



Geliş Tarihi (Received): 19.04.2023

Kabul Tarihi (Accepted): 09.06.2023

Araştırma Makalesi/Research Article

Hemşirelerin Pandemi Sürecinde Ruh Sağlığı Durumları ve İşe Bütünleşmeleri Nurses' Mental Health Status and Work Engagement During The Pandemic

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Alıntı (Cite): Yavuz AH, Aydın A. Hemşirelerin Pandemi Sürecinde Ruh Sağlığı Durumları ve İşe Bütünleşmeleri. YBH Dergisi. 2023;4(2):91-111

This study was presented as an oral presentation at International Gazi Health Sciences Congress in Turkey between 15-17 December 2021.

Özet:

Amaç: Bu çalışma, pandemi sırasında hemşirelerin ruh sağlığı durumlarını ve işe bütünleşmelerini belirlemeyi amaçlamıştır.

Gereç ve Yöntem: Üç hastaneden 313 hemşire ile tanımlayıcı kesitsel bir çalışma yürüttük. Veriler “Tanıtıcı Bilgi Formu”, “Depresyon Anksiyete Stres (DASS-21) Ölçeği”, “COVID-19 Korkusu Ölçeği” ve “Utrecht İşe Bağlılık Ölçeği” kullanılarak toplanmıştır. Verilerin analizinde t test, tek yönlü varyans analizi, ikili karşılaştırmalarda Bonferoni test, pearson korelasyon analizi, basit ve çoklu regresyon analizi yapılmıştır.

Bulgular: Hemşirelerin işe bütünleşme puanları arttıkça DASS-21 ve Covid-19 korkusu puanlarının düştüğü belirlendi. Bu çalışmada oluşturulan çoklu regresyon modelinde depresyonun bağımsız değişkenlerle birlikte işe bağlılık üzerinde anlamlı bir negatif etkiye sahip olduğu belirlenmiştir.

Sonuç: Pandemi sürecinde hemşirelerin ruhsal açıdan etkilendikleri, ruh sağlığı durumlarının ise işe bütünleşmelerini etkilediği belirlenmiştir. Hemşireler pandemi sürecinde psikolojik olarak desteklenmeli, hemşirelere aralıklı olarak danışmanlık programları uygulanmalı, uygun başa çıkma stratejilerini kullanma becerileri kazandırılmalı, daha iyi çalışma koşulları, dinlenme molaları ve daha az iş yükü sağlanmalı ve süreç boyunca ruhsal yönden değerlendirilmelidir.

Anahtar Kelimeler: COVID-19; ruhsal durum; hemşireler; işe bütünleşme

Abstract:

Aim: This study aimed to identify nurses' the mental health status and work engagement during pandemic.

Materials and Method: We conducted a descriptive cross sectional study with 313 nurses from three hospitals. Data were collected using the “Introductory Information Form”, “Depression Anxiety Stress (DASS-21) Scale”, “The Fear of COVID-19 Scale”, and “Utrecht Work Engagement Scale”. In the analysis of the data, t test, one-way analysis of variance, Bonferoni test in pairwise comparisons, Pearson correlation analysis, simple and multiple regression analysis were used.

Results: It was found that as the nurses' work engagement scores increased, DASS-21 and fear of Covid-19 scores decreased. In multiple regression model in this study has found that depression has a significant negative effect on work engagement together with independent variables.

Conclusion: It was determined that nurses were affected psychologically during the pandemic process, and their mental health conditions affected their work engagement. Nurses should be supported psychologically during the pandemic process, apply counseling programs to nurses intermittently, gain skills in the use of appropriate coping strategies, provide good working conditions, rest breaks and less workload and evaluate psychologically throughout the process.

Key Words: COVID-19; mental status; nurses; work engagement

Introduction

Nurses, who are indispensable healthcare providers, have performed their duties uninterrupted during the pandemic despite challenging conditions.^(1,2) Along with naturally growing stress factors related to patient care, some pandemic precautions have increased nurse workloads and caused difficulties in adapting to new protocols.⁽³⁾ The pandemic has also affected nurses significantly from a psychological and emotional point of view, causing them to experience occupational pressure and disease-related psychological distress.⁽⁴⁾ Stress from COVID-19 is associated with psychological symptoms.⁽⁵⁾ The rapid changes impacting the health sector because of the pandemic may have affected nurses' work lives, attitudes toward work, and work engagement, as well as their mental health.⁽⁶⁾

Work engagement is an attitude in which an individual's "*physical, mental, and emotional energy*" reflects on the work.⁷ Work-engaged employees are physically energetic, resilient, emotionally conscientious, cognitively alert individuals who present empathic behaviors at work and have a sense of mission when alone or with others.^(7,8) In addition, these engaged individuals are highly motivated, open to new information, and productive in reaching their goals. Increasing work engagement leads to higher work performance and lower burnout.^(9,10) The working environment, resources, adequate tools, and equipment provided by the workplace highly affect an individual's work engagement.⁽¹¹⁾

Since nurses usually work in stressful, intense, and complicated situations and environments, improving their work engagement enables them to continue their profession with positive emotions and perform healthcare services carefully. Since work engagement shapes the basis of nurses' theoretical actions, it also contributes to nursing knowledge in practice. Reliable care environments that support nurse autonomy increase their work engagement.⁽¹²⁾ Evaluation of work engagement in professional nursing practice has a critical role in tackling fundamental challenges in the healthcare system, delivering quality care, and reducing healthcare costs.⁽¹³⁾ Since nurses and other health professionals are in a group vulnerable to psychological strain, it is necessary to identify institutional risk factors to protect them from developing occupational stress and burnout. The compatibility of the workload with workforce resources can improve an individual's work engagement and satisfaction.⁽¹⁴⁾ Especially during the COVID-19 pandemic, factors such as excessive workload and staff shortages experienced in healthcare settings may have affected nurses' internal and external motivations and dedication. A study examining these effects on work engagement has reported that nurses feel moderate work engagement and high work satisfaction.⁽¹⁵⁾ With the growing nursing need during the pandemic, nurses from different clinics have been

relocated to priority areas such as intensive care and pandemic clinics. This situation may generate both an extra workload on the field expert nurse and may lead the assigned nurses to feel professionally inadequate and increase their stress. Besides these negative factors, the scarce protective equipment and tiring long working hours increase the stress on nurses and reduce their work engagement and dedication. ⁽¹⁾

