

Physical Activity in A Sample of Community-Dwelling Older Adults Living in A Greek County. A Research Report

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Abstract

The objective of this study was to assess the type and level of physical activity of community-dwelling older adults in the region of Achaia, Greece. The sample consisted of 142 elderly people (range 65 - 85, mean 71, 2 ± 6 years). Participants had to be independent in mobilizing and daily activities and should not have had surgery over the last year. Data was collected via a modified questionnaire Physical Activity Scale for the Elderly (PASE). Over half of the percentage of the elderly (53%) was not under any form of regular physical activity. Only 33% of men and 21% of women used to walk more than 1 hour a day. Over two thirds of women (73%) were engaged in household tasks. 39% of men were occupied with gardening and/or 'do it yourself' activities for more than 1 hour per day. Only 4% of respondents participated in a therapeutic exercise programme over the last year. The results of this research study showed that the majority of the elderly living in the county of Achaia were not engaged in any physical activity or any regular exercise regime. Future research is necessary in order to investigate differences among different regions of Greece and to promote physical activity and exercise programs.

Keywords: Physical Activity; Elderly; Exercise

Introduction

The aging process is a complex medical condition that leads to many changes in body composition, muscle mass, muscle strength, aerobic capacity, neuromuscular function, health status and functional capacity of individuals [1,2]. The therapeutic effects of Physical activity (PA) and therapeutic exercise are well documented in the literature [3].

Physical activity is any bodily movement produced by skeletal muscle that results in energy expenditure [4]. Physical exercise is a sub-category of PA that is planned, structured, repetitive, and improves or maintain one or more components of physical fitness and overall health and wellness [5]. Regular PA is necessary for maintaining normal muscle strength, joint structure, and joint function, decreasing the risk of cardiovascular disease, maintain independent living status and reduce the risks of falling [3,6-9]. PA also appears to relieve symptoms of depression and anxiety, improve mood and appears to improve health-related quality of life [3,9]. Additionally, PA in older people is critically important in the prevention of various diseases, such as sarcopenia, osteoporosis, colon cancer and lowers the risk of developing non-insulin-dependent diabetes mellitus [3,9]. Higher levels of regular PA in elderly people are also associated with lower mortality rates [9].

PA comprises leisure-time PA, occupational PA, household PA and transportation PA [3]. Despite the proven benefits of physical activity, World Health Organization (WHO) estimates that over 60% of adults do not exercise. Physical Inactivity is generally higher amongst women. The overall inactivity trend is worse in poor urban areas [10]. Results from an international systematic review [3] showed that there was a slightly increased trend towards recommended PA levels among older people in Australia and the US over the last 10 years and a decrease in Brazil. The percentage of older adults meeting recommended physical activity ranged from 2.4 – 83.0% across 53 studies. In the same review, men's PA levels were higher than women's [3] in all but two studies [11,12]. Furthermore, a number of studies suggested that even a low level of activity has a protective role against weight gain and obesity [13-16].

In Greece Babatsikou, *et al.* [14] assessed the PA of elderly people in an urban area of Greece (Attika). Most participants lived in urban areas (mainly Athens, the capital of Greece) had limited PA and minimal regular exercise. However, no study has explored PA levels amongst elderly in a larger area, such as a Greek county, encompassing urban and rural representation.

In this study, we aimed to explore and to assess the type and level of physical activity of community-dwelling elderly in the county of Achaia. Information about the type and intensity of PA may help in promoting therapeutic strategies for elderly population.

Methods

Participants

Elderly people (aged > 65 years) living in different regions of Achaia county, situated in the area of Peloponese; at the western part of the Greek mainland, were included in this study conducted, which was from December 2015 to March 2016.

One hundred and forty-two (142) people agreed to participate in the study. Ethical approval for the study was given by the Ethics Committee of the School of Health and Welfare of the Technological Educational Institute (TEI) of Western Greece.

