transfer. Live birth and pregnancy rates were reported to be 65% higher than those in the control group (42).

A review that included three randomized studies that explored the effectiveness of acupuncture in childbirth reported that pharmacological analgesics were needed more in the control group than in the experimental groups in which acupuncture was used (43).

Reiki touch therapy: This is an energy therapy that focuses on electromagnetic fields outside the body and energy fields in the body. Reiki has an important role in modern medicine because it can provide relief for many treatment-resistant diseases, is easy to practice, safe, and cost-efficient, and has no side effects compared with drugs. Similar to acupressure, reflexology, and massage, Reiki is also used for specific purposes by trained people who touch energy centers (chakras) on the body (44,45).

In the 1970s, D. Kruger became a pioneer in nursing by teaching Reiki to thousands of nurses. In modern medicine, Reiki touch therapy has become an independent function of nurses and a part of nursing care. Reiki helps for a more comfortable pregnancy. The mother and baby communicate before birth through Reiki. Expectant mothers calm their babies with Reiki. It relieves nausea and relaxes painful muscles. It is also effective in postpartum depression (45,46).

Reiki touch therapy is reported to reduce the use of pain management and analgesic agents, shorten hospitalization, improve patient satisfaction, promote relaxation, make it easier to sleep, reduce nausea and emotional distress, facilitate communication, and reduce anxiety and high blood pressure (44-48).

In their study that evaluated the effect of reiki touch therapy on the symptoms of menopause Yeşil (49) concluded that

reiki is effective in reducing somatic, psychological, and urogenital complaints of women. A study done to evaluate the effect of Reiki on pain, fatigue, and quality of life of adolescents with dysmenorrhea also reported that Reiki had a positive effect on pain and fatigue (47).

Massage: Reduces stress and pain by providing relaxation and stimulating circulation. Massage is “intentional and systematic manipulation of soft tissue to improve healing and health value” (13,49).

In this study, 80 pregnant women were randomly divided into two groups to understand the effect of massage on reducing edema in legs at the later stages of pregnancy and the experiment group received 20 min of massage every day for 5 days. At the end of the study, edema levels in the experimental group were significantly lower than those in the control group (49).

Leg cramps caused by painful spasms mostly on calves during pregnancy, especially in the last weeks of pregnancy. These complaints mostly occur at night, and their mechanisms are not fully understood. Massaging the legs is reported to be sufficient most of the time to relieve pain during spasms (50,51).

In their study, Oskay and Şahin (52) reported that 24.7% of young women received massage on their belly and back to reduce dysmenorrhea and obtained positive results. In a randomized controlled study, women were given back, foot, hand, and head massage by their spouses every 20 min for a duration of 5 h. Frequent massage is reported to reduce pain and anxiety in women and improve their emotional state (53). Furthermore, perineal massage applied during labor is also reported to reduce perineal trauma caused by childbirth (54).

Reflexology: Reflexology, which has been used in many cultures for centuries, is a therapy based on the principle that feet have reflex points that correspond to organs and systems in the body, and these points mirror the body's anatomy (55). Pressure applied on these reflex points using special hand and finger techniques is claimed to reduce stress, which leads to physiological changes in the body. Reflexology is not recommended for the first trimester of pregnancy because it can cause miscarriage and is considered a therapy that should be applied with care (56).

A study that included 31 women who suffered dysmenorrhea reported that reflexology reduced dysmenorrhea in 95% of the women and reduced premenstrual symptoms (edema, nervousness, reduced concentration etc.) in 46% of the women who experienced PMS (57). Studies have reported that reflexology can be recommended as a complementary therapy to reduce the severity of PMS symptoms in young women (58). In another study, 42 menopausal women received reflexology massage and 17 (40.5%) of these

women experienced full recovery, 20 (47.6%) experienced significant improvement, and 4 (9.5%) women had effective results in menopausal symptoms (hot flushes, nervousness etc.) (53).

Özdelikara and Arslan (59) reported that reflexology regulates nervous system functions by applying massage on reflex points and reduces nausea-vomiting (60). In a study conducted by Akköz Çevik and Incedal (61), 60 primiparas were assigned to the experimental and control groups. The experimental group received reflexology, whereas the control group received routine care, and 40 min of reflexology was applied during the active phase of labor. The study reported that reflexology reduced labor pain, lowered anxiety levels of pregnant women, shortened the length of the second and third phase of labor and helped women have a better childbirth experience (61).

Therapeutic touch (TT): Is based on the belief that all living creatures are surrounded by an energy area that can be maintained in balance by passing hands over this area. Correcting and balancing this energy area that hovers 3-5 over the body is called therapeutic touch. This is an alternative technique that requires special training (62).

Nurses can use this TT technique or couples can be taught this technique to reduce complaints, including nausea, fatigue, constipation, edema, and back pain during pregnancy. Additionally, it has also been reported that TT helps with several complications associated with pregnancy, such as hypertension, toxemia, and the risk of premature birth (63).

TT is also recommended for pregnant women to have a more comfortable labor, to bond with their babies earlier and to start breastfeeding sooner (47,62).

TT also contributes to reducing the need for postoperative analgesia and accelerating the abdominal and perineal wound healing process after childbirth (62,63). A reduction in pain, reduction in cortisol levels, and increase in natural killer cell numbers of patients who had TT post-surgery have also been reported in the literature (63).

A study conducted by Pinar and Demirel (64) reported that TT applied during labor reduced pain and anxiety levels in women and had a positive effect on their attitude toward childbirth. The authors did not observe any increase in the pain level or any change in the anxiety and attitude levels of the women in the control group.

Nurses' Roles in the Use of Complementary and Integrative Medicine in Women's Health

The roles and responsibilities of nurses have changed in response to technological developments in healthcare and increasing scientific knowledge. Therefore, nurses are

expected to develop nursing practices regarding the use of complementary and integrative medicine, develop effective strategies, and provide guidance to patients/healthy people to use complementary therapies effectively and correctly (65). A study conducted in nurses in Turkey reported that almost half of the nurses included in the study were already using complementary and integrative medicine, and herbal products, vitamins, and massage were the most frequently used therapies. Almost all of the nurses reported that they did not have sufficient information about these therapies, and the majority of the nurses reported that they asked about the use of these therapies only when taking the patient's medical history (64,65).

Nurses are aware of have knowledge to evaluate complementary and integrative medicine. It is concluded that developing training programs after the efficiency, effectiveness, benefits, and risks of these therapies are determined based on evidence and including these programs in nursing education will yield positive outcomes for the nursing profession and women's health.

Conclusion

Roles and responsibilities of nurses have changed in response to technological developments in healthcare. Therefore, nurses need to develop practices and identify effective strategies for the use of complementary and integrative medicine. This will ensure the effective and correct use of these therapies by patients.

Author Contributions: Surgical and Medical Practices – G.M.A.D., N.H.Ş.; Design – G.M.A.D., N.H.Ş.; Concept – G.M.A.D., N.H.Ş.; Data Collection and/or Processing – G.M.A.D., N.H.Ş.; Analysis and/or Interpretation – G.M.A.D., N.H.Ş.; Literature Review – G.M.A.D., N.H.Ş.; Writing – G.M.A.D., N.H.Ş.

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. Bilgiç S. Hemşirelikte holistik bir uygulama; Aromaterapi. Namık Kemal Tıp Dergisi. 2017;5(3):134-141. [Crossref]
2. Kızılkaya Beji N. Kadın sağlığı ve hastalıkları. Nobel Tıp Kitapevleri, 2015. [Crossref]
3. Engin B, Aydın Kartal Y. Menopozal semptomlar ile baş etmede kullanılan tamamlayıcı ve alternatif tedavi yaklaşımları. Sağlık Profesyonelleri Araştırma Dergisi. 2020;2(2):80-87. [Crossref]
4. Türkmen, H. Üniversite öğrencilerinde dismenore görülme sıklığı ve dismenoreye etki eden faktörler. Celal Bayar Üniversitesi Sağlık Bilimleri Enstitüsü Dergisi. 2019;6(1):39-46. [Crossref]
5. Kahyaoğlu Süt H, Küçükkaya B, Arslan E. Primerdismenore ağrısında tamamlayıcı ve alternatif tedavi yöntemleri kullanımı. Celal Bayar Üniversitesi Sağlık Bilimleri Enstitüsü Dergisi. 2019;6(4):322-327. [Crossref]
6. Kurt G, Arslan H. İnfertilite tedavisi alan çiftlerin kullandıkları tamamlayıcı ve alternatif tıp uygulamaları. Cukurova Tıp Dergisi. 2019;44:329-338. [Crossref]
7. Uçak, H. Premenstrual sendrom yaşayan kadınların kullandıkları geleneksel ve tamamlayıcı tıp uygulamaları (Master's thesis, Sağlık Bilimleri Enstitüsü);2020. [Crossref]
8. Yazdi N, Salehi A, Vojoud M, Sharifi MH, Hoseinkhani A. Use of complementary and alternative medicine in pregnant women: A cross-sectional survey in the south of Iran. J Integr Med. 2019;17(6):392-395. [Crossref]
9. Sönmez S, Öztürk M, Sönmez F, Eraydın E, Özer MC, Ünal MS, et al. Prevalence and predictors of the usage of complementary alternative medicine among infertile patients. J Gynecol Obstet Hum Reprod. 2021;50(6):102112. [Crossref]
10. Cardini F, Lesi G, Lombardo F, van der Sluijs C; MSCG - Menopause Survey Collaborative Group. The use of Complementary and Alternative Medicine by women experiencing menopausal symptoms in Bologna. BMC Womens Health. 2010;10:7. [Crossref]
11. Geleneksel ve Tamamlayıcı Tıp Uygulamaları Yönetmeliği (27.10.2014 tarih ve 29158 sayılı Resmî Gazete) <https://www.resmigazete.gov.tr/eskiler/2014/10/20141027-3.htm> [Crossref]
12. Güneş Y, Dönmez S. Koku Terapisi: Cinsellik ve Cinsel İşlev Bozukluklarını Hedefleyen Aromaterapinin İncelenmesi. Kadın Sağlığı Hemşireliği Dergisi. 2024;10(1):52-60. [Crossref]
13. Rathfisch G. Kadın sağlığında klinik aromaterapi, Güneş Tıp Kitapevi, (1. baskı) İstanbul: 2019; p.2-70. [Crossref]
14. Hatim O, J Pediatr Adolesc Gynecol, Women's health in complementary and integrative medicine: A Clinical Guide. 2008;21:377-378. [Crossref]
15. Malahayati I, Nainggolan L. Monograf-Penggunaan Aromaterapi Minyak Esensial Bergamot Dan Lavender Pada Postpartum Blues; 2022. [Crossref]
16. Ghani MAR, Ibrahim ATA. The effect of aroma therapy inhalation on nausea and vomiting in early pregnancy: a pilot randomized controlled trial. Journal of Natural Sciences Research. 2013;3(5):192-205. [Crossref]
17. Timur Taşhan S, Kafkaslı A. The effect of bitter almond oil and massaging on striae gravidarum in primiparous women. J Clin Nurs. 2012;21(11-12):1570-1576. [Crossref]
18. Hernández JÁG, García Hernández JÁ, Madera González D, Padilla Castillo M, Figueras Falcón T. Use of a specific anti-stretch mark cream for preventing or reducing the severity of striae gravidarum. Randomized, double-blind, controlled trial. Int J Cosmet Sci. 2013;35(3):233-237. [Crossref]
19. Shirazi M, Mohebitabar S, Bioos S, Yekaninejad MS, Rahimi R, Shahpiri Z, et al. The Effect of Topical Rosa damascena (Rose) Oil on Pregnancy-Related Low Back Pain: A Randomized Controlled Clinical Trial. J Evid Based Complementary Altern Med. 2017;22(1):120-126. [Crossref]
20. Tezişçi P. Alexander Tekniği'nin Temel Uygulama İlkeleri ve Çalışma Yöntemleri. Afyon Kocatepe Üniversitesi Akademik Müzik Araştırmaları Dergisi. 2018;4(7):65-80. [Crossref]
21. Amanak K, Karaöz B, Sevil Ü. Alternatif/Tamamlayıcı Tıp ve Kadın Sağlığı. Türk Silahlı Kuvvetleri, Koruyucu Hekimlik Bülteni. 2013;4:441-448. [Crossref]
22. Abdollahian S, Ghavi F, Abdollahifard S, Sheikhan F. Effect of dance labor on the management of active phase labor pain & clients' satisfaction: a randomized controlled trial study. Glob J Health Sci. 2014;6(3):219-226. [Crossref]
23. Alkan E, Aslantekin-Özçoban F. Yoganın Gebelik, Doğum ve Doğum Sonuçları Üzerine Etkisi. Smyrna Tıp Dergisi. 2017;3:64-71. [Crossref]

24. Yaraşır E, Pirinççi E, Deveci SE. Complementary and alternative treatment in low back pain]. *Archives Medical Review Journal*. 2018;27(1):93-108. [\[Crossref\]](#)
25. Guo PP, Li P, Zhang XH, Liu N, Wang J, Chen DD, et al. Complementary and alternative medicine for natural and treatment-induced vasomotor symptoms: An overview of systematic reviews and meta-analyses. *Complement Ther Clin Pract*. 2019;36:181-194. [\[Crossref\]](#)
26. Kusaka M, Matsuzaki M, Shiraishi M, Haruna M. Immediate stress reduction effects of yoga during pregnancy: One group pre-post test. *Women Birth*. 2016;29(5):e82-e88. [\[Crossref\]](#)
27. Abıç A, Vefikuluçay Yılmaz D. Menopoz Semptomlarına Yoganın Etkisi. *J Tradit Complem Med* 2020;3(2):217-223. [\[Crossref\]](#)
28. Cramer H, Peng W, Lauche R. Yoga for menopausal symptoms-A systematic review and meta-analysis. *Maturitas*. 2018;109:13-25. [\[Crossref\]](#)
29. Madrid A, Giovannoli R, Wolfe M. Treating persistent nausea of pregnancy with hypnosis: four cases. *Am J Clin Hypn*. 2011;54(2):107-115. [\[Crossref\]](#)
30. McCormack D. Hypnosis for hyperemesis gravidarum. *J Obstet Gynaecol*. 2010;30(7):647-653. [\[Crossref\]](#)
31. Set T, Taştan K. Hipnoz ve aile hekimliğinde kullanımı. *Türkiye Klinikleri Aile Hekimliği-Özel Konular*. 2012;3:56-58. [\[Crossref\]](#)
32. Çeri Ö. Vajinismus tanısı alan kadınlar ve eşlerinde temel bilişsel şemalar ile bağlanma stillerinin incelenmesi. Yüksek Lisans Tezi, Ankara Üniversitesi Sosyal Bilimler Enstitüsü, Ankara. 2009;1-36. [\[Crossref\]](#)
33. Taşçı E, Sevil Ü. Doğum ağrısına yönelik farmakolojik olmayan yöntemler. *Genel Tıp Dergisi*. 2007;17(3):181-186. [\[Crossref\]](#)
34. Tortumluoğlu G, Pasinlioğlu T. Klimakterik yakınması olan kadınların alternatif tedavi yöntemlerini uygulama durumları. *Atatürk Üniversitesi Hemşirelik Yüksekokulu Dergisi*. 2003;6(3):64-76. [\[Crossref\]](#)
35. Muthukrishnan S, Jain R, Kohli S, Batra S. Effect of Mindfulness Meditation on Perceived Stress Scores and Autonomic Function Tests of Pregnant Indian Women. *J Clin Diagn Res*. 2016;10(4):CC05-8. [\[Crossref\]](#)
36. Birkan ZI. Müzikle tedavi, tarihi gelişimi ve uygulamaları. *Ankara Akupunktur ve Tamamlayıcı Tıp Dergisi* 2014;2(1):37-49. [\[Crossref\]](#)
37. Phumdoung S, Good M. Music reduces sensation and distress of labor pain. *Pain Manag Nurs*. 2003;4(2):54-61. [\[Crossref\]](#)
38. Brown ST, Douglas C, Flood LP. Women's Evaluation of Intrapartum Nonpharmacological Pain Relief Methods Used during Labor. *J Perinat Educ*. 2001;10(3):1-8. [\[Crossref\]](#)
39. Chang MY, Chen CH, Huang KF. Effects of music therapy on psychological health of women during pregnancy. *J Clin Nurs*. 2008;17(19):2580-2587. [\[Crossref\]](#)
40. Mohd Shukri NH, Wells J, Eaton S, Mukhtar F, Petelin A, Jenko-Pražnikar Z, et al. Randomized controlled trial investigating the effects of a breastfeeding relaxation intervention on maternal psychological state, breast milk outcomes, and infant behavior and growth. *Am J Clin Nutr*. 2019;110(1):121-130. [\[Crossref\]](#)
41. Çayır Y, Tanrıverdi EÇ. Kadın sağlığı ve hastalıklarında akupunktur. *Dicle Tıp Dergisi* 2022;49(1):256-263. [\[Crossref\]](#)
42. Skilnand E, Fossen D, Heiberg E. Acupuncture in the management of pain in labor. *Acta Obstet Gynecol Scand*. 2002;81(10):943-948. [\[Crossref\]](#)
43. Clark NA, Will MA, Moravek MB, Xu X, Fisseha S. Physician and patient use of and attitudes toward complementary and alternative medicine in the treatment of infertility. *Int J Gynaecol Obstet*. 2013;122(3):253-257. [\[Crossref\]](#)
44. Manheimer E, Zhang G, Udoff L, Haramati A, Langenberg P, Berman BM, et al. Effects of acupuncture on rates of pregnancy and livebirth among women undergoing in vitro fertilisation: Systematic review and meta-analysis. *BMJ*. 2008;336(7643):545-549. [\[Crossref\]](#)
45. Lee H, Ernst E. Acupuncture for labor pain management: A systematic review. *Am J Obstet Gynecol*. 2004;191(5):1573-1579. [\[Crossref\]](#)
46. Erdoğan Z, Çınar S. Reiki: an ancient healing art – modern nursing practice, *Kafkas J Med Sci*. 2011;1(2):86-91. [\[Crossref\]](#)
47. Whelan KM, Wishnia GS. Reiki therapy: the benefits to a nurse/ Reiki practitioner. *Holist Nurs Pract*. 2003;17(4):209-217. [\[Crossref\]](#)
48. Yeşil FM. "Reiki uygulamasının menopoz semptomlarına etkisi", Mersin Üniversitesi Sağlık Bilimleri Enstitüsü, Hemşirelik Anabilim Dalı, (Yüksek Lisans Tezi), Mersin. (2021). [\[Crossref\]](#)
49. Cleaveland MJ, Biester DJ. Alternative and complementary therapies: considerations for nursing practice. *J Pediatr Nurs*. 1995;10(2):121-123. [\[Crossref\]](#)
50. Taş F. "Dismenoreli adölesanlarda reiki uygulamasının ağrı, yorgunluk ve yaşam kalitesine etkisi", Erciyes Üniversitesi Sağlık Bilimleri Enstitüsü, Hemşirelik Anabilim Dalı, (Doktora Tezi), Kayseri. (2019). [\[Crossref\]](#)
51. Coban A, Sirin A. Effect of foot massage to decrease physiological lower leg oedema in late pregnancy: a randomized controlled trial in Turkey. *Int J Nurs Pract*. 2010;16(5):454-460. [\[Crossref\]](#)
52. Oskay YÜ, Şahin NH. Genç kızların premenstrüel sorunları. *Sağlık ve Toplum Ekim - Aralık* 2004;4:55-59. [\[Crossref\]](#)
53. Eguchi E, Funakubo N, Tomooka K, Ohira T, Ogino K, Tanigawa T. The Effects of Aroma Foot Massage on Blood Pressure and Anxiety in Japanese Community-Dwelling Men and Women: A Crossover Randomized Controlled Trial. *PLoS One*. 2016;11(3):e0151712. [\[Crossref\]](#)
54. Nesheim BI, Kinge R, Berg B, Alfredsson B, Allgot E, Hove G, Johnsen W, Jorsett I, Skei S, Solberg S. Acupuncture during labor can reduce the use of meperidine: a controlled clinical study. *Clin J Pain*. 2003;19(3):187-191. [\[Crossref\]](#)
55. Asheim V, Nilsen AB, Lukasse M, Reinart LM. Perineal techniques during the second stage of labour for reducing perineal trauma. *Cochrane Database Syst Rev*. 2011;(12):CD006672. [\[Crossref\]](#)
56. Erkek ZY, Pasinlioğlu T. Doğum ağrısında alternatif bir yöntem: Ayak refleksolojisi. *Hacettepe Üniversitesi Hemşirelik Fakültesi Dergisi*. 2017;4(1):53-61. [\[Crossref\]](#)
57. Bolsoy N, Şirin A. Perimenstrüel distresin hafifletilmesinde refleksolojinin etkinliğinin incelenmesi. *Adnan Menderes Üniversitesi Sağlık Bilimleri Fakültesi Dergisi*. 2020;4(2):124-143. [\[Crossref\]](#)
58. Köksoy S. Yataklı Sağlık Kuruluşlarında çalışan doktor, hemşire ve ebelerin tamamlayıcı ve alternatif tedavi yöntemlerini bilme ve kullanma durumları. Yüksek Lisans Tezi. Mersin Üniversitesi Sağlık Bilimleri Enstitüsü. Mersin. 2008;4-29. [\[Crossref\]](#)
59. Özdelikara A, Arslan B. Kemoterapiye bağlı bulantı-kusma yönetiminde tamamlayıcı ve alternatif tıp yöntemlerinin kullanımı. *Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi*. 2017;6(4):218-223. [\[Crossref\]](#)
60. Fischer S, Johnson PG. Therapeutic touch. A viable link to midwifery practice. *J Nurse Midwifery*. 1999;44(3):300-309. [\[Crossref\]](#)
61. Akköz Çevik S, Incedal İ. The effect of reflexology on labor pain, anxiety, labor duration, and birth satisfaction in primiparous pregnant women: a randomized controlled trial. *Health Care Women Int*. 2021;42(4-6):710-725. [\[Crossref\]](#)
62. Kadın Sağlığı ve Refleksoloji. http://www.psikoakademi.org/refleksoloji/onemliKo_nu2.php?konuId=64 <https://search.trdizin.gov.tr/yayin/detay/159525> (Erişim Tarihi: 02.02.2024). [\[Crossref\]](#)

63. Coakley AB, Duffy ME. The effect of therapeutic touch on postoperative patients. *J Holist Nurs.* 2010;28(3):193-200. [\[Crossref\]](#)
64. Pınar SE, Demirel G. The effect of therapeutic touch on labour pain, anxiety and childbirth attitude: A randomized controlled trial. *European Journal of Integrative Medicine.* 2021;41:101255. [\[Crossref\]](#)
65. Kaya Ş, Karakuş Z, Boz İ, Özer Z. Dünyada ve Türkiye'de tamamlayıcı terapilere ilişkin yasal düzenlemelerde hemşirelerin yeri. *Jaren.* 2020;6(3):584-591. [\[Crossref\]](#)



ORIGINAL ARTICLE

Art Activities Used by Mothers with Intellectually Disabled Children and Their Levels of Psychological Resilience: A Cross-sectional and Correlational Study

Zihinsel Engelli Çocuğu Olan Annelerin Kullandıkları Sanat Etkinlikleri ve Psikolojik Sağlamlık Düzeyleri: Kesitsel ve İlişkisel Bir Çalışma

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Abstract

Objective: Art activities are one of the essential methods used to strengthen the psychological resilience of individuals. This study aimed to determine the relationship between the artistic activity practices of mothers with intellectually disabled children and their psychological resilience levels.

Method: This study used a cross-sectional and correlational research design. Personal information forms containing questions about mothers' unique and artistic practices and adult resilience scale (ARS) were used in data collection. SPSS 25.0 program was used to evaluate the data. The resulting relationships were assessed by regression analysis.

Results: While 76.7% of mothers relax with the art activities they use, 62% practice art activity methods with their children. Too many mothers-73.6% of them cannot find enough time for themselves. Mothers' ARS scores were found to be high.

Conclusion: Most mothers are interested in art activities. Therefore, psychological resilience scores were also found to be high. While there was a positive and significant relationship between the mothers' ARS scores and their age, there was a meaningful negative relationship between the total number of mentally disabled children.

Keywords: Mothers with intellectually disabled children, art activities, psychological resilience

Öz

Amaç: Sanat etkinlikleri bireylerin psikolojik sağlamlıklarını güçlendirmek için kullanılan temel yöntemlerden biridir. Bu çalışmada zihinsel engelli çocuğa sahip annelerin sanatsal etkinlik uygulamaları ile psikolojik sağlamlık düzeyleri arasındaki ilişkinin belirlenmesi amaçlanmıştır.

Yöntem: Bu çalışmada kesitsel ve ilişkisel araştırma deseni kullanılmıştır. Verilerin toplanmasında annelerin özgün ve sanatsal uygulamalarına ilişkin sorular içeren kişisel bilgi formları ve yetişkin psikolojik sağlamlık ölçeği (YPSÖ) kullanılmıştır. Verilerin değerlendirilmesinde SPSS 25.0 programı kullanılmıştır. Elde edilen ilişkiler regresyon analizi ile değerlendirilmiştir.

Bulgular: Annelerin %76,7'si kullandıkları sanat etkinlikleri ile rahatlarken, %62'si sanat etkinliği yöntemlerini çocuklarıyla birlikte uygulamaktadır. Annelerin %73,6'sı kendilerine yeterince zaman ayıramamaktadır. Annelerin YPSÖ puanları yüksek bulunmuştur.

Sonuç: Annelerin çoğu sanat etkinliklerine ilgi duymaktadır. Bu nedenle psikolojik sağlamlık puanları da yüksek bulunmuştur. Annelerin YPSÖ puanları ile yaşları arasında pozitif ve anlamlı bir ilişki bulunurken, toplam zihinsel engelli çocuk sayısı arasında negatif yönde anlamlı bir ilişki bulunmuştur.

Anahtar Kelimeler: Zihinsel engelli çocuğa sahip anneler, sanat etkinlikleri, psikolojik dayanıklılık

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Received: October 06, 2023

Accepted: October 27, 2023

Cite this article as: Özsavran M, Kuzlu Ayyıldız T. Art Activities Used by Mothers with Intellectually Disabled Children and Their Levels of Psychological Resilience: A Cross-sectional and Correlational Study. *Mediterr Nurs Midwifery*. 2024; 4(2): 81-89



Introduction

The roles and responsibilities of mothers and other family members change with the new child joining the family. Learning that a mother will have a child with special needs causes her to experience complex and negative emotions at the same time (1). Considering the social roles, mothers are given more responsibility than other family members in children's care, protection, and social development. Therefore, this situation dramatically affects mothers (2,3).

Having a child with special needs brings responsibilities related to the child's daily care, along with the role of motherhood (4). From now on, the mother has isolated herself from her environment and begun to ignore her wishes. Influenced by other family members, she experiences guilt and stress more (5).

Mothers with special needs children sacrifice their lives for their children. They keep their attention on their children. Almost all of his daily time is spent with his child. Most of the time, they can't even take time for themselves to rest. They stay away from their friends and close circle. They have to stay away from social life and activities. If he has dreams, maybe he has to give up. They are assuming responsibility, which causes mothers to give up other roles and not even participate in social activities (6,7).

The fact that mothers with special needs children are too involved in the care of their children prevents them from devoting enough time to themselves and other responsibilities. It may cause the mother to neglect other typically developing children if any. Active participation in social activities and social life areas in their environment is gradually decreasing. While the social life and social movements of the mother, who takes care of the child and puts more effort into the child, reduce, she has difficulty fulfilling her other roles (8-10).

Stress, anxiety, and anxiety levels increase with the difficulty of caring for their children. Mothers experience anxiety and stress if they do not find an immediate and practical solution when faced with a problem. As a result, this situation will adversely affect psychological health (11). While this situation experienced by the mother, who spends all day with her child, negatively affects her emotional state, the feelings of stress and pessimism dominate (12). Providing psychological support to mothers with children with special needs is essential in giving their children the attention and love they need, coping with stress and stressors, and establishing healthy relationships (13,14).

Main Points

- It is important for mothers with intellectually disabled children to relax.
- Art activities should be used frequently to relax.
- Art activities strengthen psychological resilience.
- Mothers who relax with art activities communicate more calmly with their children.
- School nurses need to know these methods and use them frequently.

Art, the method by which individuals express themselves, is the way of expressing their feelings, thoughts, and ideas with the help of artistic expressions. There is psychological relief on this path. The materials used while doing this enable people to reflect on their stress, anxiety, negative emotions, positive emotions, or what they want to tell with the shapes and symbols they reveal through art (15).

Through art activities, individuals question themselves while expressing their feelings and thoughts. Psychological relief is provided. Acquires the ability to manage their behavior. Gains skills and develops self-confidence. Individuals provide satisfaction and relaxation by reducing stress and anxiety (16-18). Art, on the one hand, strengthens the therapeutic relationship; on the other hand, it provides the connection between conscious and unconscious processes (19).

Psychological resilience is the ability of a person to adapt successfully by overcoming these adversities under challenging conditions. Psychological resilience is a concept associated with positive adjustment, including risk, protective, and coping factors. Risk factors are individual or environmental characteristics that prevent an individual from adapting to the environment in which they live. On the other hand, protective factors mean that the individual can cope with the negative situations in which he is exposed to risky environments and adapt to experiences. Creative art has a healing and protective effect on the individual's spiritual, physical and mental health. It also increases psychological resilience and supports the power to cope with negative emotions (20,21).

As mothers express their negative feelings openly with the help of art activities and are understood and accepted, their psychological well-being will improve. Emotional and psychological relaxation and well-being can be enhanced when mothers with special needs children are supported and allowed to express their feelings and experiences in appropriate environments. The positive emotions arising from the creative process with art can strengthen their psychological resilience (22).

The aim of this study: This research was carried out to investigate the art activities and psychological resilience levels used by the mothers of intellectually disabled students who receive education in private schools at pre-school, primary, secondary, and high school levels in a province in the western Black Sea Region of Turkey. Considering the purpose of the research, answers were sought to the following questions:

(1) What are the personal characteristics of mothers with intellectually disabled children?

(2) What do mothers use the art activities with intellectually disabled children?

(3) Is there a statistically significant difference between the personal characteristics of mothers with intellectually disabled children and the mean scores of the psychological resilience scale?

(4) Is there a statistically significant difference between the artistic characteristics of mothers with intellectually disabled children and the mean scores of the psychological resilience scale?

Material and Method

Study Setting and Sample

This study was designed as a cross-sectional and correlational research. The research universe consisted of the mothers of 193 students educated in public schools providing special education at pre-school, primary, secondary, and high school levels in the province where the research was conducted in the 2021-2022 academic year. It educates students in all disability groups in schools where the research was conducted. The sample best reflects the different perspectives of the students' mothers in the intellectual disability groups. According to the formula used to calculate the sample size for a general population (<https://www.calculator.net/sample-size-calculator.html>), it was seen that 129 mothers would be sufficient for sampling. The study was carried out with 129 mothers who were informed about the purpose of the study and filled out the data collection forms completely. Inclusion criteria: (1) Being the mothers of students studying in public schools providing exceptional education in the 2021-2022 spring semester, (2) volunteering to participate, is (3) not having communication problems.

Data Collection

This study was carried out between 01 May 2022 and 30 June 2022 in a province in the western Black Sea region of Turkey, in the waiting rooms of the schools with the mothers of the students who were educated in private schools.

Data were collected face-to-face using the personal information form and the adult resilience scale (ARS). Before filling out the questionnaires and forms, in the informed consent form giving information about the purpose of the research, the mothers were informed that (1) the data collected in the study would only be used for scientific purposes, (2) there are no questions about obtaining the identity information of the respondent in the data collection forms, (3) it was stated that the participants could withdraw from the study if they wanted to after examining the questions in the data collection forms, (4) the study would not have any negative impact on the participants. Assurance has been given that all rights and information will be secured and kept. Informed consent was obtained from all mothers. After the mothers filled out this form, they moved on to filling out the questionnaire and scale used in the research.

Measurements

Personel Information Form

A questionnaire consisting of 13 questions in total was used. This questionnaire contains the participant's personal information (mother's age, the total number of children, number of disabled children, mother's education level, child's education level, etc.) and interest in art activities (practicing an art activity, participating in individual group activities, practicing an art activity with your child, etc.).

Adult Resilience Scale (ARS)

Based on the child and adolescent resilience scale, the adult version of the scale was developed by Arslan (23). High scores obtained from the scale are indicative of increased resilience. The scale has four subscales, which are relational resources, individual resources, cultural and contextual resources, and familial resources. The scale's internal consistency coefficient was found as 0.94, and test-retest coefficient was found to be 0.85 (23). In the present study, the Cronbach's alpha coefficient of the scale was determined as 0.96.

Statistical Analysis

Statistical Package for Social Sciences (SPSS) for Windows 25.0 package program was used in the evaluation of the data. The distribution of the data was analyzed with the Shapiro-Wilk test. Descriptive statistics of the data were given as mean \pm standard deviation, minimum-maximum and median values. Descriptive statistics of categorical variables were given as number (n) and percentage (%). The independent samples t-test was used to compare the differences between two independent groups with normal distribution. Measurement comparisons with normal distribution were tested using repeated measurements ANOVA three times. If there was a difference, Bonferreni's analysis was used to determine the measure that made a difference. Differences between the groups in categorical variables were examined with Pearson chi-square test. In order to identify the relationship between continuous variables, Pearson correlation analysis was performed for the data with normal distribution. The results were evaluated within a 95% confidence interval, and the level of statistical significance was accepted as a p-value smaller than 0.05.

Ethical Considerations

The research was conducted by the ethical standards outlined in the 1964 Declaration of Helsinki and subsequent amendments or comparable ethical standards. Ethical approval was obtained from a Zonguldak Bülent Ecevit University's Clinic Research Ethics Committee to conduct the study (date: 18.06.2021, no: 49782, protocol no: 235). Written permission was obtained from the schools where the research was conducted.

Results

It is seen that the mean age of the mothers is 40.68±7.709, 38% (n=49) are high school graduates, and according to family types, 89.1% (n=115) are in the nuclear family group, and the total number of children they have is 2.43±1.022. It is seen that the number of intellectually disabled children of mothers is 1.04±0.194; according to the gender of their children, 69.8% (n=90) are boys, and 35.7% (n=46) of the children are in primary school education (Table 1).

While 54.3% (n=70) of the mothers are interested in art activities, 58.9% (n=76) participate in individual or group art activities. While 76.7% (n=99) of mothers relax with the art activities, they use in their lives, 62% (n=80) apply art activity

methods with their children. 73.6% (n=95) of mothers feel they cannot spare enough time (Table 1).

It is seen that the art activities that mothers are most interested in are handcraft-knitting at 49%, sewing and embroidery at 38.8%, music at 30.6%, and drawing and painting at 18.4% (Table 2).

The total score of the mothers on the ARS was 82.65±18.61; the relational resources subscale score was 23.40±5.36; the individual resources subscale score was 20.27±4.90, the cultural and contextual resources subscale score was 19.71±4.80 and the familial resources subscale score was 19.26±4.87. It is seen that the psychological resilience levels of the mothers are higher compared to the total mean scores (Table 3).

Table 1.
Socio-demographic Characteristics of Mothers and Their Intellectually Disabled Children (n=129)

		Mean ± SD	Median (min-max)
Mother's age		40.68±7.709	40.00 (23-63)
Total number of children		2.43±1.022	2.00 (1-6)
Number of intellectually disabled children		1.04±0.194	1.00 (1-2)
		n	%
Mother education	Reader-writer	2	1.6
	Primary school	32	24.8
	Secondary school	25	19.4
	High school	49	38.0
	University	21	16.3
Education level of an intellectually disabled child	Pre-school	31	24.0
	Primary school	46	35.7
	Secondary school	43	33.3
	High school	9	7.0
Gender of the intellectually disabled child	Female	39	30.2
	Male	90	69.8
Family type	Nuclear family	115	89.1
	Extended family	10	7.8
	Single parent family	4	3.1
Engaging in art activities	Yes	70	54.3
	No	59	45.7
Participating in art activities	Yes	76	58.9
	No	53	41.1
Relaxation of art activities	Yes	99	76.7
	No	30	23.3
The state of applying an art activity with his child	Yes	80	62.0
	No	49	38.0
Having enough time for yourself	Yes	34	26.4
	No	95	73.6
Total		129	100

SD=standard deviation

It is seen that there is a statistically significant difference between the scores of the ARS according to the mothers' participation in individual or group art activities ($p < 0.05$). It is seen that the medians and average scores of those who answered yes to participation in individual or group art activities were higher than those who answered no (Table 4).

It is seen that there is a statistically significant difference between the scores of the adult psychological resilience scale according to the family type of the mothers ($p < 0.05$). As a result, it is seen that the psychological resilience scores of the mothers in the nuclear family group are higher than the mothers in the single-parent family group (Table 4).

It is seen that there is a statistically significant difference between the mothers' interest in art activities and their child's practice of art activities ($p < 0.05$). Fifty-two (74.3%) people interested in art activities practice an art activity with their children. It is seen that there is a statistically significant difference between the mother's interest in art activities and the situations in which the art activities they use in their lives relieve themselves ($p < 0.05$). The art activities used by 66 (94.3%) people interested in art activities relax them (Table 5).

While there is a positive and significant relationship ($r = 0.354$; $p = 0.000$) between mothers' ARS scores and their

ages, there is an important negative relationship ($r = -0.226$; $p = 0.010$) between the total number of intellectually disabled children (Table 6).

