

Technology of planning and management of leisure activities for working elderly people with a low level of physical activity

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Abstract

The publications of recent years show the activity of researchers in the field of development and implementation of health programs for elderly people, which will help delay the aging process of the body. The aim of our study was to provide a theoretical rationale for the technology of planning and management of recreational and health-enhancing leisure activities for elderly people, to determine its scope and to identify the conditions for its optimal functioning and implementation. Methods and organization of the study: scientific and methodological literature review, sociological methods, pedagogical methods, method for assessment of the level of physical activity, method for assessment of the level of physical working capacity, method for assessment of the psycho-emotional state using well-being-activity-mood (WAN) questionnaire, method for measuring pain using Visual Analog Scale (VAS) for pain, method for testing cognitive functions with the Mini Mental State Examination (MMSE) test, and methods of mathematical statistics. A total of 58 people aged 60 to 73 years participated in the study, among them 28 respondents were included in the experimental group and 30 in the control group. They had a healthy lifestyle and visited social centers to participate in health walking activities. Results: Development and implementation of the technology of planning and management of recreational and health activities in the experimental group resulted in improvements in physical working capacity, psycho-emotional state, the level of pain, cognitive functions, and the level of somatic health of elderly people as compared with the control group. Conclusions: The program of recreational and health activities has a positive effect and improves the physical working capacity of elderly people as well as plays a decisive role in improving health and reducing the rate of aging.

Key words: aging, recreation, elderly people, physical activity, leisure..

Introduction

In most developed countries, the number of retirees is increasing every year, thus becoming a social issue. According to scientific studies, loneliness and limited social contact directly affect the deterioration of a person's health condition and well-being of the elderly (Andrieieva O., Hakman A., Kashuba V. et. al. 2019; Chulhwan Choi, Chul-Ho Bum, 2019; Martínez-Vidal A., Martínez A. P., Del Pino Díaz Pereira M., Martínez-Patiño M. J., 2011; Monteiro, A.M., Silva, P., Forte, P., & Carvalho, J., 2019). Also, researchers Pliukhina G.A., Tikhonova T.V., Hakman A.V., Pangelova N.E. argue that the emotional component affects the quality of life and life expectancy of the elderly to the same extent as physical activity factors. Andrieieva O., Krutsevich T., Imas T., Pavlova Yu. O. have suggested that active lifestyle, social communication, and labor help a person to “grow old beautifully”, and, even in the old age, to surprise with their achievements.

The changes that are taking place today in Ukrainian society are quite negative and are characterized by: political instability, social insecurity of different groups of the population, a significant reduction in financial stability, a decrease in quality of life and life expectancy, a decrease in physical activity, an increase in the prevalence of non-infectious chronic diseases, a loss of focus on a healthy lifestyle, reduced opportunities to engage in physical activity for children, adolescents, and adults. According to the Ukrainian experts in the field of physical culture and sports, the main reason for the deterioration of health of Ukrainian population is the lack of financial and material support for recreational and health activities at the national level, which results in physical inactivity (Kozina, Z., Iermakov, S., Bartík, P., Yermakova, T., Michal, J., 2018; Markina L. D., 2001; Yarmak, O., Galan, Y., Hakman, A., Dotsyuk, L., Blagii, O. Teslitskyi, Yu., 2017). Thus, recreational and health activities have not yet become widely popular among the elderly in Ukraine. To increase the quality of life and the level of physical and mental health of the elderly, it is necessary to increase the amount of physical activity

and to fill their leisure time properly with various interesting and effective forms of recreational activity. It is active leisure that promotes rapid recovery and improvement of health status as well as prevent mental and emotional stress and contribute to better socialization in a new role of retiree.

Materials and Methods

To achieve the objectives defined in the study, the following methods were used: theoretical analysis and generalization of the data of scientific and methodological literature, sociological methods, pedagogical methods, method for assessment of physical activity level, method for assessment of the level of physical working capacity, method for assessment of the psycho-emotional state using well-being-activity-mood (WAN) questionnaire, method for measuring pain using Visual Analog Scale (VAS) for pain, method for testing cognitive functions with the Mini Mental State Examination (MMSE) test, and methods of mathematical statistics.

Theoretical analysis and generalization of the data of scientific and methodological literature. Theoretical analysis and generalization of scientific publications and documentary materials was carried out to study in detail the planning and management of recreational and health activities of the elderly. Exploration of the main ideas contained in the works of domestic and foreign scholars, which address the planning and management of recreational and health activities with this group of population, examination of original approaches and practices of fitness clubs in developed foreign countries made possible to identify the factors, which determine the specific features and parameters of this activity and form the basis to identify the ways for increasing motivation for recreational and health activities.

