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E-mail: merdiver.sendir@sbu.edu.tr

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Marmara Üniversitesi, Sağlık Bilimleri Fakültesi, Hemşirelik Bölümü, Psikiyatri Hemşireliği Anabilim Dalı, İstanbul, Türkiye

E-mail: gungal@marmara.edu.tr

ID Doç. Dr. Cemile SAVCI

Medeniyet Üniversitesi, Sağlık Bilimleri Fakültesi, Hemşirelik Bölümü, Hemşirelik Esasları Anabilim Dalı, İstanbul, Türkiye

E-mail: cemile.savci@medeniyet.edu.tr

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E-mail: banu.katran@marmara.edu.tr

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Bir Eğitim Araştırma Hastanesinde Hemşirelik Bakım Planı Uygulamalarının Değerlendirilmesi

Evaluation of Nursing Care Plan Applications in an Education and Research

 Nermin Uyrdağ¹,  Özlem Kaba²,  Seyhan Çerçi³,  Veysel Tekin⁴

¹Dicle Üniversitesi Atatürk Sağlık Hizmetleri Meslek Yüksekokulu, Tıbbi Hizmetler ve Teknikler Bölümü, Diyarbakır, Türkiye

²Diyarbakır İl Sağlık Müdürlüğü, Çalışan ve Çevre Sağlığı Birimi, Diyarbakır, Türkiye

³Sağlık Bilimleri Üniversitesi, Taksim Eğitim ve Araştırma Hastanesi, İstanbul, Türkiye

⁴Dicle Üniversitesi Atatürk Sağlık Bilimleri Fakültesi, Hemşirelik Bölümü, Diyarbakır, Türkiye

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ÖZ

Amaç: Bu çalışmada hemşirelik bakım planlarının; hemşirelik tanıları, hemşirelik girişimleri, girişimlerin sonuçları ve bu sonuçlara etki eden faktörler açısından değerlendirilmesi amaçlandı.

Yöntem: Çalışma Mayıs-Temmuz 2024 tarihleri arasında, bir eğitim araştırma hastanesinin dahili, cerrahi ve yoğun bakım kliniklerinde çalışan toplam 30 hemşire ile iki aşamalı olarak gerçekleştirildi. Retrospektif aşamada hemşirelerin elle doldurdıkları 5 günlük bakım planları incelendi. Nitel aşamada aynı hemşirelerle yarı yapılandırılmış soru formu doğrultusunda görüşmeler yapıldı. Nicel verilerin analizinde tanımlayıcı istatistikler, nitel verilerin analizinde içerik analizi yöntemi kullanıldı. Çalışma için etik onay ve gerekli izinler alındı.

Bulgular: Hemşirelerin en fazla enfeksiyon riski, anksiyete ve ağrı tanısını koydukları, bu tanıları anamnez, hastanın muayene bulguları ve hekim istemi verilerine göre belirledikleri, bu tanımlara yönelik olarak uygulanan girişimlerin büyük bölümünün problemlerde azalma sağladığı bulundu. Girişimlerin olumlu sonuçlanmamasının en önemli nedenlerinin iş gücü ve fiziksel kaynakların yetersiz olmasının olduğu ve hemşirelik yönetiminin bakım planı konusunda denetim yaptıkları ve eğitim desteği verdikleri belirlendi.

Sonuç: Bakım planı uygulamalarında konulan standart hemşirelik tanıları olmaktadır. Tanılar doğrultusunda gerçekleştirilen girişimlerin önemli bir kısmından tam olarak sonuç alınamamaktadır. Bu durumun başta iş gücü ve fiziksel koşulları bağlı olan çeşitli nedenleri vardır. Hemşirelik hizmetleri yönetimi tarafından hemşirelik bakım planları denetlenmekte ve hemşirelere bu konuda eğitim desteği verilmektedir.

Anahtar kelimeler: Hemşirelik süreci, hemşirelik bakım planı, hemşirelik tanıları

ABSTRACT

Objective: This study aimed to evaluate nursing care plans in terms of nursing diagnoses, nursing interventions, outcomes of interventions, and factors affecting these outcomes.

Methods: The study was conducted in two phases between May and July 2024 with a total of 30 nurses working in the internal medicine, surgical, and intensive care clinics of a teaching research hospital. In the retrospective phase, the nurses' handwritten 5-day care plans were examined. In the qualitative phase, interviews were conducted with the same nurses using a semi-structured questionnaire. Descriptive statistics were used to analyze quantitative data, and content analysis was used to analyze qualitative data. Ethical approval and necessary permissions were obtained for the study.

Results: Nurses most frequently identified infection risk, anxiety, and pain diagnoses, determining these diagnoses based on the patient's medical history, examination findings, and physician orders. It was found that the majority of interventions implemented for these diagnoses resulted in a reduction in problems. It was determined that the most important reasons for the interventions not yielding positive results were insufficient manpower and physical resources, and that nursing management supervised the care plan and provided educational support.

ORCID IDs: NU. 0000-0001-5838-3057; ÖK. 0009-0001-0409-3422; SÇ. 0000-0002-1370-9604; VT. 0000-0002-7228-4001



Sorumlu Yazar/Corresponding Author: Nermin Uyrdağ,

E-posta: nuyurdag@hotmail.com

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Conclusion: Standard nursing diagnoses are used in the implementation of care plans. A significant portion of interventions carried out in line with diagnoses do not yield full results. There are various reasons for this situation, primarily related to labor and physical conditions. Nursing care plans are monitored by nursing services management, and nurses are provided with training support in this regard.

Keywords: Nursing process, nursing care plan, nursing diagnoses

GİRİŞ

Hemşirelik süreci, hasta merkezli bakımın sağlanmasında temel bir çerçeve sunan ve beş aşamadan oluşan sistematik bir klinik rehberdir. Bu süreç; değerlendirme, hemşirelik tanısının konulması, planlama, uygulama ve sonuçların değerlendirilmesi aşamalarını içermektedir ⁽¹⁾. Amerikan Hemşireler Birliği tarafından tanımlanan Profesyonel Hemşirelik Uygulama Standartları'na dayanan hemşirelik süreci, kayıtlı hemşirelerin profesyonel sorumluluklarını bilimsel temeller doğrultusunda yerine getirmelerini sağlayan bir yapı sunmaktadır ⁽²⁾. Bu süreç, hastaya ilişkin bilgilerin sistematik biçimde toplanması, analiz edilmesi, uygun bakım girişimlerinin planlanması ve uygulanan bakımın sonuçlarının değerlendirilmesini içeren dinamik bir klinik karar verme mekanizmasıdır ⁽³⁾. Hemşirelik sürecinin kanıta dayalı ve sistematik biçimde uygulanması, bakım kalitesini, hasta güvenliğini ve klinik sonuçları anlamlı düzeyde iyileştirmektedir ⁽⁴⁾. Bu yönüyle hemşirelik süreci, hemşirelik bakımının bilimsel dayanağını oluşturarak klinik karar verme, profesyonel sorumluluk ve etik uygulama alanlarında yapılandırıcı bir rol üstlenmektedir.

Hemşirelik bakım planı, hemşirelik sürecinin klinik uygulamadaki temel çıktısı olarak bakımın sistematik, bireyselleştirilmiş ve bütüncül bir biçimde yürütülmesini sağlar ⁽⁵⁾. Bu kapsamda, *North American Nursing Diagnosis Association (NANDA) International (NANDA-I)* tarafından geliştirilen hemşirelik tanıları sınıflama sistemi, hemşirelik bakım planlarının standardizasyonunu, dil birliğini ve bilimsel temele dayalı olarak yapılandırılmasını sağlayan küresel bir referans çerçevesi sunmaktadır ⁽⁶⁾. Hemşirelik tanıları, hemşirenin hasta hakkında topladığı verilerin analizi sonucunda oluşturulan; hemşirelik girişimlerini yönlendiren ve istenen hasta sonuçlarına ulaşmayı amaçlayan profesyonel klinik yargılardır ⁽⁷⁾. Bu tanıları, bireyin mevcut ya da potansiyel sağlık sorunlarını önlemek, hafifletmek veya çözümlmek amacıyla hemşirenin yasal yetkinliği kapsamında aldığı klinik kararları temsil eder ⁽⁸⁾. Literatürde, karaciğer sirozu olan hastalarda hemşirelerin en sık ve en doğru kullandıkları yedi hemşirelik tanısına [yetersiz ve dengesiz beslenme, fazla sıvı hacmi, deri bütünlüğünde bozulma riski, enfeksiyon riski, kendi kendine bakım eksikliği (banyo, giyinme), düşme riski] ilişkin olarak, NANDA-I ve *Nursing Interventions Classification* sınıflamalarına dayalı hemşirelik müdahalelerinin bakım uygulamalarında etkili biçimde kullanıldığı bildirilmektedir ⁽⁹⁾. Benzer şekilde, 357 hasta dosyası ve 1.066 hemşirelik tanısının incelendiği bir araştırmada, elektronik hemşirelik bakım planlarının kurumsal düzeyde standart bakım uygulamalarının geliştirilmesine katkı sağladığı, kayıt süreçlerini hızlandırdığı ve hemşireler için güvenilir bir veri tabanı oluşturduğu; ancak sistemin sürdürülebilirliği için teknik altyapının güçlendirilmesi ve düzenli güncellemelerin yapılmasının gerekli olduğu belirlenmiştir ⁽¹⁰⁾.

Bu nedenle, hemşirelik bakım planları yalnızca klinik pratiğin standardizasyonunu sağlamakla kalmamakta, aynı zamanda hemşirelerin profesyonel karar verme süreçlerini desteklemektedir.

Hemşirelik süreci ve bu sürecin çıktısı olan yazılı hemşirelik bakım planı, departmanlar ve vardiyalar arasında bilgi akışını ve iletişimi güçlendirmesinin yanı sıra, disiplinler arası ekip üyeleri arasında etkili iş birliğini de kolaylaştırmaktadır ⁽¹¹⁾. Bununla birlikte, hemşirelerin eğitim sürecinde hemşirelik sürecini yeterince içselleştirememesi, kliniklerde bakım planlarının aktif olarak uygulanmaması, personel yetersizliği ve zaman kısıtlılığı gibi faktörlerin hemşirelik sürecinin etkin kullanımını olumsuz yönde etkilediği belirtilmektedir ⁽¹²⁾. Bununla birlikte, literatürde hemşirelik bakım planlarının klinik uygulamalarda her zaman etkin ve bütüncül şekilde kullanılmadığı, çoğu zaman standart tanıların rutin biçimde yerleştirildiği ve bireyselleştirilmiş bakımın sınırlı kaldığı bildirilmektedir. Ayrıca iş yükü, zaman yetersizliği ve fiziksel kaynak eksiklikleri gibi faktörlerin hemşirelik sürecinin etkin kullanımını olumsuz etkilediği vurgulanmaktadır. Bu durum, hemşirelik bakım planlarının yalnızca teorik bir gereklilik olarak kalmasına ve klinik karar verme sürecine yeterince yansıtılamamasına yol açabilmektedir. Bu nedenle, hemşirelik bakım planlarının mevcut uygulama düzeyinin ve bu süreci etkileyen faktörlerin incelenmesi önemli bir gereklilik olarak ortaya çıkmaktadır.

Bu bağlamda, hemşirelik bakım planlarının uygulanma düzeyinin ve bu süreci etkileyen faktörlerin belirlenmesi; hemşirelerin klinik karar verme yeterliklerinin geliştirilmesi hem de bakım kalitesinin artırılması açısından büyük önem taşımaktadır. Bu çalışma, bir eğitim ve araştırma hastanesinde hemşirelik bakım planlarının uygulanma sürecini, tanıların, girişimlerin ve sonuçların değerlendirilmesini inceleyerek, hemşirelik uygulamalarının etkinliğini ve bakım kalitesini artırmaya yönelik kanıta dayalı katkı sağlamayı amaçlamaktadır.

GEREÇ VE YÖNTEM

Araştırmanın Amacı ve Tipi

Bu araştırmanın amacı, bir eğitim ve araştırma hastanesinde görev yapan hemşirelerin hemşirelik bakım planı uygulamalarını değerlendirmektir. Çalışma iki aşamalı tanımlayıcı bir tasarım ile yürütülmüştür. Birinci aşamada retrospektif ve tanımlayıcı bir yaklaşım benimsenerek hemşirelik bakım planlarının mevcut durumu nicel olarak değerlendirilmiştir. İkinci aşamada ise nitel araştırma yaklaşımı kullanılarak hemşirelerin bakım planı uygulamalarına ilişkin deneyimleri ve görüşleri derinlemesine incelenmiştir. Bu iki aşama klasik bir karma yöntem tasarımıyla ziyade, birbirini tamamlayıcı biçimde kurgulanmıştır. Retrospektif

aşamadan elde edilen bulguların yorumlanmasını desteklemek ve bu bulguların altında yatan nedenleri ortaya koymak amacıyla nitel veriler kullanılmıştır. Bu doğrultuda, araştırmada elde edilen nicel ve nitel veriler sonuçların tartışılması aşamasında bütüncül bir yaklaşımla ele alınmış ve birbirini açıklayıcı şekilde yorumlanmıştır.

Araştırmanın Evren ve Örneklemi

Araştırmanın evrenini, Diyarbakır il merkezinde bulunan bir eğitim ve araştırma hastanesinde görev yapan hemşireler oluşturmuştur. Maksimum çeşitliliği sağlamak amacıyla örneklem, cerrahi klinikleri, dahiliye klinikleri ve yoğun bakım kliniklerinden her birinden 10'ar hemşire seçilerek toplam 30 hemşire ile oluşturulmuştur. Örneklem seçiminde, kolayda örnekleme yöntemiyle, klinik deneyimi en az bir yıl olan hemşireler örneklem kapsamına alınmıştır.

Araştırma Verilerinin Toplanması

Araştırma iki aşamada yürütülmüştür:

1. Aşama (Retrospektif değerlendirme): 20-24 Mayıs 2024 tarihleri arasında, örnekleme dahil edilen hemşirelerin 5 ardışık gün boyunca aynı hasta için düzenledikleri bakım planları incelenmiştir. Her bir bakım planı; belirlenen hemşirelik tanıları, bu tanıları yönelik planlanan ve uygulanan girişimler ile girişim sonuçları açısından değerlendirilmiştir. Bu inceleme, bakım planlarının bütünlüğünü ve hemşirelik sürecine uygunluğunu belirlemeyi amaçlamıştır.

2. Aşama (Nitel değerlendirme): Retrospektif olarak bakım planı incelenen aynı hemşirelerle, Haziran-Temmuz 2024 tarihleri arasında yarı yapılandırılmış bireysel görüşmeler yapılmıştır. Her görüşme ortalama 20 dakika sürmüştür, katılımcı onayı alınarak ses kaydı yapılmıştır. Ses kayıtları daha sonra kelimesi kelimesine deşifre edilerek analiz için hazırlanmıştır. Nitel verilerin sunumunda, katılımcı ifadeleri "K" harfi ve sıralı numaralar (örneğin; K1, K2, K3...) ile kodlanmıştır. Bu uygulama hem katılımcı gizliliğini korumak hem de alıntılarının izlenebilirliğini sağlamak amacıyla tercih edilmiştir.

Veri Toplama Araçları

Araştırmada üç veri toplama aracı kullanılmıştır.

1. Tanıtıcı Bilgi Formu: Katılımcıların demografik ve mesleki özelliklerini belirlemek amacıyla araştırmacılar tarafından literatür doğrultusunda geliştirilmiştir ⁽¹³⁾. Form, yaş, cinsiyet, eğitim durumu, klinik deneyim süresi ve çalışılan birim gibi değişkenleri içermektedir.

2. Hemşirelik Bakım Planı Formu: Retrospektif aşamada, hastanenin kalite birimi tarafından geliştirilmiş ve kurum genelinde manuel olarak kullanılan standart hemşirelik bakım planı formları incelenmiştir. Bu formlar hemşireler tarafından rutin klinik uygulamalarda doldurulmaktadır. Bu form, araştırma kapsamında geliştirilen bir ölçme aracı olmayıp kurumda mevcut klinik uygulamayı yansıtan bir dokümandır. Bu nedenle çalışma kapsamında formun geçerlik ve güvenilirliğinden ziyade, mevcut uygulamanın olduğu gibi değerlendirilmesi amaçlanmıştır. Bakım planı sonuçlarına ilişkin değerlendirmeler, hemşireler tarafından

bakım planlarında kayıt altına alınan ifadeler doğrultusunda araştırmacılar tarafından incelenmiş ve mevcut sınıflandırma (problem devam ediyor, azalma var, giderildi) üzerinden değerlendirilmiştir.

3. Yarı Yapılandırılmış Görüşme Formu: Nitel aşamada kullanılan bu form, literatür taraması sonucunda araştırmacılar tarafından geliştirilmiştir ⁽¹⁴⁾. Form, hemşirelerin bakım planı hazırlama sürecine, karşılaşılan güçlükler ve önerilere ilişkin deneyimlerini ortaya çıkarmayı hedefleyen açık uçlu sorulardan oluşmaktadır.

Araştırmanın Etik Yönü

Araştırmanın etik onayı Dicle Üniversitesi Sosyal ve Beşeri Bilimler Etik Kurulu'ndan alınmıştır (karar no: 299, tarih: 22.12.2023). Kurum izinleri, Diyarbakır İl Sağlık Müdürlüğü'nden 17.05.2024 tarihli 708094 sayılı yazı ile temin edilmiştir. Araştırmaya katılan tüm hemşirelere çalışmanın amacı açıklanmış, gizlilik ve gönüllülük esaslarına uygun olarak yazılı aydınlatılmış onam alınmıştır.

İstatistiksel Analiz

Retrospektif aşamadan elde edilen veriler, bakım planlarının hemşirelik süreci basamaklarına (tanı, planlama, uygulama ve değerlendirme) uygunluk açısından tanımlayıcı istatistiklerle (frekans ve yüzde dağılımları) analiz edilmiştir.

Nitel aşamada elde edilen görüşme verileri ise içerik analizi yöntemi ile değerlendirilmiştir. Analiz süreci aşamalı olarak yürütülmüştür. İlk olarak görüşme kayıtları kelimesi kelimesine deşifre edilerek veri seti oluşturulmuştur. Ardından veriler tekrar tekrar okunarak anlamlı ifadeler belirlenmiş ve açık kodlar oluşturulmuştur. Elde edilen kodlar benzerliklerine göre gruplandırılarak kategoriler ve temalar altında toplanmıştır.

Kodlama süreci iki araştırmacı tarafından bağımsız biçimde yürütülmüş, daha sonra kodlar ve temalar karşılaştırılarak görüş birliği sağlanmıştır. Görüş ayrılığı bulunan durumlarda tartışılarak uzlaşya varılmıştır. Analiz sürecinin güvenilirliğini artırmak amacıyla araştırmacılar arası karşılaştırma yapılmış ve temaların tutarlılığı kontrol edilmiştir.

BULGULAR

Katılımcıların demografik özelliklerinin dağılımı Tablo 1'de yer almaktadır.

Araştırmaya katılan hemşirelerin tamamı kadın (%100) olup yaş ortalamasının $35,2 \pm 7,2$ olduğu tespit edildi. Hemşirelerin çalıştıkları kurumda geçirdikleri süre ortalaması $9,3 \pm 8,6$ yıl, mesleklerindeki deneyim ortalaması ise $12,3 \pm 9,5$ yıl olarak belirlendi. Ayrıca hemşirelerin %80,0'ının lisans mezunu olduğu ve çalışılan kliniğin ise eşit olarak dağıldıkları saptandı (Tablo 1). Katılımcıların birden fazla hemşirelik tanısını aynı anda işaretleyebildiği çoktan seçmeli soruya verdikleri yanıtların frekans dağılımları Tablo 2'de verilmiştir.

En fazla bildirilen hemşirelik tanısı %23,8 oranıyla enfeksiyon riskidir. Bunun yanı sıra, anksiyete (%19,9) ve ağrı (%16,1) tanıları da en sık belirlenen ikinci ve üçüncü tanımlar olarak kaydedilmiştir. Hava yolu temizlemede eksiklik, uyku düzeninde bozukluk ve oral

Tablo 1. Hemşirelerin Sosyodemografik Özelliklerinin Dağılımı (n=30)

Özellikler		*n	%
Cinsiyet	Kadın	30	100,0
	Erkek	-	-
Yaş (35,2±7,2)	29 yaş ve ↓	6	20,0
	30-35	13	43,3
	36-41	5	16,7
	42 yaş ve ↑	6	20,0
Kurumda çalışma yılı (9,3±8,6)	5 yıl ve ↓	8	26,6
	6-10	11	36,6
	11-15	4	13,4
	16 yıl ve ↑	7	23,4
Meslekte çalışma yılı (12,3±9,5)	5 yıl ve ↓	9	30,0
	6-10	7	23,3
	11-15	5	16,7
	16 yıl ve ↑	9	30,0
Eğitim durumu	Lise+önlisans	5	16,7
	Lisans	24	80,0
	Lisansüstü	1	3,3
Çalışılan klinik	Dahili klinikler	10	33,3
	Cerrahi klinikler	10	33,3
	Özellikli klinikler	10	33,3

*n: Sayı, %: Yüzde

Tablo 2. Bakım Planlarında Seçilen Hemşirelik Tanıları

Sıra no	Hemşirelik tanıları	*n	%
1	Enfeksiyon riski	134	23,8
2	Anksiyete	112	19,9
3	Ağrı	91	16,1
4	Fiziksel travma riski	34	6,0
5	Beslenme yetersizliği	33	5,9
6	Doku bütünlüğünde bozulma	28	5,0
7	Kanama riski	25	4,4
8	Bulantı-kusma	21	3,7
9	Konstipasyon	19	3,4
10	Solunum fonksiyonlarında bozulma	18	3,2
11	Sıvı volüm dengesizliği	15	2,7
12	Oral müköz membranda değişiklik	15	2,7
13	Uyku düzeninde bozukluk	12	2,1
14	Hava yolu temizlemede eksiklik	7	1,2

*: Katılımcılar bakım planlarında birden fazla hemşirelik tanısı belirtebildiğinden, toplam yanıt sayısı örneklem sayısını (n=30) aşmaktadır. Bu nedenle tabloda çoklu yanıt analizi sonuçları sunulmuştur

müköz membranda değişiklik tanıları ise sırasıyla (%1,2) (%2,1) (%2,7) oranlarıyla en az bildirilen tanılar arasında yer almaktadır.

İlgili kurumun hemşirelik bakım planı formunda toplam 18 hemşirelik tanısı bulunmaktadır. Ancak bu tanılardan, "hipertermi,

hipotermi, özkıym riski" ve "başkalarına zarar verme riski" tanıları hemşireler tarafından hiç belirlenmemiştir. Ayrıca "diğer" seçeneğine de herhangi bir hemşirelik tanısı da eklenmemiştir. Katılımcıların belirledikleri hemşirelik tanılarına yönelik uygulanan hemşirelik girişimleri Tablo 3'te gösterilmektedir.

"Enfeksiyon riski" tanısı alan hastalara yönelik yapılan hemşirelik girişimlerinin tümünün uygulandığı, her üç girişimin enfeksiyon kontrolünde kritik uygulama olduğu saptandı. "Anksiyete" hemşirelik tanısına yönelik uygulanan hemşirelik girişimlerini incelediğimizde; "İşlem öncesi hastaya açıklama yaptım (%16,1)." girişimi en çok uygulanan girişimken "Hastayla zaman geçirip güven duygusunu geliştiririm (%6,3)." girişiminin ise en az tercih edilen hemşirelik girişimi olduğu belirlendi.

"Ağrı" hemşirelik tanısı için en sık uygulanan hemşirelik girişiminin "Hekim onayıyla analjezik ilaç uyguladım (%18,8).", "fiziksel travma riski" hemşirelik tanısı için en sık uygulanan hemşirelik girişimi ise "Yatak kenarlıklarını kaldırdım sedye ve tekerlekli sandalye emniyet kemerlerini kullandım (%33,3)." olduğu bulundu. "Beslenme yetersizliği" hemşirelik tanısı için en sık uygulanan hemşirelik girişiminin "Oral alıp almadığını takip ettim, gereğinde hekime haber verdim (%26,2).", "doku bütünlüğünde bozulma" hemşirelik tanısı için en sık uygulanan hemşirelik girişimi ise "Hastanın sürtünmesini engelleyecek şekilde, kemik çıkıntılarını yastıkla destekleyerek sık pozisyon verdim (%17,3)" olduğu bulundu.

"Kanama riski" hemşirelik tanısı için en sık uygulanan hemşirelik girişiminin "İnsizyon yeri pansumanlarını, kanama yönünden gözlemledim (%21,9).", "bulantı kusma" hemşirelik tanısı için en sık uygulanan hemşirelik girişimi ise "Dr. onayıyla antiemetik ilaç uyguladım (%29,3)." olduğu bulundu. "Uyku düzeninde bozukluk" hemşirelik tanısı için en sık uygulanan hemşirelik girişiminin "Yatmadan önceki 3-4 saat içinde çay kahve gibi uyarıcı içecekleri içmemesini önerdim (%24,4).", "oral müköz membranda değişiklik" hemşirelik tanısı için en sık uygulanan hemşirelik girişimi ise "Müköz membran nemlendirici uyguladım (%33,3)." olduğu bulundu.

"Solunum fonksiyonunda bozulma" hemşirelik tanısı için en sık uygulanan hemşirelik girişiminin "Hastanın oksijen almasını sağladım (%26,9).", "hava yolu temizlemede eksiklik" hemşirelik tanısı için en sık uygulanan hemşirelik girişimi ise "Hastayı uygun teknikle aspire ettim (%28,6)." olduğu bulundu. "Sıvı volüm dengesizliği riski" hemşirelik tanısı için en sık uygulanan hemşirelik girişiminin "Aldığı çıkardığı takibi yaptım (%24,6).", "konstipasyon riski" hemşirelik tanısı için en sık uygulanan hemşirelik girişimi ise "Her gün karında distansiyon ağrı ve defekasyona çıkıp çıkmadığını takip ettim (%25,8)." olduğu bulundu.

Bakım planlarında bulunan hemşirelik tanılarının etkililiğini değerlendirmek amacıyla hazırlanan ve her bir tanı için sorunun çözüm düzeyini (devam ediyor, azalma gözlemlendi, giderildi) belirten veriler Tablo 4'te yer almaktadır.

Uygulanan hemşirelik girişimlerinin en etkili olduğu hemşirelik tanıları sırasıyla hava yolu temizlemede eksiklik (%57,1), oral müköz

Tablo 3. Hemşirelik Tanılara Yönelik Uygulanan Hemşirelik Girişimi Tablosu

Hemşirelik tanıları	Hemşirelik girişimleri	n	%
Enfeksiyon riski	Çapraz kontaminasyonu engellemek için el hijyenine dikkat ettim; infüzyon setlerini 72 saatte bir, lipid emülsiyon, kan ve kan ürünleri setlerini ise 24 saatte bir değiştirdim.	90	33,3
	Enfeksiyon bulguların yönünden hastayı yakından takip ettim, gözlediğim enfeksiyon bulgularını hekime bildirdim.	90	33,3
	Tüm uygulamalarda aseptik kurallara uydum.	90	33,3
Anksiyete	İşlem öncesi hastaya açıklama yaptım.	108	16,1
	Tedavi yöntemlerini sözel olarak ifade ettim.	103	15,4
	Acil durumlarda neler yapılabileceğini anlattım.	95	14,2
	Kendimi, çalışanları, kliniği ve odasını tanıttım.	91	13,6
	Çağrı sistemlerinin kullanılmasını gösterdim.	83	12,4
	Hastaya soru cevap şeklinde kendisini ifade etmesini sağladım.	78	11,6
	Hastanın görüşünü aldım ve bakımda rol almasını sağladım.	70	10,4
	Hastayla zaman geçirip güven duygusunu geliştirdim.	42	6,3
Ağrı	Hekim onayıyla analjezik ilaç uyguladım.	79	18,8
	Ağrının devamlılığını kontrol ettim, hekime bilgi verdim.	72	17,1
	Hastanın ağrıdan kaynaklı endişesini konuşarak giderdim.	65	15,4
	Ağrıya yönelik pozisyon verdim.	64	15,2
	Ekstremiteleri yastıkla destekledim.	59	14,0
	Ağrıyla baş etme metotlarını anlattım.	59	14,0
	Ağrı bölgesine uygun sıcak-soğuk uygulama yaptım.	23	5,5
Fiziksel travma riski	Yatak kenarlıklarını kaldırdım sedye ve tekerlekli sandalye emniyet kemerlerini kullandım.	33	33,3
	Hasta odası ve yatak çevresinin güvenliğini sağladım.	28	28,3
	Mobilizasyonun gözetim altında yapılmasını sağladım.	22	22,2
	Ajite hastanın hekiminin onayı ile uygun şekilde tespitini sağladım.	8	8,1
	Hekim onayıyla ilaç uygulamasında bulundum.	8	8,1
Beslenme yetersizliği	Oral alıp almadığına takip ettim, gerektiğinde hekime haber verdim.	28	26,2
	Öğün öncesi-sonrası ağız bakımı yaptım.	20	18,7
	Hastanın diyetini diyetisyen/hekimiyle birlikte düzenledim.	19	17,8
	Diyetine uyması konusunda eğitim verdim.	18	16,8
	Oral alamayan hastada, diyetisyenle/hekimiyle belirlenen programı uyguladım.	18	16,8
	Az az ve sık sık olacak şekilde yemek yeme sağladım.	4	3,7
Doku bütünlüğünde bozulma	Hastanın sürtünmesini engelleyecek şekilde, kemik çıkıntılarına yastıkla destekleyerek sık pozisyon verdim.	26	17,3
	Basınç yarası riskini önlemek için yatak çarşaflarını gergin ve kuru tuttum.	26	17,3
	Özel havalı yataklar kullandım.	22	14,7
	Deriyi ödem yönünden değerlendirdim.	22	14,7
	Deriyi özellikle, eklemlemlere masaj uygulayarak nemlendirdim.	16	10,7
	Diyetisyen/hekimiyle görüşerek uygun diyete başladım.	13	8,7
	Yara bölgesini enfeksiyon belirtileri açısından gözlemlledim.	13	8,7
	Pansumanı kontrol ettim, gerektiğinde yeniledim.	12	8,0

Tablo 3. Devamı			
Hemşirelik tanıları	Hemşirelik girişimleri	n	%
Kanama riski	İnsizyon yeri pansumanlarını, kanama yönünden gözlemledim.	23	21,9
	İV kateter takarken dikkatli oldum.	17	16,2
	Ağızdan, rektal yolla ve idrarla kan gelip gelmediğini gözledim.	17	16,2
	Hastayı travmalardan korunmak için önlemleri aldım.	14	13,3
	IM enjeksiyonlardan kaçınarak yapmam gerekiyorsa ince uç kullandım.	13	12,4
	Gizli kanama belirti ve bulgularına karşı temel değerleri gözledim.	12	11,4
Bulantı kusma	Hekim onayıyla antiemetik ilaç uyguladım.	17	29,3
	Aspirasyonu önleyecek şekilde pozisyon verdim.	16	27,6
	Hasta başında aspirasyon geliştiğinde kullanılacak malzemeleri bulundurdum, malzemeler hakkında hastaya bilgi verdim.	13	22,4
	Kusma sonrası ağız bakımı yaptım.	12	20,7
Uyku düzeninde bozukluk	Yatmadan önceki 3-4 saat içinde çay kahve gibi uyarıcı içecekleri içmemesini önerdim.	11	24,4
	Tedavi saatlerinin uyku saatine denk gelmemesini sağladım.	11	24,4
	Uyku saatlerinde çevrede gürültü olmamasını sağladım.	9	20,0
	Hastanın uyku düzenini ve alışkanlıklarını belirledim.	7	15,6
	Korku ve endişelerini ifade etmesini sağladım.	6	13,3
	Tedavi saatlerinin uyku saatine denk gelmemesini sağladım.	1	2,2
Oral müköz membranda değişiklik	Müköz membran nemlendirici uyguladım.	12	33,3
	Yemek öncesi sonrası hastanın ağız hijyenini sağladım.	10	27,8
	Müköz membranları devamlı kontrol ettim hekime bilgi verdim.	8	22,2
	Hekimin önerdiği ilacı uyguladım.	6	16,7
Solunum fonksiyonunda bozulma	Hastanın oksijen almasını sağladım.	14	26,9
	Hava yolu tıkanıklığı var mı, kontrol ettim.	13	25,0
	Derin soluk alıp verme ve öksürük egzersizleri yaptırdım.	10	19,2
	Arteriyel kan gazlarını izledim, sonucu hekime bildirdim.	9	17,3
	Semi-fowler's pozisyonu verdim.	6	11,5
	Hastayı uygun teknikle aspire ettim.	6	28,6
Hava yolu temizlemede eksiklik	Hekim onayıyla bol sıvı almasını sağladım.	5	23,8
	Postural drenaj egzersizlerini yaptırdım.	5	23,8
	Semi fowler's pozisyonu verdim.	5	23,8
Sıvı volüm dengesiliği riski	Aldığı çıkardığı takibi yaptım.	15	24,6
	Hekim onayıyla destekleyici sıvı tedavisi uyguladım.	12	19,7
	Deri turgorunu değerlendirdim.	10	16,4
	İdrar rengini ve miktarını izleyip kaydettim.	10	16,4
	Müköz membranlarının nemliliğini sağladım.	8	13,1
	Elektrolit takibi yaptım, sonuçları hekime bildirdim.	6	9,8
Konstipasyon riski	Her gün karında distansiyon ağrı ve defekasyona çıkıp çıkmadığını takip ettim.	16	25,8
	Hekim isteminde lüzum halinde yapılması belirtilen laksatif/sulu lavman uyguladım.	13	21,0
	Hasta mahremiyetine özen gösterilmesine dikkat ettim.	11	17,7
	Hastaneye yatmadan önceki defekasyon alışkanlığını sorguladım.	10	16,1
	Kontrendike değil ise sıvı alımı desteklenmesi yaptım ve erken mobilizasyonu sağladım.	6	9,7
	Diyetisyenle görüşerek posalı yiyeceklerde yer verilen bir diyet programı uyguladım.	5	8,1
	Belirli aralıklarla komotta/tuvalette turmasını sağladım.	1	1,6

membranda değişiklik (%40,0) ve ağrı (%19,8) olduğu saptandı. Hemşirelik girişimleri uygulanmasına rağmen etkili olunamayan hemşirelik tanıları ise sıvı volüm dengesizliği (%46,6), enfeksiyon riski (%46,3) ve doku bütünlüğünde bozulma (%42,8) olduğu tespit edildi. Genel anlamda değerlendirildiğinde hemşirelik girişimlerinin uygulanmasıyla %32,1’inde problemlerinin devam ettiği, %51,4’ünde problemlerde azalma olduğu, %16,5’inde de problemlerin giderildiği bulundu (Tablo 4).

