Original Article

The Effect of the Pandemic on the Sleep Habits and Quality of Life

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Abstract

Background: The biggest negative impact of the pandemic on people's lifestyle is sleep. Determining sleep habits and sleep quality is extremely important.
Aim: The present study is a descriptive research that aims to determine the change in sleep habits caused by the COVID-19 pandemic and the effect of this change on their quality of life.
Methodology: The data of the study were collected from 604 individuals between 20 October 2020 and 20 February 2021. An "online survey" was used in the data collection, due to the social distance restrictions implemented during the COVID-19 pandemic.
Results: The mean age of the participants was 31.26 ±10.45. It was found that the sleep quality of the participants was poor (9.08±4.22), their duration to fall asleep in the last month was 56.83±99.45/min, and their average duration of nighttime sleep was 5.57±1.59/hours. The study found that the majority of the participants quickly ran out of energy (47.7%) and they always felt tired (43.2%). The participants' health profile levels were found to be moderate, according to their total score on Nottingham Health Profile scale.
Conclusion: The study found that the most frequent working hours of the participants during the pandemic period, including the data collection process, were daylight hours. The majority worked 5-10 hours a day. In terms of gender, women were found to have poorer sleep quality than men. In addition, it was shown that the perceived health status of individuals was moderate, and women's perceived health status was poorer than men's.

Keywords: COVID-19, Sleep, Habit, Quality of life.

Introduction

Meeting the vital needs of individuals in a balanced way is among the requirements of a healthy life, one of the most important of which is sleep. Sleep is an active period that covers one third of our lives and is vital for renewing our mental and physical health every day. Sleep is seen as an important variable of health, affecting the quality of life and well-being of individuals (Aysan, Karakose & Zaybak, 2014).

Health-related quality of life is a concept that is perceived by individuals and focuses on health and happiness. Sleep quality is closely related to life quality. Sleep disorders and deterioration in sleep quality adversely affect mental and physical health, especially of the elderly, cause deterioration in mental functions, results in an increase in the incidence of cardiovascular and metabolic diseases, fatigue, a decrease in attention and memory functions, a decrease in physical performance and it causes anxiety and depression (Oz Vurmaz, Asparpour & Gunes, 2018; Pekcetin & Inal, 2019).

Although it may vary depending on societies and age groups, the rate of sleep disorders generally varies between 5% and 71%. In a study conducted in Turkey, it was reported that 21.8% of the Turkish population had

deterioration in sleep quality, 34% of individuals had difficulty falling asleep and waking up early (Aysan, Karakose & Zaybak, 2014).

It is possible to make mistakes in the process of finding solutions for sleep problems. These mistakes include a negative lifestyle, increasing the frequency of alcohol consumption, taking sleeping pills, taking herbal medicines, watching television constantly, and using cell phones and computers too often. Alcohol can cause frequent awakenings during the night, although it may precipitate falling asleep. One of the other important factors that negatively affect sleep quality is working hours. Switching to an irregular life and work schedule after a routine work schedule may disrupt the sleep habits of individuals. In addition to these, stress is considered as one of the most important factors in the deterioration of sleep quality (Park et al., 2015; Sahlin et al., 2009).

Due to the COVID-19 pandemic, which has been affecting the whole world and Turkey for several years, great changes have occurred in the lifestyle habits of individuals, which in turn has affected their routine habits. Among these, sleep habits is one of the most negatively affected factors. Due to the uncertainties created by the COVID-19 pandemic and the ongoing process, it is of great importance to determine the sleep habits and sleep quality of individuals, to identify problems and propose solutions, and to implement practices in this regard in a rapid manner; because the negative effects on sleep habits can reduce the quality of life in the future, as well as cause serious health problems (Ozcanli, Erdogan Zeydan & Albayrak Cosar, 2012; Kara, 2016).

Methodology

Purpose: The present study aims to determine the change in sleep habits of the participants due to the COVID-19 pandemic and the effect of the said change on their quality of life. The present study is a descriptive research investigating the effects of changes in sleeping habits and the said change on quality of life during the COVID-19 pandemic.

Design and Setting: The present study was conducted with individuals over the age of 18 in Turkey who experienced home quarantine due to the COVID-19 pandemic between 20 October 2020 and 20 February 2021, who met the inclusion criteria and were willing to participate in the research. Participants were informed about the purpose of the study and requirements.

Participants: The power of a study is expressed as 1-β (β = probability of type II error); and studies are generally expected to have a power of 80%. In the present study, the minimum number for study sample was planned to be 385 in total, in accordance with the aim of obtaining 80% power at the α=0.05 level. Accordingly, data were collected from a total of 604 individuals by the data collection dates.

