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Evaluation of Physical Activity and Health Perceptions of University Students During the COVID-19 Process

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Abstract

Purpose: While the COVID-19 pandemic has affected all segments of society, university students have also widely suffered the effects of this situation. Uncertainty, changes in education and training processes and the disrupted lifestyle due to the restrictions have caused physical and psychological problems in students. The aim of our research is to retrospectively examine the changes in physical activity among university students caused by staying at home during the COVID-19 process and to evaluate their health perception during the pandemic process.

Methods: 161 university students studying in Istanbul participated in the research on a voluntary basis. The physical activities of the participants were evaluated with the accelerometers on their smartphones, and their health perception levels were evaluated with the "Health Perception Scale".

Results: A 57% decrease was observed in the physical activity of the participants within three months. Among the participants, the health perceptions of the people who had been hospitalized or had a family

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member hospitalized in the last month, and who had a chronically ill individual in their family were found to be significantly lower.

Conclusion: During the pandemic period, attention should be paid to the physical inactivity caused by the restriction measures and continuation of physical activity should be ensured with domestic exercises.

Key Words: COVID-19, Physical activity, Perception of Health Scale, Accelerometer

Introduction

The COVID-19 disease (2), which was named an "unidentified pneumonia case" in Wuhan, China, as of December 2019, spread worldwide in a short time and was declared a pandemic by the World Health Organization (WHO) on March 11, 2020 (2). It has caused 5,939,234 cases and 367,255 deaths as of 1 June (3). The Ministry of Health of the Republic of Turkey tried to slow the spread of the epidemic by taking a series of protective measures in all segments of the society starting on March 11, 2020, when the first case was seen in the country(4).

During the pandemic process, different measures and restrictions were imposed targeting children and young people for these age groups not to be affected by the epidemic. On March 16, 2020, education in primary-secondary schools and universities was suspended for three weeks(5), and as of March 23, university students moved to distance education (6). As of April 03, 2020, individuals under the age of 20 were prohibited from going out on the streets with the circular numbered 89780865-153 of the Ministry of Interior (7).

With the introduction of distance education at home for university students and stay-at-home restrictions for those under the age of twenty, young people continued their lives at home. The risk of physical inactivity has increased in young people staying at home due to COVID-19 disease. Piercy et al. defined the condition of being physically active as at least 150-300 minutes of moderate exercise or 75-150 minutes of vigorous exercise per week (8). Hall et al. reports that being physically active and exercise opportunities like rehabilitation practices, school-based physical education practices, athletic programs, public exercise areas were

restricted in all age groups due to COVID-19 and that the negative effects of this situation will continue after the COVID-19 process as they did during the pandemic (9). Burtscher et al. advocated the preservation of the continuity of physical activity during the restrictions period. He states that physical activity in restricted areas reduces the risk of mortality and morbidity due to COVID-19 disease and disability, and has psychological benefits with its mood-improving and stress-reducing effect. It has been reported that physical activity training given through online communication channels and social networks during this period was encouraging. In addition, researchers reported that people should avoid doing physical activity together (10). Martinez Ferran et al. reported an increase in insulin resistance, total body fat mass, abdominal fat, and the number of inflammatory cytokines due to the sudden decrease in physical activity brought on by the restrictions and the deterioration of nutritional routines during the lockdown period (11). So Pinto et al. recommends that individuals with rheumatological diseases be active in order not to lose their physical activity during this period. In home-based physical activity programs, low-intensity activities should be started and this activity level should be increased gradually throughout the restrictions period. For individuals who are unable to exercise on their own, a strategy such as "move more, sit less during the day" should be applied. Other methods that can be employed are online/printed brochures and virtual activity groups (12).

The subject of this research is the health perception of university students of their physical activity level and health status during the restrictions period while they had a variable physical activity level in the period preceding the pandemic. This study aims to investigate the physical activity levels of university students before and after the restrictions period and their health perception during the restrictions period.

Material and Method

The research was conducted between 15.05.2020 and 22.05.2020 to determine physical activity between February 2020 and April 2020, when the restrictions imposed on university students

continue. 161 students who continued their education at Biruni University and Istanbul Bilgi University Vocational Schools participated in the research voluntarily. The university students who participated in the research were informed about the research in written form and they agreed to participate in the study if they continued.

The physical activity levels of university students were determined by the accelerometers on their smartphones. The number of steps of the participants was determined as the retrospective average of February, March, and April.

Participants' health perceptions, Diamond et al. were determined by the Health Perception Scale, which was developed by Diamond et al. in 2007 and whose Turkish validity and reliability studies were conducted in 2012 by Kadıoğlu and Yıldız (13). The scale is a five-point Likert-type scale consisting of 15 items and four sub-dimensions. The scale has four sub-dimensions (Center of Control, Self-Awareness, Certainty, and Importance of Health) (14).

