Tropical Health and Medical Research
Vol. 6, No. 1, March 2024, pp. 49-60
ISSN (Online): 2684-740X
Journal homepage: https://tropicalhealthandmedicalresearch.com

The Effect of Physical Activity on Quality of Life and Emotional State of Students

***Betul Ciftci, Ozan Gür, Burcu Özüberk**
Department of Physiotherapy and Rehabilitation, Kırklareli University Faculty of Health Science, Kırklareli, Turkey.
*Email: btlcftc@hotmail.com

ABSTRACT: Physiotherapists and nurses are crucial members of the healthcare team, and members of the healthcare team should be aware of the importance of physical activity to promote it in society. This study aimed to assess the effects of physical activity levels on the quality of life and emotional state of first-year nursing, physiotherapy, and rehabilitation students. One hundred six first-year nursing, physiotherapy, and rehabilitation students participated in the study. Socio-demographic characteristics were appraised. The Beck Depression Inventory (BDI) and the Nottingham Health Profile (NHP), Pittsburgh Sleep Quality Index (PSQI) and the International Physical Activity Questionnaire Short Form (IPAQ-SF) were administered to all participants. The activity level of 51.9 % of all students was inactive. The mean values of NHP-sleep, NHP-SI, NHP-1, NHP-2, and BDI scores were higher in nursing students than in physiotherapy and rehabilitation students ($p<0.05$). According to the results of this study, physical activity among first-year nursing and physiotherapy and rehabilitation students is insufficient. More studies are needed about the reasons for insufficient physical activities in students and how to increase awareness of physical activity.
Keywords: Nurse; physiotherapist; physical activity; students

INTRODUCTION

Physical activity is an essential issue for maintaining health. Physical activity has various positive effects on health, such as blood pressure regulation, weight control, mental health and bone health[1]. Physical activity is a part of health measures and contributes to preventing chronic diseases. Also, physical activity has been an essential factor for the public health policy system to reduce healthcare costs in both developing and developed countries[2].

Insufficient or lack of physical activity has become an important public problem depending on the developments of modern times. The past half-century of scientific data revealed that physical inactivity adversely affected lifespan. The least active are the most significant risk factors for chronic diseases independent of race/ethnicity, education or body size[3]. The concepts of physical activity and exercise need to be clarified. Physical activity includes any muscle activity, while physical exercise is bodily activity that maintains physical fitness. Physical activity includes both daily life activities and exercises[4].

Physical activity recommendations according to age groups have been determined by the World Health Organization (WHO) for health protection. WHO recommends as following: (1) adults aged 18-64 years at least 150-300 minutes of moderate-intensity aerobic physical activity or (2) at least 75-150 minutes of vigorous-

Corresponding Author: Betul Ciftci
Department of Physiotherapy and Rehabilitation,
Kırklareli University Faculty of Health Science, Kırklareli, Turkey.
Email: btlcftc@hotmail.com

intensity aerobic physical activity or moderate and vigorous-intensity activity throughout the week (3) muscle-strengthening activities at moderate or greater intensity includes major muscles groups on two or more days a week (4) moderate-intensity aerobic physical activity to more than 300 minutes or do more than 150 minutes of vigorous aerobic physical activity throughout the week for additional health benefit (5) should decrease the total time of being sedentary (6) all adults should do more than recommended levels of moderate-to vigorous-intensity physical activity[5].
An individual's quality of life is related to lifestyle and physical health. As physical activity contributes to the physical well-being of the individual, it also contributes to increasing psychological and social interaction[6]. Many studies showed that exercises increase mood state and self-esteem and decrease anxiety levels of individuals[7].

Healthcare team members should be aware of this issue to create awareness of physical activity in society. As it is known, physiotherapists and nurses are essential healthcare team members. The expectation that physiotherapists will have better physical activity and exercise awareness due to their profession will not be surprising. There are many studies about university students' physical activity in the literature. However, more data should be collected about physiotherapy and nurse students' physical activity status. For this reason, we aimed to determine the physical activity levels of the first-year physiotherapy and nursing students as the candidates for two values of the healthcare team and their effects on the quality of life and mental health.

MATERIALS AND METHODS

Study design and setting

This cross-sectional study protocol was approved by the Kırklareli University Faculty of Health Medicines Ethics Committee (reference: E-69456409-199-35241), and this study was conducted following the Declaration of Helsinki Principles. The informed consent form was obtained from all the participants. Data for the study were created by using an online questionnaire. The online questionnaire was formed using Google Forms, and the link to the online questionnaire was distributed via email to the first-year nursing and physiotherapy and rehabilitation department students. The aim of the study was explained to the participants before answering the survey. Firstly, the participants were informed about the aim of the study, and those who agreed to complete the study were accepted as volunteers.

