



## ORIGINAL PAPER

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# Physical activity in postmenopausal women

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### Abstract

**Introduction.** Menopause is the time when the female body goes through substantial endocrine changes resultant from the gradual phasing out of the reproductive activity of the ovaries. Consequently, post-menopausal women face some perimenopausal symptoms. These symptoms affect everyday physical and psychological functioning to various extent, and result in certain limitations.

**Aim.** The aim of this paper was to study which limitations are most difficult for postmenopausal women, and how menopause symptoms affect women's physical activity and satisfaction with life, as these are important components of quality of life.

**Materials and methods.** The study involved 60 postmenopausal women. We used our own questionnaire.

**Results.** We did not find the remaining relationships enumerated in research questions: the impact of menopausal syndromes on the frequency of physical activity, on its intensity, and on satisfaction with life, nor with the impact of subjective health on intensity of physical effort.

**Conclusions.** We confirmed the relationship between intensity of physical effort and satisfaction with life and the relationship between subjective assessment of one's health and the frequency of physical activity.

**Keywords.** menopause, postmenopause, physical activity

### Introduction

The World Health Organization (WHO) defines menopause as a particular moment in a woman's life when she experiences her last menstrual bleeding, after which there is no menstruation for 12 consecutive months and there are no pathological reasons for this state.<sup>1</sup> Therefore, menopause is a permanent end of the menstrual cycle resulting from the ceased activity of the gonads. It is

a natural process in women between their reproductive age, when they are capable of conceiving, and entering older age. The menopause usually happens between the 40<sup>th</sup> and 60<sup>th</sup> year of age, while the mean age for women for their last menstrual bleeding is 50 years for Poland.<sup>2</sup>

In contrast to *physical activity*, a notion whose essential meaning is the sheer movement done when working, training or other physical effort, the *physical*

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*ability* denotes a set of attributes of the functioning of one's body which a person undertaking physical activity wished to gain. Physical ability is therefore an aim in the sphere of physical functioning of the body, and physical activity is the means to achieve this aim. In menopause and its postmenopausal consequences it is the physical ability aimed at good health that is essential.<sup>3</sup>

For women undergoing menopause or those who have just undergone it, the physical activity is a particularly essential and effective way to limit the consequences of the climacterium. Doing physical activity prevents diseases in healthy individuals and helps fighting syndromes in patients who have clinical symptoms of illnesses. Systematic physical activity in the form of exercise, sportive activities, cycling, mountain hikes or amateur sport has positive impact on body function, and decreases the risk of developing chronic illnesses.<sup>4,5</sup> In contrast, hypokinesia (decreased bodily movement) results in decreased physical function and physical ability, consequently influencing general health and quality of life.

The aim of the study was to assess physical activity in postmenopausal women through determining the frequency, intensity and forms of physical activity in the studied female population, and to determine the relationship between subjective physical and psychological wellbeing and the model of physical activity they had. The aim of the study was also to determine the relationship between the degree of physical activity and positive subjective quality of life in postmenopausal women.

## Material and method

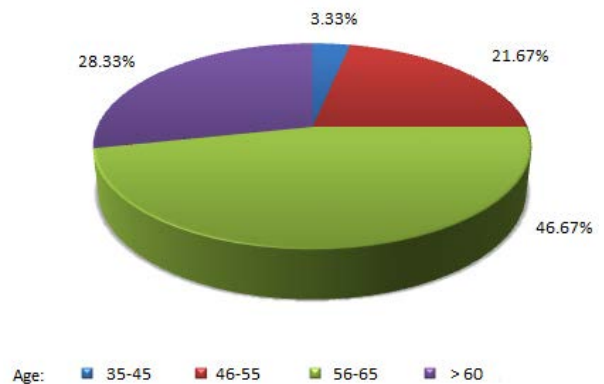
In June 2018, we conducted anonymous survey in the Health Resort Wysowa ("Uzdrowisko Wysowa"). We asked women who were spending their holidays in the resort to fill out our questionnaire. Each of the subjects expressed informed consent to participate in the study and was informed on the course of the study and on the way to fill out the questionnaire.

