International Journal of
Active & Healthy Aging

https://ndpapublishing.com/index.php/ijaha

Effects of Social Isolation During COVID-19 Quarantine on Level Physical Activity and Health of Elderly People

Pervin TOPTAŞ DEMİRCİ[*1] and **Şerafettin DOLAŞ**[2]

[1]Mersin University, Faculty of Sport, Science, Mersin/ Türkiye
[2]Kuyuluk Special Education Vocational School, Mersin / Türkiye

Keywords
COVID-19
Older adults
Physical activity
Social Isolation

The aim of this study was to investigate how quality of life, as well as FA, in community-dwelling older adults is affected by social isolation during the COVID-19 process. A total of 210 participants, 98 men and 112 women, were included in the study through the invitation to participate in the study through online survey software (Google Surveys) and social media communication (WhatsApp). The average Body Mass Index (BMI) of the participants was 27.31±3.43 kg/m2. While the mean weight (kg) was 70.32±10.80 before Covid-19, it was 79.02±10.62 (P<0.05) during the isolation period. It was determined that 30.9% (65) of the participants had cardiovascular disease and 26.2% had lung disease. Before Covid-19, the physical activity level of 66.6% of the majority of the participants was moderate and the number of people doing low physical activity was 18.1%, during the Covid-19 social isolation process. It was observed that 57.6% of the participants had moderate physical activity and 36.2% had low physical activity level (P<0.01). There was a statistically significant difference between physical role difficulty (p<0.005), general health perception (p<0.023), social functionality (p<0.016) and mental health (p<0.037) subscales of SF-36 before and during the Covid-19 period. While there was a significant difference, no difference was found between the other subscales. As a result; COVID-19 restrictions still negatively impacted activity level as well as general and mental health. These short-term declines in activity level and health suggest that greater focus on preventive measures is needed to support older adults in maintaining an active lifestyle.

1. INTRODUCTION

People are social beings, and the quantity and quality of people's social interactions can directly affect mental health, physical health, and disease risk. Due to the possible increase in the incidence of serious health complications from COVID-19, older adults, especially those with pre-existing health conditions, are currently experiencing physical and social isolation, which may increase the incidence and severity of anxiety and depression among them [1]. Social isolation and perceived loneliness are important risk factors for cognitive decline, anxiety, and depression and are associated with increased all-cause mortality in older adults [2,3].

A recent report of more than 3,000 older adults aged 60 years and older showed that increased social isolation predicted more severe symptoms of depression and anxiety [4]. Although not fully understood, declines associated with social isolation and loneliness may be a result of dysregulated health behaviors, such as social engagement and physical activity [5,6]. Unsurprisingly, sedentary behavior is a significant determinant of all causes of death, has been shown to negatively impact mood and depressive symptomatology, and is thought to be associated with cognitive decline in older adults [7,8].

Therefore, social isolation is often linked to increased sedentary behavior and decreased physical activity in older adults, and recent reports suggest that the COVID-19 pandemic may lead many older adults to engage in less physical activity [9,10].

According to a report published by the US Centers for Disease Control and Prevention in

*Corresponding author
Pervin TOPTAŞ DEMİRCİ (e-mail) *(pervindemirci@hotmail.com)

How to cite this article
Toptaş Demirci, P. And Dolaş, Ş. (2019). Effects of Social Isolation During COVID-19 Quarantine on Older Adults' Physical Activity Level and Health. *Int. J. Act. Health Aging, 1(1):14-20.*

Research Article / DOI: 10.5281/zenodo.10450301

March 2020, more than 80% of the deaths were found in patients over the age of 65, indicating that the elderly are vulnerable to the virus [11]. Additionally, China reported that the increase in and 81.3%, respectively) was (p<0.001), indicating a relationship between the incidence of infection and age. shows. Physical activity (PA) and exercise are effective measures to maintain and improve overall health and prevent a wide range of diseases.

Caspersen et al define PA as any bodily movement produced by skeletal muscles that results in energy expenditure, and exercise in gardening, walking, or playing sports is a subset of PA that is planned, structured, and repetitive and performed to improve or maintain physical fitness. It is defined as [12,13]. PA and exercise contribute significantly to the maintenance of physical function in older ages, which is necessary for independence in activities of daily living (ADL) and prevention of falls [14,15]. Additionally, evidence strongly suggests that PA improves health-related quality of life in old age.

