

INFLUENCE OF A LONG TERM PROGRAM OF PHYSICAL ACTIVITIES ON SYMPTOMS OF DEPRESSION IN THE AGED

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Abstract

This study evaluated the influence of a long term program of physical activities on symptoms of depression in depressed and non-depressed elderly individuals. Forty women, aged between 60 and 80 (mean of 66.8 and SD of 7.03) took part in the study. The Depression Scale for the Elderly was applied before starting the physical activities and one year later. The data indicated there was a decrease in the depressive state of subjects with and without depression and aged between 60 and 70. It was also shown that the depressive state of subjects between 70 and 80 years of age remained stable. The results allowed for the conclusion that the practice of physical activity positively influenced the depressive state of the elderly participants.

Keywords: women, gerontology, physical activity, depression.

Introduction

In 2025, 34 million people, or 15% of the population, will be aged over 60 years and during this period, there will be an increase of 6.5% of elderly per year and a decrease in the absolute numbers of young people between 0 and 14 years (Gonçalves, 2001). With the increasing population over the age of 60, the generation of knowledge about the process of population aging and its consequences acquires significant importance for Brazil, as occurred in developed countries.

The aging process, although a natural and universal experience,

has been relatively stereotyped in the world-historical trajectory. Since the sixteenth century, we have witnessed the constant worship to youth and beauty, which results in prejudice against the elderly (Lord, 2001). In Brazilian society that seems to be different: the elderly usually face prejudice, devaluation, contempt and exclusion. The very struggle for delay or cancellation of aging affected the social and cultural context that the elderly experienced nowadays. Okuma (1998) reports that in our society, prejudice is present in a way that being and getting old is given negative connotations that are based on natural biological decline with aging.

As a result of the reality experienced by the elderly, a minimization of their social role was generated, which led to psychological disorders when diagnosed people have a high prevalence of depressive states (GONZALEZ, 2001; SNOWDON, 2002). Epidemiological studies (McCracken et al, 1997; WEYER et al, 1995; Veras, 1994; LIVINGSTON et al, 1990) show that depression is a mental disorder that is present most commonly in old age, and is considered one of the disorders that most generate economic costs (CARVALHO, FERNANDES, 2002; Unützer et al, 1997). Other studies (HEPPLE; QUINTON, 1997, KENNEDY, 1996) also reported that 50% of cases of suicide in old age are associated with a diagnosis of depression.

Okuma (1998) reports that the term depression can have three different contexts: be related to symptoms, depressive reactions or reactive depression or even the depressive illness. In the first case, it is a state of sadness or mood changes, with a short duration and intensity, without interfering in the life of the person's relationship disappears without treatment. The depressive reactions represent a set of signs and symptoms such as sadness, pessimism, depression, sleep disorders, appetite and sexuality, and usually appear after the occurrence of a physical condition or significant psychological or existential event, as facts mortals, social, economic or affective epilepsy. These reactions disappear after the fact to be controlled. Since the illness is a disease condition with signs and symptoms clearly defined by heredity, etiology and pathogenesis of depression, with negative consequences for the life of the individual's relationship and has responded positively to treatment medicated.

However, care is needed to analyze and diagnose depressive

illness in individuals over 60 years. Depression is presented in the literature with a wide range of meanings and can be found with an emphasis on emotional state or as a physical condition. Often, the isolation and loss of autonomy in which the depressed person is found is confused with the characteristics of age (Maroto, 2002; TRENTINI et al, 2005, Samuels et al, 2004; BALLONE, ORTOLANI E PEREIRA NETO, 2002). Fleck et al (2003) report that depression is underdiagnosed and undertreated, they reported that somatic complaints are common in the very process of normal aging, and in the depressed elderly, these complaints are exacerbated and associated with high levels of anxiety. However, depressive symptoms are not as apparent as in adult depression (Samuels et al, 2004).

There are many studies that direct their attention to symptoms and diseases related to depression, analyzing the influence of physical activity in these. These studies show physical activity as preventive and/or minimizing depressive symptoms and assisting in the treatment of depressive illness. Dunn et al. (2001), Barbour and Blumenthal (2005) and Sjösten and Kivelä (2006) conducted literature research and argued that the vast majority of studies show that exercise has a positive influence on depression and/or depressive symptoms.

Farmer et al. (1988) evaluated 1900 healthy subjects aged between 25 and 77 years and concluded that physical inactivity may be a risk factor for depressive symptoms.

