
**The Psychological Mood of Adult Participants in Aerobics, Greek Traditional
Dances and Muscle Strengthening Programs**

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Abstract

The aim of the study was to examine the differences in the psychological mood of individuals who participated in three different exercise programs, aerobics, Greek traditional dances and muscle strengthening with additional weights. The sample consisted of 161 individuals. An adapted version of the Greek population (Zervas, Ekkekakis, Psychoudaki & Kakkos, 1993) questionnaire of (McNair, Lorr & Droppleman, 1971) «Profile of mood states» (POMS) was used to collect data. This instrument was used to evaluate stress-tension, depression, aggression, energy, fatigue and the Total Psychological Mood (TPM). The questionnaire was given to the participants before and after the implementation of the three programs. A multi variable variance analysis was conducted (MANOVA) among the three programs so as to examine the differences as far as the 6 factors of the questionnaire is concerned. A variance analysis (One – Way ANOVA) was conducted to examine if differences in the T.P.M. existed for each program. From the data process, differences were found to exist for depression, aggression, energy, fatigue, and T.P.M. It was concluded that, participation in Greek traditional dances and aerobics programs improves more effectively the psychological mood in comparison to the muscular strengthening programs.

Keywords: psychological mood, aerobics, Greek traditional dances, muscle strengthening programs

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Introduction

An effective way of dealing with the deteriorative consequences of time on human system is exercise which offers multiple physiological (Boushard, Shephard, Stephens, Sutton & Mc Pherson, 1990) and psychological benefits (Wankel, 1993; Biddle, 1995; McAuley & Rudolph, 1995). Physical activity should constitute in every age an inextricable part of the modern way of life, a part of human's daily routine. Participation in exercise programs reduces stress and depression and fosters energy and the general improvement of the psychological mood. It constitutes a means of social association and motivation, especially for the individuals of older age while at the same time amplifies quality of life (Biddle, 1995).

Several academic approaches interpret depression, namely, the psychoanalytical, the behavioral, the sociological, the existential and the biological. According to the psychoanalytical theory depression refers to the inability of goal accomplishment, to despair and to the alteration of the instinct of aggression towards oneself. The behaviorists interpret depression as learnt despair and loss of support. The sociological explanation refers to the loss of role status. The existential theory talks about the loss of the existence notion. According to Akiskal and McKinney (1975), the drop level of the monoamirgetic neurotransmitters causes neurobiological disorders and that is how depression is construed according to the biological theory. Depression manifests itself with apparent and intense sorrow, diminished spiritual and functional ability, loss of memory, sleeping disorders, lack of energy, voluntary social exclusion, body weight loss or gain and the loss of interest in one's life. Women present more often (24%) depressive symptoms during their lifetime in comparison to men (15%). From those who have the disease, only 34% reach the stage of therapy (Osness & Mulligan, 1998). The percentage of elderly people who suffer from depression reaches 25% (Fredhiff, 1992).

According to the results of epidemiological researches and technical analyses the individuals who exercise regularly present lower levels of depression in comparison to individuals who live a sedentary life. North and collaborators' (1990) meta-analysis, in which 80 studies were examined, confirms the aforementioned results. Moreover, the effect of the exercise was different in those who exercised regularly in comparison to

those who exercised casually. In both cases a decrease in depression exists, but in those who exercised regularly the results were more steady (Zervas, 1996).

The term stress refers to relatively firm predispositions or characteristics of the individual's personality (predisposition stress) or to transitory emotional reactions of anxiety, worry, and nervousness with increased excitation of autonomic nervous system (Zervas, 1996). Stress causes insomnia, increased nervousness and it negatively influences the interpersonal relationships of an individual. Ideal ways of dealing with it seem to be walking, jogging (King, Taylor & Haskell, 1993), dancing and swimming (Gandee, Knierim & Mc Little- Marino, 1998). Morgan's (1987) and Tuson and Sinyor's (1993) research showed that exercise contributed to the decrease of stress of individuals of every age and of both sexes and that this situation continues for some hours after the completion of the exercise. As far as the intensity of the program is concerned the low to medium intensity has proved to be as beneficial to psychological health as the high intensity even if there were no physiological adjustments in aerobic capacity (Raglin, 1997).