Among older adults, physical activity and aerobic exercise training appear to have anxiolytic and antidepressant effects. Large epidemiological studies show that physical activity is associated with better mental health and resilience to psychological distress such as symptoms of depression and anxiety [16,17]. It should be noted that the benefits of physical activity for mental health may depend on the intensity of physical activity performed [18]. Recently, some data suggest that the positive association between physical activity and mental health extends to older adults and that physical activity uniquely contributes to symptoms of depression in this population [19].

Meanwhile, experimental data suggest that participation in physical activity over periods of time similar to those in the current pandemic (i.e., 4–10 weeks) can lead to improvements in both anxiety and depressive symptoms in various populations, including older adults.

Therefore, the aim of this study is; Our aim was to investigate how social isolation during the COVID-19 quarantine period affects physical activity and quality of life in older adults.

2. MATERIALS AND METHODS

2.1. Participants

The participants consisted of 210 people between the ages of 60-90, residing in Mersin city center and filling out the surveys using online survey software (Google surveys) during the COVID-19 restrictions, from the beginning of severe infections and death rates of COVID-19 is age-related. Specifically, the incidence of serious infections in the age groups of 50-64, 65-79, and 80 years and above (approximately 19.8%, 43.2%, November to the beginning of December 2020. The participants' survey consisted of four sections: demographic information, physical activity level, general health and mental health.

Participants were recruited into the study through online survey software (Google Surveys) and social media communication (WhatsApp). While 235 participants began the online survey, 25 responses were missing and were therefore removed from the dataset. A total of 210 participants, 98 males and 112 females, were included in this study. Participant provided informed consent, with the volunteer form covering research details, risks, benefits, confidentiality, and participant rights. The research strictly adhered to the ethical principles of the Declaration of Helsinki, prioritizing participant's rights and well-being in design, procedures, and confidentiality measures.

2.2. Data Collection Tools

2.2.1. Demographic Information Form

Demographic characteristics included age, gender, body mass index (BMI), educational status, and presence of chronic disease.

2.2.2. Physical Activity Scale for the Elderly (PASE)

Physical activity levels of elderly individuals due to social isolation during the COVID-19 quarantine period were evaluated with the 'Physical Activity Scale for Elderly' (PASE). In this study, the Turkish form of PASE, whose validity and reliability have been proven, was used [20]. PASE is a physical activity scale developed in 1993 to determine individuals' work, recreation and physical activity levels [21]. PASE is a measure of people's activity in the last 7 days, such as walking, mild, moderate and intense sports and recreational activities, muscle strength and endurance exercises, work-related activities, lawn and garden care, care of another person, home repairs, heavy and light housework. activities; questions its frequency, intensity and duration. Among these activities, the frequency of activities other than home and work-related activities is recorded. These activities; It is classified as less than 1 hour, between 1-2 hours, between 2-4 hours and more than 4 hours. Duration and frequency of housework are not recorded. The PASE score is

calculated by multiplying activity frequencies by activity 24 weights. Sitting activity score is not included in the total score. High scores indicate physical activity levels.

2.2.3. Short Form 36 Quality of Life Scale

Short Form 36 Quality of Life Scale SF-36 short form was used to evaluate the quality of life of volunteers. One of the main features of SF-36 is that it is a self-assessment scale. Among the advantages of the scale are the fact that it can be completed in as little as five minutes and that it can evaluate both the negative and positive aspects of the health condition. The scale consists of 36 items and these provide the measurement of 8 dimensions; physical function, social function, physical function role limitations, emotional role limitations, vitality, pain and general perception of health. The evaluation is made in Likert type (three-six points) except for the 4th and 5th items; Items 4 and 5 are answered in a yes/no format. The scale gives a total score for each subscale separately. Subscales evaluate health on a scale of 0 to 100, with 0 indicating poor health and 100 indicating good health.The reliability and validity study of the Turkish version of SF36 was conducted by Koçyiğit and his colleagues [22].