Table 2. Art Activities That Mothers are Interested in (n=129)*

		n	%
Art activities that mothers are interested in	Painting	21	16.3
	Dance-move	21	16.3
	Music	39	30.6
	Drawing/painting	24	18.4
	Mandala drawing and coloring	16	12.2
	Play game	21	16.3
	Cinema	16	12.2
	Film	24	18.4
	Rhythm keeping	5	4.1
	Theatre	3	2.0
	Coloring studies	18	14.3
	Handcrafted-knitting	63	49.0
	Sewing embroidery, fabric embroidery	50	38.8

*=the participants chose more than one option

Table 3. Mothers' Adult Resilience Scale Score Distribution (n=129)

	Mean ± SD	Median (min-max)
Total resilience	82.65±18.61	88.00 (21-105)
Relational resources subscale	23.40±5.36	25.00 (6-36)
Individual resources subscale	20.27±4.90	22.00 (5-25)
Cultural and contextual resources subscale	19.71±4.80	21.00 (5-25)
Familial resources subscale	19.26±4.87	20.00 (5-25)

Min=minimum, Max=maximum, SD=standard deviation

Table 4. ARS Score Distributions According to Some Personal Characteristics of Mothers (n=129)

		n	Median (min-max)	Mean ± SD	t/F	p	Bonferroni
Participating in art activities	Yes	76	88.500 (22-105)	85.07±17.47	32.444 ^a	0.000*	-
	No	53	83.000 (21-105)	79.18±19.78			
Family type	Nuclear family (1)	115	88.000 (21-105)	84.49±16.73	6.591 ^b	0.002*	1>3
	Extended family (2)	10	84.000 (28-97)	71.80±26.05			
	Single parent family (3)	4	55.500 (34-83)	57.00±26.67			

ARS=adult resilience scale, ^a=one sample t-test, ^b=One-Way ANOVA test (F), *= $p < 0.05$, Min=minimum, Max=maximum, SD=standard deviation

It is seen that the total number of children with special needs has a statistically significant and negative effect on ARS ($t=-2.613, p<0.05$). A 1-unit increase in the variable of the total number of children with special needs causes a 21.7 decrease in the ARS ($\beta=-21.700$). It is seen that 4.4% of the change in ARS was explained (Adjusted $R^2=0.044$) (Table 7).

The mothers' age has a statistically significant and positive effect on ARS ($t=4.259, p<0.05$). A 1-unit increase in the

maternal age variable causes an increase of 0.854 on the ARS ($\beta=0.854$). It is seen that 11.8% of the change in ARS was explained (Adjusted $R^2=0.118$) (Table 8).

Discussion

This research was conducted to investigate the art activities and psychological resilience levels of mothers with intellectually disabled children. Answers were given to the research questions asked for this purpose. In this study, it is

Table 5.
Comparison of Some Characteristics of Mothers with Their Interest in Art Activities (n=129)

	Engaging in art activities			
	Yes	No	Total	
Practice an art activity with your child	Yes	52 (74.3%)	18 (25.7%)	70 (100%)
	No	28 (47.5%)	31 (52.5%)	59 (100%)
	Total	80 (62.0%)	49 (38.0%)	129 (100%)
X ² ; p	9.782			0.002*
Relaxation of art activities	Yes	66 (94.3%)	4 (5.7%)	
	No	33 (55.9%)	26 (44.1%)	
	Total	99 (76.7%)	30 (23.3%)	
X ² ; p	26.387			0.000*

*= $p<0.05$, *=chi-square test

Table 6.
The Relationship Between the Mothers' ARS Scores and the Age of the Mother and the Total Number of Children with Intellectually Disabled

		Mother's age	Total number of intellectually disabled children
ARS	r p	0.354 0.000*	-0.226 0.010*

*= $p<0.05$, ARS=adult resilience scale

Table 7.
Simple Linear Regression Analysis Results to Explain the Effect of the Total Number of Intellectually Disabled Children on the ARS

Dependent variable	Independent variable	β	Standard error	Beta	t	p	F	Model (p)	Adj. R ²	Durbin Watson
ARS	Constant	105.200	8.773	-	11.991	0.000*	6.829	0.010*	0.044	2.079
	Total number of intellectually disabled children	-21.700	8.304	-0.226	-2.613	0.010*				

*= $p<0.05$, ARS=adult resilience scale

Table 8.
Simple Linear Regression Analysis Results to Explain the Effect of Maternal Age on ARS

Dependent variable	Independent variable	β	Standard error	Beta	t	p	F	Model (p)	Adj. R ²	Durbin Watson
ARS	Constant	47.906	8.297	-	5.778	0.000*	18.140	0.000*	0.118	2.263
	Mothers age	0.854	0.200	0.354	4.259	0.000*				

*= $p<0.05$, ARS=adult resilience scale

seen that the psychological resilience levels of the mothers are high. While there is a positive and significant relationship between the MPSQ scores of the mothers and their ages, there is a negative and significant relationship between the total number of children with intellectual disabilities. In the study conducted by Çulhacik et al. (24), psychological resilience levels of mothers with disabled children were found to be high. In the study conducted by Özsavran and Ayyıldız (25), mandala art therapy activity significantly increased the psychological resilience and comfort level of mothers with disabled children.

While 54.3% of the mothers are interested in art activities, 58.9% participate in individual or group art activities. With art-related activities, 76.7% of mothers find relaxation. Engaging in art activities also means applying one or another of the psychological relaxation methods. Therefore, in this research, "The art activities used by 66 (94.3%) people interested in art activities relax." finding has emerged. It is seen that the art activities that mothers are most interested in for this purpose are handcraft-knitting at 49%, sewing and embroidery at 38.8%, music at 30.6%, and drawing and painting at 18.4%. Many individual or group studies (26-29) show that mothers feel psychologically relieved when they are also interested in different art activities. It can be thought that participation in art activities increases the well-being of mothers by enabling them to socialize. In addition, it can be said that the ability of mothers participating in art activities to express themselves through art activities and to share their positive-negative feelings/experiences about the child's disability in these environments increases their psychological well-being.

With their children, 62% of the mothers participating taking part in the study practice art. In addition, 52 (74.3%) people interested in art activities practice at least one art activity with their child. Mothers who want to communicate effectively with their children and receive positive feedback from them should be warm, kind, and sincere in their interactions with their children. They do this through art activities. This way strengthens the bond between them. Positive mother-child relationships enhance the bond between mother and child and facilitate the connection (16,17,30). The research finding, which aligns with this approach, confirms the knowledge in the literature.

Mothers with disabled children have difficulty allocating private time for themselves due to the care of the disabled child, family-spouse relations, and housework (31). Mothers should participate in social or cultural activities like other individuals. She should be ensured to spend time with her friends or other family members (32). Mothers who are not interested in art or other activities and cannot find time to spare for them feel as alone as possible. As in many studies, 73.6% of mothers in this study feel they cannot spare enough time for themselves (31-33).

Protective factors in psychological resilience mean that the individual copes with the negative situations in which

he is exposed to risky environments and can adapt due to experiences (20). Mothers participating in this study live with various risk factors for their children. Mothers may use art activities without knowing it or perhaps knowingly. These practices have become a coping method for adaptation by increasing the psychological resilience level of mothers. Therefore, it is seen that the psychological resilience levels of the mothers are high compared to the total mean scores obtained from the ARS. Studies using art activities have also resulted in similar results to the research findings (24,34).

According to the family type of the mothers, it is seen that the psychological resilience scores of the mothers in the nuclear family group are several times higher than the mothers in the single-parent family group. She undertakes the mothers' daily housework and childcare routines for the disabled by herself. For this reason, it is seen that stress levels increase, fatigue levels increase, times feel weak growth, and all burdens are loaded alone. Accordingly, it is thought that the psychological resilience of single-parent families is lower than nuclear families (35,36).

Increasing the number of children is complex, even in families with typically developing children. The increased number of children with disabilities also means the burden on mothers, caregivers, or other family members will gradually increase. This leads mothers and other members towards an area where they will eventually limit themselves in social support, economic, group activities, or individual activities. The mother in distress will be unable to develop a protective factor (25). This will cause the psychological resilience of mothers to decrease. This is one of the findings of this study, "A 1-unit increase in the variable of the total number of children with special needs causes a 21.7 decrease in the ARS." supports I.

From the moment a disabled child is born into the family, the ability of mothers to cope with the problems experienced has been increasing over the years. In this process, many things are getting in order over the years, such as the child's adaptation, knowing and meeting the child's wishes, and a family management suitable for this process. Mothers' time spent with their children increases as time passes, their harmony with their children increases, how the time spent is determined over time, and as a result, a routine is established and accepted. In this process, they may have developed protective factors against risk factors in the face of difficulties. This may mean that their psychological resilience is getting stronger (24). This is the research finding, "A 1-unit increase in the maternal age variable causes an increase of 0.854 on the ARS" it explains the. As a result, The increase in the age of mothers means that their psychological resilience levels will be strengthened-increased.

Study Strengths

The strengths of the study are that it was conducted as it targeted groups that are positively discriminated in society, it was conducted with the participation of mothers. Art

methods, one of the areas where mothers, who are known to be most interested in children with special needs, can raise awareness in their lives, were revealed.

Study Limitations

Including education schools affiliated with national education and not including private education and rehabilitation centers limited the sample. The results of this study cannot be generalized to all mothers with intellectually disabled children. It can be recommended to be done in a larger population.

Conclusion

In this study, it was found that the psychological resilience levels of mothers were high. While there is a positive and significant relationship between the ARS scores of the mothers and their ages, there is a negative significant relationship between the total number of mentally disabled children.

Recommendations

Mothers with disabled children go to school with their children. They accompany them to school. Mothers can also spend time in a waiting room or activity workshop in schools where their children are educated. Mothers can be allowed to do art activities in these workshops. Such areas can be expanded in schools. In these areas, mandala work, painting work, handicraft sewing and embroidery work, marbling art, dance and music activities etc. can be done.

These areas to be opened within the particular education school will become areas for mothers to strengthen their psychological resilience. Supporting mothers in this way will improve the interaction with the child. Improving child-mother interaction will mean other family members spend the day with more positive emotions. It will also enable these mothers who feel lonely to come together with other mothers who share the same feelings and to share their feelings.

As a result of this research, it has been revealed that mothers who are interested in art activities will be psychologically relieved, and their psychological resilience will be strengthened. Accordingly, randomized controlled studies can be conducted with mothers with intellectually disabled children using art therapy methods and activities.

Ethics Committee Approval: Ethical approval was obtained from a Zonguldak Bülent Ecevit University's Clinic Research Ethics Committee to conduct the study (date: 18.06.2021, no: 49782, protocol no: 235).

Informed Consent: Written permission was obtained from the schools where the research was conducted.

Author Contributions: Conception – M.Ö., T.K.A.; Design – M.Ö., T.K.A.; Data Collection and/or Processing – M.Ö.; Analysis

and/or Interpretation – M.Ö., T.K.A.; Literature Review – M.Ö., T.K.A.; Writing – M.Ö., T.K.A.

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. Akkök F. Farklı Özelliğe sahip çocuk aileleri ve ailelerle yapılan çalışmalar: Özel Eğitime Giriş. Gündüz Eğitim ve Yayıncılık, Ankara, Türkiye, 2013. [Crossref]
2. Akandere M, Acar M, Baştuğ G. Investigating the hopelessness and life satisfaction levels of the parents with mental disabled child. The Journal of Selcuk University Social Sciences Institute. 2009;22:23-32. [Crossref]
3. Metin Karaaslan M, Çelebioğlu A. Evaluation of the psychological condition and caregiver burden of parents who have children with mental disabilities. Researcher: Social Science Studies. 2018;6(2):188-200. [Crossref]
4. Varghese RT, Venkatesan SA. A Comparative study of maternal burnout in autism and hearing impairment. International Journal of Psychology and Psychiatry. 2013;1(2):101-108. [Crossref]
5. Karakus O, Kırloğlu M. Life Experiences of Having A Disabled Child: A Qualitative Research On Mothers. The Journal of Selcuk University Social Sciences Institute. 2019;41:96-112. [Crossref]
6. Marcenko MO, Meyers JC. Mothers of children with developmental disabilities: Who shares the burden? Family Relations. 1991;40:186-190. [Crossref]
7. Cangur S, Civan G, Coban S, Koç M, Karakoç H, Budak S, et al. Comparative assessment of social life participation of families which have physically and/or mentally handicapped individual. Journal of Duzce University Health Sciences Institute. 2013;3(3):1-9. [Crossref]
8. Sivrikaya T, Çifci Tekinarslan İ. Zihinsel Yetersizliği Olan Çocuğa Sahip Annelerde Stres, Sosyal Destek ve Aile Yükü (Turkish). Ankara Üniversitesi Eğitim Bilimleri Fakültesi Özel Eğitim Dergisi. 2013;14(2):17-29. [Crossref]
9. Önder M, Karabulut A. Determining the needs of mothers with at least three intellectual disabled children. European Journal of Special Education Research. 2017;2(6):204-232. [Crossref]
10. Atila Demir S, Keskin G. The challenges that mothers of mentally handicapped children are facing with-A qualitative research. The Journal of Academic Social Science Studies. 2018;66:357-372. [Crossref]
11. Murphy NA, Christian B, Caplin DA, Young PC. The health of caregivers for children with disabilities: caregiver perspectives. Child Care Health Dev. 2007;33(2):180-187. [Crossref]
12. Yuksel H, Tanrıverdi A. Social problems and coping mechanisms in families of children with special needs. Ankara University Faculty of Educational Sciences Journal of Special Education. 2019;20:535-559. [Crossref]
13. Özokçu O, Canpolat M. The effect of a group guidance program on the stress levels of mothers who have children with mental disabled. Mustafa Kemal University Journal of Social Sciences Institute. 2013;10(24):181-196. [Crossref]
14. Çiftçi Arıdağ N, Erbiçer ES. Grupla Psikolojik Danışma Uygulamasının Özel Gereksinimli Çocuğu Olan Annelerin Kaygı Düzeyleri ve Yaşam Doyumları Üzerindeki Etkisinin İncelenmesi (Turkish). Ankara Üniversitesi Eğitim Bilimleri Fakültesi Özel Eğitim Dergisi. 2018;19(2):257-275. [Crossref]
15. Bostancıoğlu B, Kahraman ME. Art therapy method and techniques health - Effects on improvement power, Beykoz Akademi Dergisi. 2017;5(2):150-162. [Crossref]

16. Capacchione L. Sanat Terapisiyle İyileşmek. Kaknüs Yayınları, İstanbul, Türkiye, 2012. [\[Crossref\]](#)
17. Aydın B. Medical art therapy. Current Approaches in Psychiatry. 2012;4(1):69-83. [\[Crossref\]](#)
18. Öz Çelikbaş E. Expressive art therapy. Saffron Journal of Culture and Tourism Research. 2019;2(1):20-37. [\[Crossref\]](#)
19. Demir V, Yıldırım B. The Effectiveness of art therapy program on depression, anxiety and stress levels of students preparing for university exam. Ege Journal of Education. 2017;18(1):311-344. [\[Crossref\]](#)
20. Gizir C. A Literature review of studies on resilience, risk, and protective factors. The Turkish Psychological Counseling and Guidance Journal. 2007;3(28):113-128. [\[Crossref\]](#)
21. Leckey J. The therapeutic effectiveness of creative activities on mental well-being: A systematic review of the literature. Journal of Psychiatric and Mental Health Nursing. 2011;18(6):501-509. [\[Crossref\]](#)
22. Betts D, Deaver S. Art therapy research: A practical guide, Routledge Oxon, New York, 2019. [\[Crossref\]](#)
23. Arslan G. Psychometric properties of Adult Resilience Measure (ARM): The study of reliability and validity. Ege Journal of Education. 2015;16(2):344-357. [\[Crossref\]](#)
24. Çulhacik GD, Durat G, Eren N. Effects of activity groups, in which art activities are used, on resilience and related factors in families with disabled children. Perspectives in Psychiatric Care. 2021;57(1):343-350. [\[Crossref\]](#)
25. Özsavran M, Ayyıldız TK. The effect of mandala art therapy on the comfort and resilience levels of mothers who have children with special needs: A randomized controlled study. Child Care Health Dev. 2023;49(6):1032-1045. [\[Crossref\]](#)
26. Kaimal G, Ray K, Muniz J. Reduction of Cortisol Levels and Participants' Responses Following Art Making. Art Ther (Alex). 2016;33(2):74-80. [\[Crossref\]](#)
27. Lee EH, Choi EY. The effects of group art therapy for enhancing happiness for mothers of children with disabled. Korean Journal of Art Therapy. 2012;19(4):809-836. [\[Crossref\]](#)
28. Cross G, Brown PM. A comparison of the positive effects of structured and nonstructured art activities. Art Therapy. 2019;36(1):22-29. [\[Crossref\]](#)
29. Lee JH. Effectiveness of group art therapy for mothers of children with disabilities. The Arts in Psychotherapy. 2021;73(3):101754. [\[Crossref\]](#)
30. Lee SL, Peng MSC. The effects of group art therapy on mothers of children with special educational needs. Art Therapy. 2017;34(1):12-19. [\[Crossref\]](#)
31. Ersoy AF, Bulus S. Burnout in mothers with disabled children: A qualitative research. Turkish Journal of Social Research. 2019;23(3):764-781. [\[Crossref\]](#)
32. Hazar Z, Ayhan AB. Examination of the experiences of mother with mentally disorder children in adolescence. International Journal of Human Studies. 2022;5(9):215-238. [\[Crossref\]](#)
33. Balcı S, Kızıl H, Savaşer S, Dur Ş, Mutlu B. Determining the burdens and difficulties faced by families with intellectually disabled children. Journal of Psychiatric Nursing. 2019;10(2):124-130. [\[Crossref\]](#)
34. Kara A, Yıldırım F. The relationship between the paternal participation and psychological resilience of mothers in children with particular mental needs. Perspectives in Psychiatric Care. 2021;57(4):1812-1819. [\[Crossref\]](#)
35. Di Giulio P, Philipov D, Jaschinski I. Families with disabled children in different european countries. Families and Societies. 2014;23:1-47. [\[Crossref\]](#)
36. Özer AG, Öztürk M. The new social risk group: Single parent families and their problems. International Journal of Innovative Approaches in Social Sciences. 2022;6(2):222-237. [\[Crossref\]](#)



ORIGINAL ARTICLE

Investigation of Patient Opinions on Nurses' Hand Hygiene, the Use of Gloves and Antiseptic

Hemşirelerin El Hijyeni, Eldiven Giyme ve Antiseptik Kullanımına İlişkin Hasta Görüşlerinin İncelenmesi

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Abstract

Objective: The research was conducted to determine the opinions of patients hospitalized in a state hospital regarding hand hygiene, use of gloves and antiseptics.

Method: The population of this descriptive study consists of all patients hospitalized in the internal and surgical clinics of a state hospital. The study was conducted with 152 patients who volunteered to participate in the study between May and July 2018. An introductory questionnaire created by the researcher was used to collect the data. The data were evaluated with the SPSS program. Chi-square test was used to compare categorical variables among descriptive statistics.

Results: According to the findings of the study, 75% of the patients pay attention to hand hygiene, 66.4% of nurses use gloves during blood pressure measurement, 52% of nurses do not change gloves when transitioning from one patient to another, and 94.7% of nurses use gloves while administering medication. Regarding the use of antiseptics, 64.5% of the patients stated that the nurses did not use antiseptic when leaving the room. Additionally, a statistically significant difference was found between the education level of the patients and their hand hygiene education ($p < 0.05$).

Conclusion: As a result of the research, it was determined that the patients were making erroneous practices related to the use of gloves and antiseptics, despite the nurses expressing that they paid attention to hand hygiene. It is recommended to conduct observational studies on hand hygiene, use of gloves and antiseptics among nurses, and to provide regular training and inspections on this subject.

Keywords: Antiseptic use, hand hygiene, gloves use, patient safety, nurse

Öz

Amaç: Araştırma, bir devlet hastanesinde yatan hastaların el hijyenine, eldiven ve antiseptik kullanımına yönelik görüşlerinin belirlenmesi amacıyla yapılmıştır.

Yöntem: Tanımlayıcı ve kesitsel türdeki bu araştırmanın evrenini bir devlet hastanesinin dahili ve cerrahi kliniklerinde yatan tüm hastalar oluşturmaktadır. Araştırma Mayıs-Temmuz 2018 tarihleri arasında araştırmaya katılmaya gönüllü 152 hasta ile yürütülmüştür. Verilerin toplanmasında araştırmacı tarafından oluşturulan tanıtıcı soru formu kullanılmıştır. Veriler SPSS programı ile değerlendirilmiştir. Tanımlayıcı istatistikler arasında kategorik değişkenlerin karşılaştırılmasında ki-kare testi kullanılmıştır.

Bulgular: Araştırmanın bulgularına göre hastaların %75'i hemşirelerin el hijyenine dikkat ettiğini, %66,4'ü hemşirelerin tansiyon ölçümü sırasında eldiven kullandığını, %52'si hemşirelerin bir hastadan başka bir hastaya geçerken eldiven değiştirmedeğini, %94,7'si hemşirelerin ilaç uygulamalarında eldiven kullandığını belirtmiştir. Antiseptik kullanımına yönelik olarak da hastaların %64,5'i hemşirelerin odadan çıkarken antiseptik kullanmadığını ifade etmiştir. Ayrıca hastaların eğitim durumu ile el hijyeni eğitimi alma durumları arasında istatistiksel olarak anlamlı bir fark bulunmuştur ($p < 0,05$).

Sonuç: Araştırma sonucunda hastalar, hemşirelerin el hijyenine dikkat ettiklerini ifade etmelerine karşı eldiven ve antiseptik kullanımı ile ilgili hatalı uygulamalar yaptıkları belirlenmiştir. El hijyenine, eldiven ve antiseptik kullanımına yönelik hemşireler üzerinde gözlemsel çalışmaların yapılması ve bu konuda düzenli eğitimlerin verilmesi ve denetimlerin yapılması önerilmektedir.

Anahtar Kelimeler: Antiseptik kullanımı, el hijyeni, eldiven kullanımı, hasta güvenliği, hemşire

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Received: October 09, 2023

Accepted: November 16, 2023

Cite this article as: Barış Eren N. Investigation of Patient Opinions on Nurses' Hand Hygiene, the Use of Gloves and Antiseptic. Mediterr Nurs Midwifery. 2024; 4(2): 90-95



Introduction

Healthcare-associated infections are infections that occur during or after healthcare delivery to patients in hospitals and other healthcare settings. These infections are either not present at the time of admission or not in the incubation process. They have a negative impact on the patient's quality of life, leading to increased costs and higher morbidity and mortality rates (1).

Studies have shown that healthcare workers, particularly nurses, play a primary role in the spread of microorganisms. Nurses, being numerous in the healthcare team and constantly at the bedside, need to be cautious about healthcare-associated infections (2). Nurses, who can be a source of infectious agents, can contribute to the development of infection chains. Therefore, it is the responsibility of nurses to break the chain of infection, which can only be achieved through proper hand hygiene and the use of gloves and antiseptics.

Among the measures for infection control, hand hygiene is considered the most reliable and cost-effective measure (3). In 2009, the World Health Organization (WHO) outlined five indications for hand hygiene in the context of patient safety: 1. Before touching the patient. 2. Before performing aseptic procedures. 3. After being exposed to body fluids. 4. After touching the patient. 5. After touching surfaces related to the patient (4).

Recommendations for hand hygiene, glove use, and antiseptic use, based on the guidance of the center for disease control and prevention, are provided below along with the corresponding evidence levels (3,5). If hands are visibly contaminated with blood or body fluids, they should be washed with water and liquid or antimicrobial soap (Evidence Level IA). During hand hygiene, hands should be wetted with water, the recommended amount of soap should be applied, and hands should be vigorously rubbed for at least 15 seconds to cover all surfaces of the hands and fingers. Then, hands should be rinsed with water and dried with paper towels. Paper towels should also be used to turn off the tap (Evidence Level IB).

If hands are not visibly contaminated, alcohol-based antiseptic should be used (Evidence Level IA). Three milliliters of antiseptic should be applied to the hands (6). The hands should be rubbed until the antiseptic dries (Evidence Level IB). If alcohol-based antiseptic is

not available, hands should be washed with water and antimicrobial soap (Evidence Level IB).

Gloves should be worn when there is a risk of contact with blood and body fluids (Evidence Level IC). Gloves should be worn on both hands and removed after use. The same gloves should not be used when moving from one patient to another. Gloves should not be washed (Evidence Level IB).

Hand hygiene should be performed after removing gloves (Evidence Level IB) as contamination can occur during glove removal.

It can be seen that evidence-based practices protect both themselves and the patients and their relatives for whom they are responsible (7). Therefore, it is crucial for patients and their relatives to understand that hand hygiene practices are essential for safe care. The WHO Guide on Hand Hygiene in Healthcare encourages healthcare professionals, patients, and their families to work together to promote hand hygiene practices in healthcare (8).

In 2020, WHO published an action plan titled "Global Patient Safety Action Plan 2021-2030" for patient safety at a global level. As part of this plan, "Strategic Goal 4: Patient and family participation" is one of the strategic goals and objectives to be achieved between 2021 and 2030 (9). WHO has designated the theme for World Patient Safety Day 2023 as "Ensuring the participation of patients for patient safety" (10).

When examining the literature, it is evident that there are limited studies on patient opinions regarding hand hygiene (11,12) and glove use (13). Furthermore, no studies have been found that evaluate patient opinions regarding hand hygiene, glove use, and the use of antiseptics.

The research was conducted to determine the opinions of patients hospitalized in a state hospital regarding hand hygiene, the use of gloves and antiseptics. The study aimed to answer the following research questions:

- 1) What are patients' opinions about nurses' hand hygiene?
- 2) What are patients' opinions regarding nurses' use of gloves?
- 3) What are patients' opinions on nurses' use of antiseptics?

Material and Method

This descriptive and cross-sectional research was conducted in the internal and surgical clinics of a public hospital between May and July 2018. In the research (n=325), it aims to reach the entire universe. The sample of the study consisted of 115 volunteer patients, aged 18 and over, who were conscious and hospitalized for at least 3 days at the time the data were collected. The data collection involved the use of an Introductory questionnaire created

Main Points

- In Turkey, there is limited research on patient opinions regarding hand hygiene and glove use. This study aimed to evaluate patient opinions on hand hygiene, glove use, and antiseptics together for the first time.
- The findings of this study showed that while patients acknowledged that nurses paid attention to hand hygiene, there were errors in the practice of using gloves and antiseptics.
- The study highlighted the necessity of regular theoretical and practical training for nurses on hand hygiene, glove use, and antiseptics, as well as the importance of frequent inspections in practice areas.

by the researcher, in line with the literature (11-13). This questionnaire consisted of 13 questions and was used to evaluate the socio-demographic characteristics of the patients and the opinions of the patients on nurses' hand hygiene, the use of gloves and antiseptic.

Statistical Analysis

In this study, statistical analyzes were performed using the SPSS (version 21.0) package program. The normality distribution was examined using the skewness and kurtosis values (-2 and +2) and the distribution was found to be normal. Descriptive statistics are presented as numbers and percentages for demographic and other categorical variables obtained through the survey. Age, as a continuous variable, is presented as mean \pm standard deviation based on distribution assumptions. Relationships between numerical variables were evaluated using Pearson coefficients and relationships between categorical variables were evaluated using the chi-square test. $P < 0.05$ was accepted as the level of statistical significance.

Ethical Aspect of Research

The necessary ethical committee permission to conduct the research was obtained from the Hitit University Non-Interventional Ethics Committee with a letter dated 28.03.2018 and numbered 2018-45. Additionally, permission was obtained from the institution where the study would be conducted. Before the research began, the purpose of the study was explained to the patients and informed consent was obtained from those who wanted to participate.

Results

The number and percentage values of the age, education level, marital status and gender variables of the patients participating in the study and the arithmetic mean and standard deviation of the age value are given in Table 1.

Table 1 shows that the average age of the patients participating in the study was 46.4 ± 18.6 years old, 26.3% of the patients were 30 years old and under, while another 26.3% were 61 years old and over. The majority of patients were high school graduates (42.1%), male (52.0%) and married (70.4%).

Table 2 presents the patient opinions regarding hand hygiene and the use of gloves and antiseptics. 75% of the patients stated that nurses pay attention to hand hygiene. When it comes to the use of gloves by nurses, 66.4% of the patients stated that nurses used gloves when measuring blood pressure, and 94.7% stated that nurses used gloves when administering medications. However, 52% of the patients stated that nurses did not change gloves when transferring from one patient to another. Most of the patients (85.5%) stated that they felt valued when nurses used gloves during practices. Regarding the use of antiseptics, 64.5% of patients stated that nurses did not use hand antiseptic when leaving the room.

Table 3 shows the distribution of paying attention to hand hygiene and using gloves in order to make patients feel safe.

Table 1.
Descriptive Characteristics of the Patients (n=152)

	n	%	Mean \pm SD (min-max)
Age (years)			46.4 \pm 18.6 (18-86)
<30	40	26.3	
31-45	34	22.4	
46-60	38	25.0	
>61	40	26.3	
Educational background			
Primary school	51	33.6	
High school	64	42.1	
Associate	14	9.2	
Undergraduate	23	15.1	
Marital status			
Married	107	70.4	
Single	45	29.6	
Gender			
Female	73	48.0	
Male	79	52.0	

SD=standard deviation

Table 2.
Patient Opinions on Nurses' Hand Hygiene, the Use of Gloves and Antiseptic (n=152)

Propositions	Yes		No	
	n	%	n	%
Do you think nurses pay attention to hand hygiene?	114	75.0	38	25.0
Do nurses use gloves when measuring blood pressure?	101	66.4	51	33.6
Do nurses use gloves when administering medication?	144	94.7	8	5.3
Do nurses change gloves when moving from you to another patient?	73	48.0	79	52.0
Do you feel valued when nurses use gloves when performing a procedure on you (administering medication, etc.)?	130	85.5	22	14.5
Do nurses use hand antiseptic when leaving the room?	54	35.5	98	64.5

It was found that paying attention to hand hygiene and the use of gloves made 38.2% of the patients feel safe, while 36.2% felt very safe.

There was no statistically significant difference between the descriptive characteristics of the patients, such as age, gender, education level and marital status, and frequent hand washing ($p>0.05$). However, while there was no significant relationship between the patients' age, gender, marital status and their status of receiving hand hygiene training, a statistically significant difference was found between the patients' educational status and their status of receiving hand hygiene training ($p<0.05$). Patients with

a lower education level had a higher level of hand hygiene training, as shown in Table 4.

Discussion

In this descriptive and cross-sectional study, conducted to determine patient opinions regarding hand hygiene, the use of gloves and antiseptics in a public hospital, 152 patients were reached. It was found that the average age of the patients was 46.4 ± 18.6 years old, 26.3% were 30 years old and under, while 26.3% were 61 years old and over. The majority of patients were high school graduates, male, and married.

In our research, 75% of the patients stated that nurses pay attention to hand hygiene. This finding is supported by studies conducted on nurses. Dönmez (14) found that 98.5% of nurses provided hand hygiene in the right situations and received training on infection control measures. Karabulut Çetin and Aygin (15) observed that nurses developed positive behavior regarding hand hygiene with training. However, Sarı and Kılıç's (16) study found that the rate of hand hygiene and glove use was statistically lower in nurses compared to physicians. Unlike our study, data obtained from 16 studies were evaluated in a systematic review conducted by Bilgehan et al. (2). The review determined that nurses had sufficient knowledge about hand washing

Table 3.
Patients' Levels of Feeling Safe (n=152)

	n	%
Doesn't feel safe at all	1	0.7
Doesn't feel safe	7	4.6
It feels less safe	8	5.3
I'm undecided	23	15.1
It feels safe	58	38.2
It feels so safe	55	36.2

Table 4.
Distribution of Patients' Descriptive Characteristics According to Whether They Wash Their Hands Frequently and Receive Hand Hygiene Training

	I often wash my hands					I received hand hygiene training				
	Yes		No		X ² ; p	Yes		No		X ² ; p
	n	%	n	%		n	%	n	%	
Age (years)										
<30	32	25.4	8	30.8	1.203; 0.752	11	25.0	29	26.9	0.899; 0.826
31-45	30	23.8	4	15.4		8	18.2	26	24.1	
46-60	32	25.4	6	23.1		12	27.3	26	24.1	
>61	32	25.4	8	30.8		13	29.5	27	25.0	
Gender										
Female	62	49.2	11	42.3	0.411; 0.521	19	43.2	54	50.0	0.582; 0.445
Male	64	50.8	15	57.7		25	56.8	54	50.0	
Educational background										
Primary school	40	31.7	11	42.3	2.966; 0.397	15	34	36	33.3	8.446; 0.038*
High school	52	41.3	12	46.2		15	34	49	45.4	
Associate	13	10.3	1	3.8		2	4.8	12	11.1	
Undergraduate	21	16.7	2	7.7		12	27.2	11	10.2	
Marital status										
Married	88	69.8	19	73.1	0.108; 0.742	32	72.7	75	69.4	0.162; 0.688
Single	38	30.2	7	26.9		12	27.3	33	30.6	

X²=chi-square, *=p<0.05

habits, behavior and attitude, but they had deficiencies in practice (2). Another study by Bülbül Maraş et al. (11), found that 97% of patients and patient relatives believed that the handwashing behavior of nurses and doctors is important in preventing hospital infections. Additionally, 78.4% of patients and patient relatives stated that knowing the healthcare worker's hand hygiene status before contact would be very comforting for them. Furthermore, 64.1% of patients and patient relatives expressed their desire to remind those who did not practice hand hygiene (11). These findings align with our study and highlight the importance of maintaining hygiene for patients, influencing their choice of hospitals, doctors and nurses (11,12).

In our research, 66.4% of the patients reported that nurses use gloves when measuring blood pressure. A similar study conducted by Bulut et al. (13) found that 90.5% of the patients reported nurses using gloves during blood pressure measurement. According to the literature, gloves are worn during blood pressure measurement if there is a risk of contact with blood and body fluids, in order to prevent this contact. It is stated that there is no need to use gloves in blood pressure measurement if there is no contact with blood and body fluids (17). The reason for using gloves in blood pressure measurement may be to protect oneself against the risk of infection or to follow the example of a colleague who uses gloves for this purpose.

In our research, 94.7% of the patients stated that nurses use gloves when administering medications. Gloves should be worn in situations where there is a risk of contact with blood and body fluids, such as administering injections and intravenous drug administration (3,5,18,19). In a study conducted by Bulut et al. (13), 95.8% of the patients stated that gloves were used in drug administration, which aligns with our findings.

In our research, 52% of the patients stated that nurses did not change gloves when transferring from one patient to another. Similarly, in the study conducted by Bulut et al. (13), 56% of the patients stated that different patients were given care with the same gloves and they felt uncomfortable with this situation. Gloves serve as a barrier against the transmission of microorganisms (1). However, when not used correctly, as seen in our study, they can contribute to the spread of microorganisms. Therefore, it is important to avoid using the same glove on multiple patients (1,3,5). Using the same gloves on different patients can lead to cross-infection and further spread the chain of infection. The reasons why nurses may use the same gloves on multiple patients in our research could be attributed to time constraints, indifference, lack of knowledge, or the misconception of self-protection from infection.

In our research, the majority of the patients (85.5%) stated that they felt valued when nurses used gloves during procedures. Similarly, in the study conducted by Bulut et al. (13) 28.6% of the patients stated that they felt worthless if gloves were not used. This finding suggests that patients feel valuable towards nurses who care about patient safety.

In our research, 64.5% of the patients stated that nurses did not use hand antiseptics when leaving the room. According to the literature, hand antiseptics should be used before leaving the patient's room for infection control (19). In contrast to our study, a study conducted by Dönmez (14) found a high rate of hand antiseptic usage among nurses. The low rate of nurses using hand antiseptics when leaving the room in our research may be due to hand irritation caused by antiseptics, time constraints (20), or a lack of habit in using antiseptics.

In our research, it was found that nurses' attention to hand hygiene and the use of gloves made 38.2% of the patients feel safe, and 36.2% felt very safe. Prioritizing hand hygiene and using gloves in nursing practices play a crucial role in protecting patients from infectious diseases, contributing to their sense of safety. A study conducted by Tünay (21) found that nurses had a higher compliance rate with isolation measures compared to physicians. Hand hygiene and glove usage are important components of isolation measures.

No statistically significant difference was found between the descriptive characteristics of the patients, such as age, gender, education level, and marital status, and the frequency of hand washing in our study. However, other studies have shown that various factors influence the frequency of hand washing. For example, a study conducted by Bülbül Maraş et al. (11) revealed that the frequency of hand washing increased among patients and their relatives in the hospital environment. According to the study by Knighton et al. (22), 29.9% of patients did not wash their hands at all, and 35.5% stated that they washed their hands 1-2 times a day. When comparing hand washing at home to hand washing in the hospital, 46.7% expressed dissatisfaction with hand washing in the hospital. Patients also considered it more important for healthcare professionals to ensure hand hygiene (22). Another study by Sevgi Doğan et al. (23) found that individuals with chronic diseases had inadequate hand washing habits after contact with others.

While no significant relationship was found between the patients' age, gender, marital status, and their receipt of hand hygiene training, a statistically significant difference was found between the patients' educational status and their receipt of hand hygiene training. Patients with a lower education level were found to have a higher level of hand hygiene training. This finding suggests that patients with lower education levels are more motivated to improve their hand hygiene practices. In contrast to our study, a systematic review by Hammoud et al. (24) evaluated the education of hospitalized patients regarding infection control measures and found a low rate of patient education. It was emphasized that patients should be included in infection control efforts. Additionally, a study by Srigley et al. (25) revealed that 55.1% of patients were informed about the importance of hand hygiene by healthcare professionals during their hospital stay.

Conclusion

In our study, it was observed that although the patients stated that the nurses paid attention to hand hygiene, there were practice errors regarding the use of gloves and antiseptics. Nurses should not be allowed to pass from patient to patient using the same gloves, as this does not provide adequate hand hygiene. Additionally, they should use hand antiseptic when leaving the patient's room. It is recommended that nurses receive regular theoretical and practical training on hand hygiene, the use of gloves, and antiseptics, as well as frequent inspections in practice areas. This will help them develop the habit of providing correct hand hygiene and using gloves and antiseptics. Furthermore, conducting observational studies on nurses regarding hand hygiene and the use of gloves and antiseptics may help increase awareness on this issue. On the other hand, there is a limited amount of research on the opinions of patients and their relatives receiving healthcare services. Therefore, there is a need to conduct more studies in this field.

Ethics Committee Approval: The necessary ethical committee permission to conduct the research was obtained from the Hitit University Non-Interventional Ethics Committee with a letter dated 28.03.2018 and numbered 2018-45.

