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Sevgili okurlarımız,

Dergimizin yayın hayatındaki 2. yılını geride bırakıyoruz. Bu sayımızda 3 makale ile karşınızdayız. İlk makalemiz hemşirelik son sınıf öğrencilerinin mesleklerine ilişkin öz yeterlilik durumlarının stres durumları ile ilişkisini incelemektedir. Çalışma öğrencilerin stres düzeylerini azaltmak ve eksikliklerini tamamlamak için eğitim faaliyetleri yürütülmeli ve yöntemler öğrenmeyi desteklemek için geliştirilmesini önermektedir. Diyabet, diyabet tedavisi gündemde hep önemli bir yerdedir. Sakin ve Sargin makalelerinde metformin ve/veya diğer oral antidiyabetikler ve bazal insülin ile yeterli glisemik kontrolün sağlanamadığı durumlarda tedaviye sitagliptin eklenmesi etkili ve iyi bir seçenek olduğunu bildirdikleri makaleleri bu sayımızda kendine yer buluyor. COVID-19 gündemden düşmüş olsa da daha sonraki olası pandemi durumları açısından deneyim paylaşımlarını önemsemekteyiz. Üçüncü makalemiz Nijerya'da sağlık çalışanlarının COVID-19 farkındalığı ve tutumlarını ele almaktadır.

Yeni sayıda görüşmek dileğiyle...

Keyifli okumalar...

Doç Dr Can Öner

Editör

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## HEMŞİRELİK SON SINIF ÖĞRENCİLERİNİN ALGILANAN STRES DÜZEYLERİ İLE HEMŞİRELİK MESLEĞİ ÖZ YETERLİKLERİ ARASINDAKİ İLİŞKİNİN BELİRLENMESİ

DETERMINING THE RELATIONSHIP BETWEEN PERCEIVED STRESS  
LEVELS AND NURSING PROFESSION SELF-EFFICACY OF FINAL YEAR  
NURSING STUDENTS

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Kezban Koras Sözen

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### ABSTRACT

**Background:** Aimed to determine the relationship between the perceived stress levels of senior nursing students and their self-efficacy for the nursing profession.

**Method:** The population of this descriptive and relationship-seeking study consisted of a total of 124 senior nursing students studying in the nursing department of a university in the 2022-2023 academic year. The research, using the full count sampling method, was completed with the participation of 103 students. Personal Information Form, Perceived Stress Scale for Nursing Students and Nursing Profession Self-Efficacy Scale were used to obtain the data.

**Results:** It was determined that the average scores of the students' perceived stress levels ( $71.66 \pm 24.72$ ) and nursing profession self-efficacy ( $70.91 \pm 12.53$ ) were above the medium level. It was determined that the self-efficacy levels of those who chose the nursing profession with pleasure were higher and this difference was statistically significant ( $p < 0.05$ ).

**Conclusion:** Although students' self-efficacy in the nursing profession is considered sufficient, it should be aimed to increase it further. In order to reduce students' stress levels and complete their deficiencies, educational activities should be carried out and methods should be developed to support learning.

**Keywords:** Perceived stress, Nursing, Self-Efficacy.

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## GİRİŞ:

Stres, bireyin kendisini tehdit eden ya da tehlikeye atan çevresel faktörlere karşı verdiği psikolojik ve biyolojik tepkiler bütünüdür.<sup>1,2</sup> Hemşirelik mesleği diğer işlere kıyasla daha fazla stresli durum içermektedir; bu durumlarda hemşireler hem hastaların hem de yakınlarının stresine maruz kalmaktadır.<sup>2</sup>

Öz-yeterlik, bireyin kendine belirlediği hedeflere ulaşma ve yaşamını etkileyen durumları yönetme becerisidir. Literatürde, stresli olaylar karşısında yeterlik inancı olarak tanımlanan öz-yeterlik, stresle baş etmede düzenleyici bir rol oynamaktadır.<sup>3</sup> Bodys-Cupak ve ark.'larının yaptığı bir çalışmada, öz-yeterlik duygusunun hemşirelik öğrencilerinin stres seviyesi ve zorluklarla mücadele yöntemleri üzerinde anlamlı bir etki yaptığını göstermiştir.<sup>4</sup> Chang ve ark.'larının yaptığı başka bir çalışmada, genel öz yeterliliğin stresle ters orantılı olduğunu bulmuştur.<sup>5</sup> Bu nedenle genel öz yeterlik, algılanan stres ile ilişkisinde göz önünde bulundurulması gereken önemli bir faktördür.<sup>2,6</sup>

Öz yeterlilik, stresin sağlığa zarar vermesini önleyebilen içsel bir koruyucu faktördür.<sup>7</sup> Hemşirelik öğrencileri hemşirelik eğitimine başlamadan ve devam ederken stresle karşılaştıkları literatürde sıkça belirtilmiştir.<sup>7-9</sup>

Hemşirelik öğrencilerinin sağlık sistemlerinin artan karmaşıklığına uyum sağlayabilmeleri için yüksek seviyede yeterlilik ve öz yeterlilik geliştirmeleri ve hemşirelik müfredatlarının bu amaç doğrultusunda hazırlanması gerekmektedir.<sup>10</sup> Yapılan çalışmalar, hemşirelik öz yeterliği ile hemşirelik öğrencilerinin kendilerini yeterli bulma düzeyi arasında anlamlı ve olumlu bir ilişki olduğunu göstermiştir.<sup>10-12</sup>

Sağlık bilimleri eğitiminde müfredat geliştirme çalışmalarının büyük bir kısmı, öğrencilerin kapasite ve yetkinliklerini ölçme ve değerlendirme üzerine yoğunlaşmıştır.<sup>13</sup> Hemşirelik müfredatları ise genellikle öğrencilere yetkinlikleri ve öz-yeterlilikleri konusunda yeterli bilgi vermemektedir. Genel olarak, öz-yeterlilik düzeyi yüksek olan öğrenciler, yeni ve zorlayıcı durumlarda daha başarılı olur ve daha çok azim gösterirler.<sup>10,14</sup>

Örneğin bireyler stresle başa çıkabileceklerine güvenirlerse stres seviyesi ve stresin oluşturduğu olumsuz sonuçlar azalır. Stresli bir iş ortamında, bireyin öz-yeterliliği kişinin kendine güvenini önemli ölçüde etkiler, bu da iş stresi faktörlerini azaltmaya, işe özgü zorluklarla ve görevlerle baş etmeye yardımcı olabilir ve etkilerini hafifletebilir.<sup>3,15</sup>

Stresle başa çıkma becerisi, bireyin stresörler karşısında kendine güven duymasını sağlar. Bu da stres seviyesini ve olumsuz sonuçlarını düşürür. Örneğin, stresli bir iş ortamında, bireyin öz yeterliliği iş stresini azaltmaya, işle ilgili zorlukları ve görevleri daha iyi yönetmeye ve etkilerini hafifletmeye katkıda bulunur.<sup>15,16</sup>

Algılanan stres, eğitimcilerin stres faktörlerini ve bunların öğrencilerin sağlık ve esenlik durumunu nasıl etkilediğini araştırmaya teşvik eden bir konu haline gelmiştir.<sup>16</sup> Araştırmalar, insanların başarılarının büyük kısmının stresli ortamlarda gerçekleştiğini, fakat uzun veya yoğun stresin zihinsel ve bedensel hastalıklara, uyku sorunlarına, huzursuzluğa, sinirliliğe, unutkanlığa, olağandışı yorgunluğa, bireyin direnç gücünün düşmesine ve sık enfeksiyonlara, baş ağrılarına, konsantrasyon eksikliğine, hafıza bozukluğuna ve problem çözme becerisinin azalmasına neden olduğunu ortaya koymuştur.<sup>17-19</sup> Aynı şekilde hemşirelik öğrencilerinde de uzun veya yoğun stres seviyeleri hafızayı, konsantrasyonu, problem çözme becerisini olumsuz etkileyebileceği gibi öğrenmeyi, baş etmeyi, akademik performansı düşürebilecek, depresyona, baş ağrısına, tükenmişliğe ve ciddi sağlık problemlerine sebep olabilecektir.<sup>18,20</sup>

Bu bilgiler ışığında, bu çalışma ile mezun durumundaki hemşirelik öğrencilerinin algılanan stres ve öz yeterlik düzeyleri arasındaki ilişkinin belirlenmesi amaçlanmıştır.

## YÖNTEM

### *Araştırma Tipi ve Örneklem*

Tanımlayıcı ve ilişki arayıcı nitelikte olan bu çalışmanın evrenini 2022-2023 eğitim öğretim yılı bahar döneminde Zübeyde Hanım Sağlık Bilimleri Fakültesinde öğrenim gören toplam 124 hemşirelik son sınıf öğrencisi oluşturmuştur.

Verilerin hızlı uygulanması ve maliyet etkinliği dikkate alınarak tam sayım örnekleme yöntemi kullanılmıştır. Araştırmaya katılmak istemeyen (n =11), devamsız olan(n =5) ve ankette hata yapan (n =5) öğrenciler çalışma dışı bırakıldı. Sonuç olarak hedef kitlenin %83.1'ine (n =103) ulaşıldı.

### **Veri Toplama Araçları**

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Öğrencilerin cinsiyeti, yaşı gibi soruları içeren, araştırmacı tarafından literatür doğrultusunda hazırlanan toplam 7 (yedi) sorudan oluşan bir formdur.

#### *Hemşirelik Öğrencileri İçin Algılanan Stres Ölçeği (HÖASÖ)*

Sheu ve ark.<sup>19</sup> tarafından geliştirilen ölçeğin Türkçe geçerlilik ve güvenilirlik çalışması Karaca ve ark.<sup>21</sup> tarafından yapılmıştır. Ölçek toplam 29 madde ve 6 alt boyuttan oluşmaktadır. Maddelerin değerlendirilmesinde, "0-4" olmak üzere beşli likert tipli değerlendirme kullanılmıştır. Toplam puan; 0-116 arasında değişmektedir. Alınan puanın yüksek, stres derecesinin de yüksek olduğunu ifade eder.<sup>19,21</sup>

#### *Hemşirelik Mesleği Öz Yeterlik Ölçeği (HMÖYÖ)*

Caruso ve arkadaşları<sup>22</sup> tarafından geliştirilen Hemşirelerin mesleki öz yeterliklerini ölçmek amacıyla yapılan ölçek 16 maddeden ve 2 alt boyuttan oluşan 5'li likert tipinde bir ölçektir. ÖlçeğinTürkçe geçerlilik güvenilirliği Vicdan ve Taştekin tarafından yapılmıştır. Soruların tümü olumlu özellikte olup, "kesinlikle katılıyorum 5, katılıyorum 4, karasızım 3, katılmıyorum 2, kesinlikle katılmıyorum 1" şeklinde puanlanmaktadır. Yüksek puan mesleki öz yeterlik seviyesinin de yüksek olduğunu göstermektedir. Ölçekten en düşük 16 puan, en yüksek 80 puan alınabilir.<sup>22,23</sup>

### **Araştırmanın Yöntemi**

Araştırmanın verileri 01.03.2023- 31.06.2023 tarihleri arasında, araştırmacı tarafından hemşirelik bölümünde öğrenim gören 4. sınıf öğrencilere, yüz yüze, anket formu vererek toplanmıştır.

