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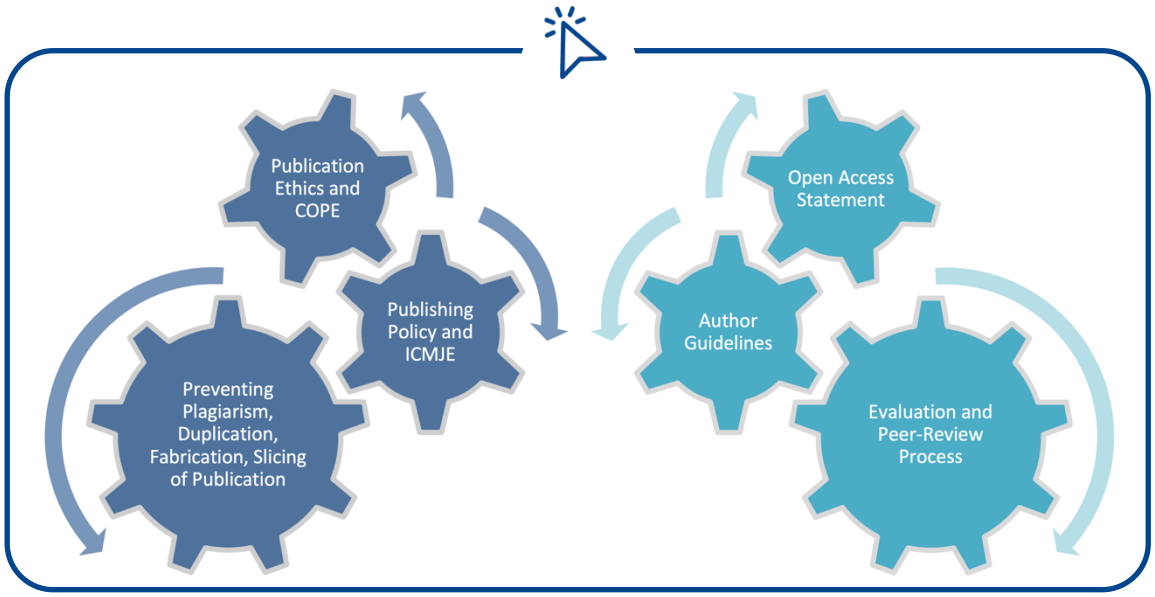

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Araştırma Makalesi / Original Research Article *https://doi.org/10.35232/estudamhsd.1356522*

COVID-19'UN BULAŞMA İLE İLGİLİ ÖZELLİKLERİ: PROSPEKTİF HANEHALKI ARAŞTIRMASI

Contamination-related characteristics of COVID-19: Prospective household survey

Hanife Ece ERİK[1], Şahin Can ÖZALTUN[2], Duygu ATILMIŞ[1], Gülçin TELLİ DİZMAN[3], Gizem KARAHAN[3], İlke TOKER ÖNDER[4], Alpaslan ALP[4], Levent AKIN[1]

Özet

Hane içi bulaş çalışmaları birçok çevresel değişkeni kontrol ederek, bulaşıcı hastalıkların epidemiyolojik ve klinik özelliklerini incelenmek için uygun bir ortam sağlamaktadır. SARS-CoV-2'nin hane içi bulaşma dinamiklerinin incelenmesi, uygun önleme ve kontrol politikalarının oluşturulması açısından önemlidir. Bu çalışma indeks vakaların demografik ve davranışsal özelliklerini ve hane halkı temaslılarını değerlendiren vaka bazlı prospektif bir çalışmadır. Çalışma, Dünya Sağlık Örgütü'nün hazırladığı ve COVID-19'un hane içi bulaşını değerlendiren standart bir protokolden uyarlanmıştır. Temaslı kişilere RT-PCR testi yapılmıştır. Ayrıca katılımcılara anket formu uygulanmıştır. Hane içi bulaşmayı değerlendirmek için Sekonder Atak Hızı (SAR) hesaplanmıştır. Çalışmada tanımlayıcı analizler yapılmış, ayrıca Ki-kare testi ve Lojistik Regresyon analizi kullanılmıştır. Çalışmaya 42 indeks vaka ve 112 temaslı dahil edilmiştir. İndeks olguların %43'ü ve temaslıların %54'ü kadındır. İndeks olguların ortanca yaşı 40,5, temaslıların yaşı ise 34,5'tir. Sekonder atak hızı %25'dir. Kadın indeks vakaların temaslılarında, kalabalık ailelerde yaşayanlarda, indeks olguların eş veya çocuğunda enfeksiyon riski daha yüksek bulunmuştur. Kalabalık evlerde yaşamanın enfeksiyon bulaşmasında en önemli risk faktörü olduğu belirlenmiştir. Sosyal teması azaltmaya yönelik evde kalma önlemleri, evdeki bulaşmanın artmasına neden olabilmektedir. Pandemi sürecinde sosyal temasın azaltılmasının yanı sıra yurt içi bulaşın önlenmesine yönelik politikalar geliştirilmelidir. Evde maske kullanmak, evi sık sık havalandırmak, aynı odada bulunmamak gibi teması azaltacak önlemler hayata geçirilmelidir.

Anahtar kelimeler: SARS-CoV-2, COVID-19, prospektif çalışma, aile özellikleri, temas.

Abstract

Household transmission studies provide a suitable environment to examine the epidemiological and clinical features of the disease by controlling many environmental variables. Examining the household transmission dynamics of SARS-CoV-2 is important to establish appropriate prevention and control policies. This study is a case-based prospective study evaluating the demographic and behavioral characteristics of index cases and their household contacts. In the study, a protocol prepared by the World Health Organization evaluating the domestic transmission of COVID-19 was adapted. RT-PCR test was performed on contacted individuals. In addition, a questionnaire form was applied to the participants. SAR was calculated to assess household transmission. Descriptive analyzes were made in the study, and Chi-square test and Logistic Regression analysis were used. The study included 42 index cases and 112 contacts. 43% of index cases and 54% of contacts are women. The median age of index cases was 40.5, and the contacts were 34.5. The secondary attack rate was 25%. The risk of infection is higher in the contacts of female index cases, in crowded families, in the spouse or child of index maturity. Living in crowded households has been identified as the most important risk factor for infection transmission. Stay-at-home measures to reduce social contact may lead to increased transmission in the household. In addition to reducing social contact during the pandemic process, policies should be developed to prevent domestic transmission. Measures to reduce contact should be implemented, such as using a mask at home, airing the house frequently, being in the same room.

Keywords: SARS-CoV-2, COVID-19, prospective studies, family characteristics, contact.

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Giriş

İlk COVID-19 olgusunun görüldüğü 2019 yılı Aralık ayından 11 Nisan 2022 tarihine kadar tüm dünyada 763 milyondan fazla olgu, 6.9 milyondan fazla ölüm gerçekleşmiştir. Türkiye'de görülen olgu sayısı 17 milyondan fazla, ölüm sayısı ise 101 binden fazladır (1).

T.C. Sağlık Bakanlığı COVID-19 pandemisinde toplumsal ve bireysel düzeyde birçok müdahalede bulunarak, semptomatik ve asemptomatik bireylerden kaynaklanabilecek enfeksiyon bulaşının önüne geçmeye çalışmıştır (2, 3). Pandemi kontrolünde karantina ve izolasyon önlemleri önemli olsa da salgını kontrol altına almak için yeterli olmamaktadır (4). Bu sebeple kısmi sokağa çıkma yasağı, tam sokağa çıkma yasağı, seyahat yasağı gibi sosyal kısıtlamalar da uygulanmış ve bu uygulamalar olgu sayısına göre düzenlenmiştir (2, 3). Pandemi kontrolünde ulusal kısıtlamalar uygulanmasına rağmen olgu sayısında artış görülmesi, ev içi bulaşın önemini göstermektedir (5, 6).

SARS-CoV-2'nin bulaşması çevresel, davranışsal ve konakçıyı içeren birçok faktörden etkilenmektedir ama bulaşmanın gerçekleştiği yerler daha çok kapalı ortamlardır (7, 8). Aile üyeleri arasında temasın sık ve yoğun olması, ev içinde kısıtlı hareket edilebilmesi sebebiyle SARS-CoV-2 bulaşının temel biriminin ev olduğu düşünülmektedir (8). İkincil enfeksiyonlar hane halkı temaslılarında hane dışı temaslılara göre daha yüksek bulunmaktadır (9). İspanya'da yapılan bir kohort çalışmasında 59.900 temaslı izlenmiş sekonder atak hızı ev içi temalılarda %46,8, ev dışı temaslılarda %21,2 bulunmuştur (10). Çin'de yapılan bir araştırmada ev içi temaslılarda sekonder atak hızı %30'dur (11).

Viral, davranışsal, sosyal, iklimsel ve çevresel faktörlere göre SARS-CoV-2 virüsünün bulaşıcılığı değişmektedir (12-14). Hane içi bulaşma çalışmaları, çevresel birçok değişkeni kontrol ederek hastalıkla ilgili belirleyicileri incelemek için uygun bir yöntemdir. COVID-19 gibi bulaşıcı bir hastalığa yakalanmış bireylerin hanehalkı üyeleri gibi yakın temasları üzerine yapılan araştırmalar, bulaşıcı hastalık epidemiyolojisi için önemli bir bilgi kaynağıdır (15). Türkiye'de ev içi bulaşı değerlendiren çalışmalar sınırlıdır. Türkiye'de yapılan bir çalışmada RT-PCR (Revers-Transkriptraz Polimeraz Zincir Reaksiyonu) pozitif kişiler aranarak hanede pozitif kişi varlığı ve pozitiflik ile ilgili olabilecek faktörler sorgulanmıştır. Çalışma bireysel beyana dayalı olup çalışma bulguları ile sekonder atak hızı hesaplamak mümkün olmamıştır (16). Literatür taraması sonucu daha önce Türkiye'de SARS-COV-2 virüsünün sekonder atak hızının ve sekonder atak hızı ile ilgili olabilecek faktörlerin araştırılmadığı tespit edilmiştir. Bildiğimiz kadarıyla bu çalışma Türkiye'de COVID-19'un hane içi bulaş dinamiklerini ve sekonder atak hızını değerlendiren ilk çalışmadır.

Bu çalışma, COVID-19 tanılı bireylerin ve hanehalkının demografik, klinik ve davranışsal özelliklerine göre ev içi bulaşını ve olası risk faktörlerini değerlendiren olguya dayalı prospektif bir çalışmadır. Çalışmada ev içi bulaşı değerlendirmek ve sekonder atak hızını hesaplayabilmek için RT-PCR testi kullanılmıştır. Çalışma Dünya Sağlık Örgütü'nün geliştirdiği (Household transmission investigation protocol for coronavirus disease 2019) bir protokolden uyarlanarak hazırlanmıştır (15).

Gereç ve Yöntem

Çalışma yeri ve dizaynı

Bu çalışma, Hacettepe Üniversitesi COVID-19 Polikliniğinde Temmuz-Ağustos 2021 tarihinde yapılmıştır. Çalışma vakaya dayalı prospektif bir çalışmadır, araştırma türü tanımlayıcıdır.

RT-PCR testi pozitif çıkan bireyler aranarak çalışmaya dâhil edilmiştir. Birinci takip indeks olgunun pozitifliğinden sonraki 0-1. günde, ikinci takip indeks olgunun

pozitifliğinden sonraki 5.-7. günde gerçekleşmiştir.

İndeks olgu, RT-PCR ilk kez pozitif bulunan ve araştırma için temasa geçilen kişidir. Hanehalkı temaslısı indeks olgu ile akraba olma durumu gözetmeksizin, aynı konutta 24 saatten uzun süre ikamet eden kişiler olarak tanımlanmıştır (15). Huzurevleri, cezaevleri, öğrenci lojmanları ve yurtlar gibi konaklama tesisleri bu çalışmaya dâhil edilmemiştir. Hanedeki kişi sayısı en az 2 olan kişiler çalışmaya dâhil edilmiştir.

T.C. Sağlık Bakanlığı'nın temas algoritmasına göre olgu tanımı yapılmış, RT-PCR sonucu pozitif kişiler olgu olarak kabul edilmiştir (17). Araştırmada semptomu olan ve olmayan her katılımcıdan RT-PCR testi yapılmış, böylelikle asemptomatik olgular da tespit edilmiştir. Birinci veya ikinci takipte RT-PCR pozitif olan temaslı bireyler akut enfeksiyon ve olgu olarak kabul edilmiştir.

Veri Toplama

Çalışmada Dünya Sağlık Örgütü'nün önerdiği protokol incelenerek hazırlanan anket formu ile indeks olgunun ve temaslıların demografik özellikleri (yaş, cinsiyet, meslek), hane içi temas özellikleri (aynı odayı paylaşma, birlikte yemek yeme, aynı tuvaleti kullanma, sarılma...), hane bilgileri (hane büyüklüğü, yatak odası sayısı), semptomları (boğaz ağrısı, burun akıntısı, öksürük, ateş...), komorbid hastalıkları sorgulanmıştır (15). Katılımcılara aylık geliri sorulmuş olup aylık geliri olmayan kişiler (öğrenci, ev hanımı) aylık geliri yok olarak değerlendirilmiştir. Hacettepe Üniversitesi COVID-19 polikliniğine Temmuz-Ağustos 2023 tarihinde başvuran ve çalışmaya katılmayı kabul eden RT-PCR pozitif hastalar ve ev içi temaslıları çalışmaya dâhil edilmiştir. Anket formu katılımcılar telefon ile aranarak uygulanmıştır.

Laboratuvar Sonuçlarının Çalışılması

Alınan sürüntü örnekleri aynı gün içinde soğuk zincire uygun şekilde Hacettepe Laboratuvarı'na ulaştırılmıştır. Hacettepe Hastanesi Merkez Laboratuvarı RT-PCR afiliye laboratuvarıdır ve alınan orofaringeal ve nazofaringeal sürüntü örnekleri aynı gün bu laboratuvarda çalışılmıştır.

İstatistiksel Analiz

Sekonder atak hızı RT-PCR pozitif temaslılarının tüm hanehalkına oranı olarak hesaplanmıştır (Temaslı pozitif birey/temaslı birey x100).

Sürekli değişkenlerin normal dağılıma uygunluğu Shapiro Wilk testi ile değerlendirilmiştir. Normal dağılma uygunluğu bulunmayan sürekli değişkenler ortanca, çeyreklikler ve en büyük, en küçük değer olarak sunulmuştur.

Kategorik değişkenler için Ki kare ve Fisher Exact test kullanılmıştır.

Lojistik Regresyon modeline tek değişkenli analizlerde $p<0,25$ olan tüm değişkenler dâhil edilerek Backward LR yöntemi ile değerlendirilmiştir. Modelde son basamakta kalan değişkenler çalışmada sunulmuştur. Oluşturulan modelin Hosmer Lemeshow değeri 0,793'tür. Modele eklenen değişkenler şunlardır;

- İndeks olgunun semptomu olma durumu,
- Temaslı bireyin yaşı,
- Temaslı bireyin cinsiyeti,
- Temaslı bireyin indeks olgu ile riskli davranışta bulunma durumu,
- Temaslı bireyin indeks olgu ile yakınlığı (eşi, çocuğu veya diğer),
- Hanede yaşayan kişi sayısı.

Çalışmada elde edilen verilerin değerlendirilmesinde istatistiksel analiz için Statistical Package for Social Sciences (SPSS) paket programı 23.0 versiyonu kullanılmıştır. Sonuçlar %95 güven aralığında, anlamlılık $p<0,05$ düzeyinde kabul edilmiştir.

Etik kurul onayı

T.C. Sağlık Bakanlığı Sağlık Hizmetleri Genel Müdürlüğü'nden COVID-19 ile ilgili araştırma yapabilmek için izin alınmıştır. Hacettepe Üniversitesi Girişimsel Olmayan Araştırmalar Etik Kurulu'ndan etik izin alınmıştır (onay numarası: GO 20/886). Araştırmaya katılımda gönüllülük esas alınmış ve tüm bireylerden aydınlatılmış yazılı onam alınmıştır.

Bulgular

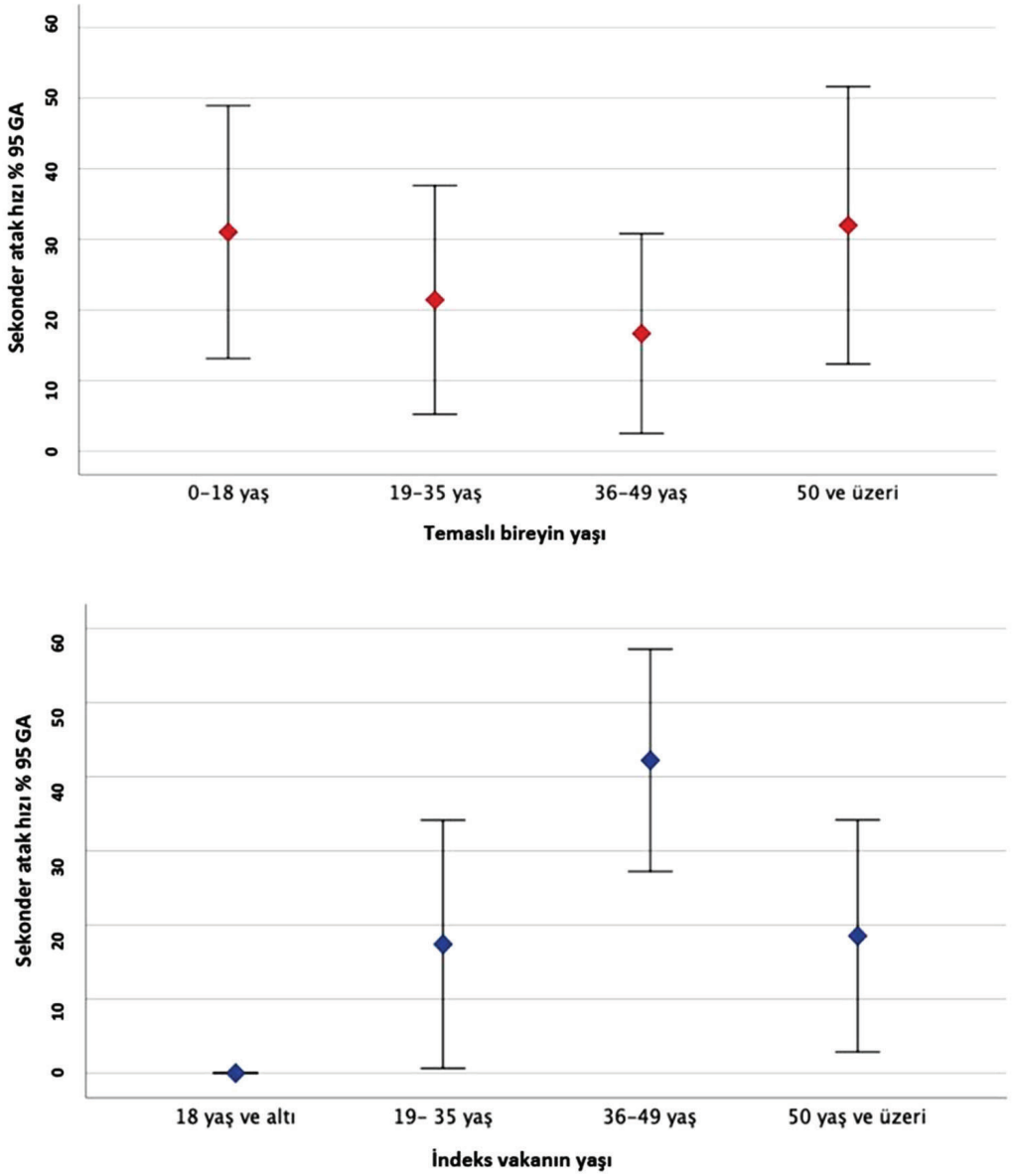
Çalışmada 42 indeks olgu ve 112 hane içi temaslısı çalışmada yer almıştır. Birinci takipte 112 bireyden, ikinci takipte 43 bireyden nazofaringeal ve orofaringeal sürüntü alınmıştır. İndeks olguların %43'ü, temaslıların %54'ü kadındır. İndeks olguların ortanca yaşı 40,5, temaslıların ortanca yaşı 34,5'tir. İndeks olguların %50'si, temaslıların %39'u öğrenci ya da ev hanımıdır ve gelir getiren bir işleri yoktur.

Çalışmada sekonder atak hızı %25'tir [95% GA: 17-33]. Sekonder atak hızı 50 yaş ve üzeri (%32, 95% GA 12-52), major kronik hastalığı olan (%35, %95 GA 14-56), semptomu olan (%37, 95% GA 23-52), kalabalık hanelerde yaşayan temaslılarda daha yüksektir (Tablo 1, Şekil 1, Şekil 2).

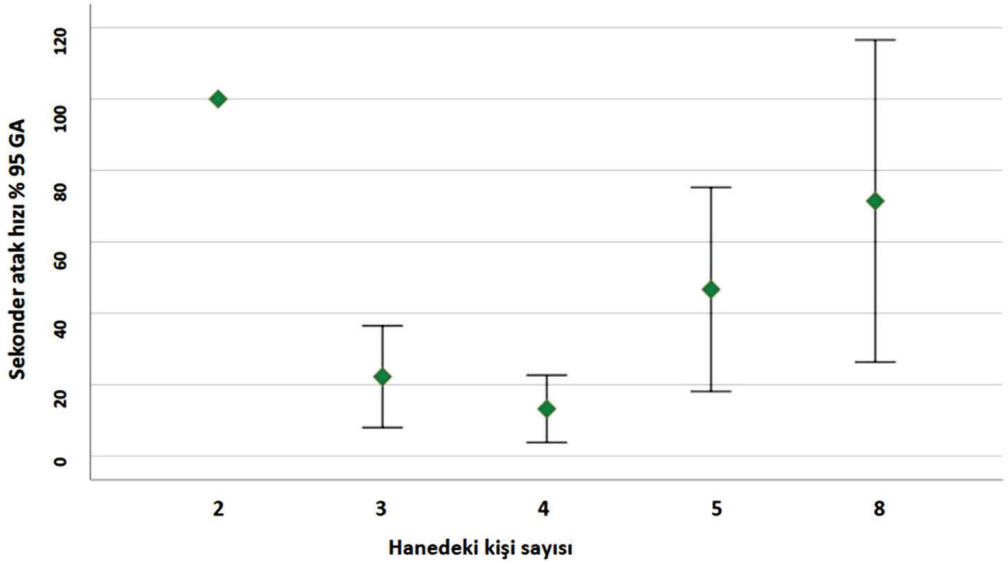
Tablo 1: Temaslı bireylerin bazı özelliklerine göre sekonder atak hızının değerlendirilmesi.

Özellik	Temaslı sayısı	RT-PCR pozitif temaslı sayısı	SAR*	SAR 95%
Yaş (yıl)				
0-18 yaş	29	9	31	13-49
19-35 yaş	28	6	21	5-38
36-49 yaş	30	5	17	3-31
50 yaş ve üzeri	25	8	32	12-52
Cinsiyet				
Kadın	60	15	25	14-36
Erkek	52	13	25	13-37
Aylık geliri				
Var	44	11	25	12-38
Yok	68	17	25	14-36
Aylık geliri				
Var	44	11	25	12-38
Yok	68	17	25	14-36
Major kronik hastalık				
Var	23	8	35	14-56
Yok	89	20	23	14-31
Semptom				
Var	46	17	37	23-52
Yok	66	11	17	7-26
Yakınlık				
Eşi	22	8	36	15-58
Çocuğu	36	11	31	46-15
Anne-babası	29	3	10	-1-22
Kardeşi	12	1	8	-10-27
Diğer	13	5	39	15-46
Hanedeki kişi sayısı				
2 kişi	1	1	100	-
3 kişi	36	8	22	8-37
4 kişi	53	7	13	4-23
5 kişi	15	7	47	18-75
8 kişi	7	5	47	26-117
Yatak odası sayısı				
1	13	2	15	-7-38
2	55	17	31	18-44
3	38	8	21	8-35
4	6	1	17	-26-60
Toplam	**112**	**28**	**25**	**17-33**

**Sekonder Atak Hızı*



Şekil 1: Temaslı bireylerin ve indeks vakaların yaşına göre sekonder atak hızı (%).



Şekil 2: Hanedeki kişi sayısına göre sekonder atak hızı (%).

İndeks olgu ile herhangi bir riskli davranışta bulunan temaslılarda (%28, %95 GA 19-38, p=0,03) sekonder atak hızı daha yüksektir ve fark istatistiksel olarak anlamlıdır (Tablo 2).

Tablo 2: Hane içi riskli davranışların temaslı pozitifliğine ve sekonder atak hızına etkisinin değerlendirilmesi.

Riskli davranış	Temaslı n(%)	Pozitif temaslı(n)	SAR*	SAR 95%	p değeri	OR (GA)
Herhangi bir riskli davranış						
Var	95	27	28	19-38	**0,038***	**6,35 (0,80-50,29)**
Yok	17	1	6	-7-18		
Aynı odayı paylaşma						
Var	46	12	26	13-39	0,824	0,91 (0,38-2,16)
Yok	66	16	24	14-35		
Aynı odada uyuma						
Var	20	8	40	17-64	0,087	0,42 (0,15-1,16)
Yok	92	20	22	13-30		
Bakım verme						
Var	24	2	8	-3-20	**0,033**	**4,61 (1,01-21,1)**
Yok	88	26	30	20-39		
Sarılma						
Var	23	9	39	18-61	0,079	0,42 (0,16-1,12)
Yok	89	19	21	13-30		
El sıkışma						
Var	11	3	27	-4-59	0,552*	0,88 (0,22-3,56)
Yok	101	25	25	16-33		
Birlikte yemek yeme						
Var	71	21	30	19-41	0,141	0,49 (0,19-1,28)
Yok	41	7	17	5-29		
Aynı kaptan yeme						
Var	4	1	25	-6-105	0,689*	1,00 (0,10-10,02)
Yok	108	27	25	17-33		
Aynı eşyayı kullanma						
Var	13	5	38	8-69	0,305*	0,48 (0,14-1,63)
Yok	99	23	23	15-32		
Aynı tuvaleti kullanma						
Var	66	16	24	14-35	0,824	1,10 (0,46-2,62)
Yok	46	12	26	13-39		
Aynı tuvaleti kullanma veya birlikte yemek yeme						
Var	82	23	28	18-38	0,218	0,51 (0,18-1,50)
Yok	30	5	17	3-31		

*Fisher exact test yapılmıştır; *Sekonder Atak Hızı*

Kadın indeks olguların temaslılarında (%39, %95 GA 25-37) sekonder atak hızı daha yüksektir (Tablo 3).

Semptomu olmayan indeks olguların temaslıları semptomu olan indeks olgulara göre 0,08 kat daha fazla pozitif olmaktadır (%95 GA: 0,01-0,48, p=0,006, Tablo 4). Hanehalkı sayısı 5 ve üzeri olan temaslıların RT-PCR pozitifliği hanehalkı sayısı 4 ve altında olan temaslılara göre 5,97 kat daha fazladır (%95 GA: 1,74-20,47, p=0,004, Tablo 4). Kadın indeks olgunun temaslılarında 5,52 kat daha fazla RT-PCR pozitifliği bulunmaktadır (%95 GA: 1,57-19,39, p=0,008, Tablo 4). Temaslı birey indeks olgunun eşi ya da çocuğu ise diğer temaslı bireylere göre 3,97 kat daha fazla RT-PCR pozitifliği bulunmaktadır (%95 GA:1,23-12,85, p=0,021, Tablo 4).

Tablo 3: İndeks vakanın bazı özelliklerine göre temaslı pozitifliğinin ve sekonder atak hızının incelenmesi.

Özellik	Temaslı n(%)	Pozitif temaslı(n)	SAR***	SAR 95%	p değeri	OR (%95 GA)
Yaş Grup						
40 yaş ve altı	60	13	22	11-32	0,382*	1,47
41 yaş ve üzeri	52	15	29	16-42		(0,62-3,46)
Cinsiyet						
Kadın	52	21	39	25-37	**0,002***	**0,25**
Erkek	60	8	13	5-22		**(0,10-0,62)**
Semptom						
Var	102	23	23	14-31	0,069**	3,44
Yok	10	5	50	12-88		(0,91-12,91)
Solunumsal semptom						
Var	80	16	20	11-29	0,053*	2,40
Yok	32	12	38	20-55		(0,98-5,91)

**Ki-kare testi yapılmıştır; **Fisher exact test yapılmıştır; ***Sekonder Atak Hızı*

Tablo 4: Temaslı bireylerin pozitifliğini etkileyen faktörlerin çok değişkenli analizlerle incelenmesi.*

Özellik	B(SE)	Wald	p	OR	%95 GA Alt	%95 GA Üst
İndeks vaka semptom durumu						
Var	-2.494 (0,901)	7,666	**0,006**	Ref	0,01	0,48
Yok				**0,083**		
Hanehalkı sayısı						
4 ve altı	1.784(0,629)	8,081	**0,004**	Ref	1,74	20,47
5 ve üzeri				**5,971**		
İndeks vaka cinsiyet						
Kadın	1,708(0,641)	7,090	**0,008**	**5,517**	1,57	19,39
Erkek				Ref		
Temaslıda kronik hastalık						
Var	1,359(0,634)	4,593	**0,032**	**3,894**	1,12	13,50
Yok				Ref		
İndeks vaka ile temaslının yakınlığı						
Eşi veya çocuğu	1,380(0,599)	5,306	**0,021**	**3,973**	1,23	12,85
Diğer				Ref		

**Lojistik regresyon modelinin son basamağında kalan değişkenler sunulmuştur.*

Tartışma

Bu çalışmada sekonder atak hızı %25'dir. Hane içi bulaşı değerlendiren bir çalışmada SAR %49'dur (18). İspanya'da yapılan bir kohort çalışmasında ev içi temaslılarda sekonder atak hızı %47, ev dışı temaslılarda %21 bulunmuştur (10). Bir sistematik derlemede 87 çalışma ve 1.249.163 temaslı değerlendirilmiş ve sekonder atak hızı %19 bulunmuştur (19). Bulaş sadece neden olan ajana değil, aynı zamanda sosyo-demografik, çevresel ve davranışsal faktörlere de bağlı olabilmektedir. Bu sebeple sekonder atak hızı çalışmalar arasında farklılık göstermiş olabilir (20).