Participants

One hundred six students participated in the study. All participants were students of Kırklareli University. The following inclusion criteria were applied: (a) being a first-year student of nursing or physiotherapy and rehabilitation departments; (b): being a volunteer to participate in the study; (c): being over 18 years old. The following exclusion criteria were applied (a) being under 18; (b): not being first-year physiotherapy and rehabilitation or nursing student. Socio-demographic features, including age, gender, comorbid disease, height, consumption of alcohol, and smoking, were analyzed. The Beck Depression Inventory (BDI), the Nottingham Health Profile (NHP), Pittsburgh Sleep Quality Index (PSQI) and the International Physical Activity Questionnaire Short Form (IPAQ-SF) were administered to all participants.

Outcome Measures

The Beck Depression Inventory (BDI)

Beck A. developed BDI to assess the symptoms of depression in both depressed psychiatric and non-depressed psychiatric patients. There are 21 multiple-choice items in BDI, and each item is ranked 0-3 for severity. The total score on the scale

range from 0 to 63[8]. The Turkish validity and reliability questionnaire study was done by His[9].

The Nottingham Health Profile (NHP)

NHP has two parts. In the first part of the NHP, there are six domains: pain, emotional response, sleep, social isolation, physical abilities, and energy level. The presence of difficulties in daily activities is assessed using the second part of NHP. The adaptation study for Turkısh was done by Küçükdeveci AA et al. in 2000, and the study was conducted that rehabilitation is beneficial for clinical studies[10].

Pittsburgh Sleep Quality Index (PSQI)

PSQI was developed by Buysse et al., and it has been used to evaluate sleep quality in the last month. There are 24 questions in the questionnaire. Nineteen questions are about sleep quality (duration, latency, and the frequency and severity of sleep-related problems). The last five questions are answered by the patient's bed or room partner and used for clinical purposes. There are seven divisions in PSQI, and the scores of divisions are summed, and the total score is obtained. The total score of PSQI range from 0 to 21, and high scores demonstrate poor sleep quality[11]. The Turkish validity and reliability study of the scale was carried out by Ağargün et al. in 2004[12].

The International Physical Activity Questionnaire Short Form (IPAQ-SF)

The International Physical Activity Questionnaire is used to evaluate the physical activity of the past seven days. There are two versions named the long and short forms. The long form includes 27 items. The short form consists of seven questions and demonstrates four intensity levels: 1) vigorous-intensity activity, 2) moderate-intensity activity, 3) walking, and 4) sitting[13]. The Turkish validity and reliability study of the IPAQ short and long forms to assess physical activity are performed by Saglam et al. The total score of the form includes the total duration (minutes) and frequency (days) of four intensity levels, and durations are multiplied by METs per activity[14]. Physical activity levels were defined as physically inactive/low (<600 MET-min/week), moderate (600-3000 MET-min/week) and sufficient physical activity (>3000 Met-min/week)[15].

Statistical Analysis

Mean ± standard deviation and median were used to define continuous variables, and categorical data were expressed as numbers and percentages. The comparison of categorical data was analyzed with Chi-Square Test and Fisher's Exact Test. Normality analyzes of continuous variables were performed using the Kolmogorov-Smirnov Goodness of Fit test. T-test was used in the independent groups in the analysis between the two groups that were suitable for normal distribution, and the Mann-Whitney U test was used in analyzing the variables that were not under the normal distribution between the two groups. Analyzes were performed with specific statistic computer application, and the statistical significance level was accepted as $p<0.05$.

RESULTS AND DISCUSSION

Table 1. Socio-Demographic Features of Participants

Variable		n	%
Gender	**Women**	87	82,1
	Men	19	17,9
Comorbid disease	**No**	99	93,4
	Yes	7	6,6
Drug	**No**	103	97,2
	Yes	3	2,8
Smoking	**No**	98	92,5
	Yes	8	7,5
Alcohol	**No**	91	85,8
	Yes	15	14,2
Exercise	**No**	56	52,8
	Yes	50	47,2
Department	**Nursing**	51	48,1
	Physiotherapy and Rehabilitation	55	51,9
Physical Activity	**Inactive**	55	51.9
	Moderate	26	24.5
	Vigorous	25	23.6
TOTAL		106	100,0
		Mean	**Min-max**
Age		19,4±1,47 years	18-30 years

Table 2. Comparison of Socio-Demographic Characteristics According to the Department They Studied