### **Araştırmanın Etik İlkeleri**

Araştırmaya başlamadan önce Niğde Ömer Halisdemir Üniversitesi Etik Kurul'dan etik kurul onayı (Tarih: 27.12.2022, Karar No: 2022/15-24) alındı. Ayrıca Zübeyde Hanım Sağlık Bilimleri Fakültesinden uygulama izni alınmasının ardından çalışmaya başlanmıştır.

Çalışmanın başlangıcında, çalışmanın amacı, içeriği, etik hassasiyetleri ve öngörülen faydaları anlatılarak çalışmaya katılım onayları alınan öğrencilere veri toplama formları uygulanmıştır. Veriler öğrencilerin öz bildirimleri esas alınarak toplanmıştır.

### **Araştırma Verilerinin Değerlendirilmesi**

Araştırmadan elde edilen veriler Statistical Package for Social Sciences (IBM SPSS) 22.0 paket programı kullanılarak analiz edilmiştir. Verilerin normallik dağılımı Kolmogorov Smirnov testi ile değerlendirilmiştir. Öğrencilerin sosyo-demografik özelliklerinin belirlenmesinde yüzde, ortalama, standart sapma kullanılırken; sosyo-demografik özellikleri ve ölçeklerden alınan puanların karşılaştırılmasında ise t testi, tek yönlü ANOVA, çoklu karşılaştırmalarda gruplar arasında ki farklılığın tespit edilmesi için Tukey testi, ölçekler arasındaki ilişkinin belirlenmesinde pearson korelasyon analizlerinden kullanılmıştır. Sonuçların istatistiksel anlamlılığında p<0.05 düzeyi baz alınmıştır.

## **BULGULAR**

Hemşirelik son sınıf öğrencilerinin algılanan stres düzeyi ile hemşirelik mesleği öz yeterlik düzeyi arasındaki ilişkinin belirlenmesi amacıyla yapılan bu araştırmaya katılan öğrencilerin yaş ortalamasının 21.66±0.81 olduğu belirlenmiştir.

Öğrencilerin %80.6'sının kadın ve %62.1'inin başarılı olduğu saptanmıştır. Öğrencilerin %51.5'i hemşirelik mesleğini istihdam olanaklarından dolayı seçtiğini, %43.7'si hemşirelik mesleğini sevdiğini, %69.9' mesleğe yapmaya hazır olduğunu ve %68.9' u bir sağlık kuruluşunda hemşire olarak çalışmak istediğini belirtmiştir (Tablo 1).

Ağırlıklı not ortalamasının (AGNO) HÖASÖ ve HMÖYÖ puan ortalamalarının 3.00 ve üstü not alanlarda daha yüksek olduğu ancak aralarındaki farkın istatistiksel olarak anlamsız olduğu belirlenmiştir ( $p>0.05$ ) (Tablo 1).

Hemşirelik mesleğini seçme nedenleri incelendiğinde ailesinin isteğiyle seçen öğrencilerin HÖASÖ puan ortalamasının daha yüksek olduğu ancak aralarındaki farkın istatistiksel olarak anlamsız olduğu saptanmıştır ( $p>0.05$ ) (Tablo 1). İstihdam olanakları nedeniyle seçen öğrencilerin HMÖYÖ puan ortalamalarının daha yüksek olduğu ancak aralarındaki farkın istatistiksel olarak anlamsız olduğu görülmüştür ( $p>0.05$ ) (Tablo 1).

Hemşirelik mesleğini sevme durumu konusunda kararsız olan öğrencilerin HÖASÖ puan ortalamasının daha yüksek olduğu ancak aralarındaki farkın istatistiksel olarak anlamsız olduğu belirlenmiştir ( $p>0.05$ ) (Tablo 1). Hemşirelik mesleğini seven öğrencilerin HMÖYÖ puan ortalamalarının daha yüksek ve aralarındaki farkın istatistiksel olarak anlamlı olduğu saptanmıştır ( $p<0.05$ ) (Tablo 1).

Kendini mesleğe hazır hissetmeyenlerin HÖASÖ ve HMÖYÖ puan ortalamalarının daha yüksek olduğu ancak aralarındaki farkın istatistiksel olarak anlamsız olduğu tespit edilmiştir ( $p>0.05$ ) (Tablo 1).

Mezun olduktan sonra hemşirelik bölümünde eğitimci olarak çalışmak isteyenlerin HÖASÖ ve HMÖYÖ puan ortalamalarının daha yüksek olduğu ancak aralarındaki farkın istatistiksel olarak anlamsız olduğu görülmüştür ( $p>0.05$ ) (Tablo 1).

Tablo 1. Katılımcıların sosyo-demografik özelliklerinin HÖASÖ ve HMÖYÖ' ye göre karşılaştırılması

	n	%	HÖASÖ Ort±SS	p	HMÖYÖ Ort±SS	P
<b>Cinsiyet</b>						
Kadın	83	80.6	74.61±24.72	0.12	72.42±11.44	0.15
Erkek	20	19.4	59.40±21.16		64.65±15.05	
<b>AGNO</b>						
2.00-2.99 arası	64	62.1	68.42±23.51	0.58	70.59±14.28	0.14
3 ve üstü	39	37.9	76.97±26.04		71.43±9.12	
<b>Hemşirelik mesleğini tercih nedeni</b>						
Kendi isteğim	33	32.0	70.57±28.05	0.13	69.09±15.57	0.09
Ailemin isteği	17	16.5	82.5294±18.11		66.7647±16.9	
İstihdam olanakları	53	51.5	68.84±23.81		73.37±7.56	
<b>Hemşirelik mesleğini sevme durumu</b>						
Seviyorum	45	43.7	73.88±26.39	0.11	71.02±12.0	0.03
Sevmiyorum	10	9.7	69.20±29.43		60.00±18.45	
Başlangıçta seviyordum, şu an sevmiyorum	8	7.8	74.62±9.31		69.87±14.58	
Başlangıçta sevmiyordum, şu an seviyorum	26	25.2	61.92±25.09		72.46±8.24	
Kararsızım	14	13.6	82.64±15.37		76.07±8.53	
<b>Hemşirelik mesleğine hazır hissetme durumu</b>						
Evet	72	69.9	71.19±25.97	0.34	70.79±12.54	0.54
Hayır	31	30.1	72.74±21.92		71.19±12.72	
<b>Mezun olunca çalışmak istediği pozisyon</b>						
Sağlık kuruluşunda hemşirelik	71	68.9	68.52±24.51	0.12	70.46±10.5	0.55
Hemşirelik bölümünde eğitimci	32	31.1	79.36±24.651		71.36±16.62	

Öğrencilerin algıladıkları stres düzeyi ve öz yeterlik düzeyi orta seviyenin üzerinde olarak belirlenmiştir. (Tablo 2).

**Tablo 2. Ölçekler ve alt boyutları toplam puan ortalamaları**

Ölçekler ve alt boyutları	Ort±SS	Min-Max
HÖASÖ	71.66±24.72	0-116
Hastaya bakım verirken yaşanan stres	20.24±7.88	0-32
Mesleki bilgi ve beceri eksikliğinden kaynaklanan stres	7.42±3.20	0-12
Ödevlerden ve iş yükünden kaynaklanan stres	13.33±4.20	0-20
Öğretim Elemanları ve hemşirelerden kaynaklanan stres	14.33±5.76	0-24
Ortamdan kaynaklanan stres	6.72±3.32	0-12
Akranlardan ve günlük yaşamdan kaynaklanan stres	9.16±3.80	0-16
HMÖYÖ	70.91±12.53	16-80
Hasta Bakımın Niteliği	40.35±7.77	16-45
Mesleki Durumlar	30.55±5.74	16-35

Ort: Ortalama, SS: Standart Sapma, Min: Minimum, Max: Maximum

Öğrencilerin HÖASÖ ile HMÖYÖ puan ortalamaları arasında bir korelasyon saptanmamıştır (Tablo 3).

**Tablo 3. HÖASÖ ve HMÖYÖ puan ortalamaları arasındaki ilişki**

		HÖASÖ	HMÖYÖ
HÖASÖ	r	1	-0.004
	p		0.96
HMÖYÖ	r	-0.004	1
	p	0.96	

## TARTIŞMA

Mezun durumundaki hemşirelik öğrencilerinin algılanan stres ve öz yeterlik düzeyleri arasındaki ilişkinin belirlenmesinin amaçlandığı bu çalışma, elde edilen veriler doğrultusunda değerlendirilmiştir.

Öğrencilerin algıladıkları stres düzeyi ve öz yeterlik seviyesi orta seviyenin üzerinde olarak belirlenmiştir. HÖASÖ alt boyut puan ortalamaları orta düzeyde iken; HMÖYÖ alt boyutlarının orta seviyenin üzerinde olduğu saptanmıştır.

Bu çalışmanın bulgularını destekler şekilde Akkuş ve Bostancı Daştan'ın çalışmasında da öz yeterlik düzeyinin orta seviye olduğu tespit edilmiştir. Ancak aynı çalışmada öğrencilerin kaygı düzeylerinin bu çalışmadan farklı olarak yüksek olduğu saptanmıştır.<sup>24</sup> Pozam ve Zaybak'ın çalışmasında ise öğrencilerin öz yeterlik düzeylerinin yüksek seviyede olduğu belirlenmiştir.<sup>25</sup> Çalışmalar arasındaki farklılıkların, çalışmalara katılım sağlayan öğrencilerin sosyodemografik özelliklerinden kaynaklandığı düşünülebilir.

Bu çalışmada, cinsiyet açısından HÖASÖ ve HMÖYÖ toplam puan ortalamalarının kadınlarda daha yüksek olduğu ancak aralarındaki farkın istatistiksel olarak anlamsızdır. Güder ve Çevirme'nin, Yıldırım ve ark.'larının çalışmalarında da kız öğrencilerin erkek öğrencilere göre daha yüksek stres seviyesine sahip oldukları ve bu çalışmadan farklı olarak istatistiksel olarak anlamlı olduğu belirlenmiştir.<sup>26,27</sup> Öz yeterlik düzeyi açısından Bayram'ın, Çitlik Sarıtaş'ın çalışmasında cinsiyet açısından istatistiksel olarak anlamlı fark bulunmaması bu çalışma ile benzer sonuç göstermektedir.<sup>28,29</sup> Bu çalışmanın bulguları göz önüne alınarak, kız ve erkek öğrencilerin algıladıkları stres ve mesleğe yönelik öz yeterlik seviyelerinde benzerlik olduğu söylenebilir.

Ağırlıklı not ortalamasının HÖASÖ ve HMÖYÖ puan ortalamalarının 3.00 ve üstü not alanlarda daha yüksek; ancak aralarındaki fark istatistiksel olarak anlamsızdır. Stres düzeyi açısından Güder ve Çevirme'nin çalışmasındaki bulgular bu çalışma ile uyumludur.<sup>26</sup> Bu çalışmadan farklı olarak Çitlik Sarıtaş'ın çalışmasında başarılı öğrencilerin öz yeterlik düzeylerinin anlamlı düzeyde yüksek olduğu belirlenmiştir.<sup>29</sup>

Hemşirelik mesleğini sevme durumunun HÖASÖ puan ortalaması bakımından anlamsızken, hemşirelik mesleğini seven öğrencilerin HMÖYÖ puan ortalamalarının daha yüksek ve aralarındaki farkın istatistiksel olarak anlamlıdır.

Akkuş ve Bostancı Daştan'ın çalışmasında mesleğini sevenlerin stres düzeyi düşük bulunurken, öz yeterlik düzeyi yüksek olarak belirlenmiştir.<sup>24</sup> Öğrencilerin severek seçim yaptıkları mesleklerin öz yeterliliği etkilediği ifade edilebilir.