## The study population

The study involved 94 women going through various stages of the menopause. For technical and politeness reasons, we had not been able to conduct a preliminary identification of the women at the resort and to choose the postmenopausal women only. Therefore, we handed out the questionnaires to all the women. The questionnaire was constructed in a way to enable all respondents to complete it, regardless of which the stage of the menopause they were at, or whether they were before the menopause. The basic information about the age of holidaymakers had revealed that many of them might have been in the postmenopausal age. We received 95 completed questionnaires, and we had to reject one as answers to some questions were missing. Finally, we obtained 60 questionnaire from postmenopausal women,

20 questionnaires from perimenopausal women, and 14 from women whose menopausal changes had not started yet. Because of the subject of the study and the research questions, for the purpose of further analysis we qualified only the 60 questionnaires from postmenopausal women.

Figure 1 presents the age of the postmenopausal females divided into categories.



**Fig. 1.** Age of the postmenopausal females divided into categories

None of the respondents was younger than 35 years, so Figure 1 does not provide for this age group. Most of the respondents – almost half of the group (46.67%) were women aged 56–65 years. The group of the oldest respondents, 65 years or older, was significantly smaller (28.33%). Approximately every fifth respondent was 46–55 years old. The age of only two (3.3%) of postmenopausal respondents was between 35–45 years. The scarce number of youngest respondents is understandable, as the prevalence of menopausal changes and lack of menstruation is usually insignificant in women younger than 46 years.

The literature divides the time since the first menopausal syndromes until the moment menstrual periods stop permanently into two stages: the early stage, which starts at approximately 42 years of age, and the later stage, beginning approximately at 46 years of age, at which point the likelihood of the ovaries permanently ceasing their function and the permanent stop of menstrual periods increases significantly, thus marking a woman's reaching the postmenopausal age.<sup>6</sup> The answers to questions on respondents' age reflected the age limit of 46 years defined in the literature: the group of youngest respondents aged 35–46 years was the smallest (3.33%), while in the age group that followed, with subjects aged 46–55 years, the number of post-menopausal respondents rose significantly (to the level of 21.56%).

## Methods

We used the diagnostic survey method. The research tool was a questionnaire, comprising of 16 questions.

There were 10 closed-ended questions and 6 semi-open-ended questions, where the respondents could provide their own answers. The semi-open-ended questions allowed for an unlimited choice of multiple responses, while in the closed-ended questions respondents were asked to choose one response only. In four questions, the respondents were asked to choose the degree of intensity of a phenomenon. Here, we used a five point scale: 1 – meant the lowest intensity, 2 – moderate intensity, 3 – average intensity, 4 – high intensity, and 5 – highest intensity.

The questionnaire contained basic questions on respondents' age and the phase of the climacterium. We used the obtained information to draft the characteristics of the study population. The following questions concerned the current subjective physical and psychological wellbeing, health, the symptoms of menopausal change and their severity. The respondents were also asked to provide information on how often and how intensively they did physical activity, to assess results of physical activity, and define the reasons why they started physical activity or increased its intensity. The questionnaire concluded with the question on subjective quality of life.

### Statistical analysis

We calculated the Pearson correlation coefficient to determine correlation strength between studied variables, presented in the research questions of this study. Correlation strength was determined according to the following classification:

Strength of relationship  
 under 0.2 – very weak correlation (practically no relationship)  
 0.2–0.4 – weak correlation (visible relationship)  
 0.4–0.6 – moderate correlation (significant relationship)  
 0.6–0.8 – strong correlation (strong relationship)  
 0.8–0.9 – very strong correlation (very strong relationship)  
 0.9–1 – practically full relationship

For our calculations of correlation coefficient for individual variables we used responses the subjects provided to our questions from the survey. All the questions involved answers given on a scale. We designed a system of points for the scale. Four of the questions involved a five-point scale, so we designed an identical system of points from 1 to 5, convergent with the individual points on the scale: the number “1” corresponded to the lowest value of the variable, while the number “5” corresponded to the highest value of the variable. For the fifth variable, we designed a reversed four-point scale from 1 to 4, where 1 was given to the highest negative value given to the question, while 4 was given to the

answer on the opposite range of the scale. To calculate individual variables, we used answers for the following questions:

1. the variable of “satisfaction with life” - answers to question no. 16. The question was “How would you assess your satisfaction with life on scale from 1 to 5? 1 denotes poor satisfaction, and 5 denotes great satisfaction”. Points from 1 to 5 corresponded with values on the scale, and the greatest number of points was given to the greatest intensity of the phenomenon presented in the question.
2. the variable “frequency of physical activity” – answer to question no. 7. The question was “How on the scale from 1 to 5 would you best describe the frequency of your physical activity (understood as exercise, sport, cycling etc.)? 1 denotes rare activity, and 5 denotes very frequent activity”. The greatest number of points was given to the greatest intensity of the phenomenon presented in the question.
3. the variable “intensity of physical effort” – we used answers to question no. 9. The question was: “How on the scale from 1 to 5 would you describe the intensity of effort you put into your total physical activity? 1 denotes little effort, and 5 denotes very intensive effort”. Points from 1 to 5 corresponded with values on the scale, and the greatest number of points was given to the greatest intensity of the phenomenon presented in the question.
4. the variable “assessment of health” – we used answers to question no. 6. The question was “How on the scale from 1 to 5 would you describe your current health? 1 denotes poor health and frequent infections, and 5 denotes lack of chronic health problems and only rare infections?” Points from 1 to 5 corresponded with values on the scale, and the greatest number of points was given to the greatest intensity of the phenomenon presented in the question.
5. the variable “severity of menopausal syndromes” – we used answers to question no. 4 (it concerned the severity of menopausal symptoms enumerated in question no.3): “How severe are the syndromes enumerated in point 3?”. For answers to this question we created a scale from 1 to 4, where, in contrast to the other variables, the greatest number of points was given to the answer which corresponded with the slightest intensity of the phenomenon. This is why the values of this variable are inversely proportional in relation to the remaining variables.

### Results

A significant proportion of the studied women believed that the easiest and the least straining form of physical activity was a walk in the fresh air. Many respondents also did exercise of higher intensity: half of the respon-

dents reported regular cycling, and a quarter reported doing Nordic Walking, a more intense walk or march with sticks held in hands. Intense physical activity or activity that required physical endurance were less popular among our respondents: 16.67% respondents chose swimming, and 13.33% chose mountain hiking. Less than 10% respondents chose physical activities which involved the whole body or which required significant energy loss: aerobics (6.67%), pilates (6.67%), yoga (1.6%) and running (3.33%). Only one person's physical activity had the form of engaging in sports disciplines (1.67% of the study population) - here, the discipline was skiing. None of the respondents went to fitness classes. Every tenth respondent chose the answer "other" in the questionnaire, and provided the information on the type of physical activity: three respondents (5% of the total study population) did spine exercise (one on the cervical spine, two others the "healthy spine" set), one respondent mentioned gardening, another mentioned exercise with sports equipment, and one mentioned skiing.

Most of our respondents did physical activity with moderate frequency - this corresponded with "3" on the answer scale (almost 40% of women). The second largest group did physical activity rarely (20%). 30% of respondents chose frequent and very frequent physical activity (15% in each group). Very frequent, frequent and moderate activity was reported by a total of 70% respondents. Almost 14% of respondents described their physical activity as occasional.

Most of the women chose physical activity of medium and moderate intensity of effort: 35% and 26.67% of answers in these two categories, respectively. 8% women chose low intensity. Intensity of the three lowest categories (points 1 to 3) was declared by a total of 70% respondents, a significant proportion in comparison to the remaining group. Everyday activity of high or very high intensity effort was reported by 23.33% and 6.67% of respondents, respectively.