2.3. Statistical analysis

SPSS 22.00 program was used for statistical analysis. In evaluating the data obtained from the study; Descriptive statistical methods such as frequency (n), percentage (%), mean ± standard deviation were used. Distribution of physical activity levels according to age and BMI values was evaluated with the Chi-square (X2) test. The suitability of the data to normal distribution was examined with Shapiro-Wilk tests. As a result of the analysis, it was determined that the data did not comply with normal distribution. For this reason, non parametric test methods were used to make comparisons. The significance of the difference between independent samples was evaluated with Mann-Whitney-U and Kruskal-Wallis H tests. Statistical significance level was taken as (α= 0.05).

3. RESULTS

Demographic, quality of life and physical activity data for all participants are given in Table 1 and Graphic 1. Of the 210 people who participated in the study, 46.7% (98) were men and 53.3% (112) were women. 55.2% of the participants are between the ages of 60 and 69, and 36.2% are between the ages of 70-79. The average Body Mass Index (BMI) of the participants is 27.31±3.43 kg/m2. While the average weight (kg) before Covid-19 was 70.32± 10.80, it was determined to be 79.02±10.62 (P<0.05) during the isolation period. It was observed that 40.5% (85) of the participants were secondary school graduates, 35.7% (75) were high school graduates, and the number of postgraduate graduates was 4.8%. It was determined that 30.9% (65) of the participants had cardiovascular disease and 26.2% had lung disease. Before Covid-19, the physical activity level of the majority of 140 participants (66.6%) was at medium level, the number of people doing low physical activity was 38 (18.1%), and during the Covid-19 social isolation period, 121 participants had FA status (% It was observed that 57.6) had moderate physical activity and 76 (36.2%) had low physical activity (P<0.01) (Table 1 and Graphic 1).

Table 1. Socio-demographic characteristics of the participants

		n	%	p
Gender				
	Male	98	46.7	
	Female	112	53.3	
Age				
	60–69	116	55.2	
	70–79	76	36.2	
	80–89	11	5.3	
	>90	7	3.3	
Weight (kg) before Covid-19		70.32± 10.80		<0,05
Weight (kg) during Social Isolation Process		79.02± 10.62		
Educational Status				
	Secondary education	85	40.5	
	High school	75	35.7	
	University	40	19.0	
	Postgraduate	10	4.8	

Body Mass Index (BMI)		27,31±3,43	kg/m²	
History of Chronic Disease				
	Stroke	25	11.9	
	Cardiovascular	65	30.9	
	Diabetes	30	14.4	
	Lung	55	26.2	
	Hypertension	35	16.6	
FA Before Covid-19				
	Low PA	38	18.1	
	Moderate PA	140	66.6	
	Severe PA	32	15.3	<0,01
FA During Covid-19				
	Low PA	76	36.2	
	Moderate PA	121	57.6	
	Severe PA	13	6.2	

p<0,01; p<0,05; Physical Activity (PA)

The SF-36 subscales of the participants before and during Covid-19: physical role difficulty (p<0.005), general health perception (p<0.023), social functionality (p<0.016) and mental health p<0.037) were statistically significant. While there was no difference between the other subscales (Table 2).

Table 2. Quality of life scale score distribution of participants before Covid-19 and during Covid-19

Subscales of SF-36		Before Covid-19	During Covid-19	P Value
Physical Health	Physical function	86,73±17,77	85,61±18,75	0,650
	Physical role difficulty	67,97±43,64	61,74±32,02	**0,005**
	Pain	64,75±21,48	65,2±22,36	0,246
	General health perception	68,55±17,22	59,12±32,45	**0,023**
Mental Health	Energy/Vitality	48,98±17,12	47,14±17,41	0,544
	Social Functioning	51,42±25,65	41,23±27,24	**0,016**
	Emotional role difficulty	46,01±39,41	47,1±33,74	0,431
	Mental health	59,18±18,42	52,149±17,75	**0,037**

4. DISCUSSION

We investigated how social isolations during the COVID-19 quarantine period affected physical activity and general health in community-dwelling older adults and found a significant decrease in physical activity and general health during the quarantine period compared to before the quarantine (P<0.01). Additionally, it was found that the general health status of those who engaged in low physical activity during social isolation was worse than those who engaged in vigorous activity. Finally, our results showing a decrease in activity level and overall physical and mental health after the onset of COVID-19 restrictions are closely consistent with other recent studies and reports [23,24].