Gandee et al., (1998) found that exercise decreases stress for the elderly. The aforementioned researchers proposed to those who work out to choose pleasant forms of exercise, such as walking and dancing aerobics and to combine them with weight lifting. Wesrhoff, Stemmeric and Boshuizen (2000), implemented a muscular strengthening program of low intensity with isometric and isokinetic exercises and the results from this type of exercise as far as the psychological mood of the individuals who worked out is concerned were better in comparison to the programs which included only aerobics.

Moreover, the decrease of stress because of exercise is directly related to the attitude of the individuals towards physical activity and especially to the attitude of women. In research in which the Older Person's Physical Activity and exercise Questionnaire was used, the women reported a more positive attitude towards tension decrease than the men (Terry, Biddle, Chatzisarantis & Bell, 1997). Similar results were found in Canada with more women than men reporting that stress decrease and relaxation are important benefits gained from physical activity (Canada Fitness Survey, 1983).

Another dimension of the beneficial effects of aerobics is apparent in the study by McAuley, Blissmer, Marquez, Jerome, Kramer and Katula (2000) indicating that exercise has a positive influence on participant's psychological mood. In Mavrounioti, Argyriadou

and Papaioannou's research (2009) it was found that Greek traditional dances, as a functional psychosomatic activity, provides both physiological and spiritual benefits to the elderly people.

The improvement of psychological mood, external appearance, physical fitness, social association and relaxation from daily routine, drive more and more adults to exercise. Modern gyms in their attempt to serve people's needs and trends incorporate an extensive variety of exercise programs. A type of exercise extremely favored by men and women is Greek traditional dances. In many gyms even the Greek traditional dances constitutes a section of their programs. Furthermore, the effects of aerobics on psychological mood remain for the next 24 hours (Boileau, McAuley, Demetriou, Devabhaktuni, Dykstra, Katula, Nelson, Pascale, Pena & Talbot, 1999), thus the same happens with Greek traditional dances since it is an aerobic type of exercise. Since Aerobics, was introduced in Greece 1994, its popularity has expanded beyond women participants to men and children as well. Music which is an indispensable part of this form of exercise causes pleasant emotions, euphoria and influences positively the mindset of participants thus expelling every negative emotion such as stress (Kriska, Hanley, Harris & Zimman, 2001).

The aim of the study was to examine the differences in the psychological mood of individuals who participated in three different exercise programs: aerobics, Greek traditional dances and muscular strengthening with additional burden.

Methodology

Sample

The sample of the study was 161 adult individuals. 50 of those constituted the aerobics group, 65 constituted the Greek traditional dances group, and 46 constituted the group which followed the program of muscular strengthening with additional weight.

The random sample came from private gyms in Chios in which they followed the corresponding programs. For the three groups, men and women participated in programs three times per week for at least one year. The duration of each class lasted for 55 minutes. All group programs were performed in gym classes.

The group that followed the aerobics program participated in dancing aerobics lessons the intensity of which was not too high while it fluctuated near 60% of HR_{max} and 50% of VO_{2max} in a level where there are cardio respiratory adjustments (ACSM, 2006).

The form of the aerobics program of moderate intensity included warming up, the main part and relaxation as a usual aerobics program does.

The program of the Greek traditional dances consisted mostly of dances from Chios and other Aegean islands and secondly of dances from the Greek mainland. On the basis of their rhythmical tempo, lessons of Greek traditional dances were of a moderate intensity and thus the class was similar to aerobics as far as the intensity is concerned (Pitsi, 2008).

The group that followed the program of muscular strengthening participated in pre-choreographed programs of Body Pump, that is, programs of muscular strengthening for all muscle groups which were accompanied by music where there is an escalation of tension. In this specific program, there was an instructor so as to secure a relative uniformity as far as the execution and the intensity of the exercises is concerned. This would not have been possible if the group executed the exercises in the weight lifting room. The intensity in this program is at relative level as it is for the two aforementioned programs. The sample's percentage by activity, age bracket and sex are showed at table 1.

