

# How COVID-19-related national lockdown affected daily life activities and physical pain status? A sample from the Turkish Republic of Northern Cyprus

COVID-19 ile ilgili ulusal karantina günlük yaşam aktivitelerini ve fiziksel ağrı durumunu nasıl etkiledi? Kuzey Kıbrıs Türk Cumhuriyeti örneği

Taygun DAYI<sup>1</sup> (ID), Müjgan ÖZTÜRK<sup>2</sup> (ID), Melis BAĞKUR<sup>3</sup> (ID)

## ABSTRACT

**Objective:** After COVID-19 has been defined as a pandemic, it was decided on national lockdowns in most countries. The COVID-19-related lockdown affected both people's physical, social and mental health and also the public economy negatively. In this study, it was aimed to evaluate the effects of COVID-19, during and after pandemic related lockdown, on daily life activities, economic anxiety, and pain status in the Turkish Republic of Northern Cyprus.

**Methods:** Data was collected via an online questionnaire and voluntary people (n:307) who were on the island between March-May-2020 participated. Nutritional behaviors (shopping, disinfection of packaged foods, preparation of new recipes, appetite), physical activity behaviors, sedentary activities (e.g. screen time) and physical pain status of participants during and after lockdown were questioned.

**Results:** Most of the participants' physical activity levels decreased and sedentary behaviors increased during the lockdown. Although they slept more ( $7,69\pm 1.47$  vs  $7.16\pm 1.04$ ) ( $p<0.001$ ), sleep quality was

## ÖZET

**Amaç:** COVID-19'un pandemi olarak tanımlanmasından sonra, pek çok ülkede ulusal karantina kararı alınmıştır. COVID-19 nedeniyle uygulanan kapanma, insanların fiziksel, sosyal ve zihinsel sağlığını ayrıca ülke ekonomisini olumsuz etkilemiştir. Bu çalışmada, Kuzey Kıbrıs Türk Cumhuriyeti'nde pandemi nedeniyle yaşanan tam kapanma sırasında ve sonrasında COVID-19'un günlük yaşam aktiviteleri, ekonomik kaygı ve ağrı durumu üzerindeki etkilerinin değerlendirilmesi amaçlanmıştır.

**Yöntem:** Veriler Mart-Mayıs-2020 tarihleri arasında adada bulunan gönüllü kişilerin (n:307) katılımıyla çevrimiçi olarak anket yoluyla toplanmıştır. Katılımcıların ulusal kapanma öncesi ve sonrası beslenme (alışveriş, paketli ürünlerin dezenfeksiyonu, yeni yemek tariflerinin denenmesi, iştah), fiziksel aktivite alışkanlıkları, sedanter aktiviteleri (örneğin ekran süresi) ve fiziksel ağrı durumu sorgulanmıştır.

**Bulgular:** Ulusal kapanma sırasında, katılımcıların çoğunun fiziksel aktivite düzeyi düşmüş ve sedanter davranışları artmıştır. Her ne kadar daha fazla uyudukları görülse de ( $7,69\pm 1.47$  vs  $7.16\pm 1.04$ ) ( $p<0.001$ ), uyku

<sup>1</sup>Near East University, Faculty of Health Sciences, Nutrition and Dietetics Department, Nicosia, TRNC

<sup>2</sup>Eastern Mediterranean University, Faculty of Health Sciences, Nutrition and Dietetics Department, Famagusta, TRNC

<sup>3</sup>Near East University, Faculty of Health Sciences, Physiotherapy and Rehabilitation Department, Nicosia, TRNC



İletişim / Corresponding Author : Müjgan ÖZTÜRK

Doğu Akdeniz Üniversitesi, Sağlık Bilimleri Fakültesi, Beslenme ve Diyetetik Bölümü, Gazimağusa - KKTC

E-posta / E-mail : mujgan.ozturk@emu.edu.tr

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declared lower ( $3.28 \pm 1.12$  vs  $3.45 \pm 1.00$ ) ( $p: 0.030$ ). New recipes were tried but most of the participants do not continue to cook these recipes after lockdown. Most of the participants (78.2%) had an increased duration of time in front of the screen on the internet during the lockdown and decreased physical activity and step count (56.7% and 62.9% respectively). Approximately, half of these participants declared a significant decrease in their screen time after the lockdown ( $p < 0.001$ ). Moreover, both the alteration of body weight and increased screen time increased relapsing pain ( $p: 0.034$ ,  $p: 0.024$ ) and the most common focus of pain during lockdown was found as the neck area for each pain status.