Informed Consent: Before the research began, the purpose of the study was explained to the patients and informed consent was obtained from those who wanted to participate.

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

References

1. Akbıyık A. Infection Prevention and Control Practices. Kara Kaşıkçı M, Akın E. editors. Basic Nursing Fundamentals, Concepts, Principles, Practices. 1st Edition. Istanbul: Istanbul Medical Bookstores. 2021;288-320. [\[Crossref\]](#)
2. Bilgehan T, Koç A, İnkaya B. Hand Washing Habits of Nurses in Turkey, Which Evaluation of Behavior and Attitudes Study: A Systematic Review. KTO Karatay University Journal of Health Sciences. 2021;2(2):2-14. [\[Crossref\]](#)
3. Turkish Hospital Infections and Control Association. Hand Hygiene Guide. 2008. <https://www.hider.org.tr/> [\[Crossref\]](#)
4. World Health Organization (WHO). WHO Guidelines on Hand Hygiene in Health Care First Global Patient Safety Challenge Clean Care is Safer Care. 2009. [\[Crossref\]](#)
5. Boyce JM, Pittet D; Healthcare Infection Control Practices Advisory Committee. Society for Healthcare Epidemiology of America. Association for Professionals in Infection Control. Infectious Diseases Society of America. Hand Hygiene Task Force. Guideline for Hand Hygiene in Health-Care Settings: recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. Infect Control Hosp Epidemiol. 2002;23(12 Suppl):S3-S40. [\[Crossref\]](#)
6. Voniatis C, Bánsághi S, Ferencz A, Haidegger T. A large-scale investigation of alcohol-based handrub (ABHR) volume: hand coverage correlations utilizing an innovative quantitative evaluation system. Antimicrob Resist Infect Control. 2021;10(1):49. [\[Crossref\]](#)
7. Acun A, Bayrak Kahraman B. The Coronavirus Disease 2019 Pandemic Process and Hand Hygiene. J Educ Res Nurs. 2021;18(2):202-205. [\[Crossref\]](#)
8. World Alliance for Patient Safety. WHO Guidelines on Hand Hygiene in Healthcare (Advanced Draft). 2006. [\[Crossref\]](#)
9. World Health Organization (2020). Global Patient Safety Action Plan. 2021-2030. [\[Crossref\]](#)
10. World Health Organization (2023). World Patient Safety Day 2023: Engaging Patients for Patient Safety. [\[Crossref\]](#)
11. Bülbül Maraş G, Köse Ş, Kocaçal E. Determination of Knowledge and Attitudes of Patient and Patient Relatives About Hand Washing. Türkiye Klinikleri Journal of Nursing Sciences. 2020;12(4):511-519. [\[Crossref\]](#)
12. Wu KS, Lee SS, Chen JK, Tsai HC, Li CH, Chao HL, et al. Hand hygiene among patients: attitudes, perceptions, and willingness to participate. Am J Infect Control. 2013;41(4):327-331. [\[Crossref\]](#)
13. Bulut S, Eşer İ, Khorshid L. Examination of patient' opinions on health personnel use of gloves. Kırıkkale Üniversitesi Lüleburgaz Meslek Yüksekokulu Dergisi. 2014;4(1):151-156. [\[Crossref\]](#)
14. Dönmez N. Determining the knowledge and attitudes of the nurses working in the intensive care units about hand hygiene. Thesis. Hospital Infection Control, Institute of Health Sciences. Aydın:2021. [\[Crossref\]](#)
15. Karabulut Çetin B, Aygün D. The role of education given to intensive care nurses for prevention of ventilator related pneumones. SAUHSD. 2021;4(3):112-125. [\[Crossref\]](#)
16. Sarı E, Kılıç M. Physicians and Nurses' Compliance with Isolation Measures and Affecting Factors. J Health Sci Clin Res. 2023;1(2): 1-13. [\[Crossref\]](#)
17. Demiray A. Yaşam Bulguları. Kara Kaşıkçı M, Akın E. editors. Basic Nursing Fundamentals, Concepts, Principles, Practices. 1st Edition. Istanbul: Istanbul Medical Bookstores. 2021;346-348. [\[Crossref\]](#)
18. Akbıyık A. Parenteral Drug Applications. Kara Kaşıkçı M, Akın E. editors. Basic Nursing Fundamentals, Concepts, Principles, Practices. 1st Edition. Istanbul: Istanbul Medical Bookstores. 2021;543-553. [\[Crossref\]](#)
19. Göçmen Baykara Z, Çalışkan N, Öztürk D, Karadağ A. Basic Nursing Skills. Ankara Nobel Medical Bookstore. Ankara:2019. [\[Crossref\]](#)
20. Turan F. The Influence of Nurses' Beliefs About Hand Hygiene on Hand Hygiene Practices [master's thesis]. Adana, Turkey: Department of Nursing, Institute of Health Sciences. 2020. [\[Crossref\]](#)
21. Tünay H. Evaluation of compliance of physicians and nurses with isolation precautions in universal hospital. Acta Med Nicomedia. 2023;6(2):220-223. [\[Crossref\]](#)
22. Knighton SC, Richmond M, Zabarsky T, Dolansky M, Rai H, Donskey CJ. Patients' capability, opportunity, motivation, and perception of inpatient hand hygiene. Am J Infect Control. 2020;48(2):157-161. [\[Crossref\]](#)
23. Sevgi Doğan E, Deniz Akan D, Koşar Şahin C, Dedeli Caydam Ö, Çınar Pakyüz S. Determination of Hand Washing Habits of Individuals with Chronic Disease. Abant Medical Journal. 2023;12(1):32-42. [\[Crossref\]](#)
24. Hammoud S, Amer F, Lohner S, Kocsis B. Patient education on infection control: A systematic review. Am J Infect Control. 2020;48(12):1506-1515. [\[Crossref\]](#)
25. Srigley JA, Cho SM, O'Neill C, Bialachowski A, Ali RA, Lee C, et al. Hand hygiene knowledge, attitudes, and practices among hospital inpatients: A descriptive study. Am J Infect Control. 2020;48(5):507-510. [\[Crossref\]](#)



ORIGINAL ARTICLE

Psychosocial Evaluation of Children Aged 3-6 Years After Circumcision

3-6 Yaş Çocukların Sünnet Sonrası Dönemde Psikososyal Yönden İncelenmesi

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Abstract

Objective: Circumcision can be quite traumatic for children between the ages of 3 and 6 because of their cognitive, social, emotional, and psychological developmental characteristics. This study aimed to evaluate the psychosocial effects of circumcision at the age of 3-6.

Method: This is a descriptive comparative study. The participants of the study consisted of 116 boys and their mothers (circumcised group, n=58; non-circumcised group, n=58). A "the descriptive characteristics form" and "psychosocial status evaluation scale-parents form for children 3-6 years of age" were used to collect data.

Results: The mean "psychosocial status evaluation scale-parents form for 3-6 years old children" score of the non-circumcised group was 23.21±8.99, while the mean "psychosocial status evaluation scale-parents form for 3-6 years old children" score of the children in the circumcision group before circumcision was 23.21±12.18; this value was 28.17±14.34 after circumcision. There was a statistically significant difference ($p<0.05$) in the mean scores between the circumcised group before and after circumcision and between the mean scores of the circumcised and uncircumcised groups.

Conclusion: Children aged 3-6 may experience psychosocial problems after circumcision. Therefore, it is recommended that circumcision should not be preferred unless there is a medical necessity in the 3-6-year-old age group and that the child should be psychologically prepared for the procedure when it is necessary.

Keywords: Child, circumcision, nurses, parents, pediatrics

Öz

Amaç: Sünnet, 3-6 yaş grubu çocukların bilişsel, sosyal, duygusal ve psikolojik gelişim özellikleri nedeniyle oldukça travmatik olabilir. Bu çalışmada 3-6 yaş grubundaki çocuklarda sünnetin psikososyal etkilerinin değerlendirilmesi amaçlanmıştır.

Yöntem: Araştırma tanımlayıcı-karşılaştırmalı bir çalışmadır. Araştırmanın katılımcılarını 116 erkek çocuk ve anneleri (sünnetli grup, n=58; sünnetsiz grup, n=58) oluşturmuştur. Verilerin toplanmasında "tanımlayıcı özellikler formu" ve "3-6 yaş çocuklar için psikososyal durum değerlendirme ölçeği-ebeveyn formu" kullanılmıştır.

Bulgular: Sünnet olmayan grubun ortalama "3-6 yaş çocuklar için psikososyal durum değerlendirme ölçeği-ebeveyn formu" puanı 23,21±8,99, sünnet grubundaki çocukların sünnet öncesi ortalama "3-6 yaş çocuklar için psikososyal durum değerlendirme ölçeği-ebeveyn formu" puanı 23,21±12,18'dir. Sünnet sonrası dönemde bu değer 28,17±14,34 bulunmuştur. Sünnet olan gruptaki çocukların sünnet öncesi ve sonrası ortalama puanları ile, sünnet olan gruptaki çocuklarla sünnet olmayan gruptaki çocukların ortalama puanları arasında istatistiksel olarak anlamlı bir fark vardır ($p<0,05$).

Sonuç: Çocuklar, 3-6 yaşlarında, sünnet sonrası psikososyal problemler yaşayabilir. Bu nedenle 3-6 yaş döneminde tıbbi zorunluluk olmadıkça sünnet operasyonunun tercih edilmemesi, yapılması gerekli durumlarda da çocuğun işleme psikososyal olarak hazırlanması önerilmektedir.

Anahtar Kelimeler: Çocuk, sünnet, hemşire, ebeveyn, pediatri

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Received: July 07, 2023

Accepted: December 06, 2023

Cite this article as: Güneş Şan E, Altay N. Psychosocial Evaluation of Children Aged 3-6 Years After Circumcision. Mediterr Nurs Midwifery. 2024; 4(2): 96-104



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Introduction

Circumcision is the process of excising the skin covering the glans penis, which is called the prepuce, by cutting it to a certain length and shape with a surgical procedure and exposing the head of the penis (1,2). Data from the World Health Organization show that 30% of men worldwide, that is, approximately one-third, are circumcised (3). Morris et al. (4) found the prevalence of circumcision worldwide to be approximately 37.7%. The prevalence of circumcision for boys is as follows in selected countries: 99.8% in Afghanistan, 98.6% in Turkey, 77% in South Korea, 71.2% in the United States, 44.7% in South Africa, 14% in China, 10.9% in Germany, 5.7% in the Netherlands, and 0.1% in North Korea.

Circumcision can be performed at any age (5,6) but is generally recommended for children under 1 year of age (7,8) or over 6 years of age (9-11). It is observed that circumcision is mostly performed in children between the ages of 3 and 6 years and over the age of 6 years (12-15), and the proportion of children circumcised between the ages of 3 and 6 is particularly high in Turkey (12,16,17). Considering that circumcision may affect the psychology of children aged 3 to 6 years (18) and may cause post-traumatic stress disorder, it is not recommended to perform the procedure during this period (19).

According to Freud, it is during this period that the child begins to notice the difference between boys and girls. His interest is focused on the sexual area, and the sexual organ becomes important. During this period of developing the child's sexual identity, boys show extreme interest in their mothers, and this interest begins to become evident starting at age 3 and reaches its peak at age 4-5. These feelings can lead to a complex fear that their father will take the male organ away from them (20). Circumcision can be perceived by children as a punishment because it can be a highly traumatic situation for children aged between the ages of 3 and 6 years. These ages have critical importance in the development of castration fear, anxiety, acute psychosocial problems, post-traumatic stress disorder (21-26), and behavioral problems (27). Compared with children in other age groups, children aged 3-6 years are more prone to experience stress related to the surgical procedure, illness, and hospitalization due to reasons such as developmental characteristics, limited cognitive capacity, lack of self-control, being more dependent, and limited

understanding (21,28,29). Moreover, it may cause children to have developmental regressions; emotionally, cognitively, and behaviorally (30).

Aim

The study determined the psychosocial effects of circumcision between the ages of 3 and 6 years. In Turkey, there is a general preference among parents to have their children circumcised at this age for religious reasons. There are insufficient studies in the literature describing the psychosocial effects of the procedure at 3-6 years of age. The results are expected to help guide healthcare professionals and parents.

Material and Method

Research Design

The study was conducted between June 12, 2018 and April 01, 2019 in the pediatric surgery and urology clinics of a state hospital in a provincial center in the Central Anatolian Region of Turkey.

Participants

The circumcised children group in this study consisted of children who underwent circumcision under general anesthesia using the sleeve method on a determined date. The sample size of the circumcised children group was determined by power analysis. Because there were no other studies in the literature, a pilot study was conducted. Descriptive obtained from the pilot study were used to determine the sample size. Therefore, 21 parents were reached first. Power analysis was then performed using G*Power 3.1 software (31) to determine the number of participants in the circumcised children group. Because of the power analysis, 52 participants were found to be sufficient, with a confidence interval of 80% and an error margin of 5% for circumcised children. The effect size of the data from 21 participants was 0.39 (small effect). Values of 0.20, 0.50, and 0.80 were considered indicative of small, medium, and large effect sizes for calculating Cohen's d (32,33).

The inclusion criteria of the study are as follows: (a) being in the age group of 3 to 6 years, (b) willingness to participate in the study (parents), (c) being able to read and write (parents), and (d) speaking Turkish (parents).

The exclusion criteria of the study are as follows: (a) history of any previous surgical procedure, (b) any chronic disease, (c) any stressful event (acute illness, the divorce of parents, loss, moving, new sibling, death, etc.) in the last 6 months, and (d) undergoing a surgical procedure other than circumcision (this criterion applies only to children in the circumcised group).

In both groups, according to the age of the children, three layers were created: 3 years (36-47 months), 4 years (48-59 months), and 5 years (60-72 months). Simple random

Main Points

- Psychosocial problems may occur in children if circumcision is not performed at an appropriate age.
- If not deemed essential, male circumcision should be delayed in children of this age group.
- For medical circumcision, it is essential to adequately prepare children for the surgical procedure in accordance with their developmental stage. This involves using understandable language and avoiding potentially harmful or distressing information.
- It is crucial to ensure that children's mental and physical welfare is prioritized throughout the process. Overall, a child-centered approach should guide the preparation process to ensure a successful and safe surgical procedure.

sampling was used to select children from each class (58 children).

Within the scope of the study, 70 boys between the ages of 3 and 6 years who were circumcised and their mothers were interviewed. The number of children not included in the participants was 12-two patients had a diagnosis of mental retardation (cerebral palsy and hydrocephalus), six patients had a diagnosis of chronic disease, two children had undergone previous surgical procedures, and the parents of two children did not want to participate in the study. Considering the possible participant loss during the study, 58 mothers and their children were included in the study.

Thereafter, the participants of the non-circumcised group of children in the same age group as this group were determined. For the participants of the non-circumcised children group, 462 boys in six kindergartens in the same city center were stratified according to their classes, 58 mothers and their children were included in the study.

Data Collection Tools

Descriptive Characteristics Form

This form, which was developed by researchers using the literature (34-36), consists of 15 questions. The form includes parents' ages, employment status, educational status, economic status, and chronic illnesses. In addition, the date of birth of the child, the number of siblings, and the birth order in the family are included in the form. The following information is provided regarding the circumcision procedure (this section was asked only to the circumcised children group): The decision process for the circumcision procedure of the child (this was an open-ended question), whether any consultancy has been obtained regarding the circumcision procedure, whether the child is informed during the circumcision process, and whether the child is informed about the circumcision procedure.

Psychosocial Status Evaluation Scale-parents Form for 3-6-year-old Children (PSAS 3-6)

This scale was developed by Şan and Altay (36) to evaluate the psychosocial status of children aged 3 to 6 years, and its validity and reliability have been verified. The scale consists of 6 factors and 31 items. There are no factors named on this scale because it was not developed to diagnose children. There are five-point Likert scale options for each item in the form: 0- "never", 1- "rarely", 2- "sometimes", 3- "often", and 4- "always". The lowest score that can be obtained from the test is 0 and the highest score is 124. There are no reverse items in the scale. A higher score indicates that the child is at psychosocial risk. It can be used to determine the early psychosocial effects of illness and hospitalization on the child. The scale's items are the most common psychosocial problems in children aged 3-6 years. These include sleep problems, introversion, attention problems, aggressive behaviors, hyperactive behaviors, regression behaviors,

eating disorders, anger, shyness, jealousy, fear, separation anxiety, and irritability. The Cronbach α value is 0.83 (37). Another study is 0.88 (38) and for this study, it is 0.76.

Data Collection

For both groups, the parents were first met and informed about the study. Written consent was obtained from the parents who volunteered to participate in the study. At the first meeting, data were collected from both groups of children, and one month later, data were collected only from the circumcised group. Measurements were taken twice in the circumcised group.

The first meeting with the parents of the circumcised group was held in a room on the polyclinic floor. The descriptive characteristics form and PSAS 3-6 were filled in by the researcher in a face-to-face interview. Completing the forms took an average of 10 to 15 min. Following the completion of the forms, the day and time were determined for a telephone interview with the parents on the 30th day of the postoperative period. PSAS 3-6 was re-administered to the parents during a phone call on the 30th day of the postoperative period. This phone call lasted about 5 to 10 min.

The data collection of the non-circumcised group was carried out once parents came to pick up their children from the kindergarten and in the form of a face-to-face meeting in the waiting room of the kindergarten. The descriptive characteristics form and PSAS 3-6 were completed by the researcher in a face-to-face interview. It took 10 to 15 min to fill in the forms.

Statistical Analysis

The data obtained in this study were evaluated using SPSS 21 (Statistical Package of the Social Sciences) software (SPSS, Inc., Chicago). For descriptive statistics, $p < 0.05$ was considered statistically significant. Whether or not the data were normally distributed was determined using visual (histogram) and analytical methods (Kolmogorov-Smirnov) (Table 1). The paired sample t-test was used to determine the difference between the scale scores of children in the circumcised group before and after the circumcision. While comparing the scale scores in the circumcised and non-circumcised groups according to the socio-demographic

Table 1.
Kolmogorov-Smirnov Values of the Scale Scores of the Non-circumcised Group and the Circumcised Group Before and After Circumcision

Kolmogorov-Smirnov	Z	p*
Non-circumcised group	0.070	0.200
Circumcised group		
Before circumcision	0.112	0.068
After circumcision	0.092	0.200

*= $p > 0.05$

characteristics of children and parents, the following tests were used: Independent samples t-test for in-group paired comparisons, One-Way ANOVA test for triple comparisons, and independent samples t-test for intergroup comparisons. In the circumcised group, the following tests were used when comparing the mean scale scores of the children who knew about circumcision and were informed about the operation: Paired sample t-test was used for intergroup comparisons and independent samples t-test was used for in-group comparisons.

Ethical Consideration

Scientific research permissions were obtained from the Ethics Committee of Gazi University the Institute of the University of Health Sciences Turkey (no. 77082166-302.08.01-), provincial health (no. 39991120-799) and provincial national education (no. 57270673-60.04-E.11550249) directorates of the province where the study was conducted. Written consent was obtained from all parents who agreed to participate in the study. Participants were informed that the data obtained would only be used for scientific purposes, provided that their identities were not disclosed, and that they could leave the study at any time with prior notice.

Results

Data on the demographic characteristics of the children are presented in Table 2. The average age of the children in the non-circumcised group was 56.02±10.72 months, and the average age of the circumcised group was 54.62±10.86 months. The average age of the children, number of siblings, birth order in the family, and hospital experience were similar in both groups, and there was no significant difference between the groups (p>0.05).

Data on the demographic characteristics of the parents are presented in Table 3. The parents' ages, education, employment status, and the presence of an individual with chronic disease in the family were similar in the circumcised and non-circumcised groups, and there was no statistically significant difference between the groups (p>0.05).

Table 4 contains information about the reasons why parents had their children circumcised and informs them about the operation. While 37.9% (n=22) of the parents did not state any reason for circumcision, 24.1% (n=14) stated that they decided on the circumcision due to familial reasons (pregnancy and to be circumcised together with the sibling). While 19% (n=11) of the parents preferred to have their children circumcised due to medical reasons (doctor's recommendation, frequent

Socio-demographic characteristics	Non-circumcised group (n=58)		Circumcised group (n=58)		χ^2 *	p†
	Min-max	Mean ± SD	Min-max	Mean ± SD		
Child's age (month)	36-72	56.02±10.72	36-72	54.62±10.86	30.868	0.699
	n	%	n	%	χ^2	p
Age (month)						
36-47 month	14	24.1	16	27.6	0.592	0.744
48-59 month	20	34.5	22	37.9		
60-72 month	24	41.4	20	34.5		
Number of siblings						
No siblings	9	15.5	12	20.7	0.564	0.905
1 sibling	30	51.7	28	48.3		
2 siblings	11	19.0	11	19.0		
3+ siblings	8	13.8	7	12.0		
Birth order in the family						
1	15	25.9	23	39.7	2.568	0.277
2	27	46.6	21	36.2		
3+	16	27.6	14	24.1		
Hospital experience						
No	8	13.8	12	20.7	1.232	0.745
0-12 month	8	13.8	9	15.5		
13-36 month	6	10.3	6	10.4		
37-66 month	36	62.1	31	53.4		

*=Differences were examined using the chi-square test (χ^2), †=(p<0.05), SD=standard deviation

urinary tract infection history, or phimosis), 17.2% (n=10) of the parents preferred that their children be circumcised before they started school; 12.1% of the parents stated that they did not find the opportunity before and preferred to have circumcision at this age because they thought they were late. The percentage of mothers who stated that they received consultancy service from the doctor before the circumcision operation was 25.9% (n=15). While 77.6% of the children (n=45) were aware of the circumcision beforehand, 67.2% (n=39) of the children were not informed about the method of the operation.

Table 5 shows a comparison of the mean scale scores of children in the non-circumcised group and those in the circumcised group. There was no statistically significant difference between the PSAS 3-6 scores of the children in the non-circumcised group and the PSAS 3-6 scores of the children in the circumcised group before circumcision ($p>0.05$). The difference between the PSAS 3-6 scores of

the children in the circumcised group before and after the circumcision was statistically significant ($p<0.05$). As for the age groups, while the difference between the scale scores of children aged 48-59 months and 60-72 months before and after the circumcision was statistically significant ($p<0.05$), it was not statistically significant in children aged 36-47 months ($t=1.117, p=0.281$).

Discussion

Circumcision, which is elective unless medically necessary, is the most common surgical operation performed in children aged 3 to 6 years and above 6 years in Turkey (12,13,15,39). Children with limited cognitive understanding can be highly traumatized by stressful situations such as surgery. It is different for the child who is unfamiliar with the hospital environment (40). It is known that, after surgical operations performed between the ages of 3 and 6 years, fear of castration, phobias, aggressive behavior, nightmares,

Table 3.
Parents' Socio-demographic Characteristics (n=116)

Socio-demographic characteristics	Non-circumcised group (n=58)		Circumcised group (n=58)		χ^{2*}	p [†]
	Min-max	Mean \pm SD	Min-max	Mean \pm SD		
Age						
Mother's age	22-46	32.09 \pm 5.13	24-47	33.10 \pm 5.67	17.187	0.743
Father's age	24-48	35.24 \pm 5.63	28-69	36.91 \pm 6.88	29.609	0.180
Mother's education level	n	%	n	%	χ^2	p
Primary and secondary school	29	50.0	26	44.8		
High school	15	25.9	21	36.2		
University and higher	14	24.1	11	19.0		
Father's education level						
Primary and secondary school	19	32.8	16	27.6	0.449	0.799
High school	22	37.9	25	43.1		
University and higher	17	29.3	17	29.3		
Mother's employed status						
Employed	20	34.5	19	32.8	0.039	0.844
Not employed	38	65.5	39	67.2		
Father's employed status						
Employed	53	91.4	55	94.8	0.717	0.358
Not employed	5	8.6	3	5.2		
Income status						
Income lower than expenses	15	25.9	4	6.9	7.717	0.027
Income equal to expenses	40	69.0	50	86.2		
Income higher than expenses	3	5.1	4	6.9		
Chronic illness in the family						
Yes	8	13.8	10	17.2	0.263	0.608
No	50	86.2	48	82.8		

*=Differences were examined using the chi-square test (χ^2), [†]=($p<0.05$), SD=standard deviation

regression, eating disorders, and sleep disorders can be seen (22,26,41). Moreover, insufficient information given before the surgical intervention (such as medical device,

painful procedure, and preoperative preparation) causes anxiety and emotional stress in both the family and the children (22,42,43).

Table 4.
Parents' Reasons for the Circumcision of Their Children and Informing the Child About Circumcision (n=58)

Reasons for circumcision*	n	%
No specific reason	22	37.9
Familial reasons (pregnancy†, to be circumcised together with the sibling)	14	24.1
Medical reasons (doctor's recommendation, frequent urinary tract infection history, phimosis)	11	19.0
Desire to have the children circumcised before they started school	10	17.2
No opportunity before/they thought they were late	7	12.1
The children put their hands on their genitals	1	1.7
Did the family receive any consultancy before circumcision?	n	%
Yes‡	15	25.9
No	43	74.1
Was the child aware of the circumcision beforehand?	n	%
Yes	45	77.6
No	13	22.4
Was the child informed about the operational procedure?§	n	%
Yes	19	32.8
No	39	67.2

*=Parents have given more than one reason. Row percentages are given over n=58, †=pregnant women want it done as soon as possible before delivery, ‡=consultancy service received from the doctor (n=15), §=explaining to the child how the operation will be performed and what will be done during the operation

While the PSAS 3-6 scores of the children who were aware of the circumcision beforehand (n=45) in our study were low after circumcision, the PSAS 3-6 scores of the children who were not aware (n=13) were high (p<0.05). Children who were informed about the circumcision procedure (19 children) had a PSAS 3-6 score that was low after circumcision, whereas the PSAS 3-6 scores of children who were not informed before circumcision (39 children) were high after circumcision (p<0.05). In conclusion, our study found that the psychosocial scale scores of the children who were aware of the circumcision and were informed about the circumcision procedure were lower (p<0.05), most circumcised children (77.6%) were aware of the circumcision, and only one-third of the circumcised children were informed about the operation. Similarly, Sancar et al. (11) found that children who knew circumcision experienced less fear. A study by Suzan et al. (42) concluded that children who were under-informed about the circumcision procedure, pain, and anesthesia experienced more fear and anxiety. Karayagmurlu et al. (13) found that children who were not informed about circumcision had higher levels of preoperative anxiety. A study by Yılmaz et al. (43) showed that 38.9% of mothers explained the circumcision procedure to their children. A study by Çatakılı et al. (17) found that 58.4% of mothers gave information to their children about the circumcision procedure. Of the mothers who informed their children about the circumcision procedure, 70.4% said "men would be circumcised" and 25.4% said "circumcision is necessary to be a father". A study by Corduk et al. (44) found that parents informed 44% of their children about circumcision and used the following expressions: 35.4% "no need to be afraid", 27.5% "it will not hurt", and 16% "you have to be a man". Rizalar et al. (38) showed that 27.3% uninformed about circumcision to children. A study by Bartik and Toruner (45) concluded that the information given before day-case surgery affects children positively (p<0.05). Studies have shown that informing children about circumcision in the

Table 5.
Comparison of the Mean Scale Scores of Children in the Non-circumcised Group and the Children in the Circumcised Group

	Non-circumcised group			Circumcised group- (before circumcision)			NCG-BC		Circumcised group- (after circumcision)		BC-AC	
	n	Min-max	Mean ± SD	n	Min-max	Mean ± SD	t*	p*	Min-max	Mean ± SD	t†	p†
Scale total score	58	1-42	23.21±8.99	58	2-54	23.21±12.18	0.000	1.000	5-58	28.17±14.34	-4.616	0.001
Age groups (month)												
36-47 month	14	11-42	29.86±9.05	16	8-54	27.50±12.88	0.572	0.572	12-51	29.94±13.44	-1.117	0.281
48-59 month	20	8-29	20.45±6.60	22	2-44	21.77±12.86	-0.425	0.674	5-58	26.73±17.08	-3.439	0.002
60-72 month	24	1-37	21.63±9.05	20	4-43	21.35±10.48	0.093	0.926	6-54	28.35±12.12	-3.477	0.003

NCG=Non-circumcised group, SD=standard deviation, BC=before circumcision-circumcised group, AC=after circumcision-circumcised group, *=independent samples t-test was used for comparison between groups, †=paired sample t-test was used for comparison between groups, †=p<0.05

pre-circumcision period and being aware of circumcision are insufficient (13,17,38,43,44). Lack of information about the circumcision process can have negative psychosocial consequences for children.

While the PSAS 3-6 scores of the children in the non-circumcised group and the pre-circumcision PSAS 3-6 scores of the children in the circumcised group were similar in our study, the post-circumcision scale scores of the children in the circumcised group were significantly higher ($p < 0.05$). Similarly, a study by Özkıdık et al. (46) on children aged 9-12 years evaluated the stress levels of children due to circumcision and found that the stress levels of circumcised children were significantly higher than those of children who were not circumcised ($p < 0.05$). A study by Polat et al. (47) evaluated pre-circumcision and post-circumcision anxiety and found a high increase after circumcision in the anxiety levels of children who experienced pain at the beginning of the circumcision procedure. A randomized controlled study by Akgün Kostak et al. (48) on children between the ages of 5 and 10 years showed that children with similar fear scores before circumcision had statistically lower fear scores after playing the puppet game ($p < 0.05$). Contrary to our study, a study by Uruc et al. (15) found that pre-circumcision depression and anxiety scores (children aged 6-8) were significantly higher than post-circumcision (6 months later) depression and anxiety scores. A study conducted by Yavuz and Akdeniz (40) on children between the ages of 6 and 11 years found that children's depression, anxiety levels, and behavioral problems did not increase in the post-circumcision period (1 month and 6 months later). In addition, a study by Başbakkal et al. (34) found that a child who was hospitalized between the ages of 3 and 6 years had behavioral changes before hospitalization.

While 37.9% of the parents did not state any reason for circumcision in our study, 24.1% stated that they decided on circumcision for familial reasons, and 19% preferred to have their children circumcised for medical reasons. Studies in the literature show that between 32% and 84.8% of families have their children circumcised for religious reasons (12,14,39,45,49,50). The act of not being circumcised is seen as a step outside one's own cultural and religious family traditions in many cultures, such as Turkey (51). Contrary to these studies, Özveren's (14) study with newborns showed that 70.65% of parents decide on circumcision for medical reasons. Other reasons in our study were as follows: 17.2% of the families wanted their children circumcised before they reached the age to be aware of the situation, and 12.1% wanted their children circumcised at this age because they could not find time before. Studies in the literature show that those who prefer circumcision under the age of 3 think that the child will recover quickly and will not feel pain (52,53), while those who decide to have circumcision between the ages of 3 and 6 years (47.8%) and over 6 (57.2%) think that their children will not be afraid of circumcision (53). The studies show that families do not know the medical necessity of circumcision, and they have their children circumcised mostly for religious reasons in Turkey (12,36,40,41).

Considering the literature together with our study, circumcision and other surgical procedures performed between 3 and 6 years of age and hospitalization cause behavioral changes, psychosocial problems, and psychological trauma in children. For this reason, it is recommended that circumcision is not preferred during 3 to 6 years unless there is a medical necessity, and if it is unavoidable, the child should be prepared for the procedure.

Study Limitations

The study is limited to the characteristics measured by PSAS3-6 for the psychosocial problems of children circumcised between 3 and 6 years of age. The research results represent only the participants and cannot be generalized to the country in which the study was conducted. The children were not followed up for post-circumcision complications such as swelling, pain, and bleeding. The parents' psychosocial status was not assessed before surgery. It is recommended that future studies examine these variables in more detail. In addition, to determine whether circumcision is appropriate, it is recommended that children between the ages of 3 and 6 years be assessed using a variety of measurement tools.

Conclusion

Children aged 3-6 may experience psychosocial problems after circumcision. The psychosocial problems that may be caused by circumcision in children between the ages of 3 and 6 years should be explained to the parents, and detailed information should be given from health professionals about the appropriate age and reasons for circumcision and the benefits and necessity of circumcision. Besides, warnings should be made that it is inconvenient to perform circumcision between the ages of 3 and 6 for only religious and cultural reasons, except for medical necessity. In a circumcision operation due to medical necessity (doctor's recommendation, frequent urinary tract infection history, and phimosis), information should be given about the importance of preparing in advance in accordance with the developmental period of the child, adopting a multidisciplinary approach, and performing the procedure in the hospital environment and by specialists. In the pre-circumcision period, children should be informed about the circumcision process in a way that they can understand (with simple words and a method appropriate to their age) and the how-why-by whom the circumcision procedure will be performed. Besides, they should be reminded that circumcision is not a punishment.

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Informed Consent: Written consent was obtained from all parents who agreed to participate in the study.

Author Contributions: Surgical and Medical Practices – E.G.Ş., N.A.; Design – E.G.Ş., N.A.; Concept – E.G.Ş., N.A.; Data Collection and/or Processing – E.G.Ş., N.A.; Analysis and/or Interpretation – E.G.Ş., N.A.; Literature Review – E.G.Ş., N.A.; Writing – E.G.Ş., N.A.