Health professionals have faced resource constraints and personnel shortage problems due to the excessive patients in healthcare services in pandemic. These pandemic-related limitations beyond the usual norms may have psychosocially affected nurses' professional dedication and work engagement levels, and this situation may have led to lower professional satisfaction, burnout, and occupational alienation. The current study was to identify nurses' the mental health status and work engagement during pandemic.

Method

Study Design and Participants

We conducted a descriptive cross-sectional study with nurses between 09.03.2021 and 06.05.2021 at three hospitals in İstanbul, Turkey. The research population comprised 1446 nurses from these hospitals. The sampling size was calculated using the formula when known to represent the study population ($n = Nt^2pq / d^2 (N-1) + t^2pq$) ($n=1446$, $t= 1.96$, $p=0.5$, $q=0.5$, $\alpha =0.05$, $d=0.05$). It was determined to reach at least 304 nurses. The study was conducted with 313 nurses. For informed consent, explanations about the study were made in the online form, and the nurses who wanted to participate in the study. Snowball sampling method, which is one of the non-probability sampling methods, was used in the study. In this sampling method, firstly, the nurses in the hospital in the universe were determined as participants. Afterwards, the participating nurses were asked to provide information about the study and to support their colleagues in their participation. Thus, the sample size was reached.

Introductory Information Form

This form included 13 questions the introductory characteristic of nurses' age, gender, marital status, the status of education, the state of having children, children numbers, nursing experiences,

clinical experiences, working types, the clinic they work for, positions in the clinic, average working hours, and being diagnosed with COVID-19.

Depression Anxiety Stress Scale (DASS-21)

DASS-21 consists of 21 items and three subscales, rated using a four-point likert-type scale. The scale was developed by Lovibond and Lovibond ⁽¹⁶⁾ and adapted Turkish validity and reliability by Sarıçam. ⁽¹⁷⁾ The scale factor loadings were found between 0.42 to 0.72 in the Turkish version's. ⁽¹⁷⁾ This study Cronbach's alpha coefficient was found as 0.94 for the overall scale.

The Fear of COVID-19 Scale

It is a seven item, one dimensional and five point likert type scale. No reverse-scored item exists on the scale. This scale was developed by Ahorsu et al. ⁽¹⁸⁾ to measure fear of COVID-19 of individuals. Turkish version was performed by Bakioğlu et al. ⁽¹⁹⁾ While the original scale's Cronbach's alpha value was 0.82. ⁽¹⁸⁾ Bakioğlu et al. ⁽¹⁹⁾ was reported Cronbach's alpha value 0.88 and 0.91 in this study.

Utrecht Work Engagement Scale

The scale consists of 17 items, a five-point likert type and three subscales (vigor, dedication, and absorption). This scale was developed by Schaufeli et al. ⁽¹¹⁾ and its Turkish adaptation was carried out by Eryılmaz and Doğan. ²⁰ There is no reverse-scored item. As the scale scores increase, work engagement increases. The original scale's Cronbach's alpha was calculated as 0.80. ⁽¹¹⁾ The Cronbach alpha reliability coefficient of the Turkish version was determined as 0.94. ⁽²⁰⁾ In this study, Cronbach's alpha coefficient was found as 0.94.

Data Collection

The online forms created in the Google Form application were shared with the nurses. The researcher gave clinic nurses information about the research, and the online link was shared with the nurses.

Data Analysis

All the analyses were performed with SPSS-version 25.0 package program. Since the data showed normal distribution according to kurtosis and skewness values, t-test, one-way Anova, Bonferroni test in pair-wise comparisons, and Pearson correlation analysis were performed. Simple and

multiple linear regression analysis was utilized to reveal the variable/variables that predicted the variable/variables.

Ethical Considerations

Ethical approval was obtained from the Okan University Ethics Committee (Date: 13.01.2021; Decision Number: 131) and research permission from the sample hospital was obtained to conduct the research. Information about the study was explained to the nurses participating in the study in the online form, and the nurses who chose the "Yes" option to volunteer to participate were included in the study.

Results

Descriptive characteristics

The mean age of the nurses was 26.42±4.05. 66.8% of the nurses were women, single (79.2%), not having children (89.1%), and had bachelor's degrees (77.3). Furthermore, 55.6% of nurses were working in internal-surgical units, 51.1% had 1-5 years experience, 51.8% were in the present department for less than one year, 90.1% were shift workers, 77% were on duty in clinics an average of 41-50 hours per week, and 93.6% were clinical nurses. 71.6% of the nurses were not diagnosed with COVID-19.