Variable		Nursing (n=51)		Physiotherapy and Rehabilitation (n=55)		*p*
		n	**%**	**n**	**%**	
Gender	**Women**	41	80,39	46	83,64	0.66*
	Men	10	19,61	9	16,36	
Comorbid disease	**No**	47	92,16	52	94,55	0.70**
	Yes	4	7,84	3	5,45	
Drug	**No**	49	96,08	54	98,18	0.60**
	Yes	2	3,92	1	1,82	
Smoking	**No**	46	90,20	52	94,55	0.47**
	Yes	5	9,80	3	5,45	
Alcohol	**No**	44	86,27	47	85,45	0.90*
	Yes	7	13,73	8	14,55	
Exercise	**No**	25	49,02	31	56,36	0.44*
	Yes	26	50,98	24	43,64	

*Chi-Square Test
**Fisher's Exact Test

Table 3. Comparison of NHP, BDI, IPAQ and PSQI Scores According to the Department They Studied

Variable	Nursing (n=51)		Physiotherapy and rehabilitation (n=55)		*p*
	Mean±SD	**Median**	**Mean±SD**	**Median**	
NHP-Pain	4,99±7,83	0	7,84±19,18	0	0.91*
NHP-Sleep	27,34±26,8	21,7	11,85±21,43	0	**<0.001***
NHP-SI	16,44±26,58	0	6,14±12,64	0	**0.02***
NHP-ER	24,32±29,78	16,21	14,89±20,24	0	0.11*
NHP- PA	6,48±8,29	0	4,13±7,009	0	0.13*
NHP-Energy	28,83±32,09	24	23,04±34,17	0	0.17*
NHP-1st part	108,41±85,45	86,43	67,9±84,08	36,8	**0.002***
NHP-2nd part	0,57±1,35	0	0,2±0,97	0	**0.01***
BDI-Total	9,59±8,47	7	6,82±7,68	5	**0.04***
PSQI-Total	5,88±3,1	5	5,02±3,03	4	0.16*
IPAQ-Vigorous (MET-min/week)	496,63±1350,89	0	218,18±616,7	0	0.54*
IPAQ-Moderate (MET-min/week)	205,8±435,23	0	91,63±281,86	0	0.06*
IPAQ-Walking (MET-min/week)	626,06±989,42	0	393,6±851,98	0	0.42*
IPAQ-Sitting (min)	2812,35±8902,03	0	832,53±1894,99	0	0.55*
IPAQ-Total (MET-min/week)	4140,84±9063,9	933	1535,95±2183,03	495	0.27*

*Mann Whitney U Test

*BDI: Beck depression inventory; IPAQ: International physical activity questionnaire; IPAQ-M: International physical activity questionnaire –moderate; IPAQ-S: International physical activity questionnaire –sitting; IPAQ-V: International physical activity questionnaire –vigorous; IPAQ-W: International physical activity questionnaire –walking;min=minutes; NHP: Nottingham health profile; NHP1 ER: Nottingham health profile-emotional reaction; NHP1 PA:Nottingham health profile-physical activity; NHP-SI:Nottingham health profile-social isolation; PSQI: Pittsburg sleep quality index

Table 4. Comparison of NHP, BDI, IPAQ and PSQI Scores According to the Exercise Level in the Students of the Nursing Department

Variable	Without exercise (n=25)		Exercise (n=26)		*p*
	Mean±SD	**Median**	**Mean±SD**	**Median**	
NHP-Pain	6,06±9,44	0	3,95±5,88	0	0.73*
NHP-Sleep	33,09±28,47	21,7	21,81±24,35	12,57	0.13**
NHP-SI	16,57±19,13	19,36	16,33±32,58	0	0.24*
NHP-ER	25,36±31,75	10,47	23,33±28,36	16,21	0.81**
NHP- PA	6,35±8,09	0	6,59±8,63	0	0.77*
NHP-Energy	32,99±35,98	24	24,83±27,98	24	0.46*
NHP-1st part	120,43±87,57	98,82	96,85±83,43	72,6	0.33**
NHP-2nd part	0,76±1,45	0	0,38±1,24	0	0.057*
BDI-Total	10,28±7,46	10	8,92±9,43	6	0.57**
PSQI-Total	6,52±3,6	5	5,27±2,46	4	0.15**
IPAQ-V (MET-min/week)	38,4±192	0	937,23±1789,56	0	**0.003***

IPAQ-M (MET-min/week)	78,4±196,04	0	328,31±556,88	0	0.08*
IPAQ-W (MET-min/week)	555,76±965,49	0	693,65±1026,32	0	0.56*
IPAQ-S (min)	4158±12180,91	0	1518,46±3535,65	0	0.74*
IPAQ-Total (MET-min/week)	4830,56±12224,59	240	3477,65±4462,34	2013	0.16*

