

## INFLUENCE OF THE OPEN UNIVERSITY FOR THE THIRD AGE (UATI) AND THE REVITALIZATION PROGRAM (REVT) ON QUALITY OF LIFE IN MIDDLE-AGED AND ELDERLY ADULTS

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Received: 25/01/2007 - Revised: 19/06/2007 - Accepted: 12/09/2007

### ABSTRACT

**Objective:** The influence of the Open University of the Third Age (São Carlos Educational Foundation) (UATI-FESC) and the Geriatric Revitalization Program (REVT) on the quality of life of middle-aged and elderly adults was evaluated. **Method:** Seventy individuals in their first year at UATI and REVT participated in this study. The inclusion criteria were that the subjects had to be at least 50 years old and be capable of filling out questionnaires. UATI had an interdisciplinary program comprising six lectures (once a week each). Three were on physical activities: Tai Chi Chi Kung, Body Expression and Physical Therapy and Health Promotion; three on social and cultural promotion: Musical Education, Art and Citizenship in the Third Age; and there were also commemorative activities and cultural tourism. REVT had 48 physical activity sessions, three times a week, lasting 50-55 minutes each. All the participants were evaluated using the World Health Organization Quality-of-Life (WHOQOL-bref) and Short-Form 36 Medical Outcomes Study (SF36) questionnaires at baseline and at the end of the 16-week intervention. The data were analyzed using ANOVA with repeated measurements. **Results:** There were no differences between the groups. Both groups showed significant improvement in quality of life according to the overall result from WHOQOL-bref and also in the Psychological and Environmental domains and the initial questions: “How would you rate your quality of life?” and “How satisfied are you with your health?”, in WHOQOL-bref. There was also a significant improvement in the General Health domain of SF36. For the Physical and Social Relations domains of WHOQOL-bref and other domains of SF36, there was no significant improvement. **Conclusions:** These programs improved quality of life according to WHOQOL-bref and the General Health domain of SF36.

**Key words:** Health Services for the Elderly; WHOQOL-bref; SF36; Open University; Geriatric Revitalization; Public Health.

### RESUMO

#### **Influência da universidade aberta da terceira idade (UATI) e do programa de revitalização (REVT) sobre a qualidade de vida de adultos de meia-idade e idosos**

**objetivo:** Foi avaliada a influência da Universidade Aberta da Terceira Idade – Fundação Educacional de São Carlos (UATI-FESC) e do Programa de Revitalização Geriátrica (REVT) sobre a qualidade de vida de adultos de meia-idade e idosos. **Método:** Participaram deste estudo 70 indivíduos do primeiro ano da UATI e do REVT. Os critérios de inclusão foram ter 50 anos ou mais e ser capaz de preencher os questionários. A UATI é um programa interdisciplinar com seis disciplinas (uma vez por semana cada), três de atividades físicas: Tai Chi Chi Kung, Expressão Corporal, Fisioterapia e Promoção da Saúde; e três de promoção social e cultural: Educação Musical, Arte, Cidadania e Terceira Idade, além de atividades comemorativas e turismo cultural. O REVT teve 48 sessões de atividade física, três vezes por semana, com duração de 50-55 minutos cada. Todos os participantes foram avaliados por meio dos instrumentos de qualidade de vida World Health Organization Quality of Life (WHOQOL-bref) e Short-Form 36 - Medical Outcomes Study (SF36) no início e ao término da intervenção de 16 semanas. Para análise dos dados, foi utilizada ANOVA com medida repetida. **Resultados:** Não houve diferença entre os grupos. Ambos os grupos apresentaram melhora significativa do nível de qualidade de vida de acordo com o resultado geral do WHOQOL-bref e também nos domínios psicológico, meio ambiente e questões iniciais: “Como você avaliaria sua qualidade de vida?” e “Quão satisfeito(a) você está com a sua saúde?” do WHOQOL-bref. Também houve melhora significativa do domínio Estado Geral de Saúde do SF36. Para os domínios Físico e Relações Sociais do WHOQOL-bref e outros domínios do SF36 não houve melhora significativa. **Conclusão:** Esses programas melhoraram a qualidade de vida segundo o WHOQOL-bref e EGS-SF36.

**Palavras-chave:** serviços de saúde para idosos; WHOQOL-bref; SF36; Universidade Aberta; revitalização geriátrica; saúde pública.