Table 1. DASS-21, work engagement and fear of COVID-19 mean scores of the nurses

	Mean±SD	Min-Max
DASS-21 Scale		
Depression	9.90±4.26	0-21
Anxiety	8.48±4.28	0-21
Stress	10.06±3.96	0-21
Total score	28.44±11.68	0-63
Work Engagement Scale		
Vigor	2.84±0.76	1-5
Dedication	3.11±0.84	1-5
Absorption	2.80±0.74	1-5
Total score	2.91±0.73	1-5
Fear of COVID-19 Scale		
Total Score	19.74±5.93	7-35

SD: Standard Deviation Min: Minimum Max: Maximum

The nurses' total DASS-21 score was 28.44±11.68 (range=0-63). Mean scores of the DASS-21 subscales were 9.90±4.26 (range=0-21) for depression, 8.48±4.28 (range=0-21) for anxiety and 10.06±3.96 (range=0-21) for stress. The nurses' total work engagement score was 2.91±0.73 (range=1-5). Mean scores of the work engagement subscales were 2.84±0.76 (range=1-5) for vigor, 3.11±0.84 (range=1-5) for dedication and 2.80±0.74 (range=1-5) for absorption. The mean score of the fear of COVID-19 score was 19.74±5.93 (range 7-35) (Table 1).

Table 2. Depression, anxiety and stress levels of nurses.

DASS-21 Subscales	n	%
Depression		
Normal	39	12.5
Mild	24	7.7
Moderate	92	29.4
Severe	100	31.9
Extremely severe	58	18.5
Anxiety		
Normal	49	15.6
Mild	34	10.9
Moderate	46	14.7
Severe	47	15.0
Extremely severe	137	43.8
Stress		
Normal	88	28.1
Mild	41	13.1
Moderate	102	32.6
Severe	70	22.4
Extremely severe	12	3.8
Total	313	100

n= Number %= Percentage

Of the nurses, 31.9% had severe depression, 43.8% had extremely severe anxiety, 32.6% had moderate stress (Table 2).

Participants' characteristics by their DASS-21, Work Engagement, and Fear of COVID-19 levels

DASS-21 significantly differed presence of children, years of experience as a nurse, type of working, weekly working hours, and position. Work engagement significantly differed gender, presence of children, working units, type of working, and position. Fear of COVID-19 significantly differed from COVID-19 diagnosis status (Table 3).

Table 3. Comparison of DASS-21, work engagement and fear of COVID-19 scores according to personal and professional characteristics

		DASS-21 Scale				Work Engagement Scale				Fear of COVID-19
		Depression	Anxiety	Stress	Total Score	Vigor	Dedication	Absorption	Total Score	
GENDER	Female	9.59±4.33	8.4±4.31	9.94±3.94	27.93±11.74	2.89±0.76	3.22±0.83	2.85±0.73	2.97±0.73	19.94±5.96
	Male	10.52±4.05	8.64±4.25	10.29±4	29.45±11.53	2.75±0.77	2.91±0.80	2.70±0.75	2.78±0.73	19.35±5.89
	Statistical Analysis	t=-1.829 p=0.068	t=-0.471 p=0.638	t=-0.728 p=0.467	t=-1.084 p=0.279	t=1.528 p=0.127	t=3.161 p=0.002	t=1.792 p=0.074	t=2.251 p=0.025	t=0.837 p=0.403
PRESENCE OF CHILDREN	Yes	8.09±5.33	7.35±4.72	8.59±4.23	24.03±13.77	3.12±0.83	3.37±0.89	3.00±0.85	3.15±0.83	19.18±6.61
	No	10.12±4.06	8.62±4.21	10.24±3.89	28.97±11.31	2.81±0.75	3.08±0.82	2.78±0.72	2.88±0.72	19.81±5.85
	Statistical Analysis	t=-2.191 p=0.109	t=-0.842 p=0.400	t=-1.529 p=0.127	t=-1.624 p=0.105	t=2.300 p=0.022	t=1.920 p=0.056	t=1.717 p=0.087	t=2.098 p=0.037	t=-0.561 p=0.575
WORKING UNITS	Internal-Surgical Units ^a	9.86±4.22	8.61±4.07	10.02±3.75	28.49±11.18	2.81±0.71	3.06±0.82	2.72±0.70	2.85±0.69	20.14±5.81
	Intensive care units ^b	9.47±4.6	7.69±4.61	9.56±4.29	26.72±12.8	3.05±0.83	3.36±0.86	3.02±0.77	3.13±0.78	19.61±6.26
	Other ^c	11.05±3.39	9.76±4.08	11.36±3.77	32.17±10.25	2.49±0.68	2.77±0.70	2.63±0.72	2.62±0.67	18.43±5.6
	Statistical Analysis	F=2.035 p=0.132	F=3.677 p= 0.026 b-c	F=3.091 p= 0.047 b-c	F=3.238 p= 0.041 b-c	F=8.546 p= 0.001 a-b, b-c, a-c	F=8.475 p= 0.001 a-b, b-c	F=6.358 p= 0.002 a-b, b-c	F=8.390 p= 0.000 a-b, b-c	F=1.445 p=0.237