Bu çalışmada 30-39 yaş ve 60-69 yaş bireylerde sekonder atak hızı yüksektir ve çok değişkenli analizlerde temaslı bireyin yaşı ile sekonder atak hızı arasında bir ilişki bulunmamıştır (Tablo 1-Tablo 4). Hane içi bulaşı değerlendiren bir çalışmada 60 yaş ve üzeri bireylere göre, 20 yaş altı (OR:0,23, %95 GA: 0,11-0,46) ve 20-59 yaş (OR: 0,64,

%95 GA 0,43-0,97) bireylerde sekonder atak hızı daha düşük bulunmuştur (21). Bir diğer çalışmada sekonder atak hızı 19 yaş ve altı bireylerde ve 60 yaş üstü bireylerde daha yüksek bulunmuştur (22). Bir çalışmada 18-49 yaş bireylerde sekonder atak hızı diğer yaş gruplarına göre daha yüksek bulunmuştur fakat yaş grupları arasında istatistiksel olarak anlamlı bir fark bulunmamıştır (23).

Bu çalışmada temaslı kadın ve erkeklerde sekonder atak hızı %25'tir (Tablo 1). Hane içi bulaşı değerlendiren bir çalışmada sekonder atak hızı kadınlarda %14, erkeklerde ise %12'dir (21). Bir sistematik derlemede kadınlarda sekonder atak hızı %22 iken erkeklerde %21'dir (19). Bir çalışmada kadınların %19'sı, erkeklerin %16'sı olguya dönüşmüştür ve cinsiyete göre gruplar arasında fark bulunmamıştır (23).

Bu çalışmada major kronik hastalığı olan bireylerde sekonder atak hızı daha yüksektir (Tablo 1). Bir kohort çalışmasında temaslı bireylerde kronik böbrek yetmezliği (aOR 1,18; GA 1,04-1,35), hipertansiyon (aOR 1,11; GA 1,03-1,19), ve morbid obezite olduğunda (aOR 1,18; GA 1,00-1,38) bulaşma riski daha yüksek bulunmuştur (10). Prospektif bir çalışmada komorbiditesi olan temaslılarda sekonder atak hızı %21, olmayanlarda %17'dir (23).

Sekonder atak hızı indeks olgunun eşinde %36, çocuğunda %31'dir (Tablo 1). Çok değişkenli analize göre temaslı birey indeks olgunun eşi ya da çocuğu ise diğer temaslı bireylere daha yüksek sekonder atak hızına sahiptir (OR: 3,973, %95 GA:1,228-12,849, Tablo 4). Bir kohort çalışmasında en yüksek sekonder atak hızı eş (%33) ve çocuklarda (18 yaş ve üstü çocuklarda %34, 18 yaş altı çocuklarda %42) bulunmuştur (24). Bir çalışmada indeks olgunun eşinde sekonder atak hızı %28'dir ve indeks olgunun eşinde diğer bireylere göre 2,27 kat daha fazla pozitiflik görülmüştür (25). Eşlerde ve çocuklarda yüksek atak oranları, yüksek derecede etkileşim ile açıklanabilir (8).

Hanede yaşayan kişi sayısı beş veya sekiz kişi olanlarda sekonder atak hızı %47'dir ve çok değişkenli analizde hanehalkı sayısı 5 ve üzeri olan temaslıların RT-PCR pozitifliği hanehalkı sayısı 4 ve altında olan temaslılara göre 5,971 kat daha fazladır (%95 GA: 1,74-20,47, p=0,004, Tablo 4). Bir çalışmada hanede yaşayan kişi sayısı 6 ve altı ise sekonder atak hızı %19, hanedeki kişi sayısı 7 ve üzeri ise sekonder atak hızı %8'dir (21). Prospektif bir çalışmada hanedeki kişi sayısı iki ise sekonder atak hızı %23,0, üç ise %16,0, 4 ise %15, beş ve üzeri ise %12,0'dır ve hanedeki kişi sayısı arttıkça sekonder atak hızı azalmıştır (23). Bir çalışmaya göre COVID-19 insidans oranlarındaki değişim için en önemli faktör hane büyüklüğüdür ve hane büyüklüğü varyansın %62'sini tek başına açıklamaktadır (26). COVID-19 nokta (hotspot) analizi ile yapılan bir çalışmada sıcak noktalarda hanelerin kalabalık, orta gelirli ve işçi statüsünde çalışan bireylerden oluştuğu bulunmuştur (27).

Hanedeki yatak odası sayısı bir ise sekonder atak hızı %16, iki ise %31, üç ise %21, dört ise %17'dir (Tablo 1). Bir çalışmada kişi başına düşen yatak odası sayısı arttıkça sekonder atak hızı azalmıştır (23). Bir çalışmada ise yaşanılan evin büyüklüğünün enfeksiyon bulaşmasına etkisi olmadığı belirtilmektedir (26).

Bu çalışmada tek değişkenli analizlerde sekonder atak hızı indeks olgu ile herhangi bir riskli davranışta bulunanlarda daha yüksektir (p<0,05, Tablo 2). Prospektif bir çalışmada indeks olgu ile aynı odayı paylaşma (OR 2,94; %95 GA 1,42-6,06), indeks olguya bakım verme (OR 4,76, 1,99-11,35), sarılma (OR 3,41; 1,58-7,33), öpme (OR 4,16; 1,87-9,28), el sıkışma (OR 3,37; 1,58–7,19) birlikte yemek yeme (OR 3,40; GA 11,56–7,41) durumlarında sekonder atak hızı daha yüksek bulunmuştur. Bir sistematik derlemede birlikte yemek yemek enfeksiyon riskini artırmaktadır (28). Başka bir çalışmada ise aynı odayı paylaşmak riski artırırken birlikte yemek yemek riski artırmamaktadır (29). Bir çalışmada tüm riskli davranışlarda bulaşma riskinda artış gözlenmiştir (30).

Bu çalışmada indeks olgunun yaşı ile temaslıların RT-PCR pozitif olma durumları arasında istatistiksel olarak anlamlı bir ilişki bulunmamaktadır (p=0,382, Tablo 3). Bir çalışmada indeks olgunun yaşı ile temaslı bireylerdeki enfeksiyon arasında istatistiksel olarak anlamlı fark bulunmamıştır (23).

Tek değişkenli analizlerde kadın

indeks olguların temaslıları daha yüksek sekonder atak hızına sahiptir ve fark istatistiksel olarak anlamlıdır (p=0,002, Tablo 3). Prospektif bir çalışmada kadın indeks olguların temaslılarında sekonder atak hızı %17,0, erkek indeks olguların temaslılarında sekonder atak hızı %18,0'dır. İndeks olguların cinsiyetine göre sekonder atak hızında istatistiksel olarak anlamlı farklılık bulunmamaktadır (23). Bir metaanalizde indeks olguların cinsiyeti ile bulaşma arasında bir ilişki gösterilmemiştir (14).

Semptomu olan indeks olguların temaslılarının %22,5'i RT-PCR testi pozitiftir, semptomu olmayan indeks olguların temaslılarının %50,0'ı pozitiftir, tek değişkenli analizde istatistiksel olarak anlamlı bir ilişki bulunmamaktadır (p=0,382, Tablo 3). Çok değişkenli analizde semptomu olmayan indeks olguların temaslıları 0,083 kat daha fazla RT-PCR pozitiftir (%95 GA: 0,01-0,48, p=0,006, Tablo 4). Aşısı olmayan bir toplulukta yapılan çalışmada semptomatik indeks olguların temaslılarında sekonder atak hızı %21, asemptomatik bireyler %12'dir (22). Prospektif bir çalışmada herhangi bir semptomu olan indeks olguların temaslılarında sekonder atak hızı %18, semptomu olmayanlarda sekonder atak hızı %7'dir (23). Bir çalışmada öksürüğü olan indeks olguların temaslılarında sekonder atak hızı %16, öksürüğü olmayan indeks olgunun temaslılarında sekonder atak hızı %17'dir, ateşi olan indeks temaslılarında sekonder atak hızı %19,2, ateşi olmayan indeks olguların temaslılarında sekonder atak hızı %13'tür ve gruplar arasında istatistiksel olarak anlamlı bir fark bulunmamaktadır (25). Çalışmamızda semptomu olmayan indeks olguların temaslılarında daha fazla RT-PCR pozitifliği görülmesi kişilerin tedbirsiz davranması ve COVID-19 enfeksiyonu için koruyucu önlemlere uymamasından kaynaklanmış olabilir.

Bu çalışmada solunumsal semptomu olan indeks olguların temaslılarda sekonder atak hızı %20, solunumsal semptomu olmayan indeks olguların temaslılarında %38'dir ve istatistiksel olarak anlamlı fark yoktur (p=0,053, Tablo 3). Prospektif bir çalışmada burun akıntısı veya öksürüğü olan indeks olguların temaslılarında, bu semptomları olmayan indeks olguların temaslılarına göre sekonder atak hızı daha yüksektir (OR:4,31; 1,60-11,63) (23). Solunumsal semptomu olmayan indeks olguların temaslısında daha fazla RT-PCR pozitifliği görülmesi solunumsal semptomu olmayan kişilerin daha tedbirsiz davranmasından kaynaklanmış olabilir.

Çalışmanın bazı kısıtlılıkları mevcuttur. Çalışma toplum tabanlı değildir bu sebeple çalışma bulguları topluma genellenemez. Çalışmanın tasarım aşamasında Türkiye'de COVID-19 hastalığına karşı bağışıklama yapılmamakta iken, veri toplama aşamasından kısa süre önce aşılama başlamıştır ve araştırma grubunun bir bölümü aşılıdır. Yine araştırma sürecinde katılımcıların takiplere uyumunun düşük olması sebebiyle takip süresi 7 gün ile sınırlı olmuştur, bu da yedi günden sonraki RT-PCR pozitifliklerini tespit etmeyi mümkün kılmamaktadır. Araştırmada çok sayıda değişken hakkında bilgi toplanmış fakat hane halkı üyelerinin hane içinde maske ve kişisel koruyucu donanım kullanımı, evin havalandırma durumu (sıklığı, süresi), birlikte yemek yeme sıklığı (paylaşılan öğün sayısı), hane üyelerinin aynı odada bir arada bulunma sıklığı ve süresi gibi değişkenler hakkında daha ayrıntılı veriler toplanması temas öyküsünü daha iyi değerlendirmeyi sağlayabilirdi.

Sonuç ve Öneriler

Bu çalışmaya göre tanı almış veya şüpheli SARS-CoV-2 olgularının kendini izole etmesi, hane halkı üyeleri arasındaki temasını azaltmasına yönelik tedbirleri kısa sürede uygulanması gerekmektedir. Özellikle pandeminin erken dönemlerinde uygulanan evde kalma uygulamaları, kalabalık ve yeterli havalandırmaya sahip olmayan evlerde enfeksiyon bulaşının artmasına neden olabilir. COVID-19 hastası ile hane üyeleri evde kalmak zorunda olduğunda ev içinde maske kullanımı, evin

sık havalandırılması, aynı ortamda yemek yenilmemesi, yüzeylerin doğru şekilde temizlenmesi gibi önlemlerin paylaşılması hane içi bulaşı kontrol etmek için uygulanabilir. Yine enfekte bireyleri karantinaya alırken ev veya yurtlar gibi kalabalık ortamlar yerine tek kişilik izole ortamlarda olmasının sağlanması bulaşı engelleyebilir.

SARS-CoV-2 testi pozitif çıktığında hanedeki bireylerdeki farkındalığı ve bulaşmayı engelleyecek tedbirleri artırmak için kampanyalara ve müdahalelere ihtiyaç vardır. Hane halkı çalışmaları, SARS-CoV-2'nin epidemiyolojisi ve klinik özellikleri hakkında önemli bilgiler sağlamaktadır. Salgının bulaşma yolları, ortaya çıkan yeni varyantların ve aşının bulaşma dinamiklerine etkisini hanehalkı araştırmaları ile incelemek; uygun önleme ve kontrol politikaları belirlemek için önemlidir.

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KANSER EĞİTİMLERİ KANSER FARKINDALIĞINI ARTTIRIYOR MU?

Does cancer education increase cancer awareness?

Abide AKSUNGUR[1], Hamit Harun BAĞCI[2], Tuğba ÖZDEMİRKAN[1]

Özet

Altındağ ilçesinde, Kadın Eğitim ve Kültür Merkezleri ve Kur'an Kurslarına katılım sağlayanların, kanser ve risk faktörleri ile ilgili bilgi, tutum ve davranışlarının saptanması, elde edilen veri ışığında farkındalık ve bilgilendirme çalışmaları gibi gerekli müdahalelerin gerçekleştirilebilmesi, gerçekleştirilen müdahalenin tarama programlarına katkısının değerlendirilmesi amaçlanmıştır. Müdahale niteliğindeki çalışma, Altındağ ilçesinde, benzer sosyo-demografik özellikli 18 yaş ve üstü, 465 kadın kursiyerin katılımıyla yürütülmüştür. Katılımcılara kanser ve taramalar hakkında eğitim verilmeden önce anket formu uygulanmış, eğitim verilen merkezler araştırmacılar tarafından iki hafta sonra tekrar ziyaret edilerek aynı katılımcılara aynı anket formu tekrar uygulanmış ve müdahalenin etkinliği değerlendirilmiştir. Eğitim sonrası tarama programlarına katılmak isteyenlerin Altındağ Kanser Erken Teşhis, Tarama ve Eğitim Merkezinde (KETEM) taramaları yapılmıştır. Çalışmaya katılan 465 kadının yaş ortancası 52 (18-75) yıldır. Katılımcıların %87,7'si evli, %57,0'ı okuryazar ve ilköğretim mezunu, %88,8'i ev hanımı, %89,7'si gelir getiren bir işte çalışmamaktadır. Toplam bilgi puanı ortalaması ön testte 24,0 (1,0-41,0) iken son testte 34,0 (2,0-41,0)'e anlamlı olarak yükselmiştir (p<0,001). Çalışma, eğitim müdahalesinin kadınların kanser farkındalığı, bilgi, tutum ve kanser tarama davranışlarını önemli ölçüde artırdığını göstermiştir.

Anahtar kelimeler: Kanser, kanser farkındalığı, kanser taramaları, sağlık eğitimi.

Abstract

The aim of this study was to evaluate the knowledge, attitudes, and behaviors for cancer and risk factors of those who attend Women's Education and Culture Centers and Quran Courses in Altındağ district, to carry out necessary interventions such as awareness and information activities in the led by the data obtained and to evaluate the contribution of the intervention to screening programs. The methodological study was conducted in Altındağ district with the participation of 465 female trainees aged 18 and over with similar socio-demographic characteristics. A survey form was applied to the participants before they were given education about cancer and screenings. The centers where training was provided were visited again by the researchers two weeks later, and the same survey form was applied to the same participants again and the effectiveness of the intervention was evaluated. Those who wanted to participate in screening programs were screened at Altındağ Cancer Early Diagnosis, Screening and Training Center after the training. The median age of 465 women participating in the study is 52 (18-75) years. 87.7% of the participants are married, 57.0% are literate and primary school graduates, 88.8% are housewives, and 89.7% do not work in an income-generating job. While the mean total knowledge score was 24.0 (1.0-41.0) in the initial survey, it increased significantly to 34.0 (2.0-41.0) in the re-survey (p<0.001). The study showed that educational interventions had significant increase deffects on women's cancer awareness,knowledge, attitudes, and cancer screening behaviors.

Keywords: Cancer, cancer awareness, cancer screening, health education.

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Giriş

Kanser, her yaşta ve sosyo-ekonomik düzeyde görülebilen, morbidite ve mortalite hızı, getirdiği ekonomik yük ile hem dünyanın hem de ülkemizin karşı karşıya kaldığı önemli bir halk sağlığı sorunudur (1). Dünya Sağlık Örgütü Uluslararası Kanser Araştırma Ajansı (IARC) 2020 dünya kanser istatistiklerine göre dünya çapında tahmini 19,3 milyon yeni kanser vakası ve yaklaşık 10,0 milyon kanser ölümü meydana gelmiştir (2). Dünya genelinde ikinci ölüm nedenidir. Her 6 ölümden yaklaşık bir tanesi kanserden kaynaklanmaktadır (3). Türkiye Kanser İstatistikleri 2021 Yılı Raporuna göre kanser insidansı yüz binde 223,1'dir ve 180.288 kişiye yeni kanser teşhisi konulmuştur (4). Türkiye kanser insidansı dünya insidansının bir miktar üzerinde seyretmektedir. Türkiye Ölüm Nedenleri İstatistiklerinde 2022 yılı ölümlerinin dolaşım sistemi hastalıklarından sonra %15,2 sıklıkla ikinci nedenidir (5).

En yaygın kanser türlerinden meme, kolorektal ve serviks kanseri, erken saptanabilen, önlenebilir, erken dönemde teşhis ve tedavi edildiğinde iyileşme hızları yüksek, tam iyileşme sağlanabilen kanserler arasındadır. Bu özellikleri nedeni ile "Kanser Kontrol Programı" kapsamında ilçe sağlık müdürlükleri bünyesindeki Kanser Erken Teşhis, Tarama ve Eğitim Merkezlerinde (KETEM) taramaları ücretsiz yürütülmektedir. Ancak hedef nüfusun%30'unun taranabildiği, çeşitli sebeplerle arzu edilen %70 kapsayıcılığın gerisinde kalındığı Sağlık Bakanlığı raporlarında belirtilmektedir (6).

Kanser morbidite ve mortalite hızının azaltılabilmesinde en etkili yöntemlerden biri olan kanserin erken teşhis ve tedavisinin sağlanabilmesi, kanser farkındalığının artırılması ve toplum bilincinin geliştirilmesi ile mümkündür (4). Bu kapsamda bireylerin bilgi, tutum ve davranışlarının bilimsel yöntemlerle saptandığı, bu doğrultuda hazırlanan içerikle tarama davranışına yönlendirildiği çalışmalar önemlidir.

Çalışmanın amacı, Altındağ ilçesinde, Kadın Eğitim ve Kültür Merkezleri ve Kur'an Kurslarına katılım sağlayan, 18 yaş ve üstü kadınların, kanser ve risk faktörleri ile ilgili bilgi, tutum ve davranışlarının saptanması, elde edilen veri ışığında farkındalık ve bilgilendirme çalışmaları gibi gerekli müdahalelerin gerçekleştirilebilmesi, gerçekleştirilen müdahalenin tarama programlarına katkısının değerlendirilmesidir.

Gereç ve Yöntem

Müdahale niteliğindeki çalışma, Altındağ İlçe Müftülüğü'ne ve Altındağ Belediye Başkanlığı'na bağlı, pandemi koşulları, fiziki (eğitim salonu varlığı, büyüklüğü, havalandırma vb.) koşullar, kursiyer sayısı, benzer sosyo-demografik özellikli topluma hizmet veren merkezler olması gibi birtakım kriterler dikkate alınarak belirlenen 14 merkezde, çalışmaya katılmayı kabul eden, 18 yaş ve üstü, 465 kursiyerin katılımı ile gerekli idari izinler ve Yenimahalle Eğitim ve Araştırma Hastanesi Klinik Araştırmalar Etik Kurul'unun 27.04.2022 tarih ve E-2022-26 karar numaralı onayı alınarak yürütülmüştür.

Araştırma verisi için, birinci bölümde sosyo-demografik özelliklere, ikinci bölümde kanser bilgi düzeyini ve tarama davranışı etkileyen faktörleri belirlemeye, üçüncü bölümde tarama programları ve tarama merkezlerine ilişkin bilgi ve farkındalık düzeyini belirlemeye yönelik soruların yer aldığı anket formu eğitim öncesi yüz yüze uygulanmıştır. Anket formunda yer alan 41 soru ve önermeye verilen doğru yanıtlar 1, yanlış yanıtlar 0 puan olacak şekilde toplam 41 puan üzerinden bilgi düzeyleri değerlendirilmiştir.

Eğitim verilen merkezler araştırmacılar tarafından 2 hafta sonra tekrar ziyaret edilerek aynı katılımcılara aynı anket formu tekrar uygulanmış, müdahalenin etkinliği değerlendirilmiştir. Eğitim sonrası tarama programlarına katılmak isteyenlerin

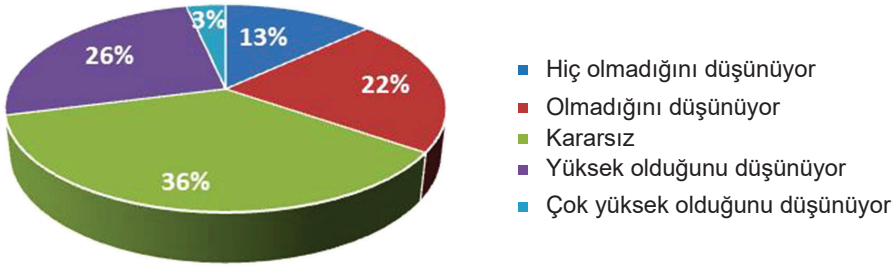
Altındağ Kanser Erken Teşhis, Tarama ve Eğitim Merkezinde (KETEM) taramaları yapılmıştır.

İstatistiksel analiz olarak, değişkenler normal dağılıma uygunluk testi (Kolmogorov Smirnov/Shapiro-Wilk Testleri) ile değerlendirilmiş, kategorik değişkenler sayı, yüzde, sürekli değişkenler ortanca (en büyük, en küçük değer) ile tanımlayıcı bulgular kısmında sunulmuştur. Nominal değişkenler Ki-kare testi, normal dağılıma uymayan, bağımlı, ordinal değişkenler Wilcoxon testi ile değerlendirilmiştir. Çok değişkenli analizde kanser tarama programlarına katılımda bağımsız prediktörler lojistik regresyon analizi kullanılarak incelenmiştir. Model uyumu için Hosmer Lemeshow testi kullanılmıştır. İstatistiksel anlamlılık için $p<0,05$ değeri kabul edilmiştir.

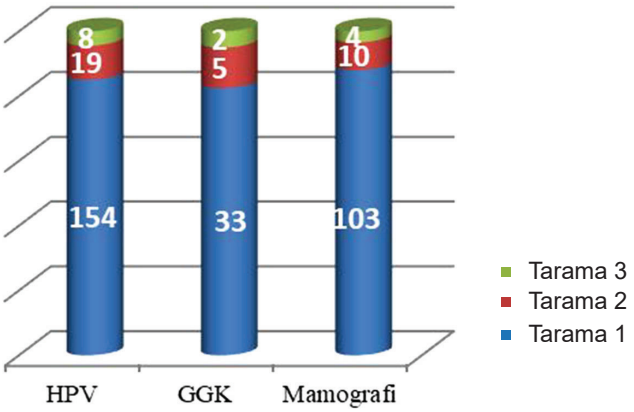
Bulgular

Araştırmaya katılan 465 katılımcının yaş ortancası (min-maks) 52 (18-75)'yıldır, %27,3'ü 41-50, %43,0'ı 51-60 yaş grubunda, %11,4'ü 61 yaş ve üstüdür. Tamamı kadın, %87,7'si evlidir. Öğrenim düzeyi %57,0'ı okuryazar ve ilköğretim, %10,8'i ortaokul, %13,1'i lise, %7,7'si ön lisans ve üstüdür. Katılımcıların %88,8'i ev hanımı, %4,1'i memur, %7,1'i işçidir. Algılanan hane halkı gelir düzeyi %11,8'i kötü, %72,9 ortadır, %89,7'si gelir getiren bir işte çalışmamaktadır.

Katılımcıların %13,5'i halen sigara içmekte olduğunu, %4,1'i alkol tükettiğini, %70,1'i düzenli fiziksel aktivite yapmadığını, %36,1'i sağlıklı beslenmediğini, %76,8'i düzenli olarak sağlık kontrolüne gitmediğini, %34,6'sı tanısı konmuş sürekli ilaç kullanmayı gerektiren kronik hastalığı olduğunu belirtmektedir.



Grafik 1: Katılımcıların kansere yakalanma ihtimallerine ilişkin görüşlerinin dağılımı, Ankara, 2022 (n=465).



Grafik 2: Kanser taraması yaptırma durumları, Ankara, 2022 (n=221).

Katılımcıların %47,5'i 2000-2022 yılları arasında kanser taraması yaptırdığını, %3,7'si kendisinde, %43,7'si (%32,6'sı birinci derece, %9,3'ü ikinci derece, %1,8'i hem birinci hem de ikinci derece) yakınlarında kanser öyküsü olduğunu belirtmektedir.

Tablo 1: Kanser taraması yaptıranların eğitim öncesi ve sonrasına göre dağılımı, Ankara, 2022.

Kanser Taramaları	Eğitim Öncesi		Eğitim Sonrası		p
	Sayı	%*	Sayı	%*	
HPV Taraması**					
1. Tarama (n=154)	124	80,5	30	19,5	**<0,001**
2. Tarama (n=19)	14	73,7	5	26,3	0,285
3. Tarama (n=8)	3	37,5	5	62,5	0,654
Mamografi					
1. Tarama (n=103)	78	75,7	25	24,3	**0,001**
2. Tarama (n=10)	4	40,0	6	60,0	0,414
3. Tarama (n=4)	1	25,0	3	75,0	0,563
GGK* Tarama**					
1. Tarama (n=33)	27	81,8	6	18,2	**0,004**
2. Tarama (n=5)	3	60,0	2	40,0	0,563
3. Tarama (n=2)	1	50,0	1	50,0	0,317

: Satır yüzdesi; **: Human Papilloma Virüs; *:Gaitada Gizli Kan*

Tablo 2: Katılımcıların tanımlayıcı ve sağlıklı yaşam davranışlarına dair bazı özelliklerine göre kanser taraması yaptırma durumlarının dağılımı, Ankara, 2022.

Bazı Özellikler (n=465)	Tarama Yaptıran		Tarama Yaptırmayan		p
	Sayı	%*	Sayı	%*	
Yaş Grupları					
40 yaş ve altı	19	8,6	66	27,0	**<0,001**
41-50	63	28,5	64	26,2	
51-60	104	47,1	96	39,3	
61 yaş ve üstü	35	15,8	18	7,5	
Öğrenim Durumu					
Okuryazar değil	33	14,9	20	8,2	**0,014**
Okuryazar/İlköğretim	134	60,6	131	53,7	
Ortaokul	18	8,2	32	13,1	
Lise Mezunu	23	10,4	38	15,6	
Ön lisans ve üstü	13	5,9	23	9,4	
Düzenli Sağlık Kontrolü					
Yaptırıyor	65	29,4	43	17,6	**0,003**
Yaptırmıyor	156	70,6	201	82,4	
Kronik Hastalığı Varlığı					
Var	92	41,6	69	28,3	**0,003**
Yok	129	58,4	175	71,7	
Kanser Öyküsü**					
Var	16	7,2	1	0,4	**<0,001**
Yok	205	92,8	243	99,6	
Yakınlarında Kanser Öyküsü					
Var	113	51,1	90	36,9	**0,002**
Yok	108	48,9	154	63,1	
Kanser Hakkında Eğitim Alma Durumu**					
Almış	27	12,2	8	3,3	**0,001**
Almamış	194	87,8	236	96,7	
Tarama Yöntemleri Hakkında Eğitim Alma Durumu**					
Almış	20	9,0	6	2,5	**0,004**
Almamış	201	91,0	238	97,5	
KETEM'i Bilme Durumu					
Biliyor	145	65,6	142	58,2	0,100
Bilmiyor	76	34,4	102	41,8	

**Kolon yüzdesi; **Yates Düzeltmeli Ki-kare*

Tarama yaptıranların eğitim öncesi, 2000-2022 yılları arasında, serviks kanserinde 1., 2., 3. tarama sıklığı %80,5 - %73,7 - %37,5, meme kanserinde 1., 2., 3. tarama sıklığı %75,7 - %40,0 - %25,0, kolorektal kanserde %81,8 - %60,0 - %50,0 iken eğitim sonrası sırasıyla serviks kanserinde %19,5 - %26,3 - %62,5, meme de %24,3 - %60,0 - %75,0, kolorektal kanserde %18,2 - %40,0 - %50,0'dir. Serviks, meme ve kolorektal kanserlerin 1. taramalarında eğitim öncesi ve sonrası durum arasında istatistiksel olarak anlamlı bir fark saptanmıştır (p<0,05).

Medeni durum, öğrenim durumu, meslek, gelir getiren bir işte çalışma ve algılanan gelir düzeyine, sigara ve alkol tüketim, düzenli fiziksel aktivite yapma, sağlıklı beslenme durumuna görekanser taraması yaptırma durumuarasında istatistiksel olarak anlamlı bir fark saptanmamış (p>0,05), yaş, öğrenim durumu, düzenli sağlık kontrolü yaptırma ve kronik hastalık varlığına göre fark saptanmıştır (p<0,05). Kanser taraması yaptıranların %47,1'i 51-60 yaş arasında, %60,6'sı okuryazar-ilköğretim mezunudur. Düzenli sağlık kontrolü yaptırmayanların, kronik hastalığı olmayanların kanser tarama yaptırma sıklığı daha fazladır.

Kanser olma, yakınlarında kanser öyküsü olma, kanser ve tarama yöntemleri hakkında eğitim alma durumuna göre kanser taraması yaptırma durumu arasında istatistiksel olarak anlamlı fark saptanmış (p<0,05), KETEM'leri bilme durumları arasında fark saptanmamıştır (p>0,05). Kendisinde, yakınlarda kanser öyküsü olanların, kanser ve tarama yöntemleri hakkında eğitim alanların kanser tarama yaptırma sıklığı daha fazladır.

Tablo 3: Katılımcıların kanser tarama davranışlarını etkileyen faktörlerin lojistik regresyon analizi sonuçları, Ankara, 2022.

