



The level of physical activity of women during COVID-19 pandemic

Poziom aktywności fizycznej kobiet w okresie pandemii COVID-19

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ABSTRACT

INTRODUCTION: It is known that regular physical activity (PA) brings many health benefits. However, during the COVID-19 (coronavirus disease 19) pandemic the lifestyle, everyday work, social behavior, quality of life, ways and forms of spending free time changed. The aim of the study was to assess the impact of the COVID-19 pandemic on the level of PA in menopausal women.

MATERIAL AND METHODS: The study material consisted of 126 women before the onset of the pandemic and 114 women during the COVID-19 pandemic. The research was carried out in the area of Silesia. The research tool was a short version of the International Physical Activity Questionnaire (IPAQ) and the Menopause Rating Scale (MRS).

RESULTS: A statistically significant correlation was observed in the case of a difference in the moderate level of PA (627.32 MET-min/week before COVID-19 and 138.6 during COVID-19, $p = 0.01$) and walking (1952.25 MET-min/week before COVID-19 and 422.63 MET-min/week during COVID-19, $p = 0.03$). The results showed that the time devoted to moderate PA decreased statistically. The mean days decreased from 2.8 to 0.96 ($p = 0.02$) and the mean duration of moderate PA decreased from 39.92 to 15.61 minutes ($p < 0.001$).

CONCLUSIONS: The COVID-19 pandemic significantly affected the level of PA in menopausal women. The respondents exercised much less often and the time devoted to PA was also shortened. The subjects most often chose walking as the form of PA.

KEY WORDS

physical activity, IPAQ, menopause, COVID-19

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STRESZCZENIE

WSTĘP: Regularna aktywność fizyczna (*physical activity* – PA) niesie za sobą wiele korzyści zdrowotnych. Jednak podczas pandemii COVID-19 (*coronavirus disease 19*) zmieniły się styl życia, codzienna praca, zachowania społeczne, jakość życia, sposoby i formy spędzania wolnego czasu. Celem badania była ocena wpływu pandemii COVID-19 na poziom PA kobiet w okresie okołomenopauzalnym.

MATERIAŁ I METODY: Materiał badawczy stanowiło 126 kobiet przed wybuchem pandemii i 114 kobiet podczas pandemii COVID-19. Badania prowadzono na terenie Śląska. Narzędziem badawczym były skrócone wersje Międzynarodowego Kwestionariusza Aktywności Fizycznej (International Physical Activity Questionnaire – IPAQ) oraz Skali Oceny Menopauzy (Menopause Rating Scale –MRS).

WYNIKI: Istotną statystycznie korelację zaobserwowano w przypadku różnicy w umiarkowanym poziomie PA (627,32 MET-min/tydzień przed COVID-19 i 138,6 podczas COVID-19, $p = 0,01$) i chodzeniu (1952,25 MET-min/tydzień przed COVID-19 i 422,63 MET-min/tydzień podczas COVID-19, $p = 0,03$). Wyniki pokazały, że statystycznie uległ skróceniu czas poświęcany na umiarkowaną PA. Średnia liczba dni zmniejszyła się z 2,8 do 0,96 ($p = 0,02$), a średni czas trwania umiarkowanej PA z 39,92 do 15,61 minuty ($p < 0,001$).

WNIOSKI: Pandemia COVID-19 istotnie wpłynęła na poziom PA kobiet w okresie okołomenopauzalnym. Kobiety ćwiczyły znacznie rzadziej, skrócono również czas poświęcany na PA. Jako formę PA badane najchętniej wybierały chód.

KEY WORDS

aktywność fizyczna, IPAQ, menopauza, COVID-19

INTRODUCTION

In the menopausal period, women often experience symptoms of varying severity related to hormonal changes [1]. In the transition to the menopausal period, physical activity (PA) is very important as, according to researchers, it can reduce the negative symptoms of menopause [2].

On March 11, 2020, the World Health Organization (WHO) announced a global pandemic caused by the coronavirus (coronavirus disease 19 – COVID-19), which changed lives worldwide and affected people's health and quality of life [3]. The lifestyle, everyday work, social behavior, quality of life, ways and forms of spending free time also changed [3]. The use of sports facilities changed after the introduction of a lockdown or other restrictions after the start of the pandemic, thus the level of PA also changed [4].

It is known that regular PA brings many health benefits – it helps to control body weight, reduces the risk of stroke, and also contributes to a reduction in cardiovascular risk [5,6]. Results have shown that obesity, diabetes and cardiovascular diseases are factors that increase the susceptibility to severe COVID-19 [7]. The WHO recommendations for PA for an adult are at least 150 minutes of moderate PA or 75 minutes of high level PA during the week, and additional strength training twice a week [8]. During COVID-19, WHO also provided recommendations in the form of practical tips on home exercises and breaks in remote work in order to counteract the sedentary lifestyle [9,10].