		DASS-21 Scale				Work Engagement Scale				Fear of COVID-19
		Depression	Anxiety	Stress	Total Score	Vigor	Dedication	Absorption	Total Score	
YEARS OF EXPERIENCE AS NURSE	Less than 1 years ^a	10.00±4.37	8.76±4.17	9.94±3.74	28.7±11.54	2.91±0.76	3.14±0.86	2.88±0.76	2.97±0.75	20.48±6.42
	1-5 years ^b	10.16±4.05	8.56±4.3	10.33±4.14	29.04±11.57	2.76±0.76	3.10±0.82	2.72±0.71	2.84±0.72	19.64±5.39
	6-10 years ^c	9.91±4.41	8.41±4.45	10.12±3.84	28.44±12.11	2.90±0.83	3.04±0.81	2.88±0.80	2.93±0.78	19.24±6.76
	10 years and more ^d	6.07±3.93	5.71±3.89	7.71±3.12	19.5±10.2	3.11±0.63	3.37±0.93	2.99±0.70	3.14±0.69	16.71±5.37
	Statistical Anaysis	F=4.119 p=0.007 a-d, b-d, c- d	F=2.141 p=0.095	F=1.930 p=0.125	F=2.951 p=0.033 a-d, b-d	F=1.534 p=0.206	F=0.577 p=0.630	F=1.495 p=0.216	F=1.119 p=0.342	F=1.866 p=0.135
TYPE OF WORKING	Shift	10.18±4.16	8.7±4.29	10.23±3.95	29.12±11.58	2.80±0.75	3.07±0.81	2.76±0.72	2.87±0.71	19.7±5.78
	Only night and only daytime	7.29±4.27	6.48±3.74	8.45±3.67	22.23±10.84	3.22±0.84	3.52±0.93	3.18±0.82	3.29±0.83	20.19±7.29
	Statistical Anaysis	t=3.665 p=0.001	t=2.766 p=0.006	t=2.399 p=0.017	t=3.166 p=0.002	t=-2.939 p=0.004	t=-2.839 p=0.005	t=-3.020 p=0.003	t=-3.107 p=0.002	t=-0.444 p=0.658
WEEKLY WORKING HOURS	40 saat altı ^a	8.02±4.71	7.45±4.54	8.92±4.15	24.40±12.84	3.01±0.79	3.28±0.86	2.93±0.76	3.06±0.76	19.98±6.89
	41-50 hours ^b	10.28±4.05	8.74±4.12	10.33±3.78	29.35±11.07	2.82±0.75	3.09±0.81	2.78±0.73	2.88±0.73	19.81±5.58
	51 hours and more	10.32±4.26	8.11±5.28	9.74±5.08	28.16±13.88	2.68±0.82	3.05±0.99	2.65±0.73	2.78±0.78	18.32±7.43
	Statistical Anaysis	F=6.436 p=0.002 a-b	F=2.050 p=0.130	F=2.849 p=0.059	F=3.989 p=0.019 a-b	F=1.865 p=0.157	F=1.230 p=0.294	F=1.275 p=0.281	F=1.582 p=0.207	F=0.604 p=0.547

POSITIO N	Nurse Manager	6.25±4.2	5.7±3.97	8.4±4.37	20.35±11.73	3.39±0.90	3.50±1.02	3.31±0.96	3.39±0.92	16.4±7.66
	Clinical nurses	10.15±4.15	8.67±4.24	10.17±3.91	28.99±11.49	2.80±0.74	3.09±0.82	2.77±0.71	2.88±0.71	19.97±5.74
	Statistical Anaysis	t=-4.059 p=0.001	t=-3.043 p=0.003	t=-1.945 p=0.053	t=-3.251 p=0.001	t=3.378 p=0.001	t=2.135 p=0.034	t=3.214 p=0.001	t=3.097 p=0.002	t=-2.630 p=0.009
COVID-19 DIAGNOSIS STATUS	Yes	9.48±4.29	8.09±4.11	9.58±3.76	27.16±11.3	2.81±0.80	3.16±0.81	2.75±0.73	2.89±0.74	18.67±5.49
	No	10.06±4.24	8.64±4.35	10.25±4.02	28.95±11.81	2.85±0.75	3.10±0.84	2.82±0.74	2.91±0.73	20.17±6.06
	Statistical Anaysis	t=1.087 p=0.278	t=-1.022 p=0.307	t=-1.336 p=0.183	t=-1.224 p=0.222	t=-0.451 p=0.652	t=0.577 p=0.564	t=-0.703 p=0.482	t=-0.223 p=0.824	t=-2.022 p=0.044

Correlations among main variables

There was a considerably weak significant negative relationship between age and DASS-21 total score, stress, and depression, and a positive correlation between the DASS-21 total score and fear of COVID-19 ($r=.343$; $p<0.01$). A weak significant negative relationship existed between the DASS-21 total score and subscales and work engagement total score and subscales. There was a weak negative correlation between fear of COVID-19 and work engagement total score and subscales ($p<0.01$) (Table 4).

Table 4. The Relationship Between DASS-21, Work Engagement, Fear of COVID-19 and Age

		1	2	3	4	5	6	7	8	9	10
1. Age	r	1									
	p										
2. DASS-21 Total Score	r	-,135*	1								
	p	,017									
3. Fear of COVID- 19	r	-,054	,343**	1							
	p	,338	,000								
4. Vigor	r	,087	-,366**	-,148**	1						
	p	,126	,000	,009							
5. Dedication	r	,062	-,437**	-,207**	,823**	1					
	p	,273	,000	,000	,000						
6. Absorption	r	,106	-,310**	-,144*	,887**	,815**	1				
	p	,061	,000	,011	,000	,000					
7. Work Engagement Total Score	r	,090	-,391**	-,175**	,957**	,926**	,953**	1			
	p	,111	,000	,002	,000	,000	,000				
8. Stress	r	-,119*	,939**	,267**	- ,334**	- ,363**	- ,272**	- ,340**	1		
	p	,036	,000	,000	,000	,000	,000	,000			
9. Depression	r	-,159**	,935**	,320**	- ,398**	- ,434**	- ,337**	- ,411**	,830**	1	
	p	,005	,000	,000	,000	,000	,000	,000	,000		
10. Anxiety	r	-0,101	,930**	,370**	- ,294**	- ,425**	- ,260**	- ,343**	,812**	,790**	1
	p	,076	,000	,000	,000	,000	,000	,000	,000	,000	

*Pearson Correlation * $p<0,05$ ** $p<0,01$*

Determinants of work engagement

The analysis performed to determine the effect of independent variables on work engagement was statistically significant ($F=8.418$, $p<0.001$). There was a relatively significant positive relationship between independent variables and work engagement ($R=0.467$, $p<0.001$). The independent variables in the model explained 21.8% of the total variance in work engagement ($p<0.01$). The regression coefficients showed that the variable of depression ($\beta=-0.316$, $p<0.001$) had a significant negative effect on work engagement (Table 5).

