THE EFFECT OF PILATES AND YOGA PROGRAMS ON ADULT WOMEN'S WELL-BEING

**Stella Rokka, Filippou Filippou, George Mavridis,
Gregory Masadis, & Evangelos Bebetos**

School of Physical Education and Sport Science,
Democritus University of Thrace, Komotini, Greece

ABSTRACT

The aim of the present study was to investigate the effect of Pilates and Yoga programs on adult women's well-being and to identify any possible differences between types of programs. The sample of the study consisted of 197 women, with a mean age 54 ± 6.89 years, who systematically participated in Pilates' ($n=105$) and Yoga ($n=92$) group programs in private gyms at the municipality of Thessaloniki. For the data collection, the Subjective Exercise Experiences Scale (McAuley & Courneya, 1994) was used which was modified for the Greek population by Mavrovouniotis et al., 2010. It includes 12 items, representing the three factors of psychological health-wellness: a) Positive Well-Being (4 questions e.g., "good or great"), b) Psychological Stress (e.g., "dejected"), and c) Fatigue (e.g., "attenuated / or tired"). Each item presents how participants are undergoing each feeling state, in a 7-point Likert scale, ranging from 1(not at all) to 7 (very much). Questionnaires were completed by the participants five minutes before and after the completion of each program. The 'Cronbach's α ' internal cohesion indicator of the questionnaire was satisfactory. The values concerning all three factors, before participation varied from .78 to .89, while the values of the same factors after participation varied from .84 to .91 respectively. The Repeated Measures Anova analysis showed that there was a statistically important interaction between measurement (before-after) and the type of programs. From the analysis of the interaction for the Positive Well-being factor, a significant improvement was observed after the end of both programs with the highest being after participating in the Yoga program. Similarly, for the Psychological distress there was a statistically significant reduction in both programs, but a greater decrease was found after the Yoga program. Also, in the Fatigue there was an increase in fatigue after participating in the Pilates program while there was a decrease in the Yoga program. The results of the survey showed that Pilates and Yoga programs had high positive effects on the well-being and reduced the factors of psychological distress and fatigue, with the largest decrease occurring in Yoga team programs. In conclusion, both Yoga and Pilate's programs have a particular impact on reducing psychological stress and tension, promoting a sense of positive well-being and improving the psychological health and well-being of the participants.

Key words: positive well-being, Pilates, Yoga, group programs

INTRODUCTION

Due to the exhaustingly fast paced, modern life-style and its rapidly increasing demands, it is essential for individuals to engage in health promoting, physical and recreational activities (Hogan, Mata, Carstensen, 2013). Maintaining a physically active lifestyle is crucial for mental and physical health. It has been found that regular participation in organized physical activity and leisure programs can postpone chronic health issues and improve quality of life, mental health and well being of the participants (Netz, Wu, Becker & Tenenbaum, 2005).

Participating in exercise programs of health and leisure has a positive effect on both the cognitive functions and the reinforcement of the psycholog-

ical wellness. Scientific research has highlighted the connection of psychological well-being to subjective welfare and happiness, optimistic thinking, positive mood, satisfactory living (Diener, Suh, Lucas & Smith, 1999), autonomy, creative relations with the others, as well as more components such as self acceptance, self respect and a meaning in life (Sin & Lyubomirsky, 2009; Seligman, 2008; Ryan & Deci, 2001). According to McAuley and Courneya (1994), psychological and spiritual health consists of negative and positive feelings or emotional situations, which can be separated in psychological stress (anxiety, depression, worry, stressful feelings) and psychological or positive well-being (positive feelings, happy mood, optimistic thinking, and subjective welfare).

In their research, Li et al. (2009), having analyzed a sample of 23 men and 75 women who participated in Tai Chi programs for 6 months, using the Subjective Exercise Experiences Scale (SEES), supported that after their participation in the program, there was an increase in positive well-being and a statistically important decrease in psychological stress. Positive well-being allows maximum effectiveness and happiness, ability to retain a constant positive attitude, spiritual awareness, socially discrete behavior and a pleasant mood. The results showed that the benefits from the psychological well-being of people are visible in longevity, decrease in the cost of service for psychological health and better prognostics for psychological disturbances (Fredrickson, 2008; Seligman, Rashid & Parks, 2006).

Aim of the study

The purpose of the present study was to investigate the effect of Pilates and Yoga programs on adult women's well-being and to identify any possible differences between the two different programs.

METHODS

Sample

The sample of the study consisted of 197 women, with a mean age $54 \pm 6,89$ years, who participated systematically (at least three times per week) in organized Pilates' (n=105) and Yoga (n=92) team programs in private gyms at the municipality of Komotini.