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. Kara Ö, Teke K, Çiftçi S, Üstüner M, Uslubaş AK, Bosnalı E, et al. Buried penis in adults as a complication of circumcision: Surgical management and long-term outcomes. *Andrologia*. 2021;53(2):e13921. [\[Crossref\]](#)
2. Prabhakaran S, Ljuhar D, Coleman R, Nataraja RM. Circumcision in the paediatric patient: A review of indications, technique and complications. *J Paediatr Child Health*. 2018;54(12):1299-1307. [\[Crossref\]](#)
3. Male circumcision for HIV prevention: research implications for policy and programming. WHO/UNAIDS technical consultation, 6-8 March 2007. Conclusions and recommendations (excerpts). *Reprod Health Matters*. 2007;15(29):11-14. [\[Crossref\]](#)
4. Morris BJ, Wamai RG, Henebeng EB, Tobian AA, Klausner JD, Banerjee J, et al. Estimation of country-specific and global prevalence of male circumcision. *Popul Health Metr*. 2016;14:4. [\[Crossref\]](#)
5. Many BT, Rizeq YK, Vacek J, Cheon EC, Johnson E, Hu YY, et al. A contemporary snapshot of circumcision in US children's hospitals. *J Pediatr Surg*. 2020;55(6):1134-1138. [\[Crossref\]](#)
6. Türk E, Karaca F, Edirne Y. A Clinical and Epidemiological Study on the Age of Circumcision in Turkey. *Eurasian Clinical and Analytical Medicine*. 2013;1(2):24-27. [\[Crossref\]](#)
7. Malik S, Ahmed Z, Shahid M, Bashir RA. Comparison of post circumcision complications and wound healing in neonates and infants by plastibell method. *Pak Armed Forces Med J*. 2019;69(6):1263-1266. [\[Crossref\]](#)
8. Morris BJ, Krieger JN, Klausner JD. CDC's Male Circumcision Recommendations Represent a Key Public Health Measure. *Glob Health Sci Pract*. 2017;5(1):15-27. [\[Crossref\]](#)
9. Bicer S, Kuyruklu Yildiz U, Akyol F, Sahin M, Binici O, Onk D. At what age range should children be circumcised? *Iran Red Crescent Med J*. 2015;17(3):e26258. [\[Crossref\]](#)
10. Özen MA, Eroğlu E. Evaluation of circumcision in terms of parental feedback and medical outcomes. *Çocuk Cerrahi Dergisi*. 2019;33(2):65-71. [\[Crossref\]](#)
11. Sancar S, Demirci H, Guzelsoy M, Coban S, Askin R, Uzun ME, et al. Fear of Circumcision in Boys Considerably Vanishes within Ten Days of Procedure. *Urol J*. 2016;13(1):2541-2545. [\[Crossref\]](#)
12. Altunkol A, Abat D, Topuz AN, Alma E, Gürbüz ZG, Verit A. Muslim mothers mainly saw circumcision in terms of religion or tradition but wanted it to be carried out medical professionals. *Acta Paediatr*. 2020;109(2):396-403. [\[Crossref\]](#)
13. Karayagmurlu A, Naldan E, Karabulut I. Preoperative anxiety in children undergoing elective circumcision: A cross-sectional study in a training and research hospital. *Artic Ann Med Res*. 2020;27(12):3171-3176. [\[Crossref\]](#)
14. Özveren B. Defining the pathways of parental decision-making and satisfaction levels about newborn circumcision in a setting where traditional male circumcision is prevalent: An online surveys study. *Urology*. 2016;90:153-158. [\[Crossref\]](#)
15. Uruc F, Yildirim C, Urkmez A, Aras B, Yanartas Ö, Yasin Irmak M, et al. Circumcision and its potential effects on children's mental health state. *Rev Int Andrologia*. 2017;15(4):127-134. [\[Crossref\]](#)
16. Aykac A, Yapici O, Baran O, Oguz U, Cakan M. What is the ideal age of circumcision for wound healing time? *Eur Res J*. 2016;2(3):206-210. [\[Crossref\]](#)
17. Çataklı T, Yazarlı E, Yener F, Bilge YD. Knowledge levels of mothers applying to a hospital about circumcision. *J Clin Pract Res*. 2012;34(3):116-120. [\[Crossref\]](#)
18. Yavuz M, Demir T, Doğançın B. Sünnetin Çocuk Ruh Sağlığı Üzerine Etkisi: Gözden Geçirme Çalışması [The effect of circumcision on the mental health of children: a review]. *Türk Psikiyatri Derg*. 2012;23(1):63-70. [\[Crossref\]](#)
19. Murat K, Ozkan A, Kabaklioglu MA. A low cost and non-complicated circumcision; when, how, where, who should be made by? *Konuralp Medical Journal*. 2019;11(3):440-443. [\[Crossref\]](#)
20. Gale C. A study guide for psychologists and their theories for students: Sigmund Freud. United States of America: Cengage Learning; Published online 2015. [\[Crossref\]](#)
21. Binay S, Yardimci F. Preoperative preparation according to age characteristics of children. *Health Sciences Research in the Globalizing World*. 2018:298-305. Accessed July 1, 2022. [\[Crossref\]](#)
22. Buyuk ET, Odabasoglu E, Uzsen H, Koyun M. The effect of virtual reality on Children's anxiety, fear, and pain levels before circumcision. *J Pediatr Urol*. 2021;17(4):567.e1-567.e8. [\[Crossref\]](#)
23. Jin Y, Jin Y, Jiang A, Jiang W, Wu W, Ye L, et al. Self-produced audiovisual animation alleviates preoperative anxiety in pediatric strabismus surgery: a randomized controlled study. *BMC Ophthalmol*. 2021;21(1):163. [\[Crossref\]](#)
24. Tahtali, IN. The relationship between age of circumcision and premature ejaculation. *Medicine Science*. 2021;10(2):362-366. [\[Crossref\]](#)
25. Utanğaç MM, Dağgölü M, Yağmur İ. Comparison of circumcisions performed before and during adolescence. *Dicle Medical Journal*. 2013;40(3):396-400. [\[Crossref\]](#)
26. Yilmaz E, Batislam E, Basar MM, Basar H. Psychological trauma of circumcision in the phallic period could be avoided by using topical steroids. *Int J Urol*. 2003;10(12):651-656. [\[Crossref\]](#)
27. Chaturvedi S, Shrivastava N, Agrawal A, Shrivastava J. Prevalence of children at risk of behavioral problems among preschool children between the ages of 3 and 6 years. *Indian J Child Health*. 2019;6(12):658-661. [\[Crossref\]](#)
28. Boztepe H, Ay A, Cinar S. Nurses make jokes instead of making injection: Determination of 3- 6 year old children's views for hospital experiences. *Int J Emerg Trends Heal Sci*. 2017;1(1):1-6. [\[Crossref\]](#)
29. Yun OB, Kim SJ, Jung D. Effects of a Clown-Nurse Educational Intervention on the Reduction of Postoperative Anxiety and Pain Among Preschool Children and Their Accompanying Parents in South Korea. *J Pediatr Nurs*. 2015;30(6):e89-99. [\[Crossref\]](#)
30. Dye H. The impact and long-term effects of childhood trauma. *J Hum Behav Soc Environ*. 2018;28(3):381-392. [\[Crossref\]](#)
31. Faul F, Erdfelder E, Lang AG, Buchner A. G*Power 3: a flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behav Res Methods*. 2007;39(2):175-191. [\[Crossref\]](#)
32. Cohen J. Statistical power analysis for the behavioral science. (2nd ed.) Pub. Location; New York First. Published. 1988;567. [\[Crossref\]](#)
33. Ahaghotu C, Okafor H, Igiehon E, Gray E. Psychosocial factors influence parental decision for circumcision in pediatric males of African American descent. *J Natl Med Assoc*. 2009;101(4):325-330. [\[Crossref\]](#)

34. Başbakkal Z, Sönmez S, Şen Celasin N, Esenay FI. Determination of behavioral reactions of a child of 3-6 ages group to be hospitalized due to an acute illness. *Journal of Human Sciences*. 2010;7(1):456-468. [\[Crossref\]](#)
35. Sahin F, Beyazova U, Aktürk A. Attitudes and practices regarding circumcision in Turkey. *Child Care Health Dev*. 2003;29(4):275-280. [\[Crossref\]](#)
36. Şan EG, Altay N. Psychosocial status assessment scale for children aged 3-6 years – parent-form development: validity and reliability study. *J Psychiatr Nurs*. 2021;12(2):132-139. [\[Crossref\]](#)
37. Elmaoglip E, Ozdemir S. The relationship between the parents' attitudes on raising children with children aged 3-6 and the psychosocial status of the child: Cross-section study. *Turkiye Klinikleri J Nurs Sci*. 2023;15(1):64-71. [\[Crossref\]](#)
38. Rizalar S, Tural Buyuk E, Yildirim N. Children's Perspectives on the Medical and Cultural Aspects of Circumcision. *Iran J Pediatr*. 2017;27(2):e7561. [\[Crossref\]](#)
39. Paladino CM, Carvalho Rd, Almeida Fde A. Brinquedo terapêutico no preparo para a cirurgia: comportamentos de pré-escolares no período transoperatório [Therapeutic play in preparing for surgery: behavior of preschool children during the perioperative period]. *Rev Esc Enferm USP*. 2014;48(3):423-429. Portuguese. [\[Crossref\]](#)
40. Yavuz M, Akdeniz B. The effect of circumcision on the mental health of children Running Head: Circumcision and Mental Health. *Aydın Toplum ve İnsan Dergisi*. 2018;4(2):1-16. [\[Crossref\]](#)
41. Bogusaite L, Razlevice I, Lukosiene L, Macas A. Evaluation of Preoperative Information Needs in Pediatric Anesthesiology. *Med Sci Monit*. 2018;24:8773-8780. [\[Crossref\]](#)
42. Suzan ÖK, Şahin ÖÖ, Baran Ö. Effect of Puppet Show on Children's anxiety and pain levels during the circumcision operation: A randomized controlled trial. *J Pediatr Urol*. 2020;16(4):490.e1-490.e8. [\[Crossref\]](#)
43. Yılmaz Y, Özsoy SA, Ardahan M. Annelerin sünnet hakkındaki davranış ve bilgi düzeylerinin incelenmesi (Turkish). *Ege Tıp Dergisi*. 2008;47(2):93-101. [\[Crossref\]](#)
44. Corduk N, Unlu G, Sarioglu-Buke A, Buber A, Savran B, Zencir M. Knowledge, attitude and behaviour of boys and parents about circumcision. *Acta Paediatr*. 2013;102(4):e169-173. [\[Crossref\]](#)
45. Bartık K, Toruner EK. Effectiveness of a Preoperative Preparation Program on Children's Emotional States and Parental Anxiety. *J Perianesth Nurs*. 2018;33(6):972-980. [\[Crossref\]](#)
46. Özkıdık M, Sayın ZE, Coşkun A, Asutay MK. Psychological impact of non-therapeutic circumcision on school boys. *J Ankara Univ Fac Med*. 2018;71(3):238-243. [\[Crossref\]](#)
47. Polat F, Tuncel A, Balci M, Aslan Y, Sacan O, Kisa C, et al. Comparison of local anesthetic effects of lidocaine versus tramadol and effect of child anxiety on pain level in circumcision procedure. *J Pediatr Urol*. 2013;9(5):670-674. [\[Crossref\]](#)
48. Akgün Kostak M, Kutman G, Semerci R. The effectiveness of finger puppet play in reducing fear of surgery in children undergoing elective surgery: A randomised controlled trial. *Collegian*. 2021;28(4):415-421. [\[Crossref\]](#)
49. Koc F, Aksit A, Koc G, Halicioglu O, Yılmaz Y, Cakmak Ö, et al. Parental attitudes and practices about circumcision. *J Univers Surg*. 2013;2:1-6. [\[Crossref\]](#)
50. Tye MC, Sardi LM. Psychological, psychosocial, and psychosexual aspects of penile circumcision. *Int J Impot Res*. 2023;35:242-248. [\[Crossref\]](#)
51. Sivaslı E, Bozkurt Aİ, Ceylan H, Coşkun Y. Knowledge, attitudes and behaviors of mothers and fathers regarding circumcision in the Gaziantep. *Çocuk Sağlığı ve Hastalıkları Dergisi*. 2003;46:114-118. [\[Crossref\]](#)
52. Üstüner Top F, Esüntimur Y, Uykan L, Aydın Pekdemir E. The knowledge, behaviour and attitude about of circumcision in families in Giresun. *Çocuk Dergisi*. 2008;8(3):166-171. [\[Crossref\]](#)
53. Morris BJ, Hankins CA, Lumbers ER, Mindel A, Klausner JD, Krieger JN, et al. Sex and Male Circumcision: Women's Preferences Across Different Cultures and Countries: A Systematic Review. *Sex Med*. 2019;7(2):145-161. [\[Crossref\]](#)



ORIGINAL ARTICLE

Relationship Between Breastfeeding Self-efficacy, Breastfeeding Motivation, and Self-esteem

Emzirme Özyeterliliği, Emzirme Motivasyonu ve Benlik Saygısı Arasındaki İlişki

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Abstract

Objective: This study examined the relationship between breastfeeding self-efficacy, breastfeeding motivation, and self-esteem.

Method: This cross-sectional study was conducted with 260 postpartum women at Gazi University Hospital between November 20, 2022, and March 1, 2023. The data collection tools included a socio-demographic form, the breastfeeding self-efficacy scale, the breastfeeding motivation scale, and the Rosenberg self-esteem scale.

Results: In the study, the mothers' breastfeeding self-efficacy scale mean score was 56.11±5.34, the Rosenberg self-esteem scale mean score was 14.51±0.78, and the breastfeeding motivation scale mean score was 69.98±5.15. According to the structural model, the results demonstrated that there was a positive significant relationship between breastfeeding self-efficacy and breastfeeding motivation ($p<0.05$) and between breastfeeding self-efficacy and self-esteem ($p<0.05$).

Conclusion: The findings indicated that socio-demographic factors did not significantly influence breastfeeding self-efficacy, while social support and number of births were significant factors. It was determined that a significant relationship existed between breastfeeding self-efficacy and self-esteem.

Keywords: Breastfeeding self-efficacy, breastfeeding motivation, self-esteem, nursing, breastfeeding

Öz

Amaç: Bu çalışmada; doğum sonu dönemde kadınların emzirme öz-yeterliliği, emzirme motivasyonu benlik saygısı arasındaki ilişkinin incelenmesi amaçlanmıştır.

Yöntem: Kesitsel olarak planlanan çalışma Gazi Üniversitesi Hastanesi'nde 20 Kasım 2022-1 Mart 2023 tarihleri arasında güç analizi ile belirlenen 260 postpartum dönemdeki anne ile yapılmıştır. Veri toplama aracı olarak, sosyo-demografik form, emzirme öz-yeterlilik ölçeği, emzirme motivasyon ölçeği, Rosenberg benlik saygısı ölçeği kullanılmıştır.

Bulgular: Araştırmada annelerin emzirme öz-yeterlilik ölçek puan ortalaması 56,11±5,34, Rosenberg benlik saygısı ölçek puan ortalaması 14,51±0,78, emzirme motivasyon ölçek puan ortalaması 69,98±5,15 olarak belirlenmiştir. Araştırma sonucunda, emzirme öz-yeterliliği ile emzirme motivasyonu arasında ($p<0,05$) ve emzirme öz-yeterliliği ile benlik saygısı arasında pozitif anlamlı bir ilişki olduğu belirlenmiştir ($p<0,05$).

Sonuç: Araştırma sonuçları sosyo-demografik faktörlerin emzirme öz-yeterlilik üzerinde belirgin bir etkisinin olmadığı belirlenirken sosyal destek ve doğum sayısının belirgin bir etken olduğunu göstermektedir. Emzirme öz-yeterliliği ile emzirme motivasyonu arasında ve emzirme öz-yeterliliği ile benlik saygısı arasında anlamlı bir ilişki olduğu belirlenmiştir.

Anahtar Kelimeler: Emzirme öz-yeterliliği, emzirme motivasyonu, benlik saygısı, hemşirelik, emzirme

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Received: September 19, 2023

Accepted: December 20, 2023

Cite this article as: Ünsal Çimen B, Akdağ Topal C, Boztepe H. Relationship Between Breastfeeding Self-efficacy, Breastfeeding Motivation, and Self-esteem. *Mediterr Nurs Midwifery*. 2024; 4(2):105-111



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Introduction

Breastfeeding offers numerous advantages for both the mother and infant's health and fosters maternal-infant bonding (1). It plays a crucial role in promoting survival and early childhood development (2). The World Health Organization advocates for breastfeeding, recommending that infants should be breastfed for the first six months, with continued breastfeeding up to age two alongside complementary foods (3). According to UNICEF's State of the World's Children 2021 report, approximately 44% of newborns are breastfed within the first hour after birth, while 42% of infants under six months are exclusively breastfed (2). In contrast, data from the Turkey Demographic and health survey 2018 indicates that only 41% of children under six months receive breast milk (4). Breastfeeding has numerous benefits for both mothers and infants. It stimulates uterine contractions, aids in uterine involution, and also assists in postpartum weight loss in mothers, reduces the incidence of diarrhea and respiratory infections in newborns, and contributes to the cognitive development of the infant (5-7).

Breastfeeding is influenced by several factors, which are both extrinsic and intrinsic. Extrinsic factors include hospital policies and practices regarding breastfeeding, access to breastfeeding counseling, the mother's social support system, workplace facilities for breastfeeding, societal attitudes toward breastfeeding, and cultural beliefs and practices related to breastfeeding (8). Intrinsic factors include maternal age, whether the pregnancy was intentional, maternal education, employment status, racial disparities, spousal support, maternal and infant health conditions, and the mode of delivery (9).

Among the intrinsic factors, recent emphasis has been placed on the concept of breastfeeding self-efficacy. Mothers who breastfeed confidently in the early postpartum period tend to have a positive attitude towards breastfeeding and exhibit high self-efficacy (10). Self-efficacy plays a pivotal role in motivation and behavior, influencing actions that can bring about significant changes in people's lives (11). Bandura's social cognitive theory provided the framework for Dennis and Faux (12) to develop the breastfeeding self-efficacy theory. They highlighted that a mother's desires, thoughts and actions regarding breastfeeding significantly impact breastfeeding self-efficacy, asserting that strong intrinsic motivation is crucial for initiating and sustaining breastfeeding. Such motivation is believed to establish a positive connection between self-efficacy and secure attachment during breastfeeding (13).

Self-efficacy is intertwined with self-esteem and motivation. James et al. (14) emphasized the impact of mothers' self-efficacy on breastfeeding motivation, underscoring its role in overcoming breastfeeding-related challenges. Additionally, social and professional support was found to enhance women's breastfeeding self-efficacy (14). Kamalifard et al. (15) explored the relationship between breastfeeding self-efficacy, self-esteem and overall well-being, establishing a positive correlation between increased self-esteem and breastfeeding self-efficacy.

Despite an extensive review of existing literature, no prior studies were identified that predicted breastfeeding self-efficacy, motivation and self-esteem. Therefore, our study aimed to investigate the associations between breastfeeding self-efficacy, self-esteem and motivation in breastfeeding mothers, contributing to an understanding of these essential aspects of maternal and infant health.

Material and Method

Study Design

This cross-sectional study was undertaken to investigate the associations among breastfeeding self-efficacy, breastfeeding motivation and self-esteem in postpartum mothers. The research was conducted in the outpatient Clinics and Obstetrics and Gynecology Clinics at Gazi University Hospital. The study included a sample of 260 postpartum breastfeeding mothers who consented to participate and were under observation at the hospital from November 2022 to March 2023.

Data Collection Tools

Data collection for this study involved the use of four instruments: A socio-demographic form, the breastfeeding self-efficacy scale, the breastfeeding motivation scale and the Rosenberg self-esteem scale.

Socio-demographic Form

This form, specifically developed by the researcher, comprised a total of 28 questions aimed at gathering information about the socio-demographic characteristics of the participating mothers. Prior to its use in the study, three experts in the field of obstetrics and gynecology were consulted to assess the content validity of the form. The form underwent adjustments based on the feedback from these experts, resulting in its final version.

Breastfeeding Self-efficacy Scale

The breastfeeding self-efficacy scale was modified by eliminating 18 items from its original version, resulting in the creation of a 14-item breastfeeding self-efficacy scale-short form (16). The Turkish validity and reliability study of this shortened form was carried out by Alus Tokat et al. (17). The scale uses a five-point Likert scale across its 14 items, with a potential score ranging from 14 to 70. A higher score indicates greater breastfeeding self-efficacy. In this study,

Main Points

- A statistically significant relationship was determined between the breastfeeding motivation and the breastfeeding self-efficacy levels in postpartum women.
- It was determined that an increase in self-esteem scores led to a decrease in breastfeeding self-efficacy scores.
- Prenatal breastfeeding education and programs that support mothers' psychological well-being will also help to develop breastfeeding self-efficacy.

the scale demonstrated a Cronbach's alpha coefficient of 0.87, reflecting its reliability.

Breastfeeding Motivation Scale

The breastfeeding motivation scale was originally developed by Kestler-Peleg et al. (13) on the basis of the principles of the theory of self-determination. Its validity and reliability in the Turkish context were established through the work of Mizrak Sahin et al. (18). The scale adopts a four-point Likert-type scoring system (13), where each item is assessed on a scale ranging from 1 = "strongly disagree" to 4 = "strongly agree", translating to a score of 1-4 points (18). In this study, the Cronbach's alpha coefficient for the scale was calculated to be 0.71, indicating its reliability.

Rosenberg Self-esteem Scale

The Rosenberg self-esteem scale, developed by Winch Robert (19) in 1965, serves as a tool to gauge individuals' self-worth by capturing their positive and negative self-perceptions. Çuhadaroğlu (20) conducted the Turkish validity and reliability study of this scale. The scale employs a four-point Likert-type scoring system, and consists of 63 questions, including multiple-choice questions, which encompass 12 sub-dimensions. In the present study, the self-esteem sub-dimension was used, which consists of 10 questions. In the Turkish validation and reliability study of the Rosenberg self-esteem scale, scores between 0 and 1 indicated high-level self-esteem, scores between 2 and 4 denoted medium-level self-esteem, and scores between 5 and 6 signified low-level self-esteem. The reliability of the scale, as measured by Cronbach's alpha, was established at 0.85 in the Turkish context (20). In this study, the Cronbach's alpha coefficient was calculated to be 0.81, confirming its reliability.

Statistical Analysis

The information obtained from this research was subjected to comprehensive analysis using a variety of statistical methods. This included frequency analysis, mean comparison tests, and correlation tests. To ensure the applicability of these tests, normal distribution and variance homogeneity assumptions were assessed. The Shapiro-Wilk test examined the normality assumption, while the Levene test assessed variance homogeneity. The t-test/Welch test and Mann-Whitney U test was employed to make group comparisons, along with the Kruskal-Wallis H test, suitable for comparing three or more independent groups. In cases where significant results emerged, Dunn's test was applied with Bonferroni correction to account for multiple comparisons. Structural equation modeling was initially utilized to assess the influence of self-esteem and breastfeeding motivation on breastfeeding self-efficacy. However, the breastfeeding motivation scale was excluded from further analysis because the model's statistical results were unattainable. Subsequently, the structural equation model between the Rosenberg self-esteem scale and the breastfeeding self-efficacy scale was evaluated using the DWLS estimator. In hypothesis testing, descriptive statistics

such as arithmetic mean, standard deviation, interquartile range, and minimum and maximum values were included, depending on the nature of the test. Spearman correlation analysis was also employed, with a significance level set at $p < 0.05$ to determine statistical significance.

Ethics of the Study

Ethical considerations were carefully addressed throughout the research process. Prior to commencing the study, formal approval was secured from the Atılım University Human Research Ethics Committee on October 24, 2022, with reference number 47714. Subsequently, necessary permissions were obtained on September 19, 2022 from Gazi University Hospital, the site at which the research would be implemented, with permission number 456724. In addition, written permission to use the assessment scales implemented in the study was obtained from the researchers responsible for conducting the Turkish validity and reliability assessments of these scales. Detailed information about the study's objectives was provided to all participating mothers to promote transparency and ensure informed participation. They were asked to complete a voluntary consent form before proceeding with the data collection process, and written consent was obtained from each participant.

Results

Table 1 provides an overview of the socio-demographic characteristics of mothers in the study. It shows that 51.92% of the mothers had completed university education, 77.69% had experienced cesarean deliveries, 70.38% had received prenatal breastfeeding education, and 66.92% had initiated breastfeeding within the first 30 minutes to one hour after birth. Notably, 98.46% of the participants had introduced breast milk as the first source of nutrition for their infants, while only 6.15% had encountered breastfeeding difficulties. Additionally, 5.38% had sought breastfeeding support, and the vast majority, 95% of the mothers, had received social support. The average parity among participants was calculated as 1.72 ± 0.87 .

Table 2 presents the correlations between the scales used in the study. It reveals that no significant correlation was observed between self-esteem, breastfeeding self-efficacy and breastfeeding motivation levels. However, a statistically significant relationship was established between breastfeeding motivation and breastfeeding self-efficacy levels ($r = 0.385$; $p < 0.05$).

Table 3 provides statistical insights into the structural model between self-esteem and breastfeeding self-efficacy. The corresponding graphic representation of the model is depicted in Figure 1. The structural model outcomes indicate that self-esteem level significantly influenced breastfeeding self-efficacy ($p < 0.05$). It is noteworthy that the path coefficient within the model was negative ($\text{Beta} < 0$), suggesting that an increase in self-esteem scores corresponded to a decrease in breastfeeding self-efficacy scores.

Table 1.
Frequency Distribution Table for Socio-demographic Characteristics (n=260)

Description	Group	n	%
Education	Primary	15	5.77
	Secondary	32	12.31
	High	78	30.00
	University	135	51.92
Working status	Working	137	52.69
	Not working	123	47.31
Mode of delivery	Vaginal	58	22.31
	Cesarean/section	202	77.69
Receiving prenatal breastfeeding education	Yes	183	70.38
	No	77	29.62
Time to initiate breastfeeding	First 30 min	59	22.69
	30 min-1 hr	174	66.92
	2 hr	26	10.00
	Not initiated	1	0.38
Postnatal nutrition	Breastmilk	256	98.46
	Formula milk	2	0.77
	Other	2	0.77
Breastfeeding problem	Yes	16	6.15
	No	244	93.85
Breastfeeding support application status	Yes	14	5.38
	No	246	94.62
Receiving support during breastfeeding	Yes	247	95.00
	No	13	5.00
		Mean ± SD	Min-max
Age		30.04±4.52	21-43
Parity		1.72±0.87	1-5

SD=standard deviation

Table 2.
Scale Correlations

Scales*		Breastfeeding self-efficacy	Rosenberg self-esteem	Breastfeeding motivation
Breastfeeding self-efficacy	r	1		
	p			
Rosenberg self-esteem	r	-0.014	1	
	p	0.822		
Breastfeeding motivation	r	0.385	0.060	1
	p	<0.001	0.337	

**=Spearman's correlation coefficient*

Table 3.
Path Coefficients for Rosenberg Self-esteem and Breastfeeding Self-efficacy

Path	Beta	Standardized beta	Test value	p
RSES → BSES	-0.893	-0.384	-5.831	<0.001

Beta=path coefficient

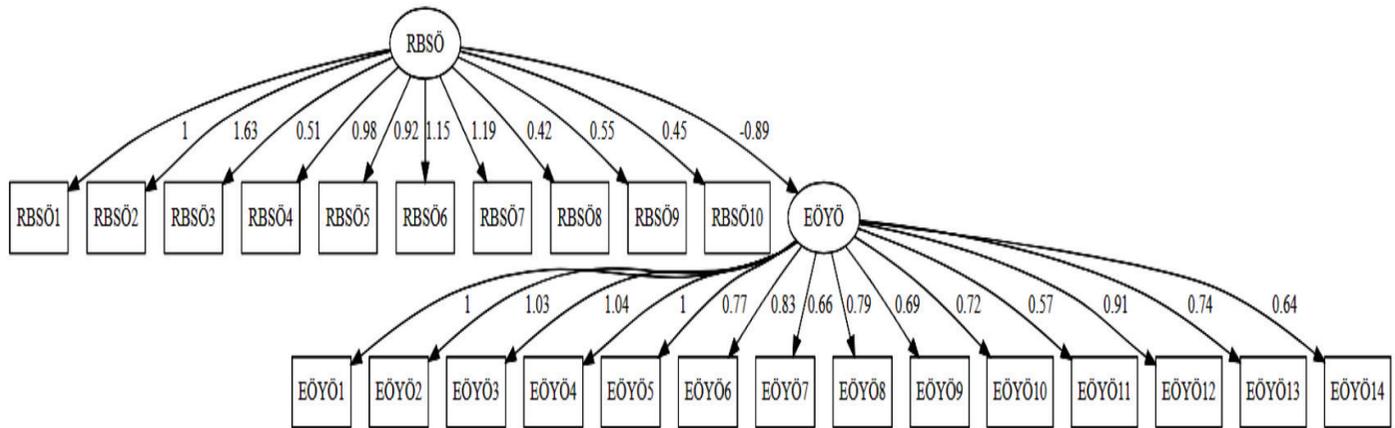


Figure 1.
Structural equation model diagram

Discussion

This study explored the interplay between breastfeeding self-efficacy, breastfeeding motivation and self-esteem among postpartum mothers. The findings revealed significant positive associations between breastfeeding self-efficacy and both breastfeeding motivation ($p<0.05$) and self-esteem ($p<0.05$). A structural equation model was constructed to assess these relationships. This model, however, was not able to include breastfeeding motivation as a predictive factor.

Recent years have seen a surge in research on breastfeeding self-efficacy (21-24), underscoring its substantial impact on successful breastfeeding. Mothers with heightened self-confidence in breastfeeding tend to engage in longer durations of breastfeeding (25). In this study, the mean breastfeeding self-efficacy score among the mothers participating was determined to be 56.11 ± 5.10 . When compared to similar studies in the literature where breastfeeding self-efficacy scores ranged from 40.63 to 60.80 (26-28), our findings suggest that there was a moderate level of breastfeeding self-efficacy among the postpartum mothers in our sample. Importantly, socio-demographic factors have been found to influence breastfeeding self-efficacy (29,30). The existing literature explores a range of factors such as maternal age, education, residence, employment status, social security, and family structure, showing varied outcomes (31-34). This study found no significant disparities in breastfeeding self-efficacy based on maternal age, education level, or employment status ($p>0.05$), possibly due to the homogeneous nature of the central hospital setting.

In addition to socio-demographic factors, obstetric characteristics such as the number of births and mode of delivery have also been linked to breastfeeding self-efficacy (31,34). The number of births has been reported to impact maternal breastfeeding self-efficacy postpartum (35). Various studies have elucidated the relationship between breastfeeding self-efficacy and parity (31,36,37), with multiparous mothers found to exhibiting higher levels of breastfeeding self-efficacy (38). In our study, a statistically significant correlation was detected between the number of births and breastfeeding self-efficacy among postpartum mothers ($r=0.399$; $p<0.05$).

The mode of delivery, in conjunction with parity, has been shown to influence breastfeeding self-efficacy, although research findings on the mode of delivery vary (34,39,40). The present study did not reveal any significant difference in breastfeeding self-efficacy based on the mode of delivery ($p>0.05$). Psychological factors, including social support, have also been demonstrated to affect breastfeeding self-efficacy (41). Social support, by reducing stress and anxiety levels, has been shown to positively influence breastfeeding self-efficacy (41-43). In line with the literature, our study found that women who received support from their spouses and families had significantly higher breastfeeding self-efficacy levels than those who did not receive support ($p<0.05$).

Furthermore, breastfeeding motivation, as an additional psychological determinant, has been highlighted as a positive contributor to maternal well-being and its impact on breastfeeding self-efficacy (12). High motivation among mothers has been associated with better management

of the breastfeeding process and elevated breastfeeding self-efficacy (18). The present study corroborated these findings, indicating a significant relationship between breastfeeding self-efficacy and breastfeeding motivation ($p < 0.05$). According to Bandura's theory, individuals with low self-efficacy tend to reduce self-confidence, leading to lower self-esteem. Studies in the literature have supported this notion by demonstrating a relationship between self-efficacy and self-esteem (44,45). In our study, we found a significant relationship between breastfeeding self-efficacy and all the dimensions of self-esteem, as outlined in Bandura's theory ($p < 0.05$). In summary, this study showed that socio-demographic factors had no significant impact on breastfeeding self-efficacy, whereas social support and parity were significantly related to breastfeeding self-efficacy. Additionally, significant associations were observed between breastfeeding self-efficacy, breastfeeding motivation, and self-esteem.

Conclusion

In alignment with the results of our study, it is recommended to enhance prenatal breastfeeding education programs by incorporating elements that focus on the psychological well-being of mothers. Such programs should encompass strategies to support the emotional and mental aspects of mothers during the breastfeeding journey. Nurses and healthcare providers play a pivotal role in this process and should actively involve family members in training and practices, fostering an environment of familial and spousal support for breastfeeding mothers. Additionally, it would be beneficial to implement assessment scales during both the prenatal and postnatal periods to identify specific areas where interventions can enhance mothers' breastfeeding self-efficacy and motivation. Furthermore, there is a need to expand the body of research focusing on self-esteem and breastfeeding self-efficacy in pregnant and postpartum women. More studies should be undertaken to deepen our understanding of these factors and their interplay, thus enabling healthcare professionals to provide more effective support. Considering our study's outcomes, we recommend that future research endeavors consider conducting multicenter studies with larger sample sizes to account for data heterogeneity and enhance the generalizability of findings. This approach will help further our understanding of the dynamics surrounding breastfeeding self-efficacy, motivation and self-esteem among postpartum mothers and potentially lead to more accurately targeted interventions and support strategies.

Acknowledgments

The authors would like to thank all of the students who agreed to participate in this study.

Ethics Committee Approval: Ethics committee approval was received for this study from the Human Research Ethics Committee of the Atılım University (date: 24/10/2022, permission: 47714).

Informed Consent: Verbal consent was obtained from the participants in this study.

Author Contributions: Conception – B.Ü.Ç., C.A.T., H.B.; Design – C.A.T., H.B.; Data Collection and/or Processing – B.Ü.Ç.; Analysis and/or Interpretation – B.Ü.Ç., C.A.T., H.B.; Literature Review – B.Ü.Ç., C.A.T., H.B.; Writing – B.Ü.Ç., C.A.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. Binns C, Lee M, Low WY. The Long-Term Public Health Benefits of Breastfeeding. *Asia Pac J Public Health*. 2016;28(1):7-14. [\[Crossref\]](#)
2. UNICEF. Infant and young child breastfeeding (cited 2021 September). Access date: 01.07.2022 [\[Crossref\]](#)
3. World Health Organization. Infant and young child breastfeeding (cited 2021 June). Access date: 25.6.2022 [\[Crossref\]](#)
4. Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü. (2019). 2018 Türkiye Nüfus ve Sağlık Araştırması. Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü, T.C. Cumhurbaşkanlığı Strateji ve Bütçe Başkanlığı ve TÜBİTAK, Ankara, Türkiye. [\[Crossref\]](#)
5. Quigley MA, Carson C, Sacker A, Kelly Y. Exclusive breastfeeding duration and infant infection. *Eur J Clin Nutr*. 2016;70(12):1420-1427. [\[Crossref\]](#)
6. Nadeem A, Nadeem J, Sarwar MH, Sarwar M. Making the decision to breastfeed the baby and its advantages for the women's health'. *American Journal of Food Science and Health*. 2017;3(5):88-94. [\[Crossref\]](#)
7. Jarlenski MP, Bennett WL, Bleich SN, Barry CL, Stuart EA. Effects of breastfeeding on postpartum weight loss among U.S. women. *Prev Med*. 2014;69:146-150. [\[Crossref\]](#)
8. Kimani-Murage EW, Wekesah F, Wanjohi M, Kyobutungi C, Ezeh AC, Musoke RN, et al. Factors affecting actualisation of the WHO breastfeeding recommendations in urban poor settings in Kenya. *Matern Child Nutr*. 2015;11(3):314-332. [\[Crossref\]](#)
9. Balogun, Balogun OO, Dagvadorj A, Anigo KM, Ota E, Sasaki S. Factors influencing breastfeeding exclusivity during the first 6 months of life in developing countries: a quantitative and qualitative systematic review. *Matern Child Nutr*. 2015;11(4):433-451. [\[Crossref\]](#)
10. Pavicic P, Pavicic Bosnjak A, Rumboldt M, Stanojevic M, Dennis CL. Psychometric assessment of the croatian version of the breastfeeding self-efficacy scale-short form. *J Hum Lact*. 2012;28(4):565-569. [\[Crossref\]](#)
11. Bandura A. Self-efficacy, In *Encyclopedia of Human Behavior*, VS Ramachaudran (editor). New York: Academic Press. 1994;4:71-81. [\[Crossref\]](#)
12. Dennis CL, Faux S. Development and psychometric testing of the Breastfeeding Self-Efficacy Scale. *Res Nurs Health*. 1999;22(5):399-409. [\[Crossref\]](#)
13. Kestler-Peleg M, Shamir-Dardikman M, Hermoni D, Ginzburg K. Breastfeeding motivation and Self-Determination Theory. *Soc Sci Med*. 2015;144:19-27. [\[Crossref\]](#)
14. James L, Sweet L, Donnellan-Fernandez R. Self-efficacy, support and sustainability - a qualitative study of the experience of establishing breastfeeding for first-time Australian mothers following early discharge. *Int Breastfeed J*. 2020;15(1):98. [\[Crossref\]](#)

15. Kamalifard M, Mirghafourvand M, Ranjbar F, Sharajabad FA, Gordani N. Relationship of Breastfeeding Self-Efficacy with Self-Esteem and General Health in Breastfeeding Mothers Referred to Health Centers of Falavarjan City-Iran, 2015. *Community Ment Health J.* 2019;55(6):1057-1063. [\[Crossref\]](#)
16. Dennis CL. The breastfeeding self-efficacy scale: psychometric assessment of the short form. *J Obstet Gynecol Neonatal Nurs.* 2003;32(6):734-744. [\[Crossref\]](#)
17. Alus Tokat M, Serçekuş P, Yenil K, Okumuş H. Early postpartum breast-feeding outcomes and breast-feeding self-efficacy in Turkish mothers undergoing vaginal birth or cesarean birth with different types of anesthesia. *Int J Nurs Knowl.* 2015;26(2):73-79. [\[Crossref\]](#)
18. Mizrak Sahin B, Ozerdogan N, Ozdamar K, Gursoy E. Factors affecting breastfeeding motivation in primiparous mothers: An application of breastfeeding motivation scale based on self-determination theory. *Health Care Women Int.* 2019;40(6):637-652. [\[Crossref\]](#)
19. Winch Robert F. Rosenberg: society and the adolescent self-image (book review). *Social Forces.* 1965;44(2):255. [\[Crossref\]](#)
20. Çuhadaroğlu F. Adölesanlarda benlik saygısı. *Uzmanlık Tezi, Hacettepe Üniversitesi Tıp Fakültesi Psikiyatri Anabilim Dalı, Ankara.* 1986. [\[Crossref\]](#)
21. Shamsdanesh S, Nourizadeh R, Hakimi S, Ranjbar F, Mehrabi E. The effect of counseling with stress management approach on postpartum anxiety and distress and breastfeeding self-efficacy during COVID-19 pandemic: a randomized controlled trial. *BMC Pregnancy Childbirth.* 2023;23(1):26. [\[Crossref\]](#)
22. Brockway M, Mcleod S, Kurilova J, Fenton TR, Duffett-Leger L, Benzie KM. Breastfeeding self-efficacy predicts breastmilk feeding in preterm infants at discharge from the neonatal intensive care unit. *Nurs Open.* 2023;10(3):1863-1870. [\[Crossref\]](#)
23. Utami R, Arief YS. The effectiveness of breastfeeding self-efficacy intervention on implementation of breastfeeding in low-birth-weight infants: A systematic review. *J Pak Med Assoc.* 2023;73(Suppl 2):S153-S157. [\[Crossref\]](#)
24. Hosseini SA, Vakilian K, Shabestari AA, Nokani M, Almasi A. Effect of midwife-led breastfeeding counseling based on Bandura's model on self-efficacy and breastfeeding performance: an educational trial study. *The Open Public Health Journal.* 2023;16(1). [\[Crossref\]](#)
25. Ansari S, Abedi P, Hasanpoor S, Bani S. The Effect of Interventional Program on Breastfeeding Self-Efficacy and Duration of Exclusive Breastfeeding in Pregnant Women in Ahvaz, Iran. *Int Sch Res Notices.* 2014;2014:510793. [\[Crossref\]](#)
26. Elgzar WT, Al-Thubaity DD, Alshahrani MA, Essa RM, Ibrahim HA. The Relationship between Maternal Ideation and Exclusive Breastfeeding Practice among Saudi Nursing Mothers: A Cross-Sectional Study. *Nutrients.* 2023;15(7):1719. [\[Crossref\]](#)
27. Küçüköğlü S, Çelebioğlu A, Coşkun D. Yenidoğan kliniğinde bebeği yatan annelerin postpartum depresyon belirtileri ve emzirme öz yeterlilik düzeylerinin belirlenmesi. *Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi.* 2014;3(3):921-932. [\[Crossref\]](#)
28. Şenol DK, Pekyığıt A. Normal doğum ve sezaryende doğum sonu stresin emzirme öz-yeterliliğine etkisi. *Jinekoloji-Obstetrik ve Neonatoloji Tıp Dergisi.* 2021;18(4):1062-1069. [\[Crossref\]](#)
29. Ahmad Zadeh Beheshti M, Alimoradi Z, Bahrami N, Allen KA, Lissack K. Predictors of breastfeeding self-efficacy during the covid-19 pandemic. *J Neonatal Nurs.* 2022;28(5):349-355. [\[Crossref\]](#)
30. Gümüşsoy S, Çelik NA, Güner Ö, Kıratlı D, Atan ŞÜ, Kavlak O. Investigation of the Relationship Between Maternal Attachment and Breastfeeding Self-Efficacy and Affecting Factors in Turkish Sample. *J Pediatr Nurs.* 2020;54:e53-e60. [\[Crossref\]](#)
31. Ngo LTH, Chou HF, Gau ML, Liu CY. Breastfeeding self-efficacy and related factors in postpartum Vietnamese women. *Midwifery.* 2019;70:84-91. [\[Crossref\]](#)
32. Awaliyah SN, Rachmawati IN, Rahmah H. Breastfeeding self-efficacy as a dominant factor affecting maternal breastfeeding satisfaction. *BMC Nurs.* 2019;18(Suppl 1):30. [\[Crossref\]](#)
33. Maleki-Saghooni N, Amel Barez M, Moeindarbari S, Karimi FZ. Investigating the breastfeeding self-efficacy and its related factors in primiparous breastfeeding mothers. *International Journal of Pediatrics.* 2017;5(12):6275-6283. [\[Crossref\]](#)
34. Poorshaban F, Pakseresht S, Bostani Khalesi Z, KazemNejad Leili E. Factors associated with breastfeeding self-efficacy of mothers within 6 weeks of delivery. *Journal of Holistic Nursing and Midwifery.* 2017;27(1):27-34. [\[Crossref\]](#)
35. Yang X, Gao LL, Ip WY, Sally Chan WC. Predictors of breast feeding self-efficacy in the immediate postpartum period: A cross-sectional study. *Midwifery.* 2016;41:1-8. [\[Crossref\]](#)
36. Bartle NC, Harvey K. Explaining infant feeding: The role of previous personal and vicarious experience on attitudes, subjective norms, self-efficacy, and breastfeeding outcomes. *Br J Health Psychol.* 2017;22(4):763-785. [\[Crossref\]](#)
37. Işık G, Egeliöğlü Çetisli N, Başkaya VA. Postpartum pain, fatigue levels and c self-efficacy according to type of birth. *Deuhfed.* 2018;11:224-232. [\[Crossref\]](#)
38. Kronborg H, Foverskov E, Væth M, Maimburg RD. The role of intention and self-efficacy on the association between breastfeeding of first and second child, a Danish cohort study. *BMC Pregnancy Childbirth.* 2018;18(1):454. [\[Crossref\]](#)
39. Monteiro JCDS, Guimarães CMS, Melo LCO, Bonelli MCP. Breastfeeding self-efficacy in adult women and its relationship with exclusive maternal breastfeeding. *Rev Lat Am Enfermagem.* 2020;28:e3364. [\[Crossref\]](#)
40. Buran G, Ozyazicioglu N, Aydın AI, Atak M. Evaluation of breastfeeding success and self-efficacy in mothers giving birth via vaginal delivery or cesarean section: a cross-sectional study. *Women Health.* 2022;62(9-10):788-798. [\[Crossref\]](#)
41. Henshaw EJ, Fried R, Siskind E, Newhouse L, Cooper M. Breastfeeding Self-Efficacy, Mood, and Breastfeeding Outcomes among Primiparous Women. *J Hum Lact.* 2015;31(3):511-518. [\[Crossref\]](#)
42. Barona-Vilar C, Escribá-Agüir V, Ferrero-Gandía R. A qualitative approach to social support and breast-feeding decisions. *Midwifery.* 2009;25(2):187-194. [\[Crossref\]](#)
43. Chrzan-Dełkoś M, Walczak-Kozłowska T, Pietkiewicz A, Żołnowska J. Improvement of the breastfeeding self-efficacy and postpartum mental health after lactation consultations - Observational study. *Midwifery.* 2021;94:102905. [\[Crossref\]](#)
44. Morton M, Montgomery P. Youth empowerment programs for improving adolescents' self-efficacy and self-esteem: A systematic review. *Research On Social Work Practice.* 2013;23(1):22-33. [\[Crossref\]](#)
45. Yorra ML. Self-efficacy and self-esteem in third-year pharmacy students. *Am J Pharm Educ.* 2014;78(7):134. [\[Crossref\]](#)



ORIGINAL ARTICLE

The Effect of Padlet on Nursing Students' Drug Dose Calculation Skills

Hemşirelik Öğrencilerinin İlaç Doz Hesaplama Becerilerinde Padlet'in Etkisi

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Abstract

Objective: Nursing students attended distance learning due to the pandemic, which made it more difficult for them to learn how to calculate the right dose because drug dose calculation requires constant practice. This study investigated whether Padlet helped nursing students to learn how to calculate the right dose.