Brown et al. (1995), to analyze the effect of exercise on depression, evaluated 69 women with a mean age of 54.8 years (DP 8.3 years) and 66 men with mean age of 50.6 years (DP 8.0 years). Participants were randomly divided into four groups: control group, walking group of low-intensity walking group of more low-intensity walk with calisthenics and Tai Chi Chuan group. All groups were evaluated before and after 16 weeks. Women who participated in the Tai Chi Chuan group had significant reductions in tension, but did not have the clinical detection of depression by health professionals. Men aged between 65 and 74 years and those over 85 years had a higher risk of depressive states.

In a survey of 663 elderly, Lampinen et al. (2000) concluded that the greater the time that the elderly do not exercise, the greater the

risk of developing depressive symptoms.

Babyak et al. (2000) studied 156 adults and the elderly who committed 10 months of physical activity and concluded that it is an effective strategy to reduce depressive symptoms, even in people with depressive illness already installed.

Silverstein, Connor and Corbeau (2001) performed a cross-sectional study with 404 men and 540 women aged 50 to 89 years and reported that the exercise was significantly associated with lower symptoms of depression, but concluded that exercise does not protect against future symptoms depression.

Mather et al. (2002) also found significant differences in depressive symptoms among elderly sedentary and elderly who participated in 10 weeks of physical activity.

Strawbridge et al. (2002) evaluated the effect of physical activity in preventing depression. For this we used a sample of 1947 individuals aged from 50 to 94 years with 5 years of follow-up and concluded that the hypothesis is true.

Hollenberg, Haight and Tager (2003), in a study of 1246 elderly women – where 583 of these have any cardiovascular disease - report that depressed women showed lower levels of evaluation performed by walking on a treadmill. The authors concluded that depression is associated with physical dysfunction and low performance on treadmill exercise for older women.

Fukukawa et al. (2004) assessed depressive symptoms in 1151 adults and the elderly in Japan and concluded that older respondents (aged 65 to 79 years) who did regular physical activity showed a decrease in their depressive symptoms, however, the same relationship was not found in adults of middle age (between 40 and 64).

Exercise and relaxation are forms of intervention in depression, to the extent that physical activity reduces the risk of functional decline and mortality. A program of moderate exercise improves the physical and psychological health, it increases the strength, the number and activity of the immune system, and improve the conditions common in the elderly such as osteoporosis, cardiovascular disease and also diabetes (Garcia et al , 2006).

In this context, the increasing elderly population and high rates of depressive states in this population, there is a need to better understand the links between physical activity and depressive

symptoms. You still have studies to evaluate the difference of the influence of physical activity on depressive states in elderly patients with and without clinical diagnoses of depression. This study seeks to minimize this gap and aimed to verify the influence of a physical activity program on long-term symptoms of depression in women aged 60 years or more.

Method

Participants

Subjects were 40 women aged between 60 and 80 years (mean = 66.8 SD = 7.03), in the city of San Carlos. The exercise program was disclosed through newspapers and television in the region. First, the participants were two groups identified through an initial interview: Group D (consisting of 11 elderly patients with a diagnosis and who used antidepressant), group ND included 29 women with no history of depressive issues and who were not taking antidepressant medication. All elderly who were compatible to form group D were in the age group from 60 to 69 years (average 63.8 and ± 3.37). Since group ND had a higher number than group D, for further analysis of the results, group ND was split into two new groups: ND + (group of 10 elderly aged 70 to 79 years, average 73 and DP 5.16) and the ND-group (consisting of 11 elderly aged 60 and 69 years, and average 63.18 ± 2.08). The inclusion criteria took into account: recent medical examination, lack of muscular-skeletal or organic pathologies that would prevent the implementation of physical activities and personal availability. We excluded participants who did both evaluations or who were not present in at least 75% of classes. All participants signed a consent form, and the study was approved by the Ethics Committee of UFSCar, under No. 190/2006.

Measures and procedures

To assess symptoms of depression, we used the Fiatarone and Nelson (1996) Depression Scale for Elderly which is validated for the Brazilian population. This test consists of 30 questions related to life satisfaction and moods of the individual (Matsuda, 2000). To fix the test takes into account the total number of negative points, i.e. all

those responses that are associated with feelings of depression. The greater the number of negative points, the greater the depressive state. This questionnaire allows the assessment of conditions that show symptoms depression (Okuma, 1998), even in people without the depression already installed.

The initial interview was conducted by a health professional that found individuals who used antidepressant and those who had no history of depression. Then, before the exercise program, both groups were submitted to the first application of the (M1). After a year of the program, the measure of aspects of depression was again held through the same questionnaire (M2).