Table 5. The effect of independent variables on the participating nurses' work engagement

Variables	Univariate					Multivariate				
	B	Standardized Error	Standardized (B)	t	p	B	Standardized Error	Standardized (B)	t	p
DASS-21 Total Score	-0,415	0,056	-0,388	-7,420	0,001**	-0,025	0,003	-0,391	-1,488	0,225
Fear of COVID-19	-0,372	0,117	-0,177	-3,166	0,001**	-0,007	0,007	-0,054	-0,949	0,344
Stress	-1,058	0,169	-0,335	-6,274	0,001**	-0,002	0,02	-0,01	-0,091	0,927
Depression	-1,182	0,152	-0,403	-7,759	0,001**	-0,055	0,018	-0,316	-3,079	0,002**
Anxiety	-1,013	0,155	-0,347	-6,534	0,001**	-0,007	0,017	-0,043	-0,443	0,658
Gender-Female	3,424	1,488	0,129	2,301	0,001**	0,148	0,082	0,095	1,811	0,071
Type of working-Only night and only daytime	7,135	2,332	0,171	3,060	0,001**	0,179	0,152	0,073	1,182	0,238
Position-Nurse Manager	8,435	2,851	0,165	2,959	0,001**	0,153	0,188	0,051	0,815	0,416

** $p<0,01$ * $p<0,05$

Discussion

The pandemic has psychologically affected nurses and other health professionals. ⁽²¹⁾ Long working hours, uncomfortable protective equipment, and being away from their loved ones have all affected nurses mentally. This study found that the stress mean score of the nurses was 10.06 ± 3.96 , the depression mean score was 9.9 ± 4.26 , and the anxiety mean score average was 8.48 ± 4.28 . The stress mean score was the highest. In a study conducted with nurses, the mean scores for depression, anxiety, and stress were 11.39 ± 4.46 , 14.13 ± 3.74 , and 14.01 ± 3.70 , respectively, and the anxiety score was found to be higher. ⁽²²⁾ The current study determined that 31.9% of the participants had severe depression, 43.8% had very severe anxiety, and 32.6% had moderate stress. A study examining the mental symptoms of nurses in Bangladesh reported the high prevalence of anxiety. ⁽²³⁾ The uncertain atmosphere of the pandemic, the difficulties caused by the working conditions, the greater exposure of the nurses to disease factors, witnessing other healthcare professionals' pandemic-related illness or death, and the stigmatizing attitude of society might have induced extremely high anxiety among nurses.

The COVID-19 pandemic has psychologically threatened nurses and driven them to fear. The study found the mean fear score of COVID-19 among nurses to be 19.74 ± 5.93 . Similarly, the fear of COVID-19 mean score was 19.92 ± 5.25 ⁽²⁴⁾ in a study conducted in the Philippines and 19.64 ± 7.38 ⁽²⁵⁾ in a study conducted in Turkey. A study in Jordan in which most of the participants (69.3%) were nurses reported the mean fear of COVID-19 score as 23.64 ± 6.85 . ⁽²⁶⁾ The current study determined that nurses had a moderate fear of COVID-19, and this finding should be evaluated considering the period the study was conducted.

The mean work engagement score of nurses was 2.91 ± 0.73 ; within this, the total work engagement score was below the mean, while the dedication score was the highest. Zhang et al. ⁽²⁷⁾ study was carried out 242 nurses in Wuhan, China reported a mean work engagement score of 4.83 ± 1.01 , using the nine-item work engagement scale. Meanwhile, other study examining work engagement among nurses found a mean of 4.4 ± 1.3 , with approximately 54% of nurses having high or very high work engagement levels. ⁽²⁸⁾ The literature review showed that mean work engagement scores were similar across different cultures. The tremendous workload and long working hours experienced during the COVID-19 pandemic have affected nurses' ability to cope. On the other hand, nurses' high dedication scores during this period have given a very

positive impression, suggesting that nurses dedicated themselves to their jobs while struggling with the crisis and doing their utmost to overcome challenges.

The study determined that the total mean scores for female nurses' dedication and work engagement were higher than those of men. Similarly, the study conducted with nurses also found differences in work engagement scores in terms of gender. ⁽²⁹⁾ There has not been a study stating that a gender-specific difference did not exist. ⁽³⁰⁾ That most nurses participating in the study were women might be the reason for the difference in gender-related work engagement total score and dedication score in our study.

The clinic in which a nurse has worked during the epidemic is one critical factor affecting their mental health. Patient care has increased in intensive care units (ICUs) due to the instability of patient health status during the pandemic. Moreover, other clinics have been converted to ICUs when necessary, and isolated patient care has been given in these additional units. The high number of isolated patients has increased nurses' workloads in ICUs, affecting nursing care. ⁽³¹⁾ The current study determined that nurses working in the ICU had lower DASS-21 total, stress, and anxiety scores than those working in other departments. Intensive care nurses have looked after COVID-19-diagnosed patients in line with strict protective measures. Being attentive to patients in the intensive care environment, providing care to a certain number of patients, and directly intervening have also obliged nurses to adapt to new working conditions and negatively affected their mental health. Thus, the high psychological scores of nurses working in other clinics may be attributed to the atmosphere of uncertainty caused by the disease and the frequent turnover of nurses in these clinics.