Almost 37% of respondents admitted they were did not do physical activity regularly. Their physical activity therefore has to be considered to be incidental and unsystematic. Every third respondent reported always having been involved in some activity. Every fifth respondent (20%) started regular physical activity shortly before menopause, as an element of preparation for a time of violent hormonal changes. Only 8.33% respondents chose the stop of menstrual periods as the starting time for doing physical activity. 6.67% respondents started systematic physical activity during menopause.

For the significant majority of respondents (85%) menopausal changes or their effects were not the reason for beginning physical activity. Only 15% respondents reported that their decision to start physical activity was directly related to the necessity of preparing their bod-

ies for the hormonal distortions of the menopause or to the necessity to decrease the severity of menopausal syndromes.

For the majority of respondents, menopausal changes or their negative effects were not the reason to increase the intensity of the activity or its frequency - only 18.33% respondents chose a positive answer here, as compared to 81.67% negative answers.

More than a half of the respondents were motivated for activity by health related reasons. They wanted to improve their subjective wellbeing, or they had to counteract the effects of disorders in which physical activity is essential. Improving physical fitness (45%) and improving physical ability (43.33%) were important for the respondents. The desire to improve one's body shape was slightly less often, but still relatively often reported (30%). Reduction of body mass, both for health and for looks, was reported as priority by every third respondent. Almost 24% respondents reported the need for relieving stress. Slightly fewer respondents (20%) reported that they did physical activity because they liked it and because they enjoyed active leisure. For 8.33% respondents the reason for physical activity was boredom and a need to fill up their time, while the desire to test oneself was the motivation for 6.67% respondents. One person chose the option of providing her own answer. She wrote that she did a lot of walking, because she did not want to resign from physical activity, and did not feel strong enough to do activities different than walking.

A significant number of women noticed positives of doing physical exercise both in the areas of physical functioning and in the psychological sphere. More than 46% respondents noticed that their physical abilities improved, and 45% experienced positive changes in their psychological wellbeing and in their mood. 36% of respondents improved their physical fitness. Every third woman experienced positive changes in the skeletal system, manifested in reduction of spine and limb pain. As many as 30% respondents gained higher joy of life. Every fourth respondent reported body mass reduction. Similarly, one fourth of respondents experienced increased self-esteem and beneficial effects of physical activity on health. Only 20% experienced increase in quality of sleep and only 18% observed positive effects in their figures. Two respondents did not notice any positive effects of physical exercise (3.33%) - they informed us of that by writing their own answers in the "other" section; while one of them added a commentary that her physical activity is too rare for any improvement in any of the fields to take place.

Thanks to physical activity, our female respondents most often experienced improvement in the functioning of the skeletal system. More than half of them noticed relief in spinal pain, and 40% experienced relief in limb joints. Other health areas improved less often.

Every fifth respondent reported less frequent headaches and dizziness. Improvement in diabetic tests was reported by 18% respondents, and the beneficial effect of physical exercise in the cardiovascular system was observed in 15% respondents. Slightly fewer respondents (13.3%) had better cholesterol levels. Two respondents (3.33%) gave their own answers, pointing to the overall better health. Every fifth postmenopausal respondent, however, did not experience any beneficial effects of physical activity they did.

The majority of the study population females were satisfied with life (43%). There were also respondents who were very satisfied with life (16.47%). Every fifth respondent was averagely happy with life. In the three group of women, who chose 3, 4 or 5, or averagely satisfied, satisfied or very satisfied, to assess their satisfaction with life, there was a total of 88.33% respondents. Every tenth woman was moderately satisfied with life and only one person had little satisfaction with life (1.67%).

#### **Relationship between frequency of physical activity and satisfaction with life**

The study found that the correlation coefficient between frequency of physical activity and satisfaction with life of postmenopausal women was  $r=0.14$ , which denotes weak correlation. This means that there was practically no relationship between the two variables. We did not find any confirmation between the potential increase of frequency of physical activity and the level of satisfaction with life they declared, or between a decrease in frequency of physical activity and decrease in satisfaction with life.

