

The effects of regular physical activities on subjective well-being levels in women of menopause period

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Abstract

This study was conducted to examine the effects of regular physical activities on subjective well-being levels of women in menopausal period. The participants of the study is composed of 36 women with menopause in total, an exercise group (EG) including 21 women (average 50,04 years of age) and a control group (CG) including 15 women (average 51,93 years of age). Data from the independent variables of the study were collected via the Personal Information Form which was developed by the researchers. The Subjective Well-Being Scale (SWS) was used to identify the positive psychological states of the participants in pre and post tests for 8 weeks. The ultimate criteria of the study are to integrate the subjects who had not exercised for at least six months, and agreed to participate in this controlled trial voluntarily. During the 8 weeks, the EG practised two mat Pilates classes three times per week lasting 1 h each, supervised by the same qualified Pilates instructor. Paired Sample t test was used to compare the pre and post test of the normally distributed parameters. The data obtained were evaluated at $p < 0.05$ significance level. The results of our study demonstrated that, compared to a control group, the Pilates group exhibited significant improvements in Subjective well-being in 8-week exercise sessions. There was no significant improvement in control group after 8 weeks. It was concluded that the aerobic pilates exercises training had positive effects on Subjective Well-Being. Therefore, regular aerobic exercise training as an effective strategy in improving positive psychology among women with menopause is highly recommended.

Key words: *menopause, subjective well-being, physical activity,*

Introduction

Women's life consists of stages such as childhood, adolescence, maturity, menopause and old age. Menopause is one of the most important stages of women's life. As in other life periods, biological, psychological and social changes are experienced in menopause.

Menopause refers to cessation of ovarian follicular activity and is manifested by the cessation of menstrual flow lasting at least 12 months (1). Menopause represents one of the most important physiological periods in a woman's life, defined by a series of involutive processes (the cessation of reproductive and menstrual functions) and the transition from the reproductive phase to the non-reproductive phase (2). The interactions between psychological and biological factors determine the body's reactions to hormonal changes occurring in menopause (3). In menopausal period, different problems may arise from estrogen deficiency in women, vasomotor symptoms to mental symptoms and from sexual function changes to osteoporosis,

muscle-joint pain, headache, hot flashes, decreased sexual desire (4). Also some of the psychological symptoms include: stress, anxiety, irritability, depressive tendencies and difficulty on concentration. The age at which menopause occurs is an average of 49, but individual variations may occur and can be experienced at an older age (5).

Attitudes to ageing exert a powerful influence on health and well-being in the second half of life. Longitudinal data have demonstrated that those with a positive attitude to their experience of ageing lead a healthier lifestyle and are less prone to morbidity and mortality relative to those with a negative attitude to ageing (6,7).

In recent years, it has been found that women resort to alternative ways of coping with menopausal problems. Most interventions for menopause women have focused on: educational intervention, physical activity/exercise, improving a healthy diet, stress management, healthy behaviors, preventing certain diseases (8).

Physical activity is an international term and is an expression used to describe body movements using energy. It is called all body movements that are done with skeletal muscles and result in energy expenditure (9). Physical activity is the activity performed by the energy expenditure that occurs as a result of the movement of the body through skeletal muscles, increasing the heart and respiratory rate, can be performed at different intensities and result in fatigue (10). The advantages of regular physical activity include reduction in risk of cardiovascular events, reduction in obesity, diminished risk of hypertension and diabetes mellitus, improvement in blood lipid profile, reduction in risk of cancer and many others (11). Physical activity causes many physiological changes in the body, as well as affecting the psychological structure of people, which is a case studied in the psychology literature in the last decade and demonstrated that exercise plays an important role in the development of positive mental health. This finding is based on an increasing number of experimental studies that describe the positive effects of exercise (12).

Positive mental health has gained importance in the field of positive psychology since the early 2000s, and has focused on working on concepts such as happiness, well-being, satisfaction, life satisfaction, optimism, psychological resilience, hope and trust (13,14).