The work engagement scores averages of nurses working in the ICU were higher than those working in internal-surgical services and other departments. The vigor score averages of nurses in internal-surgical services were higher than those working in other departments. Wan et al. ⁽³²⁾ determined that the work engagement scores of nurses working in the ICU were higher than those who provided internal, surgery, and outpatient care. In ICUs, nurses can intervene directly and quickly with the patients they care for, which allows them to follow acute situations more closely. This situation may increase their work engagement as well as their absorption in their work. Contrary to our study, Allende-Cussó et al. ⁽²⁹⁾ found that the vigor scores of intensive care nurses were low in their study of nurses' work engagement levels during the pandemic.

The DASS-21 total score average and depression score average of the nurses who worked for 10 years or more was lower than those who worked for less than one year and 1-5 years. The depression score average of the nurses who worked for ten years or more was lower than those who worked for 6-10 years. During the pandemic period, working conditions, being deprived of social support systems, and increased physical and emotional fatigue caused mental problems for nurses working in risky environments. In particular, inexperienced nurses might have difficulties adapting to professional responsibilities, and the increase in their workload in the pandemic might lead to feelings of inadequacy and depressive symptoms. Thus, experienced nurses should contribute to crisis management more in the pandemic and try to prevent depressive feelings. Unlike the current study, a study conducted on nurses determined that stress and anxiety levels of nurses who worked for ten years and over were higher than those who worked for less than ten years. ⁽³³⁾ In their study, Cebeci and Durmaz ⁽²²⁾ did not find a significant difference in depression and anxiety scores according to professional experience. However, they found that nurses who worked for ten years and over had higher stress scores. Another study determined that highly experienced nurses' anxiety levels were high. ⁽³⁴⁾

The DASS-21 total score, depression, anxiety, and stress mean scores of the shift working nurses were higher than the group working only at night or during the day. Working in shifts has negatively affected nurses' physical and mental health, causing fatigue, decreasing productivity, and reducing the safety of patients and nurses. ⁽³⁵⁾ Shift work in nurses has created physical and psychosocial effects and sleep quality and quantity problems. ⁽³⁶⁾ In addition, the World Health Organization ⁽³⁷⁾ reported that during the COVID-19 pandemic, the way healthcare professionals work long hours and in shifts might cause individuals' mental health disorders.

In terms of working hours, the DASS-21 total score and the depression score average of the nurses who worked less than 40 hours were lower than the nurses who worked 41-50 hours. In their study on nurses during the COVID-19 pandemic, Sampaio et al. ⁽³⁸⁾ reported that nurses' average weekly working hours were 42 hours. They also found that increasing working hours in nurses caused higher depression, anxiety, and stress scores. It has been determined that the increased working hours in the pandemic, unlike the usual working conditions, adversely affect the mental health of nurses. In the pre-pandemic period, it was determined that the overtime hours of nurses negatively affected their work engagement and mental health. ⁽³⁹⁾ The findings obtained in the literature both before the pandemic and during the pandemic period support our study

In terms of position, nurse managers' mean work engagement scores were higher than those of clinical nurses. Similarly, Kim et al. ⁽⁴⁰⁾ and Saiga and Yoshioka ⁽⁴¹⁾ found that managers' nurses had higher work engagement scores. Nurse managers undertake critical roles in defining the professional roles, professional adaptation, positive perspectives, and work engagement cultivation of other nurses in the clinic. ⁽⁴²⁾ It should be noted that manager nurses differ from clinical nurses in terms of their roles, responsibilities, and working styles.

Clinical nurses' DASS-21 mean scores were higher than nurse managers. Stress, depression, and anxiety were widespread among nurses working in the clinic before the pandemic. ⁽⁴³⁾ During the pandemic, clinical nurses have been at the forefront in providing direct health care interventions to patients. ⁽¹⁾ A massive rise in pandemic-related cases, high patient numbers, and tiring working conditions have created significant psychological effects on nurses. The occupational satisfaction of healthcare professionals who provided no direct care to patients during the pandemic was higher than clinical staff, which implied this situation affected the mental state positively. ⁽⁴⁴⁾

As the nurses' work engagement scores increased, stress, depression, and anxiety scores decreased. Dasgupta, ⁽⁴⁵⁾ similarly, declared that as nursing-related stress increased, the level of work engagement decreased. In addition, the current study has found that depression has a significant negative effect on work engagement (21.8%), together with independent variables. In their research with clinical nurses, Wang et al. ⁽⁴⁶⁾ reported that depression, age, and paranoia negatively affected work engagement. Work engagement is determined by parameters such as occupational status, occupational interaction. ⁽²⁸⁾

Limitations

The study data were collected online. Nurses who could not access online were not included in the study. Second, the results of the study cannot be generalized to all nurses.

Conclusions

The current study, conducted during the pandemic, determined that nurses' average stress score was high. In addition, the rate of participants showing extremely advanced anxiety symptoms was very high. It has been determined that nurses' working styles and average weekly working hours, as well as the clinics in which they work, have affected their work engagement and psychological symptoms. According to the study results, this study suggests that nurses' wishes

and demands should be met by offering psychological support, appropriate coping skills, psychological assessments, easier working conditions, rest breaks, and a reduced workload. In addition, future research should include intervention and mixed-method studies to strengthen nurses psychologically and increase their commitment to work.

Implications for Research and Practices

Recently, nurses have faced the wearing and demanding effects of the pandemic. Work engagement is a crucial concept for care. ⁽²⁸⁾ The insufficient number of nurses, pressure to reduce healthcare expenditure, and rising demands for high-quality patient care and positive outcomes all increase the work engagement in professionalism. ⁽¹³⁾ Engaged nurses results in increased individual initiative reduced mortality, and significantly increased financial profitability in organizations.

Dedicated professional nurses who meet the requirements of the job can cope with the challenges of the pandemic more effectively. Dedicated to their work and energetically fulfilling their responsibilities, nurses can better cope with problems. For this reason, policymakers should consider supporting nurses spiritually, diagnosing their psychological symptoms in a timely fashion, and increasing their work engagement.