**Conclusion:** In addition to health measures taken during pandemics, official bodies should also be prepared to cope with the changes in daily life activities which can lead to chronic diseases.

**Key Words:** COVID-19, daily life activities, lockdown

kalitesinin daha düşük olduğu ifade edilmiştir ( $3.28 \pm 1.12$  vs  $3.45 \pm 1.00$ ) ( $p: 0.030$ ). Katılımcılar yeni yemek tarifleri denemiş, ancak çoğu kapanmadan sonra bu tarifleri pişirmeye devam etmemiştir. Katılımcıların çoğunun (%78.2), kapanma sırasında internette ekran önünde geçirdikleri zaman artmış, fiziksel aktiviteleri ve adım sayıları azalmıştır (sırasıyla %56.7 ve %62.9). Kapanma bittikten sonra katılımcıların yarısına yakını ekran sürelerinde anlamlı bir azalma olduğunu belirtmiştir ( $p < 0.001$ ). Bunlara ek olarak, hem vücut ağırlığındaki değişim hem de artmış ekran süresi tekrarlayan ağrıyı artırmıştır ( $p: 0.034$ ,  $p: 0.024$ ) ve kapanma sırasında ağrının en yaygın olarak boyun bölgesinde görüldüğü tespit edilmiştir.

**Sonuç:** Pandemi döneminde alınan sağlık önlemlerine ek olarak, resmi kurumlar günlük yaşam aktivitelerinde meydana gelen ve kronik hastalıklara yol açabilecek değişikliklerle başa çıkmak için de hazırlıklı olmalıdır.

**Anahtar Kelimeler:** COVID-19, günlük yaşam aktiviteleri, ulusal karantina

## INTRODUCTION

Coronavirus disease (COVID-19) is a communicable health problem that has affected all around the world from 2019 to today (1). After the description of COVID-19 as a pandemic disorder by the WHO, nearly all countries applied national lockdowns to decrease the risk of transmission (2). The first COVID-19 case was determined on the first few days of March 2020 in the Turkish Republic of Northern Cyprus (TRNC) (3). After the diagnosis of the first case on the TRNC, the government decided on some rules on the 11<sup>th</sup>-March-2020. These rules were related to schools, public events, transport, and also hygiene for prevention. However, these limitations were not effective and case numbers increased. Since the health system was not adequately equipped

to effectively manage a pandemic disorder, the government decided to lockdown on the 18<sup>th</sup>-March-2020 in the TRNC. These limitations and lockdown continued until 1<sup>st</sup>-June-2020 (4). The COVID-19-related lockdown affected people's physical, social and mental health and also the public economy negatively (2). On the other hand, many people were concerned about both their economic status and health (5). In addition to these matters, the COVID-19-related lockdown affected people's daily life activities such as sleep, physical activity, and nutritional behaviors (6,7). The changes in these behaviors -especially sleep, physical activity, and online working- caused or increased joint and bone pains (8). These results were related to the lockdown and there is a need to shed light on the current status of these subjects after the lockdown duration.

From this point, this current study aimed to evaluate the effects of the COVID-19-related two months of national lockdown on people's daily life activities such as nutrition, cooking, sleep, and physical activity behaviors. And also, their economic anxiety levels and physical pain status.

As a novel approach, the presented study aimed to determine the continuation of adapted behaviors after the lockdown.

## MATERIAL and METHOD

### Study design, setting, location, and sample selection

This study was conducted in the TRNC between December 2021-May 2022 through online platforms. Only adults who stayed on the island during the first national COVID-19-related lockdown period were included in the study. The questionnaire which was prepared with google forms was shared by the researchers on various online platforms as a link. 307 (n) voluntary adults ( $\geq 19$  years old) gave informed consent, and participated.