Sociological methods. Given the complexity of the studied phenomena associated with the health of the elderly, sociological methods are widely used, such as questionnaires.

Motives for recreational and health activity were assessed using the test tasks that we developed. The test questionnaire included 23 test tasks, which make possible to identify the motives for recreational and health activities in elderly people.

Well-being-activity-mood (WAN) questionnaire (V.A. Doskin, N.A. Lavrentyeva, V.B. Sharay, and M.P. Miroshnikov) is designed for psychodiagnostic assessment of adults without any limitations related to gender, social, professional or educational status, etc. The purpose of the questionnaire: for immediate assessment of the psycho-emotional state of an adult at the time of the examination. WAN questionnaire is a chart (table) that contains 30 pairs of opposite characteristics reflecting the studied features of the psycho-emotional state (well-being, activity, and mood). Each of the features is described by 10 pairs of characteristics. There is a rating scale between the opposite characteristics. The respondents are asked to rate their condition using the scale (to indicate the degree of manifestation of a certain characteristic of their condition). The rating scale ranged from 1 to 7 points. The quantitative result of the survey responses is the sum of primary scores for individual categories.

Pedagogical methods. Pedagogical methods included pedagogical observation and pedagogical experiment. Pedagogical observation. The pedagogical observation was used during the first stage of pedagogical study as a means of orientation and insight into the phenomena being studied and allowed to identify the special issues in the next analysis stage. The data obtained by the method of non-participant observation were supplemented with the results obtained by the method of interviewing, which was applied in conditions of open and candid communication with study participants.

Method for assessment of physical activity level (Framingham Physical Activity Index). Amount of daily physical activities was quantified using the Framingham Physical Activity Index (Kannel WB, Sorlie P., 1979), which is calculated on the basis of average time spent at each activity level during the day. The result of the calculations is shown as a numerical index of physical activity. Several levels of activity are distinguished on the basis of its intensity as follows: basal, sedentary, slight, moderate, and heavy levels. All activities with a duration of more than 5 minutes were recorded using a physical activity record sheet.

Method for assessment of the level of physical working capacity.

Visual Analog Scale (VAS) for pain is a horizontal line, 10 cm in length, with the endpoints, in which the mark 10 corresponds to the maximum severity of pain and 0 corresponds to no pain at all. There are also following levels of the intensity of pain syndrome: 2 points (2 cm) – mild pain; 4 points – moderate pain; 6 points – severe pain; 8 points – very severe pain; 10 points – worst imaginable pain.

Mini Mental State Examination (MMSE) test. The study included rapid assessment of the cognitive functions of respondents.

Methods of mathematical statistics.

Procedures Experimental work was carried out in a park recreation area, which is equipped with sports facilities and playgrounds. A total of 58 people aged 60 to 72 years participated in the study. Among them 28 respondents were included in the experimental group and were engaged in a specially designed program of physical activity. Another 30 subjects were included in the control group. They had a healthy lifestyle and visited social centers to participate in health walking activities.

In the first stage, the preparation for and planning of the study was carried out. This stage was focused on the systematization of research on the planning and management of recreational and health activities for elderly

people; determination of the tasks, object, subject, and program of the study, and selection of adequate research methods. At this stage, the literary sources were examined which addressed the state of the problem as well as organizational and methodological features of recreational and health activities in the leisure space.

At the second stage, the following tasks were addressed: the development of the stages and content of technology of planning and management of recreational and health activities, as well as its implementation; conducting a pedagogical experiment; and studying the effectiveness of the proposed technology. The obtained data made it possible to identify the conditions for optimal functioning and implementation of the proposed technology of planning and management of recreational and health activities for the elderly.

Results

The technology of planning and management of recreational and health leisure activities for elderly people was proposed on the basis of the analysis of scientific and methodological literature. The main objective of the proposed technology is to increase the effectiveness of recreational and health leisure activities for elderly people.

Its principal differences from the traditional approaches to organization of active leisure are free (non-mandatory) participation in activities; integrative nature that allows to combine health and entertainment activities; game-centered approach that determines the dynamics of the development of forms of activity; and their diversity, which is based on their motivational advantages.