Etkili Faktör	OR (%95 GA)*	p
61 yaş ve üstü	2,3 (1,179-4,342)	**0,014**
Yakınlarında tanı konmuş kanser varlığı	1,6 (1,077-2,468)	**0,021**
Kendisinde tanı konmuş kanser varlığı	13,5 (1,691-107,736)	**0,014**
Kanser eğitimi alma durumu	4,8 (1,943-11,788)	**0,001**

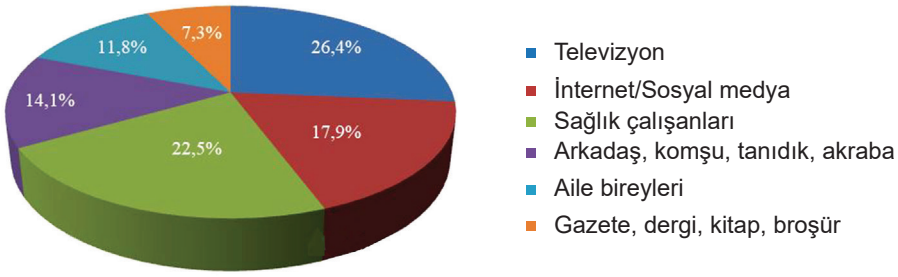
**Modele yaş grupları, eğitim düzeyi, medeni durum, meslek, gelir getiren işte çalışma durumu, algılanan gelir düzeyi, düzenli sağlık kontrolüne gitme durumu, kronik hastalık varlığı, sigara içme durumu, alkol tüketme durumu, düzenli fiziksel aktivite yapma durumu, sağlıklı beslendiğini düşünme durumu, kansere yakalanma ihtimalini değerlendirme durumu, kendisinde ve yakınlarında tanı konmuş kanser varlığı, kanser eğitimi alma durumu, kanser tarama yöntemlerine ilişkin eğitim alma durumu dahil edilmiştir.*

Kanser tarama sıklığını 61 yaş ve üstü olmak 2,3 kat, yakınlarında kanser varlığı 1,6 kat, kendisinde kanser varlığı 13,5 kat, kanser hakkında eğitim almak 4,8 kat artırmaktadır.

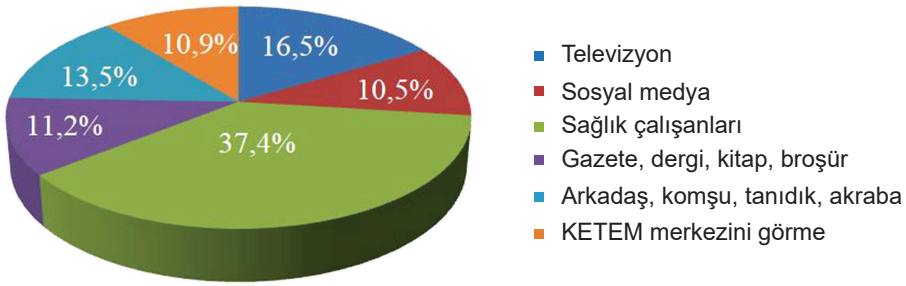
Katılımcıların %7,5'i kanser, %5,6'sı tarama yöntemleri hakkında daha önce eğitim aldığını belirtmektedir. Eğitim öncesi tanı/tarama testlerinin varlığını bilme sıklığı %94,2, KETEM'i bilme sıklığı %61,7'dir. Eğitim öncesi kanser taramasının amacı, %63,6 kanseri erken dönemde yakalamak, %19,9 kanser gelişimini önlemek, %9,6 kanseri tedavi etmek, %6,8 kanserin organlara yayılımını tespit etmek olarak belirtilmektedir. Eğitim sonrası kanser taramasının amacı %64,3 kanseri erken dönemde yakalamak, %22,0 kanser gelişimini önlemek, %8,1 kanseri tedavi etmek, %5,6 kanserin organlara yayılımını tespit etmek olarak belirtilmektedir.

En sık ölüme neden olan hastalık sorusu katılımcılar tarafından %46,0 kalp krizi, %45,4 kanser, %8,6 KOAH, felç, yüksek tansiyon ve şeker hastalığı şeklinde yanıtlanmıştır. Kadınlarda en sık görülen kanser türü sorusuna katılımcıların %70,3'ü meme, %29,7'si serviks kanseri yanıtını vermiştir.

Kansere ilişkin bilgi edinme kaynakları arasında%26,4 sıklıkla televizyon ilk sırasında yer almaktadır. Katılımcılar, KETEM'leri %37,4 sıklıkla sağlık çalışanlarından duyduklarını belirtmektedir.



Grafik 3: Kansere ilişkin bilgi edinme kaynaklarının dağılımı, Ankara, 2022.



Grafik 4: Eğitim öncesi KETEM'leri duyma kaynaklarının dağılımı, Ankara, 2022. (n=465).

Tablo 4: Katılımcıların kanser ile ilgili önermelere verdikleri yanıtların eğitim öncesi ve sonrasına göre dağılımı, Ankara, 2022.

İfadeler (n=465)	Eğitim Öncesi*				Eğitim Sonrası*				p
	Doğru		Yanlış		Doğru		Yanlış		
	Sayı	%	Sayı	%	Sayı	%	Sayı	%	
1. Kanser nadir görülür.	97	20,9	298	64,1	108	23,2	315	67,7	**<0,001**
2. Kanserojen maddeler kanser yapar.	399	85,8	19	4,2	419	90,1	15	3,2	**<0,001**
3. Kanser önlenebilir.(n=424)	409	88,0	19	4,0	429	92,3	11	2,4	**<0,001**
4. Kanser erken teşhis edilebilir.	445	95,7	7	1,5	450	96,8	2	0,4	**<0,001**
5. Kanser tedavi edilebilir.	420	90,3	24	5,2	435	93,5	14	3,0	**<0,001**
6. Bütün kanserler bulaşıcıdır.	80	17,2	337	72,5	82	17,6	337	72,5	**<0,001**
7. Üzüntü ve stres kansere sebep olur.	386	83,0	26	5,6	411	88,4	14	3,0	**<0,001**
8. Kanser kalıtımla geçer.	236	50,8	132	28,4	341	73,3	50	10,8	**<0,001**
9. Memede ele gelen şişlik meme kanseri belirtisi olabilir.	394	84,7	24	5,2	398	85,6	28	6,0	**<0,001**
10. Meme başından gelen kanlı akıntı meme kanseri belirtisi olabilir.	277	59,6	90	19,4	410	88,2	9	1,9	**<0,001**
11. Meme başında içeri çekilme meme kanseri belirtisi olabilir.	241	51,8	101	21,7	411	88,4	17	3,7	**<0,001**
12. Memede ağrı meme kanseri belirtisi olabilir.	239	51,4	127	27,3	374	80,4	23	4,9	**<0,001**
13. Eşlerin geçmişte ya da halen birden fazla cinsel eşi olması serviks kanseri için	214	46,0	103	22,2	390	83,9	8	1,7	**<0,001**
14. Serviks kanserini önleyen aşı vardır.	130	28,0	113	24,3	371	79,8	23	4,9	**0,004**
15. Sigara dumanı serviks kanseri için risktir.	180	38,7	126	27,1	384	82,6	20	4,3	**0,003**

16. Erken yaşta cinsel ilişkiye başlayanların serviks kanserine yakalanma riski yüksektir.	167	35,9	111	23,9	297	63,9	69	14,8	0,469
17. Cinsel ilişki sonrası vajinal kanama kanser belirtisi olabilir.	187	40,2	117	25,2	356	76,6	22	4,7	**<0,001**
18. Smear testi serviks kanseri erken tanı testidir.	402	86,5	8	1,7	433	93,1	5	1,1	**<0,001**
19. Makattan kan gelmesi kanser belirtisi olabilir.	254	54,6	85	18,3	389	83,7	22	4,7	**0,001**
20. 20 yaşından sonra her kadın kendi kendine meme muayenesi yapmalıdır.	408	87,7	14	3,0	436	93,8	5	1,1	**<0,001**
21. 40-69 yaş arası tüm kadınlara, her iki yılda bir mamografik tarama ve fizik muayene yapılarak meme kanserine yönelik kadınlar taranmalıdır.	428	92,0	4	0,9	439	94,4	8	1,7	**<0,001**
22. Kolonoskopi kolorektal kanser için tarama testidir.	365	78,5	4	0,9	424	91,2	5	1,1	**<0,001**
23. Gaitada gizli kan testi kolorektal kanser için tarama testidir.	239	51,4	54	11,6	404	86,9	3	0,6	**0,003**

**Tabloda katılımcıların ifadelere ilişkin doğru ve yanlış olarak yaptıkları değerlendirmelere yer verilmiş, fikrim yok değerlendirmesine analizde yer verilmiş, ancak tabloda yer verilmemiştir.*

Tablo 5: Katılımcıların kanser ile ilgili ifadelere verdikleri yanıtların eğitim öncesi ve sonrasına göre dağılımı, Ankara, 2022.

İfadeler (n=465)	**Eğitim Öncesi* Kanser Görülmesini**				**Eğitim Sonrası* Kanser Görülmesini**				**p**
	Artırır		**Artırmaz**		**Artırır**		**Artırmaz**		
	Sayı	**%**	**Sayı**	**%**	**Sayı**	**%**	**Sayı**	**%**	
1. Ailede meme kanseri öyküsü	271	58,3	87	18,7	385	82,8	19	4,1	**<0,001**
2. Ailede kolon kanseri öyküsü	256	55,1	84	18,1	348	74,8	30	6,5	**<0,001**
3. Şişman olma	146	31,4	142	30,5	232	49,9	127	27,3	**<0,001**
4. İlk doğumu 35 yaşından sonra yapmış olma	90	19,4	153	32,9	210	45,2	117	25,2	**<0,001**
5. 12 yaşından önce adet olma	71	15,3	157	33,8	196	42,2	122	26,2	**<0,001**
6. 16 yaş öncesi cinsel ilişki	104	22,4	126	27,1	226	48,6	108	23,2	**<0,001**
7. Doğum yapmamış olma	88	18,9	145	31,2	215	46,2	124	26,7	**<0,001**
8. Fazla doğum (≥5) yapmış olma	99	21,3	178	38,3	191	41,1	163	35,1	**<0,001**
9. Bireyin ve/veya eşinin geçmişte veya halen birden fazla cinsel eşinin olması	177	38,1	107	23,0	374	80,4	18	3,9	**<0,001**
10. Işın maruziyeti	233	50,1	104	22,4	404	86,9	12	2,6	**<0,001**
11. Sigara tüketimi veya dumanına maruziyet	394	84,7	17	3,7	427	91,8	6	1,3	**<0,001**
12. Aşırı yağlı beslenme	274	58,9	96	20,6	387	83,2	25	5,4	**<0,001**
13. Sebze ve meyveden fakir beslenme	205	44,1	142	30,5	356	76,6	38	8,2	**<0,001**
14. Human Papilloma Virüsü (HPV) öyküsü	101	21,7	82	17,6	292	62,8	62	13,3	**<0,001**

**Tabloda katılımcıların ifadelere ilişkin artırır veya artırmaz olarak yaptıkları değerlendirmelere yer verilmiş, fikrim yok değerlendirmesine analizde yer verilmiş, ancak tabloda yer verilmemiştir.*

Yukarıdaki tabloda yer alan 16 numaralı ifade dışındaki tüm ifadelere verilen yanıtlara göre eğitim öncesi ve eğitim sonrası arasında istatistiksel olarak anlamlı fark saptanmıştır (p<0,05). Eğitim sonrası ifadelere doğru yanıt verme sıklığı daha fazladır.

Yukarıdaki tabloda yer alan tüm ifadelere verilen yanıtlara göre eğitim öncesi ve sonrası arasında istatistiksel olarak anlamlı fark saptanmıştır (p<0,001). Eğitim sonrası kanser risk faktörlerine yönelik doğru yanıt verme sıklığı daha fazladır.

Tablo 6: Katılımcıların kanser bilgi ve tutum düzeyini saptamaya yönelik sorulardan eğitim öncesi ve sonrası aldıkları puanların ve kanser taraması yaptırmayı isteme durumlarının eğitim öncesi ve sonrasına göre dağılımı, Ankara, 2022.

Bilgi Düzeyini Saptamaya Yönelik Sorulardan Aldıkları Puan	**Eğitim Öncesi***		**Eğitim Sonrası***		**p**
	24,0	**(1, 41)**	**34,0**	**(2, 41)**	**<0,05**
Kanser Taraması Yaptırmayı İsteme Durumu (n=465)	**Sayı**	**%***	**Sayı**	**%***	
İstiyor	347	74,6	378	81,3	
İstemiyor	66	14,2	59	12,7	**<0,001**
Kararsız	52	11,2	28	6,0	

**Kolon yüzdesidir.*

Katılımcıların eğitim öncesi bilgi ve tutum düzeyini saptamaya yönelik sorulardan aldıkları puanların ortancası (min-max) 24,0 (1,0-41,0) iken eğitim sonrası 34,0 (2,0-41,0)'dır. Bilgi ve tutum düzeyini saptamaya yönelik sorulara göre katılımcıları aldıkları puanların ortanca değerleri eğitim sonrasında istatistiksel olarak anlamlı düzeyde yüksek olarak saptanmıştır. (p<0,05).

Katılımcıların kanser taraması yaptırmayı isteme durumuna göre eğitim öncesine göre sonrası arasında istatistiksel olarak anlamlı düzeyde artış göstermiştir (p<0,001).

Tartışma

Hem gelişmiş, hem de gelişmekte olan ülkelerde kanser oldukça yaygın olmasına rağmen kanser ve kanser taramaları hakkında toplumun farkındalığı henüz yeterli düzeyde değildir (7, 8). Bu durum kanser semptomlarının tanınmasında ve kanser teşhisinde gecikmeye neden olabilmektedir (9). Kanser farkındalığı ve bilgi birikimini artırmaya yönelik eğitim programların gerçekleştirilmesi kansere karşı koruyucu davranış geliştirmenin en önemli yoludur (1). Rezaeian ve arkadaşlarının yaptığı çalışmada eğitim müdahalesi, kadınların kanser taraması hakkında bilgisini artırmak için birincil strateji olarak başarılı olmuştur (10). Asuquo ve Olajide'nin yaptığı araştırmada da sağlık eğitiminin kanseri azaltmada önemli bir etkiye sahip olduğunu ortaya koymakta ve kadınların tarama programına katılmama nedenleri arasında bilgi eksikliği ilk sıralarda yer almaktadır (11). Açıkgöz'ün yaptığı araştırmada eğitim düzeyi düşük olanların kanser tarama sıklığının daha az olduğu görülmüştür (12). Bu çalışmada, katılımcıların kanser bilgi düzeyini saptamaya yönelik sorulardan eğitim sonrası aldıkları puanların ortancası eğitim öncesine göre daha fazladır. Bu sonuç ışığında kadınların eğitim aldıktan sonra kanser ve kanser taraması ile ilgili bilgi düzeylerinde artış olduğu söylenebilir. Yapılan bazı çalışmalarla benzer şekilde, çoğunluğunu eğitim düzeyi düşük katılımcıların

oluşturduğu bu çalışmada da iyi sunulmuş bir eğitimin bilgi düzeyini artırmada, olumlu tutum geliştirmede başarılı bir müdahale olduğu saptanmıştır (10, 13-18).

Çalışmada, kansere ilişkin bilgi edinme kaynaklarının dağılımına bakıldığında televizyon, internet/sosyal medya ve sağlık çalışanları ilk üç sırada yer almaktadır. Demir ve Özaydın'ın yaptığı çalışmada bu çalışmayla benzer şekilde kadınların en çok televizyondan, ikinci olarak gazete/dergilerden, üçüncü olarak arkadaş/akrabalardan daha sonra sağlık çalışanlarından bilgi edinildiği belirtilmiştir (19). Çok az sayıda çalışma, arkadaş ve akrabaların kanser hakkında bilgi kaynağı olduğunu göstermektedir. Bu çalışmadan farklı olarak Sankheshwari ve arkadaşları tarafından yapılan çalışmada sağlık personelinin başlıca bilgi kaynağı olduğu görülmüştür (20). Bilgi alma noktasında sağlık çalışanlarının tercih edilmesi sevindirici olmakla birlikte; doğru bilgiye ulaşım kadar yanlış bilgiye ulaşımın da kolay olması nedeniyle televizyon, internet/sosyal medyanın bilgi kaynağı olarak sık tercih edilmesi tedirgin edicidir.

Karadağ Çaman ve arkadaşlarının yaptığı araştırmada katılımcıların %26,8'i gelecekte kansere yakalanma ihtimalinin çoğu insandan daha yüksek olduğunu, %18,4'ü ise çoğu insandan daha düşük olduğunu düşünmektedir. Erdem ve arkadaşlarının yaptığı çalışmada katılımcıların %80,9'u kanser hastası olmaktan korktuklarını belirtmişlerdir (21-23). Bu çalışmaya katılanlar benzer sıklıkta kansere yakalanma ihtimalinin yüksek olduğunu belirtirken, kansere yakalanma ihtimalinin olmadığını/hiç olmadığını belirtenlerin sıklığı daha fazladır.

Birçok ülkede ve Türkiye'de yayınlanan çalışmalarda, kadınların kanser tarama programlarına katılım sıklığının düşük olduğunu gösterilmiştir (24-26). Ülkemizde hedef nüfusun %30'unun taranabildiği, çeşitli sebeplerle arzu edilen %70 kapsayıcılığın gerisinde kalındığı Sağlık Bakanlığı raporlarında belirtilmektedir (6). Bu çalışmada kanser tarama hızları toplumun genelini kapsayacak düzeyde değilse de %47,5 ile %30,0'un üzerindedir. Çalışma kapsamında kanser taraması yaptırmayı isteme ve yaptırma sıklığında artış sağlanmış, Eghbal ve arkadaşlarının yaptığı çalışmada olduğu gibi kanser hakkında eğitim almanın kanser tarama sıklığını (4, 8 kat) artırmada etkili olduğu gösterilmiştir (15).

Sonuç ve Öneriler

Bir eğitim müdahalesinin kanser farkındalığını artırıp artırmadığının değerlendirildiği bu çalışmada; eğitim müdahalesi sonrasında kadınların kanser ve tarama davranışı hakkındaki bilgi ve farkındalığının arttığı saptanmıştır. Eğitimle gelen farkındalık ve bilgi artışı sonucunda da tarama davranışı sıklığı artmıştır.

Kanser hakkında bilgi edinme kaynakları arasında TV, sosyal medya gibi iletişim araçlarının yer alması önemli olmakla birlikte bu kaynakların ilk sıralarda olması düşündürücüdür. Bilgi edinme kaynağı olarak ilk sırada sağlık çalışanlarının yer alması, istenilen sağlık çıktılarının elde edilmesinde önemlidir.

Sonuç olarak, birinci basamak sağlık hizmetlerinde kanser farkındalığının ve kanser taramalarının öneminin vurgulanması ve bireylerin KETEM'lere yönlendirilmesi son derece etkilidir. Bu hususta; yapılacak araştırmalarda bilgi, tutum ve davranışın mevcut durumunu saptamaya ek olarak tarama davranışına etki edebilecek sosyal, kültürel, davranışsal özelliklere yer verilmesinin ve bu doğrultuda hazırlanan programlarla sosyodemografik ve yaşam tarzı alışkanlıkları açısından homojen gruplara, düzenli aralıklarla müdahale edilmesinin, ihtiyaç halinde bu programların bireyselleştirilmesinin önemli olduğu düşünülmektedir.

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EVALUATION OF FACTORS AND ASSOCIATED WITH THE ANXIETY, DEPRESSION AND BURNOUT LEVELS OF HEALTHCARE PROFESSIONALS AT THE LAST PERIOD OF COVID-19 PANDEMIC IN TURKEY

Türkiye'de COVID-19 pandemisinin son periyodunda sağlık çalışanlarının anksiyete, depresyon ve tükenmişlik düzeyleri ve ilişkili faktörlerin değerlendirilmesi

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Abstract

The prevalence of depression, anxiety, and burnout syndrome in healthcare workers is so high that it can't be underestimated, because of the intense workload, shift work, night shifts, and problems encountered during working hours. This study was planned to evaluate the factors related to anxiety, depression, and burnout levels of healthcare professionals working in a training and research hospital. This descriptive study included 196 health care workers working in the hospital. Statistical analysis of the categorical data was performed by Chi-square test. Statistical analysis of quantitative data was performed by Mann Whitney U test and by Kruskal Wallis variance analysis because it did not fit normal distribution. In this study, the frequency of depression was found to be 24.0% in healthcare workers and the frequency of anxiety was 29.6%. It was determined that the presence of depression was more common in night and shift workers. Anxiety was statistically higher in health workers with chronic diseases and sleep problems. Compared to other health workers, it was found that the emotional exhaustion and depersonalization levels of the Maslach burnout scale sub-headings were higher in physicians.These results are very important in terms of identifying psychosocial risk factors in health workers and forenlightening to improve working conditions.

Keywords: Anxiety, burnout, COVID-19, depression, healthcare workers.

Özet

Yoğun iş yükü, vardiyalı çalışma, gece vardiyaları ve çalışma esnasında yaşanan sorunlar nedeniyle sağlık çalışanlarında depresyon, anksiyete ve tükenmişlik sendromu görülme sıklığı azımsanmayacak kadar yüksektir. Bu çalışma, bir eğitim ve araştırma hastanesinde görev yapan sağlık çalışanlarının anksiyete, depresyon ve tükenmişlik düzeyleri ile ilişkili faktörlerin değerlendirilmesi amacıyla planlanmıştır. Bu tanımlayıcı çalışmaya hastanede görev yapan 196 sağlık çalışanı dahil edilmiştir. Kategorik verilerin istatistiksel analizi Ki-kare testi ile yapılmış olup nicel verilerin istatistiksel analizi normal dağılıma uymadığı için Mann Whitney U testi ve Kruskal Wallis varyans analizi ile yapılmıştır. Bu çalışmada sağlık çalışanlarında depresyon sıklığı %24,0, anksiyete sıklığı %29,6 olarak bulunmuştur. Gece ve vardiyalı çalışanlarda depresyon varlığının daha fazla olduğu belirlenmiştir. Kronik hastalığı olan sağlık çalışanlarında ve uyku problemi olan sağlık çalışanlarında anksiyete varlığının istatistiksel olarak daha fazla olduğu tespit edilmiştir. Hekimlerde Maslach tükenmişlik ölçeği alt boyutlarından duygusal tükenme ve duyarsızlaşma düzeylerinin diğer sağlık çalışanlarına göre daha yüksek olduğu saptanmıştır. Bu sonuçlar, sağlık çalışanlarında psikososyal risk faktörlerinin belirlenmesi ve çalışma koşullarının iyileştirilmesine yönelik ön bilgi verilmesi açısından oldukça önemlidir.

Anahtar kelimeler: Kaygı, tükenmişlik, COVID-19, depresyon, sağlık çalışanları.

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Introduction

The World Health Organization (WHO) defined the concept of health as "not only the absence of disease and disability but also a state of complete physical, mental, and social well-being" (1). As it can also be understood from this definition, mental health is also important, in order to mean absolute health. Depression can be defined as a miserable mood disorder (2). Not enjoying life, reluctance and apathy, a decrease in one's energy, feelings of guilt, and changes in sleep routine and appetite are the conditions that can be seen in depressive mood disorder (3). Anxiety is a common, unpleasant, vague premonition of negativity that everyone can experience occasionally (2). Anxiety is a feeling of worry or a specific fear with a sense of impending disaster for an unknown reason or a state of unconsciousness (4). Burnout is the drain of mental and physical energy after long-term work-related stress (5). According to Maslach et al., burnout is a syndrome that manifests itself with desensitization against people who are encountered due to occupational reasons, feeling emotionally exhausted, and a decrease in personal success and competence in professions where people work one-on-one as a requirement of their job (6). The prevalence of depression, anxiety, and burnout syndrome in healthcare workers is so high that it can't be underestimated, because of the intense workload, shift work, night shifts, and problems encountered during working hours. The prevalence of depression is 15% in the general population, while it is 38% in physicians (7). In a study conducted with healthcare professionals, clinical depression was detected in 16.7% of the participants according to the Beck Depression Scale (5). In a study conducted with nurses working in the emergency department, it was observed that nearly half of the nurses experienced burnout (8). In a study conducted with healthcare professionals at a university hospital in Ankara, the depression rate of the participants was 11.2% according to the Beck Depression Scale and the anxiety rate was 43.2% according to the Beck Anxiety Inventory (9).

After the first case was reported in Wuhan, China's Hubei province in December 2019, the COVID-19 viral infection, which spread rapidly all over the world, was declared as a global health emergency by the WHO on January 30, 2020 (10). Since the beginning of the COVID-19 pandemic, healthcare professionals all over the world have worked with great devotion. Infection-related deaths and permanent damage to various organs and systems have occurred in healthcare workers as a result of virus contact. Besides the infection-related death or systemic damage, the psychological effects of the pandemic on healthcare workers have also been devastating. In a meta-analysis, during the COVID-19 pandemic, the prevalence of anxiety in healthcare workers was reported as 30.0%, depression and depressive symptoms was 31.1%, posttraumatic stress disorder was 31.4%, and sleep problems were 44.0% (11). To be in complete mental and social well-being is very important for all healthcare professionals, especially physicians, who have an intense workload and high work pace and are faced with various stress factors during working hours. How the healthcare workers feel mentally during and after working hours, whether they experience burnout related to their work and the causative factors should be determined, and studies should be carried out to control and eliminate these factors that impair psychosocial health. This study was planned to evaluate the factors related to anxiety, depression, and burnout levels of healthcare professionals working in a training and research hospital.

Material and Method

This descriptive study was carried out with the participation of healthcare professionals over the age of 18, who were working at Ankara Atatürk Chest Diseases

and Thoracic Surgery Training and Research Hospital. Data collection was carried out in March-May 2022. The population of this study consisted of healthcare professionals working in the hospital (n = 1342). The G Power 3.1 program was used to calculate the number of samples and perform power analysis. Based on a research article with similar hypotheses, it was determined that at least 210 samples should be studied with 95% power and 5% alpha error. Simple random sampling method was used in this study. 14 healthcare professionals didn't accept to be included in the study. 93% of the sample was reached. The study was conducted with the analyses of 196 participants.

The inclusion criteria involved being 18 years of age or older and being a permanent healthcare professional. The exclusion criteria involved interns and temporary healthcare professionals.

A survey form, designed by the study team, entitled "Anxiety, Depression and Burnout Level of the Employees in the Training and Research Hospital and Evaluation of the Related Factors" was used as the data source. The survey form consisted of four parts. The first part included questions about the demographic characteristics of the participants. The second part included the Beck Depression Inventory, the third part included the Beck Anxiety Inventory, and the fourth part included the Maslach Burnout Inventory. The data was collected by face-to-face interview method. The mean duration of the survey was 10 minutes. Dependent variables of the research were Beck Depression Inventory, Beck Anxiety Inventory, and Maslach Burnout Inventory. Independent variables were socio-demographic characteristics (age, gender, marital status) and characteristics related to working life (task, place of work, and working time in the profession).

Beck Anxiety Inventory is a likert-type scale containing 21 statements. Each proposition is scored between 0 and 3 points. As the scale score increases, the level of anxiety increases. In this study, individuals with a scale score of 16 and above were accepted as "having anxiety" (12). In the Beck Anxiety Scale scoring, regarding cut-off scores, 0-7 points were accepted as minimal anxiety, 8-15 points as mild anxiety, 16-25 points as moderate anxiety, and 26-63 points as severe anxiety (13).

Beck Depression Inventoryis a likert-type scale containing 21 statements. Each statement is scored between 0 and 3 points. As the scale score increases, the level of depression increases. In this study, individuals with a scale score of 17 and above were accepted as "having depression" (12). In Beck Depression Scale scoring, cut-off values were 0-9 points as no depression, 10-16 points as mild depression, 17-29 points as moderate depression, and 30-63 points as severe depression (13).

Maslach Burnout Scale is a 5-point likert type scale with 22 propositions. Each proposition is scored between 0 and 4 points. There are sub-dimensions of emotional exhaustion, depersonalization and lack of personal accomplishment. While emotional exhaustion and depersonalization include negative propositions, lack of personal accomplishment includes positive propositions and is scored on the contrary (14).

In order to perform the research and use the data, approval was obtained from the Ethics Committee of Keçiören Training and Research Hospital (23.02 .2021 date and 2012-KAEK-15/2240 number). The research was carried out in accordance with the Principles of the Declaration of Helsinki.

Statistical analysis; the research data were evaluated using the SPSS 23.0 statistical package program. Descriptive statistics were presented as mean value±standard deviation, median (minimum-maximum), frequency, and percentage. The conformity of continuous variables to normal distribution was evaluated by using visual (histogram and probability graphs) and analytical methods (Kolmogorov-Smirnov/Shapiro-Wilks tests). Statistical analysis of the categorical data was performed by Chi-square test. Statistical analysis of quantitative data was performed by Mann Whitney U test and by Kruskal Wallis variance analysis because it did not fit normal distribution. The statistical significance level was accepted as $p<0.05$.

Results

In the study, 38.8% of the participants were between the ages of 18-29 years, 74.0% were women, 57.1% were married and 24.1% were primary school graduates. Of the participants, 22.4% stated that they had a chronic disease, 59.7% stated that their general health status was good, and 31.6% stated that their economic condition was well (Table 1).

Table 1: Demographic data of the participants, Ankara, 2023.

Variables	n	%*
Age Groups (n=196)		
18-29 years	76	38.8
30-39 years	59	30.1
40-49 years	44	22.4
50 years and older	17	8.7
Gender (n=196)		
Female	145	74.0
Male	51	26.0
Marital Status(n=196)		
Married	112	57.1
Single	78	39.8
Divorced	6	3.1
Education (n=196)		
Primary School	47	24.1
Secondary School	24	12.2
High School	83	42.3
University	42	21.4
Having Any Chronic Disease (n=196)		
Yes	44	22.4
No	152	77.6
Perceived Health Situation (n=196)		
Good	117	59.7
Middle	69	35.2
Bad	10	5.1
Economical Situation (n=196)		
Good	62	31.6
Middle	117	59.7
Bad	17	8.7

**Column percentage*

Table 2: Working conditions and health problems of the participants, Ankara, 2023.

Variables	n	%*
Title (n=196)		
Physician	57	29.1
Nurse	39	19.9
Medical officer and secretary	29	14.8
Other**	71	36.2
Working year (n=196)		
≤20 years	166	84.7
>20 years	30	15.3
Shift Work and Night Shift (n=196)		
Yes	165	84.2
No	31	15.8
Receiving Psychological support (n=196)		
Yes	50	25.5
No	146	74.5
Having Sleeping Problem (n=196)		
Yes	56	28.6
No	140	71.4

**Column percentage; **The most frequent responses in this group were 'traniee', 'radiology technician', 'dietician', and 'cleaning staff'*

Also, 29.1% of the participants were physicians, 19.9% nurses and 84.7% of them had been working for 20 years or less.As it can be seen in Table 2, 25.5% of the participants stated that they received psychological support and 28.6% reported that they had sleep problems (Table 2).

According to the Beck Anxiety Inventory, 19.4% of the participants had moderate anxiety and 10.2% had severe anxiety. According to the Beck Depression Inventory, 21.4% had moderate depression and 2.6% had severe depression (Table-3).

Table 3: Descriptive analysis of Beck Anxiety Inventory Scores and Beck Depression Inventory Scores, Ankara, 2023.