#### **Relationship between intensity of physical effort and satisfaction with life**

The study found a relationship between intensity of physical activity of the postmenopausal respondents and their satisfaction with life. The correlation coefficient was  $r=0.32$ . This denotes a weak correlation, yet there is a clear relationship between the two variables. This means that there is a clear relationship between declared intensity of physical effort and satisfaction of life among postmenopausal women. The relationship can be thus expressed: the more intense the physical activity of the studied respondents, the greater satisfaction with life.

#### **Relationship between severity of menopausal syndromes and the frequency of physical activity**

We found that the correlation coefficient between the severity of menopausal syndromes and the frequency of physical activity in studied women was  $r=0.058$ , which denotes a very weak correlation. Therefore, there was no relationship between the two variables. This means that for the studied population we cannot formulate a thesis: the more severe the menopausal symptoms, the poorer engagement in physical activity. Similarly, we cannot formulate a reverse thesis: the more frequent

the physical activity, the less severe are the menopausal symptoms.

We need to stress that to calculate correlation between the two variables, for the first variable “severity of menopausal symptoms” we used a reversed scale of points, therefore an increase in the value would be inversely proportional to the values of the other variable, i.e. the frequency of physical activity.

#### **Relationship between severity of menopausal symptoms and intensity of physical effort**

We did not find any relationship between the severity of menopausal symptoms and intensity of physical effort of the studied women. The correlation coefficient between the two variables was  $r=0.080$ , which denotes a very weak correlation.

#### **Relationship between the severity of menopausal symptoms and satisfaction with life**

We did not find any relationship between severity of menopausal symptoms and satisfaction with life of the studied women. The correlation coefficient was  $r=0.054$ , which denotes very weak correlation.

#### **Relationship between subjective health and frequency of physical activity**

We found a relationship between subjective health of the studied postmenopausal women and frequency of their physical activity. The correlation coefficient for the two variables was  $r=0.39$ . This denotes a weak correlation, yet this value of correlation is referred to as visible correlation. In fact, had the value been higher by 0.1 point, the correlation would be referred to as moderate. There is therefore statistically significant relationship between the declared subjective health among postmenopausal women and the frequency of their physical activity. We can therefore formulate the following thesis: the better the postmenopausal respondents assessed their health, the more frequent was their physical activity.

#### **Relationship between subjective health and intensity of physical effort**

We found no relationship between subjective health of the studied postmenopausal respondents and their physical activity. For this pair of variables, the correlation coefficient was  $r=0.19$ , a value denoting a very weak correlation. Therefore we cannot formulate a following statement: the better the assessment of subjective health of postmenopausal respondents, the more intensity of their physical effort.

It has to be noted, however, that we cannot decide about explicit lack of relationship between both variables: had the value of correlation coefficient been 0.1 higher, the relationship would have been confirmed. This means a tiny difference; and as the systems for defining correlative relationships is to certain extent arbitrary, in a different system of classification this value might have been considered to be a significant correlation.

### Relationship between subjective health and satisfaction with life

We did not find relationship between subjective health of postmenopausal women and their satisfaction with life. The correlation coefficient was low –  $r = 0.079$ , which explicitly denotes a very weak correlation. We therefore cannot formulate a statement: the better the subjective health of postmenopausal women, the better their opinion of the life and their satisfaction with it.

### Discussion

We found no correlation between severity of menopausal symptoms and frequency of physical activity of studied women. In postmenopausal women, lack of correlation between these two variables may be a positive phenomenon, as there is a scientifically confirmed relationship between psychological mindset and menopausal symptoms and their severity.<sup>7,8</sup> It is possible to put forward a thesis that lack of correlation between severity of menopausal symptoms and physical activity in the studied population is related to the attitude of the respondents.<sup>9</sup> The public sphere offers much floor to the issue of menopause, and women entering the menopausal phase have an easy access to educational materials. These materials present issues related to the menopausal period – thematic publications (free brochures and books), television and the Internet (internet portals and discussion forums where women can share their experiences) are rich sources of reliable information. There are information campaigns on the issues of the menopausal period, its course and symptoms, which means that Polish women are better prepared for the menopausal phase.<sup>10</sup> The knowledge on the process of menopause eliminates the element of negative surprise with unsettling or bothersome symptoms, and may constitute one of the reasons for lack of correlation between severity of menopausal symptoms and physical activity of our respondents, who, having gained knowledge on the importance of physical activity during menopause, may try to undertake physical activity without regard to the felt menopausal symptoms. In such a case, lack of relationship is advantageous, since it points to resigning from linking physical activity to current physical or psychological wellbeing. This opens up the opportunity for improvement of the functioning in both of these spheres by physical activity. The beneficial impact of physical activity has been numerous proven by studies on a variety of studied populations.<sup>11,12</sup> It is still worth to stress that our study did not analyze the relationship between the severity of menopausal symptoms and the sheer fact of undertaking physical activity. Rather, the focus of the second variable was only the frequency of physical activity in postmenopausal women.