Öğrencilerin hemşirelik mesleğini seçme nedenlerinin, kendini mesleğe hazır hissetme durumlarının, mezun olduktan hemşire veya eğitimci olarak çalışmak isteyenlerin HÖASÖ ve HMÖYÖ puan ortalamalarının aralarındaki farkın istatistiksel olarak anlamsızdır. Benzer şekilde Çıtak Sarıtaş'ın çalışmasında mesleği seçme durumunun öz yeterlik düzeyi arasında anlamlı fark bulunmamıştır.<sup>29</sup> Bu çalışmadan farklı olarak Albayrak Okçin'in çalışmasında mesleği isteyerek seçenlerin öz yeterliliklerinin anlamlı düzeyde yüksek olduğu saptanmıştır.<sup>30</sup>

Bu çalışmada algılanan stres ve öz yeterlik düzeyi arasında bir korelasyon saptanmamıştır. Bu çalışmadan farklı olarak Akkuş ve Bostancı Daştan'ın, Rice'in çalışmalarında stres ve öz yeterlik arasında negatif yönlü anlamlı bir ilişki bulunmuştur.<sup>24,31</sup> Bu çalışmadaki bu sonucun öğrencilerin sosyodemografik ve kişisel özelliklerinden, eğitim aldıkları kurum ve uygulama için kullandıkları hastaneye ilişkisi olabileceği düşünülmüştür.

## SONUÇ VE ÖNERİLER

Öğrencilerin stres seviyeleri ve hemşirelik mesleği öz yeterlikleri ortalamasının üzerinde çıkmıştır. Hemşirelik mesleğine ilgi duyanların öz yeterlikleri daha yüksektir. Öğrencilerin hemşirelik mesleği öz yeterlikleri yeterli görülse de daha da artırılması hedeflenmelidir. Öğrencilerin stres seviyelerini düşürmek ve eksikliklerini tamamlamak için eğitim faaliyetleri yapılmalı ve öğrenmeyi destekleyecek yöntemler geliştirilmelidir.

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## KAYNAKLAR

1. Garcia-Rodriguez A, Gutierrez-Bedmar M, Bellon-Saameno JA, Munoz-Bravo C, Fernandez-Crehuet Navajas J. [Psychosocial stress environment and health workers in public health: Differences between primary and hospital care]. *Aten Primaria*. Jun-Jul 2015;47(6):359-366.
2. Molero Jurado MDM, Perez-Fuentes MDC, Oropesa Ruiz NF, Simon Marquez MDM, Gazquez Linares JJ. Self-Efficacy and Emotional Intelligence as Predictors of Perceived Stress in Nursing Professionals. *Medicina (Kaunas)*. Jun 1 2019;55(6).
3. Shoji K, Cieslak R, Smoktunowicz E, Rogala A, Benight CC, Luszczynska A. Associations between job burnout and self-efficacy: a meta-analysis. *Anxiety Stress Coping*. Jul 2016;29(4):367-386.
4. Bodys-Cupak I, Majda A, Zalewska-Puchala J, Kaminska A. The impact of a sense of self-efficacy on the level of stress and the ways of coping with difficult situations in Polish nursing students. *Nurse Educ Today*. Oct 2016;45:102-107.
5. Chang LC, Yu, P., Chang, S.Y. Longitudinal relationships between two self-efficacy types and stress in active older adults in Taichung City, Taiwan. *International Journal of Mental Health Promotion* 2016;18(2):95-105.
6. Şahin F, Çetin F. . The mediating role of general self-efficacy in the relationship between the big five personality traits and perceived stress: a weekly assessment study. *Psychol Stud*. 2017;62(1):35-46.
7. He FX, Turnbull B, Kirshbaum MN, Phillips B, Klainin-Yobas P. Assessing stress, protective factors and psychological well-being among undergraduate nursing students. *Nurse Educ Today*. Sep 2018;68:4-12.
8. Berdida DJE, Lopez V, Grande RAN. Nursing students' perceived stress, social support, self-efficacy, resilience, mindfulness and psychological well-being: A structural equation model. *Int J Ment Health Nurs*. Oct 2023;32(5):1390-1404.
9. Klainin-Yobas P, Ramirez, D., Fernandez, Z., Sarmiento, J., Thanoi, W., Ignacio, J., Lau, Y. Examining the predicting effect of mindfulness on psychological well-being among undergraduate students: a structural equation modelling approach. *Personality and Individual Differences*. 2016;91:63-68.



10. Orkaizagirre-Gomara A, Sanchez De Miguel M, Ortiz de Elguea J, Ortiz de Elguea A. Testing general self-efficacy, perceived competence, resilience, and stress among nursing students: An integrator evaluation. *Nurs Health Sci.* Sep 2020;22(3):529-538.
11. Bandura A. Social cognitive theory: an agentic perspective. *Annu Rev Psychol.* 2001;52:1-26.
12. Imus FS, Burns S, Weglarz DM. Self-Efficacy and Graduate Education in a Nurse Anesthesia Program: A Pilot Study. *AANA J.* Jun 2017;85(3):205-216.
13. Stephens TM. Nursing student resilience: a concept clarification. *Nurs Forum.* Apr-Jun 2013;48(2):125-133.
14. Arabzadeh M, Shafynadery, M., Salami, M. N., Bayanati, M. The effects of teaching self-efficacy on student's cognitive engagement. *International Journal of Education and Psychology in the Community* 2013;3(1):64-73.
15. Liu Y, Aunguroch Y. Work stress, perceived social support, self-efficacy and burnout among Chinese registered nurses. *J Nurs Manag.* Oct 2019;27(7):1445-1453.
16. Zhao FF, Lei XL, He W, Gu YH, Li DW. The study of perceived stress, coping strategy and self-efficacy of Chinese undergraduate nursing students in clinical practice. *Int J Nurs Pract.* Aug 2015;21(4):401-409.
17. Shaban IA, Khater WA, Akhu-Zaheya LM. Undergraduate nursing students' stress sources and coping behaviours during their initial period of clinical training: a Jordanian perspective. *Nurse Educ Pract.* Jul 2012;12(4):204-209.
18. Braga PC, Souza LA, Evangelista RA, Pereira LV. [The occurrence of headaches and their effect upon nursing undergraduate students]. *Rev Esc Enferm USP.* Feb 2012;46(1):138-144.
19. Sheu S, Lin HS, Hwang SL. Perceived stress and physio-psycho-social status of nursing students during their initial period of clinical practice: the effect of coping behaviors. *Int J Nurs Stud.* Feb 2002;39(2):165-175.
20. Goff AM. Stressors, academic performance, and learned resourcefulness in baccalaureate nursing students. *Int J Nurs Educ Scholarsh.* 2011;8:Article 1.
21. Karaca A, Yıldırım, N., Ankaralı, H., Açıkgöz, F. ve Akkuş, D. Turkish Adaptation of Perceived Stress Scale, Bio-psycho-social Response, and Coping Behaviours of Stress Scales for Nursing Students. *Journal of Psychiatric Nursing* 2015;6(1):15-25. 2015;6(1):15-25.
22. Caruso R, Pittella F, Zaghini F, Fida R, Sili A. Development and validation of the Nursing Profession Self-Efficacy Scale. *Int Nurs Rev.* Sep 2016;63(3):455-464.
23. Kacaroglu Vicdan A, Taştekin, A. A study of adapting the nursing profession self-efficacy scale to turkish. *ACU Sağlık Bil Derg.* 2019;10(3):504-510.
24. Akkuş Y, Bostancı Daştan, N. COVID-19 Pandemi Süreci Uzaktan Eğitim Döneminde Hemşirelik Öğrencilerinde Anksiyete ve Klinik Performans Öz-Yeterlilik Algısı İlişkisi. *Sağlık Bil Değer.* 2024;14(1):106-114.
25. Pozam M, Zaybak, A. Hemşirelik öğrencilerinin klinik performanslarına ilişkin öz-yeterliliklerinin incelenmesi. *Dokuz Eylül Üniversitesi Hemşirelik Fakültesi Elektronik Dergisi.* 2022;15(1):22-29.
26. Güder S ÇA. Hemşirelik öğrencilerinde öz yeterlik düzeyinin eğitim stresi üzerine etkisi. *HEAD.* 2019;16(4):306-312.
27. Yıldırım N KA, Ankaralı H, Açıkgöz F, Akkuş D. Hemşirelik öğrencilerinin yaşadıkları stres ve ilişkili faktörler. *Clinical and Experimental Health Sciences.* 2016;6(3):121-128.
28. Bayram ŞB. Determining the Relationship Between Nursing Students' Perception of Self-Efficacy and Their Status of Performing Invasive Nursing Interventions and Views About Clinical Practice: Descriptive Research. *Türkiye Klinikleri Hemşirelik Bilimleri Dergisi.* 2022;14(94-105).
29. Çıtlık Sarıtaş S B, Z, Anuş Topdemir E. Hemşirelik öğrencilerinin öz-etkililik-yeterlik düzeyleri ile akademik başarıları arasındaki ilişkinin incelenmesi. *İnönü Üniversitesi Sağlık Hizmetleri Meslek Yüksekokulu Dergisi.* 2020;8(3):839-849.
30. Albayrak Okçin F. Öğrencilerin öz-etkililik-yeterlilik algıları ve sosyal destek düzeylerinin incelenmesi. *Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi.* 2013;2(1):40-51.
31. Rice E. Predictors of Successful Clinical Performance in Associate Degree Nursing Students. *Nurse Educ.* Jul-Aug 2015;40(4):207-211.

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## BAZAL İNSÜLİN TEDAVİSİNE SİTAGLİPTİN EKLENMESİNİN ETKİNLİK VE GÜVENLİLİĞİ

### EFFICACY AND SAFETY OF ADDING SİTAGLİPTİN TO BASAL INSULIN THERAPY

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#### ABSTRACT

**Background:** Some of the options where blood glucose regulation cannot be achieved with basal insulin - oral antidiabetic pheasant is the addition of sitagliptin, a dipeptidyl peptidase 4 (DPP-4) inhibitor, to the treatment. This is what writes on glycemic control and body writing and prompting for the addition of sitagliptin to basal insulin therapy with metformin and / or other oral antidiabetics.

**Methods:** The study included 52 patients who had been on sitagliptin and sitagliptin for at least 3 months on basal insulin therapy with metformin and / or other oral antidiabetic agents. Anthropometric and clinical features such as age, gender, BMI and FBC, HbA1c and other metabolic parameters were examined.

**Results:** The average age of 43 patients, 29 (67.5%) female and 14 (32.5%) males, was 54.3 and their body mass index was 34.8 kg / m<sup>2</sup> at the beginning of the treatment. It was determined that the mean HbA1c levels, which were 9.1 ± 1.5% at the beginning, decreased to 8.2 ± 1.7% by decreasing 0.89% in the 3rd month after sitagliptin was added to the treatment (p < 0.05). It was observed that the fasting blood glucose, which was 203.9 ± 76.2 at the beginning, decreased by 34.2 ± 74.9 mg / dl in the 3rd month with the addition of sitagliptin to the treatment (p < 0.05). There was no significant change in patients' body weight; no serious adverse effects or severe hypoglycemia attack was detected.

**Conclusion:** The addition of sitagliptin to the treatment where adequate glycemic control cannot be achieved with metformin and / or other oral antidiabetic and basal insulin is an effective and good option.