Sample

The questionnaires were distributed in recreational settings, in social intercourse spaces, in medical care areas such as physiotherapy clinics. Only elderly people, both male (n = 58) and female (n = 84), participated in the current study. All participants lived in Achaia county. Subjects were eligible for inclusion in the study if they were more than 65 years old, they were community-dwelling older adults and had not undergone any operation over the last year. All participants signed a written informed consent form prior to the inclusion in the study.

Questionnaire

The questionnaire administered included three sets of questions. The first set of questions was about sociodemographic information and included the following 7 items: age, gender, weight, height, education, lifestyle habits (smoking, use of alcohol) health status (were asked whether they had one of the following chronic diseases (no/yes): arterial hypertension, coronary heart disease, diabetes mellitus, chronic obstructive pulmonary diseases, arthritis (degenerative or rheumatoid), osteoporosis) and medical consumed (the number of drugs per day).

The second set comprised the Physical Activity Scale for the Elderly (PASE). The PASE is a brief, easily scored, reliable and valid instrument [17,18] for the assessment of physical activity in epidemiological studies for older people. The validity and reliability of this instrument in the English population was found to be 0.65 and 0.75 respectively [17], while the reliability in the Greek population was also satisfactory [19]. It consists of 12 questions regarding activity during the previous 7-day period. PASE includes questions for the frequency of some activities in the patient's spare time, inner house activity and duration and the type of the patient's job for the last week [17-19].

The third set of questions was about their participation in regular exercise sessions (repetitive exercises on weekly basis) and the participants’ personal opinions on the possible barriers.

Procedure

One of the authors (MT) of the study delivered the questionnaires to each setting and was present during data collection. All participants were informed about the procedure prior to the completion of the questionnaires and consented to their inclusion in the study. Participants completed the questionnaire form concerning their health status and participation on PA and/ or regular exercise. Data analysis consisted of descriptive statistics (percentage agreements, mean, standard deviations etc.) and data was analyzed with SPSS (version 17).

Results

Participants’ characteristics

The sample consisted of 142 elderly people (54 men and 88 women), aged between 65 to 85 years, with mean age 71.2 ± 6. Forty-eight percent (48%) of the participants were ex-smokers while twenty two percent (22%) smoked 1 - 5 cigarettes per day. The majority of the participants’ drunk 1 - 2 glasses of alcohol per day. Sociodemographic characteristics of the sample are presented in (Table 1).

	Men (n = 58) N %	Women (n = 84) N %	Total (n = 142) N %
Age (years)	34 (62,96%)	44 (50%)	78 (54,92%)
65 - 69	14 (25,92%)	33 (37,55%)	47 (33,09%)
70 - 74	10 (18,51%)	7 (7,95%)	17 (11,97%)
75+			
Education (years)	1 (1,85%)	3 (3,4%)	4 (2,81%)
≥ 6 years	5 (9,25%)	14 (15,9%)	19 (13,38%)
Elementary	13 (24,07%)	43 (48,86%)	56 (39,43%)
High School	18 (33,33%)	16 (18,18%)	34 (23,94%)
Lyceum	14 (25,92%)	9 (10,22%)	23 (16,19%)
University	3 (5,55%)	3 (3,4%)	6 (4,22%)
Post graduate			
Marital Status -Inhabitan	30 (55,55%)	40 (45,45%)	70 (49,29%)
Lives with partner /spouse	12 (22,22%)	29 (32,95%)	41 (28,87%)
Lives alone	10 (18,51%)	8 (9,09%)	18 (12,67%)
Lives with partner & children	2 (3,7%)	7 (7,95%)	9 (6,33%)
Lives with children	---	---	---
Other			

Table 1: Sociodemographic characteristics of the sample (n = 142).

Fifty per cent (53%) of the participants in the present study had BMI (Body Mass Index) > 30. The BMI was higher in women (Table 2).