In the COVID-19 pandemic that has been going on for more than two years, vaccines, the wearing of masks and social distancing are key factors in reducing the spread of the virus [3,11]. The numerous limitations

have contributed to a deterioration in mental and physical health, increased anxiety and stress, and a change in lifestyle. Limited access to fitness clubs made it necessary to change the form of PA to home-based exercises. Literature has shown that PA reduces stress, and physically active people have experienced COVID-19 more mildly in the event of infection [12]. Considering the fact that the growing lack of PA in society has been recognized as a global pandemic since 2012 and about 28% of the world's population is physically inactive, encouraging people to increase their PA during the COVID-19 pandemic, during quarantine, isolation and other restrictions is a major challenge [13,14].

The aim of the study was to assess the impact of the COVID-19 pandemic on the level of PA in menopausal women.

MATERIAL AND METHODS

The study material consisted of 126 women before the onset of the pandemic (2019) and 114 women during the COVID-19 pandemic (2021). In both cases, data was collected in women's health clinics in Silesia. The researchers presented the purpose of the study to each participant in the clinics. Completion and return of the survey questionnaire took place in the clinics. The inclusion criteria for the study was an age of 45–60 years old, and consent to participate in the study. The exclusion criterion was a contraindication to PA and depression. The research was approved by the Bioethical Committee of the Medical University of Silesia in Katowice (PCN/022/KB1/147/I/19/20).

The research tool was a questionnaire consisting of a short version of the International Physical Activity Questionnaire (IPAQ) and the international scale for



assessing the severity of menopausal symptoms – Menopause Rating Scale (MRS). MRS is a validated and standardized scale consisting of 11 questions on a scale from 0 to 4, which are divided into 3 domains: psychological, somatic-vegetative and urogenital. A higher score indicates a greater intensity of menopausal symptoms in each of the domains [15,16]. IPAQ is an international questionnaire to assess the level of PA. It is intended for people aged 15–69 and concerns PA lasting at least 10 minutes, performed 7 days before completing the questionnaire. According to the IPAQ protocol, the results are presented as a MET-min/week value [17].

Statistical analysis was carried out in the Statistica 10 program (Statistica v10, StatSoft, Krakow, Poland). Quantitative variables were presented in the form of the mean and standard deviation. The Shapiro-Wilk test was used to check the normality of the distribution of variables. The Mann-Whitney U test was employed to check the relationship between the level of PA before and during the COVID-19 pandemic and the level of severity of menopausal symptoms before and during the COVID-19 pandemic. The value of α was set as 0.05.

RESULTS

The mean age of the respondents was 51.41 (sd 4.72) before the COVID-19 pandemic and 54.71 (sd 3.9) during the pandemic. There were no statistically significant differences between the severity of menopausal symptoms between the groups in any of the MRS domains (Table I).

The vigorous level of PA in menopausal women significantly decreased from 681.3 MET-min/week to 156.14 MET-min/week, but the difference was not statistically significant. However, a statistically significant correlation was observed in the case of a difference in the moderate level of PA (627.32 MET-min/week before COVID-19 and 138.6 during COVID-19, $p = 0.01$) and walking (1952.25 MET-min/week before COVID-19 and 422.63 MET-min/week during COVID-19, $p = 0.03$; Table II).

The results showed that the time devoted to moderate PA decreased statistically. The mean days decreased from 2.8 to 0.96 ($p = 0.02$) and the mean duration of moderate PA decreased from 39.92 minutes to 15.61 minutes ($p < 0.001$). The smallest decrease was observed in walking, the time of which was significantly shortened (39.18 min before and 29.74 during COVID-19; Table III).

Table I. Severity of menopausal symptoms between groups before and during COVID-19 pandemic

Tabela I. Nasilenie objawów menopauzalnych u kobiet przed pandemią oraz podczas pandemii COVID-19

MRS	Before COVID-19		During COVID-19		p
	mean	sd	mean	sd	
MRS-psychological	5.21	3.91	4.94	2.18	0.64
MRS-somatic-vegetative	5.79	3.74	5.25	2.42	0.78
MRS-urogenital	3.93	3.40	3.06	2.34	0.76
MRS total	14.93	9.10	13.25	5.37	0.75

MRS – Menopause Rating Scale; sd – standard deviation

Table II. Physical activity of menopausal women before and during COVID-19 in terms of intensity of physical activity according to International Physical Activity Questionnaire