**Keywords:** Diabetes, treatment, sitagliptin, basal insulin therapy

## GİRİŞ:

Diyabete bağlı komplikasyonların engellenmesinde kan şekerinin etkin bir şekilde kontrolü en önemli tedavi hedefidir.<sup>1,2</sup> Oral antidiyabetiklerle birlikte insülin kullanımı etkili bir tedavi şekli olmakla birlikte, zaman içinde önerilen HbA1c tedavi hedeflerini ulaşmakta yetersiz kalmaktadır.<sup>3-6</sup> Ek glisemik yarar insülin dozunun titre edilerek atırılması ile sağlanabilir ancak eşzamanlı olarak kilo alımı ve hipoglisemi riskinde artış görülmektedir.<sup>7,8</sup> İnsülin tedavisi ile yeterli glisemik kontrol sağlanamayan hastalarda insülin dozu artımına alternatif olarak tedaviye oral ajan eklenmesi düşünülebilir. Sitagliptin tip 2 diyabet tedavisinde oral yolla kullanılan bir dipeptidil peptidaz 4 (DPP-4) inhibitörüdür.<sup>9,10</sup> Sitagliptin tarafından DPP-4'ün selektif ve güçlü bir şekilde inhibisyonu glukagon benzeri peptid-1 (GLP-1) ve glukoz bağımlı insülinotropik polipeptid (GIP) seviyesinde iki ve üç kat artışa yol açar.<sup>9,10</sup> DPP-4 baskılanmasıyla inkretin hormonlarının seviyesi ve etkisindeki artış glukoz bağımlı insülin yanıtında artışa ve glukagon seviyesinde azalmaya yol açar. Sitagliptin tip 2 diyabet tedavisinde etkinliği ve güvenilirliği geniş çaplı birçok klinik ve gerçek yaşam çalışmasında ortaya konulmuştur.<sup>9-11</sup> Bu çalışmada metforminle ve/veya diğer oral antidiyabetik ile birlikte bazal insülin tedavisine sitagliptin eklenmesinin glisemik kontrol ve hastaların vücut ağırlığına etkisini değerlendirmeyi amaçladık.

## YÖNTEM

Metforminle ve/veya diğer oral antidiyabetik ile birlikte bazal insülin tedavisine sitagliptin eklenmesinin glisemik kontrol ve hastaların vücut ağırlığına etkisini değerlendirildiği bu retrospektif çalışmada, Dr. Lütfi Kırdar Kartal Eğitim ve Araştırma Hastanesi İç Hastalıkları Kliniği Endokrinoloji ve Metabolizma Poliklinikleri Diyabet Ünitesi tarafından takip edilen hastaların dosyalarının incelenmesi ile elde edilen veriler kullanıldı.

Çalışmaya metforminle ve/veya diğer oral antidiyabetik ile birlikte bazal insülin tedavisine sitagliptin eklenen ve en az 3 aydır sitagliptin tedavisine devam eden 52 hasta dahil edildi. Olgularda yaş, cinsiyet, BKİ gibi antropometrik ve klinik özellikler ve AKŞ, HbA1c ve diğer metabolik parametreler incelendi.

Hastaların takipleri boyunca trigliserid düzeyi trigliserid GPO-PAP reaktifi kullanılarak enzimatik kalorimetrik yöntemle, total kolesterol düzeyi kolesterol CHOD-PAP reaktifi kullanılarak enzimatik kalorimetrik yöntemle belirlendi. VLDL ve LDL-kolesterol düzeyi, Friedewald denklemi kullanılarak indirekt hesaplandı. Glukoz, üre, AST ve ALT düzeyleri kinetik enzimatik kalorimetrik yöntemle, kreatinin düzeyi Jaffe reaksiyonunun kullanıldığı kinetik kalorimetrik yöntemle belirlendi. HbA1c, boronat afiniteli HPLC (High-performance liquid chromatography) yöntemiyle ölçüldü.

İstatistiksel analizler için SPSS for Windows 17.0 paket program kullanıldı. Parametrik verilerin analizi için Independent Samples T test ve Paired Samples T test kullanıldı ve p değerinin <0.05 olması istatistiksel olarak anlamlı kabul edildi. Tüm sonuçlar ortalama  $\pm$  SS olarak verildi.

## BULGULAR

Tarama sonucunda metforminle ve/veya diğer oral antidiyabetik ile birlikte bazal insülin tedavisine sitagliptin eklenen ve en az 3 aydır sitagliptin tedavisine devam eden 52 hasta tespit edildi. Sitagliptin başlandıktan sonra 9 hastanın tedavi rejiminde değişiklik yapıldığı belirlendi: Dört hastanın kullandığı bazal insülinin bırakıldığı veya dozunun azaltıldığı;



**Tablo 1:** Hastaların sitagliptin tedavisinin başlangıcında ve 3. ayında antropometrik ve klinik özellikleri

	Tedavinin Başlangıcında n=43	Tedavinin 3. ayında n=43	p
<b>Cinsiyet</b>			
Kadın n(%)	29(%67,5)		
Erkek n(%)	14(%32,5)		
<b>Yaş (yıl)</b>	54,3 ± 9,7		
<b>Boy (cm)</b>	162,9 ± 7,9		
<b>HbA1C (%)</b>	9,1 ± 1,5	8,2 ± 1,7	<0,05
<b>AKŞ (mg/dl)</b>	203,9 ± 76,2	169,7 ± 56,6	<0,05
<b>Kilo (kg)</b>	92,1 ± 17,2	91,9 ± 19,0	A.D.
<b>BKİ (kg/m2)</b>	34,8 ± 7,4	34,7 ± 8,0	A.D.
<b>Üre (mg/dl)</b>	30,6 ± 7,9	30,3 ± 8,7	A.D.
<b>Kreatinin (mg/dl)</b>	0,76 ± 0,26	0,75 ± 0,28	A.D.
<b>Kolesterol (mg/dl)</b>	194,8 ± 44,4	187,9 ± 46,3	A.D.
<b>Trigliserit (mg/dl)</b>	165,1 ± 54,7	153,7 ± 76,7	A.D.
<b>LDL (mg/dl)</b>	113,4 ± 39,3	106,7 ± 31,7	A.D.
<b>HDL (mg/dl)</b>	44,7 ± 9,7	45,9 ± 14,6	A.D.
<b>AST (iu/l)</b>	25,1 ± 14,7	21,9 ± 7,2	A.D.
<b>ALT (iu/l)</b>	26,8 ± 12,4	21,5 ± 7,1	A.D.

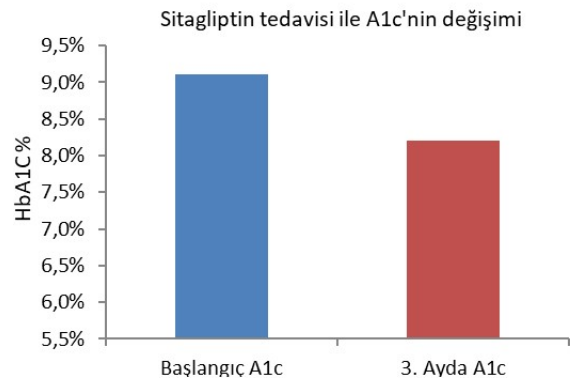
beş hastanın ise OAD dozunun artırıldığı veya tedavisine yeni bir OAD eklendiği belirlendi. Bu müdahalenin etkinlik karşılaştırmaları üzerindeki karışıklık yaratıcı etkisinin önüne geçilmesi amacıyla, tedavi değişikliği yapılan hastaların verileri değerlendirilme dışında bırakılmıştır.

Çalışmaya alınan 43 hastanın 29'u (%67,5) kadın 14'ü (%32,5) erkekti. Hastaların ortalama yaşı 54,3, tedavinin başında vücut ağırlıkları 92,1 kg, beden kitle endekleri 34,8 kg/m<sup>2</sup> idi. Hastaların sitagliptin tedavisinin başlangıcında ve 3. ayında antropometrik ve klinik özellikleri tablo 1'de gösterilmiştir.

Tedaviye sitagliptin eklenmesinin ardından hastaların HbA1c, AKŞ değerleri ve vücut ağırlıklarındaki değişimler Paired-Samples T test yöntemi ile incelendi.

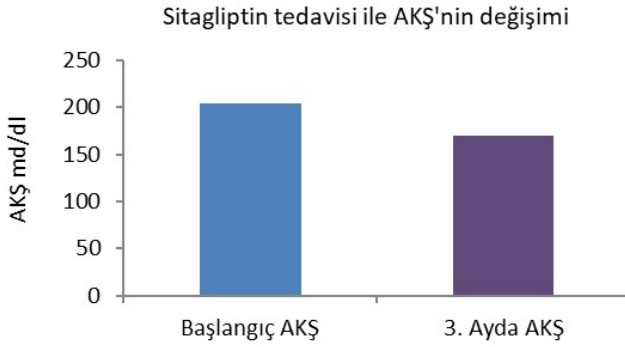
Tedaviye sitagliptin eklenmeden önce hastaların ortalama HbA1c seviyeleri %9,1±1,5 olarak saptandı. Sitagliptin eklendikten sonra 3. Ayda HbA1C değerlerinin %0,89 azalarak %8,2±1,7 seviyesine düştüğü belirlendi (p<0.05) (Şekil 1).

**Şekil 1:** Tedavi Süresince HbA1c'de Değişim



Hastalar AKŞ seviyesindeki değişim açısından incelendiğinde başlangıçta 203,9±76,2 olan AKŞ'nin 3. ayda 169,7±56,6 seviyesine gerilediği görüldü. Tedaviye sitagliptin eklenmesi ile AKŞ'de 34,2±74,9 mg/dl'lik düşüş elde edildi (p<0.05) (Şekil 2).

Hastalar vücut ağırlığı açısından değerlendirildiğinde başlangıçta 92,1±17,2 kg olan ortalama vücut ağırlığının tedaviye sitagliptin eklenmesinin 3. ayında 91,9±19,0 kg olduğu görüldü. İnsülin tedavisine sitagliptin eklenmesi hastaların vücut ağırlığında anlamlı bir değişikliğe sebep olmadı.



Şekil 2: Tedavi Süresince AKŞ'de Değişim

## TARTIŞMA

Bu çalışma ile metforminle ve/veya diğer oral antidiyabetik ile birlikte bazal insülin tedavisine sitagliptin eklenmesinin ciddi hipoglisemi veya kilo alımına sebep olmadan glisemik kontrol sağlanmasında etkili olduğunu saptadık. Başlangıç düzeyi ile karşılaştırıldığında HbA1c seviyesi sitagliptin tedavisinin 3. ayında ortalama % 0,89 daha düşük olarak saptandı (p<0.05). Açlık kan şekerinde ise ortalama olarak 34,2 mg/dl düşüş görüldü. Hastaların vücut ağırlığında anlamlı bir değişiklik görülmedi. Hasta dosyalarında yan etkiye bağlı sitagliptin tedavisini bırakma ve ciddi hipoglisemi şikayeti tespit edilmedi. Sonuçlarımız daha önce yapılan benzer çalışmalar ile uyumlu bulunmuştur.