### Data Collection

Data was collected with a questionnaire developed by researchers. There were four sections of this questionnaire and 141 questions. Each question was asked to participants twice (both during and after the lockdown terms) to evaluate the effects of the lockdown on some daily life activities. The first section was related to participants' general background, demographics, economic anxiety levels about COVID-19, sleep behavior and quality, anthropometric measurements, and physical activity. Information about economic anxiety level, sleep behavior and quality, and physical activity was collected via self-declared Likert-type questions. The second section aimed to determine the effects of the lockdown on the participants' nutritional behaviors such as shopping, disinfection of packaged foods, preparation of new recipes, appetite, and various factors were assessed closed-ended questions.

In the third and fourth sections, participants answered closed-ended and rating questions that were related to their physical activity behaviors, sedentary activities (e.g., screen time) and physical pain.

### Statistical Analysis of Data

The data analyses were performed using the SPSS software (SPSS for Windows, version 24.0). Results are presented as mean $\pm$ SD for quantitative variables and as count (n) and percentages (%) for categorical variables. For evaluation of normality, the Kolmogorov-Smirnov test was used, and since the variables were not normally distributed non-parametric tests were used for analysis. The Wilcoxon Signed Rank Test was used for comparison of during and after lockdown values of the same variable. The McNemar Bowker test was used to test the difference between paired proportions. Association between proportions was evaluated via chi-square. p-value  $< 0.05$  was defined as statistically significant.

The study was approved by the Near East University, Scientific Research Ethics Committee (Date: 23.12.2021 and Number: 2021/98).

## RESULTS

The mean age found was 34.10 $\pm$ 10.83 years. Most of the participants were female (70.0%). Sixteen percent of the participants were academic staff, 12.3 % were teachers, 16.3% were students, 22.5 % were working in various occupations in the private sector, 14.3 % were health care professionals, 8.5 % were civil servants, 6.8% were not working and 3.3% were retired. Although it was not statistically significant, participants' economic anxiety scores were higher after the lockdown and more people had difficulties accessing food because of financial problems and this increase was statistically significant (p: 0.022). Moreover, financial difficulties, anxiety about the future, and the contagion statistically significantly decreased appetite or food consumption after the lockdown (p: 0.018). However, anxiety about access

to food supplies in supermarkets or groceries during the lockdown was higher ( $p < 0.001$ ) (Table 1).

On the other hand, storage of packaged, frozen, or canned foods and behaviors like disinfection of the packaged food which they

adopted during the lockdown, decreased after this term ( $p: 0.000$ ) and their duration of sleep decreased ( $p < 0.001$ ), while their sleeping quality score increased significantly ( $p: 0.030$ ) (Table 1).

**Table 1.** Evaluation of disinfectant use, food storage, meal skipping, sleep duration & quality, and economic anxiety and its association with access to food supplies during and after lockdown (n: 307)

Self-declared economic anxiety score	25 <sup>th</sup> -75 <sup>th</sup> percentile	Median	Min-Max	$p_1$
During lockdown	2.0-4.0	3.0	1.0-5.0	0.269
Now	2.0-4.0	3.0	1.0-5.0	
Self-declared sleep quality score	X±S	Median	Min-Max	$p_1$
During lockdown	3.0-4.0	3.0	1.0-5.0	0.030*
Now	3.0-4.0	4.0	1.0-5.0	
Duration of sleep	X±S	Median	Min-Max	$p_1$
During lockdown	7.0-8.0	8.0	4.0-12.0	0.000*
Now	6.0-8.0	7.0	3.0-10.0	
Did/Do financial difficulties prevent access to food?	Now			$P_2$
During lockdown	Yes/Sometimes (n)	No (n)		0.022*
Yes/Sometimes	60	25		
No	45	177		
Did/Do financial difficulties, anxiety about the future, and contagion cause a decrease in appetite or food consumption in lockdown?	Now			$P_2$
During Lockdown	Yes/Sometimes (n)	No (n)		0.018*
Yes/Sometimes	55	20		
No	39	193		
Anxiety about access to food supplies in supermarkets or groceries	Now			$P_2$
During lockdown	Yes/Sometimes (n)	No (n)		0.000*
Yes/Sometimes	65	106		
No	18	118		
Increase in the storage of packaged, frozen, or canned food	Now			$P_2$
During Lockdown	Yes/Sometimes (n)	No (n)		0.000*
Yes/Sometimes	64	114		
No	3	124		
Disinfection of the food bought from the market/ groceries or restaurants	Now			$P_2$
During Lockdown	Yes/Sometimes	No		0.000*
Yes/Sometimes	100	122		
No	2	83		