Variables	n	%*
Beck Anxiety Inventory Scores(n=196		
Minimal (0-7 range)	81	41.3
Mild (8-15 range)	57	29.1
Moderate (16-25 range)	38	19.4
Severe (26-63 range)	20	10.2
Beck Depression Inventory Scores(n=196)		
No depression (0-9 range)	88	44.9
Mild (10-16 range)	61	31.1
Moderate (17-29 range)	42	21.4
Severe (30-63 range)	5	2.6

**Column percentage*

Table 4: Beck Depression Inventory, Beck Anxiety Inventory Scores and demographic characteristics of health care professionals, Ankara, 2023.

Variables	Beck Depression and Beck Anxiety Inventory Depression%*				Anxiety				p
	Yes		No		Yes		No		
	n	(%)*	n	(%)*	n	(%)*	n	(%)*	
Age Groups (n=196)									
≤30 years	5	17.2	24	82.8	5	17.2	24	82.8	p=0.342**
>30 years	42	25.1	125	74.9	53	31.7	114	68.3	p=0.099**
Gender (n=196)									
Female	37	25.5	108	74.5	51	35.2	94	64.8	p=0.388**
Male	10	19.6	41	80.4	7	13.7	44	86.3	**p=0.002****
Education (n=196)									
Primary School	8	17.0	39	83.0	7	14.9	40	85.1	
Secondary School	7	29.2	17	70.8	11	45.8	13	54.2	p=0.595
High School	22	26.5	61	73.5	26	31.3	57	68.7	**p=0.040**
University	10	23.8	32	76.2	14	33.3	28	66.7	
Marital Status(n=196)									
Married	26	23.2	86	76.8	34	30.4	78	69.6	p=0.772**
Single/Divorced	21	25.0	63	75.0	24	28.6	60	71.4	p=0.786**
Having Any Chronic Disease(n=196)									
Yes	13	29.5	31	70.5	21	47.7	23	52.3	p=0.334**
No	34	22.4	118	77.6	37	24.3	115	75.7	**p=0.004****
Having Sleeping Problems(n=196)									
Yes	24	42.9	32	57.1	29	51.8	27	48.2	**p<0.001****
No	23	16.4	117	83.6	29	20.7	111	79.3	**p<0.001****
Shift Work and Night Shift (n=196)									
Yes	34	20.6	131	79.4	46	27.9	119	72.1	**p=0.015****
No	13	41.9	18	58.1	12	38.7	19	61.3	p=0.235**

**Row percentage; **Chi-Square Test With Yates Correction*

Regarding gender, the presence of anxiety was found to be higher in females (35.2%) than males (13.7%) (p=0.002). The presence of anxiety was found to be higher in healthcare workers with a chronic disease (47.7%) than those without (24.3%) (p=0.004). In those who stated that they had sleep problems, the presence of anxiety and depression was found to be higher than in those without sleep problems (p<0.001) (Table 4).

Among the sub-headings of the Maslach burnout scale, the scores of emotional exhaustion and depersonalization were found to be higher in physicians compared to other healthcare workers' levels (p<0.001) (Table 5).

Table 5: Maslach Burnout Scale Score of Healthcare Professionals, Ankara, 2023.

	Mean±Standard deviation	p value
Emotional Exhaustion (n=196)		
Physicians	19.87±8.18	**p<0.001***
Other	13.97±8.62	
Depersonalization(n=196)		
Physicians	7.85±4.20	**p<0.001***
Other	4.69±3.96	
Personal Accomplishment (n=196)		
Physicians	14.17±5.24	p=0.385*
Other	15.64±6.95	

**Mann Whitney U Test.*

Discussion

In this study conducted in the last quarter of the COVID-19 pandemic, with healthcare professionals working in a training and research hospital, the mean age of the participants was found to be 33.53±10.6 years. In this study, the depression rate is found to be 24.0% and the anxiety rate is 29.6% in health workers. It was found that 10.2% of the participants had severe anxiety and 2.6% had severe depression. In a similar study conducted with healthcare workers in 2020, it was observed that 13.0% of the participants had severe anxiety (15). The fact that the anxiety levels are relatively lower in our study may be due to the study being conducted in the last quarter of the COVID-19 pandemic, the success of the preventive measures and vaccination programs against the pandemic, and the increased knowledge and awareness levels of healthcare workers for fighting the infection. In a study conducted with medical students in Iran, 4.6% of the students had severe anxiety and 2.8% had severe depression, and in the same study, it was observed that 38.1% of the students had anxiety (16). In a study conducted in Istanbul in the middle of 2020, similar results were reported with our study, and it was found that 14.0% of healthcare professionals had severe anxiety and 3.5% had severe depression (12).

In our study, it was determined that the level of anxiety was higher in women and secondary school graduate health workers (Table 4). In a similar study conducted with healthcare professionals during the pandemic period in our country, it was stated that being female and single was significant in terms of anxiety development (12).The fact that healthcare professionals working as nurses during the pandemic period in healthcare institutions, especially in intensive care units and inpatient pandemic services, more commonly encountered the need of applying one-on-one treatment to infected patients and the necessity of action in cases requiring intervention, supports the fact

that the development of anxiety is more common in female healthcare professionals.

In this study, it was determined that the presence of anxiety was higher in those who stated that they had a chronic disease (Table 4). Since the mortality and morbidity of COVID-19 infection are quite high, especially in individuals with advanced age and chronic disease, and the course of the disease is more complicated in these individuals, it is an expected result that healthcare workers with chronic diseases are more likely to have higher anxiety levels. It was determined that the presence of anxiety and depression was higher in the participants who stated that they had sleep problems.It was also determined that the presence of depression was higher in night and shift workers (Table 4).Shift work causes physiological and psychological deterioration by disrupting the circadian rhythm of the health of individuals. Shift work can be the cause of many problems such as sleep disorders, fatigue, stress, gastrointestinal system-related problems, and cardiovascular problems (17).The fact that depressive mood disorders are higher in health workers who do shift work under intense stress such as during the pandemic period seems compatible with the literature.

In this study, it was found that the levels of emotional exhaustion and depersonalization, which are the sub-headings of the Maslach burnout scale, were higher in physicians compared to other health workers (Table 5). In recent years, we see an increase in burnout, especially in physicians, due to reasons such as physical violence, intense work pace, and post-traumatic stress caused by the COVID-19 pandemic. Unlike our study, in a study conducted in the first quarter of the pandemic in our country, the scores of emotional exhaustion and depersonalization sub-headings of the Maslach burnout scale were found to be higher in nurses (18). Due to the fact that this study was conducted in the first quarter of the pandemic, the nurses, who are in close contact with patients because of applying treatment,are expected to have higher burnout due to the stress created by many unknowns such as the structure of the virus, transmission routes, methods of protection from infection, mortality and morbidity of the disease in the world and in our country. In this study, which was conducted in the middle of 2020, it was determined that the emotional exhaustion level of the Maslach burnout scale sub-headings was lower in healthcare workers who did not have night shifts (18). Concurrent with the a for mentioned study, in our study, emotional exhaustion and depersonalization levels, which are sub-headings of Maslach burnout scale, were found to be higher in those who had night shifts and shift workers.

The strengths of this study are that it provides information about the depression, anxiety, and burnout levels of health workers in the last quarter of the pandemic and that it can be a guide for the preventive measures that will be taken against the psychosocial risk factors they face. The limitations of this study are that the reliability of the data collection depends on the answers of the participants because the face-to-face survey method was used and that the number of health professionals who agreed to participate in the study was less than expected.

Conclusions

In this study, the frequency of depression was found to be 24.0% in healthcare workers and the frequency of anxiety was 29.6%. It was observed that 10.2% of the participants had severe anxiety and 2.6% had severe depression. It was found that the anxiety levels were higher in women and in secondary school graduate healthcare workers, the presence of anxiety and depression was more common in

in the participants who stated that they had sleep problems. In addition, it was determined that the presence of depression was more common in night and shift workers.

Compared to other health workers, it was found that the emotional exhaustion and depersonalization levels of the Maslach burnout scale sub-headings were higher in physicians. These results are very important in terms of identifying psychosocial risk factors in health workers and forenlightening to improve working conditions.

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FACTORS AND BARRIERS RELATED TO FRUIT AND VEGETABLE CONSUMPTION OF UNIVERSITY STUDENTS: KAYSERİ, TÜRKİYE

Üniversite öğrencilerinin meyve ve sebze tüketimi ile ilişkili faktörler ve engeller: Kayseri, Türkiye

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Abstract

This study aimed to examine university students' fruit and vegetable (F/V) consumption status and related factors and determine the influencing factors and barriers. The study was conducted with 630 students studying at university in the 2016-2017 academic year. Data were collected using a questionnaire questioning students' sociodemographic characteristics, daily fruit and vegetable (F/V) consumption, factors and barriers affecting F/V consumption. F/V intake status was assessed according to World Health Organization (WHO) recommendations, and the adequacy of F/V intake was compared with nutrition and health habits. The mean daily total F/V consumption of students was 3.1 (1-5) portions. According to WHO recommendations, 71.4% had inadequate daily F/V consumption, while only 28.6% had adequate F/V consumption. As vegetable consumption increased, fruit consumption also increased (r=0.398, p<0.001). The correlation between body weight and fruit and vegetable consumption was statistically not significant (r=-0.007, r=-0.026, respectively) (p>0.05). A significant difference was found only between place of living and adequate F/V consumption (p<0.001). There were no significant differences between gender, socioeconomic status and Body Mass Index (BMI) and adequate F/V consumption. The main factors preventing F/V consumption were; long preparation and cooking times (52.0%), vegetable dishes were not found to be satisfying (48.7%), and vegetable consumption was not liked (36.2%). The most important barrier is the perception of adequate consumption. A significant difference was found between students' perceptions of their F/V consumption and current status (p<0.001). Of the students who thought their F/V consumption was adequate, 58.1% consumed inadequate among the students who consume inadequate F/V, 50.0% think of increasing their F/V consumption. The F/V consumption of 71.4% of the students was inadequate, and the inadequate F/V consumption status of students living in dormitories, students who consumed biscuits-chocolates at snacks, and students who preferred fast food for meals outside the home was higher than the other groups. University students do not consume adequate F/V. Therefore, it is necessary to improve the knowledge and behaviors of university students regarding F/V consumption and overcoming the barriers to F/V consumption.

Keywords: Fruit, vegetables, university students, barriers.

Özet

Bu çalışmada üniversite öğrencilerinin meyve ve sebze tüketim sıklıkları ve ilişkili faktörler incelenerek öğrencilerin meyve ve sebze tüketimleri ile ilişkili faktörler ve engellerin saptanması amaçlanmıştır. Çalışma üniversitede eğitim gören 630 öğrenci ile 2016-2017 eğitim öğretim yılında yürütülmüştür. Veriler öğrencilerin sosyodemografik bilgileri, günlük meyve sebze tüketim miktarları, meyve ve sebze tüketimlerini etkileyen faktörler ve engelleri sorgulayan anket formu ile toplanmıştır. Meyve ve sebze alımları Dünya Sağlık Örgütü (DSÖ) önerilerine göre değerlendirilmiştir ve yeme ve sağlık alışkanlıkları ile meyve ve sebze (M/S) alımının yeterliliği karşılaştırılmıştır. Öğrencilerin günlük ortalama toplam meyve ve sebze tüketimi 3,1 (1-5) porsiyondur. DSÖ önerilerine göre %71,4'ünün günlük M/S tüketimi yetersizken, yalnızca %28,6'sının M/S tüketimi yeterlidir. Sebze tüketimi arttıkça meyve tüketimi de artmaktadır (r=0,398, p<0,001). Vücut ağırlığı ile meyve ve sebze tüketimi arasındaki korelasyon istatistiksel olarak anlamlı değildir (sırasıyla r=-0,007, r=-0,026) (p>0,05). Yalnızca yaşanılan yer ve yeterli M/S tüketimi arasında anlamlı farklılık saptanmıştır (p<0,001). Cinsiyet, sosyoekonomik durum ve Beden Kütle İndeksi (BKİ) ile yeterli M/S tüketimi arasında anlamlı bir fark bulunmamıştır. M/S tüketimini engelleyen faktörlerin başlıcaları hazırlama ve pişirme sürelerinin uzun olması (%52,0), sebze yemeklerinin doyurucu bulunmaması (%48,7), sebze tüketiminin sevilmemesidir (%36,2). En önemli bariyer ise yeterli tüketim algılarıdır. M/S tüketiminin yeterli olduğunu düşünen öğrencilerin %58,1'i DSÖ önerilerine göre yetersiz tüketmektedir. Yetersiz tüketen öğrencilerin ise yalnızca %50,0'si M/S tüketimini artırmayı düşünmektedir. Öğrencilerin %71,4'ünün M/S tüketimi DSÖ önerilerine göre yetersiz olup; yurtta kalan öğrencilerin, ara öğünlerde bisküvi-çikolata tüketen öğrencilerin ve ev dışında yemeklerde fast food tercih eden öğrencilerin yetersiz M/S tüketim durumu diğer gruplara göre anlamlı olarak yüksektir. Üniversite öğrencileri yeterli M/S tüketmemektedir. Bu nedenle üniversite öğrencilerinin M/S tüketimine ve M/S tüketimi önündeki engellerin aşılmasına ilişkin bilgi ve davranışlarının geliştirilmesi gerekmektedir.

Anahtar kelimeler: Meyve, sebze, üniversite öğrencileri, engeller.

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Introduction

Fruits and vegetables (F/V), an important food group for human health (1); are an essential determinant of overall diet quality, and inadequate F/V consumption is known to be a major risk factor for non-communicable diseases (2). Globally, approximately 16 million (1.0%) disability-adjusted life year (DALYs) and 1.7 million (2.8%) deaths are associated with low F/V consumption (3). The World Health Organization (WHO) recommends at least 400 g (5 servings) of F/V daily to prevent chronic diseases such as heart disease, cancer, diabetes, and obesity (2). The Turkey Dietary Guidelines (TUBER) (2022) also state that at least 5 servings of fruits and vegetables should be consumed daily (4).

Nutritional habits are developed and transferred to adulthood during youth, aged between 18 and 24, a critical period to promote healthy eating (5). Students are observed to adopt unhealthy eating habits and consume inadequate F/V during this period with changing living conditions in the university period, which is the transition to adulthood (6). Recent studies have shown that university students have decreased compliance with healthy and balanced nutrition and consume less F/V than the recommended amounts, as well as increased frequency of skipping meals, fast food consumption, consumption of packaged ready-to-eat products with high energy density, snacks, sweets and confectionery, processed meat, fried products, alcoholic and non-alcoholic beverages, and low consumption of fish, cereal products, milk, and dairy products (7-9).

According to the Turkish Statistical Institute's Turkey Health Survey, between 2016 and 2019, the proportion of young people aged 15-24 who consumed fruit once or more a day decreased from 48.2% to 40.3%, and the proportion of those who consumed vegetables and salads decreased from 56.1% to 49.1%. There was an increase in the proportion of those who did not use at all (10). A study conducted in Türkiye in 2018 reported that 65.8% of university students (11), and in another study 93.6% consumed less than 5 servings of F/V per day (12). Accordingly, young people in Türkiye (aged 15-24 years) have inadequate F/V consumption habits according to WHO and TUBER (2022) recommendations (2,4).

In the literature, the barriers that prevent university students from consuming adequate F/V include the high cost of F/Vs, preferences varying according to eating habits and tastes, lack of time required for the preparation stage of vegetable dishes, and lack of cooking equipment, inability to provide appropriate storage conditions due to the rapid deterioration of F/Vs, and university students' perceptions that they provide adequate intake despite consuming inadequate F/Vs (13, 14).

In a study conducted in Türkiye, the F/V consumption status of final-year medical students and the affecting factors were examined (15). However, there is no other study in Türkiye that simultaneously examined F/V consumption and related factors. In the current study, students from different departments were included, and the study was more specific in terms of F/V consumption barriers.

This study aimed to evaluate the F/V consumption status of Nuh Naci Yazgan University students and determine the factors and barriers related with their consumption.

Material and Method

Place, Time, and Sample of the Study

This study is a cross-sectional study and the study population consists of 3198 students studying at Nuh Naci Yazgan University in the 2016-2017 academic year. The sample size using the G*Power (version 3.1). Based on the 2010 Turkey Nutrition and Health Survey (TNHS) (16), which showed that the ratio of adequate F/V consumption in Türkiye was 29%, and the sample size

was calculated of the study was determined as a minimum of 560 people with power of 80% and α error of 0.05. Students from the departments of psychology, interior architecture, architecture, economics, business administration, political science and public administration, electrical-electronics engineering, civil engineering, nutrition and dietetics, physical therapy and rehabilitation, and nursing were included in the study. The sample was weighted according to departments and gender and was determined as 965 in total. A simple random sampling method was used, and the study was completed with 630 students who agreed to participate. The inclusion criteria of the students were that they were studying at Nuh Naci Yazgan University, were 18 years of age or older, did not have any food allergies, and voluntarily agreed to participate in the study. Those who did not meet these criteria were not included in the study.

Data Collection

The research data was collected by face-to-face questionnaire method. The questionnaire consisted of 31 questions, including socio-demographic information about the students, daily F/V consumption amounts, factors affecting F/V consumption, and sections questioning barriers. One-day F/V consumption records were questioned by showing the amounts of portions from food catalogs. F/V consumption was evaluated as "adequate" when consuming 5 or more servings per day and "inadequate" when consuming less than 5 per day following WHO recommendations. Body weight and height measurements were taken according to self-reports. Body Mass Index (BMI) was calculated using the formula Body Weight (kg)/Height (m^2). Based on the WHO adult BMI classification, BMI below 18.5 kg/m^2 was classified as underweight, 18.5-24.9 kg/m^2 as normal, 25.0-29.9 kg/m^2 as pre-obese, and 30 kg/m^2 and above as obese (17). In addition to descriptive findings, according to WHO recommendations, consumption status was compared with characteristics and dietary habits. After the comparison, the interaction between the variables found to be significant with gender on consumption status was analyzed.

Data Analysis

IBM Statistics Package for the Social Sciences (SPSS) version 22.0 program was used for statistical analysis of the data. Data were expressed as mean ± standard deviation (SD) or number (n) and percentage (%). The Chi-square and Fisher Exact tests were applied to determine the difference between categorical variables. Group comparisons were made with a one-way analysis of variance (ANOVA). The Shapiro-Wilk test was used to determine whether the data were normally distributed. Spearman correlation analysis was used to determine the relationship between the variables since they were not normally distributed. The strength of the Spearman Correlation Coefficient, rho, was graded as very strong (>±0.70), strong (±0.40 to ±0.69), moderate (±0.30 to ±0.39), weak relationship (±0.20 to ±0.29) or no and negligible relationship (±0.01 to ±0.19) (18). The significance level was accepted as $p<0.05$.

Ethical Approval

The 'Ethics Committee Approval' dated 11.01.2017 was obtained from Nuh Naci Yazgan University Ethics Committee. Also the required permission to conduct the study was obtained from the university rectorate. The participants were ensured to read the informed consent form before starting the survey.

Results

The study included 630 university students. The mean age of the participants was 20.9±2.1 years; 54.8% were female, 98.4% were single, and 77.3% lived with their families. 8.2% of the students were underweight, 69.7% were normal weight, 22.1% were pre-obese and obese, and the mean BMI was 22.69±3.30 kg/m^2 (Table 1).

Table 1: Sociodemographic characteristics of the students.

Characteristic	Mean±SD
Age (year)	20.9± 2.1
BMI (kg/m²)	22.6± 3.3
	n(%)
Gender	
Male	285 (45.2)
Female	345 (54.8)
Marital Status	
Single	620 (98.4)
Married	10 (1.6)
Family Type	
Nuclear Family	536 (85.1)
Extended Family	94 (14.9)
Living Arrangement	
In Dormitory	110 (17.5)
In Family House	486 (77.3)
In Student House	33 (5.2)
Economic Status	
Low	15 (2.4)
Middle	261 (41.4)
High	354 (56.2)
Physical Activity	
Yes	307 (48.7)
No	323 (51.3)
Nutritional status	
Underweight	52 (8.2)
Normal weight	439 (69.7)
Pre-obese	121 (19.2)
Obese	18 (2.9)
Smoking	
Yes	162 (25.7)
No	468 (74.3)
Alcohol Intake	
Yes	109 (17.3)
No	521 (82.7)
Department	
Psychology	70 (11.1)
Interior Architecture	25 (4.0)
Architecture	62 (9.8)
Economics	48 (76.0)
Business Administration	79 (12.5)
Political Science and Public Administration	40 (6.3)
Electrical-Electronics Engineering	92 (14.6)
Civil Engineering	67 (10.6)
Nutrition and Dietetics	43 (6.8)
Physical Therapy and Rehabilitation	40 (6.3)
Nursing	64 (10.2)

The mean total daily F/V intake of the students was 3.1 (1-5) portions, fruit was 1.9 (0-3), and vegetable was 1.2 (0-2) portions. It was determined that 28.6% of the students consumed adequate F/V, and 48.1% consumed inadequate F/V. It was found that 23.3% of the students did not consume F/V at all (Table 2). The top three barriers that prevented F/V consumption were long preparation and cooking times (52.0%), not finding vegetable dishes satisfying (48.7%), and disliking vegetable consumption (36.2%). Although vegetable consumption barriers were more frequently emphasized among students, fruit consumption barriers included disliking fruit consumption (20.5%) and gastrointestinal symptoms after consumption (8.6%). In addition, inaccessibility of vegetables and fruits (11.0%), lack of proper storage conditions

(26.7%), being expensive (10.5%), and the time allocated for preparation and cooking (24.1%) were among the barriers to consumption (Table 2). In current study findings showed that only 23.8% of the students living with their families considered preparation and cooking times as time-consuming, while only 21.4% of the students living with their families, 33.3% of those living in student houses, and 48.2% of those living in dormitories considered the difficulty of storing F/Vs, which are known to spoil quickly, as an obstacle to F/V consumption (data not shown table).

Table 2: Daily consumption of vegetables and fruits and affecting barriers.

Daily Average Fruit and Vegetable Consumption Portions	**Mean (Q1-Q3)**
Total Fruit and Vegetable	3.1 (1-5)
Fruit	1.9 (0-3)
Total Vegetables	1.2 (0-2)
Raw Vegetables	0.6 (0-1)
Cooked Vegetables	0.6 (0-1)
Daily Fruit and Vegetable Consumption	**n (%)**
Adequate (≥ 5 Portions)	180 (28.6)
Inadequate (<1-4 Portions)	303 (48.1)
None	147 (23.3)
Barriers to Fruit and Vegetable Consumption*	**n (%)**
Long preparation and cooking times	328 (52.0)
Vegetable dishes are not filling	307 (48.7)
Disliking vegetable consumption	228 (36.2)
Difficulty in storing vegetables/fruits	168 (26.7)
Cohabitants do not like vegetables	154 (24.4)
Disliking fruit consumption	129 (20.5)
Difficulty accessing vegetables/fruits	69 (11.0)
Expensive-economic reasons	66 (10.5)
Gastrointestinal symptoms after fruit consumption	54 (8.6)
Gastrointestinal symptoms after consumption of vegetables/vegetable dishes	51 (8.1)

**Participants specified more than one option.*

Of the students who consumed inadequate F/V; 74.4% lived in family houses, 21.2% in dormitories and 4.4% in student houses. Of the students who consumed adequate F/V; 84.4% lived in a family home, 8.3% in a dormitory and 7.3% in a student house. There was a significant difference between F/V consumption according to place of living ($p<0.001$). However, no significant difference was found between F/V consumption according to gender, marital status, family type, economic status, physical activity, weight, smoking, alcohol use and department ($p>0.05$) (Table 3).

The nutritional habits of the students were shown in Table 4. There was no significant difference between the groups in terms of adequate and inadequate intake status of F/Vs according to the number of meals, the status, and frequency of eating outside the home ($p>0.05$) (Table 4). 78.3% of the students consume 3 or more main meals daily, and 50.8% consume snacks. While 63.3% of students with adequate F/V consumed snacks, 36.7% did not. Similarly, 54.2% of the students who consumed inadequate F/V did not consume snacks, and a significant difference was found in the F/V intake status according to the snack consumption status of the students ($p<0.001$). Of the students who consume snacks, 44.4% consume biscuits-chocolate, 43.7% fruits and vegetables, 8.8% nuts, and 3.1% consume milk-yogurt as snacks. Inadequate F/V consumption (49.0%) was significantly higher in students who preferred biscuit-chocolate for snacks compared to the other groups ($p<0.001$). There was a significant difference in F/V intake according

Table 3: Fruit and vegetable intake status of students according to some characteri stics.

Characteristic	Fruit and Vegetable Intake Status Inadequate (n=450) n (%)	 Adequate (n=180) n (%)	χ^2	p
Gender				
Male	196 (43.6)	89 (49.4)	1.800	0.180
Female	254 (56.4)	91 (50.6)		
Marital Status				
Single	443 (71.5)	177 (28.5)	0.010	0.920
Married	7 (70.0)	3 (30.0)		
Family Type				
Nuclear Family	383 (85.1)	153 (85.0)	0.001	0.972
Extended Family	67 (14.9)	27 (15.0)		
Living Arrangement				
In Dormitory	95 (21.2)	16 (8.3)	15.436	**<0.001**
In Family House	335 (74.4)	151 (84.4)		
In Student House	20 (4.4)	13 (7.3)		
Economic Status				
Low	11 (2.4)	4 (2.2)	0.632	0.729
Middle	182 (40.4)	79 (43.9)		
High	257 (57.1)	97 (53.9)		
Physical Activity				
Yes	211 (46.9)	96 (53.3)	2.137	0.144
No	239 (53.1)	84 (46.7)		
Nutritional status				
Underweight	37 (8.2)	15 (8.3)	1.439	0.684
Normal weight	314 (69.8)	125 (69.4)		
Pre-obese	84 (18.7)	37 (20.6)		
Obese	15 (3.3)	3 (1.7)		
Smoking				
Yes	119 (26.4)	43 (23.9)	0.440	0.507
No	331 (73.6)	137 (76.1)		
Alcohol Intake				
Yes	77 (17.1)	32 (17.8)	0.040	0.842
No	373 (82.9)	148 (82.2)		
Department				
Psychology	54 (12.0)	16 (8.9)	14.070	0.170
Interior Architecture	16 (3.6)	9 (5.0)		
Architecture	48 (10.7)	14 (7.8)		
Economics	38 (8.4)	10 (5.6)		
Business Administration	49 (10.9)	30 (16.7)		
Political Science and Public Administration	27 (6.0)	13 (7.2)		
Electrical-Electronics Engineering	62 (13.8)	30 (16.7)		
Civil Engineering	47 (10.4)	20 (11.1)		
Nutrition and Dietetics	33 (7.3)	10 (5.6)		
Physical Therapy and Rehabilitation	34 (7.6)	6 (3.3)		
Nursing	42 (9.3)	22 (12.2)		

to preferred snacks (p=0.027). In addition, 91.1% of the students stated that they ate meals outside the home; 34.0% of those who consumed meals outside the home consumed meals outside the home every day, 53.7% consumed meals outside the home at least once a week, and 57.0% stated that they preferred fast food for meals outside the home. Among students who consume food outside, 59.8% of students with inadequate F/V intake prefer fast food, while 50.0% of students with adequate F/V intake. A significant difference in F/V intake was determined according to types of eating out preferences (p=0.025). Also, among the nutritional habits of the students in the study group that may affect F/V consumption, there was no difference between the groups in terms of the number of main meals per day, the status and frequency of eating outside

the home and F/V consumption status (p>0.05) (Table 4).

When the students' perception of their F/V consumption was questioned, 40.2% thought that they consumed enough, 58.5% thought that they consumed inadequate, and 1.3% thought that they consumed too much (data not shown table). Of the students who consumed enough F/V according to WHO recommendations, 58.9% thought they consumed enough, 37.8% thought they consumed inadequate, and 3.3% thought they consumed too much. In addition, 32.7% of students who consumed inadequate F/V thought they consumed adequate, 66.9% thought they consumed inadequate, while only 0.4% thought they consumed too much. A significant difference was found between students' perceptions of their F/V consumption and their current status (p<0.001) (Table 4). Also, among the students who consume inadequately according to WHO recommendations, 50.0% think they should increase their fruit and vegetable consumption, while 49.6% do not think to make any changes (data not shown in table).

Table 4: Fruit and vegetable intake according to dietary habits and consumption perceptions.

Dietary Habits	Fruit and Vegetable Intake Status		χ^2	p
	Inadequate (n=450) n (%)	Adequate (n=180) n (%)		
Number of meals				
<3	106 (23.6)	31 (17.2)	3.031	0.082
3 and more	344 (76.4)	149 (82.8)		
Snacking				
Yes	206 (45.8)	114 (63.3)	15.854	**<0.001**
No	244 (54.2)	66 (36.7)		
Preferred Snacks *				
Biscuit-Chocolate	101 (49.0)	41 (36.0)	9.144	**0.027**
Fruit-Vegetable	86 (41.8)	54 (47.4)		
Nuts	12 (5.8)	16 (14.0)		
Milk-Yogurt	7 (3.4)	3 (2.6)		
Eating out				
Yes	414 (92.0)	160 (88.9)	1.537	0.215
No	36 (8.0)	20 (11.1)		
Frequency of Eating Out				
Every day	158 (35.1)	56 (31.1)	2.459	0.483
At least once a week	239 (53.1)	99 (55.0)		
Less frequent	17 (3.8)	5 (2.8)		
None	36 (8.0)	20 (11.1)		
Types of Eating Out Preferences				
Fast food	269 (59.8)	90 (50.0)	5.015	**0.025**
Other	181 (40.2)	90 (50.0)		
Perception of Fruit and Vegetable Consumption				
Those Who Think They Consume Adequate	147 (32.7)	106 (58.9)	49.047	**<0.001**
Those Who Think They Consume Inadequate	301 (66.9)	68 (37.8)		
Those Who Think They Consume Too Much	2 (0.4)	6 (3.3)		

**Student who consume snacks (n=320)*

Also, the relationship between fruit consumption, vegetable consumption, and body weight was examined. As a result, fruit and vegetable consumption, a moderate positive correlation was found between vegetable consumption and fruit consumption, and it was determined that vegetable consumption increased as fruit consumption increased (r=0.398, p<0.001). The correlation between body weight and fruit and vegetable consumption was statistically not significant (r=-0.007, r=-0.026, respectively) (p>0.05). In addition, vegetable consumption (1.2 (0-2) portion) was

significantly lower than fruit consumption (1.9 (0-3) portion) ($p<0.001$) (data not shown table).