Method: This study adopted a single-group pretest-posttest experimental research design. This study was conducted in the nursing department of a university in Turkey. The sample consisted of 42 first-year nursing students. Students participating in the research answered the "form for promotional features" and "drug dose calculation knowledge test" sent via Google Forms. Then, the researcher and participants shared and discussed the questions, pictures, and videos they prepared for drug dose calculation on Padlet for three weeks. At the end of three weeks, all participants filled out the knowledge test again. Number, percentage, and Wilcoxon test were used for data analysis.

Results: It was determined that the students' test score average regarding drug dose calculation skills increased at a statistically significant level ($p<0.05$). It was determined that the students' knowledge level in calculating milligrams of drugs, converting drug units, and preparing scale and tablet type drugs increased significantly.

Conclusion: At the end of the study, it was determined that different web 2.0 tools used in distance education enabled students to actively provide continuous education and increase their drug dose calculation skills. It is suggested that such applications are effective in extracurricular learning and can be used in applied subjects.

Keywords: Distance learning, drug, nursing students, dose

Öz

Amaç: Pandemi nedeniyle uzaktan eğitime devam eden hemşirelik öğrencileri, ilaç dozu hesabı sürekli pratik gerektirdiğinden doğru dozun nasıl hesaplanacağını öğrenmelerini zorlaştırdı. Bu çalışma, Padlet'in hemşirelik öğrencilerinin doğru dozu nasıl hesaplayacaklarını öğrenmelerine yardımcı olup olmadığını araştırdı.

Yöntem: Çalışma, tek gruplu ön-son testli müdahale çalışmasıdır. Araştırma Türkiye'de bir üniversitenin hemşirelik bölümünde okuyan öğrenciler ile yapılmıştır. Araştırmaya birinci sınıfta öğrenim gören 42 hemşirelik öğrencisi katılmıştır. Araştırmaya katılan öğrenciler, Google Formlar ile gönderilen "tanıtıcı özelliklerine yönelik form" ve "ilaç doz hesabı bilgi testi"ni cevaplamıştır. Daha sonra araştırmacı ve öğrenciler üç hafta boyunca doz hesabına yönelik hazırladıkları soru, resim ve videoları Padlet üzerinden paylaşmış ve tartışmışlardır. Üç hafta sonunda öğrenciler tekrar bilgi testini doldurmuştur. Verilerin değerlendirilmesinde; sayı, yüzdelik ve Wilcoxon testi kullanılmıştır.

Bulgular: Öğrencilerin ilaç doz hesaplama becerilerine ilişkin test puan ortalamasının istatistiksel açıdan anlamlı düzeyde arttığı belirlenmiştir ($p<0,05$). Öğrencilerin ilaçları miligram hesabı yapabilme, ilaç birimlerini dönüştürme, ölçek ve tablet türü ilaçların hazırlanmasında bilgi düzeylerinin anlamlı derecede arttığı belirlenmiştir.

Sonuç: Çalışma sonunda uzaktan eğitimde kullanılan farklı web 2,0 araçlarının öğrencileri aktif kılarak sürekli öğretimi sağladığı ve ilaç doz hesaplama becerilerini artırdığı belirlenmiştir. Bu tür uygulamaların ders dışı öğrenmede etkili olduğu ve uygulamalı konularda kullanılabileceği önerilmektedir.

Anahtar Kelimeler: Uzaktan öğretim, ilaç, hemşirelik öğrencileri, doz

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Received: August 03, 2023

Accepted: December 21, 2023

Cite this article as: Bıyık Bayram Ş. The Effect of Padlet on Nursing Students' Drug Dose Calculation Skills. Mediterr Nurs Midwifery. 2024; 4(2): 112-119

***It was presented as an oral presentation at the congress titled "The Future of Nursing Education Symposium 3: Approaches to Improve Education in the Pandemic Process" held online on September 27-29, 2021.**



Introduction

Nurses are responsible for preparing and administering drugs in accordance with physicians' orders. There are ten principles of medication administration (right patient, right medication, right dose, right time, right route, right documentation, proper patient education, right to refuse, rejection verification, and correct assessment) that must be followed to ensure patients safety (1). Academicians teach these rights theoretically and practically in the nursing principles course. Therefore, nurses are expected to adhere to them in their professional life. However, the most challenging principle for nursing students is "calculating the right dose" (2-6). They experience anxiety when calculating the right dose requires mathematical knowledge and skills. Calculating the right dose require students to think, formulate, and calculate (2). In the fundamentals of nursing course, academics teach first-year students how to calculate oral and parenteral medications and administer them to patients. They teach students how to use calculation methods and formulas and present them with examples. However, research has shown that students experience anxiety because they cannot use those calculation methods and formulas (7). This shows that students have difficulty putting theory into practice (8). Academics should present theoretical knowledge with cases to help students use that knowledge in clinical practice. But, nursing students could not perform clinical clerkships because Turkey shifted to distance learning due to the Coronavirus disease-2019 (COVID-19) pandemic. Therefore, they did not have the chance to put theoretical knowledge into practice. In other words, they could not practice calculating the right drug dose, convert different types of medical units, and diluting medications with solutions. Nursing students experience stress and cause medication errors in real-life clinical settings when they cannot calculate the right drug dose threatens patients safety, disrupts treatments, and negatively impacts nursing care outcomes (7).

According to the Joint Commission on Accreditation of Healthcare Organizations, 354 (5.4%) of the 6.554 medical errors between 2004 and 2012 were medication errors (9). Nursing students and nurses make medication administration errors (10-12). Zaybak et al. (12) reported that nursing students believed that they knew little about medication administration practices. They also found that only one in ten nursing students knew enough about drugs and drug applications (12.7%), while only three in ten knew enough about drug dose calculation (29.5%) (12). Çoban et

al. (13) also determined that nurses had difficulty following the ten rights. Wrong dose administration accounts for 6.9% of all medical errors (14). Research shows that nurses administer medications without calculating their doses correctly (15,16). Çevik et al. (17) reported that nine in ten first-year nursing students administered the wrong dose of medication (89.7%). On the other hand, Özyazıcıoğlu et al. (18) found that nine in ten nursing students (n=148) answered the drug dose correctly. Taşkıran et al. (19) documented that only three in ten nursing students had adequate drug dose calculation skills (26.8%), whereas two in five answered all drug dose calculation problems correctly (41.8%). Cebeci et al. (14) found that two in five nursing students (n=324) made medication errors during practice. Unver et al. (20) claim that newly graduated nurses are inexperienced, which is one of the main reasons for medication errors.

Web 2.0 tools offer innovative learning opportunities in distance education today (21). Researchers maintain that academics can use Web 2.0 tools to teach nursing students how to calculate the right dose (22-24). Web 2.0 tools allow nursing students to meet on a single platform, go over study topics, use visuals and videos to anchor key points, and put their knowledge into practice. Digital environments allow distance learners to interact. Padlet helps students interact with each other and instructors outside the classroom (25). Padlet is a digital clipboard application. Instructors can add texts, videos, visual presentations, animations, and games to the clipboard, allowing students to see all resources digitally, listen to lectures at any time, and enjoy learning. Padlet motivates teachers and students to discuss and brainstorm about things outside the classroom (26). It provides opportunities for cooperative learning, peer learning, and self-assessment (27).

Interactive applications motivate students, allow them to grasp subjects quickly, and positively affect their attitudes toward courses (28). Technological tools allow nursing students to take theoretical lessons and perform procedures by watching interactive videos and animations outside the laboratory. Thus, students make fewer mistakes in real-life clinical settings (29). Karabağ Aydın and Dinç (22) and Öztürk (30) also reported that nursing students who received web-based training were better at calculating drug doses. Kim and Suh (31) maintain that interactive mobile training is effective. Based on these results, Web 2.0 tools may help nursing students learn how to prepare and administer medications. Therefore, this study investigated whether Padlet helped nursing students learn how to prepare and administer medications.

Research Hypotheses

H₀: Padlet does not help nursing students learn how to prepare and administer medications.

H₁: Padlet helps nursing students learn how to prepare and administer medications.

Main Points

- Drug dose calculation skills require nursing students' ability to calculate.
- Preparing drugs in appropriate doses is an important practice in the clinic where students are stressed and may pose a risk in terms of patient safety.
- Today's Generation Z students enjoy working from digital resources outside of the classroom.
- Padlet provides students with an interactive learning environment with the instructor and each other outside of the classroom.

Material and Method

Aim of the Research

This study investigated whether Padlet helped nursing students learn how to calculate the right drug dose.

Design

This study adopted a single-group pre-post test quasi-experimental research design.

Participants

The study population consisted of 182 first-year students enrolled in the fundamentals of nursing II course in the spring semester of the 2020-2021 academic years in the nursing department of the faculty of health sciences of a university in Turkey. Students who accepted to participate in the study and met the inclusion criteria were included in the study. The sample consisted of 42 participants. A power analysis (G*Power 3.1) was performed based on the results at the end of the study. The results showed that the sample was large enough to detect significant differences (effect size=0.894, df=41, and power=99%).

Inclusion criteria

- Taking Fundamentals of Nursing II course for the first time
- Having a mobile phone or computer
- Having internet access,

Exclusion criteria:

- Having used Padlet before
- Have been trained in drug dose calculation

Data Collection Techniques and Tools

The data were collected online (Google Forms) using a Descriptive Characteristics Questionnaire (DCQ) and a Drug Dose Calculation Knowledge Test (DDCKT).

DCQ

The DCQ was based on a literature review conducted by the researcher (19,22,30,32). The questionnaire consisted of eight items on age, gender, grade level, degree, digital apps used, the contribution of digital tools to learning, adequacy of drug dose calculation knowledge, and demand for training.

DDCKT

The DDCKT was based on a literature review conducted by the researcher (19,22,30,32). The test consisted of 15 items. Three experts were consulted to prepare the test. A pilot study was conducted with 82 nursing students to check for intelligibility and relevance and to establish item difficulty and item discrimination indices. The item difficulty and discrimination indices were analyzed according to the evaluation criteria (33). The results showed that the two

items were difficult and indiscriminative ($p < 0.60$, $r < 0.20$). Therefore, they were removed from the test, with 13 items remaining (KR20=0.70). The test had a Cronbach's Alpha of 0.70. The items were scored as 0 (wrong answers) or 1 (correct answers). The total score ranged from 0 to 13.

Creating a Class on the Padlet

The researcher signed into Padlet (<https://tr.padlet.com/dashboard>) and created a wall titled "drug dose calculations" (Figure 1).

Question content included mg of medicine by age, unit calculation, unit conversion, and dilution of tablets, suspensions, or dry powdered medicines. The researcher shared the wall only with the participants. The wall allowed participants to ask questions to the researcher and to see each other's posts.

Conducting the Research

The study was conducted in April 2021 during the pandemic. Within the scope of the nursing principles course, the researcher delivered a two-hour theoretical lecture online on drug dose calculation. After the class, the researcher briefed the students about the research purpose and procedure and received informed consent from those who agreed to participate. Afterward, the researcher sent the students the DCQ and DDCKT and gave them one day to fill them out. The researcher shared a link to the Padlet class after participants filled out the DCQ and DDCKT (pre-test). The researcher uploaded a new question to Padlet daily and discussed participants' solutions with them. Discussion periods were approximately 15 minutes long and were held 4 times a day. The researcher uploaded various questions about drug dose calculation to Padlet and asked them to solve the questions and upload their solutions to Padlet. Participants prepared pictures or videos of their solutions and shared them on Padlet. Participants could see each other's posts, ask each other written questions, and get answers. The researcher monitored all participants' posts and approved those who answered the questions appropriately, while she guided those who did not and helped them reach the correct answer. This activity continued online for three weeks. At the

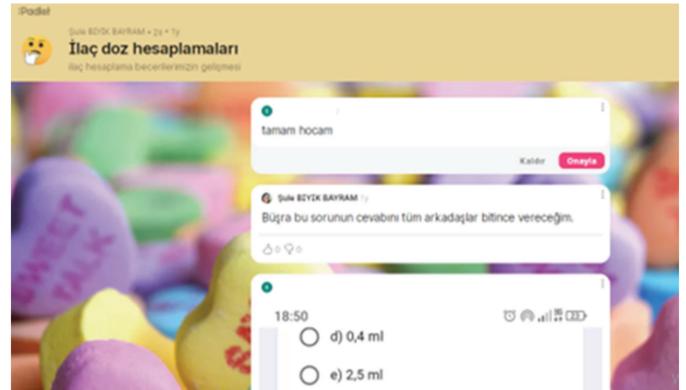


Figure 1.
Padlet platform

end of three weeks, participants filled out the DDCKT again (post-test) (Figure 2).

Statistical Analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS, v. 23.0) at a significance level of 0.05. Percentage, median, and standard deviation values were used for analysis. The Kolmogorov-Smirnov test was used for normality testing. Wilcoxon signed-rank test was used because the data were not normally distributed. Wilcoxon test was used to determine the difference between the pre-test and post-test scores.

Ethical Considerations

The study was approved by the Karadeniz Technical University Medical Faculty Scientific Research Ethics Committee (2021/199, no: 24237859-535, date: 17.06.2021). Institution permission was obtained from the university faculty of health sciences, nursing department. All students were informed about the research purpose and procedure and those who agreed to participate in the study signed the informed consent form. In the Google Form, informed consent form was first given and they were asked to mark the text "I confirm to participate in the study". The students who made the mark were able to fill out the questionnaire.

Results

Participants had a mean age of 19.04 ± 0.96 . Most participants were women (76.2%) with Anatolian high school degrees (73.8%). The majority of the participants used digital sources (71.4%), such as videos (83.3%), edpuzzle (52.4%), quizzz (54.8%) pixton (19%), videos we made at home (40.5%), and articles (14.3%). More than half of the participants believed that digital sources were useful (66.7%). More than half of the participants stated that they had moderate drug dose calculation skills (57.1%). Most participants wanted to receive drug dose calculation training (88.1%) (Table 1).

Participants had a significantly higher mean score posttest DDCKT than the pre-test score ($p < 0.001$) (Table 2).

When compared according to the question content, there was an increase in the number of correct answers for each question. There was a statistically significant increase in the number of correct questions in the preparation of liquid- and suspension-type drugs and unit conversion calculations ($p = 0.01$, $p < 0.001$, $p = 0.02$, $p < 0.001$) (Table 3).

Discussion

Calculating the right dose is one of the six principles of drug administration. Nursing students learn how to administer medications theoretically and put them into practice in clinics until graduation (34). They must first calculate the right drug dose in laboratories and administer the drugs on models until they get it right because medication safety is one of the principles of patient safety. Many universities have adopted the distance mode of learning during the COVID-19 pandemic. Therefore, educational methods, such as e-learning and mobile learning, have become increasingly popular (29). Today, academics use virtual environments to interact with students and to enable them to study, ask questions, and interact with each other at any time and place (28). Taşkıran et al. (19) recommend that nursing curricula should address drug dose calculation more often in order to help students develop those skills.

Our participants had a significantly higher mean post-test score DDCKT than the pre-test score ($p < 0.001$) (Table 2). Research also shows that various techniques help nursing students learn how to calculate the right drug dose (22,35-38). Mariani et al. (35) reported that nursing students who received simulation training learned more about drug safety and became more competent. Basak et al. (36) also found that nursing students who attended low-level environmental fidelity simulation developed drug dose calculation skills. Pol-Castañeda et al. (37) determined that simulation-based training increased the correct dose preparation skills of nurses from 60.3% to 100%.

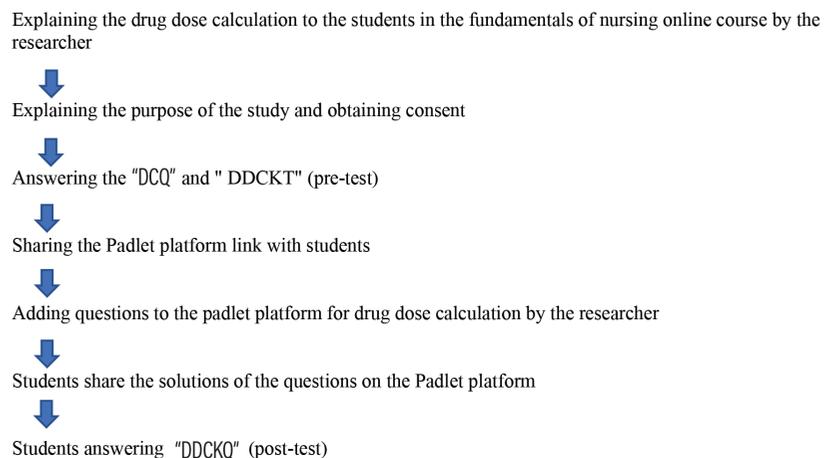


Figure 2.
Flow chart of the research

Table 1.
Descriptive Characteristics Questionnaire (n=42)

Descriptive characteristics	n (%)
Age Mean ± SD=19.04±0.96	
Gender	
Woman	32 (76.2)
Man	10 (23.8)
The school you last graduated from	
High school	7 (16.7)
Anatolian high school	31 (73.8)
Health vocational high school	4 (9.5)
Digital resource usage status	
I use	30 (71.4)
Partially	12 (28.6)
Resources useful for learning*	
Video	35 (31.53)
Edpuzzle	22 (19.81)
Guizz	23 (20.72)
Pixton	8 (7.20)
Videos we made ourselves at home	17 (15.31)
Articles	6 (5.40)
Advantage of digital resources in learning	
Advantageous	28 (66.7)
Disadvantageous	1 (2.4)
Partially	13 (31)
How good is your drug dose calculation information?	
Very good	2 (4.8)
Good	9 (21.4)
Middle	24 (57.1)
Bad	4 (9.5)
Too bad	3 (7.1)
Desire to receive training on drug calculations	
Yes	37 (88.1)
No	5 (11.9)

*=More than one answer is marked, SD=standard deviation

Table 2.
Comparison of Students' Knowledge Levels About Drug Dose Calculations Before and After Padlet

Score	Knowledge		Statistical evaluation *	
	Mean ± SD	Median (min-max)	Z	p
Pre-test	9.64±2.65	10 (2-12)	3.610	<0.001
Post-test	11.11±1.04	11 (9-13)		

*=Wilcoxon test, SD=standard deviation

Grugnetti et al. (38) also documented that nursing students who attended a clinical skills workshop developed more drug dose calculation skills. Karabağ Aydın and Dinç (22) reported that students who performed web-based medication dose calculation had improved their skill levels. Hitam (39) investigated the utilization of web-based instruction among 122 second-year students. Students' skills improved based on mathematics diagnostic test results (39). McMullan et

al. (40) compared traditional "handout" learning support with an interactive e-drug calculation package, including drug calculation skills, self-efficacy, and satisfaction with the support material. Stake-Nilsson et al. (41) state that articles draw on digital technologies such as web-based platforms, e-learning modules, calculators, simulation, and personal digital assistants, such as hand-held computers. These results indicate that academics should use teaching

Table 3.
Comparison of Students' Pre and Post Padlet Drug Dose Calculation Question Types

Question types	Pre-test n (%)	Post-test n (%)	Statistical evaluation *	
			Z	p
Calculating liquid medicine in mg	29 (69)	38 (90.5)	2.496	0.01
Calculating the unit of medication to be given according to weight	37 (88.1)	41 (97.6)	1.633	0.10
Reconstitution of powdered medicine	34 (81)	38 (90.5)	1.265	0.20
Unit conversion	33 (78.6)	36 (85.7)	0.905	0.36
Calculating the scale of the drug in suspension	28 (66.7)	40 (95.2)	3.207	<0.001
Make a daily tablet account	37 (88.1)	40 (95.2)	1.134	0.25
Unit calculation	38 (90.5)	40 (95.2)	0.816	0.41
Calculate units by unit conversion	39 (92.9)	39 (92.9)	0.000	1.00
Diluting the drug and taking the appropriate dose of the drug	39 (92.9)	38 (90.5)	0.378	0.70
Drug withdrawal to the insulin injector according to the dose calculation	33 (78.6)	35 (83.3)	0.577	0.56
Dilute the powdered drug in the desired mL and take the appropriate dose	30 (71.4)	33 (78.6)	0.775	0.43
Calculate gr from mg	26 (61.9)	33 (78.6)	2.333	0.02
Calculate tablet by unit conversion	2 (4.8)	15 (35.7)	3.464	<0.001

*=Wilcoxon test

techniques and offer web-based systems to help students develop dose calculation skills. Online digital tools (web pages or Web 2.0 tools) make students active and enable them to learn by revision at any time and place. Therefore, it is recommended to include these tools in the curriculum to encourage students to study outside the classroom to support face-to-face education.

After the intervention, more participants answered some questions correctly, such as preparing liquid and suspension drugs and converting units. Our participants answered the question "tablet calculation by unit conversion" (4.8%) correctly the least. Taşkıran et al. (19) found that two out of every five nursing students (n=194) incorrectly converted unit doses (37.1%). Karabağ Aydın and Dinc (22) reported that 55.6% of the students were able to answer questions about ratio-proportion concepts, whereas 4.8% were able to convert measurement units. Özyazıcıoğlu et al. (18) found that most students taking pediatrics courses were correct in dose calculations according to the age of the child (87.1%), 9.5% were incorrect, and 3.4% left blank. More than half of the students (69.6%) found the safe dose range, and 79.1% found the correct rate. Özyazıcıoğlu et al. (18) also determined that students might make ten times more errors when miscalculating decimal values in dose calculations. Therefore, nursing students should perform drug dose calculations carefully and repeatedly until they are sure of the results. These results suggest that students have difficulty converting units because they do not have sufficient math calculation skills. Therefore, teaching students math skills before drug dose calculation applications is important. Academics should overcome the deficiencies in students'

mathematical knowledge of ratio-proportion and unit conversion, frequently used in pharmaceutical applications.

In distance education, web 2.0 tools such as kahoot, quizzz, edpuzzle, and crossword can be used to increase the learning skills of students wherever and whenever they want. In this study, the padlet was used as a digital resource to increase students' drug dose calculation skills (42). In this study, seven in ten participants stated that they used digital resources (71.4%). More than half of the participants noted that digital resources were beneficial for learning and that these resources were programs such as videos (83.3%), edpuzzle (52.4%), and quizzz (54.8%). Kahoot, Mentimeter, Quizizz, Pictochart, and Padlet, known as Web 2.0 tools in nursing education, provide learner-centered teaching strategies. After the pandemic, nursing educators use web-based tools more widely (43). Using such tools as course materials and revealing their importance will guide educators. The web and social media help Generation Z students to realize their learning goals because they use them frequently outside the classroom.

After the intervention, student opinions were taken. More than half of our participants believed they had moderate drug dose calculation skills (57.1%). Most participants noted that they would like to receive training in drug dose calculation (88.1%). Çelik and Şendir (32) also found that nursing students had average dose calculation skill scores. Different programs have been developed to increase nursing students' knowledge about drug dose calculation. For example, Bagnasco et al. (44) developed the safe Medicate and eDose™ (Authentic World Ltd.) tool. The tools

should include lectures and tests that will enable students to improve their math skills. After developing their math skills, they should learn how to calculate the right drug dose (44). Mackie and Bruce (45) reported that lessons and online resources designed as an intervention to target mathematical concepts and skills led to improved results and increases in overall pass rates for second-year students for medication dosage calculation tests. Stake-Nilsson et al. (41) suggest that digital technologies are increasingly important in promoting nursing students' knowledge and medication dosage calculation skills (36). The results also show that nursing students need more lessons for drug dose calculations that require math skills. During the pandemic, academics could not monitor students' progress, so target learning remained limited. However, Padlet enabled the researcher to follow and communicate with all participants. In addition, all participants could learn by watching each other's solutions.

Study Limitations

Several limitations of this study must be acknowledged. The study was conducted only with first-year nursing students who took the Fundamentals of Nursing course at a university. The post intervention assessment was done immediately after the intervention happened for a period of three weeks. It is seen that the use of the Padlet application used in this study in different subjects will support nursing education. Since Padlet is a non-compulsory environment that students can actively use outside of the classroom, only some of the students participate. Another limitation is that the study was conducted with a single group.

Conclusion

Padlet is a Web 2.0 tool that offers an innovative learning environment in nursing. Although Padlet is not very popular, we think it will allow students to spend their free time outside the classroom efficiently as a bridge between distance and face-to-face learning. In this respect, Padlet helps nursing students develop mathematical skills, making calculating the right drug dose easier. Padlet and similar web tools should be included in nursing curricula. When Generation Z students cannot always learn in class or want to reinforce the information they have learned, applications such as Padlet will improve their knowledge and skills. Researchers should conduct further studies on web tools, and nurse educators should use web tools more often.

Ethics Committee Approval: The study was approved by the Karadeniz Technical University Medical Faculty Scientific Research Ethics Committee (2021/199, no: 24237859-535, date: 17.06.2021).

Informed Consent: Informed consent was obtained.

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

References

1. Atabek Aştı T, Karadağ A. Klinik uygulama becerileri ve yöntemleri. (1st Ed.). Adana: Nobel Kitabevi, 2011. [\[Crossref\]](#)
2. Dutra SVO, Kumar K, Clochesy JM. Instruction strategies for drug calculation skills: a systematic review of the literature. *Nurse Educ Today*. 2022;111:105299. [\[Crossref\]](#)
3. Karabağ Aydın A, Dinç L. Effects of Web-Based Instruction on Nursing Students' Arithmetical and Drug Dosage Calculation Skills. *Comput Inform Nurs*. 2017;35(5):262-269. [\[Crossref\]](#)
4. Taşkıran N, Sarı D, Akbiyik A. Nursing Students' Opinions Related to Drug Dose Calculation Skills and Drug Administration Errors. *Journal of Ege University Nursing Faculty*. 2017;33(1):59-72. [\[Crossref\]](#)
5. Guneş UY, Baran L, Yılmaz DK. Mathematical and drug calculation skills of nursing students in Turkey. *International Journal of Caring Sciences*. 2016;9(1):220-227. [\[Crossref\]](#)
6. Elonen I, Salminen L, Brasaité-Abromé I, Fuster P, Kukkonen P, Leino-Kilpi H, et al. Medication calculation skills of graduating nursing students within European context. *J Clin Nurs*. 2022;31(5-6):548-558. [\[Crossref\]](#)
7. Sayadi L, Nasrabadi AN, Hosseini A. The effect of drug dosage calculation training program on math anxiety and nursing students' skills: A non-randomized trial study. *Nursing Practice Today*. 2021;8(3):194-205. [\[Crossref\]](#)
8. Barbagallo M. Nursing students' perceptions and experiences of reflective practice: A qualitative meta-synthesis. *Teaching and Learning in Nursing*. 2021;16(1):24-31. [\[Crossref\]](#)
9. Joint Commission on Accreditation of Healthcare Organizations (JCAHO). Improving patient and worker safety [Internet] 2012 [updated 2023 Jun 23; cited 2023 Oct 6] [\[Crossref\]](#)
10. Küçükakça G, Özer N. Investigating Knowledge Levels of Nurses, Working in Surgical Clinics, About High Risk Medicines and Their Attitudes and Behaviors Regarding Medication Errors. *Journal of Anatolia Nursing and Health Sciences*. 2016;19(1):34-41. [\[Crossref\]](#)
11. Özlü Karaman Z, Eskici V, Aksoy D, Özer N, Yayla A, Avşar G. Determination of The Opinions and Experiences of Nurses Working in The Surgical Clinics Towards Medication Errors. *Journal of Ankara Health Sciences*. 2015;3:83-103. [\[Crossref\]](#)
12. Zaybak A, Taşkıran N, Telli S, Ergin EY, Şahin M. The Opinions of Nursing Students Regarding Sufficiency of Their Drug Administration Knowledge. *Journal of Education and Research in Nursing*. 2017;14(1). [\[Crossref\]](#)
13. Çoban Gİ, Şirin M, Kavuran E, Çiftçi B. Determine The Factors Threatening Oral Drug Practices of Nurses At A University Hospital. *Gümüşhane University Journal of Health Sciences*. 2015;4(1):28-43. [\[Crossref\]](#)
14. Cebeci F, Karazeybek E, Sucu Dağ G. Medical Errors Encountered By Nursing Students In Clinical Practice. *Gümüşhane University Journal of Health Sciences*. 2014;3:736-748. [\[Crossref\]](#)
15. Bişkin S, Cebeci F. Medication Administration Errors in Emergency Department. *Gümüşhane University Journal of Health Sciences*. 2017;6(4):180-185. [\[Crossref\]](#)
16. Manav G, Başer S. Making Analysis of the Status and Tendencies of Pediatric Nurses' Medication Errors. *Gümüşhane University Journal of Health Sciences*. 2018;7(3):41-49. [\[Crossref\]](#)
17. Çevik AB, Demirci A, Güven Z. Medication Administration Errors and Medical Error Awareness of Nursing Students During Clinical Training. *Acıbadem Üniversitesi Sağlık Bilimleri Dergisi*. 2015;6(3):152-159. [\[Crossref\]](#)
18. Özyazıcıoğlu N, Aydın Aİ, Sürenler S, Çinar HG, Yılmaz D, Arkan B, et al. Evaluation of students' knowledge about paediatric dosage calculations. *Nurse Educ Pract*. 2018;28:34-39. [\[Crossref\]](#)
19. Taşkıran N, Sarı D, Akbiyik A. Nursing Students' Opinions Related to Drug Dose Calculation Skills and Drug Administration Errors. *Journal of Ege University Nursing Faculty*. 2017;33(1):59-72. [\[Crossref\]](#)

20. Unver V, Tastan S, Akbayrak N. Medication errors: perspectives of newly graduated and experienced nurses. *Int J Nurs Pract*. 201;18(4):317-324. [\[Crossref\]](#)
21. Tucker Shelia Y. Transforming pedagogies: Integrating 21st century skills and Web 2.0 technology. *Turkish Online Journal of Distance Education*. 2014;15(1):166-173. [\[Crossref\]](#)
22. Karabağ Aydın A, Dinç L. Effects of Web-Based Instruction on Nursing Students' Arithmetical and Drug Dosage Calculation Skills. *Comput Inform Nurs*. 2017;35(5):262-269. [\[Crossref\]](#)
23. Hasan N, Khan NH. Online teaching-learning during covid-19 pandemic: students' perspective. *The Online Journal of Distance Education and e-Learning*. 2020;8(4):202-213. [\[Crossref\]](#)
24. Dumont LM. Prelicensure Practical Nursing Faculty's Perspectives Using Web 2.0 Technology: A Basic Qualitative Study [Ph.D Thesis]. Capella University; 2021. [\[Crossref\]](#)
25. Niitsu K, Kondo A, Hua J, Dyba NA. A Case Report of Collaborative Online International Learning in Nursing and Health Studies Between the United States and Japan. *Nursing Education Perspectives*. 2022;10-1097. [\[Crossref\]](#)
26. Başkaya K, Tursunovic M. Yabancı dil olarak Türkçe öğretiminde işbirlikli öğrenme ve Padlet. *Aydın Tömer Dil Dergisi*. 2017;2(2):79-96. [\[Crossref\]](#)
27. Culha I. Active Learning Methods Used in Nursing Education. *Journal of Pedagogical Research*. 2019;3(2):74-86. [\[Crossref\]](#)
28. Özbay Ö, Çınar S. Views of nursing students on distance education. *EDUCCON*. 2020;12. Turkey.
29. Şenyuva E. Reflections on Nursing Education of Technological Developments. *Florence Nightingale Hemsire Derg*. 2019;27(1):79-90. Turkish. [\[Crossref\]](#)
30. Öztürk H. The effects of web-based instruction on drug dose calculation skills of nursing students [Msc Thesis]. Ege University, 2017, İzmir. [\[Crossref\]](#)
31. Kim H, Suh EE. The effects of an interactive nursing skills mobile application on nursing students' knowledge, self-efficacy, and skills performance: A randomized controlled trial. *Asian Nursing Research*. 2018;12(1):17-25. [\[Crossref\]](#)
32. Çelik Z, Şendir M. Pharmacological Knowledge and Drug Dose Calculation Skills Evaluation of Nursing Students. *Ordu University Journal of Nursing Studies*. 2019;2(1):1-10. [\[Crossref\]](#)
33. Büyüköztürk Ş. *Veri Analizi El Kitabı: İstatistik, Araştırma Deseni ve Yorum*. 30th ed. Ankara: Pegem Yayıncılık; 2023. [\[Crossref\]](#)
34. Potter PA, Perry AG, Stockert PA, Hall AM. *Fundamentals of Nursing*. 10th Ed. Missouri: Elsevier, 2017. [\[Crossref\]](#)
35. Mariani B, Ross, JG, Paparella S, Allen LR. Medication safety simulation to assess student knowledge and competence. *Clinical Simulation in Nursing*. 2017;13(5):210-216. [\[Crossref\]](#)
36. Basak T, Aslan O, Unver V, Yildiz D. Effectiveness of the training material in drug-dose calculation skills. *Jpn J Nurs Sci*. 2016;13(3):324-330. [\[Crossref\]](#)
37. Pol-Castañeda S, Rodriguez-Calero MA, Villafañila-Gomila CJ, Blanco-Mavillard I, Zaforteza-Lallemand C, Ferrer-Cruz F, et al. Impact of advanced practice nurses in hospital units on compliance with clinical practice guidelines: a quasi-experimental study. *BMC Nurs*. 2022;21(1):331. [\[Crossref\]](#)
38. Grugnetti AM, Bagnasco A, Rosa F, Sasso L. Effectiveness of a Clinical Skills Workshop for drug-dosage calculation in a nursing program. *Nurse Educ Today*. 2014;34(4):619-624. [\[Crossref\]](#)
39. Hitam S. Use of web-based instruction in learning drug dosage calculation among nursing Students University of Nizwa, Oman. *Malaysian J Med Health Sci*. 2020;15:21. [\[Crossref\]](#)
40. McMullan M, Jones R, Lea S. Patient safety: numerical skills and drug calculation abilities of nursing students and registered nurses. *J Adv Nurs*. 2010;66(4):891-899. [\[Crossref\]](#)
41. Stake-Nilsson K, Almstedt M, Fransson G, Masoumi D, Elm A, Toratti-Lindgren M, et al. Medication dosage calculation among nursing students: does digital technology make a difference? A literature review. *BMC Nurs*. 2022;21(1):123. [\[Crossref\]](#)
42. Sahin-Topalcengiz E, Yildirim B. Teachers' opinions about distance web 2.0 tools training and teachers' in-class web 2.0 practices. *Journal of Turkish Science Education*. 2020;17(4):561-577. [\[Crossref\]](#)
43. Arslan Yürümezoğlu H, Sezer H, Şanlı D, Okumuş H. The Roles of Nurse Educators and The Use of Web-Based Tools Suitable for Learner-Centered Learning Strategies In Distance Education In The Pandemic Process. *Journal of Anatolia Nursing and Health Sciences*. 2021;24(4):571-578. [\[Crossref\]](#)
44. Bagnasco A, Galaverna L, Aleo G, Grugnetti AM, Rosa F, Sasso L. Mathematical calculation skills required for drug administration in undergraduate nursing students to ensure patient safety: A descriptive study: Drug calculation skills in nursing students. *Nurse Educ Pract*. 2016;16(1):33-39. [\[Crossref\]](#)
45. Mackie JE, Bruce CD. Increasing nursing students' understanding and accuracy with medical dose calculations: A collaborative approach. *Nurse Educ Today*. 2016;40:146-153. [\[Crossref\]](#)



ORIGINAL ARTICLE

Examining Perceived Stress and Individualized Care Practices by Senior Nursing Students During the COVID-19 Pandemic

Son Sınıf Hemşirelik Öğrencilerinin COVID-19 Pandemi Sürecinde Algıladıkları Stresin ve Bireyselleştirilmiş Bakım Uygulamalarının İncelenmesi

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Abstract

Objective: This research was conducted to analyze the perceptions of senior nursing students regarding stress and individualized care during the Coronavirus disease-2019 (COVID-19) pandemic.