Araştırmanın nitel kısmından elde edilen bulgulardan oluşturulan temalar ve alt temalar Tablo 5’te gösterilmiştir. Hemşirelik tanılarını koymada yararlanılan kaynaklar, hemşirelik girişimlerini belirleme kriterleri ve girişimlerin başarısını etkileyen etmenler temalarının altında toplam 12 alt tema belirlendi (Tablo 5).

1. Hemşirelik Tanılarını Koymada Yararlanılan Kaynaklar Temasına İlişkin Bulgular

Hemşireler her hastaya koydukları standart tanılarla beraber hastanın yatışında, yatan hastayı devraldıklarında, bakım sırasında ve hekim istemi doğrultusunda tanı koyduklarını belirtmişlerdir. Bu tema altındaki alt temalar 4 başlık altında (standart tanılar, anamnez, hastanın muayenesi, hekim istemi) incelenmiştir.

Standart Tanılar: Hemşirelerin hastanenin hemen her kliniğinde, her yatan hastaya standart olarak konulan ve bunun üst yönetim tarafından özellikle istendiği hemşirelik tanıları olduğu belirlendi. Hemşirelerin standart tanılara yönelik görüşlerinden yapılan bazı atıflar aşağıda bulunmaktadır.

Tablo 4. Bakım Planlarında Seçilen Hemşirelik Tanılarının Değerlendirilmesi

Sıra no	Hemşirelik tanıları	3 problem devam ediyor n (%)	2 problemde azalma gözlendi n (%)	1 problem giderildi n (%)	Toplam
1	Enfeksiyon riski	62 (46,3)	51 (38,1)	21 (15,6)	134
2	Anksiyete	32 (28,6)	61 (54,5)	19 (16,9)	112
3	Ağrı	15 (16,5)	58 (63,7)	18 (19,8)	91
4	Fiziksel travma riski	11 (32,3)	18 (52,9)	5 (14,8)	34
5	Beslenme yetersizliği	14 (42,4)	17 (51,5)	2 (6,1)	33
6	Doku bütünlüğünde bozulma	12 (42,8)	12 (42,8)	4 (14,4)	28
7	Kanama riski	4 (16,0)	20 (80,0)	1 (4,0)	25
8	Bulantı-kusma	8 (38,1)	10 (47,6)	3 (14,3)	21
9	Konstipasyon	4 (21,1)	9 (47,4)	6 (31,5)	19
10	Solunum fonksiyonlarında bozulma	6 (33,3)	10 (55,6)	2 (11,1)	18
11	Sıvı volüm dengesizliği	7 (46,6)	7 (46,6)	1 (6,8)	15
12	Oral müköz membranda değişiklik	1 (6,8)	8 (53,2)	6 (40,0)	15
13	Uyku düzeninde bozukluk	3 (25,0)	8 (66,6)	1 (8,4)	12
14	Hava yolu temizlemede eksiklik	2 (28,6)	1 (14,3)	4 (57,1)	7
		181 (32,1)	290 (51,4)	93 (16,5)	564

Tablo 5. Temalar ve Alt Temalar

	Temalar	Alt temalar
Hemşirelik bakım planı uygulamalarının değerlendirilmesi	Hemşirelik tanılarını koymada yararlanılan kaynaklar	Standart tanılar Anamnez Hastanın muayenesi Hekim istemi
	Hemşirelik girişimlerini belirleme kriterleri	En kısa sürede sonuç alma Mevcut araç gereç Hastanın durumu
	Girişimlerin başarısını etkileyen etmenler	Hemşire- destek personeli sayısı Mevcut araç gereç Hastanın durumu
	Hemşirelik yönetiminin yaklaşımı	Denetim Eğitim

"...Öncelikle ilk yeni yatan hastalarımıza zaten bakım planı olarak ağrıyı, enfeksiyonu ve bası yarasını değerlendiriyoruz. Yoğun bakımda zaten ağrı, enfeksiyon, bası yarası söyleyebilirim. Bunlar standart zaten..." (K10)

"...Anksiyete, enfeksiyon riski standart genelde bir de ağrı çok. Bunları hasta yatışı olur olmaz koyuyoruz..." (K8)

Anemnez: Hemşirelik tanılarının bir kısmının hastanın ilk kabulü sırasında alınan hemşirelik anemnezi doğrultusunda konulduğu belirlendi. Hemşirelerin bu konudaki ifadelerine yapılan bazı atıflar aşağıda yer almaktadır.

"...Hasta öncelikle kliniğe geldiğinde yatış evraklarımız var orda bir hemşire değerlendirme formumuz var ordan hastanın anemnezini alıyoruz. Hastalıklarını alıyoruz. Neler kullanıyor, hangi hastalıkları var. Onu öğreniyoruz. Daha önce ameliyatı var mı, şu an bulunan bir yarası veya takılı bir ekipmanı var mı bunu sorguluyoruz. Ona göre de biz bakım planında tanı koyuyoruz, hemşirelik tanısı..." (K3)

Hastanın Muayenesi: Hemşireler bazı hemşirelik tanılarını hastanın ilk yatışı sırasında, hastayı devralırken ve hemşirelik bakımı uygularken yaptıkları muayeneler sırasında koyduklarını belirttiler. Konu ile ilgili ifadelerden yapılan alıntılar aşağıda yer almaktadır.

"...Hem aslında fiziki değerlendirme yapıyoruz hem de gözlemi yapıyoruz. Zaten her gün günlük bakımımız var yoğun bakımda. O bakım sırasında da zaten eksiklikleri gözlemleyebiliyoruz. Hani gözlemlediğimiz eksikliklere yönelik de bakım planını sistemden çıkarıp sistemden çıkardığımız formun üzerinden yapmamız gerekenleri ya da yaptıklarımızı sadece işaretleyip günlük uygulamayı yapıyoruz..." (K11)

"Sabahları bakıma girdiğimizde zaten hastanın tüm herşeyine bakıyoruz. Hani fiziki muayenesini, herhangi bir yerinde bası yarası riskine karşı, ya da ağız mukoza membran bozukluğuna karşı aslında tüm değerlendirmeyi sabah bakıma girdiğimizde yapıyoruz. Sonrasında tanıyı koyuyoruz..." (K4)

Hekim İstemi: Hemşireler bazı hemşirelik tanılarını hekimlerin hasta için düzenledikleri istemlere göre belirlediklerini bildirmişlerdir. İlgili ifadelerden yapılan atıflar aşağıdadır.

"...Daha sonra orderi planlanıyor, order giriliyor. Order ına göre de tanı koyduğumuz oluyor. Örneğin nöroloji kliniğinde genelde ekoprin tarzı ilaçlar kullanılır. Bu da kanama riski oluşturur..." (K5)

2. Hemşirelik Girişimlerini Belirleme Kriterleri Temasına İlişkin Bulgular

Hemşireler belirledikleri tanılara yönelik olarak uygulayacakları girişimleri seçerken birtakım kriterleri göz önünde bulundurduklarını belirtmişlerdir. Bu kriterler, en kısa sürede sonuç alma, mevcut araç gereç ve hastanın durumu olmak üzere üç alt tema şeklinde değerlendirilmiştir.

En Kısa Sürede Sonuç Alma: Hemşireler, hemşirelik girişimlerinden en kısa sürede sonuç alınabilecekleri öncelikle

tercih ettiklerini belirtmişlerdir. İlgili ifadelerden yapılan alıntılar aşağıda yer almaktadır.

"...Yani bazen hastanın durumu acil oluyor, ağrısı falan çok olduğunda ağrısını en çabuk ne geçiriyorsa onu yapıyorum..." (K1)

"...Birden fazla uygulayacağım yöntem girişim varsa hangisinden çabuk sonuç alırım hasta açısından ona bakıyorum..." (K17)

Mevcut Araç Gereç: Hemşirelik girişimlerinin belirlenmesinde eldeki araç, gereç ve olanakların belirleyici bir kriter olduğu bildirilmiştir. Bu konu ile ilgili ifadelerden yapılan alıntılar aşağıda yer almaktadır.

"...Fiziki şartlara göre seçiyoruz. Fiziki şartlar şöyle, yani mesela bazı yataklarımız kırık oluyor. Kenarı kırık oluyor. Bunun kenarlığını kaldıramıyoruz. Ya da bazen yastık koymamız gerekiyor ekstremitelere. Yeterli olmayınca koyamıyoruz. Ya da mesela hemşire çağrı zili çalışmayan odalarımız oluyor. O da fiziki şart oluyor..." (K15)

Hastanın Durumu: Hemşireler uygulanacak hemşirelik girişimini hastanın o anki durumunun gerektirdiklerine göre belirlediklerini bildirmişlerdir. Bu konudaki ifadelerinden yapılan alıntılar aşağıdadır.

"...Hastanın tanısına göre, bizim yaptığımız gözlemlerde, muayenede neye ihtiyacı var, mesela kan sulandırıcı ilaç kullanıyorsa mutlaka kanama kontrolü yazarım. Ya da uzun yatışlarda doku bütünlüğü bozulma riski yüksek onu yazarım..." (K14)

3. Girişimlerin Başarısını Etkileyen Etmenler Temasına İlişkin Bulgular

Hemşireler uyguladıkları hemşirelik girişimlerinin başarılı sonuç vermesi etkileyen birtakım etkenleri olduğunu bildirmişlerdir. Bu etkenler hemşire destek personeli sayısı, mevcut araç gereç ve hastanın durumu alt temaları olarak incelenmiştir.

Hemşire-Destek Personeli Sayısı: Mevcut hemşire ve destek personeli sayısındaki yetersizliğin hemşirelik girişimlerinin başarılı sonuç vermesini olumsuz etkilediği belirtilmiştir. Bu konudaki ifadelerden yapılan alıntılar aşağıda yer almaktadır.

"...Ayrıca kliniklerde destek personeli yok. Bakımda çok zorlanıyoruz..." (K22)

"...Mesela hastaya pozisyon vermem gerekiyor, kilolu bir hastaysa tek yapamıyorum ama yardımcı da yok. Banyolarda da sorun yaşıyoruz bu nedenle..." (K16)

Mevcut Araç Gereç: Hemşireler girişimler için gerekli olan uygun ve yeterli araç gereç eksikliğinin girişimlerin başarısını olumsuz etkilediğini bildirmişlerdir. İlgili ifadelerden yapılan alıntılar aşağıda yer almaktadır.

"...Bası yarası için uygun yatak yokluğu, en bariz bu örneği verebilirim. Bariyer krem falan kullanıyoruz ama yine de uzun yatışlarda bası yarasında başarılı olamıyoruz..." (K27)

Hastanın Durumu: Hemşireler bazı hastaların durumunun uygulanan hemşirelik girişiminin başarılı sonuç vermesini etkilediği ve sorunu çözmek için başka yöntemler uygulamak zorunda

kaldıklarını belirtmişlerdir. Konu ile ilgili ifadelerden alıntılar aşağıdadır.

"...Hasta mobilize değilse sorun oluyor. Uygulamak istediğim girişimler sınırlı kalıyor haliyle. Kostipasyonu varsa yürütemiyorum ne yapıyorum sıcak uygulama mesela..." (K24)

4. Hemşirelik Yönetiminin Yaklaşımı Temasına İlişkin Bulgular

Hemşireler bakım planı uygulamalarının hemşirelik üst yönetimi ve sorumlu hemşire tarafından kontrol ve denetime tabi tutulduğunu ve denetim sırasında bu konuda eğitimin de gerçekleştiğini bildirmişlerdir. Bu konudaki görüşler denetim ve eğitim alt temaları şeklinde incelenmiştir.

Denetim: Yapılan bakım planlarının her gün, gün içinde servis sorumlu hemşireleri tarafından kontrol edildiği ve hemşirelik üst yönetiminin denetimleri sırasında öncelikle bakım planlarını değerlendirdikleri belirtilmiştir. İlgili ifadelerden alıntılar aşağıda yer almaktadır.

"...Her gün sorumlu hemşiremiz zaten bakım planı kontrolünü yapar. Dosyalara bakar. Standart tanımlar zaten var. Hastanın durumuna göre eklediği bazı tanımlar oluyor sorumlu hemşirenin..." (K25)

"...Her geldiklerinde (hemşirelik üst yönetimi) mutlaka rastgele birkaç tane bakım planına bakıyorlar. Yapılmamışsa uyarıyorlar..." (K2)

Eğitim: Hemşireler bakım planı konusunda planlı bir eğitim almadıklarını ancak denetimler ve kontroller sırasında eksik ve hataların düzeltilmesi amacıyla bilgilendirildiklerini belirtmişlerdir. Bu konudaki ifadelerden alıntılar aşağıda yer almaktadır.

"...Yok, bu konuda okulda aldığım eğitim var. Servise başladığımda buraya özel bilgileri arkadaşlardan öğrendim. Ama sorumlu hemşiremiz her kontrolünde eksik veya yapılması gerekenleri açıklar..." (K13)

"...Başhemşire bakım planlarına bakar her geldiğinde. Bir iki tanesine. Eksiklikler konusunda veya yanlış varsa bu konuda eğitim verirler..." (K6)

TARTIŞMA

Hemşirelik süreci, bireylerin sağlık gereksinimlerini belirlemede ve birey merkezli hemşirelik bakım hizmetinin sunulmasında kullanılan sistematik ve bilimsel bir problem çözme yöntemidir. Hemşirelik süreci hemşirelik bakım planı ile hayata geçirilir. Bu süreçte, hemşirelik bakım planı doğrultusunda çeşitli verilere dayanarak hemşirelik tanımları konulur, tanıya yönelik girişimler gerçekleştirilir ve girişimlerin sonuçları değerlendirilir ⁽¹⁵⁾. Hemşirelik süreci hemşirelerin karar verme aşamasında eleştirel düşünceyi kullanmalarına olanak sağlar ⁽¹⁶⁾.

Hemşirelik sürecinin sistematik uygulamasında kullanılan hemşirelik bakım planının her aşaması üzerinde titizlikle durulması gereken ve hayata geçirilmesi çeşitli faktörlerden etkilenen yapıya sahiptir. Bu çalışmanın amacı bir eğitim araştırma hastanesinde

görevli hemşirelerin uyguladıkları hemşirelik bakım planlarının; hemşirelik tanımları, hemşirelik girişimleri, girişimlerin sonuçları ve etkileyen faktörler açısından değerlendirilmesidir.

Hemşirelik sürecinin önemli aşamalarından birisi olan tanımlama, toplanan verilerin ileri analizinin ve sentezinin sonucudur. Konulan hemşirelik tanımları problem odaklı (mevcut) tanı, potansiyel risk tanısı veya sağlığı geliştirme tanısı şeklinde olabilir ⁽¹⁷⁾. Hemşirelik tanımlarının odağında hastanın şimdiki ve olası sağlık durumu vardır. Hemşirelik tanısının tam ve doğru konulması hastaya gereksiz ve uygun olmayan girişimlerin yapılmasının önlenmesi açısından önemlidir ⁽¹⁸⁾.

Bu çalışmada hemşirelik tanısı olarak en fazla enfeksiyon riskinin belirlendiği, ikinci ve üçüncü sırada sırasıyla anksiyete ve ağrı tanımlarının konulduğu bulunmuştur. Enfeksiyon riski tanısının en sık belirlenmesi, hastane ortamında enfeksiyon riskinin sürekli var olması ve klinik uygulamalarda bu tanının rutinleşmiş olmasından kaynaklanıyor olabilir. Bu durum, hemşirelik bakım planlarında bireyselleştirilmiş değerlendirme yerine standart tanı kullanımının ön planda olduğu düşünülmektedir.

Avşar ve ark. ⁽¹⁹⁾ hemşirelik süreci uygulamalarını değerlendirdikleri çalışmalarında bu çalışmanın sonuçlarına benzer şekilde ağrı, enfeksiyon riski, anksiyete ve bilgi eksikliğinin en sık konulan hemşirelik tanımları olduğunu belirtmektedir. Yaşlı yetişkinlerde belirlenen hemşirelik tanımlarının araştırıldığı bir çalışmada en çok konulan hemşirelik tanımlarının algı/biliş alanındaki eksik bilgi ve hafıza kaybı olduğu bulunmuş ve bunda bakım verilen hasta profilinin belirleyici olduğu belirtilmiştir ⁽²⁰⁾. Kalp yetmezliği hastalarına konulan hemşirelik tanımlarının doğruluğunun araştırıldığı başka bir çalışmada ise sırasıyla enfeksiyon riski, düşme riski ve azalmış kardiyak debi riskinin en sık konulan hemşirelik tanımları olduğu bildirilmiştir ⁽²¹⁾. Hemşirelik süreci kullanımıyla ilişkili sorunların belirlenmesi ile ilgili klinik hemşirelerle yapılan çalışmada, ilk sırada NANDA dışında konulan tanımların yer aldığı bunu enfeksiyon riski ve ağrı tanımlarının takip ettiği bildirilmiştir. Aynı çalışmada hemşirelerin yarısından fazlasının ara sıra hemşirelik tanısı ile tıbbi tanıyı karıştırdıkları bulunmuştur ⁽²²⁾. Kalp yetersizliği olan hastalara konulan tanımların NANDA'ya uygunluğunun araştırıldığı başka bir çalışmada hemşirelik tanımları içerisinde enfeksiyon riskinin en çok konulan hemşirelik tanı olduğu bulunmuştur ⁽²³⁾. Bildirilen bu sonuçlar çalışmanın bulgularıyla büyük oranda uyumludur. Enfeksiyon riski ve anksiyete tanımlarının konulan tanımlar içerisinde ilk sıralarda yer almasının nedeni, enfeksiyon riskinin hastanın hastanede kalış süresi boyunca devam etmesi ve hastalık ve hastanede yatma sürecinin genelde anksiyeteye neden olan bir süreç olarak değerlendirilmesi olabilir. Bununla birlikte hastanın profili, bakım gereksinimleri ve toplanan veriler hastaya konulan hemşirelik tanımlarında belirleyici olmaktadır.

Bu çalışmada yapılan görüşmelerde yatan her hastaya standart tanı olarak enfeksiyon riski ve anksiyete tanısının konulduğu, bunun yanında hastanın anamnezinin, hemşirelik muayenesi bulgularının ve hekim isteminin de hemşirelik tanımlarının konulmasında belirleyici olduğu bulunmuştur.

Hemşirelik sürecinin ilk basamağını oluşturan veri toplama, hastanın geçmiş ve şimdiki sağlık durumuna ilişkin bilgilerin planlı ve sistematik bir şekilde toplanmasını ifade eder. Veri toplama aşaması dinamik bir süreçtir ve sürecin her aşamasında hasta ile ilgili yeni bilgilerin toplanması, problemleri ve gereksinimlerin belirlenmesi söz konusudur ⁽²⁰⁾. Veri toplama aşaması, sürecin temel aşamasını oluşturduğundan, sürecin başarısı için verilerin eksiksiz ve doğru toplanması ve hastanın bütüncül olarak değerlendirilmesi önemlidir ⁽²⁴⁾. Seçer ve Karaca ⁽²⁵⁾ çalışmalarında hemşirelik sürecinin temelini oluşturan hemşirelik tanılarının anamnez verilerine dayanarak toplanan verilerle konulduğunu bildirmektedir. Türkiye’de 261 klinik hemşiresiyle yapılan çalışmada çoğunluğun veri toplama aşamasından başlayarak sürecin tüm aşamalarında bir modeli takip etmedikleri ve veri toplama yöntemi olarak sırasıyla görüşme, kayıt, gözlem, dinleme yöntemlerini tercih ettikleri bildirilmiştir ⁽²²⁾. Çalışmalar değerlendirildiğinde bu çalışmanın bulgularıyla uyumlu bir şekilde hemşirelik tanılarının konulmasında başta hastanın özellikleri ve anamnez verileri olmak üzere çeşitli veri kaynaklarının kullanıldığı görülmektedir.

Bakım planında belirlenen hemşirelik tanılarına yönelik olarak yapılan girişimler hemşirelik sürecinin uygulama aşamasını oluşturmaktadır. Bu aşamada yapılan girişimlerin güncel ve etkili yaklaşımlara dayanan kanıta dayalı uygulamalar olması beklenmektedir. Bu girişimler doğrudan ve dolaylı bakım uygulamaları şeklinde gerçekleştirilebilmekte ve hemşirelerin sahip oldukları bakım uygulamalarını gerçekleştirebilecek bilgi, beceri ve yeterliliklere göre şekillenmektedir ⁽⁴⁾. Bir araştırma sonucu hemşirelerin sürecin en çok uygulama aşamasında zorluk yaşadıklarını göstermektedir ⁽¹⁹⁾.

Bu çalışmada en sık konulan hemşirelik tanılarına yönelik yapılan girişimlerde; enfeksiyon riski tanısına yönelik el hijyeni, hastanın gözlemi ve genel aseptisi kurallarını uygulama, anksiyete tanısına yönelik olarak hastaya yapılan her işlem hakkında hastaya açıklama yapma ve ağrı tanısına yönelik olarak da hekim onayı ile analjezik ilaç uygulamanın en çok yapılan hemşirelik girişimleri olduğu bulunmuştur. Yapılan görüşmelerde hemşireler girişimleri en çabuk sonuç alınacak girişi tercih etme, hastanın durumu ve mevcut araç gerece göre belirlediklerini bildirmişlerdir. Konu ile ilgili yapılan çalışmalarda hemşirelik girişimlerinin belirlenmesinde bireyin istek, gereksinim ve tercihleri, yapılacak girişimin ve tedavinin özellikleri, problemin aciliyeti, klinikte uygulanan bakım sunum modeli ve kliniğin işleyiş kuralları, ekibin özellikleri, kaynaklara ulaşım, politikalar, prosedürler ve aile üyelerine ulaşılabilirlik gibi birtakım faktörlerin rol oynadığı belirtilmektedir ^(26,27). Chae ve ark.’ın ⁽²⁸⁾ hemşirelik bakımında uluslararası standart sınıflama sistemlerini araştırdıkları derlemede incelenen çalışmalarda girişimin maliyetinin hemşirelik girişimlerinin belirlenmesinde etkili olduğu ve maliyet etkin hemşirelik uygulamaları için karar verme ve uygulama sürelerinin kısa olmasının önemini vurgulamışlardır. Bu sonuçlar, bu araştırmanın sonuçlarıyla büyük ölçüde uyumludur. Hemşirelik süreci kapsamında konulan hemşirelik tanıları doğrultusunda uygulanan hemşirelik girişimlerine, hemşirenin mesleki bilgi ve beceri düzeyi,

fiziksel koşullar, sahip olunan olanaklar gibi birçok faktöre bağlı kalınarak karar verilmektedir. Enfeksiyon tanısına yönelik olarak el hijyeni, gözlem ve genel aseptisi kurallarına uyulmasının en çok tercih edilen girişimler olması bunların kolay uygulanabilirliği ve fazla araç gereç gerektirmeyen uygulamalar olması, ağrı kontrolü için ağrı kesici ilaç verilmesinin tercih edilmesinin nedeni de girişimden çabuk sonuç alma isteği olabilir.

Hemşirelik tanıları doğrultusunda planlanan hemşirelik girişimlerinden olumlu sonuç alıp almama durumu değerlendirildiğinde büyük oranda problemlerin azaldığı, ancak çözülemeyen problem oranının çözülen problem oranından daha yüksek olduğu bulunmuştur. Sıvı volüm dengesizliği, enfeksiyon riski ve doku bütünlüğünde bozulma en az olumlu sonuç alınan girişimler olmuştur. Hemşireler yapılan görüşmelerde hemşire/destek personeli sayısı, mevcut araç gereç ve hastanın durumunun girişimlerin başarılı olmasını etkilediğini belirtmişlerdir. Yapılan bir çalışmada hemşirelerin çoğu planlanan hemşirelik girişimlerinin bakıma yansıtılmasında güçlük yaşadığını belirtmişlerdir ⁽¹⁹⁾.

Konu ile ilgili başka çalışmalarda bu çalışmadan farklı olarak hasta ile konuşma, duygusal destek sağlama, hasta ve ailesine eğitim verme gibi iletişime yönelik girişimlerin en az gerçekleştirildiği bildirilmektedir ^(29,30). Dutra ve ark.’ın ⁽³¹⁾ ve Kartal ve ark.’ın ⁽³²⁾ çalışmalarında bu çalışma sonuçlarına benzer şekilde hemşirelik girişimlerinin gerçekleştirilememesinin en önemli nedenleri iş gücü kaynaklarının niteliği ve sayısındaki yetersizlikler, hasta sayısında ve durumlarının ciddiyetinde beklenmeyen artışlar ve maddi kaynakların yetersizliği olarak belirtilmiştir. Klinik hemşirelerle gerçekleştirilen başka bir çalışmada ise zaman yetersizliği, iletişimsizlik değerlendirmede istenilen hedeflere ulaşamamanın nedenleri arasında ilk sıralarda yer alırken, personel ve malzeme eksikliğine ilişkin nedenler daha alt sıralarda belirtilmiştir ⁽²²⁾. Gerçekleştirilmeyen veya başarılı sonuç alınamayan hemşirelik girişimleri farklı olsa da bu durumun nedenlerinin ortak nedenler olduğu görülmektedir. Çeşitli nedenlerle gerçekleştirilemeyen veya olumlu sonuç alınamayan hemşirelik girişimlerinin hasta sonuçlarını olumsuz etkilemesinin yanında, çalışanlarda tükenmişlikten işten ayrılmaya kadar olumsuzluklara neden olmaktadır. Bunun yanı sıra bu durumun hasta bakımına yönelik mesleki ve toplumsal endişelere yol açarak mesleğin bütünlüğüne zarar verdiği bildirilmektedir ⁽³³⁾.

Bu çalışmada yapılan görüşmelerde hemşirelik bakım planı uygulamalarında yönetimin desteği denetim ve eğitim kavramları çerçevesinde ifade edilmiştir. Yapılan bir çalışmada hemşirelik yöneticilerinin liderlik becerilerini kullanarak hemşirelik bakımının planlamasında yol gösterici olduğu, uygulamadaki eksikliklerde azaltıcı etki gösterdiği bildirilmiştir ⁽³⁴⁾. Başka bir çalışmada hem yönetimde hem de hasta bakımında katına dayalı verilerle uygulamanın yönetici hemşirelerin 21. yüzyılda gelişen önemli rollerinden biri olduğu vurgulanmaktadır ⁽³⁵⁾. Bu bulgular ışığında bu çalışmanın bulgularıyla benzer şekilde yönetici hemşirelerin hemşirelik sürecinin başarısı için bakım planlarının doğru ve etkin bir şekilde uygulanmasında ve bu konuda hemşirelerin desteklenmelerinde önemli rolleri olduğu görülmektedir.

Çalışmanın Sınırlılıkları

Bu araştırma tek merkezde ve sınırlı sayıda hemşire ile yürütülmüş olup, bulguların genellenebilirliği sınırlıdır. Ayrıca verilerin bakım planı kayıtlarına ve katılımcı beyanlarına dayanması, sonuçların yorumlanmasında dikkate alınmalıdır.

SONUÇ VE ÖNERİLER

Bu çalışmada hemşirelik bakım planlarında enfeksiyon riski başta olmak üzere bazı standart hemşirelik tanımlarının konulduğu, tanı koymada anemnez, hastanın muayene bulgularının ve hekim istemi gibi veri kaynaklarının kullanıldığı bulundu. Planlanan girişimlerin önemli bir kısmından olumlu sonuç alınamadığı ve bunun başlıca nedenlerinden bazılarının iş gücü ve fiziksel olanakların yetersizliği olduğu, hemşirelik yönetiminin bakım planı uygulamalarında denetim ve eğitim desteği verdikleri sonuçlarına ulaşıldı.