Data collection and measures: For data collection, in addition to the "sociodemographic information form" created by the researchers, Pittsburgh Sleep Quality Index (PSQI) and Nottingham Health Profile (NHP), which are valid and reliable tools, were used in the present study.

-Patient Information Form: The form includes 25 items containing questions about the sociodemographic characteristics of the participants, such as age, gender, height, weight, whether they work at home, their alcohol and cigarette consumption, and their obstructive sleep apnea symptoms. The said form was created by the researcher in line with the previous literature (Aysan, Karakose & Zaybak, 2014; Oz Vurmaz, Asparpour & Gunes, 2018; Pekcetin & Inal, 2019; Ozcanli, Erdogan Zeydan & Albayrak Cosar, 2012; Kara, 2016).

-Pittsburgh Sleep Quality Index (PSQI): PSQI is a self-report scale that assesses sleep quality and sleep disorders experienced in the last month. PSQI was developed by Buysse et al. in 1989 (Buysse, Reynolds & Monk, 1989) and its Turkish validity and reliability study was conducted by Agargun et al. in 1996 (Agargun, Kara & Anlar, 1996). The scale score range is between 0-21. A high total score indicates poor sleep quality (Buysse, Reynolds & Monk, 1989; Agargun, Kara & Anlar, 1996). The Cronbach's alpha internal consistency coefficient for the scale was 0.80 (Agargun, Kara & Anlar, 1996). In our study, the Cronbach alpha value was found to be 0.845.

-Nottingham Health Profile (NHP): The NHP was designed in 1981 at the University

of Nottingham, England, and updated in the same year at the Queen's Medical Center School of Community Health Science at the University of Nottingham, England (Hunt, McEwen & McKenna, 1985). The scale aims to assess the self-perceived health status of individuals in physical, emotional and social dimensions in order to evaluate their quality of life, and its Turkish validity and reliability were performed by Kucukdeveci et al. A value of "0" on the scale indicates the best possible health status, while "100" indicates the poorest possible health status. A high scale total indicates a poorer health status of the individual (Kucukdeveci et al., 2000). In this study, the Cronbach's alpha value for the NSP total scale was found to be 0.919. In terms of sub-dimension Cronbach's alpha values, pain was found to be 0.806, emotional reaction was 0.860, sleep was 0.702, social isolation was 0.788, physical activity was 0.685, and energy was 0.767.

Ethical Considerations: Permission was obtained from the ethics committee application of the study. Individuals who were willing to participate in the study were informed about the purpose and requirements of the study in line with the Declaration of Helsinki, and written consent was obtained from the participants who participated voluntarily. In the study, data were collected between 20 October 2020 and 20 February 2021 via the "online survey" due to the implementation of social distance and contact restrictions within the scope of the COVID-19 pandemic.

Statistical Analysis: In the present study, IBM SPSS Windows 21.0 package program (IBM Corp. Armonk, N.Y. USA) was used. In statistical analyses, numerical and percentile distributions were used for qualitative and numerical variables, and Student's t-test was used for the analysis of normally distributed variables between two groups. The results were interpreted within the 95% confidence interval and the $p<0.05$ value was used as the significance level.

Results

In the study, 27.3% of the participants were male, 72.7% were female, and the mean age was 31.26 ±10.45. It was found that 14.2% of the participants worked at home since the beginning of the pandemic, 70.9% did not work at home, and 14.9% did not work at all. In terms of daily working hours, 55.8% of the participants working in a job worked for 5-10 hours, and 33.7% worked more than 10 hours. In terms of the most frequent working hours, it was determined that 71.1% of the participants worked during the day and 28.9% at night (Table 1).

In terms of lifestyle habits that affect the sleep quality of individuals, it was found that those who consumed alcohol 2-3 days a week were 17.1% of the sample, and 11.8% of the participants started smoking more than before during the pandemic. In addition, it was observed that 45.7% of the participants consumed caffeinated beverages such as coffee and tea more than 3 times a day, and 9.6% used sedatives or sleeping pills. In the present study, it was seen that the majority of individuals (74.7%) did not exercise regularly and 54.8% gained weight since the beginning of the pandemic (Table 1).

It was found that the participants' falling asleep durations in the last month were 56.83±99.45/min, and their average nighttime sleep durations were 5.57±1.59/hr. In the study, it was seen that the individuals had problems including falling asleep in 30 minutes more than three times a week in the last month (26.3%), waking up in the middle of sleep or early in the morning (27.6%), having nightmares during sleep (10.3%), and severe snoring or coughing (11.8%) experienced less than once a week (Table 2).