Method: The research was conducted between May and June 2021 with 194 senior nursing students. Data collection was conducted using a structured information form, perceived stress scale (PSS), and the individualized care scale-A-nurse version (ICS-A-nurse).

Results: It was found that the stress experiences of the students were moderate. Their perception of individualized care was at a good level. A highly significant statistically negative correlation existed between the PSS mean scores and the ICS-A-nurse total mean scores in addition to the mean scores in all sub-dimensions ($p<0.001$).

Conclusion: It was determined that the higher the level of stress students perceived during the COVID-19 pandemic, the more negative their perceptions of individualized care became. Adequate personal protective equipment should be available in clinics during clinical applications and clinical practice training should be planned for intern nursing students during possible pandemic processes. It is also suggested that nursing students should use methods of coping with stress in pandemic situations and develop skills and behaviors to protect themselves, their families, and society from infectious diseases.

Keywords: Perceived stress, COVID-19, nursing students, individualized care

Öz

Amaç: Bu araştırmada, son sınıf hemşirelik öğrencilerinin Koronavirüs hastalığı-2019 (COVID-19) pandemi sürecindeki stres algıları ile bireyselleştirilmiş bakım algılarını incelemek amaçlanmıştır.

Yöntem: Araştırma, Mayıs-Haziran 2021 tarihleri arasında 194 son sınıf hemşirelik öğrencisi ile yapılmıştır. Veriler, yapılandırılmış bilgi formu, algılanan stres ölçeği (ASS) ve bireyselleştirilmiş bakım skalası-A hemşire versiyonu (BBS-A-hemşire) kullanılarak toplandı.

Bulgular: Öğrencilerin stresi orta düzeyde yaşadıkları ve iyi düzeyde bireyselleştirilmiş bakım algılarına sahip oldukları belirlenmiştir. ASS puan ortalamaları ile BBS-A-hemşire toplam ve tüm alt boyut madde puan ortalamaları arasında istatistiksel açıdan negatif yönde çok ileri derecede anlamlı bir ilişki saptanmıştır ($p<0,001$).

Sonuç: Öğrencilerin, COVID-19 pandemi süreci içinde stres düzeyi algıları artarken bireyselleştirilmiş bakım algılarının azaldığı belirlenmiştir. Klinik uygulamalar sırasında kliniklerde yeterli kişisel koruyucu ekipman bulundurulması ve olası pandemi süreçlerinde intörn hemşirelik öğrencilerine yönelik klinik uygulama eğitimlerinin planlanması önerilmektedir. Ayrıca hemşirelik öğrencilerinin pandemi durumlarında stresle baş etme yöntemlerini kullanmaları, kendilerini, ailelerini ve toplumu bulaşıcı hastalıklardan korumaya yönelik beceri ve davranışlar geliştirmeleri önerilir.

Anahtar Kelimeler: Algılanan stres, COVID-19, hemşirelik öğrencileri, bireyselleştirilmiş bakım

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Received: September 21, 2023

Accepted: January 02, 2024

Cite this article as: Vaizoğlu D, Acaroğlu R. Examining Perceived Stress and Individualized Care Practices by Senior Nursing Students During the COVID-19 Pandemic. Mediterr Nurs Midwifery. 2024; 4(2): 120-128

*This research was presented as an oral presentation at the 6th international congress of health sciences and life (2-5 March 2023, Burdur).



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Introduction

Nursing education consists of theory and practice, which requires professional knowledge and skill acquisition (1). It includes cognitive, affective, and psychomotor learning and requires coordination of theory and practice (2). Clinical practice education, which has an important place in nursing education, is intended to convert the theoretical knowledge of the student into practice, developing students' cognitive, affective, and psychomotor skills for use in professional practice and providing real-life settings in which to explore them (3,4). The internship offered to senior nursing students strengthens the professional competencies they are expected to acquire and prepares them for their professional life. Thus, students can develop professional attitudes and behaviors before they graduate.

Although clinical practice environments are an arena for students to develop their professional knowledge and skills, they are also a source of stress (5). Factors such as making mistakes in clinical practices, encountering negative reactions, harming the patient, lack of knowledge and skills to provide patient care, unfamiliarity with the clinic, low self-confidence, and caring for patients with infectious diseases can cause students to experience stress (4,5).

The most important of these risk factors lately has undoubtedly been the situation caused by the Coronavirus disease-2019 (COVID-19). COVID-19 emerged in Wuhan, China, and became a pandemic in a short time, affecting people worldwide. COVID-19 spread rapidly in Turkey and affected many areas of Turkish life. The COVID-19 pandemic influenced nursing education to a great extent, as did other fields of health science education. With the pandemic, senior nursing students began to encounter and care for patients with COVID-19 during their internships, creating fears in them of being infected with the virus or transmitting the disease to their families. This stress was suggested to negatively affect the clinical practices of the students. A study conducted by Sheroun et al. (6) revealed that the perceived stress level of nursing students was high during the COVID-19 pandemic, and it was recommended that this stress on students should be reduced. Aslan and Pekince (7) evaluated the views of nursing students regarding the COVID-19 pandemic as well as their stress levels and found that the students were experiencing moderate stress. The stress level was increased because nursing students in the clinical setting witnessed patients with COVID-19 develop severe conditions and loss of life. Stressful clinical environments for nursing students who are doing their internships negatively impact the care relationship and practices they will establish with patients.

Main Points

- Nursing students should gain the ability to use stress-coping methods in pandemic situations.
- Students need to develop skills to protect themselves, their families, and the community against infectious diseases.
- During possible pandemic periods, clinical practice training to be conducted by intern nursing students should be planned.

Care is based on communication and interaction between the patient and the nurse. As this process progresses, care distinguishes the patient from others and recognizes him or her as unique (8). As a global approach in nursing, individualized care is a profession that touches people's lives and includes interventions tailored to each patient performed with close physical contact (9). However, during the COVID-19 pandemic, social distance and contact restrictions must be strictly followed to prevent the transmission of the disease. This situation does not coincide with the nature of nursing and is thought to negatively affect individualized care practices and the interaction between students and patients in the clinical setting.

Uncertainties about the course of the epidemic in the absence of a specific treatment or an effective and safe vaccine for COVID-19 disease have been a stress factor for healthcare professionals and nurses, as well as nursing students who practice internships. In addition, the fact that the students witnessed patients diagnosed with COVID-19, whose condition was severe and who lost their lives in the clinical environment, led to an increase in the stress level. While all this process is going on, stressful clinical environments for nursing students doing internship practice are a negative factor in realizing the care relationship and practices that they will establish with the patient at the desired level.

This research is descriptive, cross-sectional, and relationship seeking. This study intends to evaluate senior nursing students' perceptions of stress and individualized care during the COVID-19 pandemic and to analyze the factors that affect them and their interrelationships. The relevant data collected and the results obtained contribute to the planning of clinical practice training for intern nursing students during possible epidemics.

Research Questions

1. What is the level of stress that students perceive and their perception of individualized care during the COVID-19 pandemic?
2. What factors affect students' perceived stress and their perception of individualized care?
3. Is there a relationship between students' stress during the COVID-19 pandemic and their perceptions of individualized care?

Material and Method

Design

This study was conducted according to descriptive and correlational research models to examine the relationship between stress perceptions and individualized care perceptions of senior nursing students during the COVID-19 pandemic.

Sample

The research population was composed of 346 senior nursing students from three universities in İstanbul who completed clinical internships between May and June 2021 during the COVID-19 pandemic. The sample size of the study was calculated according to the simple random sampling formula. The sample size was determined to consist of at least 182 students with a 95% confidence interval and a margin of error of 0.05. The sample of the study included 194 students who gave consent for their participation in the study following the information provided regarding the scope of the research.

Data Collection Tools

The structured information form, perceived stress scale (PSS), and individualized care scale-A nurse version (ICS-A-nurse) were employed.

Structured information form: The researcher modeled the structured information form using examples found in the literature. The form includes the demographic characteristics of the nursing students and the characteristics of their experiences in internship practice.

PSS: Developed by Cohen et al. (10) to measure the perceived stress level of participants, the scale was adapted into Turkish by Eskin et al. (11) for reliability and validity studies. It measures the extent to which unexpected life situations are perceived as stressful. The five-point Likert-type scale includes 14 items and consists of one dimension. Scoring of the scale items ranges from "Never (0)" to "Very often (4)" and 7 items (4-7,9,10,13) with positive expressions are reverse coded. The obtainable scores from the scale range from 0 to 56. A high score indicates high levels of perceived stress. With the knowledge and permission of the scale author, the researcher adapted the instructions and items of the scale to consider the pandemic process. The phrase "during the COVID-19 pandemic" was added to both the directive and the beginning of the scale items, and students were asked to consider their personal experiences in this context. The Cronbach's alpha coefficient of the scale was determined to be 0.86 in the study by Cohen et al. (10), 0.84 in the study by Eskin et al. (11), and 0.65 in this study.

ICS-A-nurse: Developed by Suhonen et al. (12) in 2007 to examine the perspectives of nurses on individualized care in the healthcare setting, the scale was adapted to Turkish society by Acaroğlu and Şendir (13). The ICS-A-nurse version, the first part of the scale that includes two parts, was used to analyze the nurses' perceptions on supporting the patients' individuality in their care practices (12). The scale includes three sub-dimensions: Clinical status, personal life status, and control of decision making.

Clinical status: Care behaviors that consider the responses of sick individuals to the disease, the meaning of the disease for them, and their feelings, emotions, and feelings.

Personal life status: Nurses' care behaviors to support the individuality of the individual in matters such as activities, habits, preferences, family relations, work and hospital experience reflecting the beliefs and values of the patient individuals. includes.

Control of decision-making: Reflecting the feelings, thoughts, and desires of patients and enabling them to participate in decisions about their own care nurses in matters such as providing care to support the individual's individuality decision-making control over care, including their behavior.

The scale is a 5-point Likert-type scale of 17 items. Total and scale sub-dimension mean scores were calculated by summing the scores obtained from the items and dividing them by the number of items. The lowest obtainable total and sub-dimension score is 1, and the highest is 5. A high score indicates that their perception of supporting their individuality is high. In the scale directive, students were asked to consider the COVID-19 pandemic process while answering the questions. The Cronbach alpha coefficient of the scale was determined to be 0.88 in the study by Suhonen et al. (12), 0.91 in the study by Acaroğlu and Şendir (13), and 0.94 in this study.

Data Collection

The data were collected using online questionnaire forms after obtaining the necessary permissions (institutional permissions and ethics committee approval). The students were provided information regarding the study and invited to participate by making an announcement via e-mail and social media by the institutions where they continue their education. On the first page of the questionnaire, there was a confirmation box that validated their participation in the research, in addition to the information (consent form) regarding the purpose of the study, the content, and the rights of the students.

Statistical Analysis

SPSS (version 22.0) was used to analyze the data. For data evaluation, descriptive statistics, independent groups analysis of variance (ANOVA), t-test, and correlation analysis were used. Significance was evaluated at the level of 0.05 ($p < 0.05$).

Ethical Consideration

Ethics committee permission from (date of meeting: May 6, 2021; number of decision: 2021/08) the University's Social and Human Research Ethics Committee, written permission of the institutions where the research would take place, and permission to use the scales from the authors of the scales to be used in the study were obtained. The informed voluntary consent form explaining the purpose and content of the study and the rights of the participants, and an online agreement indicating that the students participated in the study voluntarily were collected from the participants.

Results

When the individual characteristics of senior nursing students and their experiences in internship practice were analyzed, the mean age was 22.64 ± 1.63 years, 70.6% were female, 67.5% lived with their families, 79.4% chose the nursing profession willingly, 60.3% had COVID-19 vaccination, 24.7% had COVID-19 disease, 47.4% were diagnosed with COVID-19 in their families, 48.5% had a person who died due to COVID-19 in their family or environment. It was determined that 92.8% of the students increased the frequency of hand washing, 63.4% had a patient diagnosed with COVID-19 in the clinic where they practiced, 27.3% provided care to the patient diagnosed with COVID-19, 62.4% (27.3% completely, 35.1% partially) experienced a shortage of personal protective equipment in clinics, the frequency of entering the patient room decreased in 38.1%, the frequency of touching the patient decreased in 54.6%, the duration of being in the patient room decreased in 57.7% and 72.7% of the students had difficulty in complying with protective measures such as hand washing, mask and distance in care practices (37.6% completely, 35.1% partially) (Table 1).

It was determined that the students' PSS total mean score was 31.32 ± 5.21 (Table 2). The mean ICS-A-nurse total score was (3.97 ± 0.72) . Considering the ICS-A-nurse sub-dimensions, the highest mean score was obtained from the clinical status (4.07 ± 0.73), followed by the decision-making control (4.05 ± 0.77) and personal life status mean scores (3.66 ± 0.95) (Table 2).

Those students who had chosen the nursing profession unwillingly; had a family member with COVID-19 disease; did not change the frequency of handwashing; had a patient with a diagnosis of COVID-19 in the practice clinic; had a shortage of personal protective equipment in the clinics; had a reduced frequency of entering the patient's room and of physical contact with the patient; had difficulty in complying with protective measures such as handwashing, masking, and social distancing in care practices had a statistically and significantly higher PSS total mean scores ($p < 0.05$). The difference between the PSS scores of the students who were and were not vaccinated against COVID-19 and those who had and did not have COVID-19 was not found to be statistically significant ($p > 0.05$; Table 3).

The comparison of the ICS-A-nurse total and all sub-dimension mean scores according to the experience of students in internship practice during the COVID-19 pandemic period is indicated in Table 4. The ICS-A-nurse total mean scores of the students whose handwashing frequency increased, who cared for a patient with a diagnosis of COVID-19, whose frequency of entering the patient's room did not change, and without difficulty in complying with protective measures such as handwashing, mask, and distance in care practices were observed to be statistically and significantly higher than the others ($p < 0.05$). There was no statistically significant difference between the ICS-A-nurse total and all sub-dimension mean scores considering the presence of patients diagnosed with COVID-19 in the practice clinic ($p > 0.05$).

Table 1.
Distribution of Individual Student Characteristics and Their Experiences in Internship Practice

	n (194)	Percentage (%)
The mean age mean \pm standard deviation	22.64 ± 1.63	Min=20 max=33
Gender		
Female	137	70.6
Male	57	29.4
Co-habitation during the internship		
In a dormitory	43	22.2
With family	131	67.5
Home alone	5	2.6
With flatmate	15	7.7
Chose nursing profession willingly		
Yes	154	79.4
No	40	20.6
COVID-19 vaccination		
Yes	117	60.3
No	77	39.7
History of COVID-19 infection		
Yes	48	24.7
No	146	75.3
Family member with history of COVID-19 disease		
Yes	92	47.4
No	102	52.6
Loss of a family member or relative due to COVID-19		
Yes	94	48.5
No	100	51.5
Change in the handwashing frequency		
No change	14	7.2
Increased	180	92.8
Presence of patients with a diagnosis of COVID-19 in the clinic		
Yes	123	63.4
No	71	36.6
Caring for a patient diagnosed with COVID-19		
Yes	53	27.3
No	141	72.7
Lack of personal protective equipment		
Yes	53	27.3
No	73	37.6
Partial	68	35.1
Frequency of entering the patient's room		

Table 1.
Continued

	n (194)	Percentage (%)
Decreased	74	38.1
Did not change	120	61.9
Frequency of physical contact with the patient		
Decreased	106	54.6
Did not change	88	45.4
Length of stay in the patient's room		
Decreased	112	57.7
Did not change	82	42.3
Difficulty complying with protective measures		
Yes	73	37.6
No	53	27.3
Partial	68	35.1

COVID-19=Coronavirus disease-2019

Table 2.
Distribution of Student PSS and ICS-A-nurse Mean Scores

Scale and factors	Min.	Max.	Mean	SD
Perceived stress scale (total)	17.0	44.0	31.32	521
Individualized care scale (total)	1.88	5.00	3.97	0.72
Clinical status	1.71	5.00	4.07	0.73
Personal life status	1.25	5.00	3.66	0.95
Decision-making control	2.00	5.00	4.05	0.77

SD=standard deviation, PSS=perceived stress scale, ICS-A-nurse=the individualized care scale-A-nurse

It was observed that there was a statistically moderate, negative, and highly significant correlation between the PSS mean score and ICS-A-nurse total mean score and the sub-dimension mean scores of the students who participated in the study ($r=-0.370$; $p<0.001$; Table 5).

Discussion

This research was conducted to analyze the perceptions of senior nursing students regarding stress and individualized care during the COVID-19 pandemic. The study showed that the stress perceived by the students while doing their internship during the COVID-19 pandemic period was moderate. National and international studies (14-17) conducted before the COVID-19 pandemic reported that nursing students experienced moderate stress. Studies (7,18,19) conducted during the COVID-19 pandemic similarly showed that nursing students experienced stress at a moderate level, corresponding with the findings of this study. It has been stated that nursing students are under stress while conducting clinical practice because of factors

Table 3.
Comparison of PSS Mean Scores According to Individual Student Characteristics and Internship Experience

Introductory characteristics	PSS	Test value
	Mean \pm SD	
Choosing the nursing profession willingly		
Yes	30.90 \pm 5.30	t=-2.210 p=0.028
No	32.93 \pm 4.54	
Being vaccinated against COVID-19		
Yes	31.31 \pm 4.76	t=-0.037 p=0.970
No	31.34 \pm 5.86	
Having a history of COVID-19		
Yes	32.31 \pm 4.79	t=1.528 p=0.128
No	30.99 \pm 5.31	
Having a family member with a history of COVID-19		
Yes	32.47 \pm 4.08	t=3.029 p=0.003
No	30.28 \pm 5.88	
Handwashing frequency		
Did not change	35.79 \pm 5.96	t=3.423 p=0.001
Increased	30.97 \pm 5.00	
Presence of patients with a diagnosis of COVID-19 in the clinic		
Yes	32.27 \pm 4.91	t=3.432 p=0.001
No	29.68 \pm 5.33	
Lack of personal protective equipment		
Yes ^a	33.15 \pm 4.95	F=9.646 p=0.000 a>c>b
No ^b	29.38 \pm 5.36	
Partial ^c	31.97 \pm 4.59	
Frequency of entering the patient's room		
Decreased	32.58 \pm 5.57	t=2.692 p=0.008
Did not change	30.54 \pm 4.83	
Frequency of physical contact with the patient		
Decreased	32.41 \pm 5.31	t=3.267 p=0.001
Did not change	30.01 \pm 4.79	
Difficulty complying with protective measures		
Yes ^a	33.82 \pm 4.24	F=16.346 p=0.000 a>c>b
No ^b	29.23 \pm 5.67	
Partial ^c	30.26 \pm 4.74	

t=Independent sample t-test, F=ANOVA, *= $p<0.05$, SD=standard deviation, COVID-19=coronavirus disease-2019, PSS=perceived stress scale

such as interactions with educators, other healthcare professionals, patients, and families; patients' rapidly changing conditions; being unfamiliar with the clinic; difficulty in adapting to a new environment; and lack of knowledge and skills to improve patient care (4,20). Although the stress level of the students during the pandemic process

Table 4.
Comparison of the ICS-A-nurse Mean Scores According to Individual Student Characteristics and Experience in Internship Practice

Introductory characteristics	Total		Clinical status		Personal life status		Decision-making control	
	Mean ± SD	Test value	Mean ± SD	Test value	Mean ± SD	Test value	Mean ± SD	Test value
Chose nursing profession willingly								
Yes	4.01±0.72	Z=-1.439	4.11±0.73	Z=-1.546	3.65±0.95	Z=-0.214	4.12±0.75	Z=-2.381
No	3.82±0.73	p=0.150	3.93±0.72	p=0.122	3.67±0.95	p=0.830	3.80±0.81	p=0.017
Loss of a family member or relative due to COVID-19								
Yes	4.06±0.67	Z=-1.640	4.15±0.70	Z=-1.207	3.82±0.87	Z=-2.296	4.13±0.71	Z=-0.907
No	3.88±0.76	p=0.101	4.01±0.76	p=0.228	3.50±0.99	p=0.022	3.98±0.83	p=0.365
Change in the handwashing frequency								
Did not change	3.06±0.76	Z=-4.074	3.24±0.75	Z=-3.846	2.77±0.78	Z=-3.585	3.05±0.88	Z=-4.045
Increased	4.04±0.67	p=0.000	4.14±0.69	p=0.000	3.73±0.93	p=0.000	4.13±0.71	p=0.000
Presence of patients with a diagnosis of COVID-19 in the clinic								
Yes	3.93±0.77	Z=-0.590	4.03±0.77	Z=-0.762	3.65±0.99	Z=-0.137	4.00±0.82	Z=-1.007
No	4.03±0.62	p=0.555	4.14±0.66	p=0.446	3.66±0.87	p=0.891	4.14±0.69	p=0.314
Caring for a patient diagnosed with COVID-19								
Yes	4.23±0.68	Z=-3.438	4.28±0.71	Z=-2.705	4.05±0.84	Z=-3.632	4.29±0.70	Z=-2.893
No	3.87±0.72	*p=0.001	4.00±0.72	*p=0.007	3.51±0.95	*p=0.000	3.96±0.78	p=0.004
Frequency of entering the patient's room								
Decreased	3.81±0.78	Z=-2.074	3.90±0.76	Z=-2.453	3.63±0.95	Z=-0.362	3.82±0.85	Z=-2.995
Did not change	4.07±0.67	p=0.038	4.18±0.69	p=0.014	3.68±0.95	p=0.717	4.20±0.69	p=0.003
Length of stay in the patient's room								
Decreased	3.87±0.78	Z=-1.834	3.97±0.77	Z=-2.057	3.56±0.98	Z=-1.518	3.96±0.87	Z=-1.191
Did not change	4.10±0.62	p=0.067	4.22±0.65	p=0.040	3.79±0.90	p=0.129	4.18±0.60	p=0.234
Difficulty complying with protective measures								
Yes ^a	3.78±0.81	$\chi^2=13.740$ p=0.001 b>c>a	3.89±0.78	$\chi^2=13.914$ p=0.001 b>c>a	3.61±0.97	$\chi^2=7.359$ p=0.025 b>a>c	3.77±0.87	$\chi^2=17.826$ p=0.000 b>c>a
No ^b	4.27±0.58		4.39±0.58		3.91±0.97		4.38±0.58	
Partial ^c	3.93±0.64		4.03±0.71		3.51±0.87		4.10±0.69	

Z=Mann-Whitney U, χ^2 =Kruskal-Wallis H *p<0.05, SD=standard deviation, COVID-19=coronavirus disease-2019, ICS-A-nurse=the individualized care scale-A-nurse

Table 5.
Relationship Between Student Perceived Stress Levels and Individualized Care Perceptions

		Individualized care scale			
		Total	Clinical status	Personal life status	Decision-making control
PSS	r	-0.370	-0.324	-0.306	-0.371
	p	0.000	0.000	0.000	0.000

Pearson correlation analysis p<0.001, PSS=perceived stress scale

has not been observed to change compared with the pre-pandemic process, factors such as the presence of patients with COVID-19 in the practice clinic, inadequacy of personal protective equipment, and caring for patients with COVID-19 may affect the stress they experience during the pandemic period.

In this study, the students' perceived stress level did not change whether or not they were vaccinated or had the disease, whereas the stress level of students who had a family member with a COVID-19 disease was higher. In fact, studies (21,22) conducted using semi-structured interviews revealed that nursing students are more afraid of and

experience more stress related to the possibility of infecting their families and relatives with COVID-19 than the possibility of being infected with the virus themselves.

The study found that during the COVID-19 pandemic, the stress level of students with a patient in the practice clinic diagnosed with COVID-19 was higher than that of students without such patients. The students whose frequency of entering the patient's room and of physical contact with the patient decreased experienced more stress than the students whose frequency did not change. These findings support each other and suggest that students with a patient in the practice clinic diagnosed with COVID-19 experience stress and anxiety about catching the disease, and accordingly, the frequency of entering the patient's room and touching the patient decreases. Indeed, the study by Okuyan et al. (23) with nursing students revealed that the anxiety level of the students who were afraid of being infected with the COVID-19 virus due to the pandemic was higher than the students who were not afraid of getting infected. Yazici and Ökten (19) reported that 78.2% of nursing students experienced anxiety about coming down with COVID-19 disease during clinical practice.

The study determined that the students' perception of individualized care was at a good level. In studies (24,25,26) conducted before the pandemic, it was detected that the ICS-A-nurse total mean score of students varied between 3.99 ± 0.74 and 4.33 ± 0.67 . In this research, students' perceptions of individualized care were found to be slightly low (3.97 ± 0.72), and the scale by asking them to answer by considering the associated COVID-19 pandemic process.

In the study, the decision-making control sub-dimension mean score of the students who willingly selected the profession of nursing was higher than those who did not. Studies (27,28) reported that students who willingly selected the profession of nursing had a higher level of perception of individualized care behaviors than students who did not. The decision-making control sub-dimension of the scale includes nurses' decision-making control over care, reflecting individuals' feelings, thoughts, and desires and enabling them to participate in decisions about their own care. Individuals who choose their profession willingly have high professional relations, more quality communication with team members, and more job satisfaction. Accordingly, a sense of belonging develops because they love their profession and perceive the environment in which they work positively (29). This finding of the study supports the literature.

In this study, it was observed that the personal life status sub-dimension mean scores of the students who lost their family or relatives due to COVID-19 were higher than the personal life status sub-dimension mean scores of the students who did not experience a loss. The personal life status sub-dimension of the scale involves care behaviors to enhance the individuality of the person, such as family relationships reflecting the values and beliefs of sick individuals (13).

This finding suggests that the loss of a family member or a relative deeply affects students emotionally and that they are more sensitive to caring behaviors that reflect family relationships.

The "ICS-A-nurse" total and all sub-dimension mean scores of students whose handwashing frequency increased during the COVID-19 period were found to be higher than those of students whose handwashing frequency did not change. The first step of the process during nursing care practices is handwashing (30). Both creating a hygienic environment for the patient and COVID-19 Given that hand washing is an important preventive measure against the disease, students whose handwashing frequency increases, as well as themselves during care practices they spend more time with their patients by ensuring the safety of their patients and care that they exhibited their care behavior better.

Students who less frequently entered patient rooms in the practice clinic had lower ICS-A-nurse total scores and lower clinical status and decision-making control sub-dimension mean scores compared with students whose frequency of entering the patient room did not change. This finding of the study corresponds with the fact that PSS mean scores were compared according to how frequently students entered their patients' rooms ($p < 0.05$). Students who experienced stress in the practice clinic during the COVID-19 pandemic entered patients' rooms less frequently, and it was assumed that they could not communicate adequately with the patients, and their perceptions of individualized care were negatively affected.

The clinical status sub-dimension mean scores were lower for students who spent less time in their patients' rooms than for those who spent the same amount of time. The clinical status sub-dimension of the ICS-A-nurse scale includes the reactions of sick individuals to the disease and what the disease means for the individual (13). Students who spend less time in the patient room in the practice clinic will have more difficulty practicing care behaviors that consider the feelings and emotions of the patient, and it is predicted that their communication with patients will also decrease.

Students without difficulty complying with protective measures in care practices showed a higher level of perception of individualized care than students who did have difficulty complying. Güner et al. (27) reported that 73% of nursing students encountered obstacles while providing individualized care due to factors such as communication problems and lack of materials. This finding suggested that students who had difficulty complying with protective measures during their care practices saw these measures as a barrier to their relationships with their patients, and therefore their perception of individualized care decreased.

Stress is a factor that negatively affects student success. As the stress level increases, the academic and practical success of the student decreases, and accordingly, the student has difficulties in diagnosing the patient, planning,

implementing, and evaluating nursing interventions during clinical practice. This situation negatively affects the patient- nurse relationship (17). Individualized care supports the individual's participation in his/her own care, considering socio-demographic characteristics, clinical conditions, personal life situations and preferences. It is a component that considers and at the same time determines the quality of care provided (31). This component can be determined by assessing the extent to which nursing students support individuality and the extent to which they perceive care practices as individualized (31). In the process of the research, the most important factor that may affect these perceptions of nursing students is the stress they experience and the situation caused by the COVID-19 pandemic. The results of this study support this view, and a moderate, negative, and highly significant relationship was found between the stress perceived by students during the COVID-19 pandemic and their perceptions of individualized care.

Study Limitations

The research is limited to the student group from which data were collected during the COVID-19 pandemic, and no generalization can be made.

Conclusion

It was deduced that the students experienced stress at a moderate level and their perception of individualized care was generally positive. It was noted that as the stress level of the students during the COVID-19 pandemic increased, their perception of individualized care decreased. nursing students should develop skills and behaviors that will protect themselves, their families and the society from infectious diseases and that initiatives should be planned to reduce the stress level of students and increase university-hospital cooperation. It is also suggested that adequate personal protective equipment should be available in clinics during clinical applications and that clinical practice training should be planned for intern nursing students during possible pandemic processes.

Acknowledgments

We would like to thank all the nursing student who participated in this study.

Ethics Committee Approval: Ethics committee approval was received for this study from İstinye University (date of meeting: May 6, 2021; number of decision: 2021-08).

Informed Consent: Written and verbal informed consent was obtained from all participants who participated in this study.

Author Contributions: Surgical and Medical Practices – D.V., R.A.; Concept – D.V., R.A.; Design – D.V., R.A.; Data Collection and/or Processing – D.V., R.A.; Analysis and/or Interpretation – D.V., R.A.; Literature Review – D.V., R.A.; Writing – D.V., R.A.

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. Padilha JM, Machado PP, Ribeiro A, Ramos J, Costa P. Clinical Virtual Simulation in Nursing Education: Randomized Controlled Trial. *J Med Internet Res*. 2019;21(3):e11529. [\[Crossref\]](#)
2. Sezer H, Orgun F. The Use of Simulation in Nursing Education and the Simulation Model. *Ege University Journal of the Faculty of Nursing*. 2017;33(2):140-152. [\[Crossref\]](#)
3. Dönmez S, Weller BK. Examining The Views of Senior Students In Nursing School In Realation Or That Are Related To The Two Different Education Systems They Have Received *Acıbadem Journal of Health Sciences*. 2019;10(1):42-48. [\[Crossref\]](#)
4. Gaberson KB, Oerman MH, Shellenbarger T. (Ed.). *Clinical Teaching Strategies in Nursing*. Özdemir KF, Şahin ZA, Alemdar DK. (Trans. Ed.) (4th edition). Ankara: Nobel Academic Publishing, 2016. [\[Crossref\]](#)
5. Özden D, Karagözoğlu Ş, Yıldız FT. Clinical stress level of integrated program nursing students and affecting factors. *Anadolu Journal of Nursing and Health Sciences*. 2013;16(2):89-95. [\[Crossref\]](#)
6. Sheroun D, Wankhar D, Devrani A, Lissamma PV, Chatterjee K. A Study to Assess the Perceived Stress and Coping Strategies among B. Sc. Nursing Students of Selected Colleges in Pune during Covid-19 Pandemic Lockdown'. *International Journal of Science and Healthcare Research*. 2020;5(2):280-288. [\[Crossref\]](#)
7. Aslan H, Pekince H. Nursing students' views on the COVID-19 pandemic and their perceived stress levels. *Perspect Psychiatr Care*. 2021;57(2):695-701. [\[Crossref\]](#)
8. Can Ş, Acaroğlu R. The relationship between nurses' professional values and their perceptions of individualized care. *Journal of Florence Nightingale Nursing*. 2015;23(1):32-40. [\[Crossref\]](#)
9. Ceylan B. Individualized Care in Nursing. I. *Journal of Ege University Faculty of Nursing*. 2014;30(3):59-67. [\[Crossref\]](#)
10. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *J Health Soc Behav*. 1983;24(4):385-396. [\[Crossref\]](#)
11. Eskin M, Harlak H, Demirkıran F, Dereboş Ç. Turkish adaptation of the perceived stress scale: reliability and validity analysis. In *New/Yeni Symposium Journal*. 2013;51(3):132-140. [\[Crossref\]](#)
12. Suhonen R, Gustafsson ML, Katajisto J, Välimäki M, Leino-Kilpi H. Individualized care scale - nurse version: a Finnish validation study. *J Eval Clin Pract*. 2010;16(1):145-154. [\[Crossref\]](#)
13. Acaroğlu R, Şendir M. Individualized Care Evaluation Scales. *Journal of İ.Ü.F.N. Nursing*. 2012;20(1):10-16. [\[Crossref\]](#)
14. Yıldız Findik U, Ozbas A, Cavdar I, Yıldızeli Topcu S, Onler E. Assessment of nursing students' stress levels and coping strategies in operating room practice. *Nurse Educ Pract*. 2015;15(3):192-195. [\[Crossref\]](#)
15. Bublitz S, Guido LA, Lopes LFD, Freitas EO. Association between nursing students' academic and sociodemographic characteristics and stress. *Texto Contexto Enferm*. 2016;25(4):1-7. [\[Crossref\]](#)
16. Turan N, Durgun H, Kaya H, Ertas G, Kuvan D. The relationship between the stress situations of nursing students and their cognitive flexibility levels. *Jaren*. 2019;5(1):59-66. [\[Crossref\]](#)
17. Özdemir H, Khorshid L, Zaybak A. Determining the Stress Level of Nursing Students Regarding Nursing Education. *Turkish Journal of Science and Health*. 2020;1(2):20-28. [\[Crossref\]](#)
18. Cantekin I, Çoban S. A, Dönmez H. The Perceived Stress Level of Nursing Students Regarding The Clinical Practices in the

- Covid-19 Pandemic. *Journal of Higher Education and Science*. 2021;11(3):592-599. [\[Crossref\]](#)
19. Yazici HG, Ökten Ç. Nursing students' clinical practices during the COVID-19 pandemic: Fear of COVID-19 and anxiety levels. *In Nursing Forum*. 2021;1-7. [\[Crossref\]](#)
20. Çelimli H. The Effect of Stress and Satisfaction Experienced by Nursing Students in Clinical Practice on Perception of Clinical Learning. Master Thesis, University. Health Sciences Institute, Department of Surgical Diseases Nursing, Afyonkarahisar, 2019. [\[Crossref\]](#)
21. Diaz K, Staffileno BA, Hamilton R. Nursing student experiences in turmoil: A year of the pandemic and social strife during final clinical rotations. *Journal of Professional Nursing*. 2021;37(5):978-984. [\[Crossref\]](#)
22. Lovric, R, Farcic N, Miksic S, Vcev A. Studying during the COVID-19 pandemic: A qualitative inductive content analysis of nursing students' perceptions and experiences. *Educ Sci*. 2020;10(7):188. [\[Crossref\]](#)
23. Okuyan CB, Karasu F, Polat F. The Effect of COVID-19 on Health Anxiety Levels of Nursing Students. *Van Journal of Health Sciences*. 2020;13:(Suppl):45-52. [\[Crossref\]](#)
24. Çulha Y. Investigation of Nursing Values, Emotional Intelligence Levels and Individualized Care Perceptions of Senior Nursing Students. Master Thesis, Istanbul University- Cerrahpaşa Graduate Education Institute, Department of Nursing Fundamentals, İstanbul, 2018. [\[Crossref\]](#)
25. Çetin SP, Çevik K. The Relationship between Individualized Care Perceptions and Compassion Level of Nursing Students. *Journal of Ankara Health Sciences*. 2021;10(1):57-70. [\[Crossref\]](#)
26. Şentürk SŞ, Bakır N. Effect of Nursing Students' Spiritual Values on Their Individualized Care Perceptions. *Turkish Journal of Science and Health*. 2021;2(2):22-32. [\[Crossref\]](#)
27. Güner SG, Ovayolu, Ö, Ovayolu N. Investigation of Nursing Students' Situations Regarding Individualized Care. *DEUHFED*. 2020;13(2):74-81. [\[Crossref\]](#)
28. Çiftçi B, Aras GN, Yıldız Ö. Examining the correlation between intercultural sensitivity and individualized care perception of nursing students. *Nurse Educ Today*. 2021;102:104937. [\[Crossref\]](#)
29. Bağcı H, Yücel ŞÇ, Demir SÖ, Çetinkaya H. Individualized Care Evaluations of Nursing Intern Students. *Turkish Journal of Science and Health*. 2021;2(1):1-7. [\[Crossref\]](#)
30. Aştı T. *Nursing Fundamentals Practice Guide*. Academy Press and Publishing, 1st edition. İstanbul, 2020;1-343. [\[Crossref\]](#)
31. Idvall E, Berg A, Katajisto J, Acaroglu R, Luz MD, Efstathiou G, et al. Nurses' sociodemographic background and assessments of individualized care. *J Nurs Scholarsh*. 2012;44(3):284-293. [\[Crossref\]](#)



ORIGINAL ARTICLE

Factors Associated with Awareness of Gynecological Cancer Among Turkish Women: A Descriptive and Cross-sectional Study

Türk Kadınların Jinekolojik Kanser Farkındalığını Etkileyen Faktörler: Tanımlayıcı ve Kesitsel Bir Çalışma

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Abstract

Objective: This study aimed to determine factors associated with awareness of gynecological cancer among Turkish women.