$p_1$ : Willcoxon Signed Rank Test;  $p_2$ : McNemar Bowker Test; \*: Statistically significance; \*\*: Likert [1-5; very low-very high]

According to Table 2, 72.0% of the participants tried new recipes during the lockdown. Most of the participants made bread, pastry with cheese/potato filling, cookies, and pizza during lockdown at home but the participants who continued to do it after (15.1%, 32.6 %, 38.5 %, 34.8 % respectively) decreased. The most frequently prepared dairy product was yogurt and 17.2% of the participants still prepare their yogurt

after the lockdown. For sweets; cakes, pudding, and rice pudding were the ones that were done most frequently during lockdown 56.6%, 49.3%, and 34.8% of participants still do cakes, pudding, and rice pudding respectively nowadays. For the takeaway style foods, most of the participants cooked burgers and almost half of them (43.9%) still cook burgers at home.

**Table 2.** Distribution of preparation or cooking of processed food or a new recipe during and after lockdown (n: 221)

Did you try to prepare or cook a new recipe or a take away food at home during the COVID-19 lockdown	Yes			
	n		%	
	221		72.0	
Did/Do you cook these recipes and a variety of takeaway foods at home	During Lockdown		Now	
Food/Meal	n	%	n	%
<b>Grains</b>				
Bread	91	41.6	33	15.1
Pastry with potato/cheese filling	63	28.5	72	32.6
Cookies	61	27.6	85	38.5
Round and flatbread with meat/cheese on top	54	24.4	29	13.1
Lahmajoun (Turkish pizza)	68	30.8	38	17.2
Pizza	69	31.2	77	34.8
Ravioli	29	13.1	30	13.6
Cyprus Ravioli (Pirohu)	14	6.3	20	9.0
Turkish Noodle	11	5.0	14	6.3
Handmade pasta	16	7.2	14	6.3
<b>Dairy products</b>				
Colostrum (Sheep)	5	2.3	3	1.4
Yogurt	39	17.6	38	17.2
Halloumi	8	3.6	15	6.8
Cheese	9	4.1	10	4.5
Nor cheese	12	5.4	15	6.8
<b>Sweets</b>				
Jam	30	13.6	50	22.6
Cake	55	24.9	125	56.6
Pudding	45	20.4	109	49.3
Rice pudding	43	19.5	77	34.8
<b>Salted products</b>				
Pickles	26	11.8	42	19.0
Tsamarella	5	2.3	6	2.7
<b>Take away foods</b>				
Burger	51	23.1	97	43.9
Stuffed chicken	35	15.8	40	18.1
Chinese Noodle	16	7.2	45	20.4
Sushi	17	7.7	15	6.8

The participants' alteration of physical activity & mobility level and step count during the lockdown were shown in Table 3. Participants declared that both the physical activity & mobility level and step count decreased (56.7% and 62.9% respectively). Most of the participants (78.2%) had an increased duration of time in front of the screen on the internet during the lockdown.

Approximately, half of these participants declared a significant decrease in their screen time

after the lockdown ( $p < 0.001$ ). During the lockdown, only 12.7% of participants used online applications to do physical activity, 15.0% did online yoga/pilates and 43.3% watched videos and exercised.

Online applications, videos, electronic machines, and other materials used for physical activity decreased after the lockdown ( $p:0.023$ ,  $p < 0.001$ ). On the other hand, they started to do more yoga/pilates and physical exercise either online or face-to-face after the lockdown ( $p < 0.001$ ) (Table 3).