## INTRODUCTION

The elderly population is increasing all over the world, and in several countries this population has already reached more than 7% of the total number of inhabitants. Due to this demand, studies have focused on the needs of this population. According to the World Health Organization - WHO<sup>1</sup>, in the year 2000, there were 600 million people aged 60 or above; there will be 1.2 billion of them in 2025, and 2 billion in 2050. Today, about two-thirds of the elderly population live in developing countries; in 2025, it will be 75%.

According to the Brazilian Institute of Geography and Statistics (IBGE)<sup>2</sup>, taking into account the Brazilian population's current trend of decrease in fertility rates and increase in life expectancy, it is estimated that in the next 20 years the elderly population will exceed 30 million people, which represent almost 13% of the population. According to IBGE<sup>3</sup>, the population aged 65 years and over increased 45% between 1991 and 2000, with an average annual growth rate near 4%, while the average annual population growth was 1.6%. Life expectancy at the time of birth, in Brazil, is 72 years and, in the state of São Paulo, it is 73.7 years. According to data from SEADE<sup>4</sup>, in the state of São Paulo, 10% of the population was elderly in 2005, and the rate of aging (rate of people 60 years old and over per 100 individuals between 0 and 14 years of age) was 40%. In São Carlos County, approximately 11% of the population was 60 years old and over, and the rate of aging was 50%. These figures represent a large number of elderly people living in São Carlos and the expectation that this number will increase.

In this context, the need arises not only for information on quality of life in old age but also collective programs of full and interdisciplinary attention that act in several aspects of the aging process, programs with low cost and easy implementation, resulting in mortality prevention and noticeable improvement in quality of life and subjective wellbeing. This theme is of a complex and broad nature. The definition of quality of life by WHO<sup>5</sup> as: "*an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns*", includes interaction among several factors present in old age.

The Open University for Senior Citizens of the Educational Foundation of São Carlos/SP (Brazil) has ten years of existence and is a public area for the education of middle aged and elderly adults. It develops a permanent educational program in the areas of health, culture, sport, leisure, citizenship and work, and this curriculum was implemented two years ago. The first unit is equivalent

to the first year of the course, with mandatory weekly subjects for commencing students: Physical Therapy and Health Promotion, Tai Chi Chi Kung, Bodily Expression, Music Education, Performing Arts, Culture & Memory, and Citizenship & Senior Citizens, as well as social activities such as the celebration of festivities, sightseeing and cultural tours.

In São Carlos/SP (Brazil), the Geriatric Revitalization program was implemented in partnership with Universidade de Salamanca (Spain), where this program is already held. The program consists of three very different phases, the first and the third referring to aspects of assessment and the second to the application of a sequence of activities designed to modify a few biological aspects that occur with age<sup>6</sup>. In the first phase, data are collected on medical history and different types of objective tests that determine if the person is fit to take part in the second phase, which consists of a series of activities developed sequentially and which encompass physical exercise. At the end of the second phase, another assessment of the participation individuals is conducted.

The Open University for Senior Citizens and the Geriatric Revitalization Project of São Carlos have common objectives in the area of service for the elderly to improve their quality of life, but they use different methods. In addition to that, neither program had ever been evaluated as to their accomplishment of these objectives in order to investigate their efficiency and clarify which are more appropriate.

The main goal was to assess the influence of the programs of the Open University of Senior Citizens – Educational Foundation of São Carlos (UATI-FESC) and the Geriatric Revitalization Project (REVT) on the quality of life of middle-aged and elderly adults of São Carlos County/SP (Brazil).

## METHODS

The population consisted of all those assisted by the UATI-FESC and REVT projects, and the sample consisted of all individuals who commenced the programs in 2006: 70 individuals (5.7% male and 94.3% female), with mean age of 63.83 ( $\pm 7.22$ ) years, from São Carlos County/SP (Brazil), enrolled at the Educational Foundation of São Carlos (FESC). These were the criteria for inclusion in the study: be 50 or over, be literate, be able to walk and have medical authorization to perform the intervention program. Subjects formed the following groups:

UATI GROUP: 57 subjects (5.3% male and 94.7% female) with mean age of 64.11 ( $\pm 7.32$ ), varying between 50 and 80 years of age, enrolled in the first year at the Uni-

versity for Senior Citizens – Educational Foundation of São Carlos (UATI-FESC) of the Town Hall of São Carlos/SP.