The technology was based on a certain algorithm and included the following stages:

- conceptual, which involved the work planning, studying of organizational and pedagogical conditions of functioning of the main components of the technology of active leisure activities, and assessment of the opportunities for introducing recreational and health activities;

- organizational, which involved providing adequate conditions to implement recreational and health programs and optimal physical activity regimen for elderly people on the basis of the age, physical, functional, and psychological characteristics;

- diagnostic, which included diagnostics of the initial level of physical condition and assessment of motivation for recreational and health activities;

- methodological, which included development, implementation, and assessment of the effectiveness of the developed recreation and health program.

An integral part of the technology was the recreational program. The program was designed to last three months and included three periods: preparatory, main, and maintaining. The preparatory period of the recreation and health program lasted for 1 week (7 days) and included the following activities: medical examination, questionnaire, walks, conversations, trips and excursions, and practical classes.

During this period, participants were subjected to medical examinations and questionnaire, and were divided into groups by types of activities. During that time, the elderly people were anxious and emotionally disturbed, therefore they were offered the following activities: cultural and educational tours and excursions, tabletop and recreational games (including darts and gorodki), sporting events, dancing, productive recreation, badminton, and table tennis.

The main period lasted from the 2nd to the 7th week. After having become acquainted with the environment, retirees had become accustomed. They are used to stick to a daily routine, therefore they were informed about the schedule of health and recreational activities. We offered the following health and recreational activities: Nordic and power walking, recreational jogging, recreational and active games, outdoor activities, swimming, aerobics, fitness, orienteering, gymnastics, combat sports, cycling, badminton, table tennis, circus art, and hiking.

The maintaining period lasted from the 8th to the 12th week. In the last month, elderly people must master the skills of using physical activities to achieve a recreational effect and be engaged in independent regular physical exercises. The forms of health and recreational activities included morning exercise, recreational and health-enhancing activities. The same activities as in the main period were offered. In this period, participants had the opportunities to test their skills in particular physical activities.

To test the effectiveness of the proposed technology of planning and management of recreational and health-enhancing leisure activities for the elderly, we conducted a pedagogical experiment. The experimental group consisted of 28 respondents aged 60-72 years, who participated in the proposed program of recreation and health-enhancing activity (experimental group).

The control group included 30 people of the same age group, who had a healthy lifestyle, visited social centers for elderly, which offered physical exercise and healthy lifestyle programs. It should be mentioned that at the beginning of the experiment, participants of both groups had the low level of physical health and physical activity. The study allowed us to determine motivational priorities of the elderly of the experimental group in the preparatory period (Fig. 1).

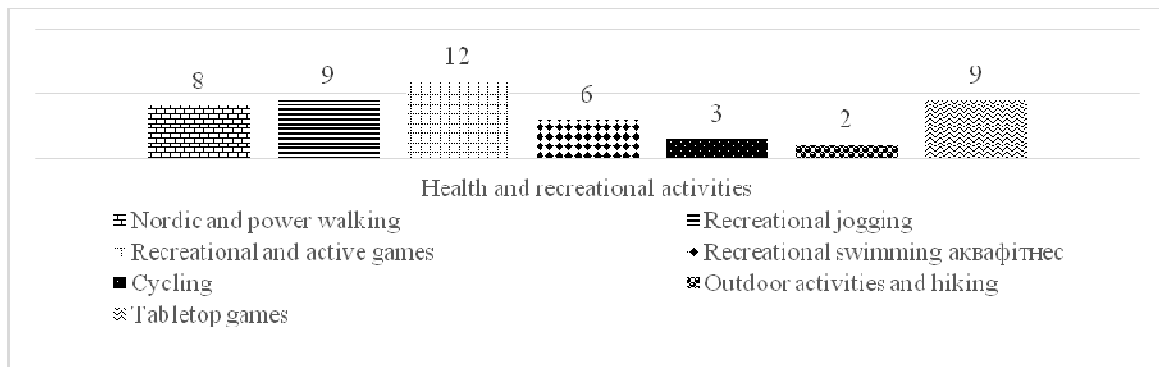


Fig. 1. Quantitative index of motivational priorities to physical activity in participants of the experimental group in the preparatory period (n=28)

According to the motivational priorities, the subjects were divided into groups, and the schedules of classes were planned for the groups.

Assessment of physical activity of the elderly showed that the participants of the control group spend the most time (37.6%) at a sitting level of activity, without taking into account a basal one. In our opinion, this is primarily due to the prevailing activities of the participants at the University of Third Age, where classroom classes are held, including foreign languages (English, Romanian, Polish, and Bulgarian), psychology with the basics of art therapy and a healthy lifestyle, cultural studies and Ukrainian language and literature, history and art of Bukovina, etc. In contrast, the participants of the experimental group spend only 12.5% of the time at the sedentary activity that is three times less than that of the control group (Table 1).