The majority of the participants of the study stated that the events were difficult for them (48.7%), they even forgot what made them happy (43.9%), the days were difficult (54.8%), they were often angry recently (53.6%), their worries prevented them from sleeping at night (41.9%), they had difficulty sleeping (44.9%), and lost sleep at night (43.4%) (Table 3). It was found that the majority of individuals lost their energy rapidly (47.7%), they had to make an effort for everything (46.7%), and they always felt tired (43.2%) (Table 3). The total PSQI score was found to be 9.08±4.22, and therefore, the sleep quality of the individuals was found to be poor. The sleep quality analysis by gender showed that the sleep quality of women (9.25±4.20) was worse than that of men (8.64±4.25) ($p=0.111$) (Table 4). Daytime dysfunction and somnolence were found to be

more serious in women (3.17±1.67) than in men (2.67±1.68) (p=0.001) (Table 4). In the Nottingham Health Profile subgroup scores of the individuals, it was found that while the individuals' perceived pain levels (23.50±27.07), sleep levels (33.67±30.30), social isolation levels (27.78±32.47) and physical activity levels (13.94±18.71) were high; their emotional reaction status (40.39±32.89) and energy levels (45.86±41.16) were moderate. In general, it was observed that individuals' self-perceived health status was at a high level (30.86±22.44) (Table 4). Emotional pain (p=0.000), emotional reactions (p=0.039), energy (p=0.000) and total score health levels were found to be significantly lower in women than in men, and their self-perceived health status was found to be better (Table 4).

Table 1. Distribution of Sociodemographic Characteristics and Distribution of Lifestyle Habits Affecting Individuals' Sleep Quality (N=604)

Characteristics	n(%)	Characteristics	n(%)
Gender		**If yes; worked at home?**	
Female	439 (72.7)	Yes	86(14.2)
Male	165(27.3)	No	428(70.9)
Age Group		Did not work	90(14.9)
18-36	443(73.3)	**Occupation**	
37-51	133(22.0)	Employed in the field of education	91(18.0)
52-70	27(4.5)	Healthcare professional	233(46.0)
71-91	1(0.2)	Security officer	11(2.2)
Age (mean±SD)	31.26 ±10.45	Service industry (cargo/food/cleaning/transportation etc.)	31(6.1)
Body Mass Index (mean±SD)	24.57 ± 5.97	Housewife	23(4.5)
Education		**Daily working hours for the past 2 months**	
Not literate	2(0.3)	Less than 4 hours	54(10.5)
Primary-secondary school	8(1.3)	5-10 hours	288(55.8)
High school	82(13.6)	More than 10 hours	174(33.7)
University-Bachelor's and higher	512(84.8)	**Most frequent working hours during the past 2 months**	
Corona test status		Daytime hours	364(71.1)
Had it	309(50.5)	Night hours	148(28.9)
Did not have it	299(49.5)	**Income status**	
Test result		I comfortably spend money on daily necessities	156(25.8)
Negative	217(35.9)	I can meet my daily needs.	304(50.3)
Positive	92(15.2)	I can only meet my essential needs.	106(17.5)
Unknown	295(48.8)	I hardly meet even my essential needs.	38(6.3)
Employment in the past 2 months			
Yes	467(77.3)		
No	137(22.7)		
Lifestyle habits	**n(%)**	**Lifestyle habits**	**n(%)**
Frequency of alcohol consumption during the last 2 months		**Regular use of prescription drugs**	

Every day	1(0.2)	Yes	167(40.4)
2-3 days a week	103(17.1)	No	246(59.6)
I do not consume	500(82.8)	**Large tonsils or adenoid problem**	
Smoking status in the last 2 months		Yes	72(11.9)
I quit smoking	26(4.3)	No	532(88.1)
I never smoke	412(68.2)	**Regular exercise during the last 2 months**	
I smoke more often	71(11.8)	Yes	153(25.3)
I smoke less often	52(8.6)	No	451(74.7)
I smoke the same amount	43(7.1)	**Previous Diagnoses**	
Frequency of consumption of caffeinated beverages (such as coffee, tea) during the last 2 months		Hypertension	29(4.8)
I never consume	18(3.0)	Diabetes Mellitus	16(2.6)
1-2 times a day	310(51.3)	Asthma	34(5.6)
More than 3 a day	276(45.7)	Allergic rhinitis	48(7.9)
Use of sedatives and sleeping pills in the last 2 months		Eczema	35(5.8)
Yes	58(9.6)	Stomach problems	52(8.6)
No	546(90.4)	Joint, back or muscle pain	63(10.4)
Regular use of prescription medication due to a pre-existing illness for the last 2 months		Psychological disorders	17(2.8)
Yes	126(20.9)	**Menstrual irregularity in the last 2 months**	
No	478(79.1)	Yes	171(28.3)
Weight gain in the last 2 months		No	299(49.5)
Yes	331(54.8)	Male gender	134(22.2)
No	273(45.2)		

