Motivation and physical fitness in old people participating in a Square Dance

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Abstract: Objective: To understand the effect of the Square Dance in the physical fitness of old people involved in a 20 weeks exercise program. Methods: Participants were 60 old people doing a community Square Dance exercise program. Motivations were assessed using the Sport Activity Motivation Questionnaire and physical fitness was evaluated using the Functional Fitness Test battery, in two separate moments with a 20 weeks interval. The assumption of normality was checked using the Kolmogorov-Smirnov test. Wilcoxon test was used to compare the group in different time moments. Results: Regarding motivations to Square Dance the items that scored higher were: "need to exercise", "be with friends", "make new friends" and "fun". In terms of physical fitness variation, improvements in average were found in practically all fitness test between the 1st and 2nd evaluation, with significant statistical differences in 3 of the 5 tests applied. Conclusions: Old people´s major motives to participate in Square Dance are related to the motivational dimensions of physical fitness, general affiliation and pleasure. Additionally, Square Dance exercise programs have a positive impact to improve physical fitness in old people and play a determinant role on health promotion and successful aging.

1. Introduction

Focus on the physical and mental health of the elderly and take concrete and effective measures to improve their psychological health, improve their subjective well-being, is their needs, is also the family needs, but also the demand of social harmony. The construction of people′ s good life cannot be separated from the participation of sports.[1] Sports will undoubtedly enrich the leisure life of the elderly and provide them with social satisfaction, respect and self-fulfillment. One of the causes of the aging process is the decrease in levels of physical fitness: reduction of muscle strength, flexibility, agility, etc.[2] Square Dance as a sport which is quite popular with old people in recent years, is the combination of aerobic exercise and dance, with the characteristic of easy operation, less open conditions become one of the most popular with older people exercise program.[3] The practice of Square Dance, due to the characteristic properties of the environment in which it develops, provides some benefits for the elderly population offering them lower health risks. Beyond of this provide socialization, because it is a modality performed in a group, also provides benefits in terms of muscle strength, flexibility, coordination, balance and cardiovascular system. Coupled with China's national condition of "not rich first", and the recreational life of the elderly lacks thorough facilities, the prevalence of Square Dance the local government of the pressure of lacking in fitness and entertainment facilities to a certain extent.

2. Methodology

2.1 Sample

Based on the study objective, was defined as target population, old people with over 55 years of age, of both genres and practitioners of Square Dance. Participation in the study was performed on a voluntary being that, the total sample consisted of 60 old people, practitioners of Square Dance classes.

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2.2 Instruments

To evaluate the motivations that induces the elderly to practice physical activity was using the Sport Activity Motivation Questionnaire. The questionnaire is constituted by 30 items being the same divided into 8 categories: status, emotions, pleasure, competition, physical fitness, skill development, general affiliation, and specific affiliation. For this study, only 19 items were analyzed, divided into 7 categories: status, emotions, pleasure, competition, physical fitness, skill development and general affiliation. For each of the items, the participant assigns a score of 1 to 5 according to their degree of importance, being that 1 is considered as being nothing important and 5 as totally important.

How many physical fitness levels, were applied 5 test of the battery Functional Fitness Test battery: get up and sit on the chair, arm curl, sit and reach, timed up and go and reach behind the back.

2.3 Data collection

The Sport Activity Motivation Questionnaire was applied only at the beginning of the study and was completed by the participants in a large and calm room with the presence of the researcher.

The physical fitness tests were applied at 2 moments, separated by 20 weeks. In both evaluation moments all the tests were applied by the investigator before the start of the Square Dance classes, in a suiTable room for the effect.

2.4 Statistical Procedure

Relatively the Sport Activity Motivation Questionnaire, a qualitative descriptive analysis was performed. Relatively the results of the physical fitness assessment tests it was made a descriptive statistical analysis which reported values the mean, minimum, maximum and standard deviation. Subsequently, the Kolmogorov-Smirnov test was applied to verify the normality of the data. Then Wilcoxon test (nonparametric test for two paired samples) was used to compare the group in the different time moments.