The interaction of gender with the variables determined to affect F/V consumption status was examined. As a result, it was determined that preferred snacks and F/V consumption perception affect F/V consumption status with gender (Table 5).

Table 5: The effect of some parameters on fruit and vegetable consumption status by gender.

Variables	Sum of Squares	df	Mean Square	F*	p
Living Arrangement	0.051	3	0.017	0.084	0.969
Snaking	0.049	1	0.049	0.244	0.621
Preferred Snacs	1.823	3	0.608	2.750	**0.043**
Types of Eating Out	0.044	1	0.044	0.214	0.644
Perception of Fruit and Vegetable Consumption	1.403	2	0.702	3.745	**0.024**

**ANOVA analysis was used to analyze the data.*

Discussion

In this study, the F/V consumption status of university students was examined, and the factors and barriers affecting their consumption were evaluated.

As a result of the study, the F/V consumption of university students was found to be 71.4% of the students consume inadequate fruit and vegetables. According to the results of the study conducted by Alkazemi and Salmean (2019) with 300 university students, students consume an average of 1.76 servings of F/V per day, and they found that only 13% of students consume adequate F/V according to WHO recommendations (14). A cross-sectional study involving 1956 university students aged 19-21 years reported that the average F/V intake of students was 1.80±1.3 servings per day (19). Considering the studies, it was seen that the F/V consumption of university students was inadequate. However, compared to other studies, the F/V consumption of university students in the current study was relatively higher.

In the study by Mirabitur et al. (2016) evaluating the F/V consumption of 514 university students, the daily F/V consumption of female students was significantly higher than that of males (4.8 and 4.3 servings/day, respectively) (20). Recently, American College Health Association-National College Health Assessment III Spring 2022 report stated that the ratio of female and male students consuming adequate F/V was equal (3%) (21). Although the relationship between gender and adequate F/V consumption has not been clearly demonstrated, it is thought that women have higher F/V consumption in addition to healthy nutrition because they have higher nutritional knowledge, attitudes, and responsibility awareness compared to men (22, 23). However, in this study, ratio of inadequate F/V consumption was higher in women, although difference was not significant. Also, in this study, gender does not seem to have an interaction with many of the variables determined to affect F/V consumption status.

Bogerd et al. (2019) examined the relationship between study discipline and F/V consumption and found that health-related department students consumed more F/V than others (24). Similarly, Oberne et al. (2022) found that the health literacy of students studying in health-related departments was higher than that of non-health-related departments and that F/V consumption increased as health literacy increased (25). However, similar to our findings, Alkazemi and Salmean (2021) found that the relationship between

department and F/V consumption was not significant (14). This may indicate that the health literacy of our university students is low.

A meta-analysis of 26 cohort studies by Wang et al. revealed that adequate F/V consumption was associated with lower mortality (26). Increased F/V consumption is also associated with a decrease in the risk of cardiovascular diseases and obesity as a result of decreased body weight, waist circumference, and BMI (27-29). The importance of adequate F/V consumption at an early age to prevent the development of chronic diseases is evident. In the current study, no difference was found in the F/V consumption status of students according to their weight status. Also, normal weight, physical activity, and non-smoking have been associated with adequate F/V consumption (30, 31). The literature reveals that healthy behaviors tend to cluster, and healthy eating habits are acquired with adopting healthy habits (32, 33). This study shows that students who reported being physically active and students who did not smoke ratio of consumed adequate fruits and vegetables is higher. This finding may reflect the relationship between healthy habits and healthy eating habits.

In this study, it was found that as vegetable consumption increased, fruit consumption also increased. In addition, this study observed that university students frequently preferred biscuit-chocolate and F/V in their snacks. Most students who consumed insufficient F/V consumed biscuits and chocolate in their snacks, while most students who consumed sufficient F/V consumed F/V. This may be because F/V consumption in snacks supports the total daily F/V consumption. However, vegetable consumption is lower than fruit consumption.

In the literature, studies on F/V consumption have focused on fruit consumption only or together, and it is known that studies evaluating vegetable consumption separately are inadequate (30, 34). The fact that fruit and vegetable consumption is recommended together in the WHO recommendations may be a factor in this situation. In TUBER 2022, the recommended 5 servings of F/V per day are detailed, and it is stated that at least 2.5-4 servings should be vegetables and 2-3 servings should be fruits. These vegetables and fruits should include at least two servings of green leafy vegetables (such as spinach and broccoli) or other vegetables such as tomatoes, and fruits should be citrus fruits such as oranges, lemons, or other fruits rich in antioxidants (4). Considering that fruit and vegetable consumption increases linearly with each other, interventions to increase the frequency of individual consumption should also aim to increase total F/V consumption (35).

Alkazemi and Salmean (2021) reported taste, discomfort, and lack of knowledge about F/V intake recommendations and preparation methods as the main barriers to F/V consumption among students (36). Other barriers to F/V consumption in the literature are cost, perishability, lack of time, dislike of taste, habits, and lack of knowledge (37-39). In this study, the most prominent barriers were identified as long preparation and cooking times, vegetable dishes being unsatisfying, and disliking vegetable consumption.

The Household, Income and Labour Dynamics in Australia (HILDA) Survey shows that time constraints lead to decreased F/V consumption and increased high-energy food intake outside the home (40). Llanaj et al. (2018) examined university students' food intake and eating habits outside the home. They found that students consumed sweets, salty snacks, and fast food more frequently, while fruit and vegetable consumption was extremely low (41). Arslan et al. (2023) determined that the frequency of fast food consumption was higher in individuals who had the habit of snacking on food and beverages at night. They also stated that adequate F/V consumption is related to low fast food consumption (42). Similar to the literature, fast food consumption was common among students with inadequate F/V intake in our study.

It was determined that the students ratio of adequate F/V consumption living in dormitories was lower than those living in family houses. The findings of the present

study showed that the majority of students living with their parents did not consider time-consuming preparation and cooking time as a barrier compared to other groups; however, students living in dormitories considered the difficulty of storing fruits and vegetables as a barrier more than other groups. In addition, the fact that the people living together (family, roommates, etc.) do not like vegetables is also a barrier to F/V consumption. This result shows that cohabitants play an active role in managing the dietary process of university students and that the place of residence affects not only adequate F/V consumption but also the factors that prevent consumption. In addition, it should not be ignored that students' inadequate preparation and cooking skills may be the reason for the excessive preparation and cooking time of F/Vs and the low satiety of vegetable dishes as barriers preventing F/V consumption (43, 44).

Lim et al. (2017) found a significant association between higher socioeconomic status and adequate F/V intake according to recommendations (45). Similarly, Poscia et al. (2018) found an association between higher socioeconomic status and higher F/V consumption (46). However, no significant relationship was found between socioeconomic status and F/V consumption in this study. In addition, 10.5% of the students stated expensive/economic reasons as barriers to F/V consumption. The students in the study had similar economic status, and only 2.4% considered their economic status low. This situation may be misleading in understanding the impact of economic reasons as a barrier to F/V consumption among university students.

An important finding of this study is the students' perception that they consume F/V adequately. In a 2014-2015 study evaluating F/V consumption and associated factors among final-year medical students in Türkiye, 13.9% of students with inadequate F/V portions reported that their consumption was adequate, and 26.5% reported that they did not plan any change in their F/V consumption (15). In a recent study by Cole et al. (2021), 21.3% of adults who consumed less F/V than the recommendations thought they consumed enough fruits, and 53.7% thought they consumed enough vegetables (35). Only half of the students who consumed inadequate F/V according to WHO recommendations considered increasing their F/V consumption, while almost half did not consider making changes. This result may be considered one of the most significant barriers to F/V consumption and may result from students' lack of awareness about the importance of vegetables and fruits in the diet or lack of knowledge about vegetable and fruit portions.

Limitations

This study has limitations. The similar economic levels of the students and the fact that the majority of the study group had normal BMI can be considered as the limitations of the study.

Conclusion

The daily F/V consumption of the students was low. Furthermore, according to WHO recommendations, the majority of students consume inadequate amounts of F/V and students living in dormitories consume more F/V than other groups. Also, inadequate F/V consumption is more common in students who consume biscuits and chocolate in their snacks. The first three barriers to F/V consumption are high preparation and cooking times, not finding vegetable meals satisfying and not liking vegetable consumption. More than half of the students who think that their F/V

consumption is sufficient consume insufficient F/V and this suggests that self-assessment of the F/V consumption situation may be misleading. In line with study's results, the current F/V consumption barriers can be overcome by interventions to improve the cooking skills of university students to increase F/V consumption and by informing students about fast-prepared, filling meals along with traditional dishes. In addition, intervention programs should be developed for university students to provide effective nutrition education, encourage behavioral changes, and adopt healthy eating habits.

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Conflict of interests

The authors declare no conflict of interests.

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Araştırma Makalesi / Original Research Article *https://doi.org/10.35232/estudamhsd.1375386*

WORKPLACE MEDICINE PRACTICES AND REFERRAL OF THE EMPLOYEES TO THE SECONDARY AND TERTIARY LEVEL HEALTH INSTITUTIONS

İş yeri hekimliği uygulamaları ve çalışanların ikinci ve üçüncü basamak sağlık kuruluşlarına yönlendirilmesi

Hande ÖZGEN[1], Arif Hikmet ÇIMRIN[2], Osman BÖLÜKBAŞ[3]

Abstract

Employees may need to be referred to health institutions for different indications, such as illness and rehabilitation. In Turkey, the procedure for referring cases from the workplace to health institutions is not fully defined. Learning the approaches of workplace physicians on employee referrals will determine the direction and content of future studies on this matter. This study aims to obtain information about the characteristics of workplace physicians working in Izmir province and their attitudes towards case referral to health institutions. The population of the descriptive study consisted of workplace physicians registered in Izmir Medical Chamber e-mail information network. The subjects were contacted through the information network of the Chamber, and an online questionnaire was sent. 58% of the participants stated that they participated in risk assessment studies and conducted field surveillance. 69.3% of the participants stated that they were able to conduct a pre-employment examination for all employees, and 78.4% stated that they were able to conduct periodic examinations on a regular basis. 52.3% of the participants stated that they referred patients with a preliminary occupational disease diagnosis one or more times. One-fourth of the participants stated that they could not act freely in terms of referring cases from the workplace. The examinations performed at the workplace and referral of the necessary cases to advanced healthcare centers are vital steps in protecting and improving employee health. It is crucial for the workplace physician to feel free to refer suspicious cases and to have job security against all possible consequences.

Keywords: Workplace physicians, occupational health and safety, referral chain.

Özet

Çalışanların hastalık ve rehabilitasyon gibi farklı endikasyonlar için sağlık kuruluşlarına sevk edilmesi gerekebilir. Türkiye'de çalışanların iş yerinden sağlık kuruluşlarına sevkine ilişkin prosedür tam olarak tanımlanmamıştır. İş yeri hekimlerinin olgu sevklerine yaklaşımlarının öğrenilmesi bu konuda yapılacak çalışmaların yönünü ve içeriğini belirleyecektir. Bu çalışma, İzmir ilinde görev yapan iş yeri hekimlerinin özellikleri ve sağlık kuruluşlarına olgu sevkine yönelik tutumları hakkında bilgi edinmeyi amaçlamaktadır. Tanımlayıcı tipteki araştırmanın evrenini, İzmir Tabip Odası e-mail bilgi ağında bulunan iş yeri hekimleri oluşturmuştur. Odanın bilgi ağı aracılığıyla katılımcılarla iletişime geçilmiş ve çevrimiçi bir anket gönderilmiştir. Katılımcıların %58'i risk değerlendirme çalışmalarına katıldığını ve saha gözetimi yaptığını belirtmiştir. Katılımcıların %69,3'ü tüm çalışanlara işe giriş muayenesi yapabildiğini, %78,4'ü ise düzenli olarak periyodik muayene yapabildiğini belirtmiştir. Katılımcıların %52,3'ü meslek hastalığı ön tanısı olan hastaları bir veya daha fazla kez sevk ettiğini belirtmiştir. Katılımcıların dörtte biri iş yerinden olgu sevk etme konusunda özgür hareket edemediklerini belirtmişlerdir. İş yerinde yapılan tetkikler ve gerekli vakaların ileri sağlık merkezlerine yönlendirilmesi, çalışan sağlığının korunması ve geliştirilmesinde hayati adımlardır. İş yeri hekiminin şüpheli olguları rahatlıkla sevk edebilmesi ve olası tüm sonuçlara karşı iş güvencesine sahip olması çok önemlidir.

Anahtar kelimeler: İş yeri hekimleri, iş sağlığı ve güvenliği, sevk zinciri.

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Introduction

The main goal of workplace health practices is to protect and improve workers' health in the workplace. The workplace physician is responsible for all activities regarding this goal (1, 2). In this respect, employees in the workplace may need to be referred to health institutions for different indications, such as illness and rehabilitation.

As with other diseases, occupational diseases can be prevented in three stages: primary, secondary, and tertiary prevention. To prevent disease, protect human life, and prevent job losses, these steps are crucial and can be explained simply as preventing the individual from coming into contact with harmful substances (3). Medical examinations prior to employment are crucial for primary prevention and for determining and ensuring the suitability of the individual for the job and the job for the individual. Immunization activities and training programs in the workplace are also examples of primary prevention measures. In cases where all these primary prevention measures are insufficient, secondary prevention measures are life-saving in occupational health practices.

The most well-known of the secondary prevention measures at the workplace is the periodic examination of employees, and the scope of these examinations varies depending on the characteristics and risks of the work (2). As a result of periodic examinations, cases with referral indications are referred to health institutions by workplace physicians. It is essential to fully fulfill the necessary procedures to establish the referral indication, activate the administrative mechanisms for the referral of the worker, establish relations with the referral institution, and make the most accurate evaluation of the worker during the referral. All these steps allow the referral indication to achieve its purpose quickly and accurately. This process is also prone to ethical issues, and the defined ethical code related to occupational health should be considered (4).

In our country, the procedure for referring cases from the workplace to health institutions is not fully defined legally. Health assessment has a special content as it differs from general health care. Although there are no studies on this subject in our country, information based on personal observations suggests that there are different practices. All processes relating to employee health must have the potential to result in consequences for criminal, insurance, and labor laws. Learning the approaches of workplace physicians on case referrals will determine the direction and content of future studies on this matter. This study aims to obtain information about the characteristics of workplace physicians working in Izmir province and their attitudes towards case referral to health institutions.

Material and Method

Population and sampling

The population of the descriptive study consisted of workplace physicians registered in Izmir Medical Chamber e-mail information network. It is thought that the number of workplace physicians registered to e-mail network is around 500 and the minimum sample size estimated was 218 by using Epiinfo Statcalc.

Data collection

The subjects were contacted through the e-mail network of the Chamber, and an online questionnaire was sent through the chamber. The online questionnaire was reminded three times at three-week intervals, and in this way, all workplace physicians were tried to be reached. Eighty-eight physicians completed the questionnaire. Variables of the study; age and gender of the participant, the status of receiving training on occupational health and occupational diseases at the medical faculty, the place where he/she received his/her

occupational medicine certificate, the total number of employees at the workplace, the daily and weekly working hours at the workplace, shift status, night and overtime working status, and the danger class of the workplace, the existence of a risk assessment team in the workplace, the status of conducting risk assessment studies in the workplace, participation in risk assessment studies, the status of conducting field surveillance, the status of providing occupational health trainings, the status of conducting recruitment and periodic examinations, the status of conducting periodic examinations at the times determined by himself/herself, the status of employees' easy access to him/her, his/her opinion on the service provision of the occupational health and safety service unit, the status of referring cases with a preliminary diagnosis of occupational disease, his/her opinion on being able to refer to occupational disease hospitals freely, the criteria he/she pays attention to in deciding on the institution to which he/she refers, the status and reasons for communicating with the health institution/physician to whom he/she refers the case, the status of sharing information that he/she thinks will contribute to the medical evaluation of the case during the referral process, his/her level of knowledge about occupational disease notification and his/her status of seeing himself/herself as competent in combating health risks. Since causality is not investigated, all variables are considered descriptive variables.

Statistical analysis

The data obtained through the online survey system were analyzed with the SPSS 22.0 package program. For descriptive findings, variables specified by counting were expressed as numbers and percentages, and variables specified by measurement were expressed as mean±standard deviation or median (minimum value-maximum value), taking into account the data compliance with normal distribution. The distribution characteristics of the variables specified by measurement were evaluated with the Shapiro Wilk test and kurtosis and skewness coefficients. If the coefficients were between -1.5 and +1.5, it was assumed that the data were normally distributed.

Ethical approval

Ethics committee approval was obtained from Dokuz Eylul University Hospital Ethical Board (No: 2019/10-28). During the research, the confidentiality of the participant's personal information protected.

Results

The mean age of the group is 52.5±7.8 years, and 67.8% (n=59) are male. The majority of the participants stated that they did not receive any training on occupational health and occupational diseases in medical faculty. More than 70% of the subjects stated receiving their occupational medicine certificate from the Turkish Medical Association (TMA); approximately 70% were employed by Joint Health and Safety Units (JHSUs), and less than 15% were employed full-time in a company (Table 1).

The mean daily working time of the participants was 7.3±2.2 hours, while the mean weekly working time was 37.1±12.4 hours. The median daily working hours for self-employed workers was 6.0 hours (2.0 8.0); for after-hours workers was 1.8 hours (1.4-8); for those working affiliated with a JHSU, 8 hours (1.5-12); and for those working full-time in a workplace, 8 hours (6-9). The median number of employees in the respondents' workplace was 750 (12-4000). While 14.8% of the cases worked less than five hours daily, 51.1% worked between 5-8 hours per day. 34.1% of the cases worked more than eight hours a day (Table 2). The number of people responsible for the cases increased depending on the daily working hours. Daily working hours and the total number of employees were positively correlated at a low level of significance ($r=0.353$, $p<0.01$).

Table 1: Information on participants' education and working status (n=88).

Variables	n	%*
Status of receiving occupational health education in medical faculty		
Yes	10	11.4
No	62	70.4
Partially	16	18.2
Status of receiving occupational diseases education in medical faculty		
Yes	15	17.1
No	50	56.8
Partially	23	26.1
The place where the workplace physician certificate was received		
The Ministry of Labor and Social Security	17	19.3
Turkish Medical Association	63	71.6
Other	8	9.1
City of work (n=86)		
Izmir only	63	73.3
Izmir and another province	17	19.8
Izmir and other provinces	6	6.9
Working status		
Affiliated with the Joint Health and Safety Unit	61	69.3
In a full-time workplace	13	14.8
Self-employed	8	9.1
After-hours work	6	6.8

**86 participants had responded*

Table 2: The number of employees according to daily working time and working status (n=88).

Variables	Number of employees		
	Median	Min.	Mix.
Daily working time			
Less than 5 hours (n=13)	200.0	135	1700
5-8 hours (n=45)	750.0	50	2000
More than 8 hours (n=30)	935.0	12	4000
Working status			
Affiliated with the Joint Health and Safety Unit (n=61)	850	12	4000
In a full-time workplace (n=13)	1100	500	2000
Self-employed (n=8)	425	135	1200
After-hours work (n=6)	188.5	110	200

Among the participants, 3.4% (n=3) worked in shifts, and 1.1% (n=1) worked at night (Table 3). Over 66.6% of shift workers reported working after hours, and 100.0% of night workers reported working after hours. Seventy-eight percent (n=68) of the cases reported that there was a risk assessment team in place at the workplace. It was stated by 71.9% of the participants working in less dangerous workplaces, 79.2% of the participants working in dangerous workplaces, and 78.2% of the participants working in very dangerous workplaces that there was a risk assessment team in the workplace.

Of the participants 58% (n=51) stated that they participated in risk assessment studies and conducted field surveillance. Of the participants 69.3% (n=61) of the participants stated that they were able to conduct a pre-employment examination for all employees, and 78.4% (n=69) stated that they were able to conduct periodic examinations on a regular basis (Table 4).

Table 3: Work life characteristics of the participants (n=88).

Variables	n	%*
Shift work		
Yes	3	3.4
No	83	94.3
In some workplaces	2	2.3
Night work		
Yes	1	1.1
No	84	95.5
In some workplaces	3	3.4
Overtime work		
Yes	7	8.0
No	77	87.5
In some workplaces	4	4.5
Danger group*		
Less dangerous	57	64.8
Dangerous	78	88.6
Very dangerous	56	63.6
Presence of a risk assessment team in the workplace (n=87)		
Yes	68	78.2
No	3	3.4
In some workplaces	15	17.3
I don't know	1	1.1
The status of performing risk assessment studies		
Yes	74	84.1
No	4	4.5
In some workplaces	10	11.4

**row percentage*

Table 4: Legislative compliance with the working conditions of the cases (n=88).

Variables	n	%*
Participation in risk assessment activities		
Yes	51	58.0
No	8	9.0
Partially	29	33.0
Field surveillance status		
Yes	68	77.3
Partially	20	22.7
Conducting pre-employment medical examinations for all employees before starting work		
Yes	61	69.3
No	2	2.3
In some workplaces	25	28.4
Regular periodic health examinations of employees		
Yes	69	78.4
No	2	2.3
In some workplaces	17	19.3
Ability to perform periodic examinations within the periods determined by himself/ herself		
Yes	52	59.1
No	4	4.5
Partially	32	36.4
Easy accessibility of employees to him/her		
Yes	69	78.4
No	4	4.5
In some workplaces	15	17.1
Suitability of the Occupational Health and Safety unit in the working environment for good service delivery		
Yes	31	35.2
No	4	4.5
In some workplaces	37	42.1
Partially	16	18.2

Of the participants 52.3% (n=46) stated that they referred patients with a preliminary occupational disease diagnosis one or more times. This rate is 16.7% among those working after hours and 69.2% among those working full-time in a workplace. One-fourth of the participants stated that they could not act freely in terms of referring cases from the workplace (Figure 1).

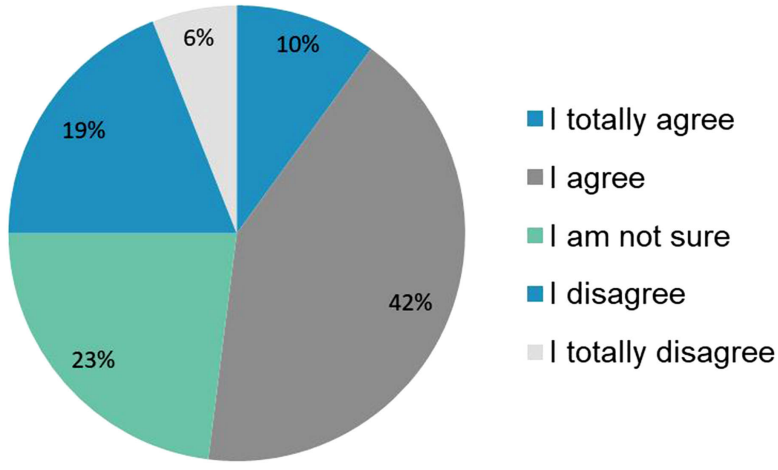

Figure 1: Opinions of the participants about feeling freely while referring employees from the workplace.

Participants stated that the essential criterion for deciding on the referral institution was the correct medical diagnosis of the problem. The criteria for deciding on the referral institution are presented in Table 5.

Table 5: Criteria considered in deciding on the referral institution.

Variables	n	%*
Correct medical diagnosis of the problem	68	77.3
To be able to focus on the relationship between profession and health	65	73.9
Ease of transportation	42	47.7
Ease of communication	40	45.5
Cost	11	12.5
Employer/Human resources make the decision	10	11.4

Participants reported that 36.8% of them always communicated with the health institution or physician to whom they referred employees, and 49.4% said they sometimes communicated with them. Among those who answered yes, 78.2% (n=43) stated that they contacted to give information about the case; 70.9% (n=39) to get information about the case; 52.7% (n=29) to learn about additional needs, if any; and 14.5% (n=8) to meet. It was reported that 89.2% (n=74) of the participants always shared information with the referring institution, while 10.2% (n=9) did so occasionally. While 65.9% of the participants reported knowledge about how to report occupational diseases, 42.5% considered themselves competent in terms of theoretical and practical skills in the fight against health risks.

Discussion

In addition to the fact that the level of participation in surveys conducted electronically may be low in general, the very low participation rate in this survey can be considered an indicator of occupational medicine physicians' motivation regarding the subject. On the other hand, the participants may be those who experience problems in providing occupational medicine services. From this point of view, the majority of participants were male, in the age group of 50, serving as JHSU employees, and only 15% of them stated that they worked full-time in a workplace.

Although the average working hours of the participants is 7.3 hours per day, this period is 3.7 hours for those working after hours and reaches 8.2 hours for full-time workplace physicians. Beyond fulfilling the legal requirement, a full-time workplace physician can pave the way for a healthy workplace potential by getting to know and adopt the workplace better in the context of the workplace physician's duties, powers, and responsibilities.

The majority of the participants reported that they did not receive training on occupational health and occupational diseases in Medical Faculty. Similarly, a study conducted in 2017 with 92 workplace physicians who were members of the Association of Workplace Physicians found that 68.5% of the participants did not receive occupational health and safety education at the Medical Faculty (5). In another study conducted in 2015 with 258 workplace physicians working in Ankara, 51.2% of the participants stated that they did not receive any training on occupational health at the Medical Faculty (6). In the same study, the rate of not receiving training on occupational diseases in medical faculty increased to 61.8% (6). The National Core Education Program for Pregraduate Medical Education includes occupational diseases and occupational safety under the section work and health interaction (7). Physicians, however, stated that they did not receive these pieces of training in practice, which indicates that the subject is not given sufficient attention.

Less than 60% of the participants stated that they participate in risk assessment activities and conduct field surveillance in the workplace. More than 20% of the participants stated that there is no risk assessment team in the workplace. This finding highlights the lack of relevant supervisory provisions in the legislation. The fact that legal equivalent and easier traceability of the pre-employment and periodic examinations may cause workplace physicians to perform these examinations more frequently than other duties. Despite this, it is observed that the rate of performing the pre-employment and periodic examinations does not even reach 80%. Similarly, a study conducted in 2017 with 92 workplace physicians who are members of the Association of Workplace Physicians stated that more than 80% of the participants experienced problems in fulfilling their duties and responsibilities (5). In a study conducted in 2015 with 258 workplace physicians working in Ankara, the participants stated that the rate of participation in risk assessment studies decreased to 87.1%, while the rate of performing pre-employment examinations was 98.8% (6).

While the rate of being easily accessible to the employees, conducting periodic examinations in the periods determined by themselves, conducting regular health examinations of employees, conducting pre-employment examinations for all employees, providing occupational health trainings, conducting field surveillance, and participating in all risk assessment activities varies between 50-84% regardless of employment status, it is observed that the suitability of the Occupational Health and Safety unit in the working environment for good service provision has decreased in all groups.

Although more than half of the participants stated that they had referred

patients with a prediagnosis of occupational disease one or more times, the rate is considerably lower, especially among those working after hours. This may indicate that after-hours doctors provide more outpatient clinic services than their other functions. In particular, the higher rate of referrals for occupational diseases among full-time physicians suggests that they are more familiar with the working environment and its risks and anticipate the possible interaction between work and health. A study found that the referral rate for the occupational disease was higher in workplace physicians who received occupational disease training at the medical faculty (6). It is thought that case referral for occupational disease is closely related to the occupational disease training received by the individual.

One-fourth of the participants stated that they could not act freely in referring cases from the workplace. This may be due to the fact that workplace physicians receive their wages from the employer in return for their labor. Workplace physicians receive wages from their employers in exchange for their labor, which may explain this situation. In order to prevent physicians from confronting their employers and to ensure that they are free to refer cases, it seems necessary to prevent workplace physicians from receiving their wages directly from the workplace and to ensure job security for them. Otherwise, it is likely that we will see more examples in the future where employers terminate the contracts of physicians who refer employees with suspicions of occupational diseases (8).

Participants stated that the most important criteria in deciding which institution to refer cases to were the correct medical diagnosis of the problem and the ability to focus on the occupational health relationship. In this regard, it is a positive finding that the cost and the employer's decision remain in the background. A significant majority of the participants stated that they communicated with the physician to whom they referred the workers and shared information that they thought would contribute to the medical evaluation of the case. This perspective and practice are positive for both the referring physician and the physician who will decide on the occupational disease diagnosis. It may also pave the way for possible collaborations.

Conclusions

In conclusion, examinations performed at the workplace and referral of the necessary cases to advanced healthcare centers are vital steps in protecting and improving employee health. It is crucial for the workplace physician to feel free to refer suspicious cases and to have job security against all possible consequences.

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SAĞLIK MESLEK YÜKSEKOKULU ÖĞRENCİLERİNDE AŞI TEREDDÜDÜ VE İLİŞKİLİ ETMENLER

Vaccine hesitancy and related factors in health care vocational school students

Furkan ÇEBİ[1], Aliye MANDIRACIOĞLU[1]

Özet

Bu çalışmada, sağlık hizmetleri yüksekokulu öğrencilerinin aşı tereddütleri ve ilişkili etmenlerin belirlenmesi amaçlanmıştır. Kesitsel tipteki bu çalışmanın evrenini Ege Üniversitesi Atatürk Sağlık Hizmetleri Meslek Yüksekokulu 2022-2023 öğretim yılında kayıtlı 18 yaş ve üzeri 2343 öğrenci oluşturmaktadır. Minimum örneklem büyüklüğü hesaplanarak 683 gönüllü çalışmaya dahil edildi. Araştırmacılar tarafından hazırlanan sosyodemografik bilgiler, sağlık durumu ve alışkanlıklar ile "Aşı Tereddüdü Ölçeği" veri toplama aracı olarak kullanılmıştır. Katılımcıların %67,9'u kadın, %68,5'i birinci sınıf idi. Öğrencilerin %10'u annelerinde, %7,9'u ise babalarında aşı tereddüdü olduğunun bildirdi. Öğrencilerin %13,5'i son bir yıl içinde İnfluenza aşısı yaptırdığını belirtti. Öğrencilerin Aşı Tereddüdü Ölçeği puanlarının ortalaması 32,29±5,1 olarak hesaplandı. Daha genç olan ve ebeveyn aşı tereddütü bildirenlerin ölçek puanı daha düşük saptandı. Ailelerinde aşı tereddüdü bulunan öğrencilerin ve daha küçük yaştaki katılımcıların aşıya olumsuz tutumun sürdüğü gözlenmiştir. Geleceğin sağlık çalışanları olacak bugünün öğrencilerinin aşı tereddütlerinin giderilmesi toplum sağlığı açısından oldukça önemlidir.