Table 2. Distribution of Sleep Quality PSQI Frequencies (N=604)

- Falling asleep duration at night, in the last 1 month (mean±SD)			56.83±99.45/min	
- Average night time sleep duration, in the last 1 month (mean±SD)			5.57±1.59 /hours	
	None	**Less than once a week**	**1-2 times a week**	**3 or more times a week**
I slept badly in the last month because…	**n(%)**	**n(%)**	**n(%)**	**n(%)**
-I couldn't fall asleep in 30 minutes	188(31.1)	86(14.2)	171(28.3)	159(26.3)
-I woke up in the middle of sleep or very early in the morning	145(24.0)	136(22.5)	156(25.8)	167(27.6)
-I had to use the bathroom	290(48.0)	117(19.4)	113(18.7)	84(13.9)
-I couldn't breathe easily	410(67.9)	102(16.9)	53(8.8)	39(6.5)
-I snored or coughed heavily	470(77.8)	71(11.8)	44(7.3)	19(3.1)
-I felt cold	340(56.3)	138(22.8)	81(13.4)	45(7.5)
-I felt hot	357(59.1)	140(23.2)	79(13.1)	28(4.6)
-I had nightmares	266(44.0)	177(29.3)	99(16.4)	62(10.3)
-I had pain	344(57.0)	133(22.0)	76(12.6)	51(8.4)
-Other reasons	398(65.9)	81(13.4)	62(10.3)	63(10.4)
-How often have you had to use medication to help you sleep in the past month?	551(91.2)	22(3.6)	16(2.6)	15(2.5)

-In the past month, how often have you had difficulty driving, eating, or doing social activities due to sleepiness despite being awake?	301(49.8)	123(20.4)	98(16.2)	82(13.6)
-How often during the past month have you felt a general loss of motivation?	170(28.1)	106(17.5)	160(26.5)	168(27.8)
	Very good	**Fairly good**	**Fairly poor**	**Very poor**
	n(%)	**n(%)**	**n(%)**	**n(%)**
- Overall sleep quality in the past month	47(7.8)	275(45.5)	217(35.9)	65(10.8)

Table 3. Distribution of Nottingham Health Profile Frequencies (N=604)

	Pain	**Yes n(%)**	**No n(%)**
1	I have pain when going up and down stairs.	185(30.6)	419(69.4)
2	I have pain when I stand.	154(25.5)	450(74.5)
3	I have pain when I change position.	155(25.7)	449(74.3)
4	I have pain when I sit down.	137(22.7)	467(77.3)
5	I have pain when I walk.	144(23.8)	460(76.2)
6	I have pain at nights.	103(17.1)	501(82.9)
7	I have unbearable pain.	35(5.8)	569(94.2)
8	I am in constant pain.	223(36.9)	381(63.1)
	Emotional reactions		
1	Things are difficult for me.	294(48.7)	310(51.3)
2	I even forgot what makes me happy.	265(43.9)	339(56.1)
3	I feel myself on the edge of the abyss.	128(21.2)	476(78.8)
4	Days are difficult.	331(54.8)	273(45.2)
5	I often get angry recently.	324(53.6)	280(46.4)
6	I feel like I will not be able to control myself.	172(28.5)	432(71.5)
7	My worries keep me from sleeping at night.	253(41.9)	351(58.1)
8	I think life is unbearable.	226(37.4)	378(62.6)
9	I feel depressed when I wake up.	203(33.6)	401(66.4)
	Sleep		
1	I use sleeping pills	27(4.5)	577(95.5)
2	I wake up involuntarily early in the morning	238(39.4)	366(60.6)
3	I lose sleep at night	262(43.4)	342(56.6)
4	I have trouble sleeping	271(44.9)	333(55.1)
5	My sleep at night is very poor	219(36.3)	385(63.7)
	Social isolation		
1	I feel lonely	208(34.4)	396(65.6)
2	I have difficulty connecting with people	130(21.5)	474(78.5)
3	I don't feel close to anyone	199(32.9)	405(67.1)
4	I think I'm a burden to people	94(15.6)	510(84.4)
5	It feels difficult to get along with people	208(34.4)	396(65.6)
	Physical activity		
1	I can only walk inside the house	154(25.5)	450(74.5)
2	It's very difficult for me to bend	105(17.4)	499(82.6)
3	I cannot walk at all	32(5.3)	572(94.7)
4	I have trouble going up and down stairs	125(20.7)	479(79.3)
5	I'm having trouble reaching	52(8.6)	552(91.4)
6	I'm having trouble getting dressed	35(5.8)	569(94.2)