The number of steps and health perceptions of the students for three months were collected using Google forms, taking into account the restriction measures. Google forms is a common and effective tool that offers active learning and inexpensive assessment (15). Statistical analyses of the research were performed using SPSS version 27.0. All data were analyzed with the Kolmogorov-Smirnov test to determine the distribution characteristics. In group comparisons: the Paired Sample T-test was used for normally distributed numerical data, and the Wilcoxon test was used for non-normally distributed or ordinal data.

Results

161 students between the ages 18 and 33 participated in the study with a mean age of 21.11±2.28. 72% of the participants are female and 28% are male. The average height of the participants was 1.68±0.09 meters, and the average weight was 64.26±13.88 kilograms. The mean body mass index of the participants was calculated as 22.67±4.21. The information on the age, height, weight, and BMI of university students is given in Table 1.

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Table 1. Demographic characteristics of the participants

Variable	Minimum	Maximum	Mean
Age	18	33	21.11±2.28
Height	1.20	1.91	1.68±0.09
Weight	42	107	64.26±13.88
BMI	16.16	54.17	22.67±4.21

BMI : Body mass index

8.7% of the participants reported that they were in isolation for 0-7 days, 8.1% for 1-4 weeks, and 83.2% for 5-8 weeks. While 20.5% of the participants had a health problem in the last month, 79.5% described themselves as completely healthy. 49.1% of the participants reported that they had a chronic disease and 34.8% reported that they had been hospitalized before. While 49.1% of the participants had a chronic disease in their family, the rate of participants whose family members were hospitalized in the last month was 53.4%.

The pedometer mobile applications of the participants were asked. It was learned that 54.7% of the participants used "Iphone Health", 28% "Samsung Health", 12.4% "Huawei Health" and 5% "Xiaomi Health".

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The participants' average step in February was 6328±3776 steps, the average in March was 4244±3057, and finally, the average in April was 2752±2995 steps (Figure 1). While the number of steps of the participants in March decreased by 37% compared to February, the number of steps in April decreased by 57% compared to February and by 36% compared to March.

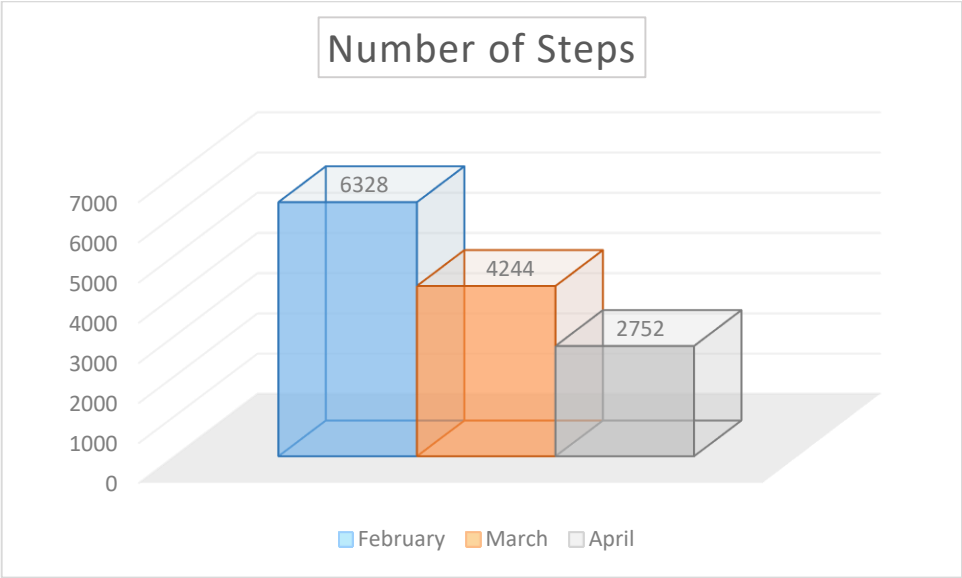

Figure 1. Number of steps of the participants

When the health perception scores of the participants were examined, the mean health perception score of the whole group was found to be 54.57±6.95. No relationship was observed between health perception and demographic characteristics (age, height, weight, BMI, gender) ($p>0.05$). On the other hand, the health perceptions of the participants who were hospitalized before, had a family member with a chronic disease or had family history of hospitalization within the last month were found to be statistically significantly lower.

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Table 2. The relationship between participant characteristics and health perception

Parameter	Status	N	Mean+Std	*p*
Hospitalization	+	56	53.00± 6.65	**0.036**
	-	105	55.41±6.99	
Chronic patient in family	+	79	53.41±6.03	**0.036**
	-	82	55.70±7.60	
Hospitalize a member of the family	+	86	53.12±7.15	**0.004**
	-	75	56.24±6.36	

Discussion

As a result of our research, it was determined that the physical activity rates of the students decreased within three months due to the COVID-19 pandemic, and the perception of health deteriorated in cases of chronic illness and hospitalization.