*Mann Whitney U Test
**Independent samples T-test
*BDI: Beck depression inventory; IPAQ: International physical activity questionnaire; IPAQ-M: International physical activity questionnaire –moderate; IPAQ-S: International physical activity questionnaire –sitting; IPAQ-V: International physical activity questionnaire –vigorous; IPAQ-W: International physical activity questionnaire –walking;min=minutes; NHP: Nottingham health profile; NHP1 ER: Nottingham health profile-emotional reaction; NHP1 PA:Nottingham health profile-physical activity; NHP-SI:Nottingham health profile-social isolation; PSQI: Pittsburg sleep quality index

Table 5. Comparison of NHP, BDI, IPAQ and PSQI Scores According to the Exercise Level in the Students of the Physiotherapy and Rehabilitation Department

Variable	**Without exercise (n=31)**		**Exercise (n=24)**		***p***
	Mean±SD	**Median**	**Mean±SD**	**Median**	
NHP-Pain	11,71±24,57	0	2,85±5,46	0	0.13*
NHP-Sleep	14,44±24,76	0	8,51±16,05	0	0.60*
NHP-SI	7,76±14,5	0	4,06±9,65	0	0.36*
NHP-ER	17,11±22,01	7,08	12,03±17,73	0	0.50*
NHP- PA	4,77±7,59	0	3,31±6,24	0	0.35*
NHP-Energy	28,46±36,23	0	16,03±30,62	0	0.18*
NHP-1st part	84,25±98,32	43,77	46,79±56,23	30,45	0.08**
NHP-2nd part	0,23±1,09	0	0,17±0,82	0	0.71*
BDI-Total	7,71±9	5	5,67±5,51	4,5	0.33**
PSQI-Total	5,29±3,4	5	4,67±2,5	4	0.45**
IPAQ-V (MET-min/week)	224,52±698,16	0	210±506,96	0	0.68*
IPAQ-M (MET-min/week)	61,94±303,37	0	130±252,5	0	**0.01***
IPAQ-W (MET-min/week)	423,68±1064,87	0	354,75±471,56	0	0.48*
IPAQ-S (min)	989,32±2178,18	0	630±1471,96	0	0.99*
IPAQ-Total (MET-min/week)	1699,45±2573,05	396	1324,75±1571,84	792	0.55*

*Mann Whitney U Test
**Independent samples T-test
*BDI: Beck depression inventory; IPAQ: International physical activity questionnaire; IPAQ-M: International physical activity questionnaire –moderate; IPAQ-S: International physical activity questionnaire –sitting; IPAQ-V: International physical activity questionnaire –vigorous; IPAQ-W: International physical activity questionnaire –walking;min=minutes; NHP: Nottingham health profile; NHP1 ER: Nottingham health profile-emotional reaction; NHP1 PA:Nottingham health profile-physical activity; NHP-SI:Nottingham health profile-social isolation; PSQI: Pittsburg sleep quality index

Table 6. Comparison of NHP, BDI, IPAQ and PSQI Scores According to Smoking and Alcohol Consumption in the Students

Variable	No smoking (n=98)		Smoking (n=8)		*p*
	Mean±SD	Median	Mean±SD	Median	
NHP-Pain	5,45±11,89	0	18,89±33,98	5,25	0.162*
NHP-Sleep	17,28±23,58	0	44,06±33,41	48,96	**0.020***
NHP-SI	10,79±21,08	0	14,95±22,51	0	0.507*
NHP-ER	17,56±23,77	10,12	42,36±36,72	34,43	**0.020***
NHP- PA	4,77±6,92	0	11,32±13,45	5,77	0.143*
NHP-Energy	25,22±33,52	0	33,2±29,13	39,2	0.303*
NHP-1	81,07±81,03	64,97	164,79±120,44	147,005	**0.043***
NHP-2	0,37±1,16	0	0,5±1,41	0	0.937*
BDI-Total	7,54±7,6	6	15,63±11,29	13,5	**0.016***
PSQI-Total	5,28±3,01	4	7,38±3,46	7	0.087*
IPAQ-V (MET-min/week)	371,1±1077,23	0	151,18±377,94	0	0.565*
IPAQ-M (MET-min/week)	151,18±377,94	0	90±178,57	0	0.944*
IPAQ-W (MET-min/week)	481,04±908,22	0	804,38±1120,6	99	0.481*
IPAQ-S (min)	1682,23±6476,42	0	3045±5037,5	210	0.099*
IPAQ-Total (MET-min/week)	2685,56±6631,41	580,5	4059,98±6153,08	1044	0.728*
Variable	**No alcohol (n=91)**		**Alcohol (n=15)**		***p***
	Mean±SD	**Median**	**Mean±SD**	**Median**	
NHP-Pain	6,56±15,63	0	5,9±9,03	0	0.93*
NHP-Sleep	17,13±24,12	0	32,5±28,87	34,27	**0.02***
NHP-SI	10,81±21,57	0	12,89±18,56	0	0.44*
NHP-ER	17,76±25,04	7,08	29,56±27,49	24,42	**0.02***
NHP- PA	4,62±7,56	0	9,12±7,7	11,2	**0.01***
NHP-Energy	23,68±32,2	0	38,83±37,008	36,8	0.14*
NHP-1	80,57±85,97	57,05	128,8±82,45	121,75	**0.01***
NHP-2	0,43±1,26	0	0,07±0,26	0	0.34*
BDI-Total	7,82±8,55	6	10,13±4,84	10	**0.03***
PSQI-Total	5,09±2,93	4	7,53±3,25	7	**0.008***
IPAQ-V (MET-min/week)	368±1091,8	0	256±675,58	0	0.57*
IPAQ-M (MET-min/week)	147,65±380,26	0	140±279,28	0	0.85*
IPAQ-W (MET-min/week)	509,34±948,8	0	481,8±781,2	0	0.74*
IPAQ-S (min)	1936,25±6800,25	0	868±2439,81	0	0.92*
IPAQ-Total (MET-min/week)	2961,24±6988,86	720	1745,8±3042,7	240	0.43*