7	I cannot stand for long	156(25.8)	448(74.2)
8	I need help walking on the street	15(2.5)	589(97.5)
	Energy		
1	I run out of energy rapidly	288(47.7)	316(52.3)
2	Everything takes effort.	282(46.7)	322(53.3)
3	I am always tired	261(43.2)	343(56.8)

Table 4. Total Sleep Quality and Nottingham Health Profile Score Average and Distribution by Gender (N=604)

PSQI components	**Total Mean±SD**	**Female n=439 Mean±SD**	**Male n=165 Mean±SD**	**t test**
Subjective sleep quality	0.16±0.58	0.18±0.61	0.10±0.46	t=1.418 p=0.157
Falling asleep duration	1.52±1.00	1.54±1.01	1.47±1.00	t=0.753 p=0.452
Sleep duration	1.37±1.12	1.34±1.10	1.46±1.17	t=-1.183 p=0.237
Habitual sleep effectiveness	1.18±0.98	1.21±0.97	1.11±1.01	t=-0.839 p=0.402
Sleep disorders & sleep-related conditions	1.17±0.59	1.18±0.59	1.15±0.60	t=0.408 p=0.683
Use of sleeping pills/substances	0.63±0.87	0.62±0.86	0.66±0.90	t=-0.482 p=0.630
Daytime dysfunction/somnolence	3.03±1.69	3.17±1.67	2.67±1.68	t=3.260 **p=0.001**
Total PSQI Score	9.08±4.22	9.25±4.20	8.64±4.25	t=1.598 p=0.111
Nottingham Health Profile				
Pain	23.50±27.07	26.62±27.98	**15.22±22.55**	t=4.688 **p=0.000**
Emotional reactions	40.39±32.89	42.09±31.93	**35.89±35.04**	t=2.069 **p=0.039**
Sleep	33.67±30.30	34.98±29.92	30.18±31.12	t=1.740 p=0.082
Social isolation	27.78±32.47	28.10±32.90	26.90±31.36	t=0.404 p=0.686
Physical activity	13.94±18.71	14.69±19.23	11.96±17.14	t=1.595 p=0.094
Energy	45.86±41.16	49.81±40.97	**35.35±39.93**	t=3.891 **p=0.000**
Total NSP Score	30.86±22.44	32.71±22.27	**25.92±22.21**	t=3.344 **p=0.001**

Discussion

It was found that 27.3% of the individuals participating in the present study were male, 72.7% were female, and the mean age was 31.26 ±10.45. Similarly, in the study conducted by Arpacioglu et al. during the COVID-19 pandemic, it was found that 64.6% of the participants were female and 35.4% were male, and the mean age of the individuals participating in the study was 37±11.3 (Arpacioglu & Unubol).

The COVID-19 pandemic has had an impact on how individuals work. As a result of the widespread effects of the pandemic, there have been changes in working hours, thus, working individuals have had to move their workplaces to their homes. Previous studies have also found that the rate of people working at home has increased during the pandemic. While only a certain part of the society was working at home before pandemic, working at home was encouraged during the pandemic, and even has become compulsory in some cases (Kara, 2020). In the study conducted by Kara, it was stated that it is not possible to perform every profession at home and it was determined that most individuals do not have the option to work at home. Although there is a variety between countries, the results of the study showed that only 13% of jobs in developing countries can be performed at home (Kara, 2020). Similarly, it was found in our study that 14.2% of the participants started to work at home, 70.9% did not work at home, and 14.9% did not work at all, due to the change in working circumstances that occurred with the pandemic. In terms of daily working hours, it was seen that 55.8% of the working participants worked for 5-10 hours, and 33.7% worked more than 10 hours. In terms of the most frequent working hours, it was determined that 71.1% of the participants worked during the day and 28.9% at night (Table 1).

The measures taken to control the COVID-19 pandemic have rapidly changed all aspects of daily life, including eating habits, physical activity levels, and consumer behavior (Korkut Gencalp, 2020). The pandemic process has caused individuals to make changes in their own lives as well. In the pandemic, consumption habits have also changed due to the fact that individuals stayed at home longer due to the restrictions and quarantine conditions (Eskici,2020). Individuals routinely staying at home and being unable to continue their normal lives has changed their moods, and consequently they have started to lead a much more sedentary life style (Eskici,2020; Kunst, 2020).

In the present study, the analysis of lifestyle habits that affect sleep quality showed that 17.1% of the participants consumed alcohol 2-3 days a week, 11.82% of the participants started to smoke more, 7.1% continued to smoke same amount (Table 1). A study examining the changes in alcohol and cigarette consumption of individuals in the COVID-19 pandemic found that 69.4% of the participants did not smoke, 14.6% did not change their cigarette consumption, 4.6% increased their cigarette consumption, 11.3% of them either reduced or stopped smoking completely (Arpacioglu & Unubol, 2020). In the same study, it was seen that 63.6% of the participants did not consume alcohol, 20.3% did not change their alcohol consumption, 4.9% increased their alcohol consumption, and 11.2% either reduced their alcohol consumption or stopped drinking completely (Arpacioglu & Unubol, 2020).