A narrative review assessing the impact of social isolation on health in older people found that six out of eight studies reported an increased level of psychological distress, including higher levels of anxiety, depression, and loneliness [23]. Furthermore, Yamada and colleagues found that non-frail older adults (mean age: 73.5 years) reduced their total PA time by 40% compared to before the pandemic [24]. Additionally, the Active Lives Adult Survey found a 7.3% drop in activity levels from March 2020 for older adults ages 55-74 and a 6.6% drop for those ages 75 and older [13]. The same research found that the proportion of the general population classified as 'sedentary' increased by 7.4% during the pandemic. Much of the initial concern about how older adults would respond to COVID-19 was based on how loneliness and isolation would be exacerbated when quarantine measures were implemented.

Therefore, older adults expressed concerns about their longer-term physical and financial well-being. Cross-sectional study of 515 community-dwelling adults (ages 20-79) in the United States found that among older adults, the use of proactive precautionary measures such as avoiding people who are coughing, traveling unnecessarily, and using public transportation or public places reduced COVID-19-related anxiety. stated that it had decreased. Therefore, for older adults experiencing quarantine, having closer or meaningful relationships rather than interacting more with others may be protective. Maintaining these connections during the pandemic may

require the ability to better use technology to connect with loved ones [25,26].

Participants' physical role difficulty ((P<0.005), general health perception (P<0.023), social functionality (P<0.016) and mental health (P<0.037) subscales of SF-36 according to the COVID-19 process before COVID-19) While it was found to be statistically significant among the dimensions, no difference was detected between the other subscales. In their study, found that the physical activity level of healthcare professionals has a significant relationship with vitality (energy) and mental health. Similarly, they stated that moderate and high levels of physical activity positively affected the quality of life. In another study; It has been reported that high and moderate levels of physical activity among university students can be effective in improving their health-related quality of life [27].

In a study conducted with 302 middle-aged individuals, it was reported that men's general health perception differed significantly with their physical activity levels [28]. In a study, it was stated that high levels of physical activity and walking performed by women with depression symptoms were associated with better quality of life, and that women who did adequate physical activity or walking had a strong relationship with the SF-36 subscales of physical function, vitality and social functionality [29]. These findings support our findings.

Many older adults do not have the resources to cope with the stress of COVID-19. This may include financial (e.g., lack of access to smart technology), social (e.g., few family members or friends), or cognitive or biological (e.g., inability to engage in physical exercise or activities or routines) resources. Particularly important is the role of technology, which has emerged as an important factor for maintaining social connection, as well as access to mental health services. Additionally, clinicians must recognize the importance of nonpharmacological approaches that are more effective than pharmacotherapy in treating chronic stress, anxiety, and prolonged grief. Such approaches include encouraging physical activity, greater engagement, compassion training, and appropriate spiritual engagement, as well as manual therapies such as cognitive behavioral therapy. These approaches have also been shown to improve coping, increase resilience, and reduce loneliness [30].

The COVID-19 pandemic has been a unique stressor affecting communities around the world. Still, it is notable that some individual studies from different countries have shown that at least some older adults do not experience disproportionately increased negative mental health outcomes commensurate with the higher risks they face in the first few months of the COVID-19 pandemic. Understanding the factors and mechanisms that drive this resilience can guide intervention approaches for other older people and other groups whose mental health may be more severely affected – for example, by increasing components of wisdom such as emotional regulation, empathy and compassion. However, despite these seemingly positive early findings, it is important to recognize that careful monitoring and additional research will be needed to understand the psychological and mental health impacts of the ongoing COVID-19 pandemic among the elderly population [31].

5. Conclusion

In conclusion; Being in social isolation for long periods of time poses a significant challenge to being physically active. Low levels of physical activity can have negative effects on individuals' health and quality of life. Self-quarantine and pandemic news can also create additional sources of stress and negatively affect mental health. Given the increased isolation of older adults during the current pandemic, these individuals are particularly at higher risk for mental health issues associated with social isolation. Additionally, because of the possibility that many older adults may need to continue to isolate even as some parts of the country begin to ease stay-at-home orders, it is crucial to identify safe and healthy ways that older adults can protect their mental health. Although these results are a promising start, future studies will need to apply more objective measures of physical activity and explore the long-term effects of physical activity and the COVID-19 pandemic on the mental health of older adults.