Intervention

The exercise program began in April 2005 and was performed in 123 sessions divided into: 10 weeks of activity, followed by three weeks of rest (which coincided with the holiday in July 2005), then another 21 weeks of activity, four weeks of rest and, finally, 11 weeks of activity. Each session lasted 50 to 55 minutes and was performed three times a week on Mondays, Wednesdays and Fridays. The session consisted of a pre-heating through exercise of mild intensity and approximately three minutes, another part consists of stretching exercises, myofascial liabilities of the major muscle groups (posterior leg and thigh, anterior thigh and pelvis, vertebral, paravertebral, chest, etc.) approximately five minutes of aerobic cardiocirculatory activation through combined exercises or walking or jogging for a duration of 12 minutes of adapted strength, power and resistance exercises with hand dumbbells of one and two pounds with duration of 10 to 15 minutes of coordination, agility and flexibility (12 min), breathing exercises and relaxation (five to seven minutes). The sessions were taught by physical educators previously trained and aided by assistants.

Data Analysis

For statistical analysis of the general data of the scores of Group D and Group ND, we used the Paired t-test. The same test was used for analysis of the scores of M1 and M2 groups. For the calculations of the differences among the subgroups divided by age group (Group

ND + and ND-group), we used the Wilcoxon test. The level of significance, in both cases was $p < 0.05$.

Results

The results obtained in M1 in Group D (12.90909) and M1 in Group ND (7.5862) showed statistically significant difference among scores ($p = 0.0409$). However, the results obtained from M2 Group D (8.090909) and M2 of the ND (5.7586) were equal among groups ($p = 0.1681$). These data suggest that the D and ND groups were different at the first evaluation and became equal after a year of physical activity intervention.

Table 1 shows the difference between the mean scores obtained in M1 and M2 in groups D, ND- and ND +. Data indicate that a significant difference between the averages of the first and second assessments in both group D and group ND-. It also showed that there was no statistically acceptable difference between M1 and M2 + in group ND.

Table 1 – Sample average of groups D, ND- and ND + and the level of significance between M1 and M2 in the three groups.

<u>Grups</u>	<u>N</u>	<u>Measure 1</u>	<u>Measure 2</u>	<u>(p) bilateral</u>
D	11	12,90909	8,090909	0,0294*
ND-	19	6,947368	4,947368	0,0132*
ND+	10	8,8	7,3	0,6726

*Significance for $p=0.05$

Discussion

Initially, it is important to note that approximately 30% had depression and made use of drugs. This aspect is consistent with the results of other studies (Gonzalez, 2001; SNOWDON, 2002, McCracken et al, 1997; WEYER et al, 1995; Veras, 1994; LIVINGSTON et al, 1990) which shows a high incidence of depression in elderly.

Another aspect to be pointed out is the fact that physical activity has been more effective for women aged 60 to 69 years than for 70 to 79 (although the latter also tended to decrease in depressive characteristics after the intervention).

The results also indicate, in general, that physical activity has an influence on depressive symptoms of elderly, regardless of the presence of a depressive disorder diagnosed. This can be noticed by the fact that groups N and ND- present statistically significant differences between measures M1 and M2. These data are consistent with the observations of Okuma (1998) who conducted a review covering 12 studies that looked at depression and physical activity in people from 17 to 60 years, and reports that all studies conclude that physical activity is more than an antidepressant effect any other treatment, with the same value as the psychotherapeutic treatment. Other studies also report that physical activity is a relevant factor in the treatment of depressive state (OURIQUES; FERNANDES, 1997; GOBBI, 1997). Andrade (2000) conducted a study of 16 women over 60 who had water activity for six months and found a decrease of the depressive state in 15 individuals. Lindwall et al (2007) evaluated the depressive state of 860 men and women between 60 and 96 years and concluded that the elderly have inactive level of depression than those who engage in physical activity. Penninx et al (2002) evaluated the relationship between exercise and depressive symptoms comparing resistance exercises and aerobic exercises and concluded that both decrease the state of depression.

Regarding the association of physical activity with antidepressant medication, it seems there is still some gap in the literature. Okuma (1998) has reported that the number of studies was still relatively small and that there were many issues to be addressed, and missing studies that relate physical activity and medication use in the treatment of depression.

The limitations of this study are in the fact that the types of medication used were not reported, in the small number of subjects in each group and the absence of a group that did not perform physical activity, to better contrast the results. In this sense, it is suggested to carry out further studies with control of these variables and with a more complete design.

Conclusion

We conclude that the long-term exercise program influenced positively the depressive state of elderly women, as elderly women who do not take antidepressant medication had an initial program of physical activity, a higher score than the elderly who do not have diagnosis of depressive illness. After a year of physical activity, the two groups became statistically equal. The program of physical activity influenced by changing depressive states in all elderly aged 60 and 69 years, and stabilizing this state in elderly women aged 70 or over.

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