Bu bulgular ışığında hemşirelere yönelik hemşirelik süreci ve bakım planı uygulamaları konusunda;

- Hemşirelik süreci, bakım planı uygulamaları eğitiminin sürekli eğitim kapsamında olması ve belirli aralıklarla tekrarlanması,
- Bu konuda düzenlenecek eğitimlerin NANDA taksonomisini kapsamı ve eğitimlerin teorik ve uygulamalı olarak gerçekleştirilmesi,
- Hemşirelerin bu konuda düzenlenecek eğitimlere katılımının ve devamının teşvik edilmesi için gerekli düzenlemelerin yapılması,
- Hemşirelere hemşirelik süreç ile ilgili yaşanan sorunların veya eksikliklerin uygulama sırasında öğretilerek çözülmesi için gerekli girişimlerin yapılması bu konuda yönetici hemşirelerin mentorluk yapması için gerekli girişimlerde bulunulması, yönetici hemşirelerin özellikle liderlik özelliklerini kullanarak hemşirelerin bakım planı uygulamalarına liderlik yapmaları konusunda desteklenmeleri,
- Başarılı hemşirelik süreci uygulamaları için hemşirelerin iletişim becerilerinin geliştirilmesine yönelik eğitim programların düzenlenmesi,
- Hemşirelik süreci uygulamalarının hem etik hem de yasal boyutu olduğundan başarılı ve etkin bakım planı uygulamaları için yönetimlerin gerekli düzenlemeleri yapmaları,
- Planlandığı halde gerçekleştirilmeyen hemşirelik bakım girişimlerinin nedenleri araştırılmalı ve nitelikli hasta bakımı için engel oluşturan veya sorun olan durumların giderilmesi için gerekli önlemlerin alınması, hemşirelik girişimleri için gerekli olan nitelikli iş gücü, fiziksel gereksinimler ve maddi kaynakların sağlanması için gerekli düzenlemelerin yapılması önerilebilir.

Etik

Etik Kurul Onayı: Araştırmanın etik onayı Dicle Üniversitesi Sosyal ve Beşeri Bilimler Etik Kurulu'ndan alınmıştır (karar no: 299, tarih: 22.12.2023). Kurum izinleri, Diyarbakır İl Sağlık Müdürlüğü'nden 17.05.2024 tarihli 708094 sayılı yazı ile temin edilmiştir.

Hasta Onamı: Araştırmaya katılan tüm hemşirelere çalışmanın amacı açıklanmış, gizlilik ve gönüllülük esaslarına uygun olarak yazılı aydınlatılmış onam alınmıştır.

Teşekkür

Araştırmacılar, çalışmanın verilerinin toplanmasında çok değerli katkıları olan yönetici hemşirelere ve sorularımızı sabırla cevaplayan, araştırmaya katılan tüm hemşirelere teşekkür ederler.

Dipnot

Yazarlık Katkıları

Konsept: NU, ÖK, VT; Dizayn: NU, ÖK, VT; Veri Toplama veya İşleme: NU, ÖK, VT; Analiz veya Yorumlama: NU, SÇ; Literatür Arama: NU, ÖK, SÇ; Yazan: NU, ÖK, SÇ.

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The Relationship Between Attitudes Toward Postgraduate Education and Scientific Research Competency Among Graduate Nursing Students: A Cross-sectional Study

Lisansüstü Hemşirelik Öğrencilerinde Lisansüstü Eğitime Yönelik Tutum ile Bilimsel Araştırma Yetkinliği Arasındaki İlişki: Kesitsel Bir Çalışma

✉ Sema Kömürkara¹, ✉ Züleyha Gürdap², ✉ Zeliha Cengiz², ✉ Sedef Tok³, ✉ Şerife İnce⁴

¹İnönü University Vocational School of Health Services, Department of Health Care Services, Malatya, Türkiye

²İnönü University Faculty of Nursing, Department of Fundamentals of Nursing, Malatya, Türkiye

³Kahramanmaraş Sütçü İmam University Faculty of Health, Department of Nursing, Division of Fundamentals of Nursing, Kahramanmaraş, Türkiye

⁴Adıyaman University Faculty of Health Sciences, Department of Nursing, Division of Fundamentals of Nursing, Adıyaman, Türkiye

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ABSTRACT

Objective: This study aimed to examine the relationship between graduate nursing students' attitudes toward postgraduate education and their scientific research competency.

Methods: This cross-sectional study included 418 students enrolled in graduate nursing programs across Türkiye. A snowball sampling method was used. Inclusion criteria were being enrolled in a master's or doctoral nursing program and voluntarily agreeing to participate, while exclusion criteria included incomplete responses and non-enrollment in a graduate program. Data were collected online between December 2024 and August 2025 using the Student Information Form, the Postgraduate Education Attitude Scale, and the Scientific Research Competency Scale.

Results: The mean score for attitudes toward postgraduate education was 49.07 ± 10.31 , indicating a moderate level, while the mean score for scientific research competency was 216.78 ± 41.47 , indicating a competent level. A low-level significant negative correlation was found between overall attitude toward postgraduate education and scientific research competency ($r = -0.215$, $p < 0.05$). Similarly, negative correlations were observed between valuing postgraduate education ($r = -0.281$, $p < 0.05$) and attaching importance to education ($r = -0.235$, $p < 0.05$) with scientific research competency. In contrast, resistance to postgraduate education showed a low positive correlation ($r = 0.128$, $p < 0.05$). A moderate negative correlation was found between the "attitude and behaviours" subdimension of scientific research competency and the "valuing postgraduate education" subdimension of the attitude scale ($r = -0.340$, $p < 0.05$).

Conclusion: The findings indicate that the relationships between scientific research competency and attitudes toward postgraduate education among graduate nursing students are predominantly negative. As research competency increases, positive attitudes toward postgraduate education appear to decrease in some dimensions. These results highlight the need for comprehensive, structured, and sustainable educational strategies that jointly promote both scientific research competency and academic attitudes in graduate nursing education.

Keywords: Nursing students, postgraduate education, attitudes, research, competencies

ORCID IDs: SK. 0009-0000-3282-6171; ZG. 0000-0002-2231-8218; ZC. 0000-0002-3819-1717; ST. 0009-0003-9735-5894; Şİ. 0009-0006-1322-9340



Corresponding Author: Sema Kömürkara,

E-mail: sema.komurkara@gmail.com

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ÖZ

Amaç: Bu araştırma, lisansüstü hemşirelik öğrencilerinin lisansüstü eğitime yönelik tutumları ile bilimsel araştırma yetkinlikleri arasındaki ilişkiyi incelemek amacıyla yapılmıştır.

Yöntem: Kesitsel tasarımdaki bu araştırma Türkiye’de hemşirelik lisansüstü programlarında öğrenim gören 418 öğrenci ile yürütülmüştür. Örneklem yöntemi olarak kartopu örnekleme kullanılmıştır. Dahil edilme kriteri lisansüstü hemşirelik programına kayıtlı olma ve gönüllü katılım sağlama, dışlanma kriteri ise eksik veri ve lisansüstü programa kayıtlı olmama olarak belirlenmiştir. Veriler Aralık 2024-Ağustos 2025 tarihleri arasında çevrimiçi olarak “Öğrenci Bilgi Formu”, “Lisansüstü Eğitime Yönelik Tutum Ölçeği” ve “Bilimsel Araştırma Yetkinlik Ölçeği” ile toplanmıştır.

Bulgular: Katılımcıların lisansüstü eğitime yönelik tutum puan ortalaması $49,07 \pm 10,31$ olup orta düzeyde, bilimsel araştırma yetkinliği puan ortalaması ise $216,78 \pm 41,47$ olup yetkin düzeyde bulunmuştur. Lisansüstü eğitime yönelik genel tutum ile bilimsel araştırma yetkinliği arasında negatif ve düşük düzeyde anlamlı ilişki saptanmıştır ($r = -0,215$, $p < 0,05$). Ayrıca lisansüstü eğitimi değerli bulma ($r = -0,281$, $p < 0,05$) ve eğitime önem verme ($r = -0,235$) alt boyutları ile de negatif ilişkiler belirlenmiştir. Lisansüstü eğitime yönelik direnç ile bilimsel araştırma yetkinliği arasında pozitif ve düşük düzeyde ilişki bulunmuştur ($r = 0,128$, $p < 0,05$). Bilimsel araştırma yetkinliği “tutum ve davranışlar” alt boyutu ile “lisansüstü eğitimi değerli bulma” alt boyutu arasında orta düzeyde negatif ilişki saptanmıştır ($r = -0,340$, $p < 0,05$).

Sonuç: Bulgular, lisansüstü hemşirelik öğrencilerinde bilimsel araştırma yetkinliği ile lisansüstü eğitime yönelik tutumlar arasındaki ilişkilerin çoğunlukla negatif yönde olduğunu göstermektedir. Araştırma yetkinliği arttıkça lisansüstü eğitime yönelik olumlu tutumların bazı boyutlarda azaldığı görülmektedir. Bu durum, lisansüstü hemşirelik eğitiminde araştırma yetkinliği ve akademik tutumun birlikte geliştirilmesini hedefleyen bütüncül, yapılandırılmış ve sürdürülebilir eğitim stratejilere ihtiyaç olduğunu ortaya koymaktadır.

Anahtar kelimeler: Hemşirelik öğrencileri, lisansüstü eğitim, tutum, araştırma, yetkinlik

INTRODUCTION

Graduate education in nursing not only provides students with the opportunity to enhance their professional knowledge and skills but also strengthens their research competence and promotes lifelong learning by encouraging participation in scientific studies⁽¹⁾. This process enables students to develop their abilities in analytical thinking, problem-solving, and the practical implementation of scientific research processes⁽²⁾. In this context, examining graduate nursing students’ attitudes toward education and their scientific research competence is of great importance for supporting academic development and enhancing the effectiveness of educational programs.

The level and quality of attitude toward education among graduate nursing students are considered key determinants of professional development and the advancement of nursing practice. At the graduate level, this attitude may influence students’ scientific research competence, depending on their interest in research, modes of thinking, and academic goals. In the study by Öztürk et al.⁽³⁾ it was reported that the quality of education positively affected nurses’ attitudes toward continuing graduate education. Therefore, evaluating graduate nursing students’ attitudes toward education serves as an important indicator for improving educational quality and understanding their research and academic performance. Attitudes toward postgraduate education may shape students’ engagement with academic activities, willingness to participate in research processes, and motivation to develop scientific skills. Likewise, students with higher levels of scientific research competency may perceive postgraduate education differently due to increased exposure to academic expectations, research workload, and scholarly responsibilities. Therefore, these two constructs may interact reciprocally within the context of graduate nursing education.

The nursing profession requires a body of research-based knowledge to respond effectively to the constantly changing and evolving healthcare needs and to provide scientifically grounded

care⁽⁴⁾. Organizations such as the International Council of Nurses and the American Association of Colleges of Nursing have emphasized that the nursing profession can achieve effectiveness in research and practice through the use of scientific methods⁽⁵⁾. Studies have underlined that nursing students generally hold positive views toward scientific research^(4,6). Such perspectives reinforce their ability to make evidence-based decisions in nursing practice and to develop innovative solutions in clinical settings. Scientific research enables nurses to address clinical problems and improve the quality of care^(7,8). Participation of nurses and nursing students in research contributes to more informed and effective clinical decision-making, leading to improved outcomes⁽⁸⁾.

The significance of scientific research in nursing education has been increasingly recognized both nationally and internationally. Participation in research processes and the acquisition of scientific competence provide nursing students with valuable opportunities for professional growth while contributing to the improvement of healthcare quality. To the best of our knowledge, limited evidence exists regarding the relationship between attitudes toward postgraduate education and scientific research competency among graduate nursing students. The findings of this study are expected to reveal the current status of these variables among graduate nursing students and to guide the development of innovative approaches and the improvement of educational programs in nursing education. Given the limited evidence in this area, the present study adopted an exploratory approach to examine the potential relationships between attitudes toward postgraduate education and scientific research competency among graduate nursing students.

Research Questions

1. What are the attitudes of graduate nursing students toward postgraduate education?
2. What are the levels of scientific research competence among graduate nursing students?

3. Is there a relationship between attitudes toward postgraduate education and scientific research competency among graduate nursing students?

MATERIAL AND METHOD

Design

The research was conducted using a cross-sectional design.

Population and Sample

The population of the study consisted of master's and doctoral students enrolled in graduate nursing programs in Türkiye. The sample size was determined using the G*Power 3.1.9.7 software. Based on a correlation test with an effect size of 0.15, a type I error level of 0.05, and a statistical power of 85%, the minimum sample size was calculated as 390 participants. To reach this number, the snowball sampling method, one of the purposive sampling techniques, was used. Questionnaires were distributed online via Google Forms, and participation was voluntary. Initially, graduate students known to the researchers were invited to participate, and then the link was shared with other students through social media platforms. Participants were encouraged to forward the survey to their peers to expand the sample. Data collection was completed between December 2024 and August 2025 with 418 graduate nursing students. Since the researchers specialized in the field of fundamental nursing, most participants were students from this discipline.

Inclusion criteria for the study were; being enrolled in a master's or doctoral nursing program in Türkiye, being currently a graduate student at the time of data collection, and agreeing to participate voluntarily in the study. Exclusion criteria were; not being enrolled in a graduate nursing program, incomplete or missing questionnaire responses, and refusal to participate or withdrawal during the data collection process.

Data Collection Tools

The data of the study were collected using the Student Information Form, the Postgraduate Education Attitude Scale (PEAS) and the Scientific Research Competency Scale (SRCS).

Student Information Form

This form, prepared by the researchers, included questions regarding the sociodemographic and educational characteristics of graduate students, such as age, gender, marital status, professional experience, department, graduate education period, current position, and the region of their university⁽⁹⁾.

PEAS

Developed by Çetin et al.⁽¹⁰⁾ this five-point Likert-type scale consists of 21 items designed to examine graduate students' attitudes toward education in relation to various factors. The scale includes three subdimensions: valuing postgraduate education, attaching importance to postgraduate education, and resistance

to postgraduate education. The highest score that can be obtained in the "valuing postgraduate education" sub-dimension is 45 and the lowest score is 9; in the "attaching importance to postgraduate education" sub-dimension, scores range from 6 to 30; and in the "resistance to postgraduate education" sub-dimension, scores also range from 6 to 30. Negative items are scored on a 1-5 Likert scale, while positively worded items are reverse-coded in accordance with the original scale structure. The scale's Cronbach's alpha reliability coefficient was reported as 0.94⁽¹⁰⁾. In the present study, the Cronbach's alpha coefficients were found to be 0.84 for the PEAS.

SRCS

Developed by Duru and Örsal⁽¹¹⁾, this scale consists of 57 items rated on a five-point Likert scale. It aims to measure graduate students' level of competence in conducting scientific research. The scale has four subdimensions: technical skills, attitude and behaviours, estimation capacity, and foreign language skill. The total score ranges from 57 to 285, with a cut-off score of 190. Students scoring 190 or below are considered "not competent", whereas those scoring above 190 are considered "competent" in terms of scientific research competence. The scale's Cronbach's alpha reliability coefficient was reported as 0.98⁽¹¹⁾. In the present study, the Cronbach's alpha coefficients were found to be 0.98 for the SRCS.

Statistical Analysis

Data were analyzed using SPSS 26.0 software. The assumption of normality was assessed using Skewness and Kurtosis coefficients within the range of ± 1.5 . Descriptive statistics were presented as frequency, percentage, mean, and standard deviation. For normally distributed variables, independent samples t-test and one-way analysis of variance were used. When homogeneity of variance was met, the Tukey test was applied for post-hoc analysis; when it was not met, the Games-Howell test was used. For non-normally distributed data, the Mann-Whitney U and Kruskal-Wallis tests were conducted. The relationship between attitude toward postgraduate education and scientific research competency was analyzed using Spearman's correlation analysis. The level of statistical significance was set at $p < 0.05$ for all analysis.

Ethical Approval

Permission to use the scales was obtained via email from the original authors. After obtaining institutional permission, ethical approval was granted by the İnönü University Health Sciences Scientific Research Ethics Committee (approval no: 2024/6611, date: 05.11.2024). Before accessing the questionnaire items, participants were informed about the purpose of the study and provided voluntary consent. Data were collected only from those who agreed to participate. The study was conducted in accordance with the principles of the Declaration of Helsinki.

RESULTS

The mean age of the participants was 28.79 ± 5.05 years, of whom 83% were female and 67.7% were single. A total of 35.2% had more than five years of professional experience. Among the departments, the highest participation rate was in fundamentals of nursing (25.1%). Of the participants, 56.4% were master's students, 33% were in the coursework period, 59.3% were employed as nurses, and 34.4% were studying at universities located in the Marmara Region.

No significant difference was found between the PEAS scores and the demographic variables ($p > 0.05$). However, SRCS scores differed significantly according to department, education period, employment status, and the geographical region of the university ($p < 0.05$). Students in public health nursing had higher SRCS scores than those in fundamentals of nursing, and scores tended to increase as the education period advanced. Moreover, students studying in the Marmara Region had significantly higher scientific research competency scores than those in Central Anatolia, Eastern Anatolia, and Southeastern Anatolia ($p < 0.05$) (Table 1).

The mean score of the PEAS among participants was 49.07 ± 10.31 . Based on the equal interval classification (21-105 range), this score indicates a moderate level of attitude toward postgraduate education. The mean score of the SRCS was 216.78 ± 41.47 . Since this value is above the cut-off point of 190, it suggests that participants were competent in scientific research. The Cronbach's alpha coefficients are 0.847 for the PEAS and 0.985 for the SRCS (Table 2).

Significant correlations were observed between the SRCS and the PEAS and its subdimensions ($p < 0.05$). A negative and low-level significant correlation was found between SRCS scores and the overall attitude toward postgraduate education ($r = -0.215$), valuing postgraduate education ($r = -0.281$), and attaching importance to postgraduate education ($r = -0.235$), whereas a positive and low-level significant correlation was found with resistance to postgraduate education ($r = 0.128$). Furthermore, a moderate negative correlation was observed between the attitude and behaviours subdimension of the SRCS and the valuing postgraduate education subdimension of the PEAS ($r = -0.340$) ($p < 0.05$) (Table 3).

Table 1. Comparison of PEAS and SRCS Scores by Participants' Characteristics (n=418)

Variables				PEAS	SRCS
Age	Mean $\pm$ SD: 28.79 ± 5.05	Min-max: 22-56			
		n	%	Mean rank	Mean $\pm$ SD
Gender	Female	347	83.0	207.04	33.06 ± 13.92
	Male	71	17.0	221.51	34.76 ± 13.53
	Test/p			-0.922/0.357 [#]	-937/0.349 ⁺
Marital status	Married	135	32.3	224.42	34.54 ± 14.63
	Single	283	67.7	202.38	32.79 ± 13.46
	Test/p			-1.749/0.080 [#]	1.207/0.228 ⁺
Professional experience	None	49	11.7	209.47	205.18 ± 42.23
	Less than 1 year	74	17.7	202.04	220.64 ± 40.09
	1-3 years	92	22.0	195.32	214.70 ± 41.46
	3-5 years	56	13.4	220.53	215.92 ± 40.58
	More than 5 years	147	35.2	217.94	220.32 ± 41.97
	Test/p			2.750/0.601 ^{##}	1.457/0.214 ⁺⁺
Department/major	Fundamentals of nursing ¹	105	25.1	208.20	207.23 ± 41.58
	Medical nursing	56	13.4	197.16	223.25 ± 48.27
	Surgical nursing	45	10.8	217.28	208.60 ± 46.96
	Nursing management	25	6.0	219.84	223.24 ± 23.35
	Obstetrics and gynecology nursing	35	8.4	209.10	217.74 ± 43.44
	Pediatric nursing	35	8.4	208.16	209.25 ± 42.91
	Psychiatric nursing	44	10.5	232.34	217.45 ± 32.30
	Public health nursing ²	55	13.2	180.54	233.94 ± 36.87
	Other	18	4.3	257.75	223.94 ± 34.01

Table 1. Continued

	Test/p			8.623/0.375 ^{##}	2.563/0.010 ⁺⁺ 1<2*
Postgraduate education period	Master's coursework period ¹	138	33.0	210.16	198.70±41.25
	Master's thesis period ²	98	23.4	217.19	213.82±37.37
	Doctoral coursework period ³	72	17.2	198.51	225.77±37.01
	Doctoral thesis period ⁴	110	26.3	209.02	236.20±38.06
	Test/p			1.004/0.800 ^{##}	20.638/<0.001 ⁺⁺ 1<2,3,4;2<4
Position	Nurse ¹	248	59.3	216.37	208.41±40.97
	Research Assistant ²	97	23.2	207.70	229.76±37.95
	Lecturer ³	53	12.7	180.53	236.43±35.94
	Other ⁴	20	4.8	209.83	205.55±46.08
	Test/p			3.893/0.273 ^{##}	11.850/<0.001 ⁺⁺ 1<2,3
Region of the university	Central Anatolia Region ¹	77	18.4	215.76	204.74±45.29
	Eastern Anatolia Region ²	62	14.8	234.40	207.12±36.70
	Black Sea Region ³	29	6.9	215.17	231.17±35.18
	Marmara Region ⁴	144	34.4	204.95	229.54±37.28
	Southeastern Anatolia Region ⁵	53	12.7	185.08	204.43±44.86
	Mediterranean Region ⁶	15	3.6	142.13	205.33±53.33
	Aegean Region ⁷	38	9.1	229.75	219.34±34.66
	Test/p			11.064/0.086 ^{##}	5.879/<0.001 ⁺⁺ 1<3,4;2<4;5<4*

#: Mann-Whitney U test, #: Kruskal-Wallis test, *: Independent-samples t-test, ++: One-way analysis of variance, for PEAS, post-hoc analysis were conducted using the Mann-Whitney U test, for SRCS, post-hoc analysis were conducted using Tukey and Games-Howell tests (*); p<0.05 was considered statistically significant, ¹⁻⁷: Group codes used in post-hoc comparisons, PEAS: Postgraduate Education Attitude Scale, SRCS: Scientific Research Competency Scale, SD: Standard deviation

Table 2. Mean Scores of the PEAS and the SRCS and Their Subdimensions (n=418)

	Mean	SD	(Min-max)	Cronbach's alpha
PEAS	49.07	10.31	21-93	0.84
Valuing postgraduate education	12.94	6.11	9-45	
Attaching importance to postgraduate education	10.26	4.73	6-30	
Resistance to postgraduate education	25.85	6.42	6-30	
SRCS	216.78	41.47	57-285	0.98
Technical skills	100.96	21.38	27-135	
Attitude and behaviours	78.54	14.11	19-95	
Estimation capacity	27.32	7.71	8-40	
Foreign language skills	9.95	3.46	3-15	

PEAS: Postgraduate Education Attitude Scale, SRCS: Scientific Research Competency Scale, SD: Standard deviation

Table 3. Correlation Analysis Between the PEAS and the SRCS and Their Subdimensions (n=418)

Variables	Correlation coefficient	PEAS	Valuing postgraduate education	Attaching importance to postgraduate education	Resistance to postgraduate education
SRCS	r	-0.215 ^{**}	-0.281 ^{**}	-0.235 ^{**}	0.128 ^{**}
Technical skills	r	-0.190 ^{**}	-0.250 ^{**}	-0.202 ^{**}	0.104 [*]
Attitude and behaviours	r	-0.183 ^{**}	-0.340 ^{**}	-0.241 ^{**}	0.235 ^{**}
Estimation capacity	r	-0.241 ^{**}	-0.194 ^{**}	-0.236 ^{**}	0.007
Foreign language skills	r	-0.166 ^{**}	-0.110 [*]	-0.156 ^{**}	-0.023

*: p<0.05, **: p<0.01, r: Spearman correlation coefficient, PEAS: Postgraduate Education Attitude Scale, SRCS: Scientific Research Competency Scale

DISCUSSION

In this study, it was determined that postgraduate nursing students had moderate scores on the PEAS. Consistent with previous literature, postgraduate nursing students in this study demonstrated a moderate level of attitude toward postgraduate education^(3,12). Although some studies have reported more positive attitudes or willingness toward postgraduate education⁽¹³⁾, findings across undergraduate and graduate samples remain inconsistent⁽¹⁴⁻¹⁶⁾. It is considered that students' attitudes are influenced by individual and environmental factors. The literature emphasizes that factors such as academic motivation, length of professional experience, stress level, financial conditions, quality of education, and work-life balance play important roles in transforming interest in postgraduate education into a positive and strong attitude^(3,17,18). In this context, initiatives aimed at improving postgraduate students' attitudes toward education can enhance their academic motivation, support professional development, and contribute to the formation of a highly qualified academic nursing workforce.

In our study, participants were found to be competent in terms of scientific research, as measured by the SRCS. Although limited evidence exists on scientific research competency specifically among postgraduate nursing students, one study examined postgraduate nursing students' research utilization competence and reported that students' research knowledge and skills were at a good level⁽¹⁹⁾. Studies at the undergraduate level have reported mixed results: Grande et al.⁽²⁰⁾ found that students' research competencies were moderate, whereas Akdeniz Kudubes and Saray Kılıç⁽⁹⁾ reported high perceived competence in research execution and positive attitudes toward research. Additionally, Tolentino et al.⁽²¹⁾ reported a positive correlation between students' scientific research competency scores and their motivation. These findings indicate that students possess varying levels of knowledge and skills in conducting scientific research. Our study aimed to evaluate scientific research competence holistically, encompassing students' involvement in all stages of the research process. To address this gap in the literature, it is recommended that scientific research courses at both undergraduate and postgraduate levels in nursing be project-based and practice-oriented, that students be involved in research projects early in their education, and that training in research ethics and methodology be strengthened.

In the present study, SRCS scores increased as students progressed through their education. Corrêa et al.⁽²²⁾, in a qualitative study, also reported that nurses enrolled in master's programs in specific specialties gained increasing competence in research production, knowledge transfer, and integration into clinical practice over the course of their education. Similarly, studies across various disciplines indicate that individuals enrolled in doctoral programs demonstrate higher levels of scientific research competence compared to master's students^(23,24). These findings and the literature suggest that as students progress through their education, their technical knowledge and skills develop, and accumulated research experience strengthens their competence.

Doctoral students' intensive engagement in research projects, academic publication, and advanced data analysis activities enhances their technical skills, analytical thinking, and scientific attitudes.

In our study, SRCS scores varied according to participants' roles. Faculty members scored higher than research assistants, and research assistants scored higher than nurses. The literature reports similar findings: Duru and Örsal⁽¹¹⁾ found that academic staff demonstrated significantly higher research competence than undergraduate students. Kaya et al.⁽²⁵⁾ reported that the need for competence development decreased as academic rank increased, while Ioannidis et al.⁽²⁶⁾ showed that higher academic rank and level of work were associated with increased research output and citations. Similarly, Wu et al.⁽²⁷⁾ reported that nurses generally have lower research capacity, whereas those with higher educational levels, technical titles, and administrative positions exhibit higher research competence. However, considering the cross-sectional nature of the present study, these differences should be interpreted cautiously, as unmeasured factors such as institutional support, motivation, and research experience may also influence competency levels^(28,29). Therefore, scientific research competence should be evaluated not only by role title but also in conjunction with responsibilities, academic duties, professional experience, and education level.

In our study, SRCS scores also varied according to the geographical region of the university. Students studying in the Marmara Region scored higher than those in Central Anatolia, Eastern Anatolia, and Southeastern Anatolia. The Marmara Region is the most developed region in Türkiye and has the highest number of universities, which may facilitate access to academic resources, research opportunities, and support services⁽³⁰⁾. In contrast, universities in Central, Eastern, and Southeastern Anatolia are fewer and more limited in resources, which may restrict students' opportunities to develop scientific research competence. The TÜBİTAK "Competency Analysis of Universities by Field" report highlights that universities' research performance differs by geographical region, related to resource utilization, research infrastructure, and academic collaborations⁽³¹⁾. These findings align with our results, indicating that the geographical location of universities is an important factor in students' development of scientific research competence.

Significant relationships were found between scientific research competence and attitudes toward postgraduate education and its subdimensions. SRCS scores were negatively and weakly correlated with overall PEAS scores, valuing postgraduate education, and attaching importance to postgraduate education, whereas a positive and weak correlation was observed with the resistance to postgraduate education subdimension. Additionally, a moderate negative correlation was observed between the attitude and behaviours subdimension of the SRCS and the valuing postgraduate education subdimension of the PEAS. The literature reports varying results: Zhang et al.⁽³²⁾ found that postgraduate nursing students with high motivation, strong

academic performance, and active engagement in education had higher research abilities. Kakupa and Xue ⁽³³⁾ also reported that participants with high self-efficacy had positive overall attitudes toward research. Overall, existing evidence suggests a complex and potentially bidirectional relationship between attitudes toward postgraduate education and scientific research competency, which may vary depending on individual, educational, and contextual factors. In this context, the negative correlations observed in our study may be explained by students becoming more aware of the challenges, workload, and stress associated with postgraduate education as their scientific research competence increases. However, given the cross-sectional design, these interpretations should be considered exploratory rather than causal. This finding indicates that in postgraduate programs, maintaining positive attitudes toward education is as important as developing scientific research competence.

Study Limitations

The limitations of this study can be outlined as follows. First, the data were collected cross-sectionally at a single time point, reflecting participants' perceptions that may have been influenced by the specific period. Therefore, causal relationships between variables cannot be inferred. Second, since the data collection tools were self-reported, there may be social desirability bias and evaluation bias. Third, the data were collected online; therefore, participants' responses could not be independently verified and may have been influenced by uncontrolled environmental factors during completion. Fourth, the use of the snowball sampling method may have introduced selection bias, as participants were recruited through peer networks, which may limit the representativeness of the sample. Fifth, the sample may not fully represent all geographical regions equally, as there was a higher concentration of participants from certain regions, which may limit the generalizability of the findings. Additionally, contextual factors such as institution, advisor characteristics, and university-specific conditions were not examined in detail due to the study design. It is recommended that future studies employ larger samples and longitudinal designs to address these limitations.

CONCLUSION

This study demonstrated that the associations between postgraduate nursing students' attitudes toward postgraduate education and scientific research competency were predominantly negative. Higher levels of scientific research competency were associated with lower scores in overall attitude toward postgraduate education, as well as in valuing and attaching importance to postgraduate education. In contrast, resistance to postgraduate education showed a positive association with scientific research competency. These findings indicate that increased research competency does not necessarily translate into more positive attitudes toward postgraduate education among nursing students.

The results revealed that attitudes toward postgraduate education did not differ significantly according to the examined

sociodemographic and academic characteristics. However, scientific research competency showed significant differences according to department, educational stage, professional position, and geographical region of the university.

In line with these findings, postgraduate nursing education programs should focus on strategies addressing the observed negative attitudinal tendencies associated with higher research competency. Strengthening structured academic guidance and mentoring systems may help students balance the development of scientific research skills with more positive educational attitudes.

Ethics

Ethics Committee Approval: After obtaining institutional permission, ethical approval was granted by the İnönü University Health Sciences Scientific Research Ethics Committee (approval no: 2024/6611, date: 05.11.2024).

Informed Consent: Before accessing the questionnaire items, participants were informed about the purpose of the study and provided voluntary consent. Data were collected only from those who agreed to participate.

Footnotes

This study was previously presented as an oral presentation at the 2nd International Congress on the Future of Nursing Education, organized by Başkent University on September 17-19, 2025.

Author Contributions

Surgical and Medical Practises: SK; Concept: SK, ZG, ZC; Design: SK, ZC; Data Collection or Processing: SK, ZG, ZC, ST, Şİ; Analysis or Interpretation: ZG, ZC; Literature Search: SK, ZG, ZC; Writing: SK, ST, Şİ.

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Grandchild Care and Adaptation to Aging: A Comparative Study Among Individuals Over 65 Years

Torun Bakımı ve Yaşlılığa Uyum: 65 Yaş Üstü Bireyler Arasında Karşılaştırmalı Bir Çalışma

Deniz Kaya Meral¹, Nihan Altan Sarıkaya²

¹Istanbul Sabahattin Zaim University Faculty of Health Sciences, Department of Nursing, İstanbul, Türkiye

²Trakya University Faculty of Health Sciences, Department of Mental Health and Disease Nursing, Edirne, Türkiye

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ABSTRACT

Objective: The purpose of this study is to examine the level of adaptation to old age among elderly individuals based on grandchild-rearing status and to analyze these levels in relation to specific variables.