Instrument

For the data collection, we used the Subjective Exercise Experiences Scale (McAuley & Courneya, 1994), modified for the Greek population (Mavrovouniotis, Argiriadou, & Papaioannou, 2010). The scale constitutes a measurement of global psychological responses, to the stimulus properties of physical activity. The scale is composed of 12 items that represent three factors. Two of these factors, positive well-being and psychological stress correspond to the positive and negative poles associated with psychological health, whereas the third factor represents subjective indicants of fatigue. a. Positive Well-being (4 questions e.g. "positive or great"), b. Psychological Stress (4 questions e.g. "discouraged") and c. Fatigue (4 questions e.g. "weakened or tired"). The answers of the participants were added after the sentence "how do you feel at this moment, before / after participating in theprogram"

and on a seven degree Likert type scale, from 1= "not at all", to 7= "very much".

Procedure

The data collection was carried out with the method of personally filled in anonymous questionnaires. The questionnaires were filled in by the participants in place, five minutes before and after the completion of each program, after being given explanations that: a. the participation in the research was optional, b. they had to give truthful answers, c. there were not right or wrong answers and d. the research data would be exclusively used for the needs of the study.

Statistical analysis

For the statistical analysis of the data, the method used was the reliability analysis and the Repeated Measures Anova analysis. The level of statistical significance was set at $p < .05$.

RESULTS

The internal consistency of the scale measured with Cronbach's alpha. The results showed that in the present study reliability analyses supported the psychometric properties of the scale. The 'Cronbach a' internal cohesion indicator of the questionnaire was satisfactory. The values concerning all three factors, before participation varied from .78 to .89, while the values of the same factors after participation varied from .87 to .91 respectively (Table1). The Repeated Measures Anova analysis showed that there was a statistically important interaction between measurement (before-after) and the type of programs [$F_{(2,194)} = 11, 23; p < .001$]. From the analysis of the interaction for the Positive Well-Being factor, a significant improvement was observed after the end of both programs [$F_{(1,196)} = 8, 66; p < .01$], with the highest being after participating in the Yoga program ($p < .01$). Similarly, for the Psychological distress there was a statistically significant reduction [$F_{(1,196)} = 9, 33; p < .01$] in both programs, but a greater decrease was found after the Yoga program, which differed from the Pilates in level ($p < .05$). Also, in the Fatigue [$F_{(1,196)} = 11, 47; p < .001$], the interaction analysis showed a statistically significant increase in fatigue after participating in the Pilates program ($p < .01$); while there was a decrease in the Yoga program (Table 1.).

Table 1. Mean prices, Standard deviations, Statistical differences and Reliability analysis of the factors before and after participating in two different programs

Type of Programs	Pilates		Yoga		α Cronbach
Measurements	Before	After	Before	After	Before/After
Factors	M (SD)	M (SD)	M (SD)	M (SD)	
1. Positive well-being	5.57 (.92)	5.92 (.82)*	5.56 (.93)	6.14 (.96)**	.78/87
2. Psychological distress	1.29 (.74)	1.19 (.79)	1.51 (.49)	1.21 (.53)*	.89/91
3. Fatigue	1.54 (.42)	1.91 (.48)**	1.64 (.39)	1.56 (.56)*	.86/89

Note: statistically significant differences * $p < .05$, ** $p < .01$ and *** $p < .001$

DISCUSSION

Findings from the present research showed that Pilates and Yoga programs had high positive effects on the well-being and reduced the factors of psychological distress and fatigue, with the largest decrease occurring in Yoga programs. The results confirm the hypothesis of the research that after participating in different group programs in gyms, negative factors are expected to decrease and positive well-being is expected to increase (Hogan et al., 2013; Mavrovouniotis et al., 2010). The results are in agreement with studies that have shown that exercise directly reduces the intense feelings of stress, anxiety and anger and increases feelings of vigor (Hogan et al., 2013; Polman et al., 2007). Even though some studies have even found minimal or non-significant changes (Sabina et al., 2005), extended amount of studies' findings showed that integrated practices of mental and physical fitness can improve health (Jayasinghe, 2004; Raub, 2002), psychological well-being (Brown & Gerbarg, 2005a; Netz & Lidor, 2003) and reduce stress (Brown & Gerbarg, 2005b; Gura, 2002). In conclusion, both Yoga and Pilates' programs have a particular impact on reducing psychological stress and tension, promoting a sense of positive well-being and improving the psychological health and well-being of the participants, by promoting positive well-being, while at the same time provide positive thinking which drives people away from everyday problems and stress. It is proposed to encourage adults to participate in order to benefit from the effects of Yoga and Pilates' programs, to improve the psychological health and quality of life.