Subjective well-being is a good indicator that can be used to demonstrate the psychological quality of life of an individual. Subjective Well-Being is defined as people's overall evaluations of their life and their emotional experiences. Subjective Well-Being thus includes broad appraisals, such as life and health satisfaction judgments and specific feelings that reflect how people are reacting to the events and circumstances in their lives (15).

Many studies have shown a positive association between physical activity and Quality of life among middle-aged women (16,17). In a study with women with menopausal symptoms, moderate levels of physical activity were associated with reducing not only physical but also psychosocial menopausal symptoms and suggesting that physical activity may improve some of the symptoms of menopause, thereby increasing the quality of life in menopausal women (18,19).

Physical activity has been investigated as a potential remedy for menopausal symptoms with conflicting results (20). but there is a lack of research on

menopausal symptoms as potential reasons for being physically active or inactive.

Due to this deficiency in the literature, the effect of regular physical activity on subjective well-being of women in menopausal women has been aimed to be examined and pilates exercises have been preferred at this point. The Pilates exercise system is a composite of movement styles and philosophy of gymnastics, martial arts, yoga, and dance (21). and various positive physical and psychological effects of regular pilates training were reported in healthy individuals, as well. And in the studies concerning psychological functioning, significant improvements in sleep and life-quality were found among university students, middle aged people, and the elderly population after pilates training (22).

Although studies have explored the potential benefits of regular physical activity and pilates exercise, not much association has been investigated between a pilates-based exercise programme and positive psychology parameters. The aim of this study, therefore, is to investigate whether 8 weeks pilates-based programme improve subjective well-being level of women with menopause. In accordance with this purpose, responds to sub-problem below is investigated:

1- Do regular exercises (8 weeks pilates based program) increase the subjective well-being level of women with menopause?

Materials and methods

In order to determine the effect of regular physical activity (pilates exercises) on the subjective well-being levels of women with menopause, "Pretest-Posttest Control Group Semi-Experimental Pattern" was used. Semi-experimental patterns are a model with high validity in researches in areas where it is not possible to control all variables (23). In order to measure the effect of regular physical activity carried out with the Pilates exercise program on the subjective well-being levels of women with menopause, experimental and control groups were created randomly in line with women's pretest scores. Subjective Well-Being Scale was applied to each group simultaneously. An 8-week pilates exercise program was carried out with the experimental group, and no intervention was made to the control group. As a result of the experimental application, Subjective Well-Being Scale posttests were applied to both groups simultaneously. The subjective well-being levels of menopausal women who participated in the study were compared with the posttest applied.

Participants

Thirty-six women with menopause constituted the participant group of this study. All of them live in Erzincan, Turkey. The participants were randomized, with a draw, into an exercise group, (EG) 21 women; average age 50,04; and a control group, (CG) 15 women, average age 51,93. The ultimate criteria of the study are to integrate the subjects who had not exercised for at least six months, and agreed to participate in this controlled trial voluntarily.

Instruments

The personal information form: Data on the independent variables of the study were collected with the Personal Information Form which was developed by the researcher. Questions consist of some information such as women's age, perceived economic status, perceived parental attitude, satisfaction with physical appearance.

The subjective well-being scale (SWS): The SWS was developed by the researcher (24). The scale consists of 46 items. By assessing individuals' cognitive appraisals of their lives and the frequency and intensity with which they experience negative and positive feelings, the scale intends to measure their degree of subjective well-being. The SWS

assigned points 1 to 5, whereas negative items are assigned points 5 to 1. The lowest possible score on the scale is 46 and the highest is 230. Higher scores indicate higher degree of subjective well-being. The construct validity of SWS was examined by principle component analysis. Factor analysis revealed a KMO coefficient of .86. The shared variance of factors on each variable ranged from .51 to .75. The eigen value of the SWS revealed 12 factors with values greater than 1. The first factor accounted for 24.52 % of the total variance. The factors of the scale accounted for a total variance of 63.83 %. The factor weights of the items on the first factor ranged from .30 to .66. For concurrent validity, correlations between scores on SWS and Beck Depression Inventory were calculated (25). As to be expected, there is a significant negative relationship between scores on the two scales ($r = -.70$). Internal reliability for the SWS was a Cronbach-alfa coefficient of .93. In order to determine test re-test reliability, the scale was administered to 39 persons. The time interval between two administrations was two weeks. Test re-test reliability yielded a correlation coefficient of $r = .86$