	Men (n = 58) N %	Women (n = 84) N %	Total (n = 142) N %
Height(cm)	4 (7,4%)	32 (36,36 %)	36 (25,35%)
< 160	22 (40,74%)	48 (54,54%)	70 (49,29%)
160-169	22 (42,59%)	7 (7,95%)	29 (20,42%)
170-179	6 (11,11%)	1 (1,85%)	7 (4,92%)
> 180			
Weight (kg)	22 (40,74%)	34 (38,63%)	56 (39,43%)
< 70	31 (57,40%)	31 (35,22%)	62 (43,66%)
70-79	5 (9,25%)	10 (11,36%)	15 (10,56%)
80-89	0 (0%)	9 (10,22%)	9 (6,33%)
> 90			
BMI (kg/m ²)	7 (12,96%)	9 (10,22%)	15 (10,56%)
< 24,99	19 (35,18%)	26 (29,54%)	45 (31,96%)
25-29,99	22 (40,74%)	49 (55,68%)	71 (50%)
> 30			

Table 2: Participants characteristics.

The majority of the sample (54,2%) had more than 3 chronic pathologies. The majority of the participants answered that they had hypertension (67%) and the second chronic pathology was arthritis (66%). Almost nineteen percent (19,01%) of the elderly participants took more than 4 medications per day while 48,18% took 2 - 4 medications per day (Table 3).

	Men (n = 54) N %	Women (n = 84) N %	Total (n = 142) N %
Chronic conditions	12 (22,2%)	16 (19,04%)	28 (19,71%)
0	15(27,77%)	20 (23,8%)	35 (24,64%)
1-2	19 (35,18%)	36 (42,85%)	55 (38,73%)
3-4	9 (16,66%)	15 (17,85%)	24 (16,9%)
> 4			
Medical consumed	0 (0%)	2 (2,38%)	2 (1,4%)
0	16 (29,62%)	20 (23,8%)	36 (25,35%)
1	23 (42,59%)	44 (52,38%)	67 (47,18%)
2-4	8 (14,81%)	19 (22,61%)	27 (19,01%)
> 4			

Table 3: Health status and medical consumed.

Physical Activity/Exercise participation

The Participation of the Greek sample in any form of PA and/or regular exercise was limited (Table 4). A large percentage of the elderly participants (53%) did not exercise regular. Thirty three percent (33%) of women and twenty one percent (21%) of men walked more than one hour a day. Only one man used a bicycle for their transportation.

The majority of women (73.0%) were engaged in household tasks for more than 1 hour a day, while men (39%) were engaged in gardening and/or house repair tasks (Table 4). Only four percent (4%) of participants participated over the last year in a regular program of therapeutic exercise or PA. Common barriers were the lack of information about regular exercise programs for elderly (68%), economic cost (12%), fear of falling/injury (8%), lack of transport (7%), lack of interest (2%), lack of time (2%).

Activity (hours /week)	Men (n = 54) N %	Women (n = 88) N %	Total (n = 142) N %
Walking	0 (0%)	2 (2,27%)	2 (1,4%)
0	51 (94,44%)	81 (92,04%)	132 (92,9)
0,5-7	3 (5,55%)	5 (5,68%)	8 (5,63)
>7			
Gardening / home repairs	5 (9,25%)	9 (10,22%)	14 (9,85%)
0	33 (61,11%)	48 (54,54%)	97 (68,3%)
0,5-7	16 (29,62%)	23 (26,13%)	31 (21,83%)
7 >			
Housework tasks	29 (53,7%)	1 (1,13%)	14 (9,85%)
0	25 (46,29%)	29 (32,95%)	54 (38,02%)
0,5-7	0 (0%)	74 (52,11%)	74 (52,11%)
7 >			
Biking	53 (98,14%)	0 (0%)	141 (99,29%)
0	1 (0,7%)	0 (0%)	1 (0,7%)
> 0,5			
Sports	53 (98,14%)	86 (97,72%)	138 (97,18%)
0	1 (0,7%)	2 (2,27%)	3 (2,11%)
> 0,5			

Table 4: Physical activity of the sample.