**Table 3.** Alteration of participants' screen time and physical activity behaviors during and after the lockdown (n: 307)

Self-declared physical activity behaviors during the lockdown				
	Physical activity & mobility level		Step count	
	n	%	n	%
Not changed	67	21.8	58	18.9
Decreased	174	56.7	193	62.9
Increased	66	21.5	56	18.2
Duration of time in front of the screen on the internet during the lockdown				
	Not changed (n: 67; 21.8%)		Increased (n: 240; 78.2%)	
After the lockdown	n	%	n	%
Still same	55	82.1	69	28.8
Increased	9	13.4	69	28.8
Decreased	3	4.5	102	42.5
<b>Total</b>	<b>67</b>	<b>100.0</b>	<b>240</b>	<b>100.0</b>
$P_1$	0.000*			
Physical activity behaviors during the lockdown				
	Yes		No	
Behaviors	n	%	n	%
Using online applications	39	12.7	268	87.3
Doing online yoga/pilates	46	15.0	261	85.0
Watching videos to do exercise	133	43.3	174	56.7
Online physical activity application use	Now		$P_2$	
During lockdown	Yes/Sometimes (n)		No (n)	
Yes/Sometimes	9	30	0.023*	
No	14	254		
Doing yoga/pilates either online or with a trainer	Now		$P_2$	
During Lockdown	Yes/Sometimes (n)		No (n)	
Yes/Sometimes	30	16	0.000*	
No	64	197		

**Table 3 (cont).** Alteration of participants’ screen time and physical activity behaviors during and after the lockdown (n: 307)

Doing exercise either with videos at home or in a fitness center			Now	P <sub>2</sub>
During Lockdown		Yes/Sometimes (n)	No (n)	0.000*
Yes/Sometimes		58	75	
No		36	138	
Use of electronic machines (treadmill, indoor exercise bike, etc.) and other materials for exercise at home			Now	P <sub>2</sub>
During lockdown		Yes/Sometimes	No	0.000*
Yes/Sometimes		33	50	
No		13	211	

p<sub>1</sub>: Pearson Chi-Square Test; p<sub>2</sub>: McNemar Test; \*: Statistically significance; PA: Physical Activity

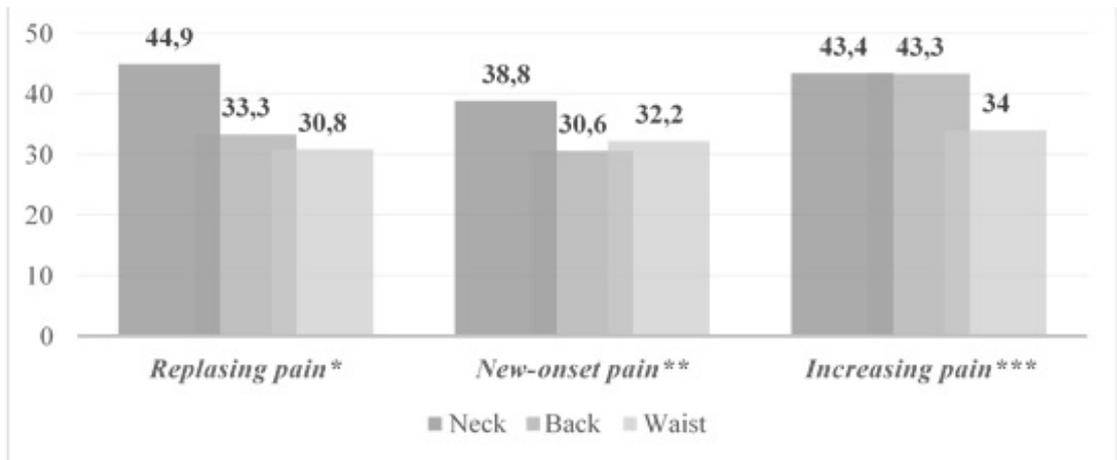
As shown in Table 4, 25.4% of the participants had relapsing, 16.0% had new onset, and 17.3% had increasing pain during the lockdown. Relapsing pain was found significantly related to the increased duration

of time in front of the screen (p: 0.034). In addition, increased body weight during the lockdown was associated with all types of pain in this study, but only relapsing pain had a statistical significance (p: 0.024).