Procedures

During the 8 weeks, the EG maintained three times per week frequency of two mat Pilates classes lasting 1 h each, supervised by the same qualified Pilates instructor. The exercises given during the first two weeks of the intervention were designed and standardized according to the Classical Pilates Method. For the next 6-weeks of the intervention, the exercise protocol was amended by adding new intermediate-level exercises. This was possible because the participants in the study demonstrated quick learning and assimilation of the PM during the first two weeks of the intervention. Throughout the entire period of Pilates Method training, the participants reported no discomfort. We used the following activities on the intervention: a series of pre-Pilates and Pilates for beginners, with the goal of completing the series of Pilates at the intermediate level.

Data analysis

The data obtained from the study were analyzed in SPSS (Statistical Package for Social Sciences) for Windows 21.0. Paired Sample t test was used to compare the pre-test and post-test of the normally distributed parameters. The data obtained were evaluated at $p < 0.05$ significance level.

Table 1. The pilas exercise program

Exercises	Equipments	Repetitions
The hundred	Mat	8
The shoulder bridge	Mat	8
Single leg circle	Mat	8
One leg stretch	Mat	8
Double leg stretch	Mat	8
Rolling like a ball	Mat	8
Leg pull down	Mat	8
Leg pull up	Mat	8
Pelvic curl	Mat	8
Side bend	Mat	8
Side kick front	Mat	8
Side kick back	Mat	8
The saw	Mat and with ball	8
Roll-up	Mat and with ball	8
Spine stretch and spine	Mat and with ball	8
Stretch forward	Mat and with ball	8
Push-up	Mat and with ball	8
Bent-knee bride	With ball	8
Single leg stretch	With ball	8

includes evaluative statements about major domains of life and about positive and negative emotionality. A 5-point Likert scale is used: "(5) fully agree;" "(4) mostly agree;" "(3) "agree;" "(2) somewhat agree;" and "(1) disagree." Each item has a score ranging from 1 to 5. There are 26 positive and 20 negative statements. In scoring, regular (positive) items are