Discussion

The main findings from the present study demonstrated a limited participation of community-dwelling elderly Greek on physical activity or regular exercise. Despite the many benefits of physical activity to health and quality of life [20], there is a high number of sedentary or physically inactive Greek individuals, which seems to be the case in several other studies, too [15,16,21].

The precise measurement of physical activity is a key to many epidemiological studies investigating trends and associations with disease. Assessing physical activity is multidimensional, and no single method can capture all subcomponents and domains [21]. In the present study PA was investigated with PASE questionnaire. The PASE is a brief and easily scored instrument that measures the level of physical activity in the elderly. It includes questions regarding leisure, household and work related activity [17,18]. Caution is needed when older people answer questionnaires because of memory problems. Questions relating only to 1 - 7 days back (such as in PASE questionnaire) are considered reliable and can be used in research because it is found that elderly do not overestimate or underestimate PA levels [22]. When assessing PA, the day-to-day and seasonal variability need consideration as they may influence the number of days measured [22]. Objective PA assessment methods include activity monitors (pedometers and accelerometers) but these techniques are generally too expensive to use in population-based studies [23,24]. Therefore, self-reporting questionnaires (such as PASE) are most frequently the method to assess [24] because there are the cheapest and easiest methods for collecting physical activity data from a large number of people in a short time [22]. In this study, some additional questions were used in order to collect more information.

Participation in regular exercise was minimal. Only 2,11% of the Greek sample participated the last year in sports activities; only one participant (0,7%) used a bike for transport. In that area of Greece, the lack of bicycle paths is an issue for the government policies to consider.

One important question is what the ideal physical activity is for the elderly. In 1995 the Centers for Disease Control and Prevention (CDC) and the American College of Sports Medicine (ACSM) published a preventive recommendation that "Every US adult should accumulate 30 minutes or more of moderate-intensity physical activity on most, preferably all, days of the week" [25]. PA in elderly should emphasize moderate – intensity aerobic activity, muscle- strengthening activity reducing sedentary behavior [6,7]. Further research is needed to investigate the type and intensity of exercise in order to increase aerobic capacity, muscle strength, muscle mass and balance.

Only 4% of the Greek sample participated the last year in a regular exercise programme. The majority of the Greeks (68%) answered that the main reason for not participating in PA programmes is that they are not informed on the existence of regular exercise programs for older people. 12 % of the participants answered that it was due to economic cost of such programs and 8% due to their fear of falling/injury, 7% due to the lack of transport. Health care practitioners play a key role in motivating older patients and advising them on their physical limitations and/or comorbidities. Promotion and intervention strategies should consider the barriers in order to reduce older adults' constraints to physical activity [26]. There are many approaches to exercise promotion available for health professionals. However, the most successful method for 'compliance' with long-term exercise is most likely achieved by identifying and overcoming barriers to activity, setting specific goals, recruiting spouse/family support, and providing positive reinforcement [27].

Walking is one of the most common forms of physical activity among older adults and has many health benefits [28]. Results from the present study showed that 21% of men and 33% of women used to walk more than 1 hour a day. These results are in agreement with a previous study conducted in another area in Greece (KAPI, Open Care Centers for Elderly in Attica). In that study 38,9% of men and 31,5% of women used to walk more than 1 hour a day [15-16]. In both studies the participation in PA was small.

The European Prospective Investigation into Cancer and Nutrition (EPIC) study is a Europe-wide prospective cohort study of the relationships between diet and cancer, as well as other chronic diseases, such as cardiovascular diseases. In this study a standardized, closed-ended, interviewer administered physical activity questionnaire was used to assess the participation of the Greek subjects (aged > 20 years) in a variety of activities during their leisure time. The study of EPIC showed that walking and housekeeping chores are the most frequent activities during leisure time for both genders and that Greek men and women aged of 65 - 74 years old walked 5, 7 hours a week and 4, 7 respectively [27].