*Mann Whitney U Test

*BDI: Beck depression inventory; IPAQ: International physical activity questionnaire; IPAQ-M: International physical activity questionnaire –moderate; IPAQ-S: International physical activity questionnaire –sitting; IPAQ-V: International physical activity questionnaire –vigorous; IPAQ-W: International physical activity questionnaire –walking;min=minutes; NHP: Nottingham health profile; NHP1 ER: Nottingham health profile-emotional reaction;

NHP1 PA:Nottingham health profile-physical activity; NHP-SI:Nottingham health profile-social isolation; PSQI: Pittsburg sleep quality index; SD: Standard deviation

A total of 106 participants, including 51 nursing and 55 physiotherapy and rehabilitation students, were enrolled in the study. The mean age of the participants was 19,4±1,47 years (min=18, max=30). 82,1% of participants were women, and 17,9 % were men. While 51.9% of the participants were students of the physiotherapy and rehabilitation department, the rest were nursing students. The physical activity level of 51.9 % of all students was inactive. Socio-demographic features, including gender, comorbid disease, drug usage, smoking, alcohol consumption, exercise level, and type of student department, are shown in Table 1. When the students were grouped based on the department, there were no statistically significant differences between the two groups in terms of socio-demographic features (Table 2). Comparison of the mean values NHP subscales, NHP-total scores, IPAQ, BDI and PSQI between nursing and physiotherapy and rehabilitation students are shown in Table 3. NHP-sleep, NHP-SI, NHP-1, NHP-2, and BDI scores were higher in nursing students than in physiotherapy and rehabilitation students; the differences were found statistically significant ($p<0.001$, $p=0.02$, $p=0.002$, $p=0.01$, $p=0.04$ respectively). However, there were no statistically significant differences between the two departments of students according to NHP-pain, NHP-ER, NHP-PA, NHP-energy, PSQI-Total, IPAQ- vigorous, IPAQ-moderate, IPAQ- walking, IPAQ-sitting and IPAQ-total ($p=0.91$, $p=0.11$, $p=0.13$, $p=0.17$, $p=0.16$, $p=0.54$, $p=0.06$, $p=0.42$, $p=0.55$, $p=0.27$, respectively).

When NHP, BDI, IPAQ and PSQI scores were compared according to the exercise level in the students of the nursing department, IPAQ-Vigorous scores were found to be higher in nursing students with exercise habits than nursing students without exercise habits (Table 4). The difference was found to be statistically significant ($p=0.003$). On the other side, there were no statistically significant differences in NHP-pain, NHP-sleep, NHP-SI, NHP-ER, NHP-1, NHP-2, BDI, PSQI, IPAQ-moderate, IPAQ-walking, IPAQ-sitting, IPAQ-total scores according to exercise habit ($p=0.73$, $p=0.13$, $p=0.24$, $p=0.81$, $p=0.77$, $p=0.46$, $p=0.33$, $p=0.057$, $p=0.57$, $p=0.15$, $p=0.08$, $p=0.56$, $p=0.74$, $p=0.16$ respectively).