Anahtar kelimeler: Aşı tereddüdü, sağlık öğrencileri, üniversite, bağışıklama.

Abstract

In this study, it was aimed to determine the vaccine hesitancy and related factors of the students of the vocational school of healthcare. The population of this cross-sectional study consists of 2343 students aged 18 and over enrolled in Ege University Atatürk Health Care Vocational School in the 2022-2023 academic year. The minimum sample size was calculated and 683 volunteers were included in the study. Sociodemographic information, health status and habits prepared by the researchers and Vaccine Hesitancy Scale were used as data collection tools. Of the participants, 67.9% were female and 68.5% were first class. It was found that 10% of the students reported vaccine hesitancy in their mothers and 7.9% in their fathers and 13.5% of students stated that they had received influenza vaccine in the last year. The mean of the students' "Vaccine Hesitancy Scale" scores was calculated as 32.29±5.10. The scale scores of those who were younger and who reported parental vaccination hesitancy were found to be lower. It has been observed that students who have vaccine hesitancy in their families continue to have a similar negative attitude in themselves. It is very important for public health that today's students, who will be the health workers of the future, eliminate vaccine hesitancy.

Keywords: Vaccine hesitancy, healthcare students, university, immunization.

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Giriş

Sık görülen, morbidite ve mortalitesi yüksek enfeksiyon etkenlerine karşı geliştirilen aşılar, modern tıbbın halk sağlığına ve koruyucu sağlık hizmetlerine en büyük katkılarından biridir (1). Aşılama programlarının başarısı bireysel bağışıklığın yanı sıra, aşı takvimini henüz tamamlamamış olan ya da mevcut sağlık durumu sebebiyle aşı olamayan bireylerin enfeksiyon etkeni ile karşılaşma ihtimalini de azaltacak şekilde, "toplum bağışıklığı" sağlanmasına bağlıdır (2). Toplum bağışıklığının sağlanabilmesi için ise aşı kapsayıcılığının sürekli yüksek tutulması gerekmektedir (3). Aşı ile önlenebilir hastalıklardan kaynaklanan morbidite ve mortalite rekor düşük seviyelere ulaşırken, paradoksal olarak aşılamanın etkinliği, aşı karşıtı duyguların yeniden ortaya çıkmasına yol açmıştır. Gelişmiş ülkelerde aşı ile önlenebilir hastalıkların sıklığı düştüğü için aşılar gereksiz görülebilmeye başlanmıştır. Aşının ardından aşıya atfedilen olumsuz sağlık olayları hastalıkların kendisinden daha yaygın görünür hale gelmektedir. Bu şekilde aşılar kendi başarılarının kurbanı sayılabilir (4).

Aşılama hizmetlerinin mevcudiyetine rağmen güvenli aşıların kabul edilmesinde gecikme veya reddedilmesi olarak tanımlanan aşı tereddüdü, Dünya Sağlık Örgütü (DSÖ) tarafından halk sağlığına yönelik en büyük 10 küresel tehditten biri olarak bildirilmektedir (5). Aşı kararsızlığı, önemli enfeksiyon hastalıklarına karşı toplumsal bağışıklığın sağlanmasında ciddi bariyerlerden biri olarak görülmektedir (6). Özellikle COVID-19 pandemi sürecinde aşı karşıtlığı daha da körüklenmiş ve daha fazla görünür hale gelmiştir (7). Aşı kararsızlığını destekleyen olumsuz tutumlar, eksik ve yanlış bilgiler aşılama oranlarını ve toplum bağışıklığını azaltmaktadır. Sağlık çalışanları arasında aşı reddi bir paradokstur. Bununla birlikte, son zamanlarda sağlık çalışanlarının aşı tereddüt ve retlerinde artış görülmektedir. Sağlık personeli aşılama hizmetleri hakkında en etkili ve güvenilir bilgi kaynağıdır ve aşılamaya yönelik tutumlarının aşılama başarısı üzerinde güçlü bir etkisi vardır (8).

Aşılama hizmetlerinin mevcudiyetine rağmen güvenli aşıların kabul edilmesinde gecikme veya reddedilmesi olarak tanımlanan aşı tereddüdü, Dünya Sağlık Örgütü (DSÖ) tarafından halk sağlığına yönelik en büyük 10 küresel tehditten biri olarak bildirilmektedir (5). Aşı kararsızlığı, önemli enfeksiyon hastalıklarına karşı toplumsal bağışıklığın sağlanmasında ciddi bariyerlerden biri olarak görülmektedir (6). Özellikle COVID-19 pandemi sürecinde aşı karşıtlığı daha da körüklenmiş ve daha fazla görünür hale gelmiştir (7). Aşı kararsızlığını destekleyen olumsuz tutumlar, eksik ve yanlış bilgiler aşılama oranlarını ve toplum bağışıklığını azaltmaktadır. Sağlık çalışanları arasında aşı reddi bir paradokstur. Bununla birlikte, son zamanlarda sağlık çalışanlarının aşı tereddüt ve retlerinde artış görülmektedir. Sağlık personeli aşılama hizmetleri hakkında en etkili ve güvenilir bilgi kaynağıdır ve aşılamaya yönelik tutumlarının aşılama başarısı üzerinde güçlü bir etkisi vardır (8).

Geniş bir kitleye ulaşabilen sosyal medya doğru veya yanlış bilgilerin ve sözde bilimsel, komplocu dünya görüşlerinin yayılmasını kolaylaştırmakta, aşı itirazlarının yayılmasında ve sansasyonelleştirilmesinde büyük rol oynamaktadır. Sosyal medyadaki aşılarla ilgili mesajlar, ağırlıklı olarak olumsuz deneyimlere odaklanır, çünkü bunların algılanması aşının ana faydası olan hastalığın olmamasından daha kolaydır. Sonuç, dünya çapında aşı tereddüdünde artışın eşlik ettiği aşının etkinliğine dair artan bir güvensizliktir. Bu sosyal gruplar bir "yerel aşılama kültürü" yaratarak aşılama kararları üzerinde önemli bir baskı oluşturmaktadır. Günümüz dünyasında internetin öne çıkmasıyla birlikte, o yerel kültürün tutumları, inançları ve deneyimleri hızla küresel hale gelebilir (9). Sosyal medyayı çok yakından takip eden gençler (üniversite öğrencileri gibi) aşılama kararı verme konusunda çok önemli bir gruptur. Üniversite yılları, birçok genç erişkinin bağımsız hale geldiği ve kendi sağlıklarıyla ilgili karar aldığı bir dönemdir. Risk algısı, riskli davranışları etkileyen önemli bir faktördür. Risk algısı düşük ve genellikle sağlıklı olan gençler, riskli

davranışları alma veya önleyici davranışları uygulamama eğilimindedir (7). Meslek hayatlarında birer sağlık çalışanı olacak sağlık bilimleri öğrencilerinin aşı tereddüdünü ve sosyal bağlamlarını ele alan stratejilere de gereksinim vardır. Hekim dışı sağlık personelinin, hastaların eğitiminde, aşıların yapılmasında ve uygulanmasında önemli bir rol oynar ve eğitim halk sağlığı önleminin teşvik edilmesinde merkezi konumdadır (10).

Bu çalışmanın amacı Ege Üniversitesi Atatürk Sağlık Hizmetleri Meslek Yüksek Okulu (ASMYO) öğrencilerinin aşı tereddüdü ve ilişkili etmenlerin saptanmasıdır.

Gereç ve Yöntem

Kesitsel tipteki bu çalışmanın evrenini 2022-2023 öğretim yılında Ege Üniversitesi ASMYO'nda kayıtlı 18 yaş ve üzeri 2343 öğrenci oluşturmaktadır. Minimum örneklem büyüklüğü Epi Info 7.0 istatistik programı ile %50 prevalans, %5 hata, %99 güven düzeyi ve 1 desen etkisiyle 517 kişi hesaplandı ve 683 kişiye olasılıksız örneklem yöntemiyle ulaşıldı.

Araştırmanın veri toplama formu, araştırmacılar tarafından literatür taraması sonucu geliştirilen sosyodemografik özellikler (yaş, cinsiyet, ebeveynlerin öğrenim durumu, ebeveynlerin aşı tereddüdü, algılanan gelir düzeyi, en uzun yaşanılan yer, öğrenim gördüğü bölüm, öğrenim gördüğü sınıf), sağlık durumu ve alışkanlıkları (sağlık durumu algısı, kronik hastalık durumu, çocukluk çağı aşılarının aile tarafından yaptırılma durumu, İnfluenza aşısı olma durumu) ve Aşı Tereddüdü Ölçeğini içeren 23 sorudan oluştu. Veriler, katılımcıların öz bildirim yoluyla doldurdukları anket formlarından elde edildi. Verilerin toplanması Ekim 2022-Aralık 2022 tarihleri arasında gerçekleşti.

Araştırmanın bağımlı değişkeni olan aşı tereddüdü 2019 yılında Luyten ve arkadaşları tarafından geliştirilmiş, Yılmaz ve arkadaşları tarafından 2021 yılında Türkçe geçerlik güvenirliği gerçekleştirilen "Aşı Tereddüdü Ölçeği" kullanılarak değerlendirildi (11, 12). Ölçek toplamda 9 madde olup güven eksikliği (7 madde) ve riskler (2 madde) olmak üzere iki boyuttan oluşmaktadır. Ölçeğe verilen cevaplar 5'li Likert türünde (1=kesinlikle katılmıyorum-5=kesinlikle katılıyorum) değerlendirilmektedir. Ölçeğin riskler boyutunda yer alan iki madde ters olarak puanlanmaktadır. Ölçekten ve boyutlardan alınan puan ilgili maddelerden alınan puanların toplanmasıyla elde edilmekte ve alınan puanın artış göstermesi aşılara duyulan tereddüdün azaldığını göstermektedir. Ölçeğin bir kesme noktası bulunmamakla beraber toplamda alınabilecek puan 9-45 puan arasında olmaktadır. Ölçeğin alt boyutlarına ve tümüne ilişkin elde edilen iç tutarlılık katsayıları güven eksikliği, riskler ve tüm ölçek olmak üzere sırasıyla 0,892; 0,632 ve 0,874 olarak elde edilmiştir. Ölçeğin test-tekrar test yöntemine göre yapılan güvenirlik analizinde ilk ölçüm ile son ölçüm arasındaki korelasyon katsayısı 0,879 olarak bulunmuştur (12).

Verilerin analizinde SPSS versiyon 25.0 paket programı kullanılmıştır. Tanımlayıcı bulgular sayı ve yüzde olarak sunulmuştur. Verilerin normal dağılıma uyumu Kolmogorov-Smirnov ve Shapiro-Wilk testleriyle değerlendirilmiş, $p>0,05$ değeri normal dağılıma uygun kabul edilmiştir. Tekli analizlerde iki gruplu bağımsız değişkenlerin karşılaştırmasında Student t testi ve ikiden fazla gruplu değişkenlerin karşılaştırmasında Tek Yönlü Varyans Analizi (ANOVA) kullanılmıştır.

Araştırmanın etik kurul izni Ege Üniversitesi Tıp Fakültesi Tıbbi Araştırmalar Etik Kurulu'ndan (28.06.2022 tarihli ve E.752371 belge numaralı) alındı. Öğrencilerden gönüllü olanlar veri toplama formunu doldurdu. Veri toplama aşaması sonrasında okulda konu hakkında öğrencilere seminer verildi.

Bulgular

Katılımcıların sosyodemografik özellikleri Tablo 1'de incelendiğinde yaş ortalaması 19,5±2,1 yıl ve %67,9'u kadın öğrencilerden oluşmakta idi. Öğrenci annelerinin %37,3'ü, babalarının %47,3'ü lise ve üzeri öğrenime sahip olduğu saptandı. Katılımcıların %10'u annelerinde, %7,9'u da babalarında aşı tereddüdü olduğunu bildirdi. Katılımcıların %15,5'i gelir durumunu "iyi" olarak, %74,5'i "orta" olarak belirtti. En uzun yaşanılan yerleri sorgulandığında %12'i köy olarak bildirdi. Katılımcıların %17,4'ünün Anestezi, %11,4'ünün Eczane Hizmetleri ve %11,3'ünün Ameliyathane Hizmetleri bölümlerinde öğrenimine devam ettiği görülmekteydi. Katılımcıların %68,5'i birinci sınıf, %31,5'i ikinci sınıf öğrencileridir. Öğrencilerin %62,8'i genel sağlık durumunu "iyi" olarak tanımlamaktadır. Katılımcıların %5,1'i kronik hastalığı olduğunu bildirdi. Ailesi tarafından çocukluk çağı aşılarının tamamının yaptırıldığını bildirenler %86,4 olarak saptandı. Öğrencilerin %13,5'i son bir yıl içinde İnfluenza aşısı yaptırdığını belirtti.

Tablo 1: Katılımcıların sosyodemografik özellikleri.

Sosyodemografik özellikler	Sayı (n)	Yüzde (%)
Yaş		
18	176	25,8
19	256	37,5
20	131	19,2
21 ve üzeri	120	17,6
Cinsiyet		
Kadın	464	67,9
Erkek	219	32,1
Anne öğrenim durumu		
Okuryazar ve altı	105	15,4
İlkokul	121	17,7
Ortaokul	202	29,6
Lise	199	29,1
Üniversite ve üzeri	56	8,2
Baba öğrenim durumu		
Okuryazar ve altı	54	7,9
İlkokul	103	15,1
Ortaokul	203	29,7
Lise	230	33,7
Üniversite ve üzeri	93	13,6
Annenin aşı tereddüdü		
Evet	68	10,0
Hayır	509	74,5
Bilmiyorum	106	15,5
Babanın aşı tereddüdü		
Evet	54	7,9
Hayır	491	71,9
Bilmiyorum	138	20,2
Gelir durumu		
İyi	106	15,5
Orta	509	74,5
Kötü	68	10,0
Yaşanılan en uzun yer		
Kent	261	38,2
İlçe	340	49,8
Köy	82	12,0
Öğrenim görülen bölüm		
Ameliyathane Hizmetleri	77	11,3

Anestezi	119	17,4
Çocuk Gelişimi	42	6,1
Diyaliz	58	8,5
Eczane Hizmetleri	78	11,4
Engelli Bakımı ve Rehabilitasyon	51	7,5
İlk ve Acil Yardım	68	10,1
Odyometri	17	2,5
Optisyenlik	30	4,4
Tıbbi Dokümantasyon ve Sekreterlik	30	4,4
Tıbbi Görüntüleme Teknikleri	49	7,2
Tıbbi Laboratuvar Teknikleri	64	9,4
Öğrenim görülen sınıf		
1. Sınıf	468	68,5
2. Sınıf	215	31,5
Toplam	683	100,0

Tablo 2: Katılımcıların sağlık durumu ve sağlık alışkanlıkları ile ilgili özellikler.

Sağlık durumu ve sağlık alışkanlıkları (n:683)	**Sayı (n)**	**Yüzde (%)**
Sağlık durumu algısı		
İyi	429	62,8
Orta	244	35,7
Kötü	10	1,5
Kronik hastalık varlığı		
Var	35	5,1
Yok	648	94,9
Aile tarafından çocukluk çağı aşılarının yaptırılma durumu		
Evet	590	86,4
Kısmen	47	6,9
Bilmiyorum	46	6,7
İnfluenza aşısı yaptırma durumu		
Evet	92	13,5
Hayır	591	86,5
Toplam	**683**	**100,0**

Ölçeğe verilen yanıtların dağılımı şekil 1'de incelendiğinde, katılımcıların %4,2'si aşıları, sağlığı için önemli görmediği anlaşıldı. Katılımcıların %4,5'i aşıların etkisiz olduğunu bildirmektedir. Aşı yaptırmanın toplumdaki diğer kişilerin sağlığı için önemli olmadığını bildirenlerin %5, olduğu görülmektedir. Katılımcıların %18,1'inin devlet tarafından topluma sunulan aşı programındaki tüm aşıların yararlı olduğunu düşündüğü anlaşıldı. Öğrencilerin %25,8'i yeni aşıların eski aşılardan daha fazla riskli olduğunu belirtti. Katılımcıların %38,1'i aşılar hakkında aldığı bilgileri inandırıcı ve güvenilir bulduğunu bildirdi. Aşı yaptırmanın kendisini hastalıktan korumak için iyi bir yol olarak görenlerin %63,4 olduğu saptandı. Katılımcıların %65,7'si, genellikle doktorunun veya sağlık kuruluşunun aşılar hakkındaki önerilerine uyduğunu bildirdi. Öğrencilerin %31,2'sinin, aşıların ciddi yan etkileri olduğunu düşündükleri anlaşıldı.

Öğrencilerin "Aşı Tereddüdü Ölçek" puanlarının ortalaması 32,29 ± 5,1 idi. Bağımsız değişkenler ile ölçek puanları arasında belirlenen ilişkiler Tablo 3 ve 4'de izlenmektedir. İkinci sınıfta öğrenim gören katılımcıların ölçek puanları 1. sınıftakilere göre istatistiksel olarak anlamlı düzeyde (t=-3,093, p=0,002) yüksekti. Annelerinde ve babalarında aşı tereddüdü olan katılımcıların ölçek puanları aşı tereddüdü olmayanlara göre anlamlı düzeyde düşük olduğu saptandı. Sağlık durumunu "iyi" olarak belirten katılımcıların ölçek puanları, "kötü" olarak belirten katılımcılardan anlamlı düzeyde yüksek (p=0,015) bulundu. Ailesi tarafından

Şekil 1: Katılımcıların ölçeğe verdikleri yanıtların dağılımı.

çocukluk çağı aşıları yaptırılmış olan katılımcıların (tam veya kısmen), aşılarının yaptırıldığını bilmeyen katılımcılara göre ölçek puanları anlamlı düzeyde (F=7,609, p<0,001) yüksekti. Son bir yıl içinde mevsimsel grip aşı yaptırmış katılımcıların ölçek skoru ortalamaları aşı yaptırmamış olanlara göre anlamlı düzeyde (p<0,001) yüksekti.

Tablo 3: Katılımcıların sosyodemografik özellerinin ölçek skorları ile karşılaştırılması.

Sosyodemografik özellikler	Aşı Tereddüdü Ölçek Skoru Ortalaması	Test istatistiği	p
Yaş			
18	31,97 ± 5,45	F=4,062	**0,007**
19	31,65 ± 4,80		
20	32,97 ± 5,32		
21 ve üzeri	33,36 ± 5,04		
Cinsiyet			
Kadın	32,55 ± 5,02	t=1,958	0,051
Erkek	31,73 ± 5,39		
Anne öğrenim durumu			
Okuryazar ve altı	31,87 ± 6,45	F=0,985	0,415
İlkokul	31,74 ± 5,07		
Ortaokul	32,28 ± 4,59		
Lise	32,74 ± 4,89		
Üniversite ve üzeri	32,66 ± 5,40		
Baba öğrenim durumu			
Okuryazar ve altı	31,13 ± 6,01	F=1,752	0,137
İlkokul	31,69 ± 5,42		
Ortaokul	32,17 ± 4,84		
Lise	32,67 ± 5,10		
Üniversite ve üzeri	32,95 ± 4.97		
Annenin aşı tereddüdü			
Evet	30,49 ± 5,03	F= 9,583	**0,001**
Hayır	32,78 ± 5,10		
Bilmiyorum	31,08 ± 5,03		
Babanın aşı tereddüdü			
Evet	29,61 ± 5,02	F=12,527	**0,001**
Hayır	32,83 ± 5,15		
Bilmiyorum	31,39 ± 4,78		

Gelir durumu			
İyi	32,42 ± 5,66		
Orta	32,26 ± 4,89	F=0,044	0,957
Kötü	32,32 ± 6,17		
Yaşanılan en uzun yer			
Kent	32,57 ± 5,42		
İlçe	32,21 ± 4,73	F=0,954	0,386
Köy	31,71 ± 5,89		
Öğrenim görülen bölüm			
Ameliyathane Hizmetleri	33,17 ± 4,91		
Anestezi	32,55 ± 6,01		
Çocuk Gelişimi	33,21 ± 3,71		
Diyaliz	32,31 ± 5,24		
Eczane Hizmetleri	32,22 ± 4,73		
Engelli Bakımı ve Rehabilitasyon	33,45 ± 4,12	F=1,749	0,059
İlk ve Acil Yardım	31,78 ± 5,47		
Odyometri	32,47 ± 3,06		
Optisyenlik	31,50 ± 4,13		
Tıbbi Dokümantasyon ve Sekreterlik	30,07 ± 5,97		
Tıbbi Görüntüleme Teknikleri	30,57 ± 5,42		
Tıbbi Laboratuvar Teknikleri	32,47 ± 5,19		
Öğrenim görülen sınıf			
1. Sınıf	31,88 ± 5,45	t=-3,093	**0,002**
2. Sınıf	33,18 ± 4,30		

t:Student's T testi; F:ANOVA testi

Tablo 4: Katılımcıların sağlık durumu ve sağlık alışkanlıklarının ölçek skorları ile karşılaştırılması.

Sağlık durumu ve sağlık alışkanlıkları	Aşı Tereddüdü Ölçek Skoru Ortalaması	Test istatistiği	p
Sağlık durumu algısı			
İyi[a]	32,63 ± 4,91		
Orta[a]	31,86 ± 5,40	F=5,277	**0,005**
Kötü[b]	28,00 ± 6,89		
Kronik hastalık varlığı			
Var	33,49 ± 5,16	t=-1,414	0,005
Yok	32,22 ± 4,79		
Aile tarafından çocukluk çağı aşılarının yaptırılma durumu			
Evet[a]	32,52 ± 5,09		
Kısmen[a]	32,11 ± 5,24	F=7,609	**0,001**
Bilmiyorum[b]	29,48 ± 5,06		
İnfluenza aşısı yaptırma durumu			
Evet	35,15 ± 4,61	t=5,825	**0,001**
Hayır	31,84 ± 5,09		

t:Student's t testi; F:ANOVA testi

Katılımcıların cinsiyeti, öğrenim gördükleri bölümleri, kronik hastalıklarının varlığı, ebeveynlerinin eğitim düzeyleri, gelir durumları, yaşanılan en uzun yer ile ölçek skoru ortalamaları karşılaştırıldığında gruplar arasında istatistiksel olarak anlamlı bir fark saptanmadı.

Tartışma

Ege Üniversitesi ASMYO'nda 2022-2023 öğretim yılında kayıtlı öğrencilerin katılımı ile yürütülen çalışmada "Aşı Tereddüdü Ölçeği" kullanılmıştır. Yılmaz ve ark. tarafından "Aşı Tereddüdü Ölçeği" yetişkinleri hedefleyecek şekilde güvenilirliği ve geçerliliği sağlanmıştır (12). Aşı tereddüdü üzerine yapılan araştırmaların çoğu, ebeveynlerin çocukluk aşılarına yönelik tutumlarına odaklandığı, ancak gelecekte daha fazla yetişkin aşısı piyasaya sürüldükçe yetişkin nüfustaki aşı tereddüdünün boyutlarını anlamanın önemli olacağı vurgulanmaktadır (13). Çalışmada hedef grubun geleceğin sağlık personelleri arasında yer alacak gençler olması da önemlidir. Sağlık personeli, tereddütlü olanlar da dahil olmak üzere aşılama konusunda en önemli bilgi kaynaklarından biri olduğu ve bu nedenle aşılama politikaları oluşturulurken sağlık personelinin, genel olarak topluma karşı sorumlu olduğu göz önünde bulundurulması gerektiği belirtilmiştir (14). Sadece hastalık ve tedavisi hakkında değil, korunma ve aşılar hakkında da eksik veya yanlış bilgiler söz konusudur. Özellikle sosyal medya bunların yayılmasını ve pek çok kişiye kolayca erişimini sağlamaktadır. Sağlık personelinin halk sağlığı mesajları ve iletişim, aşı kabulü konusunda bilgilendirmede önemli bir rol oynamaktadır (15).

Çalışmanın sonuçlarına göre öğrencilerin aşı tereddütleri mevcuttur. Mersin'de üniversite öğrencilerinin katılımı ile aynı ölçek kullanılarak gerçekleştirilen çalışmada aşı tereddüdü puanları çok daha düşük 21.10±5,3 olarak bulunmuştur (16).

Öğrencilerin ölçek maddelerine verdikleri yanıtlar irdelendiğinde, aşıların etkinliği üzerinde hemfikir olsalar dahi güvenilirlik ve riskler konularında çekince sahibi olarak görüş bildirmişlerdir. Aşılar hakkında bilgi edinilen kaynağa duyulan güven eksikliği de aşı tereddüdüne sebep olabilir. Sağlık hizmeti sunucularına duyulan güven ise bu kararsızlığı gidermede faydalı olabilir. Meslek hayatlarında birer sağlık profesyoneli olarak çalışacak bu öğrencilerin, aşılara karşı olumlu tutum gösteriyor olması önemlidir. Sağlık hizmeti sunucularına olan güvenin yüksek olması sevindirici olsa da devletin aşılar hakkında sunduğu bilgiye güven katılımcıların aşı kararsızlığına neden olabilir. Toplumun genelinde oluşabilecek aşı kararsızlığının giderilmesi ve aşı retlerinin önlenebilmesi için, sunulan bilgi kaynakları önemlidir (17).

Çalışmanın bulguları incelendiğinde katılımcıların yaşları arttıkça aşı tereddütlerinin azaldığı anlaşılmıştır. Literatürde, yaş arttıkça aşıya karşı olumlu olduğu çalışmalar ve yaşın aşı kararında etkili olmadığını gösteren çalışmalar da bildirilmiştir (18, 19).

Ebeveynlerin öğrenim durumları ile katılımcıların aşı tereddüdü düzeyleri arasında anlamlı bir ilişki bulunmamıştır. Ancak yüksek eğitimli ebeveynlerin aşı ile önlenebilir hastalıkların ortaya koyduğu risklerin daha fazla farkında olması ve bu nedenle çocuklarını aşılama olasılıklarının daha yüksek olması nedeniyle, akademik yeterlilikler aşı güveninin belirleyicileri olarak kabul edilmiştir. Bununla birlikte, akademik olarak nitelikli kişilerin politika yapıcılara ve sağlık çalışanlarına güvenmeye daha az eğilimli olabileceklerini ve bu nedenle internet veya akran grupları gibi genellikle komplocu bağımsız bilgi kaynaklarını araştırabileceklerini gösteren çalışmalar da mevcuttur (20).

Her iki ebeveyninde de aşı tereddüdü bulunan katılımcıların kendilerinde de aşı tereddüdü görüldüğü anlaşılmıştır. Aşı konusunda kararsız olan ebeveynlerin, çocuklarını eksik aşılatabileceği veya bağışıklık programında geciktirmeye neden olabileceği belirtilmiştir (10). Gelir durumu algısı ile katılımcıların aşı tereddüdü düzeyleri arasında anlamlı bir ilişki saptanmamıştır. Literatürde gelir durumu yükselen katılımcıların aşı tutumların olumsuz yönde değiştiğini gösteren çalışmalar mevcuttur (21, 22). Bununla birlikte aşıya karşı olumsuz tutumun Birleşik Krallık ve İrlanda'da ise düşük gelirle ilişkili olduğunu bildiren çalışmalar da bulunmaktadır (23).

Çalışmada son bir yıl içinde mevsimsel grip aşısı yaptırmış olan katılımcıların aşı tereddütlerinin anlamlı

derece düşük olduğu gözlenmiştir. Literatürde mevsimsel grip aşısı yaptırmış olmak ile aşı kararsızlığı arasında anlamlı ilişkili bulunmadığını gösteren bazı çalışmalar da mevcuttur (24). DSÖ ve Amerika Birleşik Devletleri Hastalık Kontrol ve Korunma Merkezi (CDC) sağlık öğrencileri de dahil olmak üzere sağlık profesyonellerinin mevsimsel gribe karşı düzenli olarak aşılanması gerektiğini belirtmektedir (25, 26).

Çalışmaya katılan öğrenciler arasında kronik hastalığı olanların sayısı oldukça az olduğu belirlenmiştir. Kronik hastalık varlığı ile aşı tereddüdü arasında anlamlı ilişki bulunmamıştır. Literatürde benzer yaş grubunda kronik hastalık mevcudiyeti ile aşı tereddüdü arasında olmadığı belirtilmektedir (27).

Çalışmanın temel kısıtlılığı; kesitsel türde bir çalışma olması nedeniyle, aşı tereddüdü ile ilişkili etmenler arasındaki neden-sonuç ilişkisini tam olarak açıklayamamasıdır.

Çalışmanın verileri, hibrit eğitim sürecinde toplandığı için evrenin tamamını temsil etmeyebilir. COVID-19 pandemisiyle birlikte piyasaya sürülen yeni aşılar hakkındaki bilgi eksiklikleri ve yanlış yönlendirmeler de aşı kararsızlığını arttırabilir. Bu kısıtlılıklara karşın sağlık alanında mesleklerini sürdürecek öğrencilerin aşı tereddütleri hakkındaki sınırlı sayıdaki literatüre katkı sağlanacaktır.

Sonuç ve Öneriler

Sonuç olarak, çalışmaya katılan öğrencilerin aşı tereddütleri mevcuttur. Ailelerinde aşı tereddüdü bulunan öğrencilerin kendilerinde de benzer olumsuz tutumun sürdüğü gözlenmiştir. Sağlık çalışanları, toplumda giderek artan aşı kararsızlığı ve aşı karşıtlığı ile mücadele en ön saflarda mücadele verecektir. Geleceğin sağlık çalışanları olacak bugünün öğrencilerinin de aşı tereddütlerinin giderilmesi oldukça önemlidir.

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DETERMINANTS OF OCCUPATIONAL HEALTH AND SAFETY IN THE FOCUS OF WELDERS

Kaynakçıların odağında iş sağlığı ve güvenliğinin belirleyicileri

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Abstract

The welding industry is known for having significant occupational health risks. For this reason, the occupational hazards of welders have been previously examined by many researchers in the literature. However, the traditional hazards-outcomes focused analyses do not show the big picture in which occupational health and safety (OHS) is neglected due to global competitive conditions. Therefore, it may be important to define the determinants of OHS that deepen inequalities, especially in developing countries. This study aimed to evaluate the relationship between OHS indicators and OHS determinants among welders in a developing country. In this descriptive study, the data were collected from 88 welders by telephone interview. Health outcomes were also confirmed from clinical records. In addition to the indicators of OHS, independent variables such as education level, sector, business size, union membership, security, wage, weekly working hours, etc were investigated in the study. According to the results, the work accident rate was higher in welders who started their careers as a child. Leading OHS indicators were found to be significantly worse in the working environments of those with low education, low wages, workers in the private sector and who are non-unionized. Additionally, a positive correlation was found between being unionised and high education level, high socioeconomic development (SED) level, business size, and working in the public sector. There was a negative correlation between union membership and weekly working hours. Since the concept of OHS is related to many factors, working life should be considered from a holistic perspective.