Tabela II. Poziom aktywności fizycznej kobiet przed pandemią i podczas pandemii COVID-19 na podstawie Międzynarodowego Kwestionariusza Aktywności Fizycznej

IPAQ	Before COVID-19		During COVID-19		p
	mean	sd	mean	sd	
High PA MET-min/week	681.30	1344.27	156.14	361.00	0.83
Moderate PA MET-min/week	627.32	1171.67	138.60	224.65	0.01
Walking MET-min/week	643.63	630.39	422.63	444.01	0.03
IPAQ-total MET-min/week	1952.25	2263.26	717.37	685.01	0.60

IPAQ – International Physical Activity Questionnaire; MET – metabolic equivalent of task; PA – physical activity; sd – standard deviation

Table III. Average values of days and minutes per week according to physical activity undertaken at various intensity levels according to International Physical Activity Questionnaire

Tabela III. Średnia liczba dni i minut podejmowanej aktywności fizycznej na różnych poziomach w ciągu tygodnia na podstawie Międzynarodowego Kwestionariusza Aktywności Fizycznej

IPAQ	Before COVID-19		During COVID-19		p
	mean	sd	mean	sd	
High PA level days per week	1.70	1.93	0.51	1.06	0.15
High PA level minutes per week	28.37	37.52	11.23	22.93	0.20
Moderate PA level days per week	2.80	2.13	0.96	1.35	0.04
Moderate PA level minutes per week	39.92	60.69	15.61	24.59	0.00
Walking – days per week	4.99	1.92	3.55	2.35	0.35
Walking – minutes per week	36.18	32.41	29.74	27.06	0.00

IPAQ – International Physical Activity Questionnaire; PA – physical activity; sd – standard deviation



DISCUSSION

This study was conducted to compare the levels of PA before and during the COVID-19 pandemic. The results of this study showed a significant decrease in vigorous and moderate PA and a decrease in walking activity.

The analysis of the literature showed that there are no studies examining the impact of the COVID-19 pandemic on the level of PA in menopausal women. Therefore, a comparison to the same group is impossible; however, similar studies analyzing the effect of COVID-19 on the level of PA in the general population showed an increase in the percentage of physically inactive people due to remote work and e-learning [3,18]. Studies in Canada showed a decrease in the PA level due to lockdown, anxiety and a lack of motivation [19]. Research conducted in Spain showed a significant decrease in PA: the high level of PA decreased during the COVID-19 pandemic by 16.8%, and walking by 58.2% [3].

Our results also showed a decrease in PA, and the smallest changes were observed in walking. The decrease affects both the overall energy expenditure as well as the number of days and minutes spent on PA. The difference may be due to the fact that in the Spanish study, the majority of the study group were men and students participating in distance learning. In our study, the women's PA level was analyzed, and women are usually more willing to walk. Our results also showed that before and during COVID-19, women performed high PA less than 2 times a week for an average of 28 minutes and 23 minutes (before and during COVID-19 respectively). Moderate PA was performed almost 3 times a week for approximately 40 minutes before COVID-19 and almost once a week for approximately 15 minutes. The WHO guidelines on PA for adults are

at least 150 minutes of moderate PA or 75 minutes of high level PA during the week [8]; in neither of the both groups did the women meet those recommendations.

Regular PA is an invaluable factor in improving the quality of life, controlling mood, reducing mental stress and alleviating menopausal symptoms [2,20]. The question of the influence of PA on COVID-19 infection is still an open question. However, most studies show that moderate and high PA have a positive effect on the immune system, which may translate into a lower risk of COVID-19 infection or, in the case of infection, a milder course of the disease [12,21,22]. Moreover, it has been proven that regular PA is an extremely effective way to improve health in patients with a history of COVID-19 infection; it effectively relieves dyspnea and fatigue, and improves the independence of people with lung diseases [23,24].

Thus, returning to regular PA, recommending a lifestyle change from sedentary to more active and suggesting home-based exercises are very important, especially now in the ongoing COVID-19 pandemic [25].

The limitation of the study is the questionnaire. The level of PA is assessed subjectively, which can always carry the risk of overestimation. However, it is an international and validated questionnaire, most often used in this type of research.

CONCLUSIONS

The COVID-19 pandemic significantly affected the level of PA in menopausal women. The respondents exercised much less often and the time devoted to PA was also shortened. Women were most likely to walk, which results from the smallest decrease in this form of PA.

Author's contribution

Study design – M. Dąbrowska-Galas

Data collection – M. Dąbrowska-Galas

Data interpretation – M. Dąbrowska-Galas, J. Szymańska

Statistical analysis – M. Dąbrowska-Galas

Manuscript preparation – M. Dąbrowska-Galas

Literature research – M. Dąbrowska-Galas, J. Szymańska

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