When the physical activity levels of the students participating in the study were examined, it was observed that the average step in February was 6328±3776 steps, the average in March was 4244±3057, and finally, the average in April was 2752±2995 steps. While the number of steps of the participants in March decreased by 37% compared to February, the number of steps in April decreased by 57% compared to February and by 36% compared to March. The number of steps students took before the pandemic process is far behind the daily recommended 10000 steps by WHO (16).

Further on it was observed that as a result of the measures implemented from March 2020 onwards university students had largely abandoned regular physical activity, and some of them even abandoned physical activities that they sometimes performed outside of their daily

routines. In addition, the continuation of the education process from home led to an increase in the time spent in front of the computer. In summary; While the physical activity levels of the students were at a moderate level before the pandemic, they significantly decreased with the measures taken due to the pandemic.

In 2020, while the pandemic continued throughout the year, many researchers investigated the effects of physical inactivity. When the literature on the subject is examined Gallo et al. reveals that in a study conducted with Australian university students, physical activity levels decreased by 30% (17). Romero Blanco et al. reports that the level of physical activity among Italian university students decreased by 48.6% during the pandemic period (18). Per Ammar A et al. in Spain, the increase observed in sedentary behavior in university students during the pandemic period was 28.6% (19). The increase of 57% observed by our study at the end of three months in the level of physical activity stands comparably high. This difference can be explained by the lack of physical activity habits of the Turkish students in the period preceding the pandemic. In a physically inactive population, it is to be expected that the rate of physical inactivity that increases in a short time may have important consequences in the future (20).

Existing literature emphasizes that it is important to perceive the health status as good in acquiring positive health behaviors (21). When the health perception scores of the students participating in the study were examined, the average health perception score of the whole group was found to be 54.57±6.95. Considering that the highest score that can be obtained from the Health Perception Scale is 75 and the lowest score is 15, it can be said that the health perception mean score of the students participating in the study is at the moderate-good level. It is seen that the health perception scores of different faculties/department students in our country are similar across studies examining health perception. Özdelikara et al. determined the mean health perception score in their study on nursing students and they found it to be 50.57±4.60 and evaluated the result as moderate (14). Karaoglu et al. in their study evaluating the health perception of sociology and medical faculty students found the mean health perception score of medical faculty students to be 50.17±5.66 (22). In our study, health

perception scores were found to be higher than the perception scores of 42.34 points in the study of Alkan et al.(23), the 37.9 points in the study of Çilingir et al. (24), and 43.83 of Efteli et al. (25).

The health perception level of individuals is directly related to the acquisition and maintenance of healthy life behaviors (26). In our study, the health perception scores of the participants who were hospitalized before, had a family member with a chronic disease, or had a family history of hospitalization in the last month (53.00±6.65, 53.41±6.03, 53.12±7.15) were found to be statistically significantly lower than those who did not have a family member with a chronic disease (55.70±7.60) or who did not have a history of hospitalization (55.41±6.99, 56.24±6.36). These results indicate that having a serious illness such as COVID-19 (self/relative) impairs the perception of health in people. From another point of view, it is thought that students with a high perception of health are less likely to catch COVID-19 and have a severe illness, or that students with a high perception of health make more efforts to improve and maintain their health.

Conclusion and Recommendations

• Physical inactivity in students increased significantly during the pandemic period.

• It is a mistake to think that physical activity is only dependent on the external environment.

• Considering the long-term effects of inactivity and the prolongation of the pandemic, it is important to encourage students to engage in physical activity.

• Health perception is important in developing and maintaining healthy living habits. Regular physical activity by taking part in healthy living behaviors has an important place in the perception of health.

• Health perception as an issue needs to gain more awareness among medical personnel who will work in the field of healthcare.