Keywords: Occupational health, OHS determinants, social determinants of health, labor union, welders.

Özet

Kaynak sektörünün önemli iş sağlığı riskleri taşıdığı bilinmektedir. Bu nedenle kaynakçıların mesleki tehlikeleri, literatürde birçok araştırmacı tarafından daha önce incelenmiştir. Ancak geleneksel tehlike-sonuç odaklı yaklaşım küresel rekabet koşulları gereği iş sağlığı ve güvenliğinin (İSG) ihmal edildiği büyük resmi göstermemektedir. Bu nedenle özellikle gelişmekte olan ülkelerde eşitsizlikleri derinleştiren İSG belirleyicilerinin tanımlanması önemli olabilir. Bu çalışma, gelişmekte olan bir ülkedeki kaynakçılar arasında İSG göstergeleri ile İSG belirleyicileri arasındaki ilişkinin incelenmesini amaçlamıştır. Tanımlayıcı nitelikteki bu çalışmada, veriler 88 kaynakçıdan telefon görüşmesiyle toplandı. Sağlık sonuçları klinik kayıtlardan doğrulandı. Çalışmada İSG'nin öncül ve ardıl göstergelerinin yanında, bağımsız değişken olarak; eğitim düzeyi, sektör, işletme büyüklüğü, sendika üyeliği, güvence, ücret, haftalık çalışma saatleri vb. sorgulandı. Sonuçlara göre çocuk yaşta mesleğe başlayan kaynakçılarda iş kazası oranı daha yüksekti. Öncül İSG göstergelerinin düşük eğitim düzeyine sahip olan kaynakçılarda, aylık maaşı düşük olanlarda, özel sektörde çalışanlarda ve sendikasız olanlarda anlamlı derecede kötü olduğu görüldü. Ayrıca sendikalı olma durumu ile; yüksek eğitim düzeyi, doğum yerinin yüksek sosyo-ekonomik gelişmişliği (SEG), işletme büyüklüğü ve kamuda çalışma arasında pozitif yönde anlamlı bir korelasyon bulundu. Sendika üyeliği ile haftalık çalışma saatleri arasında negatif bir korelasyon vardı. İSG kavramı birçok faktörle ilişkili olduğundan çalışma yaşamının bütünsel bir bakış açısıyla ele alınması gerekmektedir.

Anahtar kelimeler: İş sağlığı, İSG belirleyicileri, sağlığın sosyal belirleyicileri, sendika, kaynakçı.

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Introduction

According to the World Health Organization (WHO), work is recognized as one of the social determinants of health (1). While work affects health in terms of workplace hazards, access to health services and income; people's job opportunities are also related to their environmental, individual and social characteristics. Therefore, it would be fair to say that work is both the driver and the consequence of inequalities at the same time (2).

Today, in the field of occupational health and safety (OHS), the relationship between work and health has traditionally been evaluated with linear risk models based on hazards and outcomes. It means that "pneumoconiosis may occur if dust is present". But this approach is insufficient to show the big picture behind the dust (3). For example, in developing countries, OHS laws, which are neglected due to the social, economic and political challenges associated with global competitive conditions, cover only a small part of the population (4, 5). In previous studies, it has been reported that occupational injuries are more frequent in small businesses where precarious employment is also more common (6, 7). Low union density in the workplace, possibly due to a lack of awareness, reduces the likelihood of reporting illness (7). It is estimated that 160 million children worldwide are involved in child labour, with three times as many in rural areas (8). Based on all these arguments, it is important to define the determinants of OHS that deepen inequalities. This complex field should be handled with a holistic perspective, beyond just focusing on workplace hazards (3).

Regarding workplace hazards, the welding industry, which employs approximately 11 million people worldwide, is one of the focuses of occupational health professionals (9). Work accidents are frequently reported among welders (6, 10, 11). Exposures in the welding process are known to cause a wide variety of work-related diseases. Welding fumes, noise, and ultraviolet (UV) radiation are the main hazards and have been proven to cause respiratory diseases, hearing loss, cataracts and various cancers (12-17). Although many studies have been conducted on occupational hazards in this field, there are few studies on the determinants of welders' health to our knowledge.

For all these reasons, this study aimed to evaluate the relationship between welders' OHS indicators and OHS determinants, such as personal characteristics, living environment, working conditions and working relationships. The secondary purpose of this study was to describe the work-related health problems of welders in a developing country.

Material and Method

This descriptive study was designed as part of a cohort of cases followed in the occupational disease clinic of Dokuz Eylül University Hospital. The records of 2640 cases who applied to the outpatient clinic from 2013 to 2022 were reviewed retrospectively. According to the records, 95 cases whose profession was welding were phoned. Five of the cases could not be reached because their phone numbers were not up-to-date. Two refused to participate in the study. A total of 88 welders were included in the study with their informed consent. The response rate was 97.7% (88/90). Welders had been referred to the occupational diseases clinic for the following reasons: suspicion of radiological abnormality (41 cases), respiratory symptoms (22 cases), periodic hearing test abnormalities (11 cases), periodic laboratory test abnormalities (5 cases) and musculoskeletal complaints (10 cases). Ethical approval was obtained from the local ethics committee of Dokuz Eylül University

(No: 2022/21-10).

Data collection

Data on demographic characteristics, working conditions, labor relations, and working environments of the welders were collected by telephone interview. Health outcomes were also confirmed from clinical records. A data registration form was prepared by the researchers in line with the relevant literature, and a pre-test was applied.

Variables of the study

The outcomes of the study were leading and lagging indicators of OHS. Lagging OHS indicators are "failure-focused" indicators that measure events or outcomes which have already occurred. Leading indicators are a proactive approach that measures the performance of OHS activities, emphasizing the evaluation before illness, disability or death occurs (18).

• Lagging OHS indicators: In this study, the rate of work accidents and occupational diseases were taken as lagging indicators. By cross-checking the medical records and telephone questionnaires of the cases, the variable of having a work accident related to welding and being diagnosed with an occupational disease during their career was defined into categorical variables (yes/no).

• Leading OHS indicators: As the leading indicators, the engineering control and personal protective equipment facilities of the welders in the most current workplace were examined. Respiratory and hearing protection and Local Exhaust Ventilation (LEV) was used as a categorical variable (yes/no). All welders stated that they had access to eye protection as the most basic and common requirement. Therefore, this variable was not included in the binary analyses.

The independent variables of the research were age, gender, age at the start of welding career, sector (public/private), current wage (according to minimum wage), union membership, weekly working hours (more or less than 45 hours per week), etc., in addition to those described below.

• Education level: Graduation from high school or equivalent vocational school was categorized as high education level, while others were categorized as low education level.

• Child Labor: According to the ILO methodology, starting the welding profession between the ages of 5-17 was categorized as child labor (8).

• Socioeconomic development (SED) level of the region of origin: It was defined as the SED level of the city where the welders were born and raised. The level of SED was determined based on the current Socioeconomic development index (SEDI) published by the Ministry of Industry(19). Provinces with SED indexes 1 and 2 were categorized as high-level and others as low-level.

• The size of the business was determined according to OECD criteria. Businesses with fewer than 250 employees were classified as small-medium-sized enterprises (SMEs) and those with more employees were classified as large enterprises(20). In descriptive statistics, subgroups of SMEs were also given as micro (1-9 employees), small (10-49 employees) and medium (50-249 employees).

• Insurance: Those whose insurance premiums were paid regularly and others (who were underpaid or informally employed without insurance) were categorized by grouping.

• Employment type: Welders were categorized by their employment contract: main company's staff, working for a subcontractor, or daily labor without any contract.

Statistical analysis

Descriptive statistics were presented as number, percentage, mean (±standard deviation), median (min-max) values. Pearson chi-square test was used to compare the ratios. Fisher's Exact test was used for >20% cell count with an expected value less than 5. The correlation of categorical variables was evaluated with tetrachoric correlation. The correlation coefficient was ±0.2 to ±0.4 weak, ±0.4 to ±0.6 moderate, ±0.6 to ±0.8 strong, ±0.8 to ±1 very strong correlation. Significance level was accepted as $p<0.05$. Analyzes were performed with R version 4.2.0 (https://www.r-project.org/) and SPSS version 24 (Armonk, NY: IBM Corp).

Results

All 88 welders participating in the study were male. The mean age was 45.5 (±8.04) and the median age was 45 (26-69). The median age of starting their welding career was 17 (7-49). Twenty-eight welders (31.8%) were educated at the high school level. Thirty-two of welders (36.4%) were from provinces with low SED. One third of the welders (n=29, %33) was working in SMEs. Considering the working conditions, the mean weekly working hours was 49 (±10.55) and the median was 48 (8-105) hours. Monthly wages of most of the cases (n=61, 69.3%) were less than twice the minimum wage. The unionization rate of the welders participating in the study was 33%. Three of the welders were working without insurance, and the six had underpaid insurance premiums. None of these 9 welders were labor union members. While 75 welders were the main staff of company, 11 worked for subcontractors and 2 worked as day laborers (Table 1).

Table 1: Characteristics of the cases included in the study and their working life.

	n(%)
Individual and social characteristics	
Male gender	88 (100.0)
Age, mean(SD)	45.5 (±8.04)
Age at start of welding career, mean(SD)	19.6 (±7.74)
Education level	
High school	28 (31.8)
Elementary school	60 (68.2)
SED level of province of origin	
Low	32 (36.4)
High	56 (63.6)
Working environment	
Working sector	
Public	11 (12.5)
Private	77 (87.5)
Size of the Business	
Micro and small	12 (13.6)
Medium	17 (19.3)
Large	59 (67.0)
Working conditions	
Working hours per week, mean(SD)	49 (±10.55)
Shift work	19 (21.6)
Overtime work	49 (55.7)
Work at night	26 (29.5)
Weekly rest day ≥2 days	28 (31.8)
Wage	
≥3 MW	1 (1.1)
≥2 MW	26 (29.5)
≥ MW	60 (68.3)
< MW	1 (1.1)
Labor relations	
Insurance	
Insurance premium paid regularly	79 (89.8)
Underpaid insurance premium	6 (6.8)
Employee without insurance	3 (3.4)
Employment type	
Staff of the main company	75 (85.2)
Working for a subcontractor	11 (12.5)
Daily work	2 (2.3)
Union Membership	29 (33.0)

MW: minimum wage, SED: Socioeconomic development

Photokeratitis (n=78, 88.6%), photodermatitis (n=61, 69.3%) and hearing loss (n=57, 64.8%) were reported most frequently as welding-related health problems during their careers. In addition, musculoskeletal disorders were also quite high. Details of experienced health problems based on self-report are presented in Figure 1.

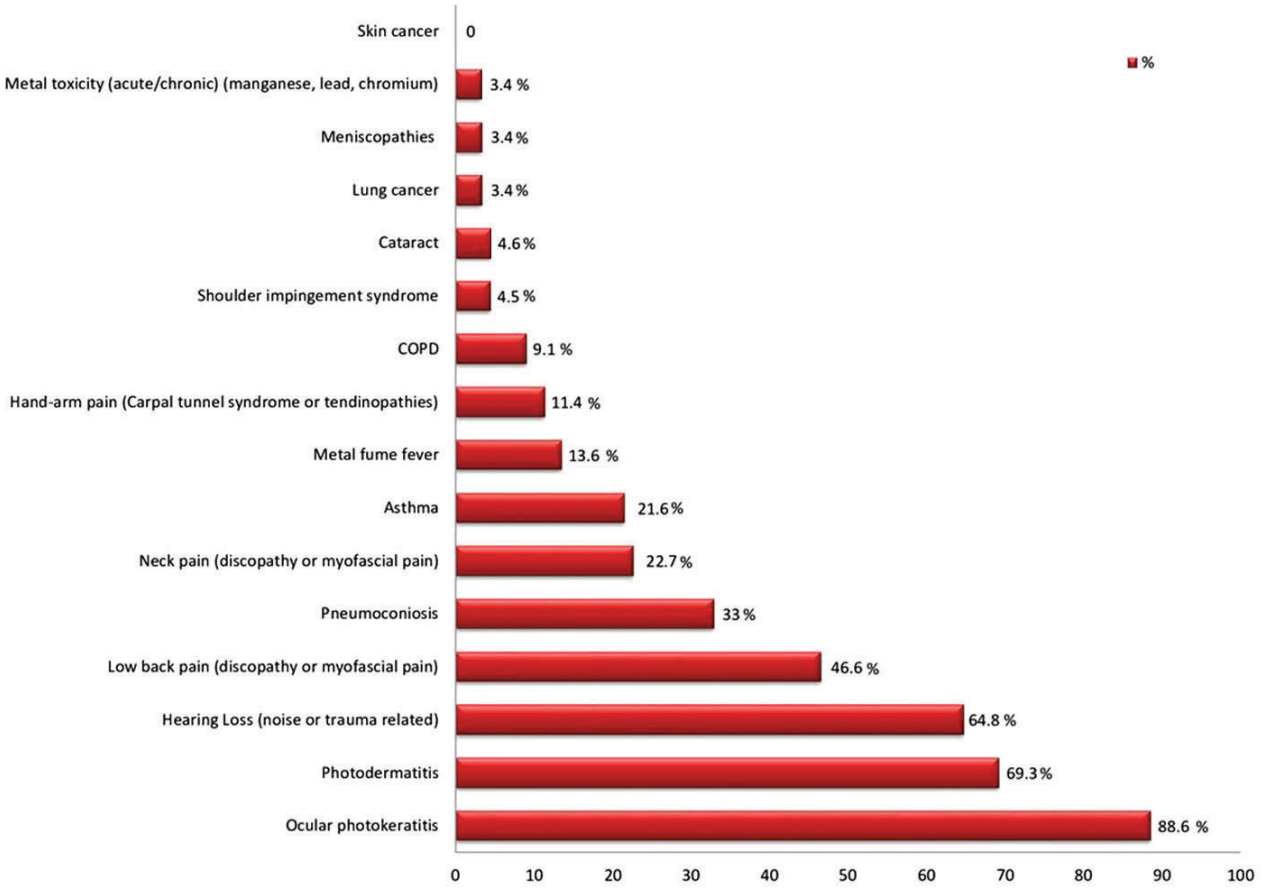

Figure 1: Self reported health problems associated with welding.

Engineering control for welding fumes (LEV) was only available in the workplace of 21 welders (23.9%). Only 5 welders had access to the respiratory protective welding mask. While personal protective equipment for UV-eye protection was provided to all welders, appropriate equipment for skin protection was not available in 46.6% (n=41). Sixty-eight percent (n=60) of welders had experienced a work accident during their working life and 60.2% (n=53) were diagnosed with occupational diseases. Details of work accidents and occupational diseases are presented in Table 2.

Work accident rates were found to be higher in welders who started their career as a child (p=0.004). Leading OHS indicators were found to be significantly worse in the working environments of those with low education, low wages, workers in the private sector and non-unionized workers. The relationship between work-life components and OHS indicators is detailed in Table 3.

Table 2: Leading and lagging indicators of OHS (N Total= 88, 100%).

Lagging indicators	n (%)	Leading indicators	n (%)
Work accident*	60 (68.2)	**OHS protection measures**	
Trapped by moving equipment	19 (31.7)	**Engineering measure (LEV)**	21 (23.9)
Eye injuries	19 (31.7)	**Personal Protective Equipment**	
Falls same or heigh level	10 (16.7)	Respiratory protection (SAR)	5 (5.7)
CUIB (cut in, under or between)	9 (15.0)	Welding mask (eye protection)	88 (100.0)
Falling objects	4 (6.7)	• SAR	5 (5.7)
Electrocution	1 (1.7)	• Helmet	56 (63.6)
Occupational disease*	53 (60.2)	• Hand shield or eye goggles	27 (30.7)
Pneumoconiosis	29 (33.0)	Hearing protection	35 (39.8)
Noise-induced hearing loss	32 (36.4)	• Earmuffs	5 (5.7)
Asthma	4 (4.5)	• Ear plugs	30 (34.1)
Tendinitis (CTS, impingement)	5 (5.7)	UV protection (skin)	47 (53.4)
Discopathy (cervical, lumbar)	2 (2.3)	• Whole body protection	22 (25.0)
Heavy metal toxicity	3 (3.4)	• Leather welding sleeve	25 (28.4)

**There may be more than one disease or injury in the same case.*
CTS: carpal tunnel syndrome, LEV: portable local exhaust ventilation, SAR: Supplied-air respirator

Table 3: Relationship of work life components with OHS indicators.

	TOTAL	LAGGING INDICATORS		LEADING INDICATORS		
	N=88	Work accident n=60	Occupational disease n=53	Lack of engineering measure (LEV) n=67	Lack of respiratory protection n=83	Lack of hearing protection n=53
Previously working as a child laborer						
Yes	48 (54.5%)	39 (81.3%)**	28 (58.3%)	36 (75.0%)	47 (97.9%)	29 (60.4%)
No	40 (45.5%)	21 (52.5%)	25 (62.5%)	31 (77.5%)	36 (90.0%)	24 (60.0%)
p		**0.004**	0.691	0.781	0.172	0.968
Education level						
Low	60 (68.2%)	40 (66.7%)	37 (61.7%)	51 (85.0%)**	59 (98.3%)*	39 (65.0%)
High	28 (31.8%)	20 (71.4%)	16 (57.1%)	16 (57.1%)	24 (85.7%)	14 (50.0%)
p		0.655	0.686	**0.004**	**0.034**	0.181
SED level of province of origin						
Low	32 (36.4%)	23 (71.9%)	22 (68.8%)	25 (78.1%)	31 (96.9%)	20 (62.5%)
High	56 (63.6%)	37 (66.1%)	31 (54.4%)	42 (75.0%)	52 (92.9%)	33 (58.9%)
p		0.574	0.217	0.741	0.649	0.742
Regularly paid insurance premium						
No	9 (10.2%)	7 (77.8%)	7 (77.8%)	8 (88.9%)	9 (100.0%)	8 (88.9%)
Yes	79 (89.8%)	53 (67.1%)	46 (58.2%)	59 (74.7%)	74 (93.7%)	45 (57.0%)
p		0.717	0.308	0.680	>0.999	0.081
Unionization						
Non-unionized workers	59 (67.0%)	43 (72.9%)	36 (61.0%)	47 (79.7%)	59 (100%)**	43 (72.9%)**
Unionized workers	29 (33.0%)	17 (58.6%)	17 (58.6%)	20 (69.0%)	24 (82.8%)	10 (34.5%)
p		0.177	0.829	0.269	**0.003**	**0.001**
Employment type						
Working for a subcontractor or daily working	13 (14.8%)	10 (79.9%)	7 (53.8%)	11 (84.6%)	13 (100%)	10 (76.9%)
Staff of the main company	75 (85.2%)	50 (66.7%)	46 (61.3%)	56 (74.7%)	70 (93.3%)	43 (57.3%)
p		0.538	0.611	0.725	>0.999	0.183
Size of the Business						
SME	29 (33.0%)	19 (65.5%)	17 (58.6%)	23 (79.3%)	29 (100%)	20 (69.0%)
Large enterprise	59 (67.0%)	41 (69.5%)	36 (61.0%)	44 (74.6%)	54 (91.5%)	33 (55.9%)
p		0.707	0.829	0.624	0.167	0.240
Working sector						
Private	77 (87.5%)	54 (70.1%)	46 (59.7%)	61 (79.2%)	76 (98.7%)***	49 (63.6%)
Public	11 (12.5%)	6 (54.5%)	7 (63.6%)	6 (54.5%)	7 (63.6%)	4 (36.4%)
p		0.316	>0.999	0.123	**<0.001**	0.106
Wage						
<2 MW	61 (69.3%)	42 (68.9%)	35 (57.4%)	52 (85.2%)**	60 (98.4%)*	39 (63.9%)
≥2 MW	27 (30.7%)	18 (66.7%)	18 (66.7%)	15 (55.6%)	23 (85.2%)	14 (51.9%)
p		0.839	0.412	**0.003**	**0.029**	0.286
Working hours per week						
> 45	56 (63.6%)	42 (75.0%)	37 (66.1%)	45 (80.4%)	56 (100%)**	37 (66.1%)
≤ 45	32 (36.4%)	18 (56.3%)	16 (50.0%)	22 (68.8%)	27 (84.4%)	16 (50.0%)
p		0.069	0.138	0.219	**0.005**	0.1**38**

*MW: minimum wage, SED: Socioeconomic development, SME: small-medium-sized enterprise ***p<0.001, **p<0.01, *p<0.05*

After applying to the occupational disease outpatient clinic, 59.1% (n=52) of the welders had quit their jobs. The rate of quitting was significantly higher in those who were not unionized (p=0.001). Sixteen (30.8%) of those who quit their jobs did not receive their financial compensation rights. None of these cases were unionized. In addition, unionized workers had higher wages and security opportunities (p values respectively; 0.003 and 0.027) and fewer weekly working hours (p=0.010).

A positive correlation was found between being unionized and high education level, high SED level, business size, and working in the public sector (correlation coefficients were respectively; r=0.53, r=0.45, r=0.80, r=0.81). The correlation map of work life components is presented in Figure 2.

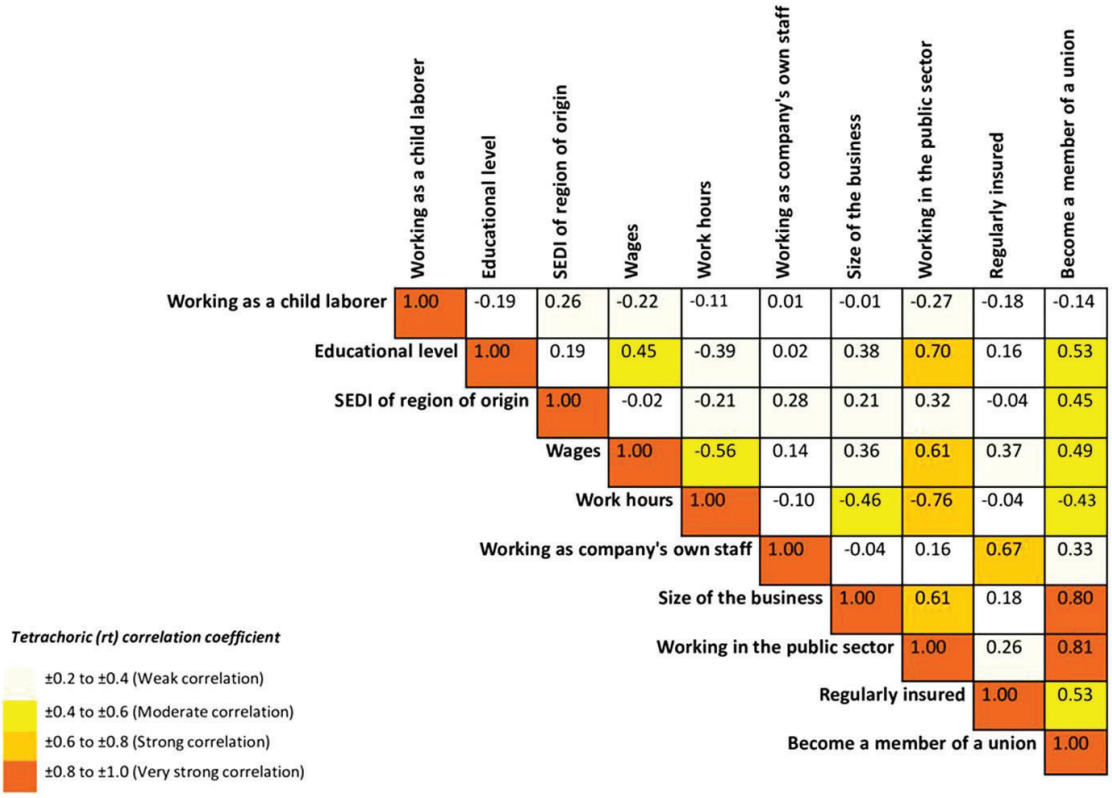

Figure 2: Correlation map of work life components.

Discussion

The study focused on a group of welders in a developing country and analyzed their OHS indicators and related factors. The study results showed that those with low education, low wages, long working hours, workers in the private sector and non-unionized workers had significantly worse, leading OHS indicators in their working environments. Those who had started their careers as a child experienced more work accidents. The results supported the need for a holistic approach to the determinants of OHS, in line with the "sociomedical causality" emphasized by Rudolf Virchow nearly two centuries ago (21, 22). Previously, Flynn et al. mentioned undocumented migrant labor as a potential social determinant of OHS (23). Flexible and non-standard forms of employment have also been identified as a major social determinant of inequalities in Europe (24). Fujishiro et al. presented a framework that

highlights the limitations of the traditional exposure-outcome approach used in occupational health research. In this comprehensive framework, three social factors affecting health are referred: 1) laws and regulations that about work characterized by minimum wage, working hours, employment protection, workplace inspections, etc. 2) general social policies such as education, medical care, taxation, transportation, urban planning, and environmental protection 3) resources for working people such as health problems, job loss, temporary or long-term disability and caregiving responsibilities (3).

It was observed that two-thirds of the welders in the study were non-unionized, and 10% lacked regular insurance coverage. None of these workers, who worked without regular-insurance, was part of a union. In addition, the weekly working hours of the unionized welders were found to be significantly less. Unionized workers had a higher chance of receiving respiratory and hearing protection equipment, and their monthly income and weekly holidays were found to be significantly higher. The findings support the literature. Because the main functions of labor unions are to defend the class struggle and interests in workplace health and safety, working hours, wages, working conditions, and social security issues (25). Therefore, the organization of labor is important. The unionization rate in the study was found to be higher than the rates in the metal sector in our country (33% and 17.7%, respectively) (26). This can be explained by the fact that most of the welders (67%) referred to our hospital had worked with large enterprises with a higher prevalence of unionization. In fact, it is important to note that none of the welders who had worked with SMEs were union members. In the study, a positive correlation was also found between being a union member and education level, SED level of the regional origin and working in the public sector. In the study by Le et al., in which they evaluated the safety culture in the workplace, it was reported that the employees who are union members mostly work in the public sector and have higher education levels (27). Similarly, in a study conducted in Australia, the number of unionized employees in the public sector and in large enterprises was found to be higher (28). Another factor that has been shown to be determinative in joining a union in previous studies is political and cultural values (left-leaning political view) (29) which can be said to be largely influenced by the environment one belongs to.

In this study, 68% of welders reported that they had at least one work accident during their professional life. The lifetime prevalence of welding accidents reported in same cross-sectional studies in the literature for Uganda, Kenya and Nigeria, respectively; 87.8%, 92%, 99.3% (6, 10, 11). The fact that the prevalence is lower than in other studies may be due to the recall bias that the participants in this study, whose average age is higher, neglected or did not remember the injuries they experienced at the beginning of their professional careers. Another possible reason may be that the number of work accidents was low because the welders included were largely insured and worked in relatively better conditions. The frequency of work accidents may be higher in more heterogeneous welder samples in our country. According to our country data, it is seen that 13,560 accidents occurred in welders between 2015 and 2018, and 0.35% of them were fatal accidents (30). According to the Bureau of Labor Statistic reports, the incidence of work accidents in welders in the USA was 2.3% in 2020 (31). In the welding sector, where the risk of work accidents is clearly high, the most frequently reported injuries are limb cuts and eye injuries (11, 32, 33). Particularly, there are welders among the occupational groups in which eye injuries are seen most commonly (34). Similarly, in this study, eye injuries were one of the most common causes of accidents.

Chronic exposures in the welding sector (welding fumes, noise, radiation and ergonomic hazards) are associated with a wide spectrum of health problems (35). In this study, although the most common self-reports of welders were photokeratitis (arc eye), many welding-related health problems such as asthma, COPD, metal

toxicity, hearing loss, cataract, etc. were described. UV radiation is a known risk factor for skin cancer. The welding procedure is one of the nonsolar UV sources. However, while there is sufficient evidence in the literature for welder's ocular melanoma, it is limited for skin cancer (36). Both of these cancer types were not reported in the study, possibly because of the small sample size. In this study, hearing loss, pneumoconiosis and musculoskeletal system diseases are the most common occupational diseases diagnosed by welders. Today, welding fumes are known as IARC group 1 lung carcinogens (17). Three welders in this study were diagnosed with lung cancer, although this could not be attributed to occupational exposure due to concurrent smoking exposures.

In terms of OHS controls, it has been observed that only a quarter of welders were provided LEV in the working environment and there are significant deficiencies in personal protective equipment. It is known that investments made in OHS improve confidence, motivation and feelings of security in the business. It decreases injuries, increases productivity, provides income security to workers' families, and even creates an international competitive and certification advantage for businesses (37). For all these reasons, prevention is more humane and cheaper than compensation (38, 39). However, improving occupational health as a whole requires the development of labor and employment policies, strengthening labor union organizations, ensuring equality in other social rights such as medical care, education and transportation (3, 40). The “Health in all politics" approach, which is emphasized in community-based health services today, should also be important in the field of OHS. Additionally, legal support is needed for the continuity and sustainability of this approach (41).

Strengths and limitations of the study

This study emphasized "causes behind causes" rather than traditionally focusing on hazards and outcomes. In this respect, it will contribute to future occupational health studies. Since welders who applied to the occupational disease outpatient clinic were included in the study, the frequency of occupational diseases may be high due to selection bias. In the study, no significant difference was found between current working conditions and occupational diseases. This is the common problem of all occupational health studies with a cross-sectional design because occupational diseases are a cumulative result of lifetime exposures. Despite the limited number of participants, it is important that a significant difference was shown in the leading indicators, even though not in lagging indicators. This bias towards the null shows that testing the hypothesis in a larger study setting may be beneficial.

Conclusion

Workers' health in the workplace is related to the conditions of the environment in which they live, grow, and work. There is a need for more comprehensive studies that deal with the concept of OHS from this framework.