Table 1. Physical activity levels of subjects of the experimental and control groups (n=58), %

No	Level of physical activity	EG (n=28)	CG (n=30)
1	basal level	37.5	41.6
2	sedentary level	12.5	37.6
3	slight level	29.2	16.6
4	moderate level	16.6	4.2
5	heavy level	4.2	0

At old age, some of the main components of physical activity can be conventionally distinguished: activity in the course of organized classes; physical activity during socially useful work activity; and spontaneous physical activity in leisure time. These components are closely interrelated. By complementing each other, they provide a volume of daily physical activity, the level of which can be quantified.

The participants of the control group spent the least time at the moderate activity (4.2%) and did not spend time for organized physical exercises during a day (0% of time spent at a heavy level of physical activity), and they spent only a small part of time (16.6% or 4 hours) at a slight level of activity.

These figures are much higher in the experimental group. Particularly, the elderly of the experimental group spent 29.2% of their time at a slight level of activity, 16.6% at a moderate level and 4.2% at a heavy level. The results suggest that elderly people who have a higher level of physical activity tend to be more healthy and socially active, to reduce the risk of disease and delay the aging process, which is important at this age.

Assessment of the psycho-emotional state of the elderly of both groups at the beginning of the study revealed the low level of the indicators of general well-being, activity, and mood, which ranged from 2.21 to 3.92 points. Furthermore, there were no significant differences in the indicators between the groups. Assessment data of the elderly at the end of the study differed significantly from the initial measurements and demonstrated the high levels of activity, mood, and general well-being in the experimental group (Table 3). This indicates that the proposed program of physical activities can improve the psycho-emotional state of the elderly.

Table 3. Parameters of the psycho-emotional state of elderly people at the beginning and at the end of the study, a.u.

No	Parameter	At the beginning of the study		At the end of the study	
		EG (n=28)	CG (n=30)	EG (n=28)	CG (n=30)
1	Well-being	2.21	3.92	6.13	3.67
2	Activity	2.9	2.64	5.82	2.8
3	Mood	2.6	3.11	6.46	3.72

The changes in the level of physical health of the elderly were used as a criterion for effectiveness of the program. Over the three month period of participation in the program, there were no significant changes in the level of physical health. However there was a tendency for this parameter to improve in the experimental group, which was determined by the sign test, whereas in the control group statistically significant changes were observed in the strength index only (the sign criterion was within the range of 10-22). Thus, the obtained data indicate the positive changes in the level of physical health of the participants of the experimental group that occurred after participation in the proposed program of recreational activities.

The changes were found to occur in pain intensity indicators, which were determined at the beginning and at the end of the experiment in both groups. With aging, bone becomes more fragile. As people age, their joints are affected by changes in cartilage and in connective tissue, joint movements become stiffer and less flexible. The changes in the vertebral column often cause stiffness, the postural deformities occur, such as round back. Regular physical exercise delays the aging of bone tissue. In people involved in physical work, the age related changes of bones and joints occur 10-15 years later than in the people with intellectual work. Aging of the neuromuscular system begins earlier than that of other systems. Regular physical activity slows down the processes of involution in the body and also decreases their severity.

As Table 4 shows, the pain level at the beginning of the study was approximately the same in both groups and , reaching a score of 4.3-4.7 points. However, at the end of the experiment, the groups differed significantly, the pain level in the experimental group was of 2.8 points and in the control group was of 5.0 points. The data confirm the view (Voitenko V.P., Tokar A.V., Rudaya E.S., 1989; Ruiz-Montero P. J., Castillo-Rodríguez A. 2016) that the musculoskeletal system loses the elasticity with aging, however physical exercise can slowed down this process.

Table 4. Scores of pain intensity as measured using a Visual Analog Scale (VAS) in elderly people at the beginning and at the end of the study, points

	At the beginning of the study	At the end of the study	P
Experimental group (n=28)	4.3±2.3	2.8±1.7	0.006
Control group (n=30)	4.7±1.6	5.0±3.1	0.003

The cognitive function of the elderly was used as another criterion for the effectiveness of the proposed technology (Table 5). It should be mentioned that the cognitive function in the experimental group was slightly worse than in the control group at the beginning of the study. In our opinion, this is due to the fact that the students of the University of the Third Age were mainly involved in mental activity during the classes in the institution. However, at the end of the study, the scores of cognitive functions in both groups became similar, thus confirming the positive effect of the proposed program.