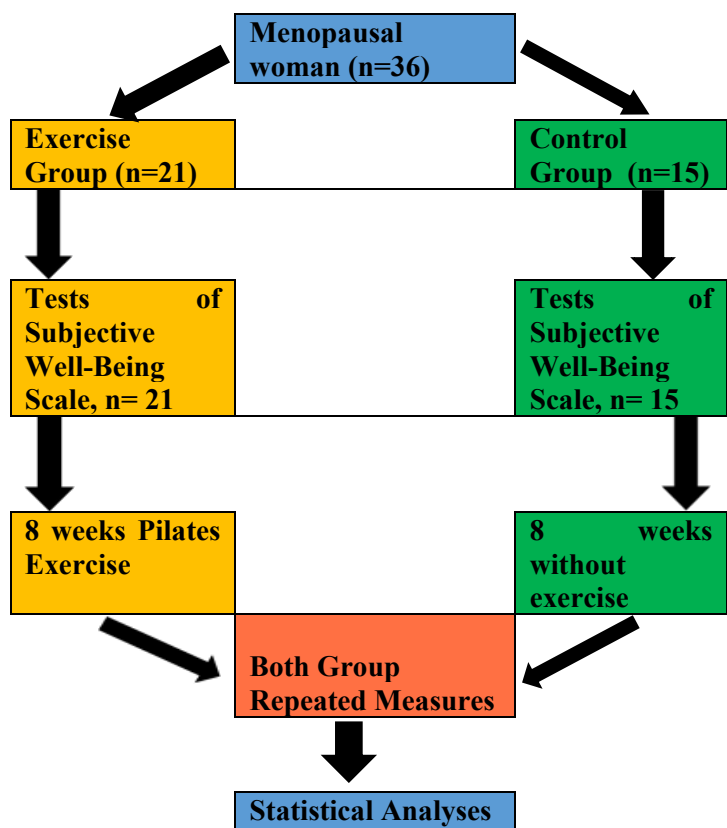


Fig. 1. Flow chart illustrating the design of the study

2.5. Ethics approval

This study was approved by the Ethics Committee of Erzincan Binali Yildirim University of Scientific Research (Decision number: 2019.05.05-03). The researcher gave oral and written information and obtained written informed consent from all participants before the interviews. Participation was voluntary, and the participants had the right to withdraw at any time

3. Results

Results are reported in Table 2. As seen in the table, subjective well-being scores were significantly improved in the exercise group after 8-week pilates program, there was no significant improvement in control group as seen.

Table 2. Analytical data for subjective well-being pre-test / post-test score differences

Factor	Exercise Group (n=21)		Control Group (n=15)		t
	\bar{x}	s	\bar{x}	s	
Before Exercise (Pre-Test)	141,76	21,97	178,73	26,62	4,60
After 8 weeks exercise (Post-test)	172,33	20,43	175,40	24,97	-.344
Paired t-test / p	.000**		.590		

4. Discussion

This study was designed to assess the effects of 8-week aerobic pilates exercises training on Subjective Well-Being of menopausal women.

Results of our study demonstrated that the subjective well-being scores were higher after 8-week of pilates in the exercise group. There was no significant change in the control group after 8 weeks. The literature on physical activity provides a compelling argument in support of physical activity for improving subjective well-being in older adults and both the psychological health and cognition literatures suggest aerobic and non-aerobic exercise programs may benefit well-being in older adults (26). Elavsky and McAuley (2009) in a study conducted with women with menopause found that 4-month physical activity lead to a decrease in the average trait anxiety status of women (3). And another study emphasized the importance of an increase in physical activity for the psychological and physiological domains of menopausal women's life (27). Lim found that women with positive attitudes were able to manage menopause through regular exercise, demonstrating comparable results with their study (28).

There is strong evidence of a positive influence of physical activity on the proposed antecedents of quality of life and well-being, including self-related function, mood or psychological states (i.e., depression, anxiety, self-esteem, positive affect, self-efficacy) and cognitive function (e.g., executive function, working memory) in older adults (28-33). Ruuskanen and Ruoppila who reported that active older adults at the age of 60–75 had fewer depressive symptoms than their nonactive peers (34).

A number of previous studies have provided evidence that Pilates-based or Pilates-inspired exercise is able to improve a number of indicators of physical and psychological parameters in both the younger and more elderly populations. Boguszewski et al. found that physical activity and pilates exercises positively affect the physical and mental condition of women (35). Tolnai et al. (2016) stated that Pilates training only once a week, over a relatively short 10-week period, results in significant improved in physical and mood (22). Biddle (2000) has recently conducted a review of reviews on the literature (36). He concluded that there is clear experimental support for an effect of exercise on positive mood.

Both survey and experimental research therefore provide support to the well publicised statement that “*exercise makes you feel good*” (37-40).

Result of our study demonstrate that the menopausal women who took part in an 8-week of pilates exercising, three times a week, experienced increased Subjective well-being after the 8 exercise sessions.

Conclusions

Menopause is important to the psychology of women. Today’s women live a third of her life after menopause. Regular physical activity is one of the most important health behaviours associated with the prevention and management of chronic diseases in older adults and menopausal women.

We conclude that aerobic pilates exercises training has positive effects on Subjective Well-Being in menopausal women. Therefore, regular exercise training as an effective strategy in improving positive psychology among menopausal women is highly recommended.

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Conflict of interest

All authors declare no conflicts of interest in this paper.