Methods: This cross-sectional, descriptive-comparative study included 207 older adults aged 65 and over. Data were collected using the Assessment Scale of Adaptation Difficulty for the Elderly (ASADE) and a sociodemographic information form. Data were analyzed using SPSS 25.0. Differences between grandchild care and ASADE scores were evaluated using chi-square tests and independent-samples t-tests; differences across demographic variables were evaluated using t-tests and ANOVA.

Results: The ASADE total score of participants who cared for grandchildren (7.67 ± 6.86) was significantly lower than that of those who did not (15.63 ± 11.58) ($p < 0.001$), indicating better adaptation to aging among caregivers. Significant differences were also found in all ASADE subscales ($p < 0.001$). Among caregivers, being female, married, a high school graduate, without chronic illness, living with a spouse, and regularly socializing with friends were associated with better adaptation.

Conclusion: The findings suggest that caregiving for grandchildren may enhance psychosocial adaptation among older adults. This highlights the importance of strengthening social support systems and promoting active social roles for aging individuals.

Keywords: Grandchild care, older adults, psychosocial adjustment, social support

ÖZ

Amaç: Bu çalışmanın amacı, torun bakma durumuna göre yaşlı bireylerin yaşlılığa uyum düzeylerini ve bu düzeylerin bazı değişkenlere göre incelenmesidir.

Yöntem: Tanımlayıcı ve karşılaştırmalı tasarımda yürütülen bu kesitsel çalışmaya, 65 yaş ve üzeri 207 birey katılmıştır. Veriler, Yaşlılarda Uyum Güçlüğü Değerlendirme Ölçeği (ASADE) ve sosyodemografik bilgi formu ile toplanmıştır. Analizler, SPSS 25.0 programı kullanılarak gerçekleştirilmiştir. Torun bakımı ve ASADE puanları arasındaki farklar ki-kare ve bağımsız örneklem t-testi ile; demografik değişkenlere göre farklar t-testi ve ANOVA ile değerlendirilmiştir.

Bulgular: Torun bakan bireylerin ASADE toplam puanı ($7,67 \pm 6,86$), torun bakmayan bireylere ($15,63 \pm 11,58$) göre anlamlı düzeyde daha düşüktür ($p < 0,001$). ASADE alt boyutlarında da benzer şekilde anlamlı farklar bulunmuştur ($p < 0,001$). Torun bakan bireylerde kadın, evli, lise mezunu, kronik hastalığı olmayan, eşiyle yaşayan ve düzenli arkadaş ilişkileri olanların yaşlılığa uyum düzeyleri daha yüksektir.

Sonuç: Araştırma bulguları, torun bakımının yaşlı bireylerde psikososyal uyumu artırabileceğini ortaya koymaktadır. Bu durum, sosyal destek sistemlerinin güçlendirilmesi ve yaşlı bireylerin aktif toplumsal rollerle desteklenmesinin önemini vurgulamaktadır.

Anahtar kelimeler: Torun bakımı, yaşlılar, psikososyal uyum, sosyal destek

ORCID IDs: DKM. 0000-0002-7189-6022; NAS. 0000-0002-3678-6186



Corresponding Author: Deniz Kaya Meral,

E-mail: denizkayameral@gmail.com

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INTRODUCTION

The global population is aging rapidly, creating significant challenges for public health and social policies. According to the World Health Organization, the number of individuals aged ≥ 60 years was approximately 1 billion in 2020 and is expected to reach 2.1 billion by 2050 ⁽¹⁾. In the European Union, 21.6% of the population was aged ≥ 65 years in 2024 ⁽²⁾. Similarly, in Türkiye, this proportion increased from 9.1% in 2019 to 10.6% in 2024 ⁽³⁾. These demographic trends emphasize the need to understand the factors that promote healthy and psychosocial adaptation in older adults ⁽⁴⁾.

Aging is not only a biological process but also a multidimensional life stage shaped by biological, psychological, social, and cultural dynamics ⁽⁵⁾. Concepts such as successful, healthy, and active aging emphasize not only longevity but also a meaningful and fulfilling life in older adults ⁽⁶⁾. From a theoretical perspective, Activity Theory suggests that older adults should maintain their previous levels of activity and remain engaged in social, physical, and leisure activities to support well-being in later life. Continuity theory emphasizes the importance of maintaining consistency in roles, relationships, and lifestyles while adapting to age-related changes. In addition, social exchange theory highlights that individuals' relationships are based on a balance between the resources they provide and the benefits they receive from others ⁽⁷⁾. Taken together, these theoretical approaches suggest that maintaining meaningful roles, social participation, and balanced interpersonal relationships play a central role in adapting to aging. Indicators of adjustment in old age include performing daily physical activities, psychological resilience, fulfilling roles, and establishing social relationships. It has also been noted that individuals who see their families daily, live with their spouses and children, and have a good income experience fewer adjustment difficulties ⁽⁸⁾.

With increased life expectancy and changing family structures, grandchild caregiving has become a prevalent and significant social role in later life. Older adults in many societies actively engage in childcare, which can enhance their well-being through social connections and a sense of purpose ^(9,10). However, excessive caregiving responsibilities and insufficient support may also lead to psychological burdens ⁽¹¹⁾. In line with this, Uğur ⁽¹²⁾ reported that while the caregiving process may be associated with psychological satisfaction for grandmothers, it can also become a demanding responsibility over time. Similarly, Cheng and Ariyo ⁽¹³⁾ found that grandparents who provide care for their grandchildren tend to report higher life satisfaction.

Although the effects of grandchild caregiving on mental health and life satisfaction have been examined in previous studies ^(9,14), its relationship with broader psychosocial outcomes, such as adaptation to aging, remains underexplored in the literature. This gap is particularly important, as adaptation to aging is conceptually related to psychological well-being and successful aging, which are consistently associated with active aging and quality of life

outcomes in the literature ^(15,16). Clarifying this association may contribute to a better understanding of psychosocial processes in later life and help inform interventions aimed at strengthening support systems for older adults in Türkiye.

Therefore, this study aimed to compare adaptation to aging levels among older adults aged 65 and over who do and do not provide grandchild care and to examine whether adaptation differs according to their demographic characteristics. This study specifically addressed the following questions:

1. Is there a significant difference in adaptation to aging between older adults who care for their grandchildren and those who do not?
2. Do levels of adaptation to aging differ according to demographic characteristics among older adults who care for their grandchildren and those who do not?

MATERIAL AND METHOD

Study Design

This study employed a comparative cross-sectional research design with a quantitative approach.

Participants

To compare adjustment difficulty scores between two independent groups (those caring for grandchildren and those not caring for grandchildren), the sample size was calculated using G*Power 3.1 based on an independent-samples t-test (two-tailed), assuming a medium effect size ($d=0.5$), a significance level of 5%, and 80% power ⁽¹⁷⁾. A minimum of 64 participants were required per group ($n=128$). However, the final sample size was larger because data collection continued during the study period, and more participants voluntarily agreed to participate, resulting in a total of 207 older adults.

Data Collection Procedure

A snowball sampling approach was employed ⁽¹⁸⁾. Initial participants were recruited through the researchers' networks and invited to share the survey link with other eligible participants. Eligibility was assessed using self-reported screening questions at the beginning of the online survey. The participants were asked to indicate whether they met the inclusion criteria and confirm that they could read, understand, and complete the questionnaire independently. No standardized cognitive assessment tool was used. As the study was conducted via an open online survey, the number of individuals who accessed the survey but did not complete it or who did not meet the inclusion criteria could not be determined. Data were collected online using Google Forms between October 30, 2024, and June 20, 2025. The inclusion criteria were as follows: age ≥ 65 years, residing in Türkiye, providing grandchild care for at least four hours a day or not providing care at all, having sufficient cognitive ability to complete the survey (operationalized as self-reported ability to read, understand, and independently complete the questionnaire), and volunteering to participate. Participants who met the inclusion

criteria accessed the survey after providing informed consent by clicking "I accept". To prevent multiple submissions, Google Forms settings were used to restrict responses to a single entry per participant. The study was conducted in accordance with the Personal Data Protection Law, ensuring the confidentiality and secure handling of participant data. Ethical approval was obtained, and all procedures complied with ethical research standards. Ethical approval for the study was obtained from the Ethics Committee of İstanbul Gelişim University (approval no: 2024-15-69, date: 30.10.2024). Before participation, all participants received information about the study's purpose and content. Informed consent was obtained from each participant through an online consent form that confirmed voluntary participation. Among the participants, 120 (58.0%) provided grandchild care, whereas 87 (42.0%) were not involved in caregiving.

Data Collection Instruments

Data were collected using two tools: a personal information form and the Assessment Scale of Adaptation Difficulty for the Elderly (ASADE).

Demographic Information Form: Developed by the researchers based on the literature, this form included items on participants' demographic and social characteristics such as age, gender, marital status, education level, income, chronic disease status, living arrangements, place of residence, and frequency of social contact ^(13,19,20).

ASADE: The ASADE, developed by Şişman and Kutlu ⁽²¹⁾ based on the Roy adaptation model, assesses adaptation to the aging process in the elderly. It consists of 24 items rated on a 4-point Likert scale (0=not at all, 3=a lot). Higher scores indicate greater difficulty in adapting to aging. The scale includes four subdimensions: role and self-actualization, interdependence, physiological state, and self-concept. Cronbach's alpha was 0.93 in the original study and 0.94 in the present study, indicating high reliability.

Statistical Analysis

Data were analyzed using the IBM SPSS Statistics software (version 25.0; IBM Corp., Armonk, NY, USA). Normality was tested using the Shapiro-Wilk test and by examining the skewness and kurtosis. The results indicated a normal distribution of the data. Descriptive statistics (frequency, percentage, mean, and standard deviation) were used to summarize the participants' characteristics. Differences between individuals who cared for grandchildren and those who did not caring for grandchildren were analyzed using the chi-square and independent-samples t-tests. Group differences in the total and subscale ASADE scores were examined using independent-samples t-tests. In addition,

ASADE total scores were compared across demographic characteristics using t-tests and one-way analysis of variance, with the Scheffe post-hoc test used to identify significant differences.

RESULTS

Table 1 presents the participants' descriptive characteristics by caregiving status. The mean age of individuals who cared for their grandchildren was 67.79 ± 3.04 years, while it was 67.52 ± 3.16 years for those who did not. Among participants providing grandchild care, 68.3% were female, 89.2% were married, 58.3% were high school graduates, and 65.0% reported middle income. In this group, 80.0% reported no chronic illnesses, 69.2% lived with their spouses, 48.3% resided in the district, and 88.3% reported that they regularly saw friends. Of the participants who did not care for their grandchildren, 63.2% were female, 80.5% were married, 50.6% had a high school education, and 60.9% reported a moderate income. In this group, 73.6% had no chronic illness, 43.7% lived with their spouses, 44.8% resided in the district, and 69.0% reported seeing their friends regularly. The groups were similar in terms of demographic characteristics, except for living arrangements and the frequency of meeting friends. These differences were mainly driven by the non-caregiving group, which reported less frequent meetings with friends and was more likely to live alone (Table 1).

The comparative analysis of the ASADE total and subdimension scores between caregivers and non-caregivers is shown in Table 2. A significant difference was found in the total scores ($t = -6.18$, $p < 0.001$). Statistically significant differences were also observed in all subdimensions: role and self-actualization ($t = -5.05$, $p < 0.001$), interdependence ($t = -5.62$, $p < 0.001$), physiological state ($t = -5.28$, $p < 0.001$), and self-concept ($t = -5.29$, $p < 0.001$). The mean ASADE total score of the caregiving group was 7.68 ± 6.86 , compared with 15.63 ± 11.58 in the non-caregiving group. These results indicate that older adults who care for grandchildren have higher adaptation levels, as lower ASADE scores reflect better adaptation to aging (Table 2). The distribution of the ASADE total scores according to the participants' demographic and social characteristics is presented in Table 3. Among caregivers, those who were female, married, high school graduates, reported good or moderate income, had no chronic disease, lived with spouses, resided in a district, and regularly saw friends had significantly lower ASADE scores ($p < 0.05$), indicating better adaptation to aging. Among non-caregivers, no significant differences were found in terms of marital status, income, or place of residence ($p > 0.05$). However, participants in this group who were female, high school graduates, without chronic disease, living with spouses, and regularly seeing friends had significantly lower ASADE scores ($p < 0.05$) (Table 3).

Table 1. Descriptive Characteristics of Participants by Caregiving Status (n=207)

Characteristic	All participants (n=207)	Grandchild caregivers (n=120)	Non-caregivers (n=87)	Difference between groups
Mean age (years)	67.681±3.090	67.791±3.045	67.528±3.161	p=0.547
	n (%)	n (%)	n (%)	
Gender				
Female	137 (66.2%)	82 (68.3%)	55 (63.2%)	p=0.443
Male	70 (33.8%)	38 (31.7%)	32 (36.8%)	
Marital status				
Married	177 (85.5%)	107 (89.2%)	70 (80.5%)	p=0.079
Single	30 (14.5%)	13 (10.8%)	17 (19.5%)	
Education level				
Primary school	45 (21.7%)	21 (17.5%)	24 (27.6%)	p=0.165
Middle school	8 (3.9%)	3 (2.5%)	5 (5.7%)	
High school	114 (55.1%)	70 (58.3%)	44 (50.6%)	
University and above	40 (19.3%)	26 (21.7%)	14 (16.1%)	
Income status				
Good	41 (19.8%)	23 (19.2%)	18 (20.7%)	p=0.824
Moderate	131 (63.3%)	78 (65%)	53 (60.9%)	
Poor	35 (16.9%)	19 (15.8%)	16 (18.4%)	
Presence of chronic disease				
Yes	47 (22.7%)	24 (20%)	23 (26.4%)	p=0.275
No	160 (77.3%)	96 (80%)	64 (73.6%)	
Living with				
Alone	23 (11.1%)	7 (5.8%)	16 (18.4%)	p=0.000*
With spouse	121 (58.5%)	83 (69.2%)	38 (43.7%)	
With spouse and child	63 (30.4%)	30 (25%)	33 (37.9%)	
Place of residence				
Village	12 (5.8%)	5 (4.2%)	7 (8%)	p=0.486
District	97 (46.9%)	58 (48.3%)	39 (44.8%)	
Province	98 (47.3%)	57 (47.5%)	41 (47.1%)	
Regularly meeting with a group of friends				
Yes	166 (80.2%)	106 (88.3%)	60 (69%)	p=0.001*
No	41 (19.8%)	14 (11.7%)	27 (31%)	

*: Statistical significance, n: Group sample size, p: Significance level, SD: Standard deviation

*: Statistical significance, n: Group sample size, p: Significance level, SD: Standard deviation

Table 2. Comparison of ASADE Total and Subdimension Scores Between Caregivers and Non-caregivers (n=207)

	All participants (n=207)	Grandchild caregivers (n=120)	Non-caregivers (n=87)	t	p-value
	Mean ± SD				
ASADE total score	11.019±9.93	7.675±6.86	15.632±11.58	-6.179	0.000*
Role and self-actualization	5.173±4.53	3.891±3.65	6.942±5.03	-5.052	0.000*
Interdependence	2.560±3.14	1.583±2.10	3.908±3.80	-5.618	0.000*
Physiological state	1.062±1.54	0.608±0.95	1.689±1.94	-5.283	0.000*
Self-concept	2.222±2.14	1.591±1.76	3.092±2.31	-5.294	0.000*

*: Statistical significance, t: Independent-samples t-test, p: Significance level, SD: Standard deviation, ASADE: Assessment Scale of Adaptation Difficulty for the Elderly

Table 3. ASADE Total Scores According to Demographic and Social Characteristics of Participants (n=207)

Variables	Grandchild caregivers (n=120)		Non-caregivers (n=87)	
	Mean (SD)	Test and p-value	Mean (SD)	Test and p-value
Gender				
Female	6.146±5.66	t=3.777 p=0.000*	13.636±12.18	t=2.151 p=0.034*
Male	10.973±8.06		19.062±9.71	
Marital status				
Married	7.000±6.39	t=-3.208 p=0.002*	14.642±11.93	t=-1.632 p=0.106
Single	13.230±8.26		19.705±9.238	
Education level				
Primary school ^a	12.571±9.07	f=4.788 p=0.004* ^c < ^a	19.208±9.70	f=3.553 p=0.018* ^c < ^a
Middle school ^b	8.000±5.56		18.600±13.12	
High school ^c	6.685±6.48		11.818±10.79	
University and above ^d	6.346±3.89		20.428±13.46	
Income status				
Good ^a	4.826±3.67	f=3.938 p=0.022* ^b , ^a < ^c	12.888±13.15	f=0.672 p=0.513
Moderate ^b	7.794±6.68		16.566±10.90	
Poor ^c	10.631±9.19		15.625±12.18	
Presence of chronic disease				
Yes	12.791±7.54	t=4.383 p=0.000*	20.652±9.74	t=2.496 p=0.014*
No	6.395±6.08		13.828±11.72	
Living with				
Alone ^a	13.428±7.99	f=3.821 p=0.025* ^b < ^a	20.375±9.31	f=5.034 p=0.009* ^b < ^a
With spouse ^b	6.759±6.21		11.447±7.97	
With spouse and child ^c	8.866±7.69		18.151±14.41	
Place of residence				
Village ^a	9.000±8.366	f=3.638 p=0.029* ^b < ^c	18.714±15.40	f=0.422 p=0.657
District ^b	5.965±5.56		14.615±12.08	
Province ^c	9.298±7.60		16.073±10.54	
Regularly meeting with a group of friends				
Yes	6.886±6.05	t=-3.633 p=0.000*	13.016±10.84	t=-3.317 p=0.001*
No	13.642±9.58		21.444±11.23	

^{*}: Statistical significance, t: Independent-samples t-test, f: One-way analysis of variance, Difference (^{a,b,c}): Tukey's test, p: Significance level, SD: Standard deviation
ASADE: Assessment Scale of Adaptation Difficulty for the Elderly

*: Statistical significance, t: Independent-samples t-test, f: One-way analysis of variance, Difference (^{a,b,c}): Tukey's test, p: Significance level, SD: Standard deviation, ASADE: Assessment Scale of Adaptation Difficulty for the Elderly

DISCUSSION

This study found that a difference in adaptation to aging was observed between older adults aged 65 years and over who care for grandchildren and those who do not. Analyses of the ASADE total and subdimension scores showed differences between the two groups in areas such as role and self-actualization, interdependence, physiological state, and self-concept. Grandparenting is associated with older adults' contributions to their families and provides a meaningful social role that reinforces social bonds and self-worth. These results suggest that active participation and maintenance of social roles may be linked to better psychosocial adjustment in later life. Moreover, this study uniquely applies the ASADE scale to the context of grandchild

care, contributing new evidence of the multidimensional structure of adaptation to aging.

The higher levels of adaptation observed among caregivers are consistent with previous studies showing that grandchild care promotes life satisfaction, self-worth, and psychological well-being⁽²²⁻²⁴⁾. This role may be associated with lower levels of social isolation and emotional distress by maintaining intergenerational connections. These findings also align with the role enhancement theory, which emphasizes that social engagement and meaningful responsibilities strengthen self-esteem and life satisfaction in old age^(13,25). However, role strain theory suggests that caregiving may become burdensome if responsibilities are intensive or resources are limited⁽²⁶⁾. Thus, the balance between role enrichment and

role overload may determine the overall effect of caregiving on adaptation to the disease. In addition, activity theory supports the notion that continued engagement in social and purposeful activities promotes psychosocial adjustment ^(27,28). In cultural contexts such as Türkiye, where intergenerational support is a social norm, the positive effects predicted by role enhancement theory may be particularly evident.

The association between caregiving and an active social life was also notable. Individuals caring for grandchildren were more likely to live with their spouses and meet friends regularly, reflecting higher levels of social interaction, which is an essential determinant of adaptation in older age. This observation supports prior evidence linking social ties to psychological well-being ^(29,30). Furthermore, caregivers who were female, married, high school graduates, with moderate to high income, free from chronic disease, and socially active showed better adaptation levels, suggesting that both structural and emotional support facilitate adjustment to caregiving. In contrast, among non-caregivers, the absence of significant differences across marital status, income, and place of residence suggests that psychosocial adaptation may be less influenced by social and demographic factors when caregiving roles are absent. Consistent with previous research, marital support ⁽³¹⁾, education ⁽³²⁾, and regular social contact ⁽³³⁾ enhance resilience and psychological balance in older adults. Furthermore, the absence of chronic illness ⁽³⁴⁾ and enhancement of coping capacity through education ^(32,35) are critical factors that contribute to the psychosocial balance of older adults, as supported by our results. In the context of this study, when grandchild care intersects with these factors, individuals may be able to maintain social ties, take on meaningful roles, and demonstrate multidimensional adaptation to aging.

This study contributes to the literature by being the first to apply the ASADE scale to the grandchild care context, demonstrating how caregiving intersects with social roles, self-concept and psychosocial well-being. The consistency of these findings with role enhancement and activity theories in the Turkish context also supports their cross-cultural validity in the Turkish context.

Study Limitations

This study had several limitations. The use of snowball sampling may limit the representativeness of the sample and introduce a selection bias. In addition, data were collected through an online survey, which may have excluded older adults without Internet access or adequate digital literacy, thereby limiting generalizability. The number of individuals who accessed but did not complete the survey or did not meet the inclusion criteria could not be determined. Cognitive status was assessed only through self-report, as no standardized cognitive assessment tools were used. As the data were self-reported, the findings may be subject to social desirability bias. Future longitudinal studies with larger and more diverse samples are recommended to examine the long-term psychosocial effects of grandchild caregiving.

CONCLUSION

Older adults who provide care for their grandchildren were found to have higher levels of adaptation to aging compared with those who do not. Grandchild care not only offers practical and emotional engagement but also provides a meaningful social role that strengthens self-esteem and social connections. These results emphasize the importance of developing support programs for older adults that acknowledge the protective and empowering nature of caregiving for grandchildren. Future studies should explore caregiving intensity, social support, and gender differences to gain a deeper understanding of how these roles influence adaptation to aging.

Ethics

Ethics Committee Approval: Ethical approval for the study was obtained from the Ethics Committee of İstanbul Gelişim University (approval no: 2024-15-69, date: 30.10.2024).

Informed Consent: Before participation, all participants received information about the study's purpose and content. Informed consent was obtained from each participant through an online consent form that confirmed voluntary participation.

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Footnotes

Authorship Contributions

Concept: DKM, NAS; Design: DKM, NAS; Data Collection or Processing: DKM; Analysis or Interpretation: NAS; Literature Search: DKM, NAS; Writing: DKM, NAS.

Conflict of Interest: No conflict of interest was declared by the authors.

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The Effect of Family Support on Hemodynamic Parameters, Comfort, and Anxiety During Mechanical Ventilation Weaning in Cardiovascular Surgery: A Randomized Controlled Trial

Kardiyovasküler Cerrahide Mekanik Ventilatörden Ayırma Sürecinde Aile Desteğinin Hemodinamik Parametreler, Konfor ve Anksiyete Üzerindeki Etkisi: Randomize Kontrollü Bir Çalışma

● Selda Karaveli Çakır¹, ● Canan Kaş², ● Burak Tamtekin³, ● Filiz Özel Çakır¹, ● Elif Yılmaz⁴

¹Kastamonu University Faculty of Health Sciences, Department of Nursing, Kastamonu, Türkiye

²Kastamonu University Faculty of Health Sciences, Department of Midwifery, Kastamonu, Türkiye

³Kastamonu University Faculty of Medicine, Department of Cardiovascular Surgery, Kastamonu, Türkiye

⁴Kastamonu Training and Research Hospital, Cardiovascular Surgery Intensive Care Unit, Kastamonu, Türkiye

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ABSTRACT

Objective: The primary goal of postoperative care after cardiovascular surgery is to discontinue sedation, promote patient awakening, and restore spontaneous breathing during the weaning process. Family support may play an important role in improving patients' psychological adaptation and reducing anxiety during this process. This study aimed to evaluate the effect of family support on hemodynamic parameters, comfort, and anxiety levels during weaning from mechanical ventilation after cardiovascular surgery.

Methods: This experimental, randomized controlled study was conducted between April 30 and December 30, 2023, in the cardiovascular surgery intensive care unit of a training and research hospital in Northern Türkiye. A total of 52 patients were recruited and randomly assigned to two groups. Data were collected using a Patient Descriptive Characteristics Form and an Observation Form; anxiety, comfort, and patient satisfaction were measured using the State Anxiety Inventory, the Perianesthesia Comfort Scale, and the Numeric Rating Scale, respectively. In the experimental group, coordination was established with patients' family members, and they were allowed to be present with the patients during the extubation process.

Results: The intervention was associated with a significant reduction in state anxiety ($p=0.01$) and a marked improvement in perianesthesia comfort ($p=0.01$) compared with standard care. Patient satisfaction after extubation was likewise significantly greater in the intervention group ($p=0.01$). For the majority of hemodynamic indicators, the two groups exhibited similar values without statistically significant differences ($p>0.05$). In contrast, oxygen saturation measured after extubation was significantly higher among patients receiving the intervention ($p=0.002$).

Conclusion: This study indicates that family support-based intervention reduces state anxiety and improves comfort, satisfaction, and oxygen saturation in postoperative cardiovascular intensive care unit patients. These findings suggest that integrating family-centered care into intensive care unit practice may enhance both psychological and clinical recovery.

Keywords: Anxiety, cardiovascular surgery, comfort, family support, ventilator weaning

ORCID IDs: SKÇ. 0000-0003-2432-546X; CK. 0000-0003-1637-0690; BT. 0000-0002-7605-9952; FÖÇ. 0000-0002-8862-3514; EY. 0009-0009-4927-9691



Corresponding Author: Selda Karaveli Çakır,

E-mail: seldakaraveli@gmail.com

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ÖZ

Amaç: Kardiyovasküler cerrahi sonrası postoperatif bakımın temel amacı, sedasyonun sonlandırılması, hastanın uyanmasının sağlanması ve ventilatörden ayırma süreci sırasında spontan solunumun yeniden kazandırılmasıdır. Aile desteği, bu süreçte hastaların psikolojik uyumunu artırmada ve anksiyeteyi azaltmada önemli bir rol oynayabilir. Bu çalışma, kardiyovasküler cerrahi sonrası mekanik ventilasyondan ayrılma sürecinde aile desteğinin hemodinamik parametreler, konfor ve anksiyete düzeyleri üzerindeki etkisini değerlendirmeyi amaçlamıştır.

Yöntem: Bu deneysel, randomize kontrollü çalışma, Türkiye'nin kuzeyinde yer alan bir eğitim ve araştırma hastanesinin kardiyovasküler cerrahi yoğun bakım ünitesinde, 30 Nisan-30 Aralık 2023 tarihleri arasında yürütülmüştür. Toplam 52 hasta çalışmaya alınmış ve rastgele iki gruba ayrılmıştır. Veriler Hasta Tanıtıcı Özellikler Formu ve Gözlem Formu kullanılarak toplanmış; anksiyete, konfor ve hasta memnuniyeti ise sırasıyla Durumluk Anksiyete Envanteri, Perianestezi Konfor Ölçeği ve Sayısal Derecelendirme Ölçeği kullanılarak değerlendirilmiştir. Deney grubunda, hastaların aile üyeleriyle koordinasyon sağlanmış ve ekstübasyon süreci boyunca hastaların yanında bulunmalarına izin verilmiştir.

Bulgular: Müdahale, standart bakımla karşılaştırıldığında durumluk anksiyetede anlamlı bir azalma ($p=0,01$) ve perianestezi konforunda belirgin bir iyileşme ($p=0,01$) ile ilişkili bulunmuştur. Ekstübasyon sonrası hasta memnuniyeti de müdahale grubunda anlamlı düzeyde daha yüksek saptanmıştır. Hemodinamik göstergelerin büyük çoğunluğu açısından iki grup arasında istatistiksel olarak anlamlı bir farklılık bulunmamış, değerlerin benzer olduğu görülmüştür ($p>0,05$). Buna karşın, ekstübasyon sonrası ölçülen oksijen saturasyonu müdahale grubunda anlamlı düzeyde daha yüksek bulunmuştur ($p=0,002$).

Sonuç: Bu çalışma, aile destekli bir girişimin, postoperatif kardiyovasküler yoğun bakım hastalarında durumluk anksiyeteyi azalttığını ve konforu, hasta memnuniyetini ve oksijen saturasyonunu artırdığını göstermektedir. Elde edilen bulgular, aile merkezli bakımın yoğun bakım uygulamalarına entegre edilmesinin hem psikolojik hem de klinik iyileşmeyi destekleyebileceğini düşündürmektedir.

Anahtar kelimeler: Anksiyete, kardiyovasküler cerrahi, konfor, aile desteği, mekanik ventilatörden ayırma

INTRODUCTION

Mechanical ventilation (MV) is defined as the artificial delivery of a controlled flow of gas to patients who are not adequately oxygenated or who develop respiratory failure ⁽¹⁾. MV improves oxygenation by increasing lung capacity and functional residual capacity, thereby reducing myocardial oxygen consumption ^(2,3). In patients undergoing cardiovascular surgery, MV is routinely used in the early postoperative period to provide respiratory support. Sedation is frequently administered in patients receiving MV to manage anxiety and improve ventilator synchrony. However, sedative use may prolong MV and negatively affect hemodynamic stability ⁽⁴⁾. The primary goal of postoperative care in cardiovascular surgery is to discontinue sedation, achieve patient awakening, and restore spontaneous breathing followed by safe extubation. Most patients demonstrate rapid recovery of spontaneous breathing and are extubated within the first 12 hours after surgery ⁽⁵⁾.

Weaning from MV is a complex process that depends on respiratory tolerance, cognitive status, emotional readiness, and available support systems ⁽⁶⁾. Although early weaning is desirable, inappropriate timing may lead to impaired gas exchange, muscle weakness, reintubation, and increased morbidity and mortality ⁽⁷⁻¹²⁾. In addition, prolonged MV is associated with ventilator-related complications such as airway trauma, aspiration, and pneumonia, as well as increased intensive care unit (ICU) length of stay and healthcare costs ^(8,9). Therefore, timely and safe weaning is essential in intensive care practice, where nurses play a key role in patient monitoring and individualized care ^(1,11).

Surgical intensive care nurses are also responsible for maintaining patient-family interaction while providing life-saving interventions ^(13,14). Family support has been identified as an important psychosocial factor that reduces anxiety and contributes positively to recovery in ICU patients ^(15,16). In addition, planned family involvement and presence have been shown to improve

physiological parameters and accelerate the weaning process from MV ^(9,12,17).

Cardiovascular surgery patients constitute a particularly vulnerable group during the weaning process due to their susceptibility to hemodynamic instability and stress-related physiological responses. Although existing studies have demonstrated the beneficial effects of family involvement on physiological parameters, emotional support, and recovery outcomes in intensive care patients, there is still limited evidence specifically addressing its impact during MV weaning in the cardiovascular surgical population. Furthermore, data remain insufficient regarding the combined effects of family support on hemodynamic parameters, patient comfort, and anxiety levels during this critical transition period. In this context, the present study explored the potential contribution of family support to hemodynamic stability, patient comfort, and anxiety throughout the MV weaning process after cardiovascular surgery.

MATERIAL AND METHOD

Study Design and Objective

A randomized controlled trial methodology was employed in this investigation. The findings are presented following the recommendations of the CONSORT statement. This research examined whether family support influences hemodynamic responses, patient comfort, and anxiety during the process of weaning patients from MV after cardiovascular surgery.

Research Hypotheses

H0.1: Hemodynamic parameters during weaning from MV will not differ between participants receiving family support and those receiving standard care.