Vilsboll ve arkadaşlarının 24 haftalık çalışmasında bazal insülin, orta etkili insülin veya premix insülin tedavisine sitagliptin eklenmesi placebo ile karşılaştırılmış ve sitagliptin kolunda HbA1c'de % 0,6, AKŞ'nde 15 mg/dl düşme görülmüştür. Yine benzer bir çalışmada farklı insülin tedavi rejimlerine sitagliptin eklenmesi karşılaştırılmış; HbA1c'de en fazla düşüşün bazal insüline sitagliptin eklenen grupta (%0,83), en az düşüşün ise intensif insüline eklenen grupta (%0,28) olduğu görülmüştür. Glisemik kontrol için intensif bir şekilde insülin glargin doz titrasyonu yapılan kötü kontrollü diyabetlilerde tedaviye sitagliptin eklenmesinin placeboya göre anlamlı olarak daha az - 4,7 ün - insülin doz artışı ile daha düşük HbA1c seviyesi - %0,4 daha düşük - ulaştıkları gösterilmiştir.

Sonuç olarak metforminle ve/veya diğer oral antidiyabetik ile birlikte bazal insülin tedavisine sitagliptin eklenmesi etkin ve iyi tolere edilen bir seçenektir.

Çalışmamızın Kısıtlılıkları: Çalışmamızın en önemli kısıtlılığı retrospektif olmasıdır. Ayrıca hasta sayısının az olması, takip süresinin de uzun olmaması çalışmanın değerini sınırlamaktadır.

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## KAYNAKLAR

1. Hemmingsen B, Lund SS, Gluud C, et al. Targeting intensive glycaemic control versus targeting conventional glycaemic control for type 2 diabetes mellitus. Cochrane Database Syst Rev 2011; :CD008143.
2. Selvin E, Marinopoulos S, Berkenblit G, et al. Meta-analysis: glycosylated hemoglobin and cardiovascular disease in diabetes mellitus. Ann Intern Med 2004; 141:421

3. Hermansen K, Davies M, Derezinski T, Martinez RG, Clauson P, Home P. A 26-week, randomized, parallel, treat-to-target trial comparing insulin detemir with NPH insulin as add-on therapy to oral glucose-lowering drugs in insulin-naïve people with type 2 diabetes. *Diabetes Care* 2006;29:1269–1274

4. Yki-Jarvinen H, Kauppinen-Makelin R, Tiikkainen M et al. Insulin glargine or NPH combined with metformin in type 2 diabetes: the LANMET study. *Diabetologia* 2006; 49: 442–451.

5. Davies M, Storms F, Shutler S, Bianchi-Biscay M, Gomis R. Improvement of glycemic control in subjects with poorly controlled type 2 diabetes: comparison of two treatment algorithms using insulin glargine. *Diabetes Care* 2005; 28: 1282–1288

6. Kennedy L, Herman WH, Strange P, Harris A. Impact of active versus usual algorithmic titration of basal insulin and point-of-care versus laboratory measurement of HbA1c on glycemic control in patients with type 2 diabetes: the Glycemic Optimization with Algorithms and Labs at Point of Care (GOAL A1C) trial. *Diabetes Care* 2006; 29: 1–8.

7. Guler S, Vaz JA, Ligthelm R. Intensification lessons with modern premixes: from clinical trial to clinical practice. *Diabetes Res Clin Pract* 2008; 81(Suppl.1): S23–S30.

8. Korytkowski M. When oral agents fail: practical barriers to starting insulin. *Int J Obes Relat Metab Disord* 2002; 26(Suppl. 3): S18–S24.

9. Dhillon S. Sitagliptin: a review of its use in the management of type 2 diabetes mellitus. *Drugs*. 2010;70(4):489–512.

10. Plosker GL. Sitagliptin: a review of its use in patients with type 2 diabetes mellitus. *Drugs*. 2014;74(2):223–42.

11. Lyseng-Williamson KA. Sitagliptin. *Drugs*. 2007;67(4):587–97.

12. Vilsbøll T, Rosenstock J, Yki-Jarvinen H, et al. Efficacy and safety of sitagliptin when added to insulin therapy in patients with type 2 diabetes. *Diabetes Obes Metab*. 2010;12(2):167–77.

13. Mathieu C, Shankar RR, Lorber D, et al. A randomized clinical trial to evaluate the efficacy and safety of co-administration of sitagliptin with intensively titrated insulin glargine. *Diabetes Ther*. 2015;6(2):127–42.

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













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## AWARENESS LEVEL AND ATTITUDINAL RESPONSE OF HEALTH WORKERS TO COVID-19 PANDEMIC

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### ABSTRACT

**Background:** Novel coronavirus (SARS-Cov2) and its resultant pandemic (COVID-19) seem increasingly ravaging on around the world.

**Methods:** This survey was carried out to assess the level of awareness and attitudinal response among health workers in Enugu metropolis of Nigeria as regards the Covid-19 pandemic. A simple two-part questionnaire was administered to health workers across an array of healthcare facilities (majorly hospitals and medical laboratories) within Enugu metropolis in Enugu state. The responses were processed and analyzed with the aid of Social Package for Social Sciences (SPSS).

**Results:** A total number of 235 respondents were covered with 77 being male respondents and 150 being female respondents, while the remaining 8 respondents did not indicate their sex. For the first part of the questionnaire (the awareness/knowledge related aspect), the statistical analysis revealed that a higher percentage of the respondents responded correctly and affirmatively. Also for the second part of the questionnaire (the attitudinal aspect), the percentage of the respondents that responded correctly and affirmatively was higher.

**Conclusion:** The findings from this study revealed a sufficiently high level of awareness and positive attitude among health workers in Enugu as regards the novel coronavirus (SARS-Cov2) and the Covid-19 Pandemic.

**Keywords:** SARS-Cov2, Covid-19, Knowledge, Attitude, Awareness

## INTRODUCTION

A novel outbreak of coronavirus that was named COVID-19 by the World Health Organization (WHO) which causing respiratory disorder. It began in December 2019 near Wuhan City, Hubei Province, China.<sup>1</sup> The COVID-19 had been the sixth WHO public health emergency of international concern (PHEIC) in a decennary, after H1N1 (2009), Polio (2014), Ebola in West Africa countries (2014), Zika virus (2016), and Ebola in Democratic Republic of Congo (2019).<sup>2</sup>

This contagious virus is a pathogenic virus and the intermediate host(s) of the virus so far have not been discovered but evolutionary development of this disease was actioned with procurable as genome sequences of bats happen to be the COVID-19 virus infectious agent.<sup>3,4</sup>

Coronaviruses mostly cause gastrointestinal and respiratory tract infections and are inherently categorized into four major types: Gammacoronavirus, Deltacoronavirus, Betacoronavirus, and Alphacoronavirus. Gammacoronavirus and deltacoronavirus mainly infect birds, while Betacoronavirus and Alphacoronavirus mostly infect mammals. There are six types of human CoVs these comprise of HCoVHKU1, HCoV-OC43, Middle East Respiratory Syndrome coronavirus (MERS-CoV), Severe Acute Respiratory Syndrome coronavirus (SARS-CoV) which is the type of the Betacoronavirus, HCoV229E and HCoV-NL63, which are the member of the Alphacoronavirus.<sup>5-7</sup>

Coronaviruses did not draw global concern until the 2003 SARS pandemic, preceded by the 2012 MERS and most recently by the COVID-19 outbreaks. SARS-CoV and MERS-CoV are known to be extremely pathogenic and spread from bats to palm civets or dromedary camels and eventually to humans.<sup>8-10</sup> SARS-CoV-2 was particularly infectious above the 2-4 days before the beginning of symptoms, which made reactive control measures useless (similar to HIV), as individuals who are only infective of the contagious disease when evidently sick are much easier to quarantine (e.g., SARS-CoV-1 or smallpox are most transmitted when symptomatic).<sup>11</sup>

COVID-19 is circulating by particles of dust and fomites when close in contact with individuals are usually unsafe and regarded as infectors. Airborne distribution has not been recorded for COVID-19 and is not known to be a significant transmission engine based on empirical evidence.<sup>12,13</sup> Possible symptoms of COVID-19 are Cough, shortness of breath or difficulty breathing, Muscle or body aches, fever or chills, vomiting or diarrhea, and new loss of taste or smell.<sup>14</sup> This indeterminable rapid contagious infectious disease has induced global awareness, anxiety, distress and has posed a lot of job insecurity.<sup>15</sup>

## METHODS

### 2.1. Study population

To evaluate the level of awareness and the attitudinal response of health workers to the covid-19 pandemic in Nigeria. A simple two-sectioned questionnaire was administered to healthcare workers between August- October 2020. The participants were sampled from both private and public hospitals that comprise a total of 20 hospitals and 10 laboratory clinics within Enugu metropolis of Enugu state of Nigeria.

### 2.2 Study design

A cross-sectional survey was shared with health workers by visiting each of the hospitals and laboratory clinics, with distribution and filling, and collection at a spot. The research instruments were built up and validated by Emerging and Re-emerging Advances in Sciences researchers comprising of microbiologists, chemists, biochemists, dental technologists, dental therapists, nutritionists, and public health practitioners. Section A of the questionnaire included basic demographics characteristics of the respondents; gender, age, marital status, profession, educational level.

Section B enclosed knowledge-related questions with yes/no and I don't know. Section C included attitude-related questions with 5-Likert scale options ranging from strongly agree (SA), agree (A), disagree (D), strongly disagree (SD), and undecided (U).

### 2.3. Study instruments and data collection

In this survey, the level of awareness and the attitudinal response of health workers to covid-19 was assessed using frequency and simple percentage to evaluate the response from the respondents. This instrument was developed based on the knowledge and attitude of healthcare workers toward the contagious COVID-19 pandemic.

This instrument employs simple yes/ no and I don't know Yes had a score ranging of 1 and 11 points while no or undecided answers were given a score of zero which was used to assess knowledge-based questions and a Likert-type scale of 1–5; "1 = SA," "2 = A," "3 = UD," and "4 = D and "5 = SD was awarded the score value of 0 that was employed on attitudinal questions of healthcare workers.

### 2.4. Data analysis

The responses from the questionnaire were processed through the Statistical Package for Social Sciences (SPSS) version 21 software was employed in the data analysis. The statistical instrument was adopted to give frequency, simple percentage, and data were represented as mean ± standard deviation. Pearson's Product Moment Correlation was employed to establish the significant association between the level of awareness on knowledge and attitude of healthcare workers towards COVID-19.

Pearson's Product Moment Correlation was used to find if there exists a relationship between knowledge and attitude towards COVID-19.

## RESULTS

The tables below capture the information and statistics obtained from the administered questionnaire of this study. For demographic characteristics of the health workers.

Table 1 provided a total of 235 responses were obtained. Among the 235 participants, 63.8% were females, majorities (40.9%) were in the age group of 21-30years, 57.4% were married and almost one-fourth was MLS

**Table 1:** Demographic characteristics of the Respondents

	n (%)
<b>Age</b>	
1-10	1 (0.4)
11-20	13 (5.5)
21-30	96 (40.9)
31-40	76 (32.3)
41-50	31 (13.2)
51-60	15 (6.4)
≥60	3 (1.3)
<b>Gender</b>	
Male	77 (32.8)
Female	150 (63.8)
Missing	8 (3.4)
<b>Marital status</b>	
Single	90 (38.3)
Married	135 ( 57.4)
Divorced	3 (1.3)
Missing	7 (3.0)
<b>Profession</b>	
Pharmacist	30 (12.8)
Nurse	65 (27.7)
MLS	70 (29.8)
Nutritionist	9 (3.8)
Medical doctor	24(10.8)
Physiotherapist	7 (3.0)
Radiologist	3 (1.3)
Others	27 (11.4)

For awareness on the knowledge-related questions, Table 2 shows that 97% of the sample reported Covid-19 patients to develop severe acute respiratory symptoms and Coughing, high fever and fatigue are the hallmarks, while 96% believed that onset of the virus is within 1-14 days of the contagious disease. 81.7% of the respondents reported mode of transmission is mainly by close-in contacts with infected



individuals. 63% reported animals such as bat is the primary source of covid-19. Around 95.3% of the participants believed habitual washing of hands can serve as a preventive tool of reducing the proliferation of covid-19. Nearly all respondents (77%) desired COVID-19 is not available in the pharmaceutical market. 80.4% accorded that polymerase chain reaction is most frequently used with respect to diagnostic of COVID-19. Almost all respondents (97.4%) exceptional caution must be adopted when individuals from ASIA continent with the symptoms of COVID-19. 56.6% of the respondents reported that the first line of empiric treatment of COVID -19 is antimicrobial and almost all the respondents (97.4) described the virus as deadly.