In the present study, it was found that only 8.6% of the participants stopped smoking (Table 1). This may be due to the finding that smokers are more likely to contract COVID-19 and the disease process is more severe in smokers. Although the consumption of some of the individuals who consume alcohol and cigarettes increased after the COVID-19 epidemic in Turkey, it was revealed that the consumption of alcohol and cigarettes decreased in the general population (Arpacioglu & Unubol, 2020). The study conducted by Kunst showed that the rate of people who did not make changes in their lifestyle during the COVID-19 pandemic period was found to be between 1% and 3%, that is, very few people did not make any changes in their lifestyle (Kunst, 2020). The present study also showed that 11.8% of individuals increased their smoking, 17.1% consumed alcohol 2-3 days a week (Table 1), and individuals made changes in their lifestyle habits in general.

As shown by previous studies, the COVID-19 pandemic process has increased the need for people to eat and drink as it has increased the length of stay at home, and has led to changes in their diet. It has been stated that increased time spent at home, constant exposure to pandemic news, enhanced anxiety, increased desire to consume food due to negative mood and decreased physical activity resulted in undesirable increase in body weight (Eskici, 2020; Kunst, 2020). The US Physical Activity Guidelines states that at least 150 minutes of moderate to vigorous physical activity per week is essential for all adults. Similar guidelines have been published in many countries, based on strong evidence that regular physical activity provides various health benefits (Bull et al, 2020; Piercy et al, 2018; Stamatakis et al, 2020).

During the pandemic, populations of countries around the world have been advised to stay at home and avoid contact with people outside the household. Restriction decisions taken during the quarantine period limited the physical activities of individuals due to the fear and concern contracting the disease. The study by Sallis et al. found that regular physical activity played an important role in reducing the severity of the COVID-19 pandemic. Moreover, it has been stated that regular physical activity and good immune function reduce the incidence, symptom intensity and mortality from various viral infections. The study by Sallis et al. stated that the effects of COVID-19 disease in individuals with physical inactivity are more severe than those who do regular physical activity (Sallis et al., 2021). A decrease in physical activity was also observed in the individuals participating in the present study, and it was found that the majority of the individuals (74.7%) did not exercise regularly and gained weight (54.8%) (Table 1), despite their high level of health compared to their physical activity levels (13.94±18.71) (Table 4).

The World Health Organization has stated in the healthy eating guidelines for adults published during the COVID-19 pandemic that sugary drinks, caffeinated beverages and convenience foods high in salt and sugar should be avoided (World Health Organization, 2020). However, it was observed that the majority of the individuals participating in our study consumed caffeinated beverages such as tea and coffee more than 3 times a day during the pandemic process (Table 1). This may result from the stress and uncertainty regarding future created by the pandemic and restrictions (Cirak, 2021; Garipoglu & Bozar, 2020).

Sleep is a vital need for the maintenance of the individuals' physiological and psychological well-being. Sleep is a form of rest that allows the body to renew itself, creates a change in the state of consciousness. It is a prerequisite for a healthy life, and it can be interrupted to different degrees by various stimuli (Ozlu et al., 2015). Individuals have been confined to their homes for a long time to reduce social contact in order not to be infected with COVID-19. Factors such as long-term isolation, fear of illness, uncertainty, disappointment and economic loss have led to significant changes in individuals' daily routines and lifestyles, thus negatively affecting their psychological state. Psychosocial stressors affected sleep patterns and caused deterioration in sleep quality. As a result of all these, sleep disorders have emerged as a negative effect of the pandemic. These sleep disorders, particularly seen during the pandemic, are defined as "covidsomnia" (Inonu Koseoglu, 2021; Karaman 2015). It has been reported by previous studies that poor sleep health is closely associated with sleep and mood, resulting in higher levels of depression, anxiety, and stress (Yuksek et al., 2021). In the present study, it was found that 9.6% of individuals used sedatives or sleeping pills due to the insomnia experienced due to the pandemic (Table 1). An increase in sleep disorders in the COVID-19 pandemic has been observed in many studies in the literature. In a survey study conducted with 843 participants, 69.4% of the participants reported a change in sleep patterns, less than half (44.7%) had a restful sleep, and 45.6% felt sleepier during the day compared to before quarantine (15). Frequently reported changes regarding sleep were as follows: sleep interruption (split sleep) (42.3%), falling asleep involuntarily (35.2%), difficulty falling asleep (30.9%), late bedtimes (30%) (Carbonell et al., 2020). A systemic review study states that the change in lifestyle caused by the COVID-19

pandemic has increased sleep disorders and the use of sleeping pills (Inonu Koseoglu, 2021).