**Table 4.** Evaluation of participants’ physical pain status (n: 307)

	Duration of time in front of the screen on the internet for fun during the lockdown					p	
	Not changed (n: 67; 21.8%)		Increased (n: 240; 78.2%)				
During the lockdown	n	%	n	%			
Relapsing pain (n: 78; 25.4%)	13	16.7	65	83.3		0.034*	
New-onset pain (n: 49; 16.0%)	10	20.4	39	79.6		0.304	
Increasing pain (n: 53; 17.3%)	10	18.9	43	81.1		0.848	
Alteration of body weight							
During the lockdown	Not changed (n: 99)		Decreased (n: 57)		Increased (n: 151)		p
Relapsing pain (n: 78)	16	20.5	15	19.2	47	60.3	0.024*
New-onset pain (n: 49)	15	30.6	7	14.3	27	55.1	0.557
Increasing pain (n: 53)	12	22.6	8	15.1	33	62.3	0.097
Pain status after the lockdown							
During the lockdown	Continuing		Sometimes continuing		Not continuing		
Relapsing pain (n: 78)	n	%	n	%	n	%	
Relapsing pain (n: 78)	27	34.6	35	44.9	16	20.5	
New-onset pain (n: 49)	22	44.9	18	36.7	9	18.4	
Increasing pain (n: 53)	25	47.2	19	35.8	9	17.0	

p<sub>1</sub>: Pearson Chi-Square Test; \*: Statistically significance



\*: The pain that participants had before and have relapsed due to the lockdown.

\*\* : The pain that has started first time due to the lockdown.

\*\*\*: The pain that participants have before the lockdown and its degree has increased due to the lockdown.

Figure 1. The most common focus of pain during lockdown

The most common focus of pain during lockdown was found as the neck area for each pain status. The waist was the second one for new-onset pain and the back was the second for both increasing and relapsing pain (Figure 1).

## DISCUSSION

The economic status of a country is dependent on businesses, government investments, agriculture, industries, import, and export. Nowadays, it is possible to say, all of these have been affected by COVID-19. The sharp restrictions and national lockdown periods have made it so difficult for these promoters of the economy (9). In the TRNC, COVID-19 has affected the regional economy negatively. Import is inadequate due to the pandemic and local production is also insufficient, so prices are increasing day by day for a variety of goods such as food, petrol, gas, energy, etc. In addition, the Turkish lira depreciates every day (10).

According to the results of this current study, although it is not statistical significance, participants' self-declared economic anxiety scores increased after the two months of lockdown (Table 1). A study

that aimed to evaluate individuals' COVID-19-related economic anxiety status in three different countries (the United States of America-USA, the United Kingdom-UK, and Israel), has reported all people had a similar degree of economic anxiety (11). The national lockdown has changed the economy of the TRNC -which is not always sufficient- negatively (12). In a report about the effects of COVID-19 on the world economy which included 30 different countries, it was shown that nearly all countries have been affected by the pandemic and especially more reliant countries on tourism are at elevated risk of an economic crisis. As a Mediterranean island, the island of Cyprus is an attractive place for tourists. The largest part of the local economy is supported by tourism (13). Ertac and Cankan, (14) conducted a study to evaluate the effects of COVID-19 on tourism in the TRNC and they shed light that the pandemic has many negative effects on island tourism. In summary, the cost of the health system (PCR, antigen tests, cost per patient, etc.), limitations of the export, and increasing unemployment rate (due to lockdown), etc. have caused post-lockdown economic problems in Cyprus. When data were compared in lockdown vs after this

term in this study, participants had some financial difficulties preventing access to food nowadays more than during the lockdown term (Table 1).

COVID-19 can affect people's daily life activities due to emotional changes, having free time, boredom during the day, etc. (6,7). Salazar-Fernández et al., (15) reported that COVID-19-related emotional distress factors -such as economic, interpersonal, and health- negatively affected individuals' nutritional habits. A cross-sectional study was conducted in the USA which aimed to evaluate the effects of the COVID-19-related anxiety on the participants' (n: 1243) appetite status (16).