Table1. Sample's demographic characteristics.

Activity %	Age	%	Sex %		
			Man	Woman	
Aerobics	31,1	20-30	24,8	36	64
Greek Traditional Dances	40,4	31-40	21,1		
Muscle Strengthening Program	28,6	41-50	23		
		51-60	22,4		
		60 +	8,7		

Questionnaire

The adapted Greek version by Zervas, Ekkekakis, Psychoudaki and Kakkos, 1993, of the questionnaire by McNair, Lorr and Droppleman, 1971, «Profile of mood states» (POMS) was used for the data collection and for the evaluation of psychological mood. All the subjects of the aforementioned questionnaire reply to the basic question «How do you feel at this moment? » The questionnaire included a total of 37 subjects

grouped in 6 factors. The first factor refers to intensity and includes 6 subjects (e.g., nervous). The second factor refers to depression and includes 8 subjects (e.g., sad). The third refers to aggression and includes 7 subjects (e.g., mad). The fourth factor refers to energy and includes 6 subjects (e.g., lively). The fifth factor refers to fatigue and includes 5 subjects (e.g., exhausted). Whereas, the sixth factor refers to confusion (e.g., unable to concentrate) and includes 5 subjects. The answers were given on a Likert five degree scale from «none» to «excellent» (4).

The total psychological mood (TPM) results by the estimation of the further down factors: Tension + Depression + Aggression + Fatigue + Confusion – Energy + 100. A low rate means a better TPM.

Process

The participation was voluntary. The questionnaire was completed anonymous using the self completed method, and was distributed twice. The first time was 10 minutes before their attendance in the programs and the second right after class. Verbal explanations were given to the participants before the completion of the questionnaire. The aim of the study was explained, and participants were informed that there is no right or wrong answers; - the data would be used only for the study's needs; and that the answers should be honest. The study was completed in a period of one month.

Statistical analysis

For the presentation of the results, descriptive statistics were used (average and standard deviation). In order to examine the internal coherence of the factors a reliability analysis was carried out. A multi variable variance analysis (MANOVA) and a Scheffe test were conducted in order to find the differences among each of the 6 factors of psychological mood of the questionnaire in relation to the type of the programs. A variance analysis (One – Way ANOVA) was conducted to examine whether there are any differences as far as T.P.M. is concerned. The aforementioned analyses were conducted with both data of the 1st and the 2nd measurement.

Results

The reliability analysis, using the data of the 1st measurement, confirms that the questionnaire has a satisfactory internal coherence. On the basis of a Cronbach test the indexes of internal coherence fluctuate from .71 to .87 (Table 2). From the multi variable variance analysis (MANOVA) which was conducted to examine the differences of the 6 factors of psychological mood of the questionnaire in relation to the type of the program

statistically significant effects were not found for the multi variable (Wilks' Lambda = .904, $F_{(12,158)}=1,32$, $p>.05$).

The variance analysis (One – Way ANOVA) which was conducted to examine the differences of the total psychological mood (TPM) in relation to the type of the programs did not present statistically significant differences ($F_{(2,160)}= .966$, $p>.05$).

Table 2. Mean scores and typical deviation of psychological mood factors in relation to the kind of exercise during 1st measurement.

Factors	Cronbach α	Programs		
		Aerobics	Greek Traditional Dances	Muscle Strengthening Programs
		M.S. – T.D.	M.S. - T.D.	M.S. T.D.
Tension	.85	1.30 - .39	1.33 - .37	1.31 - .36
Depression	.74	1.51 - .36	1.45 - .16	1.50 - .35
Aggression	.79	1.80 - .32	1.86 - .31	1.93 - .41
Energy	.87	2.53 - .30	2.49 - .32	2.40 - .49
Fatigue	.71	2.49 - .25	2.37 - .40	2.45 - .55
Confusion	.82	1.49 - .15	1.51 - .15	1.57 - .77
T.P.M.		107.41 - 1.09	107.61 - .95	107.67 - .77