The quarantine period has been related to anxiety, depression, panic, irritability, somatic disorder and insomnia. It has been shown that COVID-19 anxiety is associated with severe insomnia and suicidal ideation (Yuksek et al., 2021). In a study by Carbonell et al., 69.4% of the participants reported that there was a change in their sleep patterns, less than half (44.7%) had a restful sleep, and 45.6% reported that they were sleepier than before. Frequently reported changes regarding sleep were sleep interruption (42.3%), falling asleep involuntarily (35.2%), difficulty falling asleep (30.9%), and late bedtime (30%). In addition, participants with suspected COVID-19 reported more nightmares (Carbonell et al, 2020).

NREM sleep is divided into 4 stages according to electroencephalographic patterns. NREM-I and II are defined as superficial sleep and NREM-III and IV are defined as deep sleep. Each sleep cycle duration is 90-120 minutes. The sleep cycle is repeated 3-6 times a night (Bora & Bican, 2007). For an adult, 7.5-8 hours of sleep is sufficient for maintaining a healthy life. However, a sleep duration less than 4 hours and more than 9 hours is considered medically abnormal. The longer the sleep duration, the less efficient it becomes (Algin et al., 2016). Infectious disease outbreaks, along with measures taken to contain outbreaks, are associated with major psychological distress and significant symptoms, including poor sleep quality. In this case, it can be said that a healthy sleep habit is essential to combat the COVID-19 pandemic and to have good mental and physical health. Sleep deprivation can impair psychological functioning and decision making, compromise the immune response, lead to mood swings, increase medical expenses, and make individuals more susceptible to contracting the virus due to poor concentration and even lead to an increase in accidents (Jahrami et al, 2021). In the study conducted by Yuksek et al., it was found that individuals slept for an average of 7.1±1.5 hours in 24 hours during the pandemic. The study reported that 58.4% of the participants reported going to bed later than usual/very late and 50.5% waking up later than usual/very late, compared to pre-pandemic routines. In addition, approximately 30.7% of the participants reported that they slept less/much less than normal, and 25.5% reported that they slept more/much more than normal. About 39.3% of the participants reported that they had difficulty falling asleep more/much more than before the pandemic and 35.6% woke up more/much more than usual during the night (Yuksek et al., 2021). Another study observed insomnia and poor sleep quality in 57.1% of participants in Italy during the pandemic (Casagrande et al., 2020). The present study found that individuals' falling asleep durations extended up to 56.83±99.45/minutes during the pandemic, and their nighttime sleep durations were 5.57±1.59/hours. In addition, sleep-related problems experienced by individuals were found to be falling asleep more than three times a week (26.3%), waking up in the middle of sleep or early in the morning (27.6%), and having nightmares during sleep (10.3%) in the last month (Table 2). In the present study, the sleep quality of individuals was found to be poor due to the total PSQI score of 9.08±4.22 (Table 4). In addition, in the study conducted by Yuksek et al., the mean PSQI score of individuals was found to be 5.10±3.11 (Yuksek et al., 2020). The mean PSQI total score was found to be 15.69±2.96 in the study conducted by İlhan Alp and colleagues (Ilhan Alp et al., 2020).

The study by Batool Anwar et al. observed that the rate of patients with insomnia after shutdown increased from 41% to 48%. The said study found a higher prevalence of insomnia in women, and also found that women had more sleep problems with greater frequency or severity than men. In addition, the younger population (79%) reported higher sleep disturbances compared to the older population (72%). In addition, it was observed that while the rate of those who used sleeping pills was 16% before the pandemic, the use of sleeping pills increased to 41% with the occurrence of sleep disorders caused by the pandemic (Batool Anwar et al., 2021). It has been stated in the literature that sleep problems largely overlap with the symptoms of psychological distress, and it has been emphasized that sleep problems may occur in the presence of comorbidities such as anxiety and depression. There is a new meta-analysis