References

1. WHO Pneumonia of unknown cause – China. WHO. 2020
2. WHO announces COVID-19 outbreak a pandemic. 2020 Mar 12.
3. WHO Coronavirus Disease (COVID-19) Dashboard [Internet]. [cited 2020 Jun 1]. Available from: https://covid19.who.int/
4. T.C Sağlık Bakanlığı Korona Tablosu [Internet]. [cited 2020 Jun 1]. Available from: https://covid19.saglik.gov.tr/
5. T.C. YÜKSEKÖĞRETİM KURULU Basın ve Halkla İlişkiler Müşavirliği.
6. T.C. YÜKSEKÖĞRETİM KURULU Basın ve Halkla İlişkiler Müşavirliği [Internet]. 2020 [cited 2020 Jun 1]. Available from: https://yokdersleri.yok.gov.tr/
7. Şehir Giriş/Çıkış Tebirleri ve Yaş Sınırlaması [Internet]. [cited 2020 Jun 1]. Available from: https://www.icisleri.gov.tr/sehir-giriscikis-tebirleri-ve-yas-sinirlamasi
8. 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 Nov 20;320(19):2020–8.
9. Hall G, Laddu DR, Phillips SA, Lavie CJ, Arena R. A tale of two pandemics: How will COVID-19 and global trends in physical inactivity and sedentary behavior affect one another? Prog Cardiovasc Dis. 2021 Jan-Feb;64:108-110.
10. Burtscher J, Burtscher M, Millet GP. (Indoor) isolation, stress, and physical inactivity: Vicious circles accelerated by COVID-19? Scand J Med Sci Sports. 2020 Aug;30(8):1544-1545.
11. Martinez-Ferran M, de la Guía-Galipienso F, Sanchis-Gomar F, Pareja-Galeano H. Metabolic Impacts of Confinement during the COVID-19 Pandemic Due to Modified Diet and Physical Activity Habits. Nutrients. 2020 May 26;12(6):1549.
12. Pinto AJ, Dunstan DW, Owen N, Bonfá E, Gualano B. Combating physical inactivity during the COVID-19 pandemic. Nat Rev Rheumatol. 2020 Jul;16(7):347-348.

13. Kadıoğlu H, Yıldız A. Sağlık Algısı Ölçeği'nin Türkçe Çevriminin Geçerlilik ve Güvenilirliği. Turkiye Klin J Med Sci. 2012;32(1):47–53.

14. Özdelikara A, Ağaçdiken Alkan S, Mumcu N. Hemşirelik Öğrencilerinde Sağlık Algısı, Sağlık Anksiyetesi ve Etkileyen Faktörlerin Belirlenmesi. 2018; 275 - 282.

15. Djenno M, Insua G, Pho A. From paper to pixels: Using Google Forms for collaboration and assessment. University of Illinois at Chicago. 2015. Journal contribution. https://hdl.handle.net/10027/19436.

16. World Health Organization. WHO Guidelines on Physical Activity and Sedentary Behaviour, 2020.

17. Gallo LA, Gallo TF, Young SL, Moritz KM, Akison LS. The Impact of Isolation Measures Due to COVID-19 on Energy Intake and Physical Activity Levels in Australian University Students. Nutrients. 2020; 12(6): 1865.

18. Romero-Blanco C, Rodríguez-Almagro J, Onieva-Zafra MD, Parra-Fernández ML, Prado-Laguna MDC, Hernández-Martínez A. Physical Activity and Sedentary Lifestyle in University Students: Changes during Confinement Due to the COVID-19 Pandemic. Int J Environ Res Public Health. 2020 Sep 9;17(18):6567.

19. Ammar A, Brach M, Trabelsi K, Chtourou H, Boukhris O, Masmoudi L, et al. Effects of COVID-19 Home Confinement on Eating Behaviour and Physical Activity: Results of the ECLB-COVID19 International Online Survey. Nutrients. 2020 May 28;12(6):1583.

20. Zhou F, Yu T, Du R, Fan G, Liu Z, Xiang, J, et al. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. Lancet. 2020 Mar 28;395(10229):1054-1062.

21. Açıksöz S, Uzun Ş, Arslan F. Hemşirelik öğrencilerinin sağlık algısı ile sağlığı geliştirme davranışları arasındaki ilişkinin incelenmesi. Gülhane Tıp Dergisi. 2013; 55(3): 181-187.

22. Karaoğlu N, Karaoğlu KB, Yardımcı H. Sosyoloji ve tıp öğrencilerinin sağlık algısı ve sağlık kaygısı düzeylerinin karşılaştırılması. Ankara Med J. 2020; (3):615-628.

23. Alkan SA, Özdelikara A, Boğa NM. Hemşirelik öğrencilerinin sağlık algılarının belirlenmesi. Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi. 2017; 6(2): 11–21.

24. Çilingir D, Aydın A. Hemşirelik bölümünde öğrenim gören öğrencilerin sağlık algısı. FNJN Florence Nightingale Hemşirelik Dergisi. 2017; 25(3): 167-76.

25. Efteli E, Khorshtd L. İki farklı bölüm öğrencilerinin sağlık algılarının karşılaştırılması. Ege Üniversitesi Hemşirelik Fakültesi Dergisi. 2016; 32(2):1–10.

26. Çaka SY, Topal S, Suzan ÖK, Çınar N, Altınkaynak S. Hemşirelik öğrencilerin sağlık algısı ile özgüvenleri arasındaki ilişki. Journal of Human Rhythm. 2017; 3(4):199–203.