When NHP, BDI, IPAQ and PSQI scores were compared according to the exercise level in the physiotherapy and rehabilitation department students, IPAQ-moderate scores were higher in physiotherapy and rehabilitation students with exercise habits than physiotherapy and rehabilitation students without exercise habits (Table 5). The difference was found to be statistically significant ($p=0.01$). According to exercise habit, there were no statistically significant differences in NHP-pain, NHP-sleep, NHP-SI, NHP-ER, NHP-PA, NHP-energy, NHP-1, NHP-2, BDI, PSQI, IPAQ-vigorous, IPAQ-walking, IPAQ-sitting, IPAQ-total ($p=0.13$, $p=0.60$, $p=0.36$, $p=0.50$, $p=0.35$, $p=0.18$, $p=0.08$, $p=0.71$, $p=0.33$, $p=0.45$, $p=0.68$, $p=0.48$, $p=0.99$, $p=0.55$ respectively).

According to smoking and alcohol consumption, NHP, BDI, IPAQ and PSQI scores were compared in all students (Table 6). NHP-sleep, NHP-ER, NHP-1 and BDI scores were higher in students who smoke than students without smoking, and the differences were found statistically significant ($p=0.02$, $p=0.02$, $p=0.04$, $p=0.01$, respectively). However, there were no statistically significant differences in NHP-pain, NHP-SI, NHP-PA, NHP-energy, NHP-2, PSQI, IPAQ- vigorous, IPAQ-moderate, IPAQ- walking, IPAQ-sitting, IPAQ-total scores ($p=0.16$, $p=0.50$, $p=0.14$, $p=0.30$, $p=0.93$, $p=0.08$, $p=0.56$, $p=0.94$, $p=0.48$, $p=0.09$, $p=0.72$ respectively). NHP-sleep, NHP-ER, NHP-PA, NHP-1, BDI and PSQI scores were detected to be statistically significantly higher in students who consume alcohol than students who did not use

alcohol (p=0.02, p=0.02, p=0.01, p=0.01, p=0.03, p=0.008 respectively). However, there were no statistically significant differences in NHP-pain, NHP-SI, NHP-energy, NHP-2, IPAQ vigorous, IPAQ-moderate, IPAQ-walking, IPAQ- sitting and IPAQ-total (p=0.93, p=0.44, p=0.14, p=0.34, p=0.57, p=0.85, p=0.74, p=0.92).

The effect of physical activity level on the quality of life and emotional state scores of nursing, physiotherapy, and rehabilitation students were investigated in this study. This study showed that 51% of nursing and 43% of physiotherapy and rehabilitation students had exercised routinely, but approximately 51.9% had insufficient physical activity. The socio-demographic features were similar in both groups. However, the scores of social isolation and sleep domain of NHP and depression symptom scores were higher in nursing students. The mean value of health quality, sleep quality, and emotional scores were higher in both groups in those who did not exercise. The students who smoked and used alcohol had a terrible quality of life and emotional scores. Unsurprisingly the IPAQ-vigorous scores were higher in nursing students with exercise habits, and IPAQ-moderate scores were found to be high in physiotherapy and rehabilitation students with an exercise habits.

A study about physiotherapy students revealed similar results that the majority of students had low physical activity scores[16]. There are many physical activity studies, and the result of these studies vary according to ethnicity, age, and region. A study from Singapore showed that 50% of the population had been prone to sedentary life, and 17% did not do physical activity. Also, the same study revealed that insufficient physical activity was associated with low health-related quality of life scores[17]. A review of physical activity among adults in Arab countries showed that physical activity ranged from 34.2 to 96.9%[18]. The Republic of Turkey Ministry of Health National Household Survey results demonstrated that 20% of the people in Turkey had a sedentary lifestyle, and 16% had insufficient physical activity. Also, according to the same survey, 80% of early deaths due to heart diseases could have been prevented if there had been regular physical activity, healthy nutrition and prevention of smoking[19].

The studies about nursing students of habitual activities are limited. One study with 285 students from Korea showed that 89.1% of nursing students had no exercise and were prone to sedentary life[20]. The current study showed similar results, and there may be many reasons. First, the study began in 2021 as an ongoing Coronavirus 2019 disease (COVID-19) pandemic. As known, after 2019, WHO announced SARS-CoV-2 (COVID-19) disease as a pandemic[21]. Turkey, like many countries, has implemented various measures such as staying at home as much as possible, working at home, closing schools and online lesson applications. These measures caused changes in people's habits and problems such as social isolation, inactivity, behavioural changes, and weight gain[22]. Additionally, COVID-19 and fear of COVID-19 contributed to mental changes, anxiety, and depression tendencies[23,24].