REFERENCES

- Brown, R.P., & Gerbarg, P.L. (2005b). Sudarshankriya yogic breathing in the treatment of stress, anxiety, and depression: Part II-clinical applications and guidelines. *Journal of Alternative and Complementary Medicine*, 11, 711-717.
- Caldwell, K., Harrison, M., Adams, M., Triplett, N.T. (2009). Effect of Pilates and taiji quan training on self-efficacy, sleep quality, mood, and physical performance of college students. *Journal of Bodywork and Movement Therapies*, 13(2), 155-163.
- Cruz-Ferreira, A., Fernandes, J., Laranjo, L., Bernardo, L.M., Silva, A. (2011). A systematic review of the effects of Pilate's method of exercise in healthy people. *Arch Phys Med Rehabil*, 92(12), 2071-81.
- Diener, E., Suh, E.M., Lucas, R.E., & Smith, H.L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin*, 125, 276-302.
- Gura, S. T. (2002). Yoga for stress reduction and injury prevention at work. *Journal of Prevention, Assessment & Rehabilitation*, 19, 3-7.
- Fredrickson, B. L., Cohn, M. A., Coffey, K., Pek, J., & Finkel, S.M. (2008). Open hearts build lives: Positive emotions, induced through meditation, build consequential personal resources. *Journal of Personality and Social Psychology*, 95(5), 1045-1062.
- Hogan, C.L., Mata, J., Carstensen, L.L. (2013). Exercise holds immediate benefits for affect and cognition in younger and older adults. *Psychological Aging*, 28(2), 587-94.
- Jadhav, S. G., & Havalappanavar, N. B. (2009). Effect of Yoga Intervention on Anxiety and Subjective Well-being. *Journal of the Indian Academy of Applied Psychology*, 35(1), 27-31.
- Jayasinghe, S.R. (2004). Yoga in cardiac health (a review). *European Journal of Cardiovascular Prevention and Rehabilitation*, 11, 369-375.
- McAuley, E., & Courneya, K. (1994). The Subjective Exercise Experiences Scale (SEES): Development and preliminary validation. *Journal of Sport and Exercise Psychology*, 16, 163-177.
- Mavrovouniotis, F., Argiriadou, E., & Papaioannou, C. (2010). Greek traditional dances and quality of old people.

- ple's life. *Journal of Bodywork & Movement Therapies*, 14(3), 209-218.
- Netz, Y., Wu, M., Becker, B.J., & Tenenbaum, G. (2005). Physical activity and psychological well-being in advanced age: A meta-analysis of intervention studies. *Psychological and Aging*, 20(2), 272-284.
- Netz, Y., & Lidor, R. (2003). Mood alterations in mindful versus aerobic exercise modes. *Journal of Psychology: Interdisciplinary & Applied*, 137, 405-419.
- Polman, R., Kaiseler, M., & Borkoles, E. (2007). Effects of a single bout of water exercise on the mood. *Journal Sports Medicine & Physical Fitness*, 47, 103-111.
- Ryan, R.M., & Deci, E.L. (2001). On happiness and human potentials: A review of research on hedonic and eudemonic well-being. In S. Fiske (Ed), *Annual review of psychology*, 52, 141-166.
- Sabina, A.B., Williams, A.L., Wall, H.K., Bansal, S., Chupp, G., & Katz, D.L. (2005). Yoga intervention for adults with mild-to-moderate asthma: A pilot study. *Annals of Allergy, Asthma & Immunology: Official Publication of the American College of Allergy, Asthma, & Immunology*, 94, 543-548.
- Seligman, M.E.P. (2008). Positive Health. *International Association of Applied Psychology*, 57, 1, 3-18.
- Sin, N.L., & Lyubomirsky, S. (2009). Enhancing well-being and alleviating depressive symptoms with positive psychology interventions: a practice-friendly meta-analysis. *Journal of Clinical Psychology*, 65(5), 467-487.
- Tripathi, R.C., & Bano, S. (2015). Psychological well-being through yogic exercises. *Journal of Physical Education Research*, 2(3), 62-67.
- Vogler, J., O'Hara, L., Gregg, J., Burnell, F. (2011). The impact of short-term Iyengar Yoga program on the health and well-being of physically inactive older adults. *International Journal of Yoga Therapy*, 21, 61-72.

Corresponding author:

Stella Rokka

Associate Professor, DPESS/DUTH
School of Physical Education and Sport Sciences,
Democritus University of Thrace,
University Campus, Komotini, 69100
E-mail: srokka@phyed.duth.gr