For treatment and parameterization of the data collected was used SPSS software version 21.0, where all the statistical treatment was performed with a level of significance of 5% (0.05).

3. Results

As for the results related to the motivations, obtained through the application of the questionnaire we can say that (Table 1).

As can be seen from Table 1, we can say that the motivations that take the elderly included in the present study to practice physical activity are concentrated in three motivational dimensions: pleasure, physical form and general affiliation.

Relatively the results concerning physical fitness levels obtained through the application of five tests of the Functional Fitness Test Battery, we started with descriptive statistical analysis (Table 2) for the totality sample. As we can see, in all cases, it was improvements the mean of the results of all tests applied between the first and second evaluation moments was verified. In the tests get up and sit on the chair and arm curl, which aim to assess the muscular strength of the lower and upper limbs, mean in the first evaluation was 14.01 and 19.11 repetitions (respectively) and in the second evaluation it was 13.98 and 18.92 repetitions (respectively), which means that during the same period of time the participants were able to perform more repetitions in both exercises. In the tests sit and reach and reach behind the back which aim to assess the flexibility, the means in the first evaluation were -6.01cm and -16.99cm (respectively) and in the second evaluation of -3.58cm and 14.77cm. Although the value of the average has decreased, it was a positive aspect because it reveals that the participants managed to reduce the distance of reach between two determined points. Finally, in the test timed up and go, which aims to assess agility and dynamic balance, the mean in the first evaluation was 6.39 seconds and in the second evaluation was 6.28 seconds. Being a timed test means that the participants reduced the time spent to travel a determined route.

Table 1. Results (Sport Activity Motivation Questionnaire)

Motivational dimension	Items	1	2	3	4	5
Physical fitness	Keep in shape	9%	7%	35%	29%	20%
	Be in good physical condition	3%	2%	36%	34%	25%
	Exercise	2%	3%	30%	33%	32%
	take action	2%	2%	35%	38%	23%
Pleasure	Have something to do	6%	8%	35%	31%	20%
	Fun	3%	6%	33%	34%	24%
	Pleasure in the use of installations and sports equipment	2%	18%	27%	31%	22%
Emotions	Have strong emotions	16%	21%	38%	15%	10%
	Discharge energies	11%	17%	33%	28%	11%
	Release stress	6%	5%	31%	38%	20%
Development of competences	Improve technical capacity	8%	9%	45%	28%	10%
General affiliation	Belong to a group	13%	12%	46%	21%	8%
	Be with friends	1%	3%	31%	44%	21%
	Make new friends	5%	7%	37%	30%	21%
Competition	Overcoming challenges	12%	18%	40%	19%	11%
Statue	Have the feeling of being important	31%	23%	32%	9%	5%
	Be recognized and have prestige	21%	18%	34%	19%	8%
	Be known	25%	29%	31%	6%	9%
	Pretext to leave home	33%	21%	16%	22%	8%

Table 2. Descriptive statistics (minimum, maximum, mean and standard deviation, N=60)

	Min	Max	Mean	Std. Deviation
Get up and sit on the chair (1st moment)	0	26	14.01	4.983
Get up and sit on the chair (2nd moment)	0	25	13.98	4.857
Arm curl (1st moment)	6	29	19.11	5.174
Arm curl (2nd moment)	7	37	18.92	5.906
Sit and reach (1st moment)	-35	18	-6.01	10.922
Sit and reach (2nd moment)	-27	14	-3.58	10.369
Timed up and go (1st moment)	4	27	6.39	2.811
Timed up and go (2nd moment)	3	21	6.28	2.208
Reach behind the back (1st moment)	-56	9	-16.99	12.836
Reach behind the back (2nd moment)	-53	15	-14.77	12.966

Regarding the statistical analysis, the Kolmogorov Smirnov test was used to test the normality of the data. Since there was no normal distribution of data, was applied the teste Wilconxon (nonparametric test for two paired samples).