Table 5. Scores of cognitive functions in elderly people at the beginning and at the end of the study, %

N o	Score, points	At the beginning of the study		At the end of the study	
		EG (n=28)	CG (n=30)	EG (n=28)	CG (n=30)
1	Norm, 28-30 points	89.3	96.7	96.4	96.7
2	Cognitive impairments, 24-27 points	7.1	3.3	3.6	3.3
3	Mild dementia, 20-23 points	3.6	3.3	-	-
4	Moderate dementia, 11-19 points	3.6-	-	-	-
5	Severe dementia, 0-10 points	-	-	-	-

In summary, the data obtained allowed us to determine the conditions for the effective implementation of the proposed technology of planning and management of recreational and health-enhancing leisure activities for elderly people, the main of which are: the organization of fascinating, emotionally loaded, psychologically comfortable active leisure by expanding the proposed forms of recreational and health-enhancing activities; the creation of a social microenvironment, which would ensure freedom to choose recreational and recreational health-enhancing activities which meet the interests and needs of participants in active leisure, self-realization, and self-actualization.

Discussions

Ukraine, like most European countries, faces population aging: the proportion of people aged 60 and over now exceeds 19%, and it is projected that this number can reach 24% in 2030. Therefore, it is important to develop measures and provide conditions for healthy and active longevity. As experts note, physical activity combined with a healthy way of life is the most efficient and consistent approach to reducing the incidence of diseases and increasing longevity and quality of life.

Scientists have noted the significant benefits of physical activity for the elderly in the prevention of cardiovascular disease (Andrieieva O. et al., 2019; Arbab-Zadeh A. et al., 2004), improving mental health (Kovalenko OG, 2015), functional status (Kozina Z. et al., 2018), reducing overweight and obesity (Lazareva O. et al., 2017), improving quality of life (Barbosa BT et al., 2019; Márcio Flávio Ruaro et al., 2009; Chulhwan

Choi, Chul-Ho Bum, 2019), decreasing dependence on medication use (Doro M.R. et al., 2019), slowing aging (Abramovich S.G., 1999; Korobeinikov G. et al., 2007; Korobeinikov G., 2010), and increasing life expectancy (Mavrovouniotis A., et al, 2016). The indicated effects are inherent in various types of physical activity. However, the priority for the elderly is water exercises, low-intensity aerobic exercises (Nordic walking and hiking), recreational games, strength training (functional training exercises), and mental fitness (Andrieieva O., Blagiy O., 2013; Krutsevich T., Imas T., 2013; Fediniak N.V., 2013; Lisitskaya T.S., 2004). The involvement of older people in health-enhancing and recreational programs in recreational areas can be a promising approach (Andrieieva O., et al, 2016).

The study confirms the previous findings showing the low level of physical activity of the elderly. Insufficient physical activity has been found to reduce quality of life and life satisfaction. Scientists have noted a significant decrease in the volume and intensity of physical activity with age. It has been shown that working people have a higher level of physical activity than non-working persons of the same age. Involvement in performing various usual and recreational activities also has a positive effect on cognitive functions. The rational organization of active leisure of the elderly showed a positive impact on most indicators of physical and psycho-emotional status of the older persons involved in the study. This confirms the appropriateness of the developed tools and methods for the capabilities of this age group and their effectiveness.

Conclusions

The technology of planning and management of recreational and health-enhancing leisure activities for elderly people was developed which takes into account and focused on the creation of appropriate conditions for physical and psychoemotional development. The technology is based on the principles of systematicity, self-reliance, competence, recreativeness, integrity, recreativeness, adequacy, communicativeness, and adaptiveness. It consists of four stages: conceptual, organizational, diagnostic, and methodological, and includes the development and implementation of a recreational and health activities program, which is designed to last three months.

The indicators of physical performance, physical activity, the level of pain, psycho-emotional state, and cognitive functions of the subjects were significantly improved after implementation of the technology of planning and management of recreational and health-enhancing activities. The data obtained indicate the tendency to improvement in most of physical health parameters of participants in the experimental group under the influence of the experimental program (the changes in the typical direction were statistically significant in sign test). The issues discussed do not cover all the problems of the subject. The objectives of further research should be to determine the prospects for implementation of the technology for the organization of recreational and health-enhancing activities in the practice of institutions and organizations that work with the elderly.

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