Table 2: Respondents' Responses to Knowledge-related Questions

	Yes n (%)	No n (%)	U/D n (%)
<b>Covid-19 patients develop severe acute respiratory symptoms</b>	228 (97.0)	3 (1.3)	4 (1.7)
<b>Coughing, high fever and fatigue are the hallmark of the infection symptoms</b>	228 (97.0)	5 (2.1)	2 (0.9)
<b>Incubation period for covid-19 virus is 1-14 days</b>	227 (96.6)	7 (3.0)	1 (0.4)
<b>Mode of transmission is by close contacts with infected person</b>	192 (81.7)	8 (3.4)	35 (14.9)
<b>Animal is the main source of covid-19</b>	148 (63.0)	79 (33.6)	8 (3.4)
<b>Frequent washing of hand can prevent transmission of covid-19</b>	224 (95.3)	9 (3.8)	2 (0.9)
<b>Covid-19 vaccine is available in the market</b>	50 (21.3)	181 (77.0)	4 (1.7)
<b>Polymerase chain reaction can be used to diagnosed</b>	189 (80.4)	34 (14.5)	12 (5.1)
<b>Special caution must be taken when persons from asia regio with the symptoms of covid-19</b>	229 (97.4)	2 (0.9)	4 (1.7)
<b>Empiric antimicrobial is the first line of treatment for covid-19</b>	133 (56.6)	48 (20.2)	54 (23.0)
<b>Covid-19 can be fatal</b>	229 (97.4)	6 (2.6)	0 (0.0)

For attitudinal-related questions. Table 3 illustrated that nearly all respondents (95.3%) of the sample reported using universal precautions given by WHO, NIH, CDC can prevent the transmission of COVID-19 disease. Almost all the respondents (95.4%) reported active participation of healthcare workers in hospital infection programs can reduce the prevalence of COVID-19. Virtually all the respondents (94%) reported vital information on COVID-19 should be disseminated among healthcare workers and peers to reduce fear of the disease. Most of the respondents (91.5%) answered in order to reduce the spread of the disease patients with COVID-19 disease should be quarantined. Almost all the respondents (95.3%) confirmed those diagnosed with COVID-19 should be given intensive and emergency interventions. The majority of the respondents (96.1%) established healthcare workers have to be conversant with COVID-19 information and nearly all respondents (96.2%) affirmed before COVID-19 can be dealt with personal protective equipment must be used regularly.

## DISCUSSION

A careful analysis and assessment of the results obtained from this study show a clear and sufficiently high level of knowledge and attitude among healthcare workers in the Enugu metropolis of Nigeria as regards the SARS-Cov2 and the COVID-19 Pandemics. The high literacy level among the healthcare workers and among the general populace of the Enugu metropolis of Nigeria maybe for the findings from this study.

Our study showed that approximately 41% were 20-31 years old, 63.8% were female, 57.4% were married and health workers accessed were medical laboratory scientists 29.8%, nurse 27.7%, pharmacist 12.8%, medical doctor 10.8%, nutritionist 3.8%, physiotherapist 3.0%, radiologist 1.3%, others 11.4%.

**Table 3:** Respondents' Responses to Attitude-related Questions

	SA n (%)	A n (%)	D n (%)	SD n (%)	U/D n (%)
<b>Transmission of covid-19 can be prevented using universal precautions given by who, NIH, CDC, etc</b>	185 (78.9)	39 (16.6)	2 (0.9)	1 (0.4)	8 (3.4)
<b>Prevalence of covid-19 can be reduced by active participation of healthcare workers in hospital infection control program</b>	163 (69.4)	61 (26.0)	2 (0.9)	2 (0.9)	7 (3.0)
<b>Any related information about covid-19 should be disseminated among peers and other health workers</b>	172 (73.1)	49 (20.9)	2 (0.9)	4 (1.7)	8 (3.4)
<b>Covid-19 infected patients should be quarantined</b>	176 (74.9)	39 (16.6)	7 (3.0)	73.0	6 (2.6)
<b>Intensive and emergency treatments should be given to diagnosed patients.</b>	176 (74.9)	48 (20.4)	1 (0.4)	0 (0.0)	10 (4.3)
<b>Healthcare workers must acquaint themselves on information about covid-19</b>	185 (78.7)	41 (17.4)	1 (0.4)	2 (0.9)	6 (2.6)
<b>Personal protective equipment must be used when dealing with covid-19 patients.</b>	200 (85.1)	26 (11.1)	2 (0.9)	0 (0.0)	7 (3.0)

S.A= Strongly Agree , A=Agree, D=Disagree, SD= Strongly Disagree, U/D= Undecided

The findings revealed on the awareness of health workers concerning COVID-19, 67% of the participants asserted that Covid-19 patients develop severe acute respiratory symptoms, showing that majority of the participants are well-informed about COVID-19. This is in line with research. More recently, WHO (2020) has stated that Developed by a multidisciplinary panel of health care providers with experience in the clinical management of patients with COVID-19 and other viral infections, including severe acute respiratory virus (SARS) and the Middle East respiratory virus (MERS), as well as sepsis and Clinical management of COVID-19: interim guidance acute respiratory distress syndrome (ARDS), this directive should help in the foundation of getting best clinical care to ensure optimise the possible chance for survival.<sup>16</sup>

There should be adequate management of patients to ensure that appropriate infection control, and supportive care is maintained. COVID-19 Patients with the serious disease usually need oxygenation support such as high-flow oxygen and noninvasive positive pressure ventilation.<sup>17</sup>

The present findings also showed that 97% of the participants confidently declared that coughing, high fever and fatigue are the hallmarks of the COVID-19 infection symptoms. This is an indication that most of the participants believed that COVID-19 patients usually develop the above symptoms and medical care should be sought immediately if someone has hallmark warning signs of COVID-19.<sup>14</sup>

The present study confirmed 96.6% of the respondents accorded that the incubation period for the covid-19 virus is 1-14 days. This is in line with research conducted by the world health organization suggested that the average serial interval of COVID-19 is shorter than the average incubation period, which suggests that substantial numbers of COVID-19 cases will be attributed to pre-symptomatic transmission.<sup>18,19</sup>

The current study sheds light that 81.7% of participants disclosed on the mode of transmission of the contagious disease, is usually by close contact with an infected person. COVID-19 is mainly transmitted from human to human through oral, respiratory aerosols and droplets of infected individuals of the virus can contaminate the environment. Healthcare providers and the elderly with co-morbidities are especially susceptible to the infection.<sup>20</sup>



Thus, there is a need for rigorous surveillance and testing to prevent further expansion of the pandemic. Protective devices must be applied especially when there is possibly close in contact with a suspect case or infected person who is not putting on a surgical mask that could drastically reduce the transmission of viruses in the environment. By adopting these specific prevention and protection measures recommended in the workplace, it will be possible to help overcome this COVID-19 pandemic.<sup>21, 22, 23</sup>

This study observed 63% prevalence that animal is the main source of covid-19. Studies have reported that coronaviruses that are causing illness for humans were originating from animals. Generally, these animals were either rodents or bats.<sup>24, 25</sup>

Nevertheless, 95.3% of the participants were already aware that washing of hands frequently can prevent transmission of covid-19. This is in line with WHO reported hand hygiene is key to stopping the spread of COVID-19, thus, developing preventive strategies besides washing of hands frequently there is urgently needed to reduce the contagious virus through environmental measures that are capable of reducing the risk of transmission of COVID-19 to individuals through contact with infected subjects, objects, equipment, or contaminated environmental surfaces. Some specific prevention and protection measures are recommendable in the workplace that will be helpful in overcoming this COVID-19 pandemic.<sup>23, 26, 27</sup>

The current study has limited strengths on the level of awareness, only 77% of participants are not aware whether the Covid-19 vaccine is available in the market which may be as a result of global availability and affordability of COVID-19 vaccine particularly in some "vaccine nationalism," the potentially unfair distribution of the vaccine globally, and intellectual property rights.<sup>28</sup> These corruption risks are the entrance of inferior and faked vaccines into markets, stealing of vaccines within the dispersion systems, leaks in sudden funding intended for the developing and dispersion of vaccines, nepotism, favouritism, and corrupted procurement systems. These corruption risks

have to be pointed out and extenuate by public institutions to facilitate and encourage access to safe and effective COVID-19 vaccines by the most marginalized groups of a population.<sup>29</sup>

Nearly four-fifths of the participants are aware that polymerase chain reaction can be used to diagnose covid-19. Roberta et al reported that PCR has the potential for identifying minute amounts of DNA or RNA contained in tissues or fluids, PCR has improved the rapidity and accuracy of diagnosing, increase the understanding of pathogenesis, and assist in identifying the unknown causes of infective diseases. Blood antibody testing and viral antigen testing in respiratory samples, similar to the rapid influenza test.<sup>30, 31</sup>

The findings reported 97.4% of the respondents accorded that special caution must be taken when persons from Asia regions with the symptoms of covid-19. The number of confirmed cases is constantly increasing worldwide particularly in the Asian region, a steep increase in cases is currently (31 March 2020) being observed in low-income countries.<sup>32, 33</sup>

The findings revealed that 56.6% of the participants established that empiric antimicrobial is the first line of treatment for covid-19. This is in affirmation by Natasha 2021 et al., who reported a significant increase in the rate of empiric antibiotics received by patients with COVID-19.<sup>33</sup> Since COVID-19 patients with a low procalcitonin, there is unlikely bacterial co-infection. Whether to initiate antibiotics in patients with suspected bacterial pneumonia and antibiotics can be safely withheld means PCT levels should not be used separately.<sup>34</sup>

The study affirmed that nearly all the participants 97.4% are aware that Covid-19 can be fatal. Co-morbidities among fatal cases include hypertension, diabetes, coronary heart disease, cerebral infarction, and chronic bronchitis.<sup>35</sup> Clinical severity range from asymptomatic to fatal

due to clinical characteristics and risk attributes of the virus is highly variable.<sup>36</sup>

The present study showed further investigation on a different perspective of health workers on the attitude of COVID-19, 78.7%% of the participants posited that the transmission of covid-19 can be prevented using universal precautions given by WHO, NIH, CDC.

Steady and understanding a particular training on the modes of exposure, transmission, and the use of proper personal protective equipment in order reduce the risk of the contagious virus hazards, which is essential to prevention. First aid and emergency medical assistance procedures are mostly very effective health organizations fix the standard to be practised by all individuals encountering contagious virus hazards.