They found that anxiety about COVID-19 and its effects increased appetite and decreased enjoyment of food (16). Owen et al., (17) collected data from 13.829 Australian adults during two weeks of lockdown. They compared COVID-19-related poor appetite and overeating status and found that the prevalence of poor appetite (53.6%) was over the other one (11.6%). In this current study, the effect of COVID-19-related anxiety (after May 2020) was statistically significantly higher than lockdown-related anxiety (March-May 2020). And, participants had a lower appetite or food consumption due to this anxiety after the lockdown (Table 1). This is possibly related to financial anxiety which was found to increase after the lockdown. In addition, they had higher anxiety about access to food supplies in supermarkets or groceries during the lockdown ( $p: 0.000$ ; Table 1). Samuel et al., (18) conducted a study about COVID-19-related one-month lockdown and food access/insecurity. According to the results, pandemic-related restrictions increased food expenditure and food access insecurity. Another study supported that the COVID-19-related lockdown affected food prices negatively. This situation made it harder to access food (19). Since nutrition is vital for survival, food shopping continued during the lockdown physically or online. Participants stored more packaged/frozen/canned foods in the COVID-19-related lockdown term. And, they have not continued this behavior after the lockdown ( $p < 0.001$ , Table 1).

A cross-sectional study (n: 1865) in Italy found food buying and consumption increased in one month of lockdown (20). Janssen et al., (21) conducted a study with 2.680 individuals from Denmark, Germany, and Slovenia and compared their nutritional habits before and during the lockdown. In all three countries, participants bought and consumed a higher rate of packaged/frozen/canned foods according to pre-pandemic terms. Another study in Kuwait reported that participants (n: 841) buying long-shelf-life foods such as packaged, frozen, and canned ones increased in the COVID-19-related restricted term (22). These results are supportive of the presented study.

The United States Food and Drug Administration (FDA) has shared a suggestion report about the information for food consumers and COVID-19 transmission. This report underlined that although there is not any evidence about the COVID-19 virus transmission via foods if people want they can wipe down packaged foods. However, they should not use disinfectants for unpackaged foods (23). In this study, nearly all participants disinfected all packaged foods which they bought during the lockdown term. On the other hand, after the lockdown term, nearly half of them have given up this behavior ( $p: 0.000$ ; Table 1). When current literature was searched about this subject, any related result was not found. So, this current study sheds light -as the first research- on participants' disinfection usage status on packaged food during and after the lockdown.

A study in France (n: 2.422) determined the relationship between COVID-19-related lockdown and cooking habits. According to the results of this study, individuals spent their time cooking foods and trying new recipes during this term (24). 3.018 New Zealanders participated in research and data were determined about their cooking behaviors before and during the lockdown terms. And, they started to cook from scratch and bake more during the lockdown term (25). The results from the UK were similar and home cooking increased during the national lockdown (26). A qualitative study underlined the COVID-19-

related lockdown caused them to try new recipes in the kitchen (27). In the presented study, most of the participants (72.0%) tried new recipes during the lockdown. However, it is possible to say most of them have given up trying new recipes or cook foods that they did during the lockdown (Table 2).

Participants slept more during the COVID-19-related two months of lockdown but the quality of sleep was lower. After the lockdown, the duration of sleep decreased and quality increased significantly (Table 1).

Alfonsi et al., (28) conducted a study in Italy that aimed to determine participants (n: 217) sleep behaviors during the lockdown and after this term. And, they reported that similar to our study, the duration of sleep increased during the lockdown but there was no difference in the sleep quality between the terms. In a large study (n: 22.151), COVID-19 was found related to poor sleep quality (29). Contrary to the presented study, in another study individual's (n: 400) sleep quality was found to increase when compared before vs during the lockdown term (30). Lenzo et al., (31) found that people's (n: 648) sleep quality increased after the first wave of COVID-19. These results are similar to our study. It is possible to say when people have adapted to the pandemic and learned to live with that, their sleep quality increased.