Similar interpretation of results is possible for the lack of relationship between the severity of menopausal

symptoms and the intensity of physical effort. The relationship between both factors is based on inverse proportionality, therefore lack of correlation between them allows us to state that in the studied group of postmenopausal women the lower intensity of physical effort was not the result of severity of menopausal symptoms.

As we did not find any correlative relationships in any of the situations, where one of the variables was the severity of menopausal symptoms, in the light of the available studies we may come to a conclusion that the studied women might have used a psychological defence strategy, where they counteracted states in which severity of the symptoms could limit the ability to undertake physical activity.<sup>9</sup> For many women, this might have been a conscious mechanism, an action taken on the basis of information from technical and lay sources that discuss the importance of physical activity in preparing for the menopausal period and later maintaining good physical fitness<sup>11,12</sup>; or on the basis of materials which stress the importance of physical activity in striving for improvement of health and in relieving the effects of menopausal symptoms.<sup>7</sup> In the light of the above, it does not seem surprising that we did not find relationship between severity of menopausal symptoms and the satisfaction with life in our respondents. As the process of menopausal changes leads to a partial loss of control over one's body and brings numerous disadvantageous and unpleasant symptoms,<sup>7,10</sup> the studied population may have used a psychological defence mechanism against the negative results of menopause on their psychology and their subjective satisfaction with life.

We found that in the studied population of postmenopausal women, the improvement caused by physical activity related most importantly to the physical fitness (over 46%), mood and psychological wellbeing (45%), physical fitness (over 36%), that is in the areas which have been proven to be positively affected by physical activity by numerous studies on wider population groups.<sup>13,14</sup> Fewer respondents, however, reported improvement of functioning in areas closer related to the results of hormonal distortions, such as disorders in the skeletal system (33.3%), sleep disorders (20%) or body mass increase (over 26%). It is still important to remember that the study was conducted on the basis of respondents' self assessment, and there was no element of verification of this self assessment by an independent party (healthcare specialists).

Typical menopausal symptoms seem to function in the consciousness of many postmenopausal women as a temporary phenomenon. This may lead them to develop a task oriented attitude and to perceive menopause as a normal obstacle to overcome.<sup>9,10</sup> The situation seems different in the case of subjective health assessment, especially if the negative health symptoms were confirmed by objective medical tests. The research we

conducted for the purpose of this study found that there was a relationship between subjective health and the frequency of physical activity among the studied postmenopausal women. The correlation coefficient was  $r=0.39$ , therefore the strength of correlative relationship is significant. This value means that the better subjective health of studied women, the higher frequency of physical activity. In turn, the worse subjective health, the less frequent the physical activity. The result of the study seems to have justified grounds, as in the course of various diseases there are medical contraindications for various type of activity or activity of various intensity. On the other hand, the respondents expressed their own assessment of their health, which means that a considerable degree of subjectivity must not be excluded, as well as considerable impact of fear and anxiety towards doing physical activity, not necessarily related to objective medical grounds.