REVT GROUP: 13 subjects (7.7% male and 92.3% female) with an average age of 63.60 ( $\pm 7.19$ ), varying between 51 and 83 years of age, enrolled to commence the Geriatric Revitalization Program in 2006.

All subjects were approved by the physician to participate in the intervention programs. The groups did not present a significant difference ( $p > 0.05$ ) in age, body mass index, gender or baseline score according to the quality of life questionnaires (for all variables and domains of the quality of life questionnaires), being therefore similar at the beginning of the study.

All subjects signed the written informed consent. The study was approved by the Committee for Ethics in Research on Human Beings of Universidade Federal de São Carlos (CEP-UFSCar), approval number 116/2006.

## PROCEDURE

All individuals answered the quality of life questionnaires at the beginning and at the end of the intervention. The questionnaires were answered by each subject individually at a single meeting. When asked to help, the researcher would simply read back the questions slowly. When the subject had difficulty reading, the assessment was conducted as an interview.

The quality of life indicators were measured using the “*Short-Form 36 - Medical Outcomes Study*” (SF-36)<sup>7</sup> and the WHO quality of life questionnaire (WHOQOL-bref)<sup>8-10</sup>, which was translated and validated to Brazil<sup>11</sup>.”

The SF36 is a multidimensional questionnaire made up of 36 items, divided in eight scales or components: physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional and mental health. It gives a final score from zero to 100, in which zero represents the worst state and 100 represents the best state<sup>7</sup>.

The WHOQOL-bref consists of 26 questions, with two general questions on quality of life and the other 24 representing each of the 24 facets that make up the original instrument (WHOQOL-100). It is divided in four domains: physical, psychological, social relations and environment, as well as two general questions. Scoring for each domain varies from zero to 20, in which zero is the worst quality of life and 20 is the best quality of life<sup>11</sup>. For questions one and two, the maximum score is 25 points.

Intervention was carried out over a four-month period during the first school semester of 2006.

UATI GROUP: UATI consists of six subjects, each with one 50-minute weekly class. Two subjects are taught each day over three consecutive week days. The subject

of Physical Therapy and Health Promotion had as subject content the quality of life in old age; the characteristics of aging; the effects of physical activity on the elderly; warning signs during physical activity; the physiology of exercise; types of training; exercise training: stretching, joint mobility, weight-resisted exercise, balance, coordination and breathing; introduction to weight control and blood pressure, and relaxation techniques. The subjects of Bodily Expression and Tai Chi Chi Kung also deal with physical activity within their own concepts and with activities geared toward senior citizens. The subjects of Music Education and Performing Arts focus on expression through art and Brazilian culture appreciation. The subject of Citizenship & Senior Citizens/Environmental Education aimed at developing political and environmental awareness.

REVT GROUP: The subjects were submitted to a special physical activity program. There were 48 physical activity sessions over 16 weeks, with a frequency of three times a week and duration of 50 to 55 minutes each. Every session included passive myofascial stretching of the main muscle groups; aerobic cardiocirculatory activation; strength, power and resistance exercises; coordination, agility and flexibility activities.

The data were statistically analyzed using the ANOVA technique (parametric, paired) for group comparison. A level of 5% ( $p < 0.05$ ) was used as a reference for statistical relevance. The data are presented in table and graph form.