showing that the COVID-19 pandemic is causing stress, anxiety symptoms, and depressive symptoms in the general population (Jahrami et al, 2021). The study by Cellini et al. reported that in a sample of 1310 Italian individuals, those with higher levels of depression, anxiety, and stress symptoms had more sleep problems. In addition, it was reported that the sleep quality of those who received social support among those who were isolated at home due to COVID-19 increased. In addition, individuals with social support had less anxiety and stress. Another study showed that COVID-19-related anxiety was positively correlated with the severity of insomnia and suicidal ideation (Jahrami et al., 2021). COVID-19 has developed into a global epidemic currently affecting countries around the world. As societies shut down to reduce the spread of disease, all aspects of life have been negatively impacted, including sleep. In the study of Yuksek et al., those who had stricter quarantine measures and had work-related difficulties such as being fired, financial difficulties or adapting a work-at-home work style were found to have poorer sleep health. Factors associated with COVID-19 have had a global impact on sleep health (Yuksek et al., 2021). In the present study, the majority of the individuals stated that the events of the pandemic were difficult for them (48.7%), they even forgot what made them happy (43.9%), the days were difficult (54.8%), they were often angry (53.6%), their worries prevented them from sleeping at night. (41.9%), they had difficulty in sleeping (44.9%), they lost their sleep at night (43.4%). Moreover, it was seen that the majority of individuals ran out of energy rapidly (47.7%), they had to make an effort for everything (46.7%), and they always felt tired (43.2%) (Table 3).

Our lives have been changed in various aspects due to the COVID-19 pandemic. It is stated that the quality of life of groups such as employees and those who voluntarily stay at home by following the "stay at home" call and those who stay at home because they are in the risk age group, are affected to different extents. In the present study, it was shown that individuals' self-perceived health status was at a high level (30.86±22.44). In terms of Nottingham Health Profile subgroup scores, it was found that individuals' perceived pain levels (23.50±27.07) were high, emotional reactions (40.39±32.89) were moderate, sleep levels (33.67±30.30) were high, and social isolation levels were (27.78±32.47) high, physical activity levels (13.94±18.71) were high and energy levels (45.86±41.16) were moderate (Table 3).

In the study conducted by Sumen and Adibelli, it was shown that among the sub-dimensions of perceived quality of life of the participants, anxiety and depression levels were the areas most affected by the COVID-19 pandemic, while physical and mental health levels were the areas least affected by the pandemic (Sumen & Adibelli, 2021). In the present study, it was seen that the emotional states, energy and sleep levels of individuals were the most affected areas, although at a moderate level (Table 4). This can result from inactivity during the day, constant sitting, working at the computer, increasing somnolence habits during the day due to being at home all the time.

Another study showed that the quality of life of individuals was affected by the pandemic and individuals in quarantine experienced various psychological problems such as stress, fear and frustration (Brooks et all., 2020). A study conducted with young adults found that the COVID-19 pandemic negatively impacted their quality of life. It was observed that they had higher levels of depression, anxiety and post-traumatic stress disorder compared to the pre-pandemic period (Liu et al., 2020; Weaver et al., 2021). This has been found to be further enhanced by mental health concerns, quarantine, and work-related insecurity (Ganson, 2021; Lee et al, 2020). It is stated in the literature that the physical activity levels of individuals during the day are important in terms of their general health status. Social isolation and quarantine measures have been implemented in many countries during the pandemic. However, this has led to an increase in musculoskeletal system problems such as postural disorders, fatigue and weakness, especially due to the increase in the time spent at home and in front of the television (Korucu et al., 2020). Restrictions introduced during the pandemic period have increased the physical inactivity of individuals. Studies have reported that inactivity can often cause low back, back and neck pain (Uz Tuncay et al., 2013; Kuru et al.,

2011). The present study showed that individuals' physical activity levels were high (13.94±18.71) during the pandemic period (Table 4). The fact that this level is high may be due to the fact that there are many sports activities that can be done via the internet and social media during quarantine periods and of the incentive for online participation in these activities.

During the pandemic period, pain, emotional reactions, and energy levels were found to be more severe in women than in men, and their perception of health was worse than that of men (Table 4). Previous studies in the literature have reported that women are more sensitive to pain than men. Parallel to this, in the study conducted by Ozudogru et al., women's pain levels were found to be significantly higher than men during the pandemic period. It should not be forgotten that the increase in the time spent at home due to the pandemic restrictions has enhanced the responsibilities of women at home. Therefore, this may cause women, who are more sensitive in terms of physical strength, to experience more pain than men (Ozudogru et al., 2021).

Conclusion and Recommendations: As a conclusion, the present study showed that the most frequent working hours during the pandemic period, including the data collection processes of individuals, were daytime hours, and the majority of the participants (55.8%) worked for 5 to 10 hours. It was observed that the participants experienced negative changes in their lifestyle habits during the pandemic, their falling asleep durations became longer, their sleep quality was worse in general, however, the sleep quality of women was worse than that of men. In addition, the perceived health status of individuals was moderate, and it was observed that women perceived their health status worse than men. According to the findings, it can be said that the effect of the pandemic on individuals in general is negative, and it is clearly of great importance to implement support programs in order to enable individuals to continue their lives as healthy individuals by overcoming these negative effects.

Study Limitations: In this study, data collection process was carried out online due to pandemic restrictions. Therefore, sufficient data could not be obtained within the given time frame.

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