References

1. Greene J G (1998) Constructing a standard climacteric scale. *Maturitas* 29(1), 25–31.
2. Contreras I, Parra D (2000) Estrogen replacement therapy and the prevention of coronary heart disease in postmenopausal women. *American Journal of Health-System Pharmacy* 21: 1963-1968. doi.org/10.1093/ajhp/57.21.1963.
3. Elavsky S, McAuley E (2009) Personality, menopausal symptoms, and physical activity outcomes in middle-aged women. *Pers Individ Dif* 2: 123-128. doi.org/10.1016/j.paid.2008.09.014.
4. Kadayıfçı O (2006) *Klimakterium, premenopoz, menopoz, postmenopoz, senium*, İstanbul: Nobel.
5. Hawkes K, O’Connell JF, Jones NB, et al. (1998) Grandmothering, menopause, and the evolution of human life histories. *Proceedings of the National Academy of Sciences* 3: 1336-1339. doi: 10.1073/pnas.95.3.1336.
6. Levy B, Slade MD, Kunkel SR, et al. (2002) Longevity increased by positive self-perceptions of aging. *J. Pers. Soc. Psychol* 2: 261-270. doi:10.1037//0022-3514.83.2.261.
7. Levy B, Zonderman AB, Slade MD, Ferrucci L (2009) Age stereotypes held earlier in life predict cardiovascular events in later life. *Psychol. Sci* 3: 296–298. doi: 10.1111/j.1467-9280.2009.02298.x.
8. Yazdkhasti M, Simbar M, Abdi F (2015) Empowerment and coping strategies in menopause women: a review. *Iranian Red Crescent Medical Journal* 17(3): e18944. doi: 10.5812/ircmj.18944.
9. Robison J, Miller WC (2004) Exercise, physical activity, weight and health. *Health at Every Size* 18(4): 49-50.
10. Zorba E, Saygın Ö (2013) *Fiziksel aktivite ve fiziksel uygunluk*. Ankara: Fırat Matbaacılık.
11. Pérez AB (2008) Exercise as the cornerstone of cardiovascular prevention. *Rev Esp Cardiol* 61: 514–528. doi.org/10.1016/S1885-5857(08)60166-8
12. Scully D, Kremer J, Meade MM, et al. (1998) Physical exercise and psychological well being: acritical review. *Br J Sports Med* 32: 111–120. doi: 10.1136/bjism.32.2.111.
13. Seligman MEP (1998) President’s column: Positive social science. *APA Monitor* 29(2): 5.
14. Hefferon K, Boniwell I (2014) *Pozitif psikoloji, kuram, araştırma ve uygulamalar*. (Edt. T. Doğan). İstanbul: Nobel Yayın Dağıtım.
15. Diener E, Heintzelman S J, Kushlev K, et al. (2017) Findings all psychologists should know from the new science on subjective well-being. *Canadian Psychology/psychologie Canadienne* 2: 87.
16. Pucci GCMF, Rech CR, Fermino RC, et al. (2012) Association between physical activ-ity and quality of life in adults. *Rev Saude Publica* 46: 1–12. doi:10.1590/s0034-89102012000100021.
17. Guimaraes ACA, Baptista F (2011) Influence of habitual physical activity on the symptoms of climacterium/menopause and the quality of life of middle-aged women. *Int J Women’s Health* 3: 319–28. doi: 10.2147/IJWH.S24822.
18. Hagner-Derengowska M, Kaluzny K, Kochanski B, et al. (2015) Effects of nordic walking and pilates exercise programs on blood glucose and