McCharty et al., (32) reported that COVID-19-related lockdown decreased people's physical activity levels. In the presented study, the majority of the participants declared a reduction in physical activity levels (56.7%) and daily step counts (62.9%) (Table 3). Although all the 'be active' advice from experts and governments, it is not difficult to guess the reasons for the decreased physical activity levels. During the COVID-19-related lockdown, the activities of sports centers were stopped due to local TRNC policies. In addition, walking and cycling in parks and streets for exercise were prohibited (4). This is potentially significant evidence that supports the reason for the people's decreased physical activity levels during the national lockdown. It also means that it was difficult for people to continue their

regular physical activity routines during this term. Sedentary behaviors increased during the lockdown. Most people had to work online at home. On the other hand, schools had to give online education which means many parents had a responsibility to help their children. Increased additional responsibilities and decreased opportunities to be active have resulted in decreased physical activity levels (33).

In this study, 78.2% of the participants reported that there was an increase in the time spent in front of the screen for fun during the lockdown term (March-May 2020; Table 3). In-home exercise and digital-based physical activities (e.g., phone applications) have been found positively related to physical activity levels (34). When the decrease in physical activity levels was thought of as a risk factor for mental and physical health, in-home exercise and/or digital-based physical activities gained importance during the pandemic. Yang & Koenigstorfer, (35) reported that online applications were effective to increase individuals' (n: 431) physical activity levels during the COVID-19-related lockdown term. However, in the current study, only 12.7% of the participants used online applications for physical activity, 15% did online yoga or pilates with a trainer, and 43.3% exercised via videos on the internet. And also, some changes were observed in the physical activity habits of the participants after the national lockdown (Table 3). Although participants' online physical training and electronic machine use for exercise decreased after the COVID-19-related lockdown in TRNC, doing exercise face-to-face in a gym and doing pilates or yoga in a sports center status increased ( $p < 0.001$ ; Table 3)

It is known that physical activity has many beneficial effects on health. One of these effects is the prevention of chronic pain development. Law & Sluka, (36) reported that people who were more physically active had a lower prevalence of chronic pain. Continuing professional or academic life with technological tools has caused some physical problems such as inactivity, inappropriate posture, and desk arrangement. In this process,

many individuals started to feel pain in various parts of their bodies due to these conditions (37). Pain was one of the risk factors for general health that increased during the COVID-19-related lockdown term (38). Fallon et al., (39) reported that people's pain status -who have pain before the lockdown- increased during the lockdown term.

In the presented study, 17.3% of the participants declared an increase in the severity of the pain they felt during the lockdown. In addition, 16.0% of the participants declared that they felt a new onset of pain that they had never experienced before, and 25.4% declared relapsed pain (Table 4). Prolonged sitting, especially in the flexion posture, may cause increased intervertebral disc pressure and therefore low back pain (40). In addition, the prevalence of neck and low back pain is associated with increased time spent on technology-based activities (41). A study conducted in Turkey examined the effect of lockdown on musculoskeletal pain among individuals who stayed at home during the COVID-19 pandemic and who continued to work outside the home. It was reported that there was an increase in the prevalence of low back pain in individuals who stayed at home compared to others who had to return to work (42). On the other hand, increased body weight is one of the reasons for physical pain (43). In the current study, it was determined that the most common areas

of pain were the neck, back, and waist (Figure 1). This shows us that the deteriorated biomechanics of the body due to negative living conditions cause new pains and relapsing/increasing old pains. In this study, weight gained and increased screen time during the lockdown was found statistically significantly related to increasing pain. On the other hand, even though these results were not statistically significant, relapsing and new on-set pain status was higher for the participants who gained body weight and had higher screen time during the lockdown (Table 4).

In conclusion, as the first study assessing the effect of COVID-19 and lockdown on nutrition, physical activity, shopping, cooking, and sleeping habits in the TRNC, it was found that economic anxiety related to COVID-19 decreased access to food and appetite.

During the lockdown, shopping behaviors changed and people stored more packaged and frozen foods and used disinfectants to prevent any contagion via food packages. Moreover, they tried new recipes during the lockdown although most of them do not continue to cook these recipes now. Their sleep duration increased via lockdown while their self-declared sleep quality decreased. In addition to these, their physical activity decreased during the lockdown and they experienced more pain, especially in the areas of the neck, back, and waist.

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## ETHICS COMMITTEE APPROVAL

\* The study was approved by the Near East University, Scientific Research Ethics Committee (Date: 23.12.2021 and Number: 2021/98).

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

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