The lack of physical activity has worsened mental problems such as depression and anxiety[25]. The treatment and prevention of depression include physical activity. Exercise is advised for all age groups (mostly 18-65 years old) as a single therapy or combination therapy, and moderate exercise is enough to decrease depressive symptoms[26]. In addition, the relationship between smoking and alcohol consumption and depressive mood disorders is known. A study from Hong Kong demonstrated that university students with depressive symptoms tend to drink alcohol for stress-coping and to avoid depressive symptoms[27]. Another study about university students showed a strong relationship between smoking and poorer physical and mental sub-scores of health-related quality assessment[28]. The BDI is commonly used to evaluate the

degree of depressive symptoms, and high BDI scores are associated with many depressive symptoms[9]. In line with previous studies, the current study indicated that students with high BDI scores had low IPAQ scores. Also, students who used cigarettes and alcohol had low physical activity scores and high BDI scores[29,30].
The most important limitation of this study is the small size of the study group. Another limitation is that students' exercise habits before the COVID-19 pandemic and COVID-19 fear were not evaluated.

With the decrease in COVID-19 cases globally, physical activity and emotional status may have been changed. Further studies are needed for large sample groups on these subjects and the factors that affect physical activity, such as dietary habitus and sleep behaviour.

CONCLUSION

Physical activity among first-year nursing, physiotherapy, and rehabilitation students are insufficient. Healthcare team members should be aware of physical activity benefits and do exercises routinely to increase the physical activity level of all populations.

ACKNOWLEDGEMENT

We thank all the participants for contributing to this study.

CONFLICT OF INTEREST

All author has declared no conflict of interest.

REFERENCES

1. Piercy KL., Troiano RP., Ballard RM., Carlson SA., Fulton JE., Galuska DA., et al. The physical activity guidelines for Americans. JAMA - J Am Med Assoc. 2018; 320(19), 2020–8. doi: 10.1001/jama.2018.14854
2. Haskell, W. L., Blair, S. N., Hill, J. O. Physical activity: health outcomes and importance for public health policy. Preventive medicine. 2009; 49(4), 280-282. doi: 10.1016/j.ypmed.2009.05.002
3. Physical activity guidelines for Americans. Okla Nurse. 2008; 53(4), 25. doi: 10.1111/j.1753-4887.2008.00136.x.
4. Sjøgaard G., Christensen JR., Justesen JB., Murray M., Dalager T., Fredslund GH., et al. Exercise is more than medicine: The working age population's well-being and productivity. J Sport Heal Sci. 2016; 5(2), 159–65. doi: 10.1016/j.jshs.2016.04.004
5. Physical activity [Internet] [cited 2022 June 20]. Available from: https://www.who.int/news-room/fact-sheets/detail/physical-activity.
6. Kotarska K, Paczyńska-Jędrycka M, Sygit K, et al. Physical activity and the quality of life of female students of universities in Poland. Int J Environ Res Public Health. 2021; 18(10), 1–13. doi: 10.3390%2Fijerph18105194
7. Mikkelsen K., Stojanovska L., Polenakovic M., Bosevski M., Apostolopoulos V. Exercise and mental health. Maturitas. 2017; 106(September), 48–56. doi: 10.1016/j.maturitas.2017.09.003
8. Beck AT., Ward CH., Mendelson M., Mock J., Erbaugh J. An Inventory for Measuring Depression The difficulties inherent in obtaining. 1960; 561–71. doi: 10.1001/archpsyc.1961.01710120031004
9. Hisli, N. Beck Depresyon Envanterinin gecerliligi uzerine bir calisma (A study on the validity of Beck Depression Inventory.). Psikoloji Dergisi. 1988; 6, 118-122.