H0.2: Patient comfort levels will be comparable in the family support and standard care groups.

H0.3: Levels of patient anxiety will not vary according to group allocation.

H0.4: Patient satisfaction following the intervention will be similar in both study groups.

H1.1: Hemodynamic responses during weaning from MV will differ between participants receiving family support and those receiving standard care.

H1.2: Patient comfort levels will differ between the family support and standard care groups.

H1.3: Patient anxiety levels will vary according to group assignment.

H1.4: Patient satisfaction following the intervention will differ between the two study groups.

Participants and Setting

The study was conducted in the cardiovascular surgery ICU of a tertiary hospital in Northern Türkiye between April 30 and December 30, 2023. The ICU has six beds, and patients undergoing cardiovascular surgery are routinely transferred to the ICU intubated and mechanically ventilated, with extubation performed in the ICU.

The study population consisted of postoperative cardiovascular surgery patients receiving MV support in the ICU. Based on power analysis (G*Power 3.1.7), assuming an effect size of 0.8, 95% confidence interval, and at least 81% power, a minimum sample size of 52 patients was required⁽¹⁸⁾. To account for potential dropouts, 52 patients were included. Of these, 62 patients were initially assessed for eligibility, 10 patients were excluded as they did not meet the inclusion criteria, and 52 patients were randomly assigned into two groups (26 intervention, 26 control). The study flow is presented in Figure 1.

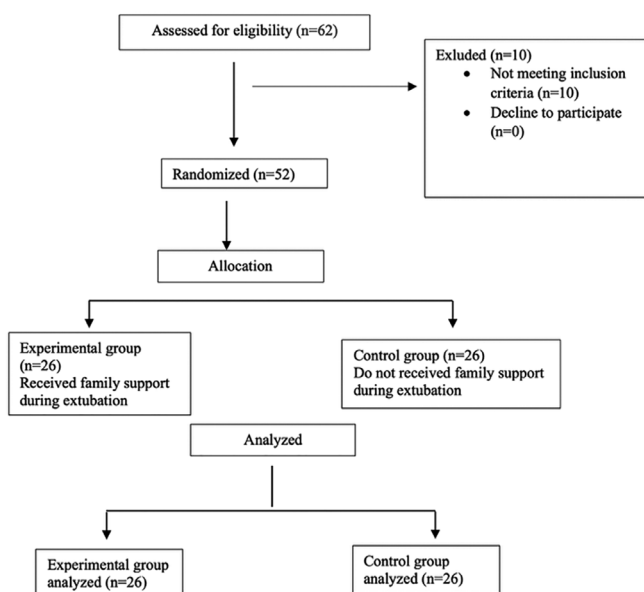


Figure 1. Study flowchart

Eligibility for Participation

Participants were considered eligible if they met the following conditions: they were 18 years of age or older, voluntarily signed a written informed consent form, had no visual, auditory, cognitive, or psychiatric disorders, required MV following cardiovascular surgery, and had a Glasgow Coma Scale score of 12 or lower.

Exclusion criteria: Patients with previous intensive care experience, patients receiving MV in ICUs other than cardiovascular surgery ICU, and reintubated patients.

Randomization and Allocation

Following confirmation of eligibility, participants were allocated to the family support or standard care groups according to a block randomization scheme. The randomization schedule was created by an independent biostatistician using the Research Randomizer Program (www.randomizer.org). This individual had no role in recruiting participants, implementing the intervention, or collecting study data. To preserve allocation concealment, group assignments were recorded on a coded randomization list prepared before enrolment. Eligible participants entered the study in the order specified by the predetermined randomization schedule. Because of the characteristics of the family support intervention, masking of participants, their family members, and healthcare professionals could not be implemented. Nevertheless, study outcomes were evaluated with validated assessment tools and objective physiological measurements, while statistical analyses were completed with the treatment allocation concealed from the analyst.

Intervention

All patients received standard postoperative cardiovascular ICU care and MV management according to institutional protocols.

Experimental Group

In addition to standard care, patients in the intervention group received structured family support during the weaning process. The family member participating in the intervention was the patient's first-degree relative (e.g., spouse, parent, or child), as identified by the patient or family. Before extubation, family members were trained by the research team regarding appropriate supportive behaviors, including providing verbal reassurance (e.g., "I am with you, everything will be fine") and holding the patient's hand. Family members were instructed not to interfere with clinical procedures and to remain at the bedside during the weaning process when appropriate. When patients met extubation criteria, family members were allowed to stay at the bedside and provide emotional support during the weaning process. During the weaning process, all family members remained at the patient's bedside for 30 minutes and provided standardized emotional support.

Control Group

Patients in the control group received standard ICU care only. Family members were not permitted to be present during the weaning and extubation process.

Data Collection Tools and Methods

Patient Descriptive Characteristics Form: This form includes items related to the descriptive characteristics (e.g., age, gender, surgery type, comorbidities, ICU-related variables) of patients.

Observation Form: This form is used to record important clinical information about the patient. It includes hemodynamic values (systolic/diastolic pressure, pulse, oxygen saturation pH, PCO_2 , and post-extubation respiratory rate/min) before and after the patient weaning from the mechanical ventilator. Measurements were obtained using standard ICU monitoring devices.

State-Trait Anxiety Inventory (STAI): Spielberger et al. ⁽¹⁹⁾ introduced the STAI as an instrument for assessing both state and trait dimensions of anxiety. The adaptation of the scale into Turkish, including its validity and reliability testing, was completed in 1983 ⁽²⁰⁾. The instrument comprises two independent subscales, the State Anxiety Inventory (STAI-S) and the Trait Anxiety Inventory (STAI-T). Both subscales include 20 items evaluated using a four-point Likert response format. For the purposes of the present study, only the STAI-S was administered to evaluate anxiety experienced during the MV weaning period. Possible STAI-S scores extend from 20 to 80, and increasing scores reflect greater levels of state anxiety. Evidence from the Turkish adaptation has shown satisfactory reliability, with Cronbach's alpha values reported between 0.83 and 0.87. In the current study, the STAI-S demonstrated excellent internal consistency, yielding a Cronbach's alpha coefficient of 0.945.

Perianesthesia Comfort Scale (PCS): Originally described by Kolcaba ⁽²¹⁾ in 2003, the PCS was adapted for use in the Turkish population by Üstündağ and Eti Aslan ⁽²²⁾, who reported satisfactory validity and reliability in 2010. The instrument is composed of 24 items that assess patients' comfort-related perceptions during the perioperative period. Possible scores extend from 24 to 144, where higher scores correspond to greater perceived comfort. For the present sample, the internal consistency of the PCS was excellent, with a Cronbach's alpha coefficient of 0.912.

Numeric Rating Scale (NRS): Following liberation from MV, patient satisfaction was quantified using the NRS. The scale is scored from 0 to 10, and higher values denote a greater degree of satisfaction.

Outcomes

The main outcome measure focused on patients' hemodynamic status, assessed by systolic and diastolic blood pressure, heart rate, oxygen saturation, pH, and PaCO_2 values.

The remaining outcomes evaluated in the study included:

- Patient anxiety levels (STAI-S)
- Patient comfort (PCS)
- Patient satisfaction (NRS)

Data Collection Procedures

Hemodynamic parameters were measured 10 minutes before and 10 minutes after extubation using a bedside multiparameter ICU

monitor under standardized resting conditions. Oxygen saturation was measured using a fingertip pulse oximeter. State anxiety was assessed using the STAI-S 10 minutes after extubation. Patient satisfaction was also recorded 10 minutes after extubation by the investigators using the NRS. Patient comfort was assessed on the first postoperative day using the PCS.

Statistical Analysis

All statistical procedures were carried out using IBM SPSS Statistics version 25.0. Participant characteristics were summarized using descriptive measures, including counts, percentages, means, and standard deviations, to describe and compare the study groups. The intervention (family support during MV weaning versus routine care) constituted the independent variable. Outcome variables comprised hemodynamic measurements, STAI-S scores reflecting state anxiety, PCS scores representing patient comfort, and NRS scores indicating patient satisfaction. The distribution of continuous variables was examined with the Shapiro-Wilk test to determine normality. Variables demonstrating a normal distribution were compared using the independent-samples Student's t-test, whereas the Mann-Whitney U test was applied to variables that did not satisfy the normality assumption. Categorical variables were analyzed using the chi-square test. The internal consistency of the measurement instruments was examined by calculating Cronbach's alpha coefficients. A two-sided p-value of less than 0.05 was considered statistically significant.

Ethical Considerations

This study was conducted in accordance with the principles of the Declaration of Helsinki. Ethical approval was obtained from the Kastamonu University Clinical Research Ethics Committee (approval no: 2022-KAEK-146, date: 08.02.2023). Written permissions for the use of copyrighted measurement instruments were obtained from the original authors where applicable. Written informed consent was obtained from all participants after being informed about the study.

RESULTS

The study was conducted with 52 patients (experimental group $n=26$, control group $n=26$). The demographic and clinical characteristics of the patients are presented in Table 1. The mean age of the participants was 63.96 ± 12.89 years in the experimental group and 67.61 ± 8.94 years in the control group. Most patients in both groups were male and married. The majority of patients had a high school education or below, and most were not employed. Comorbidity rates and types of surgery were also similar between the groups. No statistically significant differences were found between the groups in terms of demographic and clinical characteristics, indicating that the groups were comparable at baseline.

The STAI-S anxiety and PCS scores after extubation are presented in Table 2. The intervention group demonstrated a reduction in STAI-S scores relative to the control group ($p=0.01$). In contrast,

Table 1. Demographic and Clinical Characteristics of the Patients (n=52)

Variables	Experimental group (n=26)	Control group (n=26)	p-value
Demographic characteristics			
Age (years) ($\bar{X} \pm S_x$) (min-max)	63.96±12.89 (24-81)	67.61±8.94 (51-83)	p=0.241*
Sex, n (%) Female Male	5 (19.2) 21 (80.8)	5 (19.2) 21 (80.8)	-
Marital status, n (%) Single Married	25 (96.2) 1 (3.8)	26 (100) 0	p=0.500**
Educational status, n (%) High school diploma or below Above high school	25 (96.2) 1 (3.8)	26 (100) 0	p=0.500**
Employment status, n (%) Employed Unemployed	1 (3.8) 25 (96.2)	2 (7.7) 24 (92.3)	p=0.500**
Clinical characteristics			
Comorbidity, n (%) Yes No	23 (88.5) 3 (11.5)	23 (88.5) 3 (11.5)	-
Type of surgery, n (%) Embolectomy AVR CABG Aortic replacement Carotid bypass	3 (11.5) 2 (7.7) 13 (50) 2 (7.7) 6 (23.1)	3 (11.5) 1 (3.8) 14 (53.8) 3 (11.5) 5 (19.2)	=0.590**
*: Independent-samples t-test, **: Fisher's exact test, -: No statistical test was performed due to identical distributions between the groups, $\bar{X}$: Mean, S_x : Standard error of mean, CABG: Coronary artery bypass graft, AVR: Aortic valve replacement			

*: Independent-samples t-test, **: Fisher's exact test, -: No statistical test was performed due to identical distributions between the groups, $\bar{x}$: Mean, S_d : Standard error of mean, CABG: Coronary artery bypass graft, AVR: Aortic valve replacement

Table 2. Comparison of the STAI-S Anxiety and Perianesthesia Comfort Scale Scores Between the Two Groups

	Experimental group (n=26)	Control group (n=26)	p-value
State anxiety	29.84 $\pm$ 7.91	43.23 $\pm$ 11.10	p=0.01*
Perianesthesia comfort scale	125.61 $\pm$ 12.27	106.38 $\pm$ 14.67	p=0.01*

*: Independent-samples t-test

PCS scores increased significantly among participants who received the intervention (p=0.01).

The comparison of hemodynamic parameters before and after extubation between the two groups is presented in Table 3. No statistically significant differences were observed between the groups in systolic and diastolic blood pressure, pulse rate, pH, and PCO₂ values, as shown in Table 3 (p>0.05). Oxygen saturation after extubation was significantly higher in the experimental group compared to the control group (p=0.002). Post-extubation respiratory rate did not differ significantly between the groups (p>0.05).

Hospitalization duration did not differ significantly according to group allocation. Nevertheless, participants assigned to the intervention group achieved significantly higher satisfaction scores after extubation than participants in the control group (p=0.01) (Table 4).

Evaluation of the study hypotheses showed that H0.1 could only be rejected in part. Among the assessed hemodynamic

variables, a significant between-group difference was identified solely for oxygen saturation, while the remaining variables were similar across groups. H0.2 and H0.3 were rejected because the intervention resulted in greater patient comfort and reduced state anxiety. In addition, H0.4 was rejected, as participants in the intervention group reported superior satisfaction following extubation.

DISCUSSION

The findings of this study indicate that family presence during the peri-extubation period acts as a stabilizing factor affecting both psychological and physiological responses. Patients receiving family support had lower anxiety levels, higher comfort and satisfaction, and better oxygen saturation compared with the control group. These outcomes appear to be interconnected and may be explained by the modulation of the stress response during the weaning process. Weaning from MV is a stressful clinical event that activates the sympathetic nervous system and the hypothalamic-pituitary-adrenal (HPA) axis. This activation may

Table 3. Comparison of Hemodynamic Parameters Before and After Weaning Between the Two Groups

Variable	Experimental group (n=26)	Control group (n=26)	p-value
Systolic pressure (mmHg)			
Before extubation	146.00 (90-180)	110.00 (98-180)	p=0.08**
After extubation	127.46±21.24	122.84±25.12	p=0.47*
Diastolic pressure (mmHg)			
Before extubation	72.15±9.04	71.42±11.13	p=0.79*
After extubation	67.50 (52-81)	68.00 (55-96)	p=0.06**
Pulse/min (median)			
Before extubation	94.07±15.06	98.50±18.46	p=0.34*
After extubation	87.50 (56-138)	98.00 (68-130)	p=0.11**
Oxygen saturation			
Before extubation	99 (96-100)	99 (95-100)	p=0.22**
After extubation	99 (96-100)	98 (95-99)	p=0.002**
pH			
Before extubation	7.38±0.05	7.37±0.06	p=0.54*
After extubation	7.39 (7.30-7.50)	7.39 (7.20-7.55)	p=0.72**
PCO ₂			
Before extubation	36.06±4.85	36.04±6.26	p=0.99*
After extubation	33.83±6.03	33.91±4.70	p=0.95*
Post-extubation respiratory rate	16 (12-24)	16 (12-22)	p=0.97**

Values are presented as mean ± standard deviation for normally distributed variables and median (minimum-maximum) for non-normally distributed variables
 *: Student's t-test (for normally distributed data), **: Mann-Whitney U test (for non-normally distributed data)

Table 4. Comparison of Hospitalization Duration and Patient Satisfaction Between the Two Groups

	Experimental group (n=26)	Control group (n=26)	p-value
Day of hospitalization	6 (3-8)	6 (3-10)	p=0.52*
Patient satisfaction after extubation	10 (8-10)	7 (3-10)	p=0.01*

*: Median values together with their minimum and maximum limits are presented. Statistical comparisons across the two groups were carried out using the Mann-Whitney U test

lead to increased catecholamine release, elevated cortisol levels, resulting in tachypnea and increased oxygen consumption ^(23,24).

In the present study, higher oxygen saturation observed in the experimental group may indicate reduced sympathetic activation and attenuation of HPA axis activity, suggesting improved physiological adaptation during weaning ^(6,25). Previous studies have similarly shown that familiar sensory stimuli, such as the presence or voice of family members, can reduce stress responses, improve patient-ventilator synchrony, and enhance oxygenation outcomes ^(6,9,26-28). In addition, emotional reassurance provided by family members may attenuate stress-related neuroendocrine activation, thereby reducing metabolic demand and improving respiratory stability during critical transitions ⁽²⁹⁻³¹⁾.

Another important finding of this study was that state anxiety levels were significantly lower in the experimental group than in the control group. Anxiety is common during MV weaning, particularly in cardiovascular surgery patients who may experience fear, uncertainty, and emotional distress in the postoperative period ⁽³²⁾. Previous studies have shown that family presence supports patients' physical and emotional needs, reduces discomfort, and facilitates adaptation to medical treatment ^(33,34). Consistent with these findings, lower anxiety levels associated

with family presence have been reported in different intensive care settings ⁽³⁵⁻³⁷⁾.

Social support is an important determinant of anxiety, and family members represent one of its primary sources, contributing to reduced stress and increased psychological resilience ^(38,39). Therefore, the lower anxiety observed in this study suggests that family members may act as psychological safety signals, reducing perceived threat and improving coping capacity during the weaning process.

In this study, patients in the experimental group demonstrated significantly higher PCS scores compared to the control group. Maintaining patient comfort is a fundamental goal of perioperative care, as comfort-oriented interventions may facilitate faster and less complicated recovery. Weaning from MV after cardiac surgery is a particularly vulnerable phase, during which patients often experience increased anxiety ⁽⁴⁰⁾.

Previous studies have reported a negative relationship between comfort and anxiety, suggesting that increased anxiety adversely affects comfort levels ⁽⁴¹⁾. Similarly, evidence indicates that preoperative education and family presence in the ICU can reduce anxiety and improve comfort ^(33,34). Therefore, the lower anxiety observed in the experimental group may partly explain

the higher comfort levels. These findings are consistent with studies demonstrating an inverse relationship between anxiety and comfort in surgical patients ^(41,42). Additionally, emotional reassurance provided by family members may promote comfort by reducing distress and fostering a sense of safety during the weaning process.

Similarly, higher patient satisfaction in the intervention group may be associated with improved psychological stability. Patient satisfaction is closely related to emotional support, trust, and perceived quality of care ⁽⁴³⁾. Family involvement may enhance communication and emotional security, thereby improving patients' overall care experience ^(35,39,40,44). While previous studies have mainly focused on family satisfaction in intensive care settings ^(9,45), this study highlights patient-reported outcomes and emphasizes the importance of considering patients' emotional experiences in critical care.

These findings support a psychophysiological stress-response model in which anxiety, sympathetic activation, and oxygen demand are closely related during the weaning process ^(6,23). Peri-extubation stress may trigger a cycle of emotional distress and physiological strain that can impair respiratory adaptation. Family support may help interrupt this cycle by reducing anxiety, which in turn attenuates sympathetic nervous system activity and decreases myocardial oxygen consumption, ultimately contributing to improved oxygen saturation. This mechanism may explain the simultaneous improvements in oxygenation, comfort, and satisfaction observed in the experimental group.

Overall, these findings highlight the importance of addressing both psychological and physiological needs during weaning from MV. Family presence appears to be a safe, low-cost, and feasible non-pharmacological intervention that can support standard intensive care practices. Incorporating structured family support during the peri-extubation period may enhance emotional resilience, stabilize physiological responses, and improve patient-centered outcomes in cardiovascular surgery patients.

A major strength of this study is its focus on the peri-extubation period in cardiovascular surgery patients, a phase characterized by both physiological instability and psychological vulnerability. Unlike previous studies conducted in general intensive care populations, this study provides focused evidence for a high-risk surgical subgroup. In addition, the use of multidimensional outcome measures allowed for a comprehensive evaluation of both psychological and physiological responses to family support.

Study Limitations

Several limitations should be acknowledged when interpreting the results of this investigation. To begin with, the study was carried out in the cardiovascular surgery ICU of a single institution, which may restrict the applicability of the findings to other hospitals and different patient groups. Furthermore, the modest sample size should be considered, as it may have limited the statistical power of the analyses. Because the intervention involved family presence, masking of participants and healthcare professionals

could not be implemented, creating the possibility of performance bias. Moreover, physiological indicators of stress, including serum cortisol concentrations and heart rate variability, were not evaluated, preventing direct confirmation of the proposed biological mechanisms. Finally, patient outcomes beyond hospital discharge were not monitored; consequently, the long-term effectiveness of family support could not be determined.

CONCLUSION

Family support provided during the weaning process from MV after cardiovascular surgery was associated with improved oxygen saturation, lower anxiety levels, greater patient comfort, and higher patient satisfaction. Collectively, these results indicate that the presence of family members could be incorporated as a practical, inexpensive, and non-pharmacological strategy to facilitate patient care during this critical phase of intensive care. Nevertheless, the available evidence remains scarce. Future research involving multicenter designs and more extensive patient cohorts is warranted to verify these results, determine their long-term effects, and assess whether this approach can be implemented successfully in different clinical environments.

Ethics

Ethics Committee Approval: Ethical approval was obtained from the Kastamonu University Clinical Research Ethics Committee (approval no: 2022-KAEK-146, date: 08.02.2023).

Informed Consent: Written informed consent was obtained from all participants after being informed about the study.

Footnotes

Our manuscript is an original piece of work and has not been previously published elsewhere. It was presented as an oral presentation at the 18th National Congress of the Turkish Society of Cardiovascular Surgery, 2024.

Authorship Contributions

Surgical and Medical Practices: SKÇ, CK, BT, FÖÇ, EY; Concept: SKÇ, CK, BT, FÖÇ, EY; Design: SKÇ, CK, BT, FÖÇ, EY; Data Collection or Processing: BT, EY; Analysis or Interpretation: SKÇ, CK, BT, FÖÇ, EY; Literature Search: SKÇ, CK, BT, FÖÇ, EY; Writing: SKÇ, CK, BT, FÖÇ, EY.

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Effect of Minimally Invasive and Open Surgical Approaches on Fear and Death Anxiety in Patients with Lung Cancer

Akciğer Kanseri Hastalarında Uygulanan Minimal İnvaziv ve Açık Cerrahi Yöntemlerinin Korku ve Ölüm Anksiyetesi Üzerine Etkisi

✉ Nuray Türkoğlu¹, ✉ Anita Karaca²

¹İstanbul Provincial Health Directorate, Department of Health Services Presidency, Training and Certification, İstanbul, Türkiye

²Biruni University Faculty of Health Sciences, Department of Nursing, İstanbul, Türkiye

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ABSTRACT

Objective: Lung cancer surgery, whether minimally invasive or open, may induce surgical fear and death anxiety, potentially affecting patients' well-being and recovery. Therefore, assessing the psychological outcomes of different surgical approaches is essential for optimizing perioperative care.

This study aimed to compare the effects of minimally invasive and open surgical approaches on surgical fear and death anxiety in patients with lung cancer and to identify associated factors.

Methods: A non-randomized comparative pretest-posttest design was used. The sample consisted of 85 lung cancer patients undergoing minimally invasive (n=60) or open surgery (n=25). Data were collected using a Personal Information Form, the Surgical Fear Questionnaire, and the Death Anxiety Scale.

Results: No significant differences were found between groups in preoperative or postoperative surgical fear and death anxiety scores. Demographic and clinical variables, including age, gender, marital status, and chronic disease, were not significantly associated with these outcomes (p>0.05). Although postoperative scores showed a slight decrease, this change was not statistically significant (p>0.05). Preoperatively, concerns related to physical changes were higher in the minimally invasive group (p=0.024), but this difference was not observed postoperatively (p=0.69).

Conclusion: The surgical approaches had no significant effect on surgical fear and death anxiety. The slight postoperative decrease was not statistically significant. Preoperative concerns regarding physical changes in the minimally invasive group disappeared postoperatively. Sociodemographic variables were not associated with these outcomes. Routine perioperative assessment of surgical fear and death anxiety, along with individualized counseling and psychological support, may enhance patient comfort and recovery.

Keywords: Lung cancer, minimally invasive surgery, thoracotomy, fear, anxiety

Öz

Amaç: Akciğer kanseri cerrahisi, minimal invaziv ya da açık olsun, cerrahi korku ve ölüm anksiyetesine yol açabilir ve bu durum hastaların iyilik halini ile iyileşme sürecini etkileyebilir. Bu nedenle, farklı cerrahi yaklaşımların psikolojik sonuçlarının değerlendirilmesi, perioperatif bakımın iyileştirilmesi açısından önemlidir. Bu çalışma, akciğer kanseri hastalarında minimal invaziv ve açık cerrahi yöntemlerin cerrahi korku ve ölüm anksiyetesi üzerindeki etkilerini karşılaştırmayı ve ilişkili faktörleri belirlemeyi amaçlamıştır.

Yöntem: Bu çalışmada randomize olmayan, karşılaştırmalı bir ön test-son test tasarım kullanılmıştır. Çalışmaya minimal invaziv cerrahi (n=60) veya açık cerrahi (n=25) uygulanan toplam 85 akciğer kanseri hastası dahil edilmiştir. Veriler, Kişisel Bilgi Formu, Cerrahi Korku Ölçeği ve Ölüm Kaygısı Ölçeği kullanılarak toplanmıştır.

Bulgular: Ameliyat öncesi ve sonrası cerrahi korku ve ölüm anksiyetesi puanları açısından gruplar arasında anlamlı bir fark bulunmamıştır. Yaş, cinsiyet, medeni durum ve kronik hastalık gibi demografik ve klinik değişkenlerin bu sonuçlarla anlamlı bir ilişkisi saptanmamıştır (p>0,05). Ameliyat

ORCID IDs: NT. 0009-0005-5744-976X; AK. 0000-0001-6552-4399

Corresponding Author: Anita Karaca

E-mail: anitakaraca@hotmail.com

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sonrası puanlarda hafif bir azalma eğilimi gözlenmekle birlikte bu değişim istatistiksel olarak anlamlı değildir ($p>0,05$). Ameliyat öncesinde fiziksel değişikliklere ilişkin kaygılar minimal invaziv grupta daha yüksek bulunmuştur ($p=0,024$); ancak bu fark ameliyat sonrasında gözlenmemiştir ($p=0,69$).

Sonuç: Cerrahi yöntemlerin cerrahi korku ve ölüm anksiyetesi üzerinde anlamlı bir etkisi olmadığı belirlenmiştir. Postoperatif dönemdeki hafif azalma istatistiksel olarak anlamlı değildir. Minimal invaziv grupta fiziksel değişimlere ilişkin preoperatif kaygılar postoperatif dönemde ortadan kalkmıştır. Sosyodemografik değişkenlerin bu sonuçlarla ilişkili olmadığı saptanmıştır. Perioperatif dönemde cerrahi korku ve ölüm anksiyetesinin rutin olarak değerlendirilmesi, bireyselleştirilmiş danışmanlık ve psikolojik destek hasta konforunu ve iyileşme sürecini destekleyebilir.

Anahtar kelimeler: Akciğer kanseri, minimal invaziv cerrahi, torakotomi, korku, anksiyete

INTRODUCTION

In recent years, advances in minimally invasive surgical techniques have led to increased use of video-assisted thoracoscopic surgery (VATS) and robotic surgery in the treatment of early-stage lung cancer ⁽¹⁾. VATS is performed using an endoscopic camera and rigid instruments. It offers several advantages, including smaller incisions, reduced postoperative pain, and faster recovery ⁽²⁾. Robot-assisted thoracoscopic surgery was developed to overcome the limitations of VATS. It enables more precise manipulation beyond the natural range of human hand movements and allows safer procedures in complex anatomical regions. Conventional robotic surgery typically involves four incisions, including a camera port, instrument ports, and an assistant port. However, the number and location of these incisions may vary depending on surgeon experience, tumor characteristics, and the type of procedure ⁽³⁾.

The open surgical approach (thoracotomy) is the traditional method and is generally preferred in complex cases. Both minimally invasive and open approaches follow oncologic resection principles ⁽¹⁾. Thoracotomy provides direct access to the thoracic cavity and remains the gold standard in selected complex cases ⁽⁴⁾. These include large tumors (>7 cm), chest wall invasion, incomplete fissures, pleural adhesions, previous thoracic surgery, and centrally located tumors. It is also preferred in procedures requiring sleeve resection, bronchoangioplasty, or carinal resection ⁽⁵⁾.

Death anxiety refers to fear, worry, and distress related to one's own death or the dying process ⁽⁶⁾. It can significantly affect quality of life and complicate adaptation to treatment. In patients with cancer, death anxiety is influenced by several factors, including disease prognosis, treatment procedures, fear of death, concerns about leaving loved ones, and increased awareness of life's finiteness ^(7,8). A substantial proportion of patients with advanced-stage cancer experience death anxiety, which negatively impacts quality of life ⁽⁹⁾. In patients with stage II non-small cell lung cancer, elevated preoperative death anxiety has been associated with reduced treatment adherence and delayed recovery. Additionally, 75% of patients reported fear of death prior to surgery ⁽¹⁰⁾. Patients undergoing minimally invasive surgery generally report lower levels of anxiety and fear compared to those undergoing open surgery. Among cancer patients, common concerns include fear of recurrence (73%), surgical procedures (65%), pain (58%), and death (82%). Structured preoperative education programs have

been shown to reduce fear and anxiety ⁽¹¹⁾. Similarly, Kim ⁽¹¹⁾ reported a 40% reduction in fear levels among patients undergoing VATS lobectomy who received adequate preoperative information.

This study aimed to compare the effects of minimally invasive and open surgical approaches on surgical fear and death anxiety in patients with lung cancer during the preoperative and postoperative periods, and to identify associated factors. The study underscores the importance of holistic nursing care that addresses not only physical recovery but also patients' emotional and psychological needs. Furthermore, it highlights the value of integrating psychosocial assessments into routine surgical care. It also emphasizes the development of targeted nursing interventions to support patient well-being.

MATERIAL AND METHOD

Study Design and Setting

This study used a non-randomized comparative pre- and posttest design. Data were collected between April and August 2025 in the thoracic surgery wards of a state hospital in İstanbul. The unit consists of three 15-bed, single-occupancy wards. Patients admitted for preoperative care were transferred to the postoperative intensive care unit and then returned to the wards after recovery.

Population and Sample

The study population consisted of patients scheduled for lung cancer surgery using either minimally invasive or open approaches. Over a three-month period, 327 cases (278 minimally invasive and 49 open) were identified from an annual total of 1,312 surgeries (1,114 minimally invasive and 198 open) for sample estimation.

The sample size was calculated using G*Power for an independent-samples t-test with a 95% confidence level ($\alpha=0.05$), an effect size of 0.65, and 85% power. The minimum required sample size was 45 patients in the minimally invasive group and 25 in the open surgery group ($n=70$). To account for a potential 15% data loss, the planned sample size was increased to 52 minimally invasive and 29 open surgery patients ($n=81$). The study was completed with 60 minimally invasive and 25 open surgery patients ($n=85$).

Inclusion criteria were age ≥ 18 years, histopathologically confirmed lung cancer, and scheduled minimally invasive or open surgery, with no communication difficulties. Patients using anxiolytic medications were excluded from the study.

Data Collection

Data were collected via face-to-face interviews with patients meeting the inclusion criteria. The first interview was conducted one day before surgery following hospital admission, during which patients were informed about the study, assured of confidentiality, and informed that the data would be used solely for research purposes. Each session lasted approximately 15-20 minutes. The second interview was conducted on the day of discharge prior to the patients leaving the hospital.

Instruments

Patient Information Form

A form was developed by the researchers based on the relevant literature ^(7,8,12) to collect patients' sociodemographic and medical information. The form included variables such as age, gender, marital status, employment status, education level, income, time since diagnosis, presence of chronic diseases, and self-perceived health status.

Surgical Fear Questionnaire (SFQ)

The SFQ, developed by Theunissen et al. ⁽¹³⁾, measures short- and long-term fear related to elective surgical procedures. The Turkish validity and reliability study was conducted by Bağdigen and Karaman Özlü ⁽¹⁴⁾. The scale consists of eight items and two subscales, each containing four items: short-term fear (items 1-4) and long-term fear (items 5-8). Responses are scored on an 11-point Likert scale ranging from 0 (not afraid at all) to 10 (extremely afraid). Subscale scores range from 0 to 40, and the total score ranges from 0 to 80. Higher scores indicate greater levels of surgical fear. In the present study, Cronbach's α was 0.89 for the total scale, 0.86 for short-term fear, and 0.92 for long-term fear. Subscale scores range from 0 to 40, while the total score ranges from 0 to 80.