Conflict of Interest

No conflict of interest is declared by tehe authors. In addition, no financial support was received.

Ethics Committee

Participant provided informed consent, with the volunteer form covering research details, risks, benefits, confidentiality, and participant rights. The research strictly adhered to the ethical principles of the Declaration of Helsinki, prioritizing participant's rights and well-being in design, procedures, and confidentiality measures.

Author Contributions

Study Design, PTD, ŞD; Data Collection, PTD, ŞD; Statistical Analysis, PTD, ŞD; Data Interpretation, ŞD; Manuscript Preparation, ŞD, PTD; Literature Search, PTD, ŞD. All authors have read and agreed to the published version of the manuscript.

REFERENCES

1. Armitage, R., Nellums, L.B. (2020). COVID-19 and the consequences of isolating the elderly. *Lancet Public Health*; 5(5):e256., Elsevier Ltd, [PubMed]
2. Cacioppo, JT., Hawkley, LC. (2009). Perceived social isolation and cognition. *Trends Cogn Sci*; 13(10):447–454. [PubMed]
3. Steptoe A, Shankar A, Demakakos P, et al. (2013). Social isolation, loneliness, and all-cause mortality in older men and women. *Proc Natl Acad Sci U S A*; 110(15):5797–5801. [PubMed]
4. Santini ZI, Jose PE, Cornwell EY, et al. (2020). Social disconnectedness, perceived isolation, and symptoms of depression and anxiety among older Americans (NSHAP): a longitudinal mediation analysis. *The Lancet Public Health*; 5(1):e62–e70. [PubMed]
5. Courtin, E., Knapp, M. (2017). Social isolation, loneliness and health in old age: a scoping review. *Health Soc Care Community*; 25 (3):799–812, Blackwell Publishing Ltd. [PubMed]
6. Shankar A, McMunn A, Banks J, et al., (2011). Loneliness, social isolation, and behavioral and biological health indicators in older adults. *Health Psychol*; 30(4):377–385. [PubMed]
7. Mura G, Carta MG. (2013). Physical activity in depressed elderly. A systematic review. *Clin Pract Epidemiol Ment Health*; 9 (1):125–135 . [PubMed]
8. Schrempft S, Jackowska M, Hamer M, et al., (2019). Associations between social isolation, loneliness, and objective physical activity in older men and women. *BMC Public Health*; 19(1):74. [PubMed]
9. Jakobsson, J., Malm, C., Furberg, M., et al., (2020). Physical activity during the coronavirus (COVID-19) pandemic: prevention of a decline in metabolic and immunological functions. *Front Sport Act Living*; 2:57. [PubMed]
10. Jime´nez-Pavo´n, D., Carbonell-Baeza, A., Lavie, CJ. (2020). Physical exercise as therapy to fight against the mental and physical consequences of COVID-19 quarantine: special focus in older people. *Prog Cardiovasc Dis*, Ahead of print [PubMed]
11. Li, Q., Guan, X., Wu, P., Wang, X., Zhou, L., Tong, Y., Ren, R., Leung, K.S.M., Lau, E.H.Y., Wong, J.Y., et al. (2020). Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus–Infected Pneumonia. *N. Engl. J. Med*., 382, 1199–1207. [PubMed]
12. Demirci, N., Yıldırım, İ., Toptaş Demirci, P., & Ersöz, Y. (2018). Why Should We Do Physical Activity? More Active People For A Healthier World. *Int J Disabil Sports Health Sci*;1(2);1-14. [CrossRef]
13. Nygård AJ, Taraldsen K, Granbo R, Selbæk G and Helbostad JL. (2022). Impacts of COVID‐19 restrictions on level of physical activity and health in home‐dwelling older adults in Norway. *European Review of Aging and Physical Activity;19:30.* [PubMed]
14. Sherrington C, Fairhall NJ, Wallbank GK, Tiedemann A, Michaleff ZA, Howard K, et al. (2019). Exercise for preventing falls in older people living in the community. *Cochrane Database Syst Rev*;1(1):Cd012424. [PubMed]
15. Zhang Y, Zhang Y, Du S, Wang Q, Xia H, Sun R. (2020). Exercise interventions for improving physical function, daily living activities and quality of life in community-dwelling frail older adults: a systematic review and metaanalysis of randomized controlled trials. *Geriatr Nurs*;41(3):261–73. [PubMed]
16. Da Silva, MA, et al: (2012). Bidirectional association between physical activity and symptoms of anxiety and depression: the Whitehall II study. *Eur J Epidemiol*; 27(7):537–546. [PubMed]
17. Hamer, M., Stamatakis, E., Steptoe, A. (2009).Dose-response relationship between physical activity and mental health: the Scottish health survey. *Br J Sports Med*; 43(14):1111–1114. [PubMed]
18. Asztalos, M., De Bourdeaudhuij, I., Cardon, G. (2010). The relationship between physical activity and mental health varies across activity intensity levels and dimensions of mental health among women and men. *Public Health Nutr*; 13(8):1207–1214. [PubMed]
19. Mumba MN, Nacarrow AF, Cody S, et al: (2020). Intensity and type of physical activity predicts depression in older adults. *Aging Ment Health*: 25(4):664-671. [PubMed]
20. Ayvat, E. (2011). Comparison of measurements assessing physical activity and performance in the elderly. Hacettepe University Institute of Health Sciences Master's Thesis, Ankara.
21. Washburn RA, McAuley E, Katula J, Mihalko SL, Boileau RA. (1999). The physical activity scale for the elderly (PASE): evidence for validity. *Journal of Clinical Epidemiology*, 52 (7); 643-651. [PubMed]
22. Koçyigit, H., Aydemir, Ö., Fişek, G., Ölmez, N., Memiş, AK. (1999). Reliability and validity of the Turkish version of Short Form-36 (KF-36). *Medicine and Treatment Journal*;12(2):102-106.
23. Sepúlveda-Loyola W, Rodríguez-Sánchez I, Pérez-Rodríguez P, Ganz F, Torralba R, Oliveira DV, et al. (2020). Impact of Social Isolation Due to COVID-19 on Health in Older People: Mental and Physical Effects and Recommendations. *J Nutr Health Aging* ;24(9):938–47. [PubMed]
24. Yamada M, Kimura Y, Ishiyama D, Otobe Y, Suzuki M, Koyama S, et al. (2020). Effect of the COVID-19 Epidemic on Physical Activity in Community-Dwelling Older Adults in Japan: A Cross-Sectional Online Survey. *J Nutr Health Aging*;24(9):948-50. [PubMed]
25. Van Tilburg TG, Steinmetz S, Stolte E, van der Roest H, de Vries DH. (2020). Loneliness and mental health during the COVID-19 pandemic. Published online. *J Gerontol B Psychol Sci Soc Sci*. [PubMed]