• : $p<.05$

The reliability analysis, using the data of the 2nd measurement, confirms that the questionnaire has a satisfactory internal coherence. On the basis of a Cronbach test the indexes of internal coherence fluctuate from .72 to .89 (Table 3). From the multi variable variance analysis (MANOVA) which was conducted to examine the differences of the 6 factors of psychological mood of the questionnaire in relation to the type of the programs a statistically significant effect of the multi variable was found (Wilks' Lambda = .234, $F_{(12,158)}=26,236$, $p<.05$). From the variance analyses statistically significant differences were found for the factors of depression ($F_{(2,158)}=57,508$, $p<.05$), aggression ($F_{(2,158)}=55,500$, $p<.05$), energy ($F_{(2,158)}=57,589$, $p<.05$) and fatigue ($F_{(2,158)}=33,492$, $p<.05$).

From the Shceffe multiple comparisons test statistically significant differences were found for the factor depression among the three types of exercises; for the factors

aggressiveness and energy between the muscular strengthening and the other two programs; and, for the factor fatigue between aerobics exercise and the other two programs (Table 3).

The variance analysis (One – Way ANOVA) which was conducted to examine the differences of the total psychological mood (TPM) in relation to the type of the programs presents statistically significant differences ($F_{(2,160)} = 60,248$, $p < .05$). From the Shceffe multiple comparisons test statistically significant differences among the three types of programs were found (Table 3).

Table 3. Mean scores and typical deviation of psychological mood factors in relation to the kind of exercise during 2nd measurement.

Factors	Cronbach α	Programs		
		Aerobics	Greek Traditional Dances	Muscle Strengthening Programs
		M.S. – T.D.	M.S - T.D.	M.S - T.D.
Tension	.89	1.18 - .39	1.24 - .37	1.27 - .36
Depression *	.72	1.21 - .36	.91 - .14	1.51 - .35
Aggression *	.80	1.07 - .32	1.11 - .31	1.79 - .48
Energy *	.84	3.24 - .33	3.15 - .32	2.59 - .29
Fatigue *	.75	3.09 - .25	2.47 - .40	2.60 - .55
Confusion	.86	.98 - .17	.92 - .95	.96 - .19
T.P.M. *		104.31 - 1.09	103.51 - .95	105.54 - .78

* : $p < .05$

Discussion and Conclusion

The results indicated that there was no difference in the 1st measurement among the three types of programs for both of the factors of psychological mood and the TPM. On the contrary, in the 2nd measurement differences were found for depression, aggression, energy, fatigue and TPM. More specifically, the participants in the Greek traditional dances program presented the lowest score. The participants in the aerobics program presented a mid score while the higher score appeared in the muscular strengthening program. This fact may be attributed to the social and group character of the activities. The participants in aerobics and Greek traditional dances programs presented lower aggressiveness and higher energy in comparison to the individuals of

the muscular strengthening program. On the contrary, the participants in the aerobics program indicated high levels of fatigue towards the two other programs. Finally, the participants in the program of Greek traditional dances presented the lowest levels of TPM followed by the individuals of the aerobics program, in while, participants of the muscular strengthening program recorded the lowest TPM

Low rate levels of depression and aggression in combination with an increase of energy of individuals participating in relative programs can also be observed in former studies. Pierce & Pate (1994) in a study, which was conducted on elder women who participated in aerobics programs, stated that they felt calmer and had more energy. In further research, Beniamini, Rubenstein, Zaichkowsky & Crim, (1997) found that after a program of choreographed aerobics a decrease of tension, of depression, of fatigue and of aggression appeared while energy was increased. Pinto and collaborators (1997), after an aerobics program in combination with muscular strengthening on people with heart condition recorded an increase of the total psychological mood, a decrease of tension, of depression, of confusion and an increase of energy. In the case of the current study, it can be concluded that participation in Greek traditional dances and aerobics programs improves more effectively the psychological mood in comparison to the muscular strengthening programs.

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