Death Anxiety Scale (DAS)

The DAS, developed by Templer ⁽⁶⁾, assesses an individual's fear of death. The Turkish adaptation was conducted by Akça and Köse ⁽¹⁵⁾. The scale consists of 15 yes/no items and includes three subdimensions: cognitive-emotional (items 1-7), physical changes (items 8-11), and concerns related to time perception (items 12-15). "Yes" responses are scored as 1 and "no" as 0. Certain items are reverse-coded (items 2, 3, 5, 6, and 7). Total scores range from 0 to 15, with higher scores indicating greater death anxiety. Score interpretation classifies 0-7 as low, 8-10 as moderate, and 11-15 as high death anxiety. The scale is widely used in psychiatric evaluations of patients with cancer, terminal illness, older adults, chronic illnesses, and preoperative surgical patients. The Cronbach's alpha for the overall scale was 0.86, with subscale values of 0.89 for cognitive-emotional, 0.90 for physical changes, and 0.88 for concerns related to time perception.

Ethical Considerations

Ethical approval was obtained from the Non-Interventional Research Ethics Committee of Biruni University (approval no: 2024/BİAEK/06-01, date: 20.01.2025). Institutional permission was granted by the Provincial Health Directorate (approval no: 2025/2, date: 06.03.2025). Approval for the use of the scales was obtained from the respective authors. Data collection adhered to the principles of voluntariness, respect, privacy, and equality. The purpose of the study was explained to participants both verbally and in writing using an informed voluntary consent form. Participants were informed that their data would remain confidential. The study was conducted in accordance with the Declaration of Helsinki.

Statistical Analysis

Data were analyzed using SPSS version 27.0. Normality was assessed using skewness and kurtosis values, all of which were within acceptable ranges, indicating a normal distribution. Parametric tests were applied: independent-samples t-tests were used for between-group comparisons, and one-way analysis of variance (ANOVA) was used for variables with three or more groups. Paired-samples t-tests were used for within-group pretest-posttest comparisons. Effect sizes were calculated using Cohen's d to evaluate the clinical relevance of differences independent of statistical significance. Values of 0.20, 0.50, and 0.80 were interpreted as small, medium, and large effects, respectively. Continuous variables are presented as mean with standard deviation, while categorical variables are presented as frequencies and percentages. Statistical significance was defined at $p < 0.05$, with a 95% confidence level.

RESULTS

Demographic and Clinical Characteristics of the Patients

Table 1 presents the demographic and clinical characteristics of the study participants. Comparative analysis indicated that patients undergoing minimally invasive and open lung cancer surgery had similar sociodemographic profiles. In both groups, the majority of patients were aged 61 years or older. The mean age was 60.22 ± 12.92 years in the minimally invasive group and 59.72 ± 12.65 years in the open surgery group, with no statistically significant difference between them ($p > 0.05$).

Male participants predominated in both groups. Most patients were married, had completed primary or secondary education, and were retired. A considerable proportion reported that their income was lower than their expenses. Regarding clinical characteristics, most patients had been diagnosed within the past year. The minimally invasive group had a higher proportion of patients without chronic diseases. Most participants lived with their spouse. Preoperative self-perceived health status was

Table 1. Demographic and Clinical Characteristics of Patients (n=85)

	Minimally invasive, (n=60)		Open surgery, (n=25)		p-value
Age	f	%	f	%	0.621
≤45	7	11.7	3	12.0	
46-60	18	30.0	7	28.0	
≥61	35	58.3	15	60.0	
Mean age	Min: 23 Max: 84 Mean ± SD: 60.22±12.92		Min: 27 Max: 76 Mean ± SD: 59.72±12.65		
Gender					
Female	18	30.0	7	28.0	0.702
Male	42	70.0	18	72.0	
Marital status					
Single	13	21.7	8	32.0	0.513
Married	47	78.3	17	68.0	
Education level					
Illiterate	10	16.7	4	16.0	0.215
Primary-middle school	36	60.0	12	48.0	
High school	8	12.4	5	20.0	
University	6	10.0	4	16.0	
Employment status					
Employed	13	21.7	7	28.0	0.206
Unemployed	15	25.0	4	16.0	
Retired	32	53.3	14	56.0	
Income status					
Income<expenses	36	60.0	14	56.0	0.330
Income=expenses	22	36.7	11	44.0	
Income>expenses	2	3.3	-	-	
Duration of lung cancer					
≤1 year	45	75.0	17	68.0	0.251
2-5 years	11	18.3	5	20.0	
≥6 years	4	6.7	3	12.0	
Chronic disease					
Diabetes	5	8.3	4	16.0	0.168
Hypertension	7	11.7	5	20.0	
COPD	10	16.7	7	28.0	
None	37	61.7	10	40.0	
Self-perceived preoperative health status					
Poor	11	18.3	5	20.0	0.321
Moderate	25	41.7	11	44.0	
Good	21	35.0	8	32.0	
Very good	3	5.0	1	4.0	
Self-perceived postoperative health status					
Poor	2	3.3	2	8.0	0.106
Moderate	22	28.3	12	48.0	
Good	38	63.3	11	44.0	
Very good	3	5.0	-	-	
SD: Standard deviation, COPD: Chronic obstructive pulmonary disease					

SD: Standard deviation, COPD: Chronic obstructive pulmonary disease

generally moderate. Postoperative health perception was more positive, especially in the minimally invasive group, where it was mostly rated as good. No statistically significant differences were found between the groups for these variables ($p>0.05$).

Surgical Fear and Death Anxiety According to Sociodemographic Characteristics

Table 2 shows surgical fear and death anxiety scores by demographic characteristics. Patients aged 45 years and younger showed higher short-term surgical fear scores. However, no statistically significant differences were found between age groups in terms of short-term fear, long-term fear, death anxiety subscales, or total scores ($p>0.05$).

Female patients had higher short- and long-term surgical fear and death anxiety scores than male patients; however, these differences were not statistically significant ($p>0.05$).

Marital status was not associated with significant differences in surgical fear or death anxiety scores. Similarly, the presence of chronic disease did not significantly affect these outcomes ($p>0.05$).

Surgical Fear and Death Anxiety in Patients Undergoing Minimally Invasive and Open Surgery

Table 3 compares preoperative and postoperative surgical fear and death anxiety levels between minimally invasive and open surgery groups. Preoperatively, no significant differences were found between groups in short-term fear, long-term fear, total surgical fear, cognitive-emotional anxiety, concerns related to time perception, or total death anxiety ($p>0.05$). The only significant between-group difference was observed in the physical changes subscale, with lower scores in the open surgery group ($t=2.306$, $p=0.024$). The effect size for this difference was medium (Cohen's $d=0.55$), indicating a clinically meaningful difference in preoperative physical change concerns between groups. Effect sizes for other preoperative comparisons were small (d range: 0.02 - 0.37), suggesting limited practical differences despite non-significant p -values.

Postoperatively, no statistically significant differences were found between groups for any subscale or total scores of surgical fear or death anxiety ($p>0.05$). Short- and long-term fear scores were nearly identical, indicating that postoperative fear was

Table 2. Fear and Death Anxiety Perceptions According to Demographic Characteristics (n=85)

Demographic group	Short-term fear Mean $\pm$ SD	Long-term fear Mean $\pm$ SD	Surgical Fear Questionnaire Mean $\pm$ SD	Cognitive-emotional Mean $\pm$ SD	Physical changes Mean $\pm$ SD	Concerns related to time perception Mean $\pm$ SD	Death Anxiety Scale Mean $\pm$ SD
Age							
≤ 45	18.90 $\pm$ 11.14	13.20 $\pm$ 12.50	32.10 $\pm$ 22.45	3.30 $\pm$ 2.83	1.20 $\pm$ 1.39	1.20 $\pm$ 0.63	5.70 $\pm$ 4.39
46-60	12.64 $\pm$ 8.86	8.88 $\pm$ 9.06	21.52 $\pm$ 16.77	2.44 $\pm$ 2.82	0.80 $\pm$ 1.35	1.40 $\pm$ 0.50	4.64 $\pm$ 3.43
≥ 61	13.42 $\pm$ 11.21	9.72 $\pm$ 9.26	23.14 $\pm$ 19.04	2.42 $\pm$ 2.40	0.86 $\pm$ 1.22	1.30 $\pm$ 0.70	4.58 $\pm$ 3.51
F	1.345	0.738	1.185	0.568	0.364	0.389	0.414
p-value	0.266	0.481	0.311	0.569	0.696	0.679	0.663
Gender							
Female	14.84 $\pm$ 9.44	11.72 $\pm$ 9.98	26.56 $\pm$ 17.98	3.24 $\pm$ 2.69	1.20 $\pm$ 1.47	1.32 $\pm$ 0.62	5.76 $\pm$ 4.17
Male	13.41 $\pm$ 11.11	9.11 $\pm$ 9.39	22.53 $\pm$ 19.24	2.23 $\pm$ 2.25	0.75 $\pm$ 1.17	1.31 $\pm$ 0.65	4.30 $\pm$ 4.23
t	0.561	1.143	0.896	1.767	1.492	0.022	1.735
p-value	0.576	0.256	0.373	0.081	0.140	0.983	0.086
Marital status							
Single	13.33 $\pm$ 9.25	11.95 $\pm$ 10.73	25.28 $\pm$ 19.42	2.47 $\pm$ 2.96	1.04 $\pm$ 1.49	1.47 $\pm$ 0.61	5.00 $\pm$ 4.46
Married	14.00 $\pm$ 11.09	9.20 $\pm$ 9.17	23.20 $\pm$ 18.80	2.54 $\pm$ 2.24	0.82 $\pm$ 1.20	1.26 $\pm$ 0.64	4.64 $\pm$ 3.27
t	0.248	1.142	0.437	0.115	0.682	1.314	0.397
p-value	0.805	0.257	0.663	0.908	0.497	0.192	0.692
Chronic disease							
Yes	15.40 $\pm$ 12.20	10.42 $\pm$ 9.97	25.83 $\pm$ 20.67	2.54 $\pm$ 2.62	0.88 $\pm$ 1.23	1.38 $\pm$ 0.66	4.80 $\pm$ 3.81
No	12.30 $\pm$ 8.67	9.34 $\pm$ 9.27	21.65 $\pm$ 16.90	2.51 $\pm$ 2.24	0.88 $\pm$ 1.33	1.25 $\pm$ 0.62	4.65 $\pm$ 3.37
t	1.353	0.517	1.022	0.066	0.010	0.900	0.203
p-value	0.180	0.607	0.310	0.946	0.992	0.371	0.840

F: ANOVA test statistic, t: Independent-samples t-test statistic, SD: Standard deviation

Table 3. Comparison of Preoperative and Postoperative Surgical Fear and Death Anxiety Levels Between Patients Undergoing Minimally Invasive Surgery and Open Surgery (n=85)

Preoperative		Mean	SD	t	p-value
Short-term fear	Minimally invasive	12.70	9.76	1.539	0.128
	Open surgery	16.56	12.22		
Long-term fear	Minimally invasive	9.61	9.68	0.394	0.695
	Open surgery	10.52	9.52		
SFQ total score	Minimally invasive	22.31	18.51	1.061	0.292
	Open surgery	27.08	19.65		
Cognitive-emotional	Minimally invasive	2.51	2.53	0.075	0.941
	Open surgery	2.56	2.18		
Physical changes	Minimally invasive	1.08	1.38	2.306	0.024
	Open surgery	0.40	0.81		
Concerns related to time perception	Minimally invasive	1.36	0.66	1.095	0.277
	Open surgery	1.20	0.57		
DAS total score	Minimally invasive	4.96	3.87	0.947	0.347
	Open surgery	4.16	2.71		
Postoperative					
Short-term fear	Minimally invasive	12.08	9.63	1.198	0.234
	Open surgery	14.72	8.19		
Long-term fear	Minimally invasive	9.36	9.38	0.704	0.483
	Open surgery	10.92	8.94		
SFQ total score	Minimally invasive	21.45	18.30	0.995	0.323
	Open surgery	25.64	16.06		
Cognitive-emotional	Minimally invasive	2.56	2.56	0.078	0.938
	Open surgery	2.52	2.34		
Physical changes	Minimally invasive	0.98	1.24	1.843	0.069
	Open surgery	0.48	0.87		
Concerns related to time perception	Minimally invasive	1.36	0.66	1.095	0.277
	Open surgery	1.20	0.57		
DAS total score	Minimally invasive	4.91	3.69	0.860	0.392
	Open surgery	4.20	2.97		
SFQ: Surgical Fear Questionnaire, DAS: Death Anxiety Scale, SD: Standard deviation, t: Independent-samples t-test statistic					

SFQ: Surgical Fear Questionnaire, DAS: Death Anxiety Scale, SD: Standard deviation, t: Independent-samples t-test statistic

not influenced by surgical approach. Similarly, total surgical fear, cognitive-emotional anxiety, and concerns related to time perception scores did not differ significantly between groups.

Comparison of Preoperative and Postoperative Mean Scores of Surgical Fear and Death Anxiety

Tables 4 and 5 present the results of paired-samples t-tests comparing pre- and postoperative mean scores of surgical fear and death anxiety in patients undergoing minimally invasive and open surgery. No statistically significant differences were found between pre- and postoperative measurements for short-term fear, long-term fear, or total surgical fear ($p>0.05$). Similarly, no significant differences were found in any subdimension of death anxiety following surgery ($p>0.05$). Effect sizes for within-group pre-to-post changes were uniformly small (Cohen's d range:

0.00-0.20 for the minimally invasive group; 0.03-0.20 for the open surgery group), indicating that the modest reductions observed postoperatively lack clinical as well as statistical significance. These findings should be interpreted cautiously given the limited statistical power associated with the unequal group sizes.

DISCUSSION

This study evaluated surgical fear and death anxiety in patients with lung cancer undergoing minimally invasive or open surgery during the preoperative and postoperative periods. The results indicated that fear and anxiety levels were comparable between the two surgical approaches. Demographic variables, including age, gender, education, marital status, and income, were also similar across groups, providing a relatively homogeneous sample. This homogeneity strengthened the comparability of the

Table 4. Comparison of Pretest and Posttest Surgical Fear Perceptions in Patients Undergoing Minimally Invasive and Open Surgery (Paired Samples t-Test) (n=85)

Surgical approach	Variable	Assessment time	Mean	SD	t	p-value
Minimally invasive	Short-term fear	Preoperative	12.70	9.76	0.851	0.402
		Postoperative	12.08	9.63		
	Long-term fear	Preoperative	9.61	9.68	0.720	0.471
		Postoperative	9.36	9.38		
	SFQ total score	Preoperative	22.31	18.51	1.020	0.314
		Postoperative	21.45	18.30		
Open surgery	Short-term fear	Preoperative	16.56	12.22	1.482	0.151
		Postoperative	14.72	8.19		
	Long-term fear	Preoperative	10.52	9.52	0.641	0.524
		Postoperative	10.92	8.94		
	SFQ total score	Preoperative	27.08	19.65	1.210	0.238
		Postoperative	25.64	16.06		

t: Paired samples t-test statistic, SFQ: Surgical Fear Questionnaire, SD: Standard deviation

Table 5. Comparison of Pretest and Posttest Death Anxiety Perceptions in Patients Undergoing Minimally Invasive and Open Surgery (Paired Samples t-Test) (n=85)

		Assessment time	Mean	SD	t	p-value
Minimally invasive	Cognitive-emotional	Preoperative	2.51	2.53	0.410	0.680
		Postoperative	2.56	2.56		
	Physical changes	Preoperative	1.08	1.38	0.891	0.381
		Postoperative	0.98	1.24		
	Concerns related to time perception	Preoperative	1.37	0.67	0.020	0.970
		Postoperative	1.36	0.66		
	DAS total score	Preoperative	4.96	3.87	0.941	0.352
		Postoperative	4.91	3.69		
Open surgery	Cognitive-emotional	Preoperative	2.56	2.18	0.214	0.831
		Postoperative	2.52	2.34		
	Physical changes	Preoperative	0.40	0.81	0.561	0.588
		Postoperative	0.48	0.87		
	Concerns related to time perception	Preoperative	1.22	0.57	0.026	0.931
		Postoperative	1.20	0.57		
	DAS total score	Preoperative	4.16	2.71	0.720	0.474
		Postoperative	4.20	2.97		

DAS: Death Anxiety Scale, SD: Standard deviation, t: Paired samples t-test statistic

groups and reduced the likelihood that psychological differences were attributable to sociodemographic disparities rather than surgical approach.

Previous studies have documented the considerable psychological burden associated with lung cancer surgery. In patients who underwent VATS, 48.4% were reported to have experienced high preoperative anxiety, with higher levels particularly among women and those who had been hospitalized for more than 24 hours⁽¹²⁾. Similarly, Kim et al.⁽¹⁶⁾ identified thoracotomy as an independent risk factor for postoperative anxiety and depression, increasing the risk by 4.5-fold and 3.4-fold, respectively. A comparative

study indicated that VATS patients experienced fewer sleep disturbances, less daytime somnolence, better functional capacity, and higher life satisfaction during hospitalization, as well as lower distress, milder pain, and improved quality of life after discharge⁽¹⁷⁾. Nonetheless, Chen et al.⁽¹⁸⁾ found no significant differences in psychological outcomes among patients who underwent VATS, RATS, or thoracotomy, emphasizing the heterogeneity of findings and the multifactorial nature of psychological adaptation.

In the present study, surgical fear and death anxiety did not differ significantly according to demographic characteristics. However, previous studies reported higher anxiety levels among women

^(12,16,19) and younger patients ⁽¹⁹⁾, with the highest scores observed in the 18-29 age group and the lowest in patients aged ≥ 75 . Other studies also indicated that women tended to report greater death anxiety, possibly due to a higher propensity to express emotions, and that lower education levels were associated with increased death anxiety ⁽²⁰⁾. The absence of significant demographic differences in our study suggested that surgical fear and death anxiety were associated more with individuals' coping strategies, illness perceptions, psychosocial support, and subjective experiences related to the surgical process than with age, gender, or education level.

Clinical variables, including time since diagnosis and the presence of chronic disease, were comparable between the minimally invasive and open surgery groups. This allowed surgical fear and anxiety to be interpreted as primarily related to the surgical process rather than patients' lifestyle or disease characteristics. Postoperatively, both groups demonstrated improvements in self-perceived health status, suggesting that completion of surgery positively affects physical and psychological well-being. Postoperative data were collected at discharge, a clinically meaningful timepoint that captures the patient's psychological state following the acute surgical experience and prior to outpatient recovery. Although this reflected only short-term outcomes, it provided a practical and standardized window for perioperative nursing assessment. Future studies should incorporate follow-up measurements at one and three months to characterize the longer-term trajectory of surgical fear and death anxiety. Consistent with previous literature, postoperative well-being improved, and minimally invasive surgery was associated with faster recovery and better functional outcomes ^(12,17). Comparative studies also indicated that minimally invasive procedures offered advantages in functional recovery and postoperative comfort, while long-term oncological outcomes did not differ significantly from those of open surgery ^(21,22). These results suggested that although the physiological impact of the surgical technique was more pronounced, differences in psychological outcomes between surgical approaches were likely limited. In addition, this finding may indicate that patients prioritize survival, treatment success, and recovery expectations over the technical characteristics of the surgical approach when evaluating their psychological experience.

Comparisons between surgical approaches showed that pre- and postoperative levels of surgical fear and death anxiety were generally similar between the minimally invasive and open surgery groups. In the preoperative period, only the subscale measuring concerns about physical changes was higher in the minimally invasive group; however, this difference was no longer significant postoperatively. These findings suggested that uncertainties or aesthetic concerns associated with minimally invasive surgery were more prominent before surgery but diminished after the procedure. Huang et al. ⁽²³⁾ highlighted that chronic procedure-related symptoms following minimally invasive lung surgery could affect body image, psychological well-being, and quality of life. Thus, the higher preoperative concern regarding physical

changes may have reflected patients' anticipation of potential postoperative bodily effects. The higher preoperative "concern about physical changes" in the minimally invasive group may have reflected anxiety related to aesthetic outcomes, potential scarring, and body image. Although minimally invasive surgery was perceived as less traumatic, patients could still experience preoperative anxiety associated with chronic postoperative symptoms, pain, and changes in body perception ⁽²⁴⁾. Patients undergoing minimally invasive surgery may have had higher expectations regarding postoperative comfort and cosmetic outcomes, which may have increased their sensitivity to potential physical changes before surgery.

In addition, systematic reviews report that minimally invasive procedures reduce short-term morbidity and enhance recovery but do not consistently affect long-term survival or psychosocial outcomes ^(25,26). Thus, technical superiority does not necessarily translate into better psychological adaptation. Importantly, although most intergroup comparisons did not reach statistical significance, effect sizes were small to medium (Cohen's *d* range: 0.02-0.55), suggesting that some differences may have had clinical relevance that the current sample size was insufficient to detect statistically. These findings made a distinct contribution to the literature by demonstrating that, even in a non-randomized clinical sample with unequal group sizes, the psychological burden of lung cancer surgery—as measured by validated instruments—did not appear to differ substantially by surgical approach, reinforcing the need for psychological assessment regardless of technique.

Postoperative decreases in surgical fear and death anxiety were observed but were not statistically significant, indicating limited psychological relief. Preoperative anxiety strongly influences postoperative quality of life, and its reduction through information, counseling, and psychosocial support can improve outcomes ⁽¹²⁾. Psychological adjustment and anxiety were shaped by multidimensional factors beyond the surgical approaches ⁽²⁷⁾. The persistence of anxiety after surgery may also reflect ongoing concerns related to cancer prognosis, recurrence risk, adjuvant treatment, and uncertainty regarding future health status. These findings underscored the importance of providing psychological support to all patients while preserving the technical advantages of minimally invasive procedures. Routine perioperative psychological assessment and early supportive interventions may therefore play a critical role in improving overall patient adaptation and recovery.

Study Limitations

This single-center study limits the generalizability of the findings to all lung cancer patients. Only patients undergoing minimally invasive or open surgery were included, while those receiving other treatment modalities were excluded. Surgical fear and death anxiety were measured using self-report instruments, which may have introduced response bias. In addition, the non-randomized design limits causal interpretation, as selection bias related to the surgical approach cannot be fully excluded. Group assignment was based on the planned surgical approach rather

than randomization, which resulted in inherently unequal group sizes. This imbalance may have reduced the statistical power of intergroup comparisons and increased the risk of type II error, meaning that some non-significant findings may reflect insufficient power rather than true equivalence between surgical approaches. Furthermore, important clinical and psychosocial variables—such as cancer stage, previous surgical experience, psychiatric history, and social support levels—were not systematically assessed, which limits the explanatory scope of the findings. Postoperative data were collected at the time of discharge, capturing only short-term psychological responses; fear and death anxiety may evolve substantially over weeks or months following surgery, and longitudinal follow-up would be needed to characterize these trajectories. Nevertheless, the consistent application of standardized surgical protocols and data collection procedures across all participants enhances the internal reliability of the results.

CONCLUSION

This study found that minimally invasive and open surgical approaches were associated with similar levels of surgical fear and death anxiety in patients with lung cancer. Anxiety levels were not significantly related to demographic or clinical factors, suggesting that psychological responses may be influenced more by individual patient characteristics and psychosocial support than by the surgical approach. However, these findings should be interpreted cautiously; the non-randomized design and the imbalance in group sizes may have reduced statistical power, meaning that true differences cannot be entirely ruled out. Postoperative scores showed a slight, non-significant reduction, indicating that the surgical procedure itself had a limited short-term effect on psychological well-being. The use of validated instruments and effect size estimates alongside statistical significance provides a more comprehensive interpretation of these findings and suggests that clinically relevant differences may exist despite the absence of statistical significance.

These results highlight the importance of addressing psychological needs in all patients undergoing lung cancer surgery. From a nursing perspective, holistic, patient-centered care should include systematic psychological assessment, individualized education, and emotional support throughout the perioperative period. Preoperative anxiety may increase due to uncertainty about the procedure; therefore, providing clear information about surgery, recovery, and potential physical changes is essential to reduce anxiety and enhance psychological preparedness. Although minimally invasive approaches offer technical advantages, concerns related to body image may still contribute to anxiety, emphasizing the importance of assessing patients' expectations and perceptions. Strengthened collaboration between surgical teams and psychosocial care services may further support perioperative adjustment and overall psychological well-being.

Ethics

Ethics Committee Approval: Ethical approval was obtained from the Non-Interventional Research Ethics Committee of Biruni University (approval no: 2024/BIAEK/06-01, date: 20.01.2025). Institutional permission was granted by the Provincial Health Directorate (approval no: 2025/2, date: 06.03.2025).

Informed Consent: The purpose of the study was explained to participants both verbally and in writing using an informed voluntary consent form. Participants were informed that their data would remain confidential.

Footnotes

Biruni University, Institute of Graduate Education, Master's Program in Nursing, 2026.

Authorship Contributions

Concept: NT, AK; Design: NT, AK; Data Collection or Processing: NT; Analysis or Interpretation: NT, AK; Literature Search: NT, AK; Writing: NT, AK.

Conflict of Interest: No conflict of interest was declared by the authors.

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Psychometric Properties of the Turkish Version of the Parental Falls Knowledge Scale

Ebeveyn Düşme Bilgisi Ölçeği Türkçe Versiyonunun Psikometrik Özellikleri

İlknur Bektaş¹, Şeyda Binay Yaz¹, Sinem Başdemir¹, Murat Bektaş², Suzanne Sheppard-Law³

¹İzmir Bakırçay University Faculty of Health Sciences, Department of Nursing, İzmir, Türkiye

²Dokuz Eylül University Faculty of Nursing, Department of Pediatric Nursing, İzmir, Türkiye

³University of Technology Sydney, School of Nursing and Midwifery, Sydney, Australia

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ABSTRACT

Objective: The purpose of this methodological study was to produce a Turkish adaptation of the Parental Falls Knowledge Scale and to examine its psychometric performance in parents of hospitalized children.

Methods: A methodological, cross-sectional psychometric validation design was used with 213 parents who were caring for hospitalized children between February and June 2024. Linguistic and cultural adaptation involved forward translation, translation-committee review, back translation, expert appraisal, and pilot testing. Item-level and scale-level content validity indices were calculated to evaluate content validity. Construct validity was investigated through exploratory and confirmatory factor analyses. Reliability was examined using Cronbach's alpha, McDonald's omega, item-total correlations, and split-half procedures.

Results: The adapted Turkish scale retained 23 items grouped into five subscales. Sampling adequacy was supported by a Kaiser-Meyer-Olkin coefficient of 0.812, while Bartlett's test of sphericity reached statistical significance. The five-factor solution accounted for 61.154% of the total variance. Confirmatory factor analysis supported an acceptable level of model fit, although several indices were near the lower boundary of acceptability. For the overall scale, Cronbach's alpha was 0.821; subscale coefficients ranged from 0.655 to 0.887.

Conclusion: Findings indicate that the Turkish form of the Parental Falls Knowledge Scale provides valid and reliable measurement of parents' knowledge and awareness concerning fall risks during pediatric hospitalization. It may also assist pediatric nurses in recognizing parental educational needs and organizing fall-prevention interventions.

Keywords: Pediatric fall, fall prevention, scale validity

ÖZ

Amaç: Bu metodolojik çalışmada, Ebeveyn Düşme Bilgisi Ölçeği'nin Türkçeye uyarlanması ve hastanede yatan çocukların ebeveynlerinde psikometrik özelliklerinin incelenmesi amaçlanmıştır.

Yöntem: Metodolojik ve kesitsel nitelikteki çalışma, Şubat-Haziran 2024 döneminde hastanede yatan çocuklara bakım veren 213 ebeveynle yürütülmüştür. Ölçeğin dilsel ve kültürel uyarlama sürecinde ileri çeviri, çeviri komitesi incelemesi, geri çeviri, uzman değerlendirmesi ve pilot uygulama aşamaları izlenmiştir. İçerik geçerliliğinin değerlendirilmesinde madde ve ölçek düzeyindeki içerik geçerliliği indekslerinden yararlanılmıştır. Yapı geçerliliği keşifsel ve doğrulayıcı faktör analizleriyle incelenirken, güvenilirlik Cronbach alfa, McDonald omega, madde-toplam korelasyonları ve yarıya bölme yöntemiyle değerlendirilmiştir.

ORCID IDs: İB. 0000-0001-8048-9501; ŞBY. 0000-0001-6410-6240; SB. 0000-0002-8401-1625; MB. 0000-0003-3327-8204; SS. 0000-0002-9971-9343



Corresponding Author: İlknur Bektaş,

E-mail: ilknurbektas23@gmail.com

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Bulgular: Türkçe uyarlama 23 madde ve beş alt ölçekten oluşmuştur. Kaiser-Meyer-Olkin katsayısı 0,812 olarak bulunmuş ve Bartlett küresellik testi istatistiksel olarak anlamlı sonuç vermiştir. Beş faktörlü model toplam varyansın %61,154'ünü açıklamıştır. Karşılaştırmalı uyum indeksi bulguları, bazı uyum indeksleri kabul edilebilir sınırın alt düzeylerine yakın olmakla birlikte modelin genel olarak kabul edilebilir uyum gösterdiğini ortaya koymuştur. Toplam ölçek için Cronbach alfa 0,821 olup alt ölçeklerde 0,655-0,887 arasında değişmiştir.

Sonuç: Bulgular, Ebeveyn Düşme Bilgisi Ölçeği'nin Türkçe formunun, çocukların hastanede yatışı sürecinde ebeveynlerin düşme risklerine ilişkin bilgi ve farkındalıklarını değerlendirmede geçerli ve güvenilir bir ölçme aracı olduğunu göstermektedir. Ölçek, pediatri hemşirelerinin ebeveynlerin eğitim gereksinimlerini belirlemesine ve düşmelerin önlenmesine yönelik girişimleri planlamasına katkı sağlayabilir.

Anahtar kelimeler: Pediatrik düşme, düşme önleme, ölçek geçerliliği

INTRODUCTION

Patient safety refers to protecting patients from avoidable harm throughout healthcare delivery while reducing safety-related risks to an acceptable level ^(1,2). Within this framework, falls represent a major threat to patient safety ^(3,4). Falls may result in injuries ranging from minor to serious secondary trauma. Depending on their severity, such events can prolong hospitalization and increase healthcare-related costs ^(5,6). Fall occurrence may be influenced by disease-related characteristics, medications and equipment used during treatment, surgical procedures, and patients' disability status ⁽⁷⁾. Environmental features of the hospital, including conditions related to patient rooms and beds, also contribute to fall risk ⁽⁸⁾. Compared with adults, children are especially vulnerable because of developmental characteristics, limitations in cognitively and linguistically reporting their needs, and dependence on physical assistance ^(9,10). In young children, immature balance combined with rapid mobility further increases this vulnerability ⁽¹¹⁾. A large proportion of inpatient pediatric falls are preventable because nurses can frequently recognize relevant risks before an event occurs. Accordingly, pediatric nurses use developmentally appropriate strategies to reduce fall events ⁽¹²⁾, including structured risk assessment, careful interpretation of risk findings, implementation of preventive measures, and reporting of any fall that occurs ⁽¹⁰⁾. Information obtained from such reports can guide institutional improvements in pediatric fall prevention.

When the falls of pediatric patients were analyzed, it was reported that the age of the child was an important risk factor and that children aged 1-3 years had more falls in the hospital, most of which occurred from patient beds and near caregivers ⁽⁹⁾. In addition to the characteristics of the children, many characteristics of the parents were found to be risky in the event of children falling ⁽¹³⁾. Low education level, smoking habits, and prolonged hospitalization of the child affect falls ⁽¹⁴⁾. Therefore, parents should also be included in developing fall-related precautions ⁽¹⁵⁾.