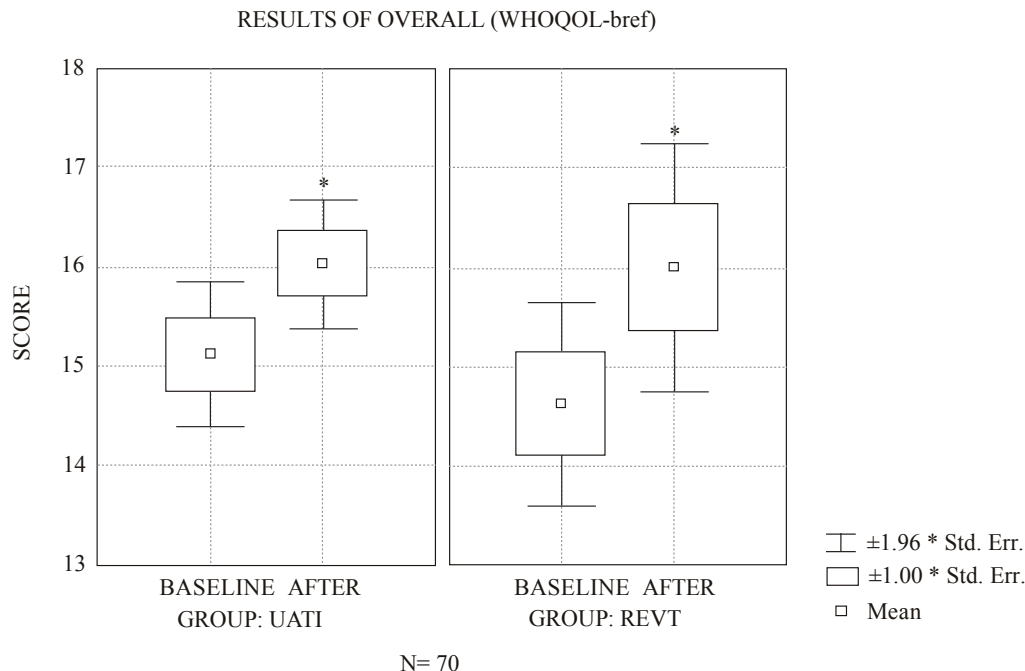
## RESULTS

Both groups showed significant improvement ( $p = 0.004$ ) in the level of quality of life according to the general WHOQOL-bref result (Figure 1). However, there was no difference between the groups ( $p = 0.69$ ).

There was also a significant improvement, specifically in the psychological ( $p = 0.003$ ) and environmental ( $p = 0.0001$ ) domains, in question 1 (How would you rate your quality of life?) ( $p = 0.006$ ) and question 2 (How satisfied are you with your health?) ( $p = 0.05$ ). According to WHOQOL-bref, there was no significant improvement for the physical and social domains. Because there was no statistically significant difference between groups for any variable, they were considered a single group (Table 1).

Both groups showed a significant increase ( $p = 0.013$ ) in score for the general health domain, according to questionnaire SF36 (Figure 2), with no significant difference between groups ( $p = 0.24$ ).

However, there was no significant improvement in the remaining domains (physical functioning physical aspects, social functioning, role-emotional, bodily pain, mental health and vitality) according to SF36. Neither was there significant difference between groups (Table 1).



**Figure 1.** Overall domain score comparison between the groups according to WHOQOL-bref: \*significant difference between pre- and post-intervention  $p=0.004$ .

**Table 1.** Domain score comparison for all subjects according to the World Health Organization Questionnaire of Quality of Life (WHOQOL-bref) and Short-Form 36 - Medical Outcomes Study (SF36).