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

References

1. Hiçdurmaz D, Uzar Özçetin S. Protection of COVID-19 frontline nurses' mental health and prevention of psychological trauma. *Journal of Hacettepe University Faculty of Nursing*. 2020; 7: 1-7. Available at: <https://dergipark.org.tr/tr/download/article-file/1221740>
2. Marshall B. Impact of COVID-19 on nurses' mental health. *Issues Ment Health Nurs*. 2020; 41(10): 853-854. Doi: 10.1080/01612840.2020.1819083.
3. Maben J, Bridges J. COVID -19: supporting nurses' psychological and mental health. *J Clin Nurse*. 2020; 29: 2742–2750. Doi: 10.1111/jocn.15307
4. Xiong H, Yi S, Lin Y. The psychological status and self-efficacy of nurses during COVID -19 outbreak: a cross-sectional survey. *Inquiry*. 2020; 57. Doi: 10.1177/0046958020957114.
5. Zheng R, Zhou Y, Fu Y, et al. Prevalence and associated factors of depression and anxiety among nurses during the outbreak of COVID -19 in China: A cross-sectional study. *Int J Nurs Stud*. 2021; 114: 103809. Doi: 10.1016/j.ijnurstu.2020.103809.
6. Lyu H, Yao M, Zhang D, Liu X. Psychological resilience and work engagement of the first-

- line nurses in the prevention and control of COVID-19 based on structural equation model. *Risk Manag Healthc Policy*. 2020; 13: 2379-2386. Doi: 10.2147/RMHP.S254928.
7. Christian MS, Garza AS, Slaughter JE. Work engagement: A quantitative review and test of its relations with task and contextual performance. *Personnel Psychology*. 2011; 64(1): 89-136. Doi: 10.1111/j.1744-6570.2010.01203.x
8. Kahn WA. Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*. 1990; 33: 692–724. Doi:10.5465/256287
9. Bakker AB. An evidence-based model of work engagement. *Current Directions in Psychological Science*. 2011; 20(4): 265–269. Doi:10.1177/0963721411414534
10. Mason VM, Leslie G, Clark K, et al. Compassion fatigue, moral distress, and work engagement in surgical intensive care unit trauma nurses. *Dimens Crit Care Nurs*. 2014; 33(4): 215- 225. Doi: 10.1097/DCC.0000000000000056.
11. Schaufeli WB, Salanova M, Gonzalez-Roma V, Bakker AB. The measurement of engagement and burnout and: A confirmative analytic approach. *J Happiness*. 2002; 3: 71-92. Doi: 10.1023/A:1015630930326
12. Bargagliotti AL. Work engagement in nursing: a concept analysis. *J Adv Nurs*. 2011; 68(6): 1414–1428. Doi: 10.1111/j.1365-2648.2011.05859.
13. Keyko K, Cummings G, Yonge O, Wong CA. Work engagement in professional nursing practice: A systematic review. *IJANS*. 2016; 61: 142-164. Doi:10.1016/j.ijnurstu.2016.06.003
14. Fiabane E, Giorgi I, Sguazzin C, Argentero P. Work engagement and occupational stress in nurses and other healthcare workers: the role of organisational and personal factors. *J Clin Nurs*. 2013; 22 (17- 18): 2614–2624. Doi: 10.1111/jocn.12084
15. Giménez-Espert MdC, Prado-Gascó V, Soto-Rubio. A psychosocial risks, work engagement, and job satisfaction of nurses during COVID-19 pandemic. *Front Public Health*. 2020; 8: 566896. Doi: 10.3389/fpubh.2020.566896
16. Lovibond PF, Lovibond SH. The structure of negative emotional states: Comparison of the depression anxiety stress scales (DASS) with the Beck Depression and Anxiety Inventories. *Behav Res Ther*. 1995; 33: 335-343. Doi: 10.1016/0005-7967(94)00075-u.
17. Sarıçam, H. The psychometric properties of Turkish version of depression anxiety stress scale-21 (DASS-21) in health control and clinical samples. *Journal of Cognitive-Behavioral Psychotherapy and Research*. 2018; 7(1): 19- 30.

18. Ahorsu DK, Lin CY, Imani V, Saffari M, Griffiths MD, Pakpour AH. The fear of COVID-19 scale: Development and initial validation. *Int J Ment Health Addict.* 2020; 27: 1-9. Doi: 10.1007/s11469-020-00270-8.
19. Bakioğlu F, Korkmaz O, Ercan H. Fear of COVID-19 and positivity: Mediating role of intolerance of uncertainty, depression, anxiety, and stress. *Int J Ment Health Addict.* 2021; 19:2369-2382. Doi: 10.1007/s11469-020-00331-y
20. Eryılmaz A, Doğan T. Subjective well-being at work: Investigating of psychometric properties of Utrecht Work Engagement Scale. *J Clin Psy.* 2012; 15(1): 49-55.
21. Mo Y, Deng L, Zhang L, et al. Work stress among Chinese nurses to support Wuhan in fighting against COVID-19 epidemic. *J Nurs Manag.* 2020; 28(5): 1002-1009. Doi: 10.1111/jonm.13014.
22. Cebeci SP, Durmaz H. Determination of depression, anxiety and stress levels among nurses caring for Corona virus patients. *Journal of Ankara Health Sciences.* 2021; 10(1): 46-56.
23. Chowdhury SR, Sunna TC, Das DC, et al. Mental health symptoms among the nurses of Bangladesh during the COVID-19 pandemic. *Middle East Current Psychiatry.* 2021; 28(1): 1-8. Doi: 10.1186/s43045-021-00103-x
24. Labrague LJ, de Los Santos JAA. Fear of Covid-19, psychological distress, work satisfaction and turnover intention among frontline nurses. *J Nurs Manag.* 2021; 29(3): 395-403. Doi:10.1111/jonm.13168
25. Aslan S, Dinç M. Examining the relationship between nurses' fear levels and insomnia during the COVID -19 pandemic in Turkey. *Perspect Psychiatr Care.* 2022; 58(1): 54-60. Doi:10.1111/ppc.12927
26. Alnazly E, Khraisat OM, Al-Bashaireh AM, Bryant CL. Anxiety, depression, stress, fear and social support during COVID -19 pandemic among Jordanian healthcare workers. *PLoS ONE.* 2021; 16(3): e0247679. Doi:10.1371/journal
27. Zhang R, Hou T, Kong X, et al. Effects of region, epidemic stage, and demographic characteristics on sleep quality and mental disturbances among health care workers during COVID -19 outbreak. *Europe PMC.* 2020. Doi: 10.21203/rs.3.rs-23260/v1
28. Ghazawy ER, Mahfouz EM, Mohammed ES, Refaei SA. Nurses' work engagement and its impact on the job outcomes. *Int J Healthc Manag.* 2021; 14(2): 320-327. Doi:10.1080/20479700.2019.1644725