During the hospitalization, the child's caregiver, parents, and pediatric nurses constantly interact regarding the child's treatment, care, and development ⁽¹³⁾. During children's falls in the hospital, their parents are usually with them. In the event of a fall, parents provide important information about what precautions should be taken while informing the nurses about how the incident occurred ⁽¹⁶⁾. Therefore, informing the parents, who are the primary caregivers of the child, about the fall and also developing awareness in parents about the child's risk of falling constitute an

important part of evidence-based practices ⁽¹⁷⁻¹⁹⁾. Especially during shift changes, parents should closely follow the child's changing disease process and developments that may increase the risk of falling and take precautions ^(18,19). The participation of parents during the risk assessment of their child and the subsequent implementation of a fall prevention plan is important to maximize the desired effect in preventing falls in a hospital ⁽¹³⁾. Effective education of parents regarding the risks of falls during the hospitalization of their children and the precautions to be taken is beneficial in significantly reducing pediatric falls ^(15,18,20).

Parents occupy an important position in the prevention of falls among hospitalized children. A first requirement is the accurate identification of what parents know about clinically relevant fall risks ^(15,16,21). Valid and reliable instruments are also needed to quantify parental knowledge, identify gaps in understanding of risk factors, support education, and evaluate the effects of awareness-oriented interventions. Existing pediatric fall-risk instruments generally emphasize the child's clinical and developmental characteristics rather than parental knowledge and awareness. Because parents remain with their children for much of the hospitalization and actively participate in preventive practices, evaluating their knowledge is important for defining educational needs and designing focused pediatric fall-prevention programs ^(9,13,15,18-21). No Turkish instrument with established validity and reliability was identified for assessing parental knowledge of inpatient pediatric falls. Accordingly, the present study focused on adapting the Parental Falls Knowledge Scale into Turkish and testing its psychometric properties.

MATERIAL AND METHOD

Aim of the Research

The study sought to adapt the Parental Falls Knowledge Scale for Turkish use and to evaluate its psychometric characteristics in parents of hospitalized children.

Design

A methodological, cross-sectional psychometric validation design was adopted.

Sample Characteristics

Participants were parents of children hospitalized in the pediatric clinic of a state hospital situated in an urban center in Western Türkiye. Eligibility required that the child had been receiving inpatient care for at least one day. Data collection took place from

February through June 2024. The study hospital includes a 26-bed pediatric clinic and a 10-bed pediatric surgery clinic. The standard Harizmi Fall Risk Scale is routinely administered to children in the pediatric clinic; however, caregiver parents are not assessed with a specific instrument addressing their knowledge, attitudes, or precautions concerning pediatric fall risk.

Sample

Recommendations for psychometric studies commonly indicate a sample size of approximately 5-10 participants per scale item. On this basis, a 23-item instrument would require at least 115 parents. To provide a stronger basis for evaluating the scale's validity and reliability, the target sample was set at 230 parents. The final analysis included 213 parents who completed the data collection materials in full and whose children had been hospitalized for at least one day.

Data Collection Tools

Parent Identification Form: This form includes the age, gender, education level, and economic level of the parents participating in the study, as well as the characteristics of the hospitalized child.

Parental Falls Knowledge Scale: Developed by Sheppard-Law et al. ⁽²¹⁾ in 2022, this instrument evaluates parents' knowledge and awareness of fall risks affecting their hospitalized children. Psychometric analyses of the original instrument reduced an initial pool of 38 items to 23. Responses are given on a five-point Likert scale. Possible raw total scores extend from 23 to 115, and higher values represent greater parental knowledge and awareness of pediatric fall risk. A mean item score between 1 and 5 may also be obtained by dividing the raw total score by 23; values of 3 or less indicate insufficient knowledge, whereas values above 3 indicate sufficient knowledge. The five sub-dimensions are "knowledge of risk", "providing Supervision", "knowledge to prevent", "perception of hospital safety", and "developmental risk". Reported Cronbach alpha coefficients for these sub-dimensions are 0.886, 0.929, 0.748, 0.72, and 0.701, respectively, and the coefficient for the total scale is 0.79 ⁽²¹⁾.

Procedure

Validity Analyses

Scale validity was examined in terms of content and scope validity.

Translation of the Scale

Translation and cultural adaptation were carried out in accordance with recommended cross-cultural scale-adaptation procedures ⁽²²⁻²⁴⁾. Three professional linguists, each fluent in Turkish and English and experienced in academic and health-related translation, independently translated the original English instrument into Turkish. A review committee comprising the researchers, translators, and an academic expert in scale adaptation and pediatric nursing then examined the three translations item by item. Semantic equivalence, conceptual consistency, comprehensibility, and cultural suitability were considered, and

differences were resolved by consensus, resulting in a preliminary Turkish form.

An independent bilingual language specialist who had neither participated in the forward-translation stage nor reviewed the original instrument subsequently translated this preliminary Turkish form back into English. The research team compared the back-translated text with the source version to evaluate conceptual and semantic equivalence. Minor adjustments were introduced where necessary so that the Turkish items remained understandable, culturally suitable, and faithful to the intended meaning of the original items. This finalized Turkish form proceeded to expert content-validity review and psychometric evaluation.

Content Validity of the Scale

Cross-cultural adaptation guidance recommends obtaining evaluations from at least three experts when examining equivalence with an original scale ⁽²²⁻²⁴⁾. For the Turkish form in this study, opinions were obtained from twelve faculty members working in child health and disease nursing or nursing management. Each expert reviewed both the original English instrument and the Turkish version prepared through language translation. Items were rated on a four-point scale (1=much change is needed, 2=little change is needed, 3=suitable, 4=very suitable). Revisions were made in response to expert feedback. Item-level content validity index (I-CVI) and scale-level (S-CVI) CVI were then calculated. Values of 0.80 or higher for these indices are interpreted as indicating adequate agreement among experts ⁽²⁵⁻²⁷⁾.

Pilot Application

Pilot testing was performed in a small group outside the main study sample but with characteristics comparable to those of the target population, as recommended for evaluating language and expression ⁽²²⁾. The pilot participants were parents of children who had been hospitalized for at least one day, consistent with the main sample criteria. The Turkish parental fall knowledge scale was administered to 20 such parents to assess item wording and comprehensibility. They were specifically asked to judge whether each item was clear, understandable, culturally appropriate, and easy to answer. No concerns about comprehensibility were reported. Data from these 20 parents were excluded from the main analysis, and following the pilot stage the instrument was considered ready for administration to the principal sample ⁽²⁵⁾.

Reliability of the Scale

Reliability was investigated through internal-consistency and split-half approaches. Internal consistency was assessed with Cronbach's alpha, McDonald's omega, item-total correlations, and item-subscale total correlations. A Cronbach alpha coefficient of at least 0.70 is generally regarded as acceptable ⁽²²⁻²⁴⁾, while item-total and item-subscale total correlation coefficients are recommended to be no lower than 0.20 ⁽²⁵⁻²⁷⁾. Split-half analysis, another established reliability approach, was also applied in the present study ⁽²⁵⁻²⁷⁾.

Construct Validity of Scale

Construct validity was investigated using both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Before factor extraction, data suitability was evaluated with the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity, which evaluates whether the correlation matrix differs from an identity matrix. Values above 0.60 for KMO together with a significant Bartlett result ($p < 0.05$) are considered appropriate for factor analysis. Principal axis factoring with promax rotation was employed. Factor retention was based on eigenvalues greater than 1 together with inspection of the scree plot. Parallel analysis was not undertaken and was acknowledged as a methodological limitation⁽²⁵⁻²⁷⁾. Consistent with published recommendations, 0.32 was used as the minimum factor-loading criterion for assigning items to factors⁽²⁵⁻²⁷⁾.

CFA was additionally used to evaluate the proposed construct structure, and several goodness-of-fit indicators were considered. An acceptable fit is generally indicated when the chi-square/degree-of-freedom ratio is below 5. A root-mean-square error of approximation (RMSEA) below 0.080 indicates close fit, while values above 0.90 are recommended for the other fit indices. Together, these thresholds provide a basis for judging how adequately the specified model represents the observed data⁽²⁵⁻²⁷⁾.

Ethical Consideration

Ethical approval for conducting the study was obtained from İzmir Bakırçay University's Non-Interventional Ethics Board (approval no: 1119, date: 20.07.2023), and institutional authorization was secured from the participating hospital. All participants provided written informed consent in accordance with the principles of the Declaration of Helsinki. Authorization to perform the Turkish validity and reliability study was also obtained from the original scale owner.

Statistical Analysis

Data were analyzed using IBM SPSS Statistics 24.0 and IBM SPSS AMOS 24.0. Internal consistency was examined with Cronbach alpha, item-total correlations, McDonald omega, Spearman-Brown, and Guttman split-half coefficients. CVI together with exploratory and confirmatory factor analyses were used for validity assessment. Factor number was evaluated using eigenvalues and the scree plot; EFA was performed with principal axis factoring and promax rotation. Factors with eigenvalues greater than 1 were retained, and a factor-loading threshold of 0.32 was applied. Before CFA, multicollinearity was checked through variance inflation factor (VIF) and tolerance statistics; all VIF values were required to remain below 10 and tolerance values above 0.1. CFA was estimated from the covariance matrix using the maximum likelihood method. Discriminative performance was examined by comparing the upper and lower 27% groups. Statistical significance was evaluated at the 0.05 level.

RESULTS

Parents had a mean age of 37.87 ± 8.31 years, while the mean child age was 5.73 ± 4.34 years. Mean hospitalization duration was 3.57 ± 2.01 days, and the mean Khwarezmi Scale score was 9.56 ± 7.23 . Among the participants, 92% ($n=196$) were female, 87.3% ($n=186$) were mothers, 33.3% ($n=71$) had completed high school, and 74.6% ($n=159$) reported a moderate/normal economic status (Table 1).

CVI

I-CVI ranged from 0.80 to 1.00, while the CVI calculated for the scale as a whole was 0.98.

EFA

EFA of the 23-item scale yielded a KMO coefficient of 0.812, with Bartlett's test showing $X^2=2101.410$ and $p < 0.001$ (Table 2).

EFA supported a five-subdimension solution. The proportions of common variance accounted for by the first through fifth subdimensions were 23.101%, 13.168%, 7.009%, 4.918%, and 3.024%, respectively. Collectively, the five factors accounted for 51.219% of the common variance and 61.154% of the total variance. Item loadings ranged from 0.605 to 0.877 for knowledge of risk, 0.623 to 0.876 for providing supervision, 0.663 to 0.753 for knowledge to prevent, 0.331 to 0.871 for perception of hospital safety, and 0.388 to 0.901 for developmental risk (Table 2).

CFA showed factor loadings of 0.58-0.78 for knowledge of risk, 0.52-0.92 for providing supervision, 0.57-0.76 for knowledge to

Table 1. Descriptive Characteristics

Variables	Mean $\pm$ SD	Min-max
Parent age	37.87 $\pm$ 8.31	18-67
Child age	5.73 $\pm$ 4.34	1-17
Hospitalization duration	3.57 $\pm$ 2.01	1-14
Fall scale score	9.56 $\pm$ 7.23	1-30
	n	%
Gender		
Female	196	92.0
Male	17	8.0
Closeness		
Mother	186	87.3
Father	19	8.9
Other	8	3.8
Education level		
Primary school	46	21.6
Secondary school	46	21.6
High school	71	33.3
University and above	50	23.5
Economic level		
Income less than expenses	32	15.0
Income equal to expenses	159	74.6
Income exceeds expenses	22	10.4

SD: Standard deviation

prevent, 0.31-0.61 for perception of hospital safety, and 0.66-0.84 for developmental risk. The model-fit statistics were goodness-of-fit index=0.89, CFI=0.91, incremental fit index (IFI)=0.91, normal fit index (NFI)=0.83, non-NFI (NNFI)=0.90, $\chi^2=381.010$, degree of freedom=211, $p<0.01$, and RMSEA=0.062 (Table 3, Figure 1).

Reliability Analyses

For the total scale, Cronbach's alpha was 0.821 and McDonald's omega was 0.838; across subscales, the corresponding coefficients ranged from 0.655 to 0.887 and from 0.671 to 0.890, respectively.

In the split-half evaluation, Cronbach alpha coefficients were 0.680 and 0.666 for the two halves, the Spearman-Brown coefficient was 0.889, the Guttman split-half coefficient was 0.887, and the correlation between halves was 0.799 (Table 4). Correlations between individual items and the total scale score ranged from 0.20 to 0.58. Item-subscale total correlations were 0.60-0.70 for the first sub-dimension, 0.62-0.73 for the second, 0.49-0.57 for the third, 0.31-0.60 for the fourth, and 0.44-0.71 for the fifth. Hotelling's T^2 was 517.368 ($F=21.187$, $p<0.01$), indicating no response bias and further supporting the scale's validity.

Table 2. Exploratory Factor Analysis Results (n=213)

Items	Subdimensions and factor loadings				
	Knowledge of risk	Providing supervision	Knowledge to prevent	Perception of hospital safety	Developmental risk
I1	0.613				
I2	0.684				
I3	0.683				
I4	0.877				
I5	0.733				
I6	0.723				
I7	0.688				
I8	0.605				
I9		0.633			
I10		0.716			
I11		0.820			
I12		0.876			
I13				0.348	
I14				0.368	
I15				0.592	
I16				0.871	
I17				0.331	
I18					0.388
I19					0.901
I20					0.705
I21			0.663		
I22			0.753		
I23			0.715		
Eigenvalue	5.770	3.481	2.089	1.556	1.039
Variance explained by sub-dimension (%)	23.101	13.168	7.009	4.918	3.024
Common variance explained (%)	51.219				
Total variance explained (%)	61.154				

Table 3. Confirmatory Factor Analysis Model Fit Indices (n=213)

	χ^2	Df	p-value	χ^2/df	RMSEA	GFI	CFI	IFI	NFI	NNFI
Five sub-dimensional model	381.010	211	0.000	1.806	0.062	0.89	0.91	0.91	0.83	0.90

Df: Degree of freedom, RMSEA: Root-mean-square error of approximation, GFI: Goodness-of-fit index, CFI: Comparative fit index, IFI: Incremental fit index, NFI: Normed fit index, NNFI: Non-normed fit index

The upper 27% group had a mean score of 93.50 ± 5.74 compared with 67.37 ± 10.78 in the lower 27% group. This difference was statistically significant ($p < 0.001$; Table 5).

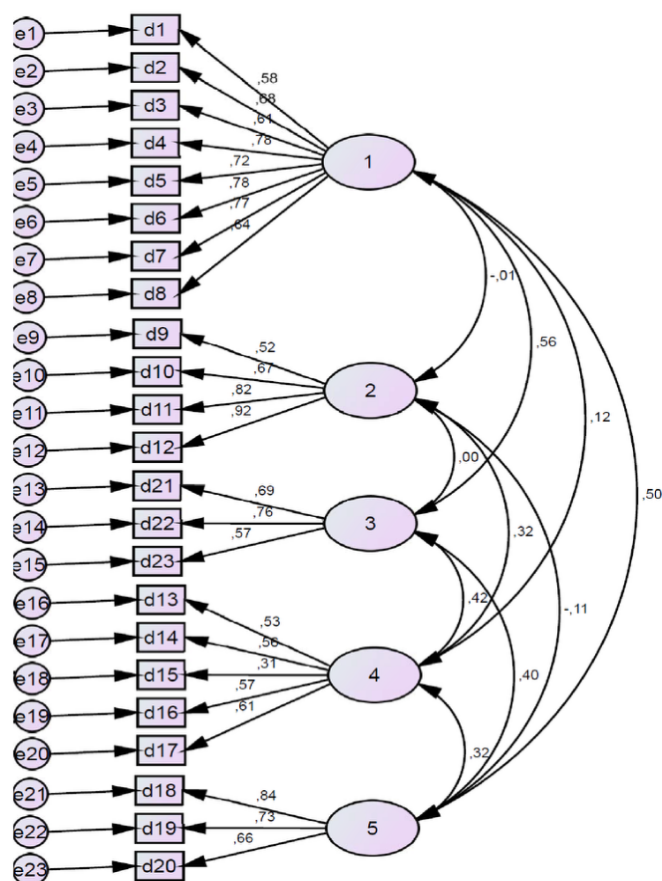


Figure 1. Confirmatory Factor Analysis

Implication for Practice

Pediatric nurses can determine the level of knowledge of parents about hospital-based falls using this scale. They can create education programs, especially for parents with inadequate knowledge or low awareness. With the results obtained from the scale, they can decide which areas parents feel deficient in and which training should be added to in-service training. They can also determine deficiencies or inadequacies in the clinic using the scale results. They can create clinical procedures or evidence-based guidelines for these deficiencies. They can create training programs based on the results they obtain by using the scale in the clinic and plan interventional studies to evaluate these programs.

DISCUSSION

The discussion focused on the psychometric performance of the Turkish Parent Fall Knowledge Scale. Content validity was evaluated by twelve faculty experts from child health and disease nursing and nursing management. Published guidance indicates that I-CVI and S-CVI values above 0.80 reflect adequate consistency among expert judgments and satisfactory I-CVI^(25,26). The indices obtained in this study met this criterion and demonstrated strong agreement among the experts, supporting the scale's capacity to represent parental knowledge regarding children's inpatient fall risk^(25,26).

Sampling adequacy and the factorability of the correlation matrix were examined using the KMO coefficient and Bartlett's sphericity test, respectively. For construct-validity analyses, the literature recommends a statistically significant Bartlett test and a KMO value of at least 0.60^(25,26,28). In the present study, Bartlett's test was significant and KMO exceeded 0.60, indicating that the dataset was appropriate and adequate for construct-validity assessment.

Table 4. Scale and Sub-Dimensions Reliability Analyses (n=213)

Scale and sub-scale	Cronbach alpha	McDonald omega	Split-half analysis				
			First half Cronbach alpha	Second half Cronbach alpha	Spearman-Brown	Guttman split-half	Correlation between two halves
Knowledge of risk	0.887	0.890	0.680	0.666	0.889	0.887	0.799
Providing Supervision	0.847	0.853					
Knowledge to prevent	0.716	0.719					
Perception of hospital safety	0.655	0.671					
Developmental risk	0.709	0.750					
Total scale	0.821	0.838					

Table 5. Upper-lower 27% Group Comparison

Groups	Mean ± SD	t	p-value
Upper 27% group (n=74)	93.50±5.74	16.282	<0.001
Lower 27% group (n=74)	67.37±10.78		
SD: Standard deviation			

When data adequacy and sample suitability are established, EFA is recommended in scale-adaptation research ^(26,28-30). The EFA performed here reproduced a five-dimensional structure comparable to that of the original instrument, with all factor loadings exceeding 0.33. The five sub-dimensions accounted for 61% of total variance and 51% of common variance after measurement error was excluded. In the original scale, factor loadings were above 0.40 and the factors explained 63.8% of total variance ⁽²¹⁾. Methodological guidance commonly identifies 0.30 as a minimum acceptable factor loading and 40% as a minimum level of explained variance ^(26,28-30). Both criteria were surpassed in the current analysis, where loadings were above 0.30 and total explained variance reached 61%. Thus, the EFA findings suggest that the items adequately reflected the constructs represented by their respective sub-dimensions and that the scale can capture parental knowledge of fall risk, fall-related counseling needs, prevention knowledge, perceptions of hospital risk, and knowledge of developmental risks.

Use of CFA in conjunction with EFA is recommended in adaptation studies ^(26,28-30). In this analysis, every factor loading exceeded 0.30 and the five-factor model demonstrated acceptable overall fit. RMSEA, CFI, IFI, and NNFI supported the model, whereas goodness-of-fit index and NFI were at or below conventional cutoffs; these findings therefore warrant cautious interpretation. Direct comparison with the original instrument was not possible because CFA had not been reported for that scale ⁽²¹⁾. Within the present sample, CFA indicated adequate associations of the items with their respective sub-dimensions and with the scale as a whole, suggesting that the Turkish structure can adequately represent parental knowledge concerning pediatric inpatient fall risk. These results provide preliminary support for the five-factor organization of the Turkish version. Nevertheless, because EFA and CFA were conducted in the same sample, confirmation with larger independent samples is needed.

Reliability was examined after completion of the validity analyses. Methodological sources generally recommend Cronbach's alpha and McDonald's omega values above 0.70 for overall scales and above 0.60 for sub-dimensions ^(26,28-30). In this study, both coefficients exceeded 0.80 for the total scale and 0.60 for every sub-dimension, indicating good overall internal consistency. Knowledge of risk and providing supervision showed good internal consistency, whereas knowledge to prevent falls, developmental risk, and perception of hospital safety were within the acceptable range. Reliability evaluation also included item-total and item-sub-dimension total correlations. Because item-total correlations represent the association of each item with the full scale, values above 0.20 are recommended ^(26,28-30). Both sets of correlations exceeded 0.20 in the present study, adding support for reliability. Split-half results were likewise favorable: the alpha coefficients for the two halves exceeded 0.66, and both Spearman-Brown and Guttman Half coefficients were above 0.80. Taken together, these results indicate that the items consistently assess parental knowledge of inpatient fall risks, including developmentally related

risk factors, across differing circumstances without measuring an unrelated construct ^(26,28-30). The original study reported Cronbach alpha values above 0.70 for both the sub-dimensions and total scale ⁽²¹⁾. Because split-half and McDonald's omega values were not provided for the original version, these statistics could not be compared; other reliability findings were nevertheless consistent with the present results ⁽²¹⁾. Overall reliability was good, with subscale coefficients ranging from acceptable to good. The Perception of Hospital Safety subscale, although acceptable, may benefit from further assessment in other samples, potentially because it contains relatively few items or because perceptions of environmental hospital safety may vary culturally.

Comparison of upper and lower 27% score groups is one recommended approach for examining scale discrimination within validity and reliability studies ⁽²⁸⁻³⁰⁾. The present study found a statistically significant difference between the total scores of parents in the upper and lower 27% groups ($p < 0.01$). This finding demonstrates that the instrument can discriminate between parents with lower and higher levels of knowledge regarding their children's fall risks during hospitalization and further supports its validity and reliability.

In addition to its psychometric performance, the Turkish Parental Falls Knowledge Scale has potential relevance for pediatric patient-safety practice. Previous research indicates that many inpatient pediatric falls are preventable and that caregiver education can improve knowledge and preventive behaviors related to falls ^(9,10,13,15,18,19,21). The instrument may therefore help pediatric nurses identify parents who need additional information, specify the knowledge domains requiring education, and assess the effects of fall-prevention teaching. It may consequently function both as an assessment instrument and as an outcome measure in intervention research designed to strengthen parental participation in pediatric inpatient safety.

Study Limitations

Several limitations should be considered. Recruitment was conducted by convenience sampling at a single center, which can restrict the generalizability of the findings. The study also relied on parent-reported data. Test-retest reliability could not be assessed because most children were discharged before the recommended 2-6-week reassessment period, preventing evaluation of the temporal stability of the Turkish scale. In addition, EFA and CFA were both performed on the same sample, which may weaken the robustness of factorial validation. Subsequent studies should test the factor structure in larger independent samples and evaluate test-retest reliability.

CONCLUSION

The findings support the Turkish Parental Falls Knowledge Scale as a valid and reliable measure of parental knowledge and awareness of fall risks during pediatric hospitalization. Pediatric nurses may use the scale to determine educational needs, organize individualized or group fall-prevention education, and

assess the effects of these educational interventions. In research contexts, it may also serve as an outcome measure in studies targeting greater parental participation in pediatric patient safety. Additional studies are warranted to examine temporal stability and to verify the factor structure in independent samples.

Ethics

Ethics Committee Approval: Ethical approval for conducting the study was obtained from İzmir Bakırçay University's Non-Interventional Ethics Board (approval no: 1119, date: 20.07.2023).

Informed Consent: All participants provided written informed consent in accordance with the principles of the Declaration of Helsinki.

Footnotes

Authorship Contributions

Concept: İB, SS-L; Design: İB, SS-L; Data Collection or Processing: ŞBY, SB; Analysis or Interpretation: İB, ŞBY, MB; Literature Search: İB, SB; Writing: İB, ŞBY, MB, SS-L.

Conflict of Interest: No conflict of interest was declared by the authors.

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Pregnant Women's Attitudes Towards Sexuality and Risk Perceptions

Gebelerin Cinselliğe Karşı Tutum ve Risk Algıları

© Ayşegül Keskin Güler¹, © Sakine Yılmaz²

¹University of Health Sciences Türkiye, Atatürk Sanatorium Training and Research Hospital, Department of Education Coordination, Ankara, Türkiye

²Çankırı Karatekin University Faculty of Health Sciences, Department of Midwifery, Çankırı, Türkiye

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ABSTRACT

Objective: This descriptive cross-sectional study aimed to assess pregnant women's attitudes toward sexuality and their perceptions of sexual health-related risks.

Methods: The study sample consisted of 255 pregnant women who presented to the obstetrics and gynecology outpatient clinic of a public hospital. Data were obtained through the administration of "the Descriptive Information Form", "the Attitudes Toward Sexuality in Pregnancy Scale", and "the Risk Perception in Pregnancy Scale". Statistical analyses included descriptive statistics (frequency, percentage, and mean), the Mann-Whitney U test, the Kruskal-Wallis H test, the Shapiro-Wilk test, and Spearman's correlation analysis.

Results: The results demonstrated that participants had a moderate level of attitudes toward sexuality during pregnancy, as indicated by a mean total scale score of 116.07 ± 21.26 . The mean total score obtained from the Risk Perception in Pregnancy Scale was 34.02 ± 22.05 , corresponding to a moderate level. In addition, pregnant women who did not perceive sexual intercourse during pregnancy as a risky condition had higher levels of risk perception, with this difference reaching statistical significance ($p < 0.05$). No statistically significant relationship was observed between pregnant women's attitudes toward sexuality and their risk perceptions ($p > 0.05$).

Conclusion: It is recommended that healthcare professionals provide structured counseling and educational programs aimed at improving pregnant women's risk perceptions and attitudes toward sexuality during pregnancy.

Keywords: Sexuality, pregnancy, risk perception, sexual attitude, nursing

ÖZ

Amaç: Araştırma gebelerin cinselliğe karşı tutum ve risk algılarını belirlemek amacıyla tanımlayıcı kesitsel olarak yapıldı.

Yöntem: Araştırmanın örneklemini bir devlet hastanesinin kadın doğum polikliniğine başvuran 255 gebe kadın oluşturdu. Araştırma verileri, Tanıtıcı Bilgi Formu, Gebelikte Cinselliğe Karşı Tutum Ölçeği ve Gebelikte Risk Algısı Ölçeği kullanılarak toplandı. Verilerin analizinde frekans analizi (sayı, yüzde, ortalama), Mann-Whitney U testi, Kruskal-Wallis H testi, Shapiro-Wilk ve Spearman korelasyon analizi kullanıldı.

Bulgular: Bu çalışmada gebelerin Gebelikte Cinselliğe Karşı Tutum ölçeği toplam puan ortalamalarının ($116,07 \pm 21,26$) orta düzeyde olduğu saptandı ($p < 0,05$). Gebelikte Risk Algısı Ölçeği toplam puan ortalamalarının ($34,02 \pm 22,05$) orta düzeyde olduğu ve gebelikte cinsel birleşmeyi riskli bir durum olarak algılamayan gebelerin risk algılarının yüksek olduğu belirlendi ($p < 0,05$). Araştırmada gebelerin cinselliğe karşı tutum ve risk algıları arasında anlamlı düzeyde bir ilişki saptanmadı ($p > 0,05$).

Sonuç: Sağlık profesyonellerinin gebelikte cinsellik açısından risk algısı ve tutumuna yönelik danışmanlık faaliyetleri ve eğitim programları düzenlenmeleri önerilebilir.

Anahtar kelimeler: Cinsellik, gebelik, risk algısı, cinsel tutum, hemşirelik

ORCID IDs: AKG. 0000-0002-0177-9154; SY. 0000-0002-7406-1389



Corresponding Author: Sakine Yılmaz,

E-mail: sakinee_yilmaz@hotmail.com

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INTRODUCTION

Sexuality is an individual as well as a social construct, usually associated with one or more partners experienced and defined by the individual. A range of physiological processes, such as hormonal changes, menstruation, pregnancy, childbirth, breastfeeding, and menopause, may influence it ⁽¹⁾. Pregnancy involves emotional and physiologic changes affecting the woman, her partner, and their relationships ^(2,3). Therefore, sexuality in pregnancy is very important.

In the absence of pregnancy-related complications, sexual activity is considered a natural process that may contribute positively to the sexual and psychological well-being of both partners. Healthy sexual practices during pregnancy can support the quality of the couple's relationship and may have positive effects on the pregnant woman's self-esteem and psychological well-being. A variety of factors can shape sexual attitudes and behaviors during pregnancy, including maternal age, previous adverse pregnancy experiences, concerns regarding motherhood, culturally embedded myths about pregnancy, changes in body image associated with physiological alterations, perceptions that sexual activity is incompatible with the sacred role of motherhood, and the misconception that sexual intercourse may pose risks to fetal and maternal health ^(4,5).

Pregnancy represents a multifaceted period marked by substantial physiological, psychological, and social transformations. These changes may influence pregnant women's sexual lives and subsequently shape their attitudes toward pregnancy and sexuality during this period. Anxiety, personal beliefs and values concerning sexuality, as well as attitudes toward the acceptability of sexual activity during pregnancy, have been reported to be associated with sexual functioning. Furthermore, pregnancy-related physical discomfort, restricted mobility resulting from bodily changes, concerns about potential harm to the fetus, and cultural factors may contribute to alterations in sexual life during pregnancy. Dyadic adjustment is a factor that influences pregnancy both positively and negatively. Pregnant individuals who experience a supportive and harmonious relationship with their partners may adapt to the pregnancy process more effectively. In contrast, insufficient partner harmony and support may contribute to difficulties during pregnancy. Greater relationship satisfaction and mutual adjustment, which are considered important factors influencing perceptions of motherhood and dyadic adaptation during pregnancy, may foster more positive attitudes toward sexuality. The perception of motherhood begins to develop during pregnancy. At the same time, pregnancy is accompanied by substantial changes in women's physical appearance and body image. The process of preparing for parenthood may also influence the quality of the couple's dyadic adjustment. Collectively, the physical, psychological, and relational experiences associated with pregnancy can shape attitudes toward sexuality. Furthermore, perceiving sexual activity during pregnancy as taboo and having limited access to sexual counseling may adversely affect women's attitudes toward sexuality ^(6,7). Risk perception

during pregnancy lies based on the negative impact on women's sexual lives. Many studies suggest that many couples do not find sexual intercourse safe during pregnancy and are afraid of sexual intercourse ^(8,9). Risk perception is delineated as the subjective assessment individuals make regarding the likelihood and origin of a given risk. This cognitive process holds pivotal importance in how individuals assess and respond to information pertaining to their health status. Central to the concept of risk perception is the recognition that risk is essentially a cognitive construct shaped by one's perceptions, past experiences, and anticipations ^(10,11). Risk perception in pregnancy is defined as the likelihood of unexpected but foreseeable conditions in routine pregnancy follow-up or conditions involving life risk in the antenatal period ⁽¹²⁾. Changes occurring during pregnancy pose a potential risk for every pregnant woman and her developing baby. These risks may occur in different ways in every pregnancy period. When the entire pregnancy process is evaluated worldwide, a risky situation that negatively affects maternal/fetal health is encountered in 5-20% ⁽¹³⁾. In Türkiye, 35.2% of pregnancies are in the risk category ⁽¹⁴⁾. The high perception of risk prepares the ground for people to stay away from the behaviors they will exhibit in the relevant subject ⁽¹⁵⁾.