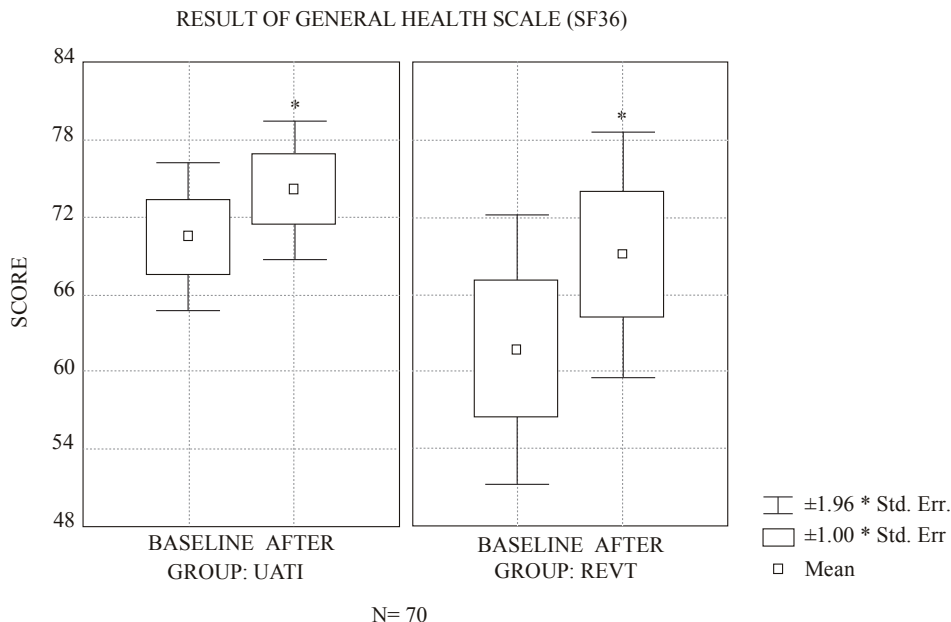
	Domains	Initial Mean ( $\pm$ Std. Err.) (n=70)	Post Mean ( $\pm$ Std. Err.)(n=70)	p-value
WHOQOL - bref	Overall	12.75 ( $\pm$ 0.25)	13.10 ( $\pm$ 0.24)	0.004*
	Physical health	14.22 ( $\pm$ 0.24)	15.16 ( $\pm$ 0.25)	0.23
	Psychological	13.79 ( $\pm$ 0.25)	13.87 ( $\pm$ 0.29)	0.003*
	Social relationships	13.66 ( $\pm$ 0.26)	14.59 ( $\pm$ 0.22)	0.32
	Environment	15.03 ( $\pm$ 0.32)	16.03 ( $\pm$ 0.29)	0.0001*
	Question 1	17.95 ( $\pm$ 0.46)	19.91 ( $\pm$ 0.43)	0.006*
	Question 2	16.52 ( $\pm$ 0.70)	17.68 ( $\pm$ 0.67)	0.05*
SF36	Physical Functioning	76.73 ( $\pm$ 2.02)	80.76 ( $\pm$ 1.67)	0.26
	Role-Physical	57.02 ( $\pm$ 3.76)	59.03 ( $\pm$ 4.09)	0.98
	Bodily Pain	67.64 ( $\pm$ 2.73)	69.40 ( $\pm$ 2.43)	0.89
	General Health	68.66 ( $\pm$ 2.45)	73.02 ( $\pm$ 2.26)	0.013*
	Vitality	65.98 ( $\pm$ 1.93)	66.70 ( $\pm$ 1.88)	0.76
	Social Functioning	78.79 ( $\pm$ 2.22)	78.99 ( $\pm$ 2.41)	0.72
	Role-Emotional	55.81 ( $\pm$ 4.57)	61.18 ( $\pm$ 3.72)	0.34
	Mental Health	68.48 ( $\pm$ 1.88)	68.93 ( $\pm$ 1.99)	0.70

\*significant difference between pre- and post- intervention;  $p \leq 0.05$ .

## DISCUSSION

Quality of life was assessed using two different questionnaires which deal with different aspects of this same variable, which has a subjective characteristic

and favors various approaches. Questionnaire SF36 was less sensitive than WHOQOL-bref for changes. This may be due to the nature of its questions, which are geared towards physical aspects and consequences of illnesses. This result is in accordance with a study<sup>12</sup>



**Figura 2.** General Health Scale result according to SF36; \* difference between pre- and post-intervention  $p=0.013$ .

that compares both questionnaires and concludes that SF36 measures quality of life according to the referred health and is more specific for groups of illnesses, while WHOQOL-bref measures quality of life in an integral fashion, better suited for groups such as the one used in this study – healthy senior citizens. Thus, it is important to evaluate different aspects and/or domains of each questionnaire in order to know the possible benefits achieved from intervention programs for the elderly in a more extensive manner.

Quality of life, according to WHOQOL-bref, had a general improvement after four months of both programs. A decrease in quality of life is expected with age, especially in regards to functional capacity, according to Parahyba<sup>13</sup>; but it is believed that inactivity contributes greatly to this process. Subjects perceived improvement in the overall, psychological and environmental domains, in question 1 (How would you rate your quality of life?) and in the question on health (question two – How satisfied are you with your health?); these domains incorporate important facets of quality of life<sup>8</sup>. The improvement in the psychological domain involves bodily image and appearance; feelings; self-esteem; spirituality, religion and personal beliefs; thinking, learning, memory and concentration. The environmental domain is related to improvement in financial resources; freedom, physical safety and security, accessibility and quality of social and health services; home environment; opportunities to acquire new information and skills; leisure; physical environment and transportation. Moreover, there was im-

provement in the general health of SF36, which represents the individual's opinion on their health<sup>14</sup>.

These findings are in agreement with the studies by Rosa et al.<sup>15</sup> and Borglina et al.<sup>16</sup> which found a deterioration in the quality of life of senior citizens not exposed to any intervention, but found an improvement in the quality of life of senior citizens submitted to the intervention care of specific programs. Other studies<sup>17-20</sup> also obtained an increase in quality of life assessed before and after physical therapy for elderly women with osteoporosis. These findings show that aging may not be a determining factor in the decrease in quality of life, but instead the social isolation and the lack of mental and physical activity.