Method: The online descriptive and cross-sectional study was conducted between November 2020 and April 2021 in Turkey via the snowball sampling technique by sharing an online link among all women between the ages of 20 and 65 years who had no history of gynecologic cancer, at least primary school graduates, who live in Turkey and use smartphones or the internet. The sample size for the study was calculated using G*Power software version 3.1.9.7. The input parameters were a t-test, a small effect size of 0.2, a 5% alpha error probability, and 80% power. The total sample size calculated was 788. The sample of the study consisted of 804 women. The women's descriptive characteristics form and gynecological cancers awareness scale were used for the study. The descriptive characteristics form was prepared by the researchers based on the literature. This questionnaire consisted of 25 questions that included information about women's age, education level, family type, number of children, applying regular gynecological examinations, and having knowledge about Pap smear test and cervical cancer. The gynecological cancers awareness scale consisted of 41 items and was a five-point Likert-type scale with four subdimensions. The total score to be obtained from the scale is between 41 and 205 points, and a high score indicates that women's awareness of gynecological cancer is high. After the relationship between the total and subscale scores and independent variables was evaluated using t-test and ANOVA, the variables were found to be significant, and the total score was tested using multiple regression analysis.

Results: In the study, the mean age of the women was found 41.5 ± 10.7 , 64.3% had a university education, and 70.0% were employed. The rate of having a Pap smear test was found 66.8% and 34.3% of women had regular annual visits to a gynecologist. The total score on the gynecological cancers awareness scale was high in women aged over 42 years, those with postgraduate education, and those employed. The mean of the total score of the scale was found to be high in women who had an active sexual life, had regular gynecologic examinations, and had a history of pregnancy. All sub-dimension scores and the total score of the scale were determined to be higher in postgraduate education women than in middle school and lower education women. Women who had health insurance, had modern birth control methods, had the Pap smear test and had vulvar self-examination, and had information about Pap smear test and cervical cancer were found to have a high score from all subscales and total scores of the scale. According to the multiple regression analysis, the following were found to be statistically significant factors influencing awareness of gynecological cancer: Education status, using birth control methods, having vulvar self-examination and regular gynecologic examination, having Pap smear test, and having information about cervical cancer.

Conclusion: It was determined that women with higher socio-economic status had a high awareness of gynecological cancer.

Keywords: Gynecological cancer, cancer awareness, women

Öz

Amaç: Bu çalışmanın amacı Türk kadınların jinekolojik kanser farkındalığını etkileyen faktörlerin belirlenmesidir.

Yöntem: Bu çalışma online tanımlayıcı ve kesitsel bir araştırma olup Kasım 2020 ile Nisan 2021 tarihleri arasında çevrimiçi bağlantı paylaşarak 20-65 yaş arasında olan, jinekolojik kanser öyküsü olmayan, en az ilkokul mezunu olan, akıllı telefon veya internet kullanan ve Türkiye'de yaşayan kadınlar arasında kartopu örnekleme tekniği ile gerçekleştirilmiştir. Araştırmanın örneklem sayısı G*Power 3.1.9.7 programı kullanılarak hesaplanmıştır. Giriş parametreleri t-testi, 0,2 küçük etki büyüklüğü, %5 hata payı ve %80 güç olup toplam örneklem büyüklüğü 788 hesaplanmıştır. Araştırmanın örneklemini 804 kadın oluşturmuştur. Araştırmada kadınların tanıtıcı özellikler soru formu ve jinekolojik kanserler farkındalık ölçeği kullanılmıştır. Araştırmacılar tarafından literatüre dayalı olarak hazırlanan tanımlayıcı özellikler formu; kadınların yaşı, eğitim düzeyi, aile tipi, çocuk sayısı, düzenli jinekolojik muayene yaptırma durumu, Pap smear testi

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Cite this article as: Karakuş Selçuk A, Yanikkerem E, Esmeray N. Factors Associated with Awareness of Gynecological Cancer Among Turkish Women: A Descriptive and Cross-sectional Study. *Mediterr Nurs Midwifery*. 2024; 4(2): 129-138

Received: August 31, 2023

Accepted: January 11, 2024



ve serviks kanseri hakkında bilgi sahibi olma gibi bilgileri içeren 25 sorudan oluşmaktadır. Jinekolojik kanserler farkındalık ölçeği 41 maddeden oluşmakta olup, ölçek beşli Likert tipte ve dört alt boyutu bulunmaktadır. Ölçekten alınacak toplam puan 41 ile 205 puan arasında ve alınan puanın yüksek olması kadınların jinekolojik kanser konusundaki farkındalığının yüksek olduğunu göstermektedir. Ölçek toplam puanı ve alt boyut puanları ile bağımsız değişkenler arasındaki ilişki t-testi ve ANOVA ile değerlendirildikten sonra anlamlı bulunan değişkenler ile ölçek toplam puanı çoklu regresyon analizi ile test edilmiştir.

Bulgular: Araştırmada kadınların yaş ortalamasının 41,5±10,7 ve %64,3'ünün üniversite eğitimi aldığı ve %70,0'ünün çalıştığı bulunmuştur. Kadınların Pap smear testi yaptırma oranı %66,8 olup %34,3'ü yıllık düzenli olarak jinekoloğa başvurduğu saptanmıştır. Jinekolojik kanserler farkındalık ölçeği toplam puanı 42 yaş üstü, lisansüstü eğitim alan ve çalışan kadınlarda yüksek bulunmuştur. Aktif cinsel yaşamı olan, düzenli jinekolojik muayene yaptırın ve gebelik öyküsü olan kadınlarda ölçek toplam puan ortalamasının yüksek olduğu belirlenmiştir. Ölçeğin tüm alt boyut puanları ve toplam puanının lisansüstü eğitilmiş kadınlarda, ortaokul ve altı eğitilmiş kadınlara göre daha yüksek olduğu saptanmıştır. Sağlık sigortası olan, modern doğum kontrol yöntemleri kullanan, Pap smear testi ve kendi kendine vulva muayenesi yapan, serviks kanseri ve Pap smear testi hakkında bilgisi olan kadınların tüm ölçek alt boyut ve ölçek toplam puanının yüksek olduğu saptanmıştır. Çoklu regresyon analizine göre jinekolojik kanser farkındalığını etkileyen istatistiksel olarak anlamlı faktörler: Eğitim durumu, doğum kontrol yöntemini kullanma, kendi kendine vulva muayenesi yapma ve düzenli jinekolojik muayene gitme, Pap smear testi yaptırma ve serviks kanseri hakkında bilgi sahibi olma olarak belirlenmiştir.

Sonuç: Sosyo-ekonomik durumu yüksek olan kadınların jinekolojik kanser konusunda farkındalıklarının yüksek olduğu belirlenmiştir.

Anahtar Kelimeler: Jinekolojik kanser, kanser farkındalığı, kadın

Introduction

Gynecological cancers are an important problem in many women in terms of morbidity and mortality (1-4). According to the World Cancer Research Fund International (2020) data, the gynecological cancer rates were 6.9% for the cervix uteri, 4.8% for the corpus uteri, 3.6% for the ovary, 0.5% for the vulva, and 0.2% for the vagina (5). In the Global Cancer Incidence, Mortality and Prevalence (2020) data, it was stated that the incidence of gynecological cancers was high in the cervix uteri (6.5%), corpus uteri (4.5%) and ovary (3.4%), respectively, in the world (6), and the death rates increased due to these cancers (2).

According to the results of Turkey Cancer Statistics (2018), gynecological cancers were reported to be the most common cancer after breast and gastrointestinal system cancers (4,7). The incidence of gynecological cancers in Turkey was determined to be 9.8, 6.1, and 4.0 per hundred thousand for uterine corpus, ovarian, and cervical cancers, respectively (1,3,4).

When the risk factors in gynecological cancers were examined in the light of the literature, it has been shown that factors such as age (2,8-12), smoking (2,8-18), HIV infection (2,8-12), obesity (13,14), human papillomavirus (HPV) (2,8-18), number of sex partners (8,15-17), and exposure to some chemicals were effective in the development of these cancers (13).

Protection and early detection are important for lowering cancer mortality rates (8,11). Regular screening and self-examination are required for the early detection

of gynecologic malignancies (19). Furthermore, in the prevention of gynecological malignancies, interventions such as maintaining a healthy lifestyle (exercise, balanced diet, avoiding alcohol and smoking) and avoiding risky behaviors and environmental risk factors are recommended (2,8-12). For cervical cancer, other protective strategies have been used, including the HPV vaccine and the use of a barrier method during sexual intercourse, as well as the use of controlled oral contraceptives for endometrial and ovarian cancer (8,11,20).

As is known all over the world, the life expectancy of women is increasing (3,4) and the incidence and mortality of gynecologic cancers are increasing day by day (2,4,7,12). Therefore, determination of the prevalence, risk factors, and causes of gynecologic cancers is becoming increasingly important for early diagnosis and treatment of gynecologic cancers (3,4). One of the important factors in the prevention of gynecologic cancers is to raise women's awareness about the symptoms, prevalence, early diagnosis, and treatment of gynecologic cancers and to raise women's awareness in this regard (2,11).

Studies have shown that women's level of knowledge and awareness about gynecologic cancers is not sufficient (12,22,23), ignoring the health problems they experience (12,21), neglect (12,22), embarrassment (11,12,24), and financial problems (11,12), and they are not sufficiently aware of existing screening programs to facilitate early diagnosis and treatment (2,11,25). The importance of this study is to evaluate the awareness of women about screening and risk factors for gynecologic cancers, which have limited information resources in Turkey, and to shed light on the preparation of educational programs for future studies by identifying knowledge gaps. In previous studies, descriptive data analysis (frequency analyses, mean, standard deviation, minimum-maximum) and basic mean comparison tests (ANOVA, t-test, Mann-Whitney U test, Kruskal-Wallis test) were used to determine gynecological awareness (1-3,10,26,27). Regression analysis, an advanced statistical analysis method, was used only in the study by Uslu-Sahan et al. (28). Another important objective of this study was to evaluate the factors affecting gynecologic cancers with both basic and advanced statistical analyses in a large

Main Points

- It was observed that the higher socio-economic status of women had a high awareness of gynecological cancer.
- It was found that women aged over 42 years, women with two children, employed, had higher income status, had health insurance, women who had postgraduate education, and had high gynecological cancer awareness.
- There was a high level of awareness among women who underwent a regular gynecologic examination, who had information about cervical cancer, who underwent the Pap smear test, and who underwent vulvar self-examination.

Turkey population. Therefore, this study determined factors associated with awareness of gynecological cancer among Turkish women.

Material and Method

Study Design

This study was descriptive and cross-sectional.

Sample of the study

The sample size for the study was calculated using G*Power software version 3.1.9.7. The input parameters were t-test, a small effect size of 0.2, a 5% alpha error probability ($\alpha=0.05$) and 80% power ($1-\beta=0.80$) and the total sample size calculated was 788. A small estimated effect size was chosen to ensure that a large sample was collected to detect meaningful differences between variables (29).

A snowball sampling technique was used to collect online responses from the Turkish population between November 2020 and April 2021. Eight hundred forty-six women were reached, 42 women were excluded from the study for not completing the questionnaires, and the sample of the study consisted of 804 women. The study included women between the ages of 20 and 65 who had no history of gynecologic cancer, who volunteered to participate in the study, who were at least primary school graduates, and who could communicate both verbally and in writing. Women diagnosed with gynecological cancer were excluded from the study. Because snowball sampling was used, region/province selection was not made, and the study was conducted with all women who agreed to participate and met the inclusion criteria.

Data collection

The online questionnaire was prepared by the researchers using Google forms. Data collection depended on the authors' social relations with the local citizens living in Turkey. A single-page draft placard was dispatched to the WhatsApp, Facebook, Instagram, and Twitter groups to reach women. The placard included a brief introduction regarding the background, objective, methods, inclusion criteria, statement of secrecy, and steps for filling out the questionnaire along with the link and fast response. To avoid any psychological or moral pressure, all participants were addressed generally and without any specificity. Additionally, when filling out the form, the respondents had the option of "I prefer not to answer" any question that they found uncomfortable. The questionnaire form was arranged in such a way as to allow the woman to participate only once in the survey. The respondent could proceed with the questionnaire only after confirmation. All information was collected through the Google system's automatic

Data collection tools

The data collection tools consisted of two parts. The first part consisted of the women's descriptive characteristics

form, which was prepared by the researchers based on the literature (1-4,8,10,11). This questionnaire consisted of 25 questions. The form included information about women's age, education level, family type, pregnancy history, number of children, status of employment, health insurance, smoking, and perceived income. In addition, having a sexual life, using birth control methods, applying regular gynecological examinations, and having knowledge about Pap smear test and cervical cancer were examined in this section.

The second part of the questionnaire included the "gynecological cancers awareness scale" (GCAS). This scale was developed by Dal and Ertem (8) in 2017. The Cronbach alpha value of the scale was found to be 0.944. GCAS consists of 41 items and is a five-point Likert-type scale, scored between one and five (1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, and 5=strongly agree). This scale has four subdimensions as follows: "Awareness of early diagnosis and knowledge in gynecological cancers" (1, 2, 12, 13 items), "Awareness of gynecological cancer risks" (3, 4, 5, 6, 7, 8, 9, 10, and 11 items), "Awareness of gynecological cancer prevention" (14, 15, 16, 17, 18, and 19 items), and "Awareness of routine control and serious disease perception in gynecological cancer" (20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, and 41 items). The total score to be obtained from the scale is between 41 and 205 points, and a high score indicates that women's awareness of gynecological cancer is high (8).

Statistical Analysis

Statistical analysis was performed using the SPSS 18.0 program. Frequency distributions were used to assess descriptive characteristics. The groups were found to be homogeneous after skewness and kurtosis tests were conducted to verify the normality condition of the data distribution. The relationship between the independent variables of the study and GCAS total and subscale scores was evaluated using t-test and ANOVA). The Bonferroni test was used to examine the variables that made a difference. The variables were found to be significant, and the total scale scores were tested using multiple regression analysis. A p-level of <0.05 was considered statistically significant.

Ethical Considerations

Ethical approval was obtained from the Ethical Committee of Manisa Celal Bayar University (11/11/2020, 20.478.486). Written permission was obtained from the researchers who developed the GCAS for the use of the study. To protect data privacy, the surveys were delivered to women via the URL doc.google.com. Before beginning the questionnaire form, participants were asked to read and sign an informed consent form that contained no personal information and explained the purpose of the study. The questionnaire excludes any questions regarding the participants' contact or personal information.

Results

Descriptive Characteristics of the Women

In the study, the mean age of the women was found 41.5 ± 10.7 (min=20-max=65), and about half of the women (50.6%) were 41 years old or younger. Overall, 64.3% had a university education, 70.0% were employed, 83.2% had a nuclear family, 95.3% had health insurance, and 55.5% stated that family income was equal to outgoings. Most women (80.3%) had a history of pregnancy, 71.3% had sexual activity, and 34.3% stated that they had regular annual visits to a gynecologist (Table 1).

Sub-dimension and Total Scores of the GCAS

In this study, the mean scores for "awareness of routine control and serious disease perception in gynecological cancer" and "awareness of gynecological cancer risks" was 90.8 ± 12.2 (24-110) and 27.9 ± 5.0 (11-45), respectively. "Awareness of gynecological cancer prevention", "Awareness of early diagnosis and knowledge in gynecological cancers" and GCAS total mean scores were 23.1 ± 3.7 (min=7 max=30), 17.5 ± 2.4 (min=4, max=20) and 159.4 ± 18.3 (min=63, max=205), respectively (data not shown).

Factors Associated with Awareness of Gynecological Cancer

Women aged over 42 years had higher scores for "awareness of routine control and serious disease perception in gynecological cancer" ($p=0.042$), "awareness of gynecological cancer risks" ($p=0.003$) "awareness of gynecological cancer prevention" sub-dimensions ($p=0.019$) and the total of GCAS ($p=0.006$) than women aged 41 years or younger. All sub-dimension scores and the total score of GCAS were determined to be higher in postgraduate education women than in middle school and lower education women. Employed women had a higher score from the sub-dimensions "awareness of gynecological cancer risks" ($p=0.000$), "awareness of early diagnosis and knowledge in gynecological cancers" ($p=0.002$), and the total score of GCAS ($p=0.009$) than unemployed women. Women who had health insurance had a higher score in all sub-dimensions. The score of sub-dimensions in "awareness of gynecological cancer risks" ($p=0.015$), "awareness of gynecological cancer prevention" ($p=0.001$), and the GCAS total score ($p=0.009$) were higher in women whose family income was higher than outgoings than in women whose family income was lower than outgoings. The sub-dimensions in "awareness of routine control and serious disease perception in gynecological cancer" ($p=0.034$) were determined to be high in women who had smoking and "awareness of gynecological cancer prevention" scores were higher in non-smoker women (Table 1).

Women who had a history of pregnancy had higher scores for the sub-dimensions "awareness of routine control and serious disease perception in gynecological cancer" ($p=0.001$), "awareness of gynecological cancer risks" ($p=0.000$), "awareness of gynecological cancer prevention"

($p=0.002$), and the GCAS total ($p=0.002$) than women who had no history of pregnancy. Women with two children had higher scores "awareness of routine control and serious disease perception in gynecological cancer" ($p=0.008$), "awareness of gynecological cancer risks" ($p=0.007$), "awareness of gynecological cancer prevention" ($p=0.047$), and the GCAS total ($p=0.002$) than women without children (Table 1).

The mean scores of "awareness of routine control and serious disease perception in gynecological cancer" (91.5 ± 12.5), "awareness of gynecological cancer risks" (28.3 ± 5.2), "awareness of gynecological cancer prevention" (23.4 ± 3.6), and "GCAS total scores" (160.7 ± 18.7) was found to be high in women who had an active sexual life. The mean points of the GCAS total and subscale scores were defined as higher in women who used the modern birth control method. Women who had a regular gynecological examination had higher scores on the GCAS total (163.6 ± 15.9), "awareness of routine control and serious disease perception in gynecological cancer" (93.6 ± 10.6), "awareness of gynecological cancer prevention" (24.2 ± 3.3), and "awareness of early diagnosis and knowledge in gynecological cancers" (17.8 ± 2.1) subscales (Table 1).

Overall, 66.8% and 36.8% of the women stated that they had undergone a Pap smear test and self-examination of the vulva, respectively. In the study, 28.1% of women declared that they had knowledge about cervical cancer and 23.9% of them had information about Pap smear test. Women who had information about cervical cancer and Pap smear test and women who had the Pap smear test and vulvar self-examination had a high score from GCAS total and subscale scores ($p=0.000$) (Table 2).

Multiple Regression Analysis of GCAS Total Score

When the independent variables were examined in explaining the dependent variable GCAS total score, education status, using birth control method, having vulvar self-examination and regular gynecologic examination, having Papsmear test, and having information about cervical cancer were found to be important factors ($F=12,565$, $p<0.0001$). The regression coefficient values were statistically significant ($t=26,789$, $p<0.0001$). In the multiple regression analysis model, 16.2% (adjusted $R^2=0.162$) of the independent variables were statistically significant (Table 3).

Discussion

This study determined factors associated with awareness of gynecological cancer among Turkish women. In the study, the mean total score of GCAS was 159.4 ± 18.3 , and considering that the minimum score to be taken from the scale was 41 and the maximum score 205, it could be said that women's awareness of gynecological cancer was high. When the Turkish studies were reviewed, the mean GCAS score of women was determined 161.2 ± 19.3 (26), 157.5 ± 17.4 (1), 156.6 ± 32.9 (30) and 154.5 ± 16.7 (31). Other studies in Turkey found that the total GCAS score varied between 147

and 151 (4,11,12,25). The mean score of GCAS was determined 154.8±17.9 in Poland (32). It could be said that the total score of GCAS in this research was in line with the results of previous studies.

In this study, the relationship between the descriptive characteristics of women and sub-dimensions and the total GCAS scores was examined. Consistent with our study findings, it was found that GCAS total scores were high in women who had two children (2), were employed (2,11,28), had higher income status (25-28), had health insurance (26), had regular gynecologic examination (12,25,26,28), had information about cervical cancer (4,11,12,28), had the Pap smear test (4,12,26), and had vulvar self-examination (12,26). In the current study, the GCAS total score was defined as high in women aged over 42 years. It was determined in some studies in Turkey that there was a significant difference in women aged between 36 and 50 (2), 50 and 59 (25), 50 and 54 (26), 50 and 65 (4). Furthermore, similar to the findings of other studies, as the education level of women increased, the GCAS total scores increased statistically significantly (11,25,26,28). As seen in previous research findings, it is an expected result that women with higher socio-economic status had a higher score on the GCAS and higher awareness.

In our study, although the awareness of gynecological cancer was determined to be high in women, it was indicated that approximately one-third of the women had knowledge about cervical cancer and Pap smear, about thirty percent of women performed vulvar self-examination, and 66.8% of women had a Pap smear test. Healthcare professionals who provide preventive and supportive healthcare services may positively affect gynecological cancer awareness through special education programs (18,33,34). Interventions such as invitation letters (35), telephone calls (36), and educational pamphlets (36) may be useful to increase participation in cervical cancer screening programs.

In this study, the “awareness of gynecological cancer risks” subscale score was found as 27.9±5.0. In some previous studies, the mean score was found to vary between 26.6 and 29.8 (1,4,11,12,25,26,30-32). In the study, the mean scores of “awareness of gynecological cancer risks” were high in women who had a university degree and above, and this finding was consistent with previous studies (1,25,26). Consistent with our study findings, it was found that the sub-dimension score was high in women who underwent vulvar self-examination (26). In the study, the subscale score was found to be low (27.9±5.0), indicating that women had insufficient knowledge about cancer risk factors. Similarly, Novinson et al. (34) stated that education about gynecologic cancer symptoms and risk factors can be effective in increasing awareness, having knowledge, and transforming knowledge into behavior.

In the current study, the mean score of “awareness of routine control and serious disease perception in gynecological cancer” was 90.8±12.2 and the average subscale score was high. Parallel to our study findings, it was found in some

studies in Turkey that the mean score varied between 82.2 and 91.3 (1,4,11,12,25,26,30-32). Consistent with the findings in previous studies, our study determined that the subscale of the “awareness of routine control and serious disease perception in gynecological cancer” score was high in women who had postgraduate education (25,26), had health insurance (26), had two children (11), had regular gynecologic examination (25,26), had information about cervical cancer (11) and Pap smear test (25), and had the Pap smear test and vulvar self-examination (26). Contrary to a study conducted in Turkey that women aged between 30 and 39 years had high scores in this subscale (27), our study found the score high for women aged over 42 years. Two studies reported that women aged between 40 and 49 years (25) and women aged between 50 and 54 years (26) had a high score in the subscale. As can be seen from the findings of this study, women who had a high level of education, had a regular gynecological examination, had Pap smear test and vulvar self-examination, and had knowledge about this subject increased awareness of routine control and preventive measures. Therefore, raising the awareness of women in other groups becomes extremely important.

Previous studies have indicated that women do not apply for routine gynecological examination and Pap smear test because they ignore the health problems they experience (12,21), not having enough information (12,23), neglect (12,22), embarrassment (11,12,24), and financial problems (11,12). Therefore, it is useful that information about gynecological cancer and Pap smear tests be disseminated and regularly provided via an interdisciplinary approach (health care professionals, schools, and mass media) to raise social awareness.

In this study, the “awareness of gynecological cancer prevention” score was determined 23.1±3.7. Some studies stated that the subscale score changed between 21.2 and 23.4 (1,4,11,12,25,26,30-32). Similar to the findings of other studies, in our study, the mean “awareness of gynecological cancer prevention” subscale points were determined to be high in women who had higher income status (26,27), health insurance (26), had not smoking (26,31), had information about cervical cancer (11), had regular gynecologic examination (25,26), had the Pap smear test (26) and had vulvar self-examination (26). When the literature was reviewed, as the education level of women increased, it was noted that there was a significant difference between the subscale scores (11,26). Consistent with the present study, Toptaş Acar et al. (25) and Alp Dalet et al. (26) noted that women aged between 50 and 59 years and women aged between 55 and 60 years had a high score in the subdimension. It has been stated in the literature that education level, income status, and health insurance could impact gynecological cancer awareness. It was emphasized that increasing the education level of women and creating job opportunities for them were important in terms of ensuring their access to health services (28).

Table 1.
Relationship between descriptive characteristics of women and sub-dimension of Gynecological Cancers Awareness Scale

Descriptive characteristics of women	n (%)	Awareness of routine control and serious disease perception in patients with gynecological cancer		Awareness of gynecological cancer risks	
		Mean ± SD*	Test	Mean ± SD*	Test
Age of the women ≤41 years >42 age	407 (50.6) 397 (49.4)	90.0±12.5 91.7±11.9	t=-2.034 df=802 p=0.042	27.4±5.4 28.5±4.6	t=-2.966 df=789.506 p=0.003
Education status Middle school and lower (a) High school (b) University (c) Postgraduate (d)	42 (5.2) 92 (11.5) 517 (64.3) 153 (19.0)	85.0±14.9 90.8±11.2 90.6±12.4 93.2±10.9	X ² =5.243 p=0.001 d>a	27.0±3.7 26.8±4.7 27.6±4.7 30.0±6.1	X ² =12.287 p=0.000 d>a d>b d>c
Employment status Employed (a) Unemployed (b) Retired (c)	563 (70.0) 150 (18.7) 91 (11.3)	91.1±12.1 89.4±13.7 91.5±10.1	X ² =1.387 p=0.250	28.4±5.1 26.6±5.0 27.4±4.1	X ² =8.337 p=0.000 a>b
The type of family Extended Nuclear	135 (16.8) 669 (83.2)	90.3±12.4 90.9±12.2	t=-0.514 df=802 p=0.607	27.5±4.9 28.0±5.1	t=-0.996 df=802 p=0.319
Health insurance Yes No	766 (95.3) 38 (4.7)	91.2±11.9 84.4±15.7	t=2.623 df=39.141 p=0.012	28.0±5.0 26.2±5.1	t=2.174 df=802 p=0.030
Perceived income status Income is lower than outgoings (a) Income is equal to outgoings (b) Income is higher than outgoings (c)	139 (17.3) 446 (55.5) 219 (27.2)	89.0±11.3 91.2±12.3 91.3±12.6	X ² =1.868 p=0.155	26.9±4.6 28.0±5.2 28.5±5.0	X ² =4.235 p=0.015 c>a
Smoking Yes No	259 (32.2) 545 (67.8)	92.2±10.9 90.2±12.7	t=2.128 df=802 p=0.034	28.0±4.8 27.9±5.2	t=0.162 df=802 p=0.872
History of pregnancy Yes No	646 (80.3) 158 (19.7)	91.6±12.2 87.8±11.9	t=3.473 df=802 p=0.001	28.3±5.0 26.5±5.1	t=4.013 df=802 p=0.000
Number of children No children (a) 1 child (b) 2 children (c) 3 or more children (d)	202 (25.1) 279 (34.7) 274 (34.1) 49 (6.1)	89.0±11.8 91.1±12.6 92.4±11.6 88.0±14.2	X ² =3.980 p=0.008 c>a	26.9±5.3 28.4±5.5 28.3±4.4 28.2±4.4	X ² =4.087 p=0.007 c>a
Having an active sexual life Yes No	573 (71.3) 231 (28.7)	91.5±12.5 89.2±11.5	t=2.408 df=802 p=0.016	28.3±5.2 27.1±4.7	t=3.072 df=802 p=0.002
Using a birth control method Modern methods (a) Non-modern methods (b) Not used (c) Menopause (d)	300 (37.3) 113 (14.1) 247 (30.7) 144 (17.9)	92.6±11.5 92.4±13.1 88.7±12.7 89.8±11.6	X ² =5.631 p=0.001 a>c	28.5±5.2 27.7±5.0 27.1±5.3 28.3±4.1	X ² =4.079 p=0.007 a>c
Regular gynecologic examination Yes No	276 (34.3) 528 (65.7)	93.6±10.6 89.4±12.7	t=4.733 df=802 p=0.000	28.0±5.0 27.9±5.1	t=0.277 df=802 p=0.782

*SD=standard deviation

Descriptive characteristics of women	Awareness of gynecological cancer prevention		Awareness of early diagnosis and knowledge of gynecological cancers		Gynecological cancers awareness scale total score	
	Mean ± SD*	Test	Mean ± SD*	Test	Mean ± SD*	Test
Age of the women ≤41 years >42 age	22.8±3.8 23.4±3.6	t=-2.344 df=802 p=0.019	17.5±2.4 17.6±2.5	t=-0.848 df=802 p=0.397	157.6±18.6 161.2±17.8	t=-2.766 df=802 p=0.006
Education status Middle school and lower (a) High school (b) University (c) Postgraduate (d)	21.0±3.9 22.8±3.8 23.1±3.6 23.8±3.5	X ² =6.683 p=0.000 d>a	16.3±3.1 16.5±3.2 17.5±2.3 18.7±1.6	X ² =21.443 p=0.000 d>a d>b d>c	149.4±21.4 156.8±18.1 158.8±17.7 165.7±17.5	X ² =11.530 p=0.000 d>a d>b d>c
Employment status Employed (a) Unemployed (b) Retired (c)	23.2±3.7 22.4±3.8 23.1±3.3	X ² =2.792 p=0.062	17.7±2.3 16.9±2.9 17.9±2.1	X ² =6.479 p=0.002 a>b, c>b	160.4±18.2 155.3±20.1 159.9±14.5	X ² =4.716 p=0.009 a>b
The type of family Extended Nuclear	22.7±3.5 23.1±3.7	t=-1.109 df=802 p=0.268	17.4±2.6 17.6±2.4	t=-0.855 df=802 p=0.393	158.0±18.4 159.7±18.3	t=-0.957 df=802 p=0.339
Health insurance Yes No	23.2±3.6 21.3±4.5	t=2.566 df=39.464 p=0.014	17.6±2.4 16.1±3.0	t=3.021 df=39.370 p=0.004	160.0±17.8 148.0±23.6	t=3.982 df=802 p=0.000
Perceived income status Income is lower than outgoings (a) Income is equal to outgoings (b) Income is higher than outgoings (c)	22.1±3.5 23.1±3.9 23.6±3.3	X ² =6.902 p=0.001 c>a	17.2±2.5 17.5±2.5 17.8±2.2	X ² =2.449 p=0.087	155.2±15.9 159.8±19.0 161.2±8.0	X ² =4.789 p=0.009 c>a
Smoking Yes No	22.4±3.5 23.4±3.8	t=-3.544 df=802 p=0.000	17.6±2.4 17.5±2.5	t=0.339 df=802 p=0.735	160.1±16.0 159.0±19.3	t=0.799 df=802 p=0.425
History of pregnancy Yes No	23.3±3.6 22.1±3.8	t=3.654 df=802 p=0.000	17.6±2.5 17.3±2.2	t=1.521 df=802 p=0.129	160.8±18.2 153.7±17.4	t=4.387 df=802 p=0.000
Number of children No children (a) 1 child (b) 2 children (c) 3 or more children (d)	22.5±3.8 23.2±3.6 23.4±3.5 22.8±4.6	X ² =2.670 p=0.047 c>a	17.5±2.1 17.6±2.5 17.7±2.4 16.9±3.2	X ² =1.597 p=0.189	155.8±17.6 160.3±18.9 161.7±16.9 156.0±22.2	X ² =4.964 p=0.002 c>a
Having an active sexual life Yes No	23.4±3.6 22.3±3.7	t=3.646 df=802 p=0.000	17.6±2.5 17.4±2.3	t=0.759 df=802 p=0.448	160.7±18.7 156.1±16.7	t=3.470 df=475.118 p=0.001
Using a birth control method Modern methods (a) Non-modern methods (b) Not used (c) Menopause (d)	23.7±3.4 23.1±3.9 22.3±4.0 23.0±3.3	X ² =6.132 p=0.000 a>c	18.0±2.0 17.6±2.2 17.1±2.9 17.3±2.4	X ² =6.407 p=0.000 a>c	162.8±16.8 160.8±18.9 155.2±19.6 158.4±16.9	X ² =8.260 p=0.000 a>c
Regular gynecologic examination Yes No	24.2±3.3 22.5±3.7	t=6.193 df=802 p=0.000	17.8±2.1 17.4±2.6	t=2.228 df=657.525 p=0.026	163.6±15.9 157.2±19.0	t=4.763 df=802 p=0.000

Table 2.
Relationship Between Having Information About Cervical Cancer, Pap Smear Test, and Having Pap Smear Test and Vulvar Self-examination and Sub-dimension of Gynecological Cancers Awareness Scale

Characteristics	n (%)	Awareness of routine control and serious disease perception in patients with gynecological cancer		Awareness of gynecological cancer risks		Awareness of gynecological cancer prevention		Awareness of early diagnosis and knowledge of gynecological cancers		Gynecological cancers awareness scale total score	
		Mean ± SD*	Test	Mean ± SD*	Test	Mean ± SD*	Test	Mean ± SD*	Test	Mean ± SD*	Test
Had information about cervical cancer	Yes	226 (28.1)	t=3,995 df=802 p=0.000	30.3±5.8 27.0±4.4	t=7,723 df=332,149 p=0.000	24.3±3.7 22.6±3.6	t=6,036 df=802 p=0.000	18.3±2.1 17.3±2.5	t=5,947 df=491,908 p=0.000	166.5±18.2 156.6±17.6	t=7,052 df=802 p=0.000
	No	578 (71.9)	t=4,368 df=802 p=0.000	30.8±5.6 27.0±4.5	t=8,440 df=270,743 p=0.000	24.6±3.5 22.6±3.6	t=6,601 df=802 p=0.000	18.2±2.3 17.3±2.4	t=4,495 df=802 p=0.000	167.8±18.6 156.8±17.4	t=7,514 df=802 p=0.000
Had information about the Pap smear test	Yes	192 (23.9)	t=6,185 df=802 p=0.000	28.7±5.1 26.4±4.6	t=6,160 df=802 p=0.000	23.7±3.4 21.8±4.0	t=6,430 df=465,648 p=0.000	17.9±2.1 16.8±2.9	t=5,804 df=413,910 p=0.000	163.0±17.2 152.2±18.3	t=8,184 df=802 p=0.000
	No	612 (76.1)	t=4,608 df=802 p=0.000	28.7±5.7 27.5±4.5	t=3,084 df=508,677 p=0.002	24.3±3.5 22.3±3.6	t=7,486 df=802 p=0.000	18.2±2.2 17.1±2.4	t=6,295 df=802 p=0.000	164.7±17.5 156.3±18.1	t=6,375 df=802 p=0.000

*SD=standard deviation

In this study, the mean “awareness of early diagnosis and knowledge in gynecological cancers” subscale score found as 17.5±2.4. It was found in some studies that the score varied between 15.4 and 17.8 (1,4,11,12,25,26,30-32). Similarly, most of the other published studies explained that the mean score of the subscale was found to be high in women with health insurance (26), who had vulvar self-examination (26), had information about cervical cancer (11) and had Pap smear test (25). The finding was parallel to the studies conducted in Turkey, which showed that as the education level of women increased, there was a significant difference in the subscale scores (1,11,26).

In the present study, although the “awareness of early diagnosis and knowledge in gynecological cancers” subscale score was found to be high, the rate of women having a Pap smear test, vulvar self-examination, and regular gynecological examination was not at the desired level. It was emphasized in the studies that people who were informed about awareness and the importance of screening were more likely to undergo routine cancer screening (18,33,34).

According to multiple regression analysis in this study, the following were found to be statistically significant factors influencing awareness of gynecological cancer: Education status, use of birth control methods, vulvar self-examination and regular gynecologic examinations, Pap smear test, and information about cervical cancer. It is a pleasing finding that women with high education levels have high awareness about gynecological cancer, as they undergo regular gynecologic examinations and Pap smear tests, and women who use birth control methods receive counseling in the hospital and have the necessary check-ups. Only one study [Uslu-Sahan et al. (28)] performed regression analysis to determine the variables that predict gynecological cancer awareness and found that having knowledge about gynecological cancers was an important predictor of gynecological cancer awareness.

Table 3.
Effect of Independent Variables on Gynecological Cancer Awareness Scale Total Score: Multiple Regression Analysis

Model	Unstandardized coefficients		Standardized coefficients	t	p	95.0% confidence interval for B	
	B	Std. error	Beta			Lower bound	Upper bound
(Constant)	191.952	7.165		26.789	0.000	177.886	206.017
Age of the women	0.560	1.449	0.015	0.386	0.699	-2.284	3.405
Education status	3.322	0.925	0.130	3.592	0.000	1.507	5.138
Employment status	0.919	0.986	0.034	0.932	0.352	-1.016	2.855
Health insurance	-4.932	2.916	-0.057	-1.691	0.091	-10.656	0.792
Having an active sexual life	0.442	1.558	0.011	0.284	0.777	-2.617	3.502
Perceived income status	0.452	0.938	0.016	0.481	0.630	-1.390	2.294
History of pregnancy	-2.695	2.173	-0.059	-1.240	0.215	-6.960	1.570
Number of children	-0.423	0.956	-0.021	-0.442	0.659	-2.299	1.454
Using a birth control method	-0.322	0.140	-0.086	-2.297	0.022	-0.598	-0.047
Vulvar self-examination	-4.406	1.288	-0.116	-3.420	0.001	-6.935	-1.877
Regular gynecologic examination	-3.046	1.303	-0.079	-2.338	0.020	-5.603	-0.489
Had information about the Pap smear test	-3.557	1.976	-0.083	-1.800	0.072	-7.435	0.321
Having the Pap smear test	-6.269	1.518	-0.162	-4.129	0.000	-9.249	-3.289
Had information about cervical cancer	-4.270	1.857	-0.105	-2.300	0.022	-7.915	-0.626

R=0.427, R²=0.182, Adjusted R²=0.162, F=12.565, df=14, p=0.000, Durbin Watson=1.792

Study Limitations

This study had several limitations. First, the study was conducted on women who used social media for a specific amount of time. Therefore, the findings of this study cannot be generalized to all women in Turkey. Second, the data were collected via Google forms because of the pandemic. Another limitation was that women who did not use social media tools and who had low socio-economic status could not be reached adequately because the research was conducted on the web.