Risk perception is an emotional process that results in emotions, attitudes, and behavioral parameters. High-risk perception towards pregnancy makes it difficult for women to adapt to pregnancy and negatively affects many processes, such as sexuality during pregnancy ⁽¹⁰⁻¹²⁾. Negative effects on sexuality during pregnancy negatively affect women's physical and psychological health and change their quality of life ^(8,9). Determining the levels of risk perception of pregnant women towards their babies and themselves will contribute to the determination of the training and counseling services to be provided to health professionals and pregnant women, to a smooth process for maternal and infant health, and thus to a positive effect on the sexual attitudes of pregnant women. Considering these findings collectively, this study aimed to examine the relationship between risk perception during pregnancy and attitudes toward sexuality.

Research Questions

The study sought to address the following research questions:

1. What is the level of women's attitudes toward sexuality during pregnancy?
2. What is the level of women's risk perceptions during pregnancy?
3. Do women's attitudes toward sexuality and risk perceptions during pregnancy vary significantly according to their sociodemographic characteristics?
4. Is there a significant association between women's attitudes toward sexuality and their risk perceptions during pregnancy?

MATERIAL AND METHOD

Study Design and Participants

This study employed a descriptive cross-sectional design and included 255 pregnant women who attended the obstetrics

and gynecology outpatient clinic of a state hospital. The target population comprised 1.200 pregnant women who visited the same outpatient clinic in 2020. The study sample consisted of pregnant women aged 18 years or older who had no communication difficulties or psychiatric disorders and voluntarily agreed to participate in the study between September 13, 2021, and October 31, 2022. Using research data obtained with the post-hoc G*Power program, the sample size was determined to be 255 based on 95% confidence and 95% test power.

Measurements

Data collection was conducted using “the Descriptive Information Form” developed by the researchers following a comprehensive review of the relevant literature, “the Risk Perception Scale in Pregnancy”, and “the Attitudes Toward Sexuality in Pregnancy Scale (ATSPS)”.

Descriptive Information Form: The form consists of a total of 27 items, including sociodemographic (age, education, etc.), obstetric (number of pregnancies, number of children, mode of conception, etc.), and sexual characteristics (satisfaction with the marital relationship, sexual life before pregnancy, etc.) of the participants ⁽¹⁶⁻¹⁸⁾.

ATSPS: The scale was developed by Sezer and Şentürk Erenel ⁽¹⁶⁾ in 2018 to assess the attitudes of pregnant women and men whose partners are pregnant toward sexuality. The ATSPS consists of 34 items and three subscales. In the ATSPS, negative items (3-4-7-8-9-10-12-13-15-16-17-18-19-22-25-26-27-29-30) are coded in reverse.

ATSPS yields a total score ranging from 34 to 170. Higher scores on the ATSPS indicate more positive attitudes toward sexuality during pregnancy. The Cronbach’s alpha coefficients were 0.85 for the “Anxiety Toward Sexual Intercourse During Pregnancy” subscale, 0.86 for the “Beliefs and Values Toward Sexuality During Pregnancy” subscale, and 0.81 for the “Approval of Sexuality During Pregnancy” subscale, while the coefficient for the overall scale was 0.90 ⁽¹⁶⁾. In the present study, Cronbach’s alpha coefficients were 0.86 for the “Anxiety Toward Sexual Intercourse During Pregnancy” subscale, 0.91 for the “Beliefs and Values Toward Sexuality During Pregnancy” subscale, and 0.78 for the “Approval of Sexuality During Pregnancy” subscale, with a coefficient of 0.92 for the overall scale.

Risk Perception in Pregnancy Scale: The scale was originally developed by Heaman and Gupton ⁽¹⁹⁾ in 2009, and its validity and reliability in Turkish were subsequently established by Evcli and Dağlar ⁽¹²⁾ in 2019. This visual analog scale consists of nine items grouped into two factors. The first factor, “pregnant women’s risk perception toward the baby” includes five items (items 2, 6, 7, 8, and 9), whereas the second factor, “pregnant women’s risk perception toward themselves” comprises four items (items 1, 3, 4, and 5). Each item is accompanied by a 0-100 mm linear visual analog scale anchored by the statements “no risk at all” and “extremely high risk”. The overall scale score is calculated by summing the scores obtained from the nine items and dividing

the total by nine. The scale does not have an established cut-off value; therefore, higher scores indicate greater perceptions of risk concerning the pregnant woman and her baby ⁽¹²⁾. The internal consistency of the scale, as assessed by Cronbach’s alpha, was reported as 0.87 in the original study ⁽¹⁹⁾, 0.84 in the Turkish adaptation study ⁽¹²⁾, and 0.91 in the current study.

Data Collection

Face-to-face interviews were conducted with eligible pregnant women attending the obstetrics and gynecology outpatient clinic. The duration of each interview was approximately 15-20 minutes.

Ethical Considerations

The study received ethical clearance from the Çankırı Karatekin University Ethics Committee (approval no: 20, date: 03.06.2021) and institutional approval from the relevant institution (09.08.2021/ E-53449070-779-88). Before enrollment, the pregnant women were informed about the study’s purpose and procedures. Written and verbal informed consent was obtained from all participants who agreed to take part in the study. The research was conducted in accordance with the principles of the Declaration of Helsinki.

Statistical Analysis

The SPSS (Statistical Package for the Social Sciences) 25.0 program was used for statistical data analysis in this study. Shapiro-Wilk analysis was performed to evaluate the normal distribution of the data. In this context, the mean and frequency values of the data were calculated. Mann-Whitney U analysis and Kruskal-Wallis H analysis were applied. Correlation was performed to evaluate the relationship between the scales. Mann-Whitney U analysis was used to compare scale scores according to variables with two subcategories, while Kruskal-Wallis H analysis was used to compare variables with three or more subcategories. Spearman’s correlation analysis was used in the relationship between scale scores. The significance level was accepted as $p < 0.05$.

RESULTS

Among the pregnant women, 31.8% were in the 23-27 age group, 47.1% were university graduates, and 67.1% were employed. It was found that 56.5% of the pregnant women had income equal to expenses, 48.6% of their husbands were university graduates, and 96.9% were employed. It was determined that most pregnant women (87.8%) lived in the city, 82% lived with their spouse and child, and 98% had their own bedroom. It was determined that 47.5% of the pregnant women were in the second trimester, 46.7% had their first pregnancy, approximately half had no living children, 82.4% had planned pregnancies, and 91.8% had a positive pregnancy evaluation (Table 1).

The findings indicated that 51.4% of the pregnant women had received information about sexual life during pregnancy, with 58.8% reporting midwives or nurses as their primary source of information. Additionally, 52.9% of the participants demonstrated a moderate level of knowledge regarding sexuality during pregnancy. A perceived risk associated with restricting sexual

Table 1. Distribution of Some Sociodemographic Information on Pregnant Women (n=255)

Selected sociodemographic characteristics of pregnant women	n	%
Age		
18-22	29	11.4
23-27	81	31.8
28-31	69	27.1
32-37	52	20.4
37+	24	9.3
Education status		
Literate	6	2.4
Primary education	42	16.5
High school	78	30.6
University	120	47.1
Postgraduate	9	3.4
Employment status		
Yes	171	67.1
No	84	32.9
Income level		
Income is lower than household expenditures	69	27.1
Income is equivalent to household expenditures	144	56.5
Income exceeds household expenditures	42	16.5
Spouse's education status		
Literate	7	2.7
Primary education	30	11.8
High school	82	32.2
University	124	48.6
Postgraduate	12	4.7
Spouse's employment status		
Yes	247	96.9
No	8	3.1
Place of residence		
City (province/district center)	224	87.8
Countryside (town/village)	31	12.2
Individuals living in the same household other than spouse and children		
Yes	46	18.0
No	209	82.0
Having their own bedroom (husband and wife)		
Yes	250	98.0
No	5	2.0
Gestational week		
1 st trimester	38	14.9
2 nd trimester	121	47.5
3 rd trimester	96	37.6

Table 1. Continued

Selected sociodemographic characteristics of pregnant women	n	%
Number of pregnancy		
First pregnancy	119	46.7
Second pregnancy	94	36.9
Three and above	42	16.5
Number of living children		
No	125	49.0
One child	88	34.5
Two children	31	12.2
Three children and above	11	4.3
Planned pregnancy		
Yes	210	82.4
No	45	17.6
Emotional state regarding the current pregnancy		
Positive	234	91.8
Negative	21	8.2

intercourse during pregnancy was reported by 86.3% of the pregnant women. Among those who reported restrictions on sexual intercourse, 44.0% identified the risk of miscarriage as the reason for the restriction. Physicians were reported as the source of restriction by 15.7% of the participants, and among these women, 52.9% stated that the restriction was due to the risk of miscarriage (Table 2).

The findings showed that 67.8% of the pregnant women were satisfied with their marital relationship, while 69.0% reported satisfaction with their sexual relationship with their spouses before pregnancy. During the current pregnancy, 63.5% indicated that they were satisfied with their sexual life with their spouses. Furthermore, 54.1% reported no change in sexual life satisfaction compared with the pre-pregnancy period. Sexual intercourse during pregnancy was reported by 67.8% of the participants, whereas 30.1% indicated that they abstained from sexual intercourse due to a physician's recommendation or restriction (Table 2).

The mean scores of pregnant women were 31.55 ± 6.90 for anxiety regarding sexual intercourse during pregnancy, 37.90 ± 8.63 for beliefs and values concerning sexuality, and 46.62 ± 8.86 for approval of sexuality during pregnancy. The mean total attitude score toward sexuality during pregnancy was 116.07 ± 21.26 , indicating a level above moderate. Regarding risk perception during pregnancy, the mean scores were 33.67 ± 24.33 for perceived risk to the fetus, 34.44 ± 23.64 for perceived risk to themselves, and 34.02 ± 22.05 for overall risk perception (Table 3).

Pregnant women aged 18-22, 23-27, and 28-32 years had significantly higher scores for beliefs and values regarding sexuality during pregnancy compared with those aged 37 years and older ($p < 0.05$). Women in the first trimester demonstrated significantly

Table 2. Distribution of Pregnant Women's Knowledge About Sexuality (n=255)

Knowledge on sexuality	n	%
Knowledge about sexual life during pregnancy		
No	124	48.6
Yes	131	51.4
Person/place where information on sexual life during pregnancy was obtained		
Doctor	74	56.5
Midwife-nurse	77	58.8
Prenatal courses	7	5.3
Internet	55	42.0
Friend	26	19.8
Books	28	21.4
Family elders	14	10.6
Knowledge of sexual life during pregnancy		
Almost never	23	9.0
A little bit	68	26.7
Middle	135	52.9
Very much	29	11.4
Women's perception of sexual intercourse as a risk during pregnancy		
No	220	86.3
Yes	35	13.7
Women's perception of risk-limiting sexual intercourse during pregnancy		
Risk of premature birth	7	28.0
Bleeding	4	16.0
Risk of miscarriage	11	44.0
Infection	3	12.0
Restriction of sexual intercourse during pregnancy by the doctor		
No	215	84.3
Yes	40	15.7
The doctor's reason for restricting sexual intercourse during pregnancy		
Risk of miscarriage	18	52.9
Risk of premature birth	10	29.4
Vaginal bleeding	5	14.7
Sexually transmitted disease in the pregnant woman or her partner	1	2.9
Placenta previa	3	8.8
Premature opening of the gestational sac	1	2.9
Recurrent miscarriage in previous pregnancies	2	5.9
Premature birth in previous pregnancies	1	2.9
I do not know the reason	2	5.9

Table 2. Continued

Knowledge on sexuality	n	%
General relationship status in marriage		
I am very satisfied	65	25.5
I am satisfied	173	67.8
Not satisfied	11	4.3
I am very dissatisfied	6	2.4
Sexual life before pregnancy		
I am very satisfied	55	21.6
I am satisfied	176	69.0
Not satisfied	18	7.1
I am very dissatisfied	6	2.4
Sexual life during pregnancy		
I am very satisfied	36	14.1
I am satisfied	162	63.5
Not satisfied	44	17.3
I am very dissatisfied	13	5.1
Sexual life satisfaction during pregnancy compared with pre-pregnancy		
Negative change	95	37.3
No change	138	54.1
Positive change	22	8.6
Sexual intercourse during pregnancy		
Yes	173	67.8
No	82	32.2
Reason for not having sexual intercourse		
Doctor banned	25	30.1
My husband did not want it	9	10.8
I did not want to	32	38.6
My husband and I did not want it to be mutual	20	24.1
Other*	1	1.2

*: Environment unsuitability

higher total attitude scores toward sexuality during pregnancy than those in the second trimester ($p < 0.05$). Furthermore, the level of approval of sexual intercourse during pregnancy was significantly higher among women experiencing their second pregnancy than among those with three or more pregnancies ($p < 0.05$). In addition, pregnant women who perceived sexual intercourse during pregnancy as a risky situation had significantly higher scores for beliefs and values concerning sexuality during pregnancy ($p < 0.05$; Table 4).

No statistically significant differences were observed in pregnant women's risk perception toward the fetus, risk perception toward themselves, or overall risk perception according to age group, gestational week, number of pregnancies, or emotional assessment of pregnancy ($p > 0.05$). However, pregnant women who did not consider sexual intercourse during pregnancy to be a

risky situation had significantly higher total risk perception scores ($p < 0.05$; Table 5).

No statistically significant association was identified between pregnant women's overall risk perception during pregnancy and their total attitudes toward sexuality ($r = 0.005$; $p > 0.05$; Table 6).

Table 3. Mean Scores of Pregnant Women's Risk Perception During Pregnancy and Attitude Towards Sexuality Scale

Scales	Score range	Min-max	Mean $\pm$ SD
Anxiety about sexual intercourse during pregnancy	9-45	9-45	31.55 $\pm$ 6.90
Beliefs and values about sexuality in pregnancy	10-50	10-50	37.90 $\pm$ 8.63
Affirming sexuality during pregnancy	15-75	21-71	46.62 $\pm$ 8.86
Total attitude towards sexuality in pregnancy	34-170	46-166	116.07 $\pm$ 21.26
Pregnant woman's risk perception towards her baby	0-100	0-90	33.67 $\pm$ 24.33
Pregnant woman's risk perception towards herself	0-100	0-94	34.44 $\pm$ 23.64
Total risk perception during pregnancy	0-100	0-90	34.02 $\pm$ 22.05
Mean: Average, SD: Standard deviation			

Table 4. Distribution of Pregnant Women's Attitude Towards Sexuality Scale Scores According to Sociodemographic Variables (n=255)

Sociodemographic variables	Anxiety about sexual intercourse during pregnancy	Beliefs and values about sexuality in pregnancy	Affirming sexuality in pregnancy	Total attitude towards sexuality in pregnancy
	Mean $\pm$ SD	Mean $\pm$ SD	Mean $\pm$ SD	Mean $\pm$ SD
Age group				
18-22 (a)	33.59 $\pm$ 5.74	40.66 $\pm$ 8.34	48.17 $\pm$ 7.44	122.41 $\pm$ 18.27
23-27 (b)	31.33 $\pm$ 6.84	37.84 $\pm$ 8.34	46.78 $\pm$ 9.79	115.95 $\pm$ 21.23
28-31 (c)	31.93 $\pm$ 7.13	38.91 $\pm$ 8.83	47.41 $\pm$ 8.83	118.25 $\pm$ 22.05
32-37 (d)	30.63 $\pm$ 7.65	36.87 $\pm$ 9.00	45.38 $\pm$ 8.59	112.88 $\pm$ 22.64
37+ (e)	30.75 $\pm$ 5.9	34.08 $\pm$ 7.41	44.67 $\pm$ 7.72	109.5 $\pm$ 17.59
Statistical analysis	$\chi^2 = 4.4$; $p = 0.355$	$\chi^2 = 11.3$; $p = 0.024$ a > e, b > e, c > e	$\chi^2 = 2.7$; $p = 0.606$	$\chi^2 = 7.5$; $p = 0.112$
Gestational week				
1 st trimester (a)	32.89 $\pm$ 8.15	39.11 $\pm$ 9.86	49.11 $\pm$ 11.68	121.11 $\pm$ 27.63
2 nd trimester (b)	30.98 $\pm$ 6.02	37.54 $\pm$ 7.59	45.82 $\pm$ 7.02	114.33 $\pm$ 17.36
3 rd trimester (c)	31.75 $\pm$ 7.38	37.88 $\pm$ 9.36	46.66 $\pm$ 9.55	116.28 $\pm$ 22.72
Statistical analysis	$\chi^2 = 5.3$; $p = 0.072$	$\chi^2 = 3.0$; $p = 0.227$	$\chi^2 = 5.2$; $p = 0.074$	$\chi^2 = 6.0$; $p = 0.049$ a > b
Number of pregnancy				
1 (a)	31.48 $\pm$ 7.96	38.02 $\pm$ 9.46	46.48 $\pm$ 9.96	115.97 $\pm$ 24.63
2 (b)	32.12 $\pm$ 5.92	37.94 $\pm$ 8.05	48.11 $\pm$ 8.23	118.16 $\pm$ 18.49
3 and above (c)	30.50 $\pm$ 5.61	37.48 $\pm$ 7.49	43.71 $\pm$ 5.78	111.69 $\pm$ 15.79
Statistical analysis	$\chi^2 = 2.1$; $p = 0.354$	$\chi^2 = 0.7$; $p = 0.697$	$\chi^2 = 10.7$; $p = 0.005$ b > c	$\chi^2 = 3.1$; $p = 0.210$
Women's perception of sexual intercourse as a risk during pregnancy				
No	31.58 $\pm$ 6.97	37.53 $\pm$ 8.58	46.9 $\pm$ 8.94	116.00 $\pm$ 21.48
Yes	31.4 $\pm$ 6.52	40.23 $\pm$ 8.65	44.89 $\pm$ 8.26	116.51 $\pm$ 20.13
Statistical analysis	U=3817.5; $p = 0.936$	U=3006.5; $p = 0.037$	U=3267.5; $p = 0.150$	U=3631.0; $p = 0.589$
Mean: Average, SD: Standard deviation, U: Mann-Whitney U analysis, χ^2 : Kruskal-Wallis H analysis				

Table 5. Distribution of Pregnant Women's Risk Perception in Pregnancy Scale Scores Based on Sociodemographic Variables (n=255)

Sociodemographic variables	Pregnant woman's risk perception towards her baby	Pregnant women's risk perception towards herself	Total risk perception during pregnancy
	Mean $\pm$ SD	Mean $\pm$ SD	Mean $\pm$ SD
Age group			
18-22 (a)	40.41 $\pm$ 25.21	39.12 $\pm$ 24.04	39.84 $\pm$ 23.00
23-27 (b)	34.50 $\pm$ 25.31	35.30 $\pm$ 24.63	34.86 $\pm$ 22.63
28-32 (c)	30.73 $\pm$ 22.03	32.10 $\pm$ 21.65	31.34 $\pm$ 20.38
32-37 (d)	31.62 $\pm$ 24.72	34.16 $\pm$ 24.06	32.75 $\pm$ 22.55
37+ (e)	35.66 $\pm$ 25.46	33.25 $\pm$ 25.33	34.59 $\pm$ 22.72
Statistical analysis	$\chi^2=4.4$; p=0.359	$\chi^2=1.9$; p=0.748	$\chi^2=3.4$; p=0.491
Gestational week			
1 st trimester (a)	25.08 $\pm$ 20.14	30.19 $\pm$ 24.23	27.35 $\pm$ 20.69
2 nd trimester (b)	33.67 $\pm$ 22.65	35.21 $\pm$ 21.99	34.35 $\pm$ 20.30
3 rd trimester (c)	37.08 $\pm$ 27.12	35.16 $\pm$ 25.43	36.23 $\pm$ 24.28
Statistical analysis	$\chi^2=5.5$; p=0.063	$\chi^2=1.8$; p=0.410	$\chi^2=4.3$; p=0.116
Number of pregnancy			
1 (a)	31.96 $\pm$ 24.83	34.93 $\pm$ 24.67	33.28 $\pm$ 23.05
2 (b)	36.02 $\pm$ 22.64	33.81 $\pm$ 22.15	35.04 $\pm$ 20.52
3 and above (c)	33.26 $\pm$ 26.64	34.49 $\pm$ 24.43	33.81 $\pm$ 22.88
Statistical analysis	$\chi^2=2.5$; p=0.286	$\chi^2=0.1$; p=0.980	$\chi^2=0.8$; p=0.656
Women's perception of sexual intercourse as a risk during pregnancy			
No	34.86 $\pm$ 24.63	35.61 $\pm$ 24.12	35.19 $\pm$ 22.35
Yes	26.23 $\pm$ 21.21	27.14 $\pm$ 19.06	26.63 $\pm$ 18.67
Statistical analysis	U=3072.5; p=0.055	U=3112.0; p=0.069	U=3000.5; p=0.036

Mean: Average, SD: Standard deviation, U: Mann-Whitney U analysis, χ^2 : Kruskal-Wallis H analysis

Table 6. Analyzing the Relationship Between the Two Scales

		Anxiety about sexual intercourse during pregnancy	Beliefs and values about sexuality in pregnancy	Affirming sexuality in pregnancy	Total attitude towards sexuality in pregnancy
Pregnant woman's risk perception towards her baby	r	0.024	0.017	-0.023	0.006
	p	0.706	0.784	0.721	0.924
Pregnant woman's risk perception towards herself	r	0.016	0.018	-0.008	-0.001
	p	0.802	0.774	0.893	0.991
Total risk perception during pregnancy	r	0.024	0.021	-0.020	0.005
	p	0.700	0.737	0.751	0.936

r: Spearman's rho correlation coefficient

DISCUSSION

Pregnancy includes emotional and physiologic changes that affect the woman, her partner, and all her relationships, especially sexuality ⁽²⁾. Pregnancy involves various potential maternal and fetal risks, which may influence and increase pregnant women's perceptions of risk ⁽¹²⁾. A heightened perception of risk may predispose individuals to avoid engaging in behaviors associated with the relevant situation ⁽¹⁵⁾. All these affect the perspectives

and attitudes of women and their spouses towards sexuality during pregnancy ⁽¹⁶⁾. As research investigating pregnant women's attitudes and risk perceptions regarding sexuality remains limited, the findings of this study were interpreted and discussed in relation to the available literature.

In this study, the mean total attitude score of pregnant women towards sexuality was 116.07 $\pm$ 21.26, which was above the moderate level. In the literature, it was found that the attitudes of

pregnant women ^(5,20) and spouses ⁽⁵⁾ towards sexuality were more positive than moderate. In contrast to our study results, Moyano et al. ⁽²¹⁾ found that non-pregnant women had higher self-esteem and sexual assertiveness than pregnant women. In our study, the fact that almost all pregnant women (91.8%) had positive feelings about the current pregnancy and 82.4% had a planned pregnancy may have positively affected the attitudes of pregnant women towards sexuality.

In this study, it was determined that pregnant women aged below 31 years were positively affected by beliefs and values toward sexuality. In a previous study, it was found that beliefs and values towards sexuality were positively affected positively in pregnant women under the age of 29 who found it safe to have sexual intercourse during pregnancy ⁽²⁰⁾. Another study found that gestational age was parallel with libido; the younger the age, the more positive the sexual attitude ⁽²²⁾. As a remarkable result, our study determined that beliefs and values towards sexuality were positively affected by pregnant women who perceived sexual intercourse during pregnancy as risky. The study by Kahveci and Cirban Ekrem ⁽⁶⁾ found that pregnant women have a negative attitude towards sexuality. These findings differ from those of previous studies, which have documented positive attitudes toward sexuality during pregnancy ^(20,23).

In the present study, pregnant women aged 36-48 years demonstrated more favorable attitudes toward sexuality compared with those in other age groups. Previous studies have yielded inconsistent findings regarding the association between age and sexual attitudes during pregnancy, with some reporting an increase in positive attitudes with advancing age ⁽²³⁾, whereas others have indicated a decline ⁽²⁰⁾. It was reported that 87.9% of Nigerian pregnant women did not find sexual intercourse during pregnancy objectionable, and 61.1% of them engaged in sexual activity during pregnancy ⁽²⁴⁾, whereas 78% of Turkish pregnant women and 52.5% of their partners found sexual intercourse safe during pregnancy ⁽²⁵⁾. Although our results are similar to the literature, it is thought that the attitude of pregnant women towards sexuality is shaped within the framework of demographic, obstetric, and cultural factors ^(20,23). In addition, more than half of the pregnant women (63.5%) in our study were satisfied with their sexual life during pregnancy and had received information about sexual life, and awareness (51.4%) may have positively affected our findings.

Although the frequency of sexual intercourse during pregnancy decreases significantly, it has been reported that many people worldwide have positive attitudes towards sexuality during this period ⁽²⁶⁾. This study determined that the attitudes of pregnant women in the first trimester were highly positive toward sexuality during pregnancy. In the study by Şolt Kırca and Dagli ⁽⁷⁾, it was found that the attitude towards sexuality of pregnant women up to the third trimester was highly positive. In another study, contrary to our findings, the attitudes of pregnant women towards sexuality in the third trimester were reported to be highly positive ⁽²⁷⁾. Another study found that most pregnant women (66.7%) had

a positive attitude towards sexuality during pregnancy, and the percentages of pregnant women with a positive attitude varied by trimester: 57.1% (first trimester), 82.1% (second trimester), and 62.1% (third trimester) ⁽²³⁾. Previous studies have indicated that pregnant women and their partners may refrain from sexual intercourse during pregnancy due to negative perceptions of pregnancy-related physical changes, such as weight gain and alterations in skin color, as well as psychological changes, including anxiety and depression, and concerns about potentially harming the fetus ^(23,28). Another qualitative study reported that fatigue, breast tenderness, numbness, and increased abdominal size were associated with a reduced frequency of sexual intercourse, while pregnancy-related physical changes adversely affected women's sexual experiences. However, some pregnant women reported an increased desire for sexual activity during pregnancy ⁽²⁸⁾. Physical and psychological difficulties that become more pronounced as pregnancy progresses, concerns about potential harm to the fetus, fears that sexual intercourse may result in miscarriage or preterm birth, and beliefs that sexual activity during pregnancy is sinful or unsafe may contribute to sexual dysfunction among pregnant women ^(6,7,28). In our study, the high level of education of pregnant women and their spouses and their high level of awareness since the majority lived in urban areas may have positively affected their attitudes towards sexuality. It was determined that women with second pregnancy approved sexuality during pregnancy at a higher level than women with three or more pregnancies. In Aksoy et al.'s ⁽¹⁸⁾ study, it was reported that couples' attitudes toward sexuality and marital adjustment were negatively affected as the number of pregnancies increased. The findings indicated that gestational duration, parity, limitations on sexual activity, and changes in the partner's sexual attitudes were predictive factors associated with sexual functioning during pregnancy. Prenatal care should incorporate a comprehensive needs assessment that addresses the physical, emotional, and psychological well-being of pregnant women while also taking their partners' participation into account. Pregnant women should be provided with comprehensive information on the physiological and psychological aspects of sexuality during pregnancy, safe sexual practices and relevant precautions, common sexual dysfunctions and potential management strategies, emotional intimacy and alternative forms of sexual closeness, as well as sexual health during the postpartum period. Considering the uniqueness of each couple's experiences, individualized needs should be prioritized throughout the counseling process ⁽²³⁾. It is thought that these results may be due to the decrease in the time allocated to each other by the spouses with the increase in responsibilities due to the increase in the number of children.

In our study, the mean total risk perception score of pregnant women during pregnancy was 34.02 ± 22.05 , which was at a moderate level. In our study, it is a remarkable result that pregnant women's risk perceptions towards themselves were higher than their risk perceptions towards their babies. In the literature, risk perceptions of pregnant women were found to be low ^(10,29,30). The difference in the study results may be because risk perception

in pregnancy is a multidimensional concept affected by various personal (age, education, etc.), psychological (perception, learning, beliefs and attitudes, etc.), and social factors (family, role and status in society, time and available resources, relationship with spouse, etc.)⁽²³⁾.

In the present study, higher risk perception scores were observed among pregnant women who did not perceive sexual intercourse during pregnancy as a potential risk. This finding is another remarkable result of our study. In a study similar to our findings, it was found that more than half of the pregnant women perceived sexual intercourse during pregnancy as safe, but their anxiety was high⁽²⁰⁾. Sexuality constitutes an integral aspect of human life and is influenced by a range of factors, including individual attitudes and values, behavioral patterns, personality traits, physical appearance, beliefs, emotions, and the social environment⁽¹⁶⁾. The fact that 84.3% of the pregnant women did not perceive sexual intercourse during pregnancy as risky may have been influenced by the fact that 84.3% of them were not restricted from sexual intercourse by a doctor with any diagnosis. In addition, the fact that 46.7% had their first pregnancy may have affected the risk perceptions of these pregnant women.

No statistically significant relationship was observed between pregnant women's risk perceptions and their attitudes toward sexuality during pregnancy. No study examines the relationship between risk perception and attitude towards sexuality in pregnant women. In this context, our findings in this study are unique and are thought to make an important contribution to the literature. The literature has reported that risk perception is associated with health status, health decisions, and behaviors⁽³⁰⁻³²⁾. It has been reported that individuals with a high perception of disease risk are associated with worse health status in future disease diagnoses⁽³¹⁾. Pregnant women have different risk perceptions and interpretations. Pregnancy risk perception depends on medical diagnoses and individual factors^(30,33). Our study result may have been influenced by the fact that almost all of the pregnant women did not perceive sexual intercourse during pregnancy as a risk, their pregnancy was planned, they had positive feelings about the current pregnancy, more than half of them received information about sexual life from health professionals, and 84.3% of them were not restricted from sexual intercourse by a doctor with any diagnosis.

Study Limitations

The study has several limitations. First, its single-center, cross-sectional, and descriptive design limits the extent to which the findings can be generalized. Secondly, the sample was limited to pregnant women who presented to the obstetrics and gynecology outpatient clinic at the institution where the study was conducted and who voluntarily agreed to participate. Therefore, the findings may not be generalizable to the broader population of pregnant women.

CONCLUSION

In the present study, pregnant women demonstrated an overall positive attitude toward sexuality, with the mean total score being above the moderate level. Pregnant women aged below 31 years exhibited more favorable beliefs and values concerning sexuality. Highly positive attitudes toward sexuality during pregnancy were observed among women in the first trimester, while women in their second pregnancy reported greater approval of sexual activity.

Our study determined that pregnant women's mean total risk perception score during pregnancy was moderate, and that pregnant women who viewed and experienced sexual intercourse as normal during pregnancy had a high risk perception. No statistically significant relationship was identified between pregnant women's risk perceptions and their attitudes toward sexuality during pregnancy.

In light of the study findings, healthcare professionals should assess pregnant women's perceptions of sexuality and pregnancy-related risks and provide pregnant women and their partners with comprehensive education and counseling regarding these issues.

Ethics

Ethics Committee Approval: The study received ethical clearance from the Çankırı Karatekin University Ethics Committee (approval no: 20, date: 03.06.2021) and institutional approval from the relevant institution (09.08.2021/E-53449070-779-88).

Informed Consent: Before enrollment, the pregnant women were informed about the study's purpose and procedures. Written and verbal informed consent was obtained from all participants who agreed to take part in the study.

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Footnotes

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Authorship Contributions

Concept: AKG, SY; Design: AKG, SY; Data Collection or Processing: AKG; Analysis or Interpretation: AKG, SY; Literature Search: AKG, SY; Writing: AKG, SY.

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