The purpose of the Geriatric Revitalization and of the UATI of São Carlos, as well as of the majority of programs geared towards the elderly, is the improvement in quality of life of the participating senior citizens. Above all, UATI seeks to intervene through weekly classes that cater for the different needs of the elderly, taking into account physical, psychological and social aspects. In these programs, activities were adapted and there was follow-up by the teachers during classes. According to findings by Binder et al.<sup>21</sup>, there is greater improvement in the quality of life and physical variables of elderly groups which go through the intervention program with follow-up than in those which do it at home following instructions. In their study, Cornu et al.<sup>22</sup> also concluded that to obtain results there must be good follow-up and supervision of the elderly; however, they obtained good results with the home program.

The activities of both programs (UATI and Geriatric Revitalization) proved to be safe and efficient for large groups and represent low cost alternatives to collective intervention. There were 20 to 45 senior citizens in each class, including classes from 1997 onwards, and the class of 2006 was the one that participated in the study. According to Neri<sup>23</sup>, projects which cater to the needs of this population are rare in Brazil due to great social and economic difficulties.

Quality of life, according to WHOQOL-bref, did not increase significantly in the physical domain which includes<sup>8</sup>: daily activities; dependence on drugs; energy and fatigue; mobility; pain and discomfort; sleep and rest and the ability to work.

The study by Binder et al.<sup>21</sup>, that also involved training and intervention programs with senior citizens, showed different results to this study because there was an increase in the perceived quality of life according to SF36. This difference may be due to the amount of time of intervention which, in the study by Binder et al.<sup>21</sup> was nine months and, in the present study, was only four months for both groups.

The social functioning domain of SF36 and social relations domain of WHOQOL-bref do not display significant difference after intervention. In the study by Huang et al.<sup>12</sup> these two domains of these questionnaires do not display correlation, which suggests differences in the aspects of the measurement which they call sociability. According to WHOQOL-bref, this area concerns personal relationships, social support and sexual activity and only depends on three questions, one of which concerns sexual activity. The elderly had considerable difficulty answering this question as there is no option for those who are not sexually active, and they were confused because they did not know which answer to choose. This may have interfered in the result because this question represents a third of the points in this domain.

In all of the quality of life domains in both questionnaires, both intervention groups behaved in a similar way. Although the UATI Group took classes in different areas including citizenship, culture, health and sports and leisure in an interdisciplinary educational program, it did not present differences in the evolution of quality of life perception when compared to the REVT Group, which only had intervention with physical activities.

These programs are accessible to a great number of senior citizens and represent an alternative to preventive Public Health. The results indicate that there is an improvement in quality of life, which suggests the importance of incentives so that the elderly take part in these and other activities to prevent the isolation and the immobilization that may occur in the aging process.

It can be concluded from this study that there is no evidence of superiority of an interdisciplinary program over an intervention program restricted to physical activities in terms of quality of life; therefore, it is necessary to study different aspects and benefits of both programs to know which would be more appropriate for this population or each individual, depending on their priorities. Physical activity has the capacity of improving functional capacity, aerobic fitness, pain, mobility<sup>18-21</sup>, while the multidisciplinary program may bring other benefits, such as better social participation, communication and expression, and cognition<sup>24</sup>, which cannot be attained with only an exercise program.

The study showed a predominance of females because they have more availability to join activity groups. It has been verified that women honor their medical appointments more often and display a better ability to follow the doctor's recommendations regarding health care<sup>25</sup>. This fact may hinder the generalization of the results to men; however, considering that both genders face the aging process with some similarities, such as the reduction of functional capacity, some aspects of quality of life also coincide, therefore some similar results are expected after intervention programs.

The absence of a control group was due to the ethical complications of following up a group which would not have access to the intervention or any other benefit and as a result of the purpose of the study being the comparison of different intervention groups; considering that the UATI program is not traditional, the presence of a control group was not essential. Initially there are problems in the generalization of the results of training effects on each group, indicating the need for more extensive future studies including a control group; however, the model of the study was sufficient for its central objective, which was to compare the two intervention programs.

## CONCLUSION

Each of the studied intervention programs has its own characteristics and is applied in different ways. Programs such as these, involving permanent education work for adults with an interdisciplinary approach and/or consisting of physical, cultural and social activities, may improve the perception of factors related to the psychological and environmental domains, as well as the overall perception of quality of life and health in middle-aged and elderly individuals.

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