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National Institute for Occupational Safety and Health (NIOSH) has preferred and approved N95 or equivalent or higher-level respirator. Information about the recommended duration of transmission-based precautions is available in the Interim Guidance for Discontinuation of transmission-based Precautions and disposition of Hospitalized Patients with COVID-19.<sup>38</sup>

This study revealed 69.4% of the participants corroborate that the prevalence of covid-19 can be reduced by the active participation of healthcare workers in hospital infection control programs. Adequate measures are important for the wellbeing and safety of patients, families, health workers and the community of the vulnerable. Implementation of the IPC programme and hospital Infection Control Committee (HICC) at the healthcare facility should be the first step towards the prevention of transmission of the virus.<sup>39</sup>

A hospital in the metropolitan area in a north-central state of Nigeria has also confirmed that infection control measures were not adopted by healthcare workers especially when the infection condition of patients was unknown.<sup>40</sup> Hospital management teams should provide PPE to health facilities and should ensure compliance to outlined COVID-19 safety

measures.<sup>41</sup>

The present study confirmed 73.1% of the respondents established that any related information about covid-19 should be disseminated among peers and other health workers. Messaging about COVID-19 testing, behavioural health services, and federal stimulus opportunities must be accurate, culturally understood, and disseminated through information channels that reach Black and Latino communities.<sup>42</sup>

Negative response increases, as individuals who are competing to meet their basic needs mainly to the epidemic disease, ignore and bypass prevention measures or mobility restrictions. Lack of awareness and information about COVID-19 can subvert social cohesion and inspires ferocity, favouritism, marginalization and fear.<sup>43</sup> Based on the facts that a high level of well-educated was among individuals in the urban area that makes utilization of traditional way of spreading information was not regarded.<sup>44, 45</sup> Networks of community health agents that support the response to polio and other diseases have been leveraged for sensitization and to raise the alarm about suspected COVID-19 at the sub-national level.<sup>45, 46</sup>

This study observed a 74.9%% prevalence that Covid-19 infected patients should be quarantined. Inadequate awareness and poor knowledge were reported on isolation precaution and quarantine that could be as a result of the unavailability of constant training, health facilities such as infection prevention control guidelines and lack of personal protective equipment for health workers. This would, however, lead to an increase in the prevalence of healthcare-associated infections and quarantinable diseases.<sup>47</sup> There should be planning for isolation and quarantine with partner organizations that will be needed to support non-hospital isolation and quarantine should be contacted and participate in training.<sup>48</sup> Any individual under

quarantine should have a separate room and toilet facilities. Routine hygiene measures are helpful to decrease the risk of the spread of the infection. Daily body temperature should be checked for the individual under quarantine and if the person becomes severely ill should be transferred to the hospital by ambulance and the possibility of COVID-19 infection must be made known before dialling emergency 112. The duration of quarantine of the exposed but well is 14 days from the last exposure or until symptoms occur, in which case please continue to read.<sup>49</sup>

This study observed a 74.9% prevalence that intensive and emergency treatments should be given to diagnosed patients. In another study, it was revealed that in order to manage patients with serious illnesses, there is a need for urgent and adequate care such as the identification and continued observation, assessment, and treatment.<sup>3</sup> Emergency and critical care centres on reviving mentally ill patients by exercising time for recovery or the effect of specific therapies to improve outcomes and prevent death.<sup>50</sup>

Factors to be considered when assessing suitability for admission to intensive care are diagnosis, the severity of illness, age, coexisting disease, physiological reserve, prognosis, availability of suitable treatment, response to treatment to date, new cardiopulmonary arrest, anticipated quality of life, and the patient's wishes. Intensive care is necessary before patients' condition reaches a point of unrecoverable. Necessary criteria may assist in identifying those at risk and who need urgent intensive care. Early referral improves the chances of recovery, reduces the potential for organ dysfunction, the length of stay and in intensive care and hospital.<sup>51</sup> Hypovolaemia is likely associated with patients of COVID-19 and fluids should be administered cautiously, and given the high frequency of myocardial dysfunction in COVID-19.<sup>52</sup>

The findings revealed that 78.7% of the participants established that healthcare workers must acquaint themselves with information about covid-19. Public health emergencies can be intensely socially dissentious, stretch public-health capacities and limit rights to privacy and informational self-determination,

it is important for policy-makers to consider the ethics of their crisis-management policies rationally. Although the Siracusa Principles may allow for the limitation of, or derogation from the International Covenant on Civil and Political Rights (ICCPR), confining people during the outbreak of a deadly disease in emergency contexts should follow the WHO guidance for managing ethical issues and the guidance on ethical issues in research in global health emergencies could help to ensure appropriate ethical oversight and collaboration, to help combat the social stigmatization of those affected, or perceived to be affected, by the disease.<sup>53</sup>

The infectious disease outbreaks can it more difficult for many to receive treatment and health services. Critical health services and information about COVID-19. Accurate COVID-19 prevention and medical information should also be distributed in conflict-affected contexts to reach all individuals regardless of the communities and area of settlements. Preparing unpaid caregivers and community health workers with information, training, adequate equipment and livelihood support to respond to the COVID-19 pandemic effectively.<sup>54</sup>

Finally, nearly four-fifth of the participants are aware that personal protective equipment must be used when dealing with covid-19 patients. There should be infection prevention and control (IPAC) best practices for use of personal protective equipment (PPE) in health care settings.<sup>55</sup> Personal protective equipment is the final protection stage of for healthcare workers. Health workers should be given appropriate and adequate personal protective equipment for protection against covid-19. Healthcare workers who were involved in the direct care of patients with covid-19 should be equipped with standardized personal protective equipment, such as protective suits, masks, gloves, goggles, face shields, gowns, safety glasses and or face shields has been

recommended.<sup>56, 57</sup>

In conclusion, one important factor in preventing the disease from spreading further was having a favorable attitude toward the adoption of preventative measures. The needs for awareness can be met by a thorough and contextually appropriate awareness-raising strategy and communication initiatives. In order to stop COVID-19 and stop false information from spreading, which reduces the efficacy of health measures, communication is desperately needed.

#### Disclosures

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## REFERENCES

1. S. J. Fong et al., Artificial Intelligence for Coronavirus Outbreak. SpringerBriefs in Computational Intelligence. Available: [https://doi.org/10.1007/978-981-15-5936-5\\_1](https://doi.org/10.1007/978-981-15-5936-5_1)
2. Phelan, A.L., Katz, R., & Gostin, L.O. (2020). The novel coronavirus originating in Wuhan, China: challenges for global health governance. *Jama*, 323(8), 709-710. <https://www.doi.org/10.1001/jama.2020.1097>
3. WHO. 9th July 2020. Transmission of SARS-CoV-2: implications for infection prevention precautions. Accessed: 22nd July, 2021. Published: 9th July, 2020. Available: <https://www.who.int/news-room/commentaries/detail/transmission-of-sars-cov-2-implications-for-infection-prevention-precautions>.
4. Jie Cui, Fang Li and Zheng-Li Shi. Origin and evolution of pathogenic coronaviruses. *Nature Reviews Microbiology* volume 17 | MARCH 2019 | 181-192.
5. Mahendra Pal, Gemechu Berhanu, Chaltu Desalegn, and Venkataramana Kandi. Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2). *Cureus Journal*. 2020 Mar; 12(3): e7423
6. Zhixing Zhu, Xihua Lian, Xiaoshan Su, Weijing Wu, Giuseppe A. Marraro and Yiming Zeng. From SARS and MERS to COVID-19: a brief summary and comparison of severe acute respiratory infections caused by three highly pathogenic human coronaviruses. *Respiratory Research* (2020) 21:224.
7. Centers for disease control and prevention (CDC). Feb. 15, 2020. Human Coronavirus Types. Accessed: 22nd July, 2021. Published: Feb. 15, 2020. Available: <https://www.cdc.gov/coronavirus/types.html>.
8. Muhammad Adnan Shereenb, Suliman Khana, Abeer Kazmic, Nadia Bashirb, Rabeea Siddiquea. COVID-19 infection: Emergence, transmission, and characteristics of human coronaviruses. *Journal of Advanced Research*. Volume 24, July 2020, Pages 91-9
9. Ali S. Omrani, Jaffar A. Al-Tawfiq, and Ziad A. Memish. Middle East respiratory syndrome coronavirus (MERS-CoV): animal to human interaction. *Pathog Glob Health Journal*. December, 2015; 109(8): 354-362
10. Nathalie Chazal. Coronavirus, the King Who Wanted More Than a Crown: From Common to the Highly Pathogenic SARS-CoV-2, Is the Key in the Accessory Genes?. *Front. Microbiol Journal*. 14 July 2021 | <https://doi.org/10.3389/fmicb.2021.682603>
11. Christakis, N.A. (2020). *Apollo's Arrow. The profound and enduring impact of coronavirus on the way we live.* Little, Brown & Company.
12. Simon James Fong Nilanjan Dey Jyotismita Chaki. Artificial Intelligence for Coronavirus Outbreak pp 1-22 | Chapter 1: An Introduction to COVID-19. Available: [https://link.springer.com/chapter/10.1007/978-981-15-5936-5\\_1](https://link.springer.com/chapter/10.1007/978-981-15-5936-5_1)
13. Michael C. Jarvis. Aerosol Transmission of SARS-CoV-2: Physical Principles and Implications. *Front. Public Health*, 23 November 2020 | <https://doi.org/10.3389/fpubh.2020.590041>.
14. Centers for disease control and prevention National center for emergency and Zoonotics infectious diseases. Symptoms of Coronavirus (COVID-19). Accessed on 19th July, 2021. Available : <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>
15. Kluge HNP. Statement e physical and mental health key to resilience during COVID-19 pandemic. <http://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/statements/statement-physicaland-mental-health-key-to-resilience-during-covid-19-pandemic> (accessed on 30th March, 2020).
16. WHO. 2020. "Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected" Accessed: 7 July, 2021. Published

on 13 March 2020. Available: <https://apps.who.int/iris/handle/10665/332196>

17. Francesco Di Gennaro, Damiano Pizzol,\* , Claudia Marotta, Mario Antunes, Vincenzo Racalbutto, Nicola Veronese and Lee Smith. Coronavirus Diseases (COVID-19) Current Status and Future Perspectives: A Narrative Review. *International Journal of Environmental Research and Public Health*. 2020, 17, 2690; doi:10.3390/ijerph17082690.

18. Muluneh Alene, Lelteywork Yismaw, Moges Agazhe Assemie, Daniel Bekele Ketema, Wodaje Gietaneh and Tilahun Yemanu Birhan. Serial interval and incubation period of COVID-19: a systematic review and meta analysis. *BMC Infectious Diseases* (2021) 21:257.

19. Wafa Dhouib, Jihen Maatoug, Imen Ayouni, Nawel Zammit, Rim Ghammem, Sihem Ben Fredj and Hassen Ghannem. The incubation period during the pandemic of COVID-19: a systematic review and meta-analysis. *Systematic Reviews* (2021) 10:101 page 1-14.

20. Heshu Sulaiman Rahman, Masrur Sleman Aziz, Ridha Hassan Hussein, Hemn Hassan Othman, Shirwan Hama Salih Omer, Eman Star Khalid, Nusayba Abdulrazaq Abdulrahman, Kawa Amin, Rasedee Abdullah. The transmission modes and sources of COVID-19: A systematic review. *International Journal of Surgery Open* 26 (2020) 125e136

21. Thompson RN. Novel Coronavirus outbreak in Wuhan, China, 2020: intense surveillance Is vital for preventing sustained transmission in new locations. *J Clin Med* 2020;9(2):498.