- lipid profile in overweight and obese postmenopausal women in an experimental, nonrandomized, open-label, prospective controlled trial. *Menopause* 22: 1215-1224. doi: 10.1097/GME.0000000000000446.
19. Kim MJ, Cho J, Ahn Y, et al. (2014) Association between physical activity and menopausal symptoms in perimenopausal women. *BMC Womens Health* 14: 122. doi: 10.1186/1472-6874-14-122.
 20. Grindler NM, Santoro NF (2015) Menopause and exercise. *Menopause* 22: 1351-1358. doi: 10.1097/GME.0000000000000536.
 21. Latey, P (2001) The pilates method: history and philosophy. *Journal of bodywork and movement therapies* 4: 275-282. doi.org/10.1054/jbmt.2001.0237.
 22. Tolnai N, Szabó Z, Köteles F, et al. (2016) Physical and psychological benefits of once-a-week pilates exercises in young sedentary women: A 10-week longitudinal study. *Physiology & Behavior* 63: 211-218. doi: 10.1016/j.physbeh.
 23. Cohen L, Manion L, Morrison K (2007) *Research methods in education*. New York: Taylor and Francis.
 24. Tuzgöl-Dost M (2005) Öznel iyi oluş ölçeği'nin geliştirilmesi: Geçerlik ve güvenirlik çalışması. *Türk Psikolojik Danışma ve Rehberlik Dergisi* 23: 103-111.
 25. Hisli N (1989) Beck depresyon envanteri'nin üniversite öğrencileri için geçerliği güvenirliği. *Psikoloji Dergisi* 23: 3-13.
 26. Ehlers DK, Salerno EA, Aguiñaga S, et al. (2018) Physical activity interventions: Effects on well-being outcomes in older adults. e-handbook of well-being NobaScholar. doi:nobascholar.com.
 27. Mansikkamäki K, Raitanen J, Malila N, et al. (2015) Physical activity and menopause-related quality of life – A population-based cross-sectional study. *Maturitas* 81: 69-74. doi: 10.1016/j.maturitas.2014.09.009.
 28. Lim KY (2013) The study of menopause-related quality of life and management of climacteric in a middle-aged female population in Korea. *Public Health Wkly Rep* 6: 609- 13.
 29. Netz Y, Wu MJ, Becker BJ, et al. (2005) Physical activity and psychological well-being in advanced age: a meta-analysis of intervention studies. *Psychol Aging* 2: 272-84. doi:10.1037/0882-7974.20.2.272.
 30. McAuley E, Rudolph D (1995) Physical activity, aging, and psychological well-being. *Journal of Aging and Physical Activity* 3: 67-96. doi.org/10.1123/japa.3.1.67.
 31. Arent SM, Landers DM, Etnier JL (2000) The effects of exercise on mood in older adults: A meta-analytic review. *Journal of Aging and Physical Activity* 8: 407-430. doi: 10.1123/japa.8.4.407.
 32. Stewart AL, King AC (1991) Evaluating the efficacy of physical activity for influencing quality of life outcomes in older adults. *Annals of Behavioral Medicine* 13: 108-116. doi.org/10.1093/abm/13.3.108.
 33. Spirduso WW, Cronin DL (2001) Exercise dose-response effects on quality of life and independent living in older adults. *Medicine & Science in Sports & Exercise* 33: 598-608. doi:10.1097/00005768-200106001-00028.
 34. Ruuskanen J M, Ruoppila I (1995) Physical activity and psychological well-being among people aged 65 to 84 years. *Age and Ageing* 24: 292-296. doi:10.1093/ageing/24.4.292.
 35. Boguszewski D, Adamczyk J, Ochal A (2012) The role of pilates and aquafitness exercises in sustaining the health and fitness of elderly women. *Sport Science Review* 3-4: 127-138. doi: 10.2478/v10237-012-0013-7.
 36. Biddle SJH (2000) (in press) Emotion, mood and physical activity. In: SJ Biddle, KR Fox, SH Boutcher (Eds.) *Physical activity and psychological well-being*. London; Routledge.
 37. Fox KR (1999) The influence of physical activity on mental well-being. *Public Health Nutrition* 2(3a): 411-418. doi: 10.1017/s1368980099000567.
 38. Fox KR (2000) Physical Activity and mental health promotion: the natural partnership. *Journal of Public Mental Health* 2(1): 4-12. doi: 10.1108/17465729200000002.
 39. Stephens T (1988) Physical activity and mental health in the United States and Canada: Evidence from four population surveys. *Preventive Medicine* 17: 35-47. doi:10.1016/0091-7435(88)90070-9.
 40. Scully D, Kremer J, Meade MM, et al. (1998) Physical exercise and psychological well-being: a critical review. *Br J Sports Med* 32: 111-120..