Conclusion

In the present study, women who had higher education, women who used birth control methods, women who had vulvar self-examination and regular gynecologic examination, had Pap smear test, and had information about cervical cancer had higher awareness of gynecological cancer. To increase social awareness, it is recommended to determine the unmet educational needs related to the early diagnosis of gynecological cancers and to plan the services to be provided by health professionals in line with these needs. Invitation letters, phone calls, and educational brochures can help transform knowledge into action to increase women's participation in cancer screening.

Acknowledgements: We would like to thank women of this study.

Ethics Committee Approval: Ethical approval was obtained from the Ethical Committee of Manisa Celal Bayar University (11/11/2020, 20.478.486).

Informed Consent: Written permission was obtained from the researchers who developed the GCAS for the use of the study.

Author Contributions: Surgical and Medical Practices – A.K.S., E.Y., N.E.; Conception – A.K.S., E.Y., N.E.; Design – A.K.S., E.Y., N.E.; Data Collection and/or Processing – A.K.S., E.Y., N.E.; Analysis and/or Interpretation – A.K.S., E.Y., N.E.; Literature Review – A.K.S., E.Y., N.E.; Writing – A.K.S., E.Y., N.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

- Erenoglu R, Bayraktar E. Awareness levels of married women aged 20-60 years about gynaecological cancer and the affecting factors. *IJCS*. 2020;13(1):457-469. [\[Crossref\]](#)
- Şenol DK, Polat F, Doğan M. Gynecological cancer awareness: reproductive age and postmenopausal women. *TJFMPC*. 2021;15(1):56-62. [\[Crossref\]](#)

3. Atlas B, Güneri SE. Women's awareness of gynecological cancers and factors affecting awareness. *İKÜSBFD*. 2022;7(1):77-85. [\[Crossref\]](#)
4. Teskereci G, Arslan ÜÖ, Öncel S. The awareness levels of women for gynecologic cancer in Turkey: A cross-sectional study. *Int J Gynaecol Obstet*. 2022;156(3):539-545. [\[Crossref\]](#)
5. World Cancer Research Fund. International Worldwide cancer data. 2020. [Cited 15 November 2019.] [\[Crossref\]](#)
6. World Health Organisation (WHO). Incidence, mortality and prevalence by cancer site. 2020. [Cited 27 January 2023.] [\[Crossref\]](#)
7. Türkiye Cancer Statistics. 2018. [Cited 24 Februray 2023.] [\[Crossref\]](#)
8. Dal NA, Ertem G. Gynecological cancer awareness scale development study. *İTOBİAD*. 2017;6(5):2351-2367. [\[Crossref\]](#)
9. Atta N, Kilickap S, Yuce D, Hayran M. Reproductive cancer risk factors among relatives of cancer patients in a tertiary oncology center. *BMC Cancer*. 2019;19(1):154. [\[Crossref\]](#)
10. Alp Dal N, Akkuzu G, Çetinkaya Şen Y. Investigation of gynecological cancer awareness of Ufuk University women's employees. *J Midwifery and Health Sci*. 2020;3(2):91-99. [\[Crossref\]](#)
11. Özcan H, Demir Doğan M. Gynecological cancer awareness among women. *IJGO*. 2021;19(13):1-9. [\[Crossref\]](#)
12. Öztürk R, Bakir S, Kazankaya F, Paker S, Ertem G. Awareness about Gynecologic Cancers and Related Factors among Healthy Women: A Cross-Sectional Study. *Soc Work Public Health*. 2021;36(7-8):847-856. [\[Crossref\]](#)
13. Australia Government Cancer Australia. What are the risk factors for gynaecological cancers? 2022. [Cited 27 January 2023.] [\[Crossref\]](#)
14. Foundations for Women Cancer. Gynecologic Cancers Risk Factors. 2022. [Cited 27 January 2023.] [\[Crossref\]](#)
15. Cohen PA, Jhingran A, Oaknin A, Denny L. Cervical cancer. *The Lancet*. 2019;393(10167):69-182. [\[Crossref\]](#)
16. Kashyap N, Krishnan N, Kaur S, Ghai S. Risk Factors of Cervical Cancer: A Case-Control Study. *Asia Pac J Oncol Nurs*. 2019;6(3):308-314. [\[Crossref\]](#)
17. Mohammadi S, Rejali M, Mostajeran M, Yadegarfar G. The study of relationship between risk factors for cervical cancer and knowledge and attitude of health workers toward pap smear in Isfahan and its comparison with Chaharmahal and Bakhtiari Province, Iran. *Int J Cancer Manag*. 2019;12(4):e85357. [\[Crossref\]](#)
18. Karakuş Selçuk A, Yanikkerem E. The effect of web-based education on Pap smear behaviours of teachers. *Eur J Cancer. Care (Engl)*. 2020;29(3):e13202. [\[Crossref\]](#)
19. Foundation for Women's Cancer. State of the state of gynecologic cancers. 2016. [Cited 27 January 2023.] [\[Crossref\]](#)
20. Centers for Disease Control and Prevention. what can I do to reduce my risk? 2022. [Cited 27 January 2023.] [\[Crossref\]](#)
21. Eid SR, Hassan HE, Fathy W, Abou-Shabana KR. Study women verbal and nonverbal response, during their first gynecological examination. *American Journal of Nursing Research*. 2019;7(1): 1-7. [\[Crossref\]](#)
22. Koç Z, Kurtoğlu Özdeş E, Topatan S, Çinarlı T, Şener A, Danacı E, et al. The Impact of Education About Cervical Cancer and Human Papillomavirus on Women's Healthy Lifestyle Behaviors and Beliefs: Using the PRECEDE Educational Model. *Cancer Nurs*. 2019;42(2):106-118. [\[Crossref\]](#)
23. Öztürk Y, Gürsoy E. Obstacles Preventing Women from Having Pap Smear Screening Test. *STED*. 2020;29(1):61-68. [\[Crossref\]](#)
24. Aldohaian AI, Alshammari SA, Arafah DM. Using the health belief model to assess beliefs and behaviors regarding cervical cancer screening among Saudi women: a cross-sectional observational study. *BMC Womens Health*. 2019;19(1):6. [\[Crossref\]](#)
25. Toptaş Acar B, Gerçek Öter E, Şanlı Çolakoğlu H. Awareness of gynaecological cancer and factors affecting in women: a cross-sectional study. *J Obstet Gynaecol*. 2022;42(7):3193-3198. [\[Crossref\]](#)
26. Alp Dal N, Gümüşsoy S, Ertem G. Analysis of awareness of gynaecological cancers In women using social media. *Psychol Health Med*. 2023;28(9):2720-2727. [\[Crossref\]](#)
27. Gözüyeşil E, Arıöz A, Filiz T. Evaluation of gynecological cancer awareness of women's applying for a family health center. *TJFMPC*. 2020;14(2):177-185. [\[Crossref\]](#)
28. Uslu-Sahan F, Mert-Karadas M, Yıldız T, Koc G. Effect of health literacy on the awareness of gynecological cancer among women in Turkey. *Indian J Gynecol Oncolog*. 2023;21(1):15. [\[Crossref\]](#)
29. Polit D, Beck C. Nursing research: generating and assessing evidence for nursing practice, 10th ed., Lippincott Williams & Wilkins. [\[Crossref\]](#)
30. Alp Dal N, Beydağ KD, İkde Öner Ö. The Relationship between Gynecological Cancer Awareness and Self-Care Agency in Married Women. *South Asian J Cancer*. 2022;12(1):30-35. [\[Crossref\]](#)
31. Kiyak S, Burucu R. Gynecological cancer awareness of university students and related factors. *STED*. 2022;31(3):172-182. [\[Crossref\]](#)
32. Nagorska M, Alp Dal N, Ejder Apay S, Lesinska-Sawicka M, Capik C. Psychometric properties and cultural adaptation of Polish version of Gynecological Cancers Awareness Scale (GCAS). *Ginekol Pol*. 2022;93(9):695-704. [\[Crossref\]](#)
33. Atwa AME, Hassan HE, Ahmed SI. The impact of a hospital-based awareness program on the knowledge of patients about breast cancer and cancer cervix. *International Journal of Studies in Nursing*. 2019;4(1):20-29. [\[Crossref\]](#)
34. Novinson D, Puckett M, Townsend J, Reichhardt M, Tareg A, Palemar J, et al. Increasing Awareness of Gynecologic Cancer Risks and Symptoms among Asian, Native Hawaiian and Pacific Islander Women in the US-Associated Pacific Island Jurisdictions. *Asian Pac J Cancer Prev*. 2017;18(8):2127-2133. [\[Crossref\]](#)
35. Paulauskiene J, Ivanauskiene R, Skrodeniene E, Petkeviciene J. Organised Versus Opportunistic Cervical Cancer Screening in Urban and Rural Regions of Lithuania. *Medicina (Kaunas)*. 2019;55(9):570. [\[Crossref\]](#)
36. Pourebrahim-Alamdari P, Mehrabi E, Nourizadeh R, Esmailpour K, Mousavi S, Hakimi S. The Effect of Face-to-Face and Phone Call Motivational Interviewing on Cervical Cancer Screening. *Cancer Nurs*. 2022;45(6):E897-E902. [\[Crossref\]](#)



ORIGINAL ARTICLE

Factors Affecting Quality of Life in Elderly People During the COVID-19 Pandemic: A Cross-sectional Study

COVID-19 Salgını Sırasında Yaşlılarda Yaşam Kalitesini Etkileyen Faktörler: Kesitsel Bir Çalışma

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Abstract

Objective: This study aims to help reduce the fears and anxieties of older people and improve their quality of life by guiding health and social care services and education for older people.

Method: The sample of the study consisted of 154 elderly people who voluntarily participated in the study between March and May 2021. Research data were collected online with "personal information form", "fear of Coronavirus disease-2019 (COVID-19) scale", "coronavirus anxiety scale" and quality of life scale in older people.

Results: The mean age of the older people who participated in the study was 71.44±6.28. The mean coronavirus anxiety scale score of the elderly is 4.39±4.58, the mean fear of COVID-19 scale score is 21.91±7.22 and the mean quality of life scale in older people score is 21.25±7.53.

Conclusion: In our study, it was determined that the elderly were afraid of contracting COVID-19 infection, experienced anxiety, and their quality of life was found to be moderate. In addition, age, fear, anxiety and education level were found to be predictors of quality of life in the elderly. Elderly individuals should be provided with physical, emotional, psychological and social support and support health policies should be developed for this.

Keywords: COVID-19, fear, anxiety, aged

Öz

Amaç: Bu çalışma, yaşlılara yönelik sağlık ve sosyal bakım hizmetleri ile eğitime rehberlik ederek yaşlıların korku ve kaygılarının azaltılmasına ve yaşam kalitelerinin iyileştirilmesine yardımcı olmayı amaçlamaktadır.

Yöntem: Araştırmanın örneklemini Mart-Mayıs 2021 tarihleri arasında çalışmaya gönüllü olarak katılan 154 yaşlı oluşturmıştır. Araştırma verileri "kişisel bilgi formu", "Koronavirüs hastalığı-2019 (COVID-19) korkusu ölçeği", "koronavirüs anksiyete ölçeği" ve "yaşlılarda yaşam kalitesi ölçeği" ile çevrimiçi olarak toplanmıştır.

Bulgular: Araştırmaya katılan yaşlıların yaş ortalaması 71,44±6,28 idi. Yaşlıların, koronavirüs anksiyete ölçeği puanı ortalaması 4,39±4,58, COVID-19 korkusu ölçeği puanı ortalaması 21,91±7,22 ve yaşlılarda yaşam kalitesi ölçeği puanı ortalaması 21,25±7,53'tür.

Sonuç: Çalışmamızda yaşlıların COVID-19 enfeksiyonuna yakalanmaktan korktukları, kaygı yaşadıkları ve yaşam kalitelerinin orta düzeyde olduğu belirlendi. Ayrıca yaş, korku, anksiyete ve öğrenim düzeyinin yaşlılarda yaşam kalitesinin yordayıcıları olarak bulunmuştur. Yaşlı bireylere fiziksel, duygusal, psikolojik ve sosyal destek sağlanmalı ve bunun için destek sağlık politikaları geliştirilmelidir.

Anahtar Kelimeler: COVID-19, korku, kaygı, yaşlı

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Received: October 14, 2023

Accepted: January 24, 2024

Cite this article as: Sürmeli Y, Aksoy Can A, Coşkun G, Vefikuluçay Yılmaz D. Factors Affecting Quality of Life in Elderly People During the COVID-19 Pandemic: A Cross-sectional Study. *Mediterr Nurs Midwifery*. 2024; 4(2): 139-145



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Introduction

The novel Coronavirus disease-2019 (COVID-19), which is caused by the severe acute respiratory syndrome-coronavirus-2, manifested itself with respiratory symptoms and spread rapidly within a short time, causing an epidemic throughout the world (1). The COVID-19 epidemic resulted in increased mortality and morbidity rates among those aged 65 years and over, as they are more affected by the disease, their immune systems are weaker, and they have higher frequencies of chronic diseases. According to the 2020 data of the Ministry of Health in our country, the death rate due to COVID-19 was 3.19% in the 50-54 age group, 13% in the 65-79 age group, and 26.94% in the 80 and above age group (2). To prevent the spread of COVID-19 during the epidemic, many measures such as isolation and quarantine were adopted in our country and around the world. However, the fact that people aged 65 and above, who are considered a high-risk group, account for the majority of deaths has led to a restriction being applied mainly for this group. This practice, which was carried out to protect against the virus, has led to some psychological problems among elderly people because they believe they are being discriminated against, feel worthless and lonely, and see that their activities are being limited (3). In addition, it is estimated that factors such as elderly people who had to work but failed to do so because of restrictions have experienced economic difficulties, and negative news in the media such as that “the elderly were left to die” and “the elderly died in nursing homes” increased the levels of anxiety and fear among the elderly (4). Difficulties in accessing health facilities and medicines due to restrictions during the pandemic period are among the many other factors that have led to mental health problems among the elderly (5).

Considering the results of the limited number of scientific studies and statistics that are available regarding the impact of COVID-19 on the lives of older people, it can be said that it triggers fear of death, loneliness, feelings of worthlessness, and stress and anxiety and negatively affects the quality of life of older people (6,7). Nurses have an important role to play in identifying the spiritual needs of older people and helping them improve their quality of life, which is thought to be compromised because of these issues. Nurses should plan for training and provide information on prevention methods to reduce isolation among this group and eliminate insecurity that can cause hopelessness. Nurses should also participate in remote counseling services such as e-nursing by developing their skills in using technological and digital tools. The results of this study will contribute to the planning

and quality of the care services mentioned above. This study was conducted to identify the factors that affected the quality of life of older people during the COVID-19 pandemic period.

This study is important because it has a scientific basis, provides a source for other scientific studies, and raises awareness of the psychosocial problems of older people. In addition, this study aims to help reduce the fears and anxieties of older people and improve their quality of life by guiding health and social care services and providing education for them.

Material and Method

This study was conducted as a descriptive cross-sectional study to determine the factors that affected the quality of life of older people during the COVID-19 pandemic. The study population was not specifically planned because it was not possible for the researchers to control the participants within the digital environment, and the data had to be collected in a specific period of time. Because of these constraints, the convenience sampling method, which is a non-probabilistic sampling method, was used (8). The sample of the research consisted of 154 individuals aged 65 and over who were literate, able to use technology tools, and agreed to participate in the exercise between March and May 2021. The data of the study were collected online using the Google form. Before starting to complete the survey, individuals who participated in the research ticked the option indicating that they were doing this voluntarily. Those who did not choose this option were denied access to some parts of the survey. The minimum sample size of the study was calculated using at least 10 participants per predictor variable for regression equations with six or more predictors. Therefore, the sample of our study meets the necessary conditions (12 predictor variables multiplied by 10= minimum 120 participants) (9).

Data Collection

The individuals who participated in the research were provided with Google forms explaining the purpose of the study and ensuring protection of their rights, such as confidentiality and privacy, and they were informed that they could withdraw from the research at any time. Individuals who participated in the study selected the option that indicated they were doing this voluntarily before filling out the questionnaire. Those who did not choose this option were denied access to parts of the survey.

The personal information form was prepared by the researchers by examining the literature and consists of 14 questions (3,6,7). This form contained nine questions about the participants' socio-demographic and health characteristics (age, gender, marital status, education, income, and chronic conditions). In addition, eight questions regarding their social life during the COVID-19 pandemic (number of people they are in frequent contact with, demonstration working status, living arrangement, living

Main Points

- In this study, which included 154 elderly individuals, it was determined that 47 of the elderly were not vaccinated against Coronavirus disease-2019 (COVID-19).
- In our study, it was determined that the elderly were afraid of contracting COVID-19 and had a moderate quality of life.
- Politicians, health organizations and nurses must work together during the epidemic to increase social support to ensure the well-being of the elderly.

place, contact status with COVID-19, COVID-19 vaccines), COVID-19 diagnoses, and during COVID-19 hospitalizations) were asked.

The study used the Coronavirus Anxiety Scale (CAS) developed by Lee (2020) and adapted into Turkish by Evren et al. (10) to assess the anxiety levels of older people during the COVID-19 epidemic. This five-point Likert-type scale is one-dimensional and includes five items: Participants' Answers, "Never =0 points", "Rarely, less than one or two days =1 point", "A few days =2 points", "More than seven days =3 points" and "Almost every day in the last two weeks =4 points". The participants were asked about "how often they have experienced the situations in the expressions in the last two weeks". The minimum score that can be obtained for each question is 0, and the maximum score is 4. The total score (between 0 and 20) is calculated by adding each item scored. The higher the score, the higher the anxiety associated with COVID-19. The Cronbach's alpha coefficient of the CAS was found to be 0.80 (10). In our study, Cronbach's alpha coefficient was found to be 0.92.

The study fear of COVID-19 scale (FCS) developed by Ahorsu et al. (2020) and its Turkish adaptation by Satici et al. (11) were used to determine the levels of fear among individuals during the COVID-19 epidemic. This five-point Likert scale is one-dimensional and consists of seven items: the lowest score that can be obtained on the scale is seven, and the highest score is 35. Since there is no item with an inverted value in this scale, as the score increases, people's fears of COVID-19 increase, and as the score decreases, their fears of COVID-19 decrease. The Cronbach's alpha coefficient of the FCS was reported to be 0.84 (11). In our study, a Cronbach's alpha coefficient of 0.93 was determined.

The study uses the quality-of-life scale in older people (CASP-19) developed by Hyde et al. (2014) and Turkoglu and Adibelli (12). CASP-19 consists of 13 items with a four-point Likert-type scale: 1= Never to 4= Always. These items include control (items 1, 2, 3), autonomy (items 4, 5, 6), pleasure (items 7, 8, 9, 10) and self-actualization (items 11, 12, 13). The items are rated with values between 0 and 3 points. An increase in the total score indicates an increase in quality of life. Items 1, 2, and 8 are reverse coded. The Cronbach's alpha coefficient of CASP-19 was found to be 0.91 (12). In our study, a Cronbach's alpha coefficient of 0.88 was determined.

Ethical Aspects

Before the study, approval was obtained from the Scientific Ethics Committee of Mersin University (numbered 2021-3 and dated May 3, 2021).

Statistical Analysis

Data were analyzed using SPSS 22.0 (SPSS Inc.). The general characteristics of the participants were evaluated and presented as frequencies and percentages. The Shapiro-Wilk test was used to test for normality ($p>0.05$). Multiple linear regression analysis (the Enter method) was

used to estimate the quality of life in terms of age, gender, marital status, education level, income status, employment status, place of residence, presence of chronic disease, vaccination status, diagnosis status, fear level, anxiety, and other variables. The linearity and normality of the data were checked before performing multiple linear regression analysis. A value of $p<0.05$ was set as the significance level of the tests.

Results

The socio-demographic characteristics of the participants and the COVID-19 infection status are shown in Table 1. The mean age of the older people who participated in the study was 71.44 ± 6.28 (min=65, max=90); 60.4% were women, 79.2% were married, 42.2% were able to read and write, 16.9% worked, 48.7% lived in the province, 59.1% lived with their families, 30.5% had not been vaccinated against COVID-19, and 11.7% had not been vaccinated against COVID-19 (see Table 1).

Table 2 shows the distribution of the CAS, FCS, and CASP-19 scores of the elderly. According to these data, the mean CAS score of the elderly is 4.39 ± 4.58 (min=0, max=20), the mean FCS score is 21.91 ± 7.22 (min=7, max=34), and the mean ELQS score is 21.25 ± 7.53 (min=3, max=39). At the end of the study, the internal consistency coefficients of Cronbach's alpha were calculated for CAS, FCS, and CASP-19. These values were found to be 0.92 for CAS, 0.93 for FCS, and 0.88 for CASP-19. The literature suggests that the internal consistency coefficient of Cronbach's alpha should be above 0.80 for a scale to be a reliable measurement tool (13). In addition, the conformity of the CASP-19 score to the normality distribution was assessed using the Shapiro-Wilk test, and the result was determined to be $p>0.05$ (Table 2) (14).

The predictive effects of the socio-demographic characteristics of the elderly, the characteristics related to COVID-19, and their COVID-19 anxiety and fear levels with regard to their quality of life were investigated using multiple linear regression analysis. The model created from the results of the analysis predicted a 38.2% statistically significant variance in QOL ($F=5.285$, $p<0.001$). In addition, age ($\beta=-0.239$; $p=0.001$), education level (undergraduate and postgraduate) ($\beta=0.175$; $p=0.049$), anxiety level ($\beta=-0.204$; $p<0.028$), and fear level ($\beta=-0.228$; $p<0.049$) were determined as statistical predictors of quality of life. A one-unit increase in age was associated with a 0.335-point increase in CASP-19 scores, a one-unit increase in CAS scores was associated with a 0.237-point increase, and a one-unit increase in FCS scores was associated with a 0.237-point decrease. Obtaining a university degree was also associated with an increase in CASP-19 scores (see Table 3).

Discussion

The world imposed curfews and social isolation to contain the spread of the COVID-19 pandemic. The aim was to use strict measures to protect people, especially elderly

Table 1.
The Socio-demographical Characteristics of the Participants and Their Conditions in the COVID-19 Process (n=154)

Socio-demographic characteristics	Minimum-maximum score	$\bar{x} \pm SD$
Age	65-90	71.44±6.28
	n	%
Gender		
Female	93	60.4
Male	61	39.6
Marital status		
Single	32	20.8
Married	122	79.2
Level of education		
Literate	65	42.2
Primary school	42	27.3
High school	21	13.6
Undergraduate and postgraduate	26	16.9
Work status		
Worker	26	16.9
Not working	118	83.1
Income status		
Income less than expenses	46	29.9
Income equals expense	78	50.6
Income more than expenses	30	19.5
Living place		
Village-town	33	21.4
County	46	29.9
Province	75	48.7
Living arrangement		
Alone	28	18.2
Family	91	59.1
With friend	35	22.7
One or more chronic diseases		
Yes	87	56.5
No	67	43.5
Vaccinated for COVID-19		
Yes	107	69.5
No	47	30.5
Diagnosed with COVID-19		
Yes	18	11.7
No	136	88.3

SD=Standard deviation, COVID-19=coronavirus disease-2019

Table 2.
Distribution of the Participants' CAS, FCS and CASP-19 Scores (n=154)

Scales	n	Minimum-maximum score	$\bar{x} \pm SD$
CAS total score	154	0 -20	4.39±4.58
FCS total score	154	7-34	21.91±7.22
CASP-19 total score	154	3-39	21.25±7.53

CAS=Coronavirus anxiety scale, FCS=fear of coronavirus COVID-19 scale, CASP-19=quality-of-life scale for the elderly, SD=standard deviation

individuals over 65 years of age and those at high risk of infection, from contracting COVID-19. However, although the aim was to protect the elderly, the risks incurred by social isolation were overlooked along with those resulting from cardiovascular, autoimmune, neurocognitive, and mental health problems (15). Therefore, this study aims to focus on determining the factors that influenced the quality of life of the elderly during the COVID-19 pandemic period.

The term health-related quality of life is closely linked to the psychosocial status of patients due to their physical health problems (16). In this study, the average score was 21.25±7.53, indicating that the quality of life among the elderly was moderate. The research findings in our study were similar to those of a study conducted by Bayrak and Cadirci (17), who found that the scores for the quality-of-life scale in older people moderate. However, the pandemic has affected many areas of our lives and reduced people's quality of life. In addition, it has been reported in the literature that the COVID-19 epidemic itself is associated with increased anxiety and fear rates and has had adverse effects on the general quality of life (18-20). Additionally, it is stated in the literature that fear of COVID-19 may increase the damage caused by COVID-19 disease (21,22). This study also showed that the anxiety levels of the elderly in relation to COVID-19 were low (4.39±4.58) and that their fear levels were moderate (21.91±7.22). Although the results of our research seem promising, failure to investigate the factors that affect quality of life in detail may indicate a further decrease in quality of life over the long term.

In this study, the socio-demographic variables, features of COVID-19, CAS and FCS predicted 38.2% of the variance in the CASP-19 score. Based on these results, a significant part of the quality-of-life scores among the elderly, which are affected by many factors, can be explained by 12 variables. Examination of the variables that were found to provide a statistically significant predictor of the score for the Quality-of-Life Scale in Older People in the regression analysis indicated that the age variable took the first place in the order of importance. This suggests that the quality of life of elderly people decreases with increasing age. In contrast to our findings, Qiu et al. (7) and Moghanibashi-Mansourieh (23) reported that fear of COVID-19 is higher in young people than in the elderly, and that such fear decreases with age. Our research results can be explained by the fact that

Table 3.
The Socio-demographic Characteristics of the Participants in the COVID-19 Process and the Effect of CAS and FCS on CASP-19 (n=154)

CASP-19	Unstandardized coefficients		Standardized coefficients	t	p	95.0% CI	
	B	SE	β			Lower bound	Upper bound
Independent variables							
(Constant)	43.873	6.802		6.450	<0.001*	30.423	57.324
Age	-0.287	0.88	-0.239	-3.251	0.001*	-0.461	-0.112
Gender (R: Man)							
Female	0.639	1.175	0.042	0.544	0.587	-1.684	2.962
Marital status (R: Single)							
Married	1.063	1.433	0.057	0.741	0.460	-1.772	3.897
Education level (R: Literate)							
Primary school	1.709	1.422	0.101	1.201	0.232	-1.104	4.522
High school	2.882	1.843	0.132	1.564	0.120	-0.762	6.526
Undergraduate and postgraduate	3.506	1.761	0.175	1.991	0.049*	0.023	6.989
Working status (R: Not working)							
Worker	2.995	1.548	0.149	1.935	0.055	-0.065	6.055
Income status (R: Income less than expenses)							
Income equals expense	-0.359	1.275	-0.024	-0.281	0.779	-2.880	2.162
Income more than expenses	0.247	1.670	0.013	0.148	0.883	-3.055	3.548
Living place (R: Village-town)							
County	0.415	1.595	0.025	0.260	0.795	-2.738	3.568
Province	0.656	1.492	0.044	0.440	0.661	-2.295	3.607
One or more chronic diseases (R: No)							
Yes	-0.116	1.097	-0.008	-0.106	0.916	-2.286	2.054
Vaccinated for COVID-19 (R: No)							
Yes	1.950	1.407	0.120	1.385	0.168	-0.834	4.733
Diagnosed with COVID-19 (R: Yes)							
No	-2.040	1.835	-0.087	-1.112	0.268	-5.668	1.587
FCS	-0.237	0.107	-0.228	-2.224	0.028*	-0.448	-0.026
CAS	-0.335	0.169	-0.204	-1.985	0.049*	-0.669	-0.001

CAS=Coronavirus anxiety scale, FCS=fear of coronavirus COVID-19 scale, COVID-19=coronavirus disease-2019, CASP-19=quality-of-life scale for the elderly, Durbin-Watson=2.134; F=5.285, p<0.001; R=0.618; R²=0.382; Adjusted R²=31.0 %, CI=confidence interval, SE=standard error, β =standardized regression coefficient, R=reference *significance level was accepted as p<0.05

the body's defences decline as people age, the virus that causes COVID-19 is more deadly for people who have chronic diseases, particularly those who are older, and this increases their fear and impacts the quality of their lives.

With regard to our study, the second variable in order of importance was the score for the FCS, and the increase in this score was associated with a negative impact on quality of life. In support of our research, a study by Serafini et al. (24) highlighted the fact that the quality of life among people who experience anxiety, anger and fear is impaired and that it deteriorated during the quarantine period. No studies to the contrary were found in the literature. Based on our

research findings, it can be said that people's unfamiliarity with COVID-19 infection and the confidence issues that have arisen over the newly released COVID-19 vaccines have led to fear and anxiety, and that these negative emotions affect quality of life.

Anxiety has negative impacts on the quality of life among older adults, and it is necessary to reduce anxiety to be able to promote healthy and active aging (25). According to the regression analysis in our study, the third variable that was found to be statistically significant in order of importance with regard to predicting the score for the Quality-of-Life Scale in Older People was the CAS. As the anxiety levels

of the elderly people increased, the quality of their lives decreased. There are a few studies in the literature that support our result. Siew et al. (26) found that while there was no association between older people's pre-pandemic anxiety levels and their qualities of life, the quality of their lives decreased with increasing anxiety during the pandemic. This result clearly shows that the quality of life among older people can easily be affected by psychological symptoms in an event such as COVID-19 or a future epidemic, and that precautionary measures should be taken.

When examining the statistically significant predictors of the value of the in this study, the average score for the Quality-of-Life Scale in Older People the regression analysis that was conducted revealed that the last variable in order of significance was education level. As the education levels of the elderly increased, the quality of their lives increased. Morgan et al. (27) and Zhang et al. (28) found a significant association between educational achievement and quality of life. Our research findings support the data in the literature. It is believed that higher levels of education make it easier for individuals to access the correct information about COVID-19 and also to protect themselves by acting more consciously in accordance with the information they acquire.

Study Limitations

It is known that the COVID-19 pandemic negatively affects the lives of the elderly. In this period, it can be said that the pandemic triggers the fear of death, loneliness, stress, and anxiety in the elderly. It is thought that determining this situation with our research results will constitute an important source for the literature. In addition, it is thought that the results of scientific research will increase the awareness of governments about another possible problem and will further highlight the needs of the elderly.

The limitation of this study is that it was applied to a limited group. Some of the limitations of this research are that most elderly people in our country cannot take a very active role in the digital platform and the data is based on the notifications of the participants.

Conclusion

The elderly are at a greater risk of contracting COVID-19 because of chronic illnesses and care needs. Although recommendations for social and home isolation are important measures for limiting the spread of the virus, they can trigger strong feelings of fear, loneliness, and abandonment in the elderly population. These feelings also have a negative impact on the quality of their lives.

In our study, it was determined that the elderly feared contracting COVID-19, suffered anxiety, and had moderate quality of life. Even though the COVID-19 pandemic is essentially over, the elderly remain vulnerable to future pandemics. Therefore, as nurses, we should not forget that

multiple factors affect the quality of life among the elderly, and we should participate in planning health policies to provide these individuals with physical, emotional, psychological, and social supports.

Ethics Committee Approval: Before the study, approval was obtained from the Scientific Ethics Committee of Mersin University (numbered 2021-3 and dated May 3, 2021).

Informed Consent: Informed consent was obtained.

Author Contributions: Conception – Y.S., A.A.C., G.C., D.V.Y.; Design – Y.S., G.C., D.V.Y.; Supervision – D.V.Y.; Materials – Y.S., D.V.Y.; Data Collection and/or Processing – Y.S., G.C.; Analysis and/or Interpretation – Y.S., G.C., D.V.Y.; Literature Review – Y.S., A.A.C., G.C., D.V.Y.; Writing – Y.S., A.A.C., G.C., D.V.Y.; Critical Review – Y.S., A.A.C., G.C., D.V.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. Republic of Turkey Ministry of Health. (2022). COVID-19 Information Platform. 28 May 2022. [\[Crossref\]](#)
2. Republic of Turkey Ministry of Health. (2020). COVID-19 Situation Report Turkey. 28 May 2022. [\[Crossref\]](#)
3. Smith ML, Steinman LE, Casey EA. Combatting social isolation among older adults in a time of physical distancing: The COVID-19 social connectivity paradox. *Front Public Health*. 2021;8:403. [\[Crossref\]](#)
4. Altın Z. Elderly people in Covid-19 outbreak. *Tepecik Eğitim ve Araştırma Dergisi*. 2020;30(Suppl 2):49-57. [\[Crossref\]](#)
5. Philip J, Cherian V. Impact of COVID-19 on mental health of the elderly. *Int J Community Med Public Health*. 2020;7(6):2435-2436. [\[Crossref\]](#)
6. Emerson KG. Coping with being cooped up: Social distancing during COVID-19 among 60+ in the United States. *Rev Panam Salud Publica*. 2020;44:e81. [\[Crossref\]](#)
7. Qiu J, Shen B, Zhao M, Wang Z, Xie B, Xu Y. A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: Implications and policy recommendations. *General Psychiatry*. 2020;33(2):e100213. [\[Crossref\]](#)
8. Taherdoost H. Sampling methods in research methodology: How to choose sampling technique for research. *International Journal of Academic Research in Management*. 2016;5(2):17-27. [\[Crossref\]](#)
9. VanVoorhis CW, Morgan BL. Understanding power and rules of thumb for determining sample sizes. *Tutorials in Quantitative Methods for Psychology*. 2007;3(2):43-50. [\[Crossref\]](#)
10. Evren C, Evren B, Dalbudak E, Topcu M, Kutlu N. Measuring anxiety related to COVID-19: A Turkish validation study of the Coronavirus Anxiety Scale. *Death Stud*. 2022;46(5):1052-1058. [\[Crossref\]](#)
11. Satici B, Gocet-Tekin E, Deniz ME, Satici SA. Adaptation of the Fear of COVID-19 Scale: Its Association with Psychological Distress and Life Satisfaction in Turkey. *Int J Ment Health Addict*. 2021;19(6):1980-1988. [\[Crossref\]](#)
12. Turkoglu N, Adibelli D. Adaptation of quality of life scale in older people (CASP-19) to Turkish society. *Akad Geriatri*. 2014;6:98-105. [\[Crossref\]](#)

13. Sencan H. Reliability and validity in social and behavioral measures. 10th edition, Ankara:Seckin Publishing, 2005. [\[Crossref\]](#)
14. George D, Mallery P. IBM SPSS statistics 26 step by step: A simple guide and reference. 16th edition, New York:Routledge, 2019. [\[Crossref\]](#)
15. Gerst-Emerson K, Jayawardhana J. Loneliness as a public health issue: The impact of loneliness on health care utilization among older adults. *Am J Public Health* 2015;105(5):1013-1019. [\[Crossref\]](#)
16. Adibelli D, Sümen A. The effect of the coronavirus (COVID-19) pandemic on health-related quality of life in children. *Child Youth Serv Rev*. 2020;119:105595. [\[Crossref\]](#)
17. Bayrak M, Çadirci K. The associations of life quality, depression, and cognitive impairment with mortality in older adults with COVID-19: A prospective, observational study. *Acta Clinical Belgica*. 2022;77(3):588-595. [\[Crossref\]](#)
18. Aksoy A, Abiç A, Değirmenci F, Vefikuluçay Yılmaz D. The relationship between quality of life and fear of Turkish individuals during the COVID-19 pandemic: A cross-sectional study. *Arch Psychiatr Nurs*. 2021;35(5):472-478. [\[Crossref\]](#)
19. Holmes EA, O'Connor RC, Perry VH, Tracey I, Wessely S, Arseneault L, et al. Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. *Lancet Psychiatry*. 2020;7(6):547-560. [\[Crossref\]](#)
20. Wang Y, Di Y, Ye J, Wei W. Study on the public psychological states and its related factors during the outbreak of coronavirus disease 2019 (COVID-19) in some regions of China. *Psychol Health Med*. 2020;30:13-22. [\[Crossref\]](#)
21. Durmuş M, Durar E. The relationship between spiritual well-being and fear of covid-19 among Turkish elders. *Journal of Religion, Spirituality & Aging*. 2021;34:3-16. [\[Crossref\]](#)
22. Yakut E, Kuru Ö, Güngör Y. Determination of the influence of work overload and perceived social support in the effect of the covid-19 fears of healthcare personnel on their burnout by structural equation modelling. *EKEV Akad Derg*. 2020;24:241-262. [\[Crossref\]](#)
23. Moghanibashi-Mansourieh A. Assessing the anxiety level of Iranian general population during COVID-19 outbreak. *Asian J Psychiatr*. 2020;51:102076. [\[Crossref\]](#)
24. Serafini G, Parmigiani B, Amerio A, Aguglia A, Sher L, Amore M. The Psychological Impact of COVID-19 on the mental health in the general population. *QJM*. 2020;113(8):531-537. [\[Crossref\]](#)
25. Ribeiro O, Teixeira L, Araújo L, Rodríguez-Blázquez C, Calderón-Larrañaga A, Forjaz MJ. Anxiety, Depression and Quality of Life in Older Adults: Trajectories of Influence across Age. *Int J Environ Res Public Health*. 2020;17(23):9039. [\[Crossref\]](#)
26. Siew SKH, Mahendran R, Yu J. Directional Effects of Social Isolation and Quality of Life on Anxiety Levels Among Community-Dwelling Older Adults During a COVID-19 Lockdown. *Am J Geriatr Psychiatry*. 2021;29(12):1274-1279. [\[Crossref\]](#)
27. Morgan UM, Etukumana EA, Abasiubong F. Sociodemographic Factors Affecting the Quality of Life of Elderly Persons Attending the General Outpatient Clinics of a Tertiary Hospital, South-South Nigeria. *Niger Med J*. 2017;58(4):138-142. [\[Crossref\]](#)
28. Zhang C, Zhu R, Lu J, Xue Y, Hou L, Li M, et al. Health promoting lifestyles and influencing factors among empty nesters and non-empty nesters in Taiyuan, China: a cross-sectional study. *Health Qual Life Outcomes*. 2018;16(1):103. [\[Crossref\]](#)

ERRATUM



Clinical trials information has been added to under the heading of material and methods article
DOI: 10.4274/MNM.galenos.2023.23160.

“This study was registered under clinical trials registry with registration number: NCT06428929.”