In Table 3, we can verify that statistically significant improvements were found in 3 tests of the 5 applied: get up and sit on the chair (sig.=0,011), sit and reach (sig.=0,001) and reach behind the back (sig.=0,001).

Table 3. Wilcoxon statistical test (sig. Value)

		Sig.
Get up and sit on the chair	2nd moment	0.011
	1st moment	
Arm curl	2nd moment	0.151
	1st moment	
Sit and reach	2nd moment	0.001
	1st moment	
Timed up and go	2nd moment	0.953
	1st moment	
Reach behind the back	2nd moment	0.001
	1st moment	

4. Discussion

As a social phenomenon, square dancing has emerged around the world, marking the booming development of public private life. The literature indicates that Square Dance is a modality that besides the numerous benefits that it provides for the health of the elderly, also provides the socialization between them. The results presented, demonstrate that socialization is a central aspect for the elderly of the sample, so that the items being with friends, making new friendships and fun have assumed a high degree of importance. The item on exercise was also considered to be very important, perhaps for the perception that the participants feel the innumerable benefits that the practice of physical activity (Dancing in outdoor public spaces as one form of aerobic exercise) provides them. The square dancing is not only a fitness and entertainment space, but also a social space with social and cultural meanings.

The results obtained are in according with the study conducted by Sun (2018), Their research found that participating in square exercise can effectively alleviate the adverse effect of social activities caused by physiological and psychological problems as well as the influence of physical pain on daily activities, and improve the living quality of the middle-aged and elderly people. The results showed that the component health, physical rehabilitation, disease prevention and quality of life was the component that assumed a higher degree of importance, being the health issues the most motivating the practice of Square Dance for the population studied.

In sum, with regard to the data presented on physical fitness, we can verify that the practice of Square Dance had a positive impact on the elderly in the sample, regarding muscular strength, flexibility, agility and dynamic balance, being visible improvements in the means of results in all the tests applied between the two moments of evaluation, and also were found statistically significant improvements in three tests applied. Square Dance belong to aerobic exercise,moderate exercise intensity of the elderly, long-term practice is conducive to improving the body, Tong Li joints, Shu tendons, improve human metabolic capacity, promote body oxygen circulation, enhance myocardial function, improve heart and lung function, promote blood circulation, improve the physical fitness of trainees , relieve the pressure, improve the mood, relax the body and mind, improve the satisfaction, improve the happiness index.

As the results demonstrated the practice of Square Dance contributes to an improvement in the quality of life of the elderly to the sample. Square Dance can be considered a very attractive modality for the elderly, being a modality performed in a group, besides providing several benefits in physical fitness, it is also very important in socialization. However, when administering a Square Dance program, it is necessary to take into account some important aspects that may be detrimental to the health of participants, such as: exercise execution too fast, lacking physical functional training projects, and noise pollution.

Thus, this type of studies becomes pertinent, since the average life expectancy has been increasing, it is fundamental that beyond of longevity also there is a quality of life, can be being able to

investigation may contribute to the elderly population being to survive more years with total autonomy and dependence to perform their daily activities, avoiding high costs of hospitalization and treatment associated with pathologies that come with the aging process that can be delayed with a more active lifestyle.

As a suggestion for future investigations, it is suggested that there be continuity in studies which methods can contribute to a less progressive aging, performing studies that verify the impact of different types of physical exercise programs on variables related to pathologies that are frequent in this type of population.

5. Conclusion

After analyzing and discussing the results, we can conclude that the motivational dimensions that assumed a higher degree of importance in our study were: physical fitness, pleasure, and general affiliation. Regarding physical fitness, we can conclude that the practice of Square Dance had a positive impact on the elderly of the sample, assuming an important role in the development of a more sTable and successful aging.

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