10. Kücükdeveci AA., McKenna SP., Kutlay S., Gürsel Y., Whalley D., Arasıl T. The development and psychometric assessment of the Turkish version of the Nottingham Health Profile. International journal of rehabilitation research Internationale Zeitschrift fur Rehabilitationsforschung Revue Internationale de Recherches de readaptation. 2000; 23(1), 31-38. doi: 10.1097/00004356-200023010-00004
11. Buysse DJ., Reynolds CF., Monk TH., Berman SR., Kupfer DJ. The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. Psychiatry Res. 1989; 28,193–213. DOI: 10.1016/0165-1781(89)90047-4
12. Ağargün M., Kara H AO. The Validity and reliability of the Pittsburgh Sleep Quality Index. Turkish J Psychiatry. 1996; 7, 107–11.
13. Craig CL., Marshall AL., Sjöström M., Bauman AE., Booth ML., Ainsworth BE.,et al. International physical activity questionnaire: 12-Country reliability and validity. Med Sci Sports Exerc. 2003; 35(8), 1381–95. doi: 10.1249/01.mss.0000078924.61453.FB
14. Saglam M., Arikan H., Savci, S.,İnce İnal D, Guclu Bosnak M., Karabulut E., et al. International physical activity questionnaire: reliability and validity of the Turkish version. Perceptual and motor skills, 2010; 111(1), 278-284. doi: 10.2466/06.08.pms.111.4.278-284
15. International Physical Activity Questionnaire [Internet] [cited 2022 June 20]. Available from: https://sites.google.com/site/theipaq/home.
16. Kgokong D., Parker R. Physical activity in physiotherapy students: Levels of physical activity and perceived benefits and barriers to exercise. South African J Physiother. 2020; 76(1), 1–7. doi: 10.4102%2Fsajp.v76i1.1399
17. Lau JH., Nair A., Abdin E., Kumarasan R., Wang P., Devi F., et al. Prevalence and patterns of physical activity, sedentary behaviour, and their association with health-related quality of life within a multi-ethnic Asian population. BMC Public Health. 2021; 21(1), 1–13. doi: 10.1186/s12889-021-11902-6
18. Murtagh E., Shalash A., Martin R., Abu Rmeileh N. Measurement and prevalence of adult physical activity levels in Arab countries. Public Health. 2021; 198, 129–40. DOI: 10.1016/j.puhe.2021.07.010
19. Republic of Turkey Ministry of Health. Prevention and Control Program for Cardiovascular Disease. 2009 [Internet] [cited 2022 June 20]. Available from: https://tkd.org.tr/en/announcements/301/turkish-ministry-of-healths-prevention-and-control-program-for-cardiovascular.
20. Park DI., Choi-Kwon S., Han K. Health behaviours of Korean female nursing students concerning obesity and osteoporosis. Nurs Outlook. 2015; 63(4), 504–11. doi: 10.1016/j.outlook.2015.02.001
21. T.C. Sağlık Bakanlığı. Covid-19 Genel bilgiler, epidemiyoloji ve tanı. Halk Sağlığı Genel Müdürlüğü. 2020;19(COVID-19 (SARS-CoV-2 ENFEKSİYONU)):1–32 [Internet] [cited 2022 June 20]. Available from: https://covid19.saglik.gov.tr/Eklenti/39551/0/covid 19rehberigenelbilgilerepidemiyolojivetanipdf.pdf.
22. Fowler JH., Hill SJ., Levin R., Obradovich N. Stay-at-home orders associated with subsequent decreases in COVID-19 cases and fatalities in the United States. PLoS One. 2021; 16(6), e0248849. Published 2021 Jun 10. doi: 10.1371/journal.pone.0248849
23. Xiao Y., Becerik-Gerber B., Lucas G., Roll SC. Impacts of Working From Home During COVID-19 Pandemic on Physical and Mental Well-Being of Office Workstation Users. 2021. doi: 10.1097%2FJOM.0000000000002097

24. Pera A. Cognitive, Behavioral, and Emotional Disorders in Populations Affected by the COVID-19 Outbreak. Front Psychol. 2020; 11(May). doi: 10.3389/fpsyg.2020.02263
25. Ruegsegger GN., Booth F W. Health benefits of exercise. Cold Spring Harbor perspectives in medicine. 2018; 8(7), a029694. doi: 10.1101/cshperspect.a029694
26. Xie Y., Wu Z., Sun L., Zhou L., Wang G., Xiao L., Wang, H. The effects and mechanisms of exercise on the treatment of depression. Frontiers in Psychiatry, 1904. 2021; 12, 705559. doi: 10.3389/fpsyt.2021.705559
27. Chow MSC., Poon SHL., Lui KL., Chan CCY., Lam WWT. Alcohol Consumption and Depression Among University Students and Their Perception of Alcohol Use. East Asian Arch Psychiatry. 2021; 31(4), 87–96. doi: 10.12809/eaap20108
28. Milic Id M., Gazibara T., Pekmezovic T.,Tepavcevic DK.,Maric G., Popovic A., et al. Tobacco smoking and health-related quality of life among university students: Mediating effect of depression. 2020. DOI: 10.1371/journal.pone.0227042
29. Flensborg-Madsen T., von Scholten MB., Flachs EM., Mortensen EL., Prescott E., Tolstrup JS. Tobacco smoking as a risk factor for depression. A 26-year population-based follow-up study. J Psychiatr Res. 2011; 45(2), 143–9. doi: 10.1016/j.jpsychires.2010.06.006
30. Boden JM, Fergusson DM. Alcohol and depression. Addiction. 2011; 106(5), 906–14. doi: 10.1111/j.1360-0443.2010.03351.x