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ADAPTATION OF SHORT FORM OF THE ORAL AND DENTAL HEALTH LITERACY SCALE TO THE TURKISH LANGUAGE

Ağız ve Diş Sağlığı Okuryazarlığı Ölçeği kısa formunun Türk diline uyarlaması

Çiğdem YILMAZ AYDIN[1], Pınar OKYAY[2]

Abstract

This is a methodological study for the adaptation of the "Health Literacy Dentistry Scale-Short Form (HeLD-14)" in Turkish . 30 participants were reached in language validity and 50 participants in retest reliability. The SPSS and AMOS programs were used to analyze. Kaiser-Meyer-Olkin (KMO) was 0.875, the Barlett Spherical Test chi-square was 3715.076 (p<0.001). In EFA, a four-factor structure was obtained, which explained 71.211% of the total variance, with an eigenvalue above one. In CFA, χ2 /df, RMSEA, GFI values of the model consisting of four dimensions and 12 items are acceptable; AGFI, SRMR and CFI values were in perfect agreement. Cronbach's alpha was calculated as 0.910 for EFA, 0.860 for CFA, the Spearman-Brown was 0.801 and the Guttman Split-half value was 0.799. In convergent and divergent validity assessments, it was observed that all conditions were met, except that the AVE value for the comprehension dimension was below 0.50 and the reliability value for the support dimension was below 0.70. A very strong positive correlation was found between scale scores in retest reliability (r=0.803, p<0.001). In terms of validity of the criteria, there was a moderate positive correlation to the TSOY-32 score (r=0.687, p<0.001). Consisting of the sub-dimensions of Comprehension/Understanding, Support, Economic barriers and Service use the ADSOY-12 scale has been seen as a valid and reliable tool for measuring oral and dental literacy in adults in Turkish culture.

Keywords: Public health, health literacy, dentistry, oral health, validity and reliability.

Özet

"Health Literacy Dentistry Scale-Short Form (HeLD-14))" ölçeğini Türk diline uyarlamak amacıyla uygulanan metodolojik bir çalışmadır. Analizlerde SPSS ve AMOS paket programları kullanılmıştır. Dil geçerliliğinde 30, tekrar test güvenilirliğinde 50 katılımcıya ulaşılmıştır. Kaiser-Meyer-Olkin (KMO) değeri 0,875, Barlett küresellik testi ki-kare değeri 3715,076 bulunmuştur (p<0,001). AFA'da öz değeri 1'in üstünde, toplam varyansın %71,211'ini açıklayan dört faktörlü yapı elde edilmiştir. Dört boyut 12 maddeden oluşan modelin χ2 /sd, RMSEA, GFI değerleri kabul edilebilir; AGFI, SRMR ve CFI değerleri mükemmel uyumda bulunmuştur. Ölçeğin Cronbach alfa değeri AFA'da 0,910, DFA'da 0,860, Spearman-Brown değeri 0,801, Guttman Split-half değeri 0,799 hesaplanmıştır. Yakınsak ve ıraksak geçerlilik değerlendirmelerinde kavrama, anlama boyutu ile ilgili AVE değerinin 0,50'nin altında, destek boyutunun güvenirlik değerinin 0,70'in altında olması dışında tüm koşulların sağlandığı görülmüştür. Tekrar test güvenilirliğinde ölçek puanları arasında olumlu yönde çok güçlü ilişki bulunmuştur (r=0,803, p<0,001). Kriter geçerliliğinde Türkiye Sağlık Okuryazarlığı Ölçeği (TSOY-32) puanı ile olumlu yönde orta düzeyde ilişki bulunmuştur (r=0,687, p<0,001). Kavrama/Anlama, Destek, Ekonomik engeller ve Hizmet kullanımı alt boyutlarından oluşan ADSOY-12 ölçeğinin Türk kültüründe yetişkinlerde ağız ve diş sağlığı okuryazarlığını ölçmek için geçerli ve güvenilir bir ölçüm aracı olduğu gösterilmiştir.

Anahtar kelimeler: Halk sağlığı, sağlık okuryazarlığı, diş hekimliği, ağız sağlığı, geçerlilik ve güvenilirlilik.

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**'Ağız ve diş sağlığı okuryazarlığı ölçeği kısa formunun Türk diline uyarlaması' 5.Uluslararası 23. Ulusal Halk Sağlığı Kongresinde (2021) Özet Bildiri/Sözlü Sunum- S-031 olarak sunulmuştur.*

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Introduction

Oral and dental diseases are a major public health issue because they are common around the world and the costs of treatment are high (1). Oral health status is regarded as an indicator of quality of life (2). The Global Burden of Disease Study, which consists of data from 195 countries, reported that 3.5 billion people suffered from oral diseases in 2017 and untreated dental caries were among the most common non-communicable diseases (3). Oral and dental health literacy, one of the sub-headings of health literacy, is defined as "the degree to which individuals have the capacity to receive, process and understand basic oral health information and services necessary to make appropriate health decisions" (4). Its low level is associated with oral health problems. It has been observed that the studies on the subject are limited, and it has been understood that there is a need for a comprehensive, valid and reliable tool that can be applied in the Turkish language (5). With our research, it was aimed to adapt the "Health Literacy Dental Scale-Short Form (HeLD-14)" scale of Turkish language and to create a valid and reliable tool that can be used in public health studies in our country. In addition, the factors affecting oral and dental literacy levels were also examined with this scale (6).

Material and Method

Ethical disclosures and consents

It is a methodological study conducted between November 2019 and October 2020. Permission was received for the thesis study from the scale owner, Adnan Menderes University Faculty of Medicine Non-invasive Clinical Research Ethics Committee, Aydın Adnan Menderes University Application and Research Hospital and Aydın Provincial Health Directorate.

Sample group

In order to ensure the heterogeneity of oral and dental literacy levels, the research was carried out at Family Health Center No. 09, Aydın Gynecology and Children's Hospital and Aydın Adnan Menderes University Application and Research Hospital among the primary, secondary and tertiary health institutions in Aydın province. The research involved educated volunteers over the age of 18 with no cognitive issues. The 500 people were reached in order to examine the factor structure and psychometric analyzes were accessed at the relevant institutions by providing a distribution according to the rate of application to the physician (7, 8). The scales were administered to 30 academicians at the level of associate professor or higher for language validity, with an interval of one week, and for retest reliability, with an interval of two weeks, in 50 individuals (9, 11). The preliminary trial consisted of 20 people similar to the sample group (12).

Data collection tools

For the purpose of collecting data, the four-part Oral and Dental Health Literacy Scale Adaptation Questionnaire in Turkish has been prepared. The first part includes seven questions about sociodemographic data, the second part includes 12 questions about oral and dental health and six questions about general health, the third part includes the TSOY-32 scale consisting of 32 questions, and the fourth part includes the Turkish text of ‘’Ağız ve Diş Sağlığı okuryazarlığı-14 (ADSOY-14) ‘’ (13).

Turkey Health Literacy Scale (TSOY-32)

It is a scale consisting of 32 questions developed based on the HLS-EU Working Conceptual Framework to evaluate the health literacy of individuals over the age of 15. TSOY-32 consists of two dimensions: Treatment and Service and Disease Prevention/Health Promotion. Each dimension includes four components:

Accessing Health-Related Information, Understanding Health-Related Information, Evaluating Health-Related Information, and Use/Application of Health-Related Information (13, 14).

HeLD-14 scale

This is a 14-question scale that assesses oral and dental health literacy in people over the age of 18. Adaptation studies have been performed in Brazil and Indonesia, but there is no use or adaptation study in Turkey (15, 16). There are seven sub-dimensions consisting of two items: comprehension, understanding, support, economic barriers, access, communication and use. Each item is ranked on a Likert-type scale between zero and four. Surveys where 5% or more of the responses are left blank are not included in the calculations. The average score is used for situations where less than 5% of responses are missing.

Data Analysis

SPSS v25.0, SPSS AMOS v23.0 (Analysis of Moment Structures, 2015) package programs were used in the analysis. The adequacy of the sample size and the suitability of the data for factor analysis were evaluated by the KMO and Barlett Test of Sphericity, the compatibility of continuous variables with the normal distribution, the Kolmogorov-Smirnov Test, and the multiple normality assumption Skewness and Kurtosis values (16-18). Descriptive data are presented in numbers and percentages, and data that are non-normally distributed are presented in medians and inter-quartiles. In the correlation analysis, parametric data was analysed with Pearson and non-parametric data was analysed with the Spearman correlation test. The analytical techniques used in the study and the accepted limit values are set out in Table 1. Type 1 error level α=0.05 was accepted.

Table 1: Psycholinguistic and psychometric analysis stages of HeLD-14 scale adaptation study to Turkish language.

		Analysis Techniques
Psycho-Linguistic Analysis	**Linguistic equivalence**	The scale was translated into Turkish by two dentists, a public health specialist and an English language specialist, and then the translations were translated back into English by different people.
	Cultural Adaptation	Translation and back-translation texts were made into a single text by three academicians who are fluent in both languages and the measured concept and presented to expert opinion. It was applied to 20 participants for a preliminary trial and the Cronbach alpha value was calculated.
Validity Stages	**Appearance Validity**	In order to evaluate the items in terms of appearance, readability, ease of application and order of the items, the opinions of four experts on the subject were consulted.
	Language Validity	Pearson correlation analysis was performed by applying the HeLD-14 and ADSOY-14 scales to 30 academicians with a one-week interval. The correlation value was very strong between 0.75-1.00, strong between 0.50-0.74, 0.25-0, between 49 was interpreted as moderate and between 0.0-0.24 as low (19).
	Criterion Validity	Concomitantly administered TSOY-32 and ADSOY-14 scores were compared with Spearman's correlation analysis.
	Construct Validity	Principal Component Analysis estimation and promax rotation method were used in EFA and evaluation was made with the criteria of number of eigenvalues, slope graph and cumulative variance ratio explained. The criteria for the number of eigenvalues higher than one, the point at which the slope starts to disappear on the slope graph, and the cumulative variance ratio above 52% are used to determine the appropriate number of factors (16-22).Maximum Likelihood estimation method was used in CFA, X^2 /df, CFI, GFI, AGFI, SRMR, RMSEA values were evaluated considering the following conditions (16-22).

		Index	Acceptable Fit	Perfect Fit
Psychometric Analysis		**X^2 /df**	2 <X^2 /sd ≤ 5	0 ≤X^2 /sd < 2
		GFI	0.90 < GFI ≤0. 95	0.95 ≤ GFI < 1.00
		AGFI	0.85 < AGFI ≤ 0.90	0.90 ≤ AGFI < 1.00
		CFI	0.90 < CFI ≤ 0.95	0.95 ≤ CFI < 1.00
		RMSEA	0.05 < RMSEA ≤ 0.08	0.00 ≤ RMSEA < 0.05
		SRMR	0.05 < SRMR ≤ 0.10	0.00 ≤ SRMR < 0.05
	Convergent and Divergent Validity	CR>0.7, AVE>0.5, CR>AVE, MSV<AVE, ASV<AVE, $\sqrt{AVE}$ > Interfactor correlation conditions (23, 24).		
Reliability Stages	**Internal Consistency**	Evaluation was made by calculating Cronbach's alpha,correlation between items, corrected item-total correlation values and percentages of floor and ceiling effects. Cronbach's alpha coefficient is considered to be high between 0.81-1.00, moderate between 0.61-0.80, low-level reliability between 0.41-0.60, and it is stated that the scale is unreliable when it is below 0.40 (22, 23). In cases where the Cronbach's alpha coefficient increases more than 5% when the item is removed from the scale, it is recommended to remove that question from the scale (9). In addition, the base effect and ceiling effect percentages calculated over the scale total and subdimension scores are below 15%; it is recommended that the mean of correlations between items be between 0.20 and 0.40,and item-total correlations of 0.30 and above (25-27).		
	Parallel Form	ADSOY-14 and TSOY-32 scales were applied simultaneously and evaluation was made with Pearson correlation analysis.		
	Test-Retest	ICC and Pearson correlation value between the two measurements were calculated by applying the ADSOY-14 scale to 50 participants with an interval of 15 days.		
	Two Half	The first half and second half questions are divided into two groups of seven questions each in the same group. In the evaluation between the two halves, Spearman-Brown and Guttman Split-half values were calculated.		

EFA:Explanatory Factor Analysis, CFA:Confidential Factor Analysis, CFI:Comparative Fit Index, GFI:goodness-fit index, AGFI: Adjusted Goodness-fit Index , SRMR:Standardized Root of Mean Square Errors, RMSEA:Root Mean Square Error of Approximation, CR:Composite Confidence, ASV:Average Shared Variance Squared, MSV:Maximum Shared Variance Squared, AVE:Mean Explained Variance, ICC: Intraclass correlation coefficient

Results

54.2% of the participants were female, and the median age was 34.0 (25-75 p, 27-42) years. Considering the distribution of age groups, 34.2% are in the 25-34 age group, 4.4% are 65 and over. 32.2% were enrolled in university or had a higher education, 15.6% had a primary education, 21.8% had no job, 24% were housewives and 1.4% were retired. In assessing the income statement, it was found that 11.6% of individuals had more income than their expenses, 41.8% had less and 46.6% had an equal level of expenses to their income. In addition, it was observed that 13.0% of the participants did not have any health insurance 2.6% were covered by general health insurance and 14.4% were covered by private health insurance.

Psycholinguistic Evaluations

In the linguistic equivalence and cultural adaptation stages, the scale was translated into Turkish, and the arrangements were made in line with the suggestions given to provide the equivalent of the concept in Turkish. The internal consistency of the Cronbach scale alpha, which was applied to 20 participants, 12 of whom were male, prior to trial, was set at 0.725.

Psychometric Evaluations

After the psycholinguistic evaluation, the text was evaluated by four experts in

terms of face validity. Adjustments were made in the items and answer categories. A very strong positive correlation was found between the total scores of the HeLD-14 and ADSOY scales administered one week apart (r= 0.774, p<0.001). A positive and strong correlation was found between the concomitantly administered TSOY-32 and ADSOY total scores (r=0.687, p<0.001).

The alpha values of the Cronbach ADSOY scale depending on the dimensions determined after EFA and CFA, and the percentages of floor and ceiling effects are presented in Table 2. In cases where items 4 and 5 were deleted, the increase in Cronbach alpha values did not exceed 5 %. In assessing the reliability of the parallel shape, a strong positive correlation was found between the TSOY-32 scores (r=0.687, p<0.001).

In terms of test-retest reliability, a very strong positive correlation was observed between the applications achieved and the scores obtained (r=0.803, p<0.001). The intraclass correlation coefficient (ICC) between the two applications was calculated as 0.885. (p<0.001) Spearman-Brown value measured in two halves method was calculated as 0.801 and Guttman-Split half value as 0.799. The correlation values between the accepted post-CFA model dimensions and the converging and diverging validity assessment data are presented in Table 3. The AVE value of the comprehension, understanding dimension is found to be below 0.50 and the composite reliability value of the support dimension is below 0.70.

Exploratory Factor Analysis

The KMO value for the analysis was 0.875, and the chi-square value for the Barlett Sphericality test was 3715.076 (p<0.001). In the EFA, a four-factor pattern was observed with an eigenvalue greater than 1, accounting for 71.211% of the total variance. When the factor matrices were examined, it was observed that the factor loads of all items were greater than 0.4, and the third item included in the two sub-factors (Factors 1 and 4) was re-evaluated by confirmatory factor analysis (Table 4). It was decided to keep factor 1, which was thought to have a higher factor load and be more suitable in terms of content.

Confirmatory Factor Analysis and Fit Index Models

It has been observed that the four-factor model needs adjustment in the second-level multi-factor CFA. After the covariances formed between the 1st and 2nd items and the 9th and 10th items, the need for regulation continued, and the 1st and 9th items were removed from the scale and the model was reanalyzed. Path diagrams and DFA fit index values before (ADSOY-14) and after (ADSOY-12) modification are shown in Figure 1.

Comparison of ADSOY-12 Scale Scores

Sociodemographic Characteristics

The ADSOY-12 scale overall score and the sub-dimensions of service use, knowledge, understanding, and support were shown to be higher for females (p<0.05). With the exception of the support sub-dimension, it was found that participants under the age of 40 had higher scores overall and across all sub-dimensions (p<0.05). All scales and sub-dimensions of the ADSOY-12 showed a significant difference in the evaluation made according to the places of application, and further analysis revealed that this difference was caused by the higher scores of those who applied to the university hospital compared to the other two groups (p<0.05). In individuals who got education at the university or higher level, high scores were seen in all sub-dimensions and overall scores, with the exception of the comprehension and understanding sub-dimension (p<0.05). It was noted that the group that declared income less than expenses obtained significantly lower ratings in the overall and all sub-dimensions when compared to groups who declared income equal to expenses, and income less than expenses (p<0.05).

Oral and Dental Health Status

In the total score and in all sub-dimensions except the support sub-dimension, those who knew the number

of teeth scored higher than those who did not know, and those who used dental floss had higher scores than those who did not ($p<0.05$). All scores of those who brushed their teeth twice a day or more were higher than those who brushed irregularly ($p<0.05$). Those who stated that they went to the dentist in the last year; Those who stated that they generally went to regular dental examinations received higher scores in all sub-dimensions and in total, except for the support sub-dimension, than those who only went to the dentist when they had any problems ($p<0.05$).

Table 2: Internal consistency analysis data of ADSOY scale by EFA and CFA modeling.

	Adjusted item-total correlation		Cronbach's alpha when removed		Cronbach's alpha		Base Effect %	Ceiling Effect %
Items	**EFA**	**CFA**	**EFA**	**CFA**	**EFA**	**CFA**	**CFA**	**CFA**
1. Are you able to pay attention to dental health needs?	0.455	-	0.874	-		-	-	-
2. Are you able to make time for things good for dental health?	0.501	0.470	0.872	0.853				
3. Are you able to fill in dental forms?	0.622	0.601	0.868	0.847	0.752	0.689	2.000	31.000
4. Are you able to read dental information brochures?	0.511	0.497	0.871	0.852				
5. Are you able to take support to a dental appointment?	0.411	0.430	0.879	0.859				
6. Are you able to ask for support to a dental appointment?	0.322	0.346	0.887	0.869	0.886	0.886	11.000	28.000
7. Are you able to pay to see a dentist?	0.588	0.591	0.868	0.846				
8. Are you able to pay for dental medication?	0.562	0.557	0.869	0.848	0.657	0.657	11.600	35.600
9. Do you know how to get a dentists appointment?	0.639	-	0.866	-		-	-	-
10. Do you know what to do to get a dental appointment?	0.648	0.613	0.866	0.845				
11. Are you able to look for a second opinion?	0.646	0.623	0.865	0.843				
12. Are you able to use information?	0.705	0.690	0.864	0.841	0.904	0.889	0.000	40.600
13. Are you able to carry out dental instructions?	0.699	0.684	0.864	0.842				
14. Are you able to use dentists advice?	0.680	0.665	0.865	0.844				
ADSOY	-	-	-	-	**0.878**	**0.860**	**0.00**	**8.20**

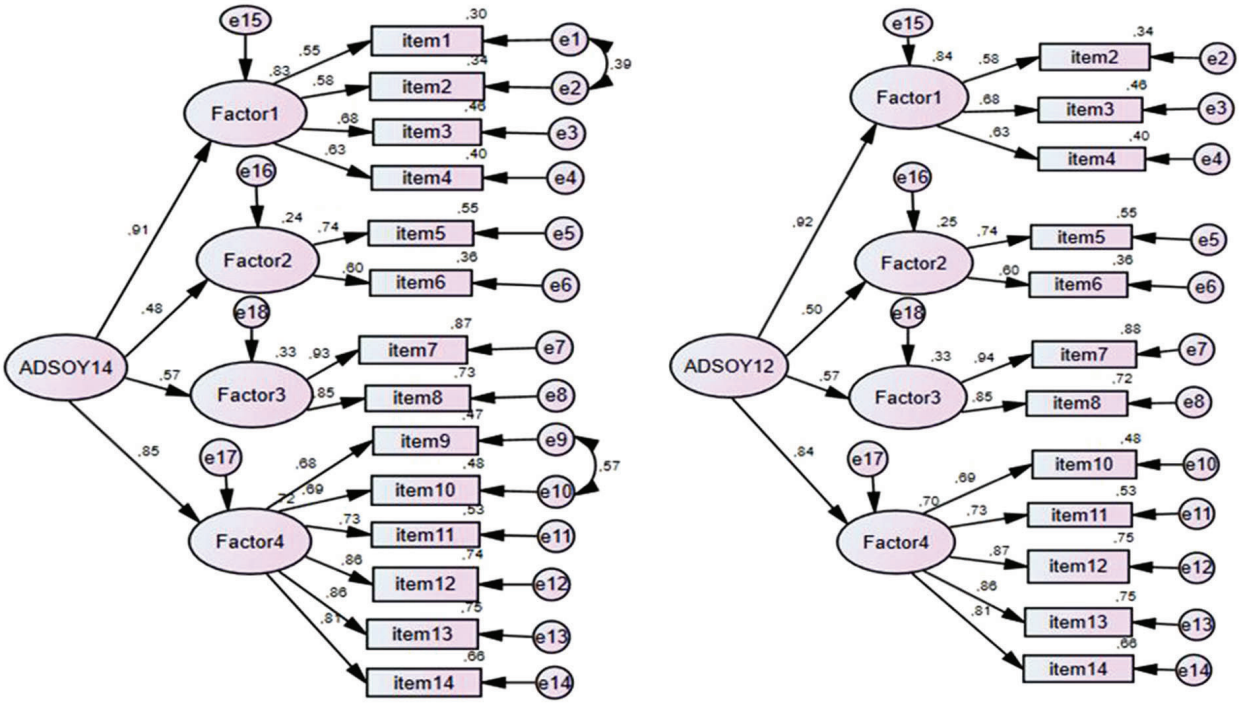
Table 3: AVE, CR, MSV, ASV and interdimensional correlation values for sub-dimensions of the ADSOY-12 scale.

	CR	AVE	MSV	ASV	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1	0.700	0.442	0.093	0.087	0.664*			
Factor 2	0.675	0.516	0.436	0.268	0.303	0.718*		
Factor 3	0.890	0.803	0.373	0.300	0.305	0.661	0.896*	
Factor 4	0.893	0.629	0.373	0.242	0.279	0.527	0.611	0.793*

*P<0.001 for all correlation values, * √AVE values|correlation between factors*

Table 4: Descriptive properties of ADSOY scale items and EFA eigenvalue, variance and factor loads values.

Exploratory Factor Analysis Values					Descriptive Features		
Sub-dimensions	**Eigen value**	**Variance (%)**	**Item No.**	**Factor Loads**	**Mean±SD**	**Skewness**	**Kurtosis**
Factor 1	1.450	10.356	*Item 1*	0.899	-	-	-
			Item 2	0.854	3.17 ± 0.997	1.386	1.758
			Item 3	0.418	3.41 ± 0.925	1.674	2.395
			Item 4	0.463	3.28±1.166	1.720	2.040
Factor 2	1.168	8.342	*Item 5*	0.841	2.91 ±1.465	1.095	-.298
			Item 6	0.877	2.54 ±1.654	0.624	-1.320
Factor 3	1.257	8.976	*Item 7*	0.869	2.54 ±1.432	0.556	-1.042
			Item 8	0.898	2.55 ±1.404	0.592	-.931
Factor 4	6.095	43.536	*Item 3*	0.414	3.41 ± 0.922	1.674	2.395
			Item 9	0.880	-	-	-
			Item 10	0.897	3.28 ±1.075	1.444	1.155
			Item 11	0.741	3.17 ±1.196	1.397	.886
			Item 12	0.813	3.34 ±0.976	1.505	1.565
			Item 13	0.800	3.34±0.934	1.457	1.608
			Item 14	0.788	3.38±0.912	1.585	2.037



	x²/df	GFI	GFI	AGFI	CFI	SRMR	RMSEA
ADSOY-14	6.557	6.557	0.872	0.882	0.889	0.552	0.106
ADSOY-12	3.528	3.528	0.943	0.911	0.956	0.042	0.071

Figure 1: Second level multi-factor confirmatory factor analysis before and after modification.

Discussion

In the study. the HeLD-14 scale. which was developed to measure the level of oral and dental health literacy. was adapted to the Turkish language. Content validity. which is suggested to be done in scale development studies. was not included in the analyses because it was not considered necessary in adaptation studies. It has been observed that the HeLD-14 scale has been adapted in Australia, Brazil, and Indonesia (15, 16, 30).

After the translation-retranslation and textualization processes. it was seen that face validity was ensured by consulting and expert opinions. As a result of language and criterion validity analyses. it was seen that the validity conditions were met. When the Skewness and Kurtosis values of all items in the scale were examined. It was understood that the multiple normality assumption was met.

While there were seven dimensions in HeLD-14 a four-dimensional structure was found that could explain 71.21% of the total variance in EFA for ADSOY. In the EFA it was observed that the third item was included in both the first and fourth factors despite the rotation and although it created a factor load greater than 0.32 in both dimensions. There was a difference of less than 0.10 between the factor load values. Although it is thought that this item could not find a response in oral and dental health service practices in Turkey. lt was stated that there were difficulties in the translation phase. However it was seen that there was no problem in the factor load of the third item in the CFA and when it was removed from the model the scale was not sufficiently fit and it was understood that there was no need to remove the item from the model.

The fit index values of the model consisting of four dimensions and 14 items determined in the exploratory factor analysis (EFA) were found to be outside the acceptable limits (17-23). In the evaluation made considering the correction suggestions and the EFA values of the items. It was decided to remove the first and ninth items from the model. It was observed that there was no change in the number of dimensions after the removal of the items. It is thought that the first and second items are similar in terms of content and that no concept deficiencies have been caused by removing the first item. In addition it is thought that removing the ninth item from the scale for the ninth and tenth items related to appointment will not cause any problems. Considering the fit values of the model consisting of four dimensions and 12 items. The values of X^2/SD, RMSEA, RMR, GFI are acceptable; AGFI, SRMR and CFI values were found to be in perfect agreement. Based on these results it was understood that the construct validity of the 12-item four-dimensional ADSOY-12 scale was acceptable.

After CFA and EFA the 'Utilization'. 'Access' and 'Communication' dimensions were combined with the 'Understanding' and 'Receptivity' dimensions in HeLD-14 while the 'Economic barriers' and 'Support' dimensions remained the same. It was thought that the six items in the three dimensions that were combined were related to the effective use of the dental examination and could be combined under the title of 'Service Usage' in Turkish. It has been seen that the first four questions about understanding the importance of oral and dental health and understanding the brochures and forms related to the subject can be combined under the title of 'Comprehension/Understanding' in the Turkish language.

It is seen that the conditions for divergent validity are met in all dimensions. and convergent validity in dimensions other than Comprehension. Understanding and Support. The floor and ceiling effect values of the ADSOY scale were found below 15% which supports the consistency of the scale. When the sub-dimensions were evaluated separately the floor effect was below 15% in all sub-dimensions while the ceiling effect was above 15%. However since floor and ceiling effects were not mentioned in other adaptation studies of the original scale a

comparison could not be made (6, 15, 16, 29).

When examining the mean scores of the participants by age group it was seen that the significantly younger groups got higher scores in the other three studies similar to our study. When comparing gender there was no significant difference in terms of total score in the Australian and Brazilian studies while in the Brazilian study. women scored significantly higher in the 'utilisation' subheading. In our study women scored significantly higher than men in the ADSOY scale total score and 'service use' and 'comprehension' 'understanding' sub-dimensions. It is thought that the significant difference in our country is due to cultural and social differences in terms of personal hygiene care and cleanliness in the female gender. A significant difference was also found between the oral and dental health literacy levels between primary secondary and tertiary health institutions and it is thought that the difference is due to the higher age and lower education level of the participants from the family health center. It was observed that groups with higher education levels had significantly higher scores in our study and in the Brazilian study. It is thought that the low number of participants in the Australian study may be a factor in the lack of difference in gender and education comparisons. Similar to the studies indicating a two-way relationship between economic status and health literacy in the assessment of income level and similar to the Brazilian study it was observed that those with higher incomes scored significantly higher (15, 31). As expected in the comparisons made according to their oral and dental health status it was found that those with higher oral and dental health literacy levels paid more attention to oral and dental care.

Due to the onset of the COVID-19 pandemic during the research process there have been changes in the applications of individuals over the age of 65 or with chronic diseases to the health institution reducing the participation of this age group in the research. Although there are different approaches in adaptation studies evaluation according to the current adaptation guide in all analysis steps and the number of 500 participants constitute the strengths of the study.

Conclusions

It is expected that as the literacy level of oral and dental health increases the accessibility and quality of use of health services increases in the society. Through this research HeLD-14 scale which measures oral and dental health literacy level was adapted to Turkish language. After the analyses the ADSOY-12 scale was evaluated as a valid and reliable measurement tool for adults in the Turkish language. After the analyses the ADSOY-12 scale which is considered to be a valid and reliable measurement tool in Turkish for adults is recommended to be used in community studies. It is thought that using the scale in health institutions and providing information on subjects such as tooth brushing and regular examinations for the protection of oral and dental health especially for those with low scores will be effective.

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Ek: Ağız ve Diş Sağlığı Okuryazarlığı Ölçeği-Kısa Formu (ADSOY-12)

	Lütfen aşağıdaki her maddeyi okuduktan sonra yapabilme durumunuzu zorluk derecesine göre işaretleyiniz.	Evet, Hiç Zorlanmadan	Evet, Bira Zorlanarak	Evet, Zorlanarak	Evet, Çok Zorlanarak	Hayır
1	Ağız ve diş sağlığınız için yapılması gerekenlere zaman ayırabilir misiniz?					
2	Diş hekiminizin size verdiği, yapılacak işlemlere ait bilgilendirme formlarının ilgili yerlerini doldurabilir misiniz?					
3	Diş kliniklerine ve bekleme odalarına bırakılan ağız ve diş sağlığı broşürlerini okuyabilir misiniz?					
4	Diş hekimi randevunuz için ailenizden ya da arkadaşlarınızdan destek alabilir misiniz?					
5	Diş hekimi randevunuz için birinden size eşlik etmesini isteyebilir misiniz?					
6	Diş hekimi muayene ücretini ödeyebilir misiniz?					
7	Ağız ve diş sağlığınız için gerekli tedavi giderlerini karşılayabilir misiniz?					
8	Diş hekimi randevusu almak için hangi işlemlerin yapılacağını öğrenebilir misiniz?					
9	Diş hekimlerinden ağız ve diş sağlığınız ile ilgili alternatif görüşler alabilir misiniz?					
10	Ağız ve diş sağlığınız ile ilgili karar verirken diş hekiminizin verdiği bilgileri kullanabilir misiniz?					
11	Diş hekiminin size verdiği talimatları uygulayabilir misiniz?					
12	Ağız ve diş sağlığınız ile ilgili karar verirken diş hekiminizin tavsiyelerini kullanabilir misiniz?					