22. Ung COL. Community pharmacist in public health emergencies: quick to action against the coronavirus 2019-nCoV outbreak. *Res Soc Adm Pharm* 2020;16(4):583e6.

23. Luigi Cirrincione, Fulvio Plescia, Caterina Ledda, Venerando Rapisarda, Daniela Martorana, Raluca Emilia Moldovan, Kelly Theodoridou and Emanuele Cannizzaro. COVID-19 Pandemic: Prevention and Protection Measures to Be Adopted at the Workplace. *Journal of Sustainability*. 2020, 12, 3603; doi:10.3390/su12093603

24. Cyranoski D. Did pangolins spread the China coronavirus to people? *Nature*. (2020). doi: 10.1038/d41586-020-00364-2. [Epub ahead of print].

25. Ayman A. Swelum, Manal E. Shafi, Najah M. Albaqami, Mohamed T. El-Saadony, Ahmed Elsify, Mohamed Abdo, Ayman E. Taha, Abdel-Moneim E. Abdel-Moneim, Naif A. Al-Gabri, Amer A. Almaiman, Abdullah Saleh Al-wajeih, Vincenzo Tufarelli, Vito N. Staffa and Mohamed E. Abd El-Hack. COVID-19 in Human, Animal, and Environment: A

Review. *Front. Vet. Sci.* 7:578. doi: 10.3389/fvets.2020.00578

26. WHO. (2020) Hand Hygiene For All. Accessed: 24 of July 2021. Published: 26 of June 2020. Available: <https://www.unicef.org/reports/hand-hygiene-for-all-2020>

27. Mainul Haque. Handwashing in averting infectious diseases: Relevance to COVID-19. *Journal of Population Therapeutics & Clinical Pharmacology*. 12 July 2020 Vol 27(SP1):e37–e52

28. Amnesty International. (2020). A Fair Shot Ensuring Universal Access To Covid-19 Diagnostics, Treatments And Vaccines. Accessed: 24 July, 2021. Available: <https://www.amnesty.org/download/Documents/POL3034092020ENGLISH.PDF>

29. United Nations office on drugs and crime. COVID-19 VACCINES AND CORRUPTION RISKS: PREVENTING CORRUPTION IN THE MANUFACTURE, ALLOCATION AND DISTRIBUTION OF VACCINES. Accessed: 24 July, 2021. Available: [https://www.unodc.org/documents/corruption/COVID-19/Policy\\_paper\\_on\\_COVID-19\\_vaccines\\_and\\_corruption\\_risks.pdf](https://www.unodc.org/documents/corruption/COVID-19/Policy_paper_on_COVID-19_vaccines_and_corruption_risks.pdf)

30. Roberta L. DeBiasi, MD; Kenneth L. Tyler, MD. Polymerase Chain Reaction in the Diagnosis and Management of Central Nervous System Infections. *ARCH NEUROL*. OCT 1999, VOL 56.

31. Joseph Hadaya, Max Schumm, Edward H. Livingston. Testing Individuals for Coronavirus Disease 2019 (COVID-19). *JAMA* May 19, 2020 Volume 323, Number 19. Published Online: April 1, 2020. doi:10.1001/jama.2020.5388

32. World Health Organization Coronavirus Disease 2019 Situation Report. Available online: [https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200326-sitrep-66-covid-19.pdf?sfvrsn=9e5b8b48\\_2](https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200326-sitrep-66-covid-19.pdf?sfvrsn=9e5b8b48_2) (accessed on 24 July 2021).

33. Natasha N. Pettit, Cynthia T. Nguyen, Alison K. Lew, Palak H. Bhagat, Allison Nelson, Gregory Olson, Jessica P. Ridgway, Mai T. Pho2 and Jade Pagkas-Bather. Reducing the use of empiric antibiotic therapy in COVID-19 on hospital admission. *BMC Infectious Diseases* (2021) 21:516



34. Agarwal A, Mukherjee A, et al. Convalescent plasma in the management of moderate covid-19 in adults in India: open label phase II multicenter randomized controlled trial (Placid Trial). *BMJ* 2020;371:m3939
35. Deng SQ1, Peng HJ. Characteristics of and Public Health Responses to the Coronavirus Disease 2019 Outbreak in China. *Journal of Clinical Medicine* 2020, 9(2), 575; <https://doi.org/10.3390/jcm9020575>.
36. Phan, T. Novel coronavirus: From discovery to clinical diagnostics. *Infect. Genet. Evol.* 2020, 79.
37. U.S. Department of Health and Human Services Public Health Service Centers for Disease Control and Prevention National Institutes of Health. 2009. Biosafety in Microbiological and Biomedical Laboratories 5th Edition. HHS Publication No. (CDC) 21-1112.
38. Centers for Disease Control and Prevention. 2021. Interim Infection Prevention and Control Recommendations for Healthcare Personnel During the Coronavirus Disease 2019 (COVID-19) Pandemic. Available: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html> on April 27, 2021.
39. National Centre for Disease Control, Directorate General of Health Services Ministry of Health and Family Welfare, Government of India. January 2020. National Guidelines for Infection Prevention And Control In Healthcare Facilities. Available: <https://www.mohfw.gov.in/pdf/NationalGuidelinesforIPCinHCF-final.pdf>
40. Ong MS (2010) Coiera E: safety through redundancy: a case study of in-hospital patient transfers. *Quality & Safety in Health Care* 19, e32.
41. Olayinka Stephen Ilesanmi, Aanuoluwapo Adeyimika Afolabi, Abayomi Akande, Mohammed Abdulaziz. Infection Prevention and Control during COVID-19 Pandemic: Realities from Healthcare Workers in a North Central State in Nigeria. *Epidemiology and Infection.* January 2021. DOI: 10.1017/S0950268821000017.
42. Substance abuse and mental health services administration. 2020. Double Jeopardy: COVID-19 and Behavioral Health Disparities for Black and Latino Communities in the U.S. (Submitted by OBHE). Accessed: 26 July 2021. Available: <https://www.samhsa.gov/sites/default/files/covid19-behavioral-health-disparities-black-latino-communities.pdf>
43. UNITED NATIONS COORDINATED APPEAL. APRIL – DECEMBER 2020. GLOBAL HUMANITARIAN RESPONSE PLAN COVID-19. Accessed: 26 July 2021. Available: <https://reliefweb.int/report/world/global-humanitarian-response-plan-covid-19-april-december-2020-ghrp-july-update-enar>
44. Elizabeth Uzoamaka Nwonwu, Edmund Ndudi Ossai, Chukwuma David Umeokonkwo, Ituma Bernard Ituma. Knowledge and preventive practice to COVID-19 among household heads in Enugu metropolis, South-East Nigeria. *PAMJ* - 37(63). 16 Sep 2020.
45. Bamba Gaye, Stéphanie Khoury, Crystal W. Cene, Samuel Kingue, Roland N'Guetta, Camille Lassale, Dadhi Baldé, Ibrahima Bara Diop, Jennifer Beam Dowd, Melinda C. Mills & Xavier Jouven. Socio-demographic and epidemiological consideration of Africa's COVID-19 response: what is the possible pandemic course? *Nature Medicine.* 2020. volume 26, pages 996–999. Available: <https://www.nature.com/articles/s41591-020-0961-x.pdf>
46. Marguerite Massinga Loembé, Akhona Tshangela, Stephanie J. Salyer, Jay K. Varma, Ahmed E. Ogwel Ouma & John N. Nkengasong. COVID-19 in Africa: the spread and response. *Nature Medicine.* 2020 volume 26, pages 999–1003. Available: <https://www.nature.com/articles/s41591-020-0961-x>
47. Wasiu Olalekan Adebimpe and Demilade Olusola Ibirongbe. Exploring the Knowledge and Preventive Practices on Isolation Precaution and Quarantine Among Health Care Workers in Ondo State, Nigeria. *Annals of Global Health.* 2019; 85(1): 72, 1–7. DOI: <https://doi.org/10.5334/aogh.2454>
48. Centers for disease control and prevention. January 8, 2004. Public Health Guidance for Community-Level Preparedness and Response to Severe Acute Respiratory Syndrome (SARS). Available: <https://www.cdc.gov/sars/guidance/d-quarantine/downloads/D-quarantine-full.pdf>
49. Directorate of Health. 4 February 2020. Instructions for persons under quarantine related to 2019-nCoV Available: <https://www.landlaeknir.is/servlet/file/store93/item38866/Instructions%20for%20persons%20under%20quarantine%2028012020.pdf>
50. Carl Otto Schell, Martin Gerdin Wärnberg, Anna Hvarfner, Andreas Höög, Ulrika Baker, Markus Castegren and Tim Baker. The global need for essential emergency and critical care. *Critical Care* (2018) 22:284 <https://doi.org/10.1186/s13054-018-2219-2>
51. Gary Smith, Mick Nielsen. ABC of intensive care

Criteria for admission. *BMJ* VOLUME 318 5 JUNE 1999.  
Available:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1115908/pdf/1544.pdf>

52. Jason Phua, Li Weng, Lowell Ling, Moritoki Egi, Chae-Man Lim, Jigeeshu Vasishtha Divatia, Babu Raja Shrestha, Yaseen M Arabi, Jensen Ng, Charles D Gomersall, Masaji Nishimura, Younsuck Koh, Bin Du. Intensive care management of coronavirus disease 2019 (COVID-19): challenges and recommendations. *TheLancet.com/respiratory* Vol 8 May 2020.  
Available:

<https://www.thelancet.com/action/showPdf?pii=S2213-2600%2820%2930161-2>

53. Mihalis Kritikos. European Parliamentary Research Service (EPRS). April 2020. Ten technologies to fight coronavirus.  
Available:

[https://www.europarl.europa.eu/RegData/etudes/IDAN/2020/641543/EPRS\\_IDA\(2020\)641543\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/IDAN/2020/641543/EPRS_IDA(2020)641543_EN.pdf)

54. WHO. 9 APRIL 2020. Policy Brief: The Impact of COVID-19 on Women.  
Available:

<https://reliefweb.int/sites/reliefweb.int/files/resources/policy-brief-the-impact-of-covid-19-on-women-en.pdf>.

55. Ontario Agency for Health Protection and Promotion (Public Health Ontario IPAC Recommendations for Use of Personal Protective Equipment for Care of Individuals with Suspect or Confirmed COVID-19. 6th Revision: May 2021.  
Available from: <https://www.publichealthontario.ca/-/media/documents/B/2014/bp-hand-hygiene.pdf?la=en>.

56. Min Liu, Shou-Zhen Cheng, Ke-Wei Xu, Yang Yang, Qing-Tang Zhu, Hui Zhang, Da-Ya Yang, Shu-Yuan Cheng, Han Xiao, Ji-Wen Wang, He-Rui Yao, Yu-Tian Cong, Yu-Qi Zhou, Sui Peng, Ming Kuang, Fan-Fan Hou, KK Cheng, Hai-Peng Xiao. Use of personal protective equipment against coronavirus disease 2019 by healthcare professionals in Wuhan, China: cross sectional study. *BMJ* 2020;369:m2195 | doi: 10.1136/bmj.m2195.

57. Jennifer Fong Ha. The COVID-19 pandemic, personal protective equipment and respirator: A narrative review. *International Journal of Clinical Practice* · June 2020. DOI: 10.1111/ijcp.13578



## FROM THE EDITOR

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