29. Allande-Cussó R, García-Iglesias JJ, Ruiz-Frutos C, Domínguez-Salas S, Rodríguez-Domínguez C, Gómez-Salgado J. Work engagement in nurses during the COVID -19 pandemic: A cross-sectional study. *Healthcare (Basel)*. 2021; 9(3):253. Doi: 10.3390/healthcare9030253
30. Da Silva AG, Cabrera EMS, Gazetta CE, et al. Engagement in primary health care nurses: A cross-sectional study in a Brazilian city. *Public Health Nurs*. 2020; 37(2): 169-177. Doi: 10.1111/phn.12694.
31. Fernández-Castillo RJ, González-Caro MD, Fernández-García E, Porcel-Gálvez AM, Garnacho-Montero J. Intensive care nurses' experiences during the COVID-19 pandemic: A qualitative study. *Nurs Crit Care*. 2021; 26(5):397-406. Doi:10.1111/nicc.12589.
32. Wan Q, Zhou W, Li Z, Shang S, Yu F. Work engagement and its predictors in registered nurses: A cross-sectional design. *Nurs Health Sci*. 2018; 20(4): 415-421. Doi:10.1111/nhs.12424(2018)
33. Aziznejadroshan P, Qalehsari MQ, Zavardehi FS. Stress, anxiety, depression among nurses caring for COVID 19 patients in babol”, Iran: a logistic regression. 2020. <https://doi.org/10.21203/rs.3.rs-98099/v1>
34. Sariçam M. COVID-19-related anxiety in nurses working on front lines in Turkey. *Nurs Midwifery Stud*. 2020; 9(3):178-81. Doi: 10.4103/nms.nms_40_20
35. Caruso CC. Negative impacts of shiftwork and long work hours. *Rehabil Nurs*. 2014; 39(1):16-25. Doi: 10.1002/rnj.107
36. Matheson A, O’Brien L, Reid JA. The impact of shiftwork on health: A literature review. *J Clin Nurs*. 2014; 23(23-24): 3309– 3320. Doi:10.1111/jocn.12524
37. World Health Organization. WHO calls for healthy, safe and decent working conditions for all health workers, amidst covid-19 pandemic. 2020. Available from: <https://www.who.int/news/item/28-04-2020-who-calls-for-healthy-safe-and-decent-working-conditions-for-all-health-workers-amidst-covid-19-pandemic>
38. Sampaio F, Sequeira C, Teixeira L. Impact of COVID -19 outbreak on nurses’ mental health: A prospective cohort study. *Environ Res*. 2021;194: 110620. Doi: 10.1016/j.envres.2020.110620
39. Watanabe M, Yamauchi K. The effect of quality of overtime work on nurses' mental health and work engagement. *J Nurs Manag*. 2018; 26(6): 679-688. Doi: 10.1111/jonm.12595.
40. Kim YJ, Lee SY, Cho JH. A study on the job retention intention of nurses based on social support in the COVID-19 situation. *Sustainability*. 2020; 12(18): 7276. Doi: 10.3390/su12187276

41. Saiga E, Yoshioka SI. Factors influencing the happiness of Japanese nurses: association with work engagement and workaholism. *Kawasaki Journal of Medical Welfare*. 2021; 26(2): 81-93. Doi: 10.15112/00014817
42. García-Sierra R, Fernández-Castro J, Martínez-Zaragoza F. Work engagement in nursing: An integrative review of the literature. *J Nurs Manag*. 2016; 24(2): E101-E111. Doi:10.1111/jonm.12312
43. Tran TTT, Nguyen NB, Luong MA, et al. Stress, anxiety and depression in clinical nurses in Vietnam: A cross-sectional survey and cluster analysis. *Int J Ment Health Syst*. 2019; 3(13): 1-11. Doi: 10.1186/s13033-018-0257-4.
44. Arpacıoğlu S, Baltalı Z, Ünübol B. Burnout, fear of Covid, depression, occupational satisfaction levels and related factors in healthcare professionals in the COVID-19 pandemic. *Cukurova Medical Journal*. 2021; 46(1): 88-100. Doi: 10.17826/cumj.78560.
45. Dasgupta P. Work engagement of nurses in private hospitals. *Journal of Health Management*. 2016; 18(4): 555–568. Doi:10.1177/0972063416666160
46. Wang J, Zhan Y, Li L, Wang M, Tian Y. Correlation analysis between mental health and work engagement of nurses. *Chinese Journal of Practical Nursing*. 2021; 36, 517-52.