For the two variables “subjective health” and “intensity of physical effort” we did not find any relationship. The correlation coefficient was  $r=0.19$  and only 0.01 point was missing for the correlative relationship to be found. The lack of correlation means that poor subjective health did not mean reduction of intensity of physical exercise. Taking decisions on physical activity and on its intensity independently of one’s subjective health seems to be a positive phenomenon, in line with doctors’ recommendations. Doctors usual advice to their patients suffering from various ailments is to do as much safe exercise as possible, in order to improve general wellbeing and as a tool to accompany treatment process.<sup>5,14</sup> The type and the intensity of physical exercise in case of accompanying diseases must always be designed in accordance with doctor’s recommendations.<sup>15</sup>

Although there is no direct relationship between subjective health and intensity of physical effort in the study population, it is worth to notice that studied women usually chose physical activity of lowest intensity, i.e., walking. This activity was chosen by 70% of respondents, probably due to its simplicity. Even though the relevant question allowed for choosing any number of answers, most of enumerated activities did not reach more than 25% of choices, especially the more intense ones. The exception was cycling, chosen by 50% women, most probably also due to the fact that the bicycle is a very practical means of transport.

It is important that in the course of the study we did not find any relationship between the subjective health and satisfaction with life of the studied postmenopausal women. This may be a proof for women using complex psychological defence mechanisms when faced with crisis situations.<sup>16,17,18</sup> More than 43% of women had high satisfaction with life, and almost 17% had very high satisfaction with life, which may again prove that studied postmenopausal women had certain psychological re-

sistance to the difficulties of menopause, its symptoms and consequences. Another argument for this thesis would be the fact that as many as 65% of respondents declared that even though they experienced menopausal symptoms, they could manage them quite well.

In the light of the above the answer to the fundamental research question of this paper seems interesting. We did not find relationships between the frequency of physical activity and satisfaction with life of the studied postmenopausal women, but we found correlations between intensity of physical effort and satisfaction with life. This result is similar to other studies on postmenopausal women, who noted higher health benefits from the quality of physical exercise (reflected by the intensity of physical effort), and not just from its frequency. This was found for instance in studies on prevention and treatment of osteoporosis, where training of medium intensity based on high impact exercise was more beneficial than more frequent exercise of lower intensity.<sup>19,20</sup> Better physical fitness, physical ability and subjective wellbeing achieved in physical activity has in turn direct effect on satisfaction with life and is an important component of quality of life.<sup>21,22</sup> The studied population of women had a tendency to do exercise of medium (35%), high (23,33%) or moderate (26.67%) intensity.

Our results show how important is the psychological aspect in the menopausal and postmenopausal period. Psychological resilience, healthy distance to menopausal symptoms, ability to cope with stress and the skill to deal with obstacles make the cost of going through the stormy period of menopausal change smaller, and help to find health and mental balance in the new stage of life.<sup>23,24</sup> An optimistic approach towards menopause and the process of ageing results in cultivating desirable behaviours, such as taking good care about health, doing relevant medical tests, healthy lifestyle and physical activity, which has important impact on general physical and psychological wellbeing.<sup>25,26</sup>

## Conclusion

We confirmed the relationship between intensity of physical effort and satisfaction with life and the relationship between subjective assessment of one’s health and the frequency of physical activity.

## References

1. Jagła D, Korzeniowska K, Pawlaczyk M. Skóra kobiet w okresie menopauzy. *Farmacja Współcz.* 2012;5:83–87.
2. Koligat D, Paczkowska A, Michałak M. et al. The prevalence of depression and anxiety in women during menopausal transition. *Pol Prz Nauk Zdr.* 2015;3:159–163.
3. Caspersen CJ, Powell KE, Christenson GM. Physical Activity, Exercise, and Physical Fitness: Definitions and Distinctions for Health-Related Research. *Public Health.* 1985;100:126–131.