26. Pearman A, HughesML, Smith EL, Neupert SD. (2020). Age differences in risk and resilience factors in COVID-19–related stress. Published online. *J Gerontol B Psychol Sci Soc Sci*. [**PubMed**]
27. Oztasan, N., Ozyerek, P. and Klinç, İ. (2016). Factors Associated with health-related quality of life among university students in Turkey. Mater Sociomed;28(3):210-4. [**PubMed**]
28. Vatansever, Ş., Ölçücü, B., Özcan, G. and Çelik, A. (2015). Relationship between physical activity level and life quality among middle aged Individuals. Journal of International Education Science; 2(2):63-73.
29. Heesch, K.C., Gellecum, Y.R., Burton, N.W., Uffelen, J.G.Z. and Brown, W.J. (2015). Physical Activity, Walking, and Quality of Life in Women with Depressive Symptoms. American Journal of Preventive Medicine; 48(3):281-291. [**PubMed**]
30. Lee, EE., Bangen, KJ., Avanzino, JA., et al. (2020). Outcomes of randomized clinical trials of interventions to enhance social, emotional, and spiritual components of wisdom. *JAMA Psychiatry*;77 (9):925-935. [**PubMed**]
31. Jeste, DV., Di Somma, S., Lee, EE., et al. (2020). Study of loneliness and wisdom in 482 middle-aged and oldest-old adults. *Aging Ment Health*. Published online. [**PubMed**]