4. Podbielska M. Influence of physical activity on the quality of life of healthy adults – preliminary remarks. *Acta Bio-Optica et Informatica Medica Inżynieria Biomedyczna*. 2014;20(2):128–132.
5. Sheila D, Kelley PG, Brittney SL, Carrie KG. Physical Activity and Physical Function: Moving and Aging. *Obstet Gynecol Clin North Am*. 2018;45:723-736.
6. Steiner AZ. Przewidywanie wieku wystąpienia menopauzy: hormonalne, rodzinne i miesięczkowe czynniki determinujące. *Menopausal Medicine*. 2011;19:1–5.
7. Fu SY, Anderson D, Courtney M. Cross-cultural menopausal experience: comparison of Australian and Taiwanese women. *Nurs Health Sci*. 2003;5:77-84.
8. Yisma E, Eshetu N, Ly S, Dessalegn B. Prevalence and severity of menopause symptoms among perimenopausal and postmenopausal women aged 30-49 years in Gulele sub-city of Addis Ababa, Ethiopia. *BMC Women's Health*. 2017;124:1–8.
9. WHO. Mental health aspects of women's reproductive health: a global review of the literature. *World Health Organization*. 2009:79–86.
10. Markwitz-Grzyb N. Women and the sources of solutions to the problems caused by menopause. *Now Lek*. 2012;81:197–202.
11. Wiśniewska A, Napierała M, Pezala M, Zukow W. Wpływ aktywności fizycznej na psychomotorykę kobiet w okresie menopauzy. *Journal of Health Sciences*. 2014;4:257–272.
12. Dąbek A, Adamiec A, Rekowski W, Czyżewski P. The influence of physical activity on climacteric symptoms. *Post Reh*. 2016;12:7–32.
13. Borker S, Venugopalan PP, Bhat SN. Study of menopausal symptoms, and perceptions about menopause among women at a rural community in Kerala. *J Midlife Health*. 2013;4:182-187.
14. Reiner M, Niermann C, Jekauc D, Woll A. Long-term health benefits of physical activity – a systematic review of longitudinal studiem. *BMC Public Health*. 2013;13:813.
15. Aparicio-Tin FE, Farris M, Courneya KS. Predictors of physical activity at 12 month follow-up after a supervised exercise intervention in postmenopausal women. *Int J Behav Nutr Phys Act*. 2015;12:55.
16. Pertyński T, Stachowiak G. Menopauza — fakty i kontrowersje. *Endokrynol Pol*. 2006;57:525–534.
17. Stadnicka G, Iwanowicz-Palus GJ. Wpływ wizerunku własnego ciała na objawy okołomenopauzalne u kobiet. *Gerontol Pol*. 2017;25:28–33.
18. Elavsky S. Physical activity, menopause, and quality of life: the role of affect and self-worth across time. *Menopause*. 2009;16:265–271.
19. Ćwirlej A, Wilmowska-Pietruszyńska A. Znaczenie aktywności fizycznej w profilaktyce osteoporozy. *Prz Med. Uniw Rzesz*. 2008;2:111–115.
20. Caputo EL, Costa MZ. Influence of physical activity on quality of life in postmenopausal women with osteoporosis. *Rev Bras Reumatol*. 2014;54:467–473.
21. Chang TJ, Ting YT, Sheu SL, Chang HY. Effects of tai chi in postmenopausal women with osteoporosis: a systematic review. *Hu Li Za Zhi*. 2014;61:75-84.
22. Trzebiatowski J. Jakość życia w perspektywie nauk społecznych i medycznych – systematyzacja ujęć definicyjnych. *Public Health*. 2011;46:25–31.
23. Graziottin A, Serafini A. Depression and the menopause: why antidepressants are not enough? *Menopause Int*. 2009;15:76-81.
24. Baker A, Sirois-Leclerc H, Tulloch H. The Impact of Long-Term Physical Activity Interventions for Overweight/Obese Postmenopausal Women on Adiposity Indicators, Physical Capacity, and Mental Health Outcomes: A Systematic Review. *J Obes*. 2016;2016:6169890.
25. Van Gemert WAM, Schuit AJ, Van der Palen J. et al. Effect of weight loss, with or without exercise, on body composition and sex hormones in postmenopausal women: the SHAPE-2 trial. *Breast Cancer Res*. 2015;17:120.
26. Sternfeld B, Dugan S. Physical Activity and Health During the Menopausal Transition. *Obstet Gynecol Clin North Am*. 2011;38:537–566.