Fifty two percent (52,11%) of the women in the present study participated in household tasks more than 7 hours per week. For these tasks, high energy is required and therefore, in women the total physical activity of elderly women was higher than that of men. Results were similar with that of Babatsikou., *et al.* study [14]. Prospective studies are necessary to demonstrate an independent health benefit of participating in domestic activities [29]. Furthermore, both sexes are involved in home repairs and gardening. This may be due to the fact that most participants had rural - type of inhabitation (house with garden etc). Although the evidence regarding the health benefits of moderate activity is robust, studies have largely examined the effects of brisk walking, leisure time exercise, or occupational activity rather than domestic activities [27,30]. Although being "house-proud" may give some psychological benefit from participation in housework this is unlikely to have the same magnitude of effect as other forms of activity [29].

Fifty percent of the participants (50%) were obese (BMI > 30). Obesity is a severe problem for the Greek population, concerns elderly people as well, and especially women [14]. There is interest in whether higher levels of physical activity (or fitness) can ameliorate the increased risk for premature mortality or cardiovascular disease associated with being overweight or obese [31]. The risks for cardiovascular diseases, type II diabetes [32,33] osteoarthritis, kidney diseases [33] are increased in the overweight people. The highest risks for disease are observed among subjects who are both inactive and overweight/obese [34]. Participation in regular exercise programs (plus proper diet) may help these people. Janssen (2007) in a study of 4968 older (> or = 65 years) men and women from the Cardiovascular Health Study, showed that the risks of myocardial infarction, stroke, sleep apnea, urinary incontinence, cancer, and osteoporosis are not different in the overweight group with BMI from 25 – 29.99 kg/m². These findings suggest that a BMI cut-off point of 25 kg/m² may be overly restrictive for the elderly [32].

Taking into account the sociodemographic characteristics of the Greek participants in this study 28,87% the elderly live alone. The elderly people who live alone are the most vulnerable group in natural disasters [14]. Loneliness among older age adults is an independent risk factor for physical inactivity and increases the likelihood that physical activity will be discontinued over time [35]. Loneliness is one of the major health issues that has been linked to depression and impaired Quality of Life among older adults [36,37]. Social support is associated with activity and better health in older adults [37].

Furthermore, a small percentage of the sample (16,19%) had higher education and only 4,22% had a master degree. Many researchers consider education to be a primary driving force for financial well-being as well as personal control beliefs and healthy lifestyles and high levels of PA [37-43]. Higher levels of education provide individuals with advantages that are likely to promote PA, including increased knowledge about its benefits, a stronger sense of personal control and self-efficacy for physical activity and greater access to resources that facilitate PA [43]. Different intervention strategies for groups of different socioeconomic status may be needed [30,43]. Evidence in the literature demonstrates that low economic class and low educational attainment are closely related to physical inactivity in leisure time [44].

Almost thirty - eight percent (38,73%) of the participants had 2 - 4 chronic pathologic conditions. Regarding the consumption of medications, the majority of the sample (66,6%) received more than 2 medication each day for the last year. There seems to be an inverse relationship between regular PA and the consumption of medications [44].

Despite the consensus opinion in the population regarding the benefits of physical activity to health inactivity levels remain high. Health professionals should promote projects which will offer Practice of PA and guidelines for healthy eating, preventive measures against the use of tobacco, alcohol and other drugs, [44].

Assessment of PA levels in different areas of Greece seems important. Participation in PA and exercise programs should be strongly recommended to elderly people [14]. It is never too late because beginning a new exercise regimen in old age leads to significant improvements in health [17,43] and cognition [45] activity. An understanding of the factors that influence physical activity behavior in older adults is critical to developing effective intervention strategies that will address the problem of physical inactivity in this population [39].

The primary limitation of this study was the number of the participants (n = 142). A total of 442 were analyzed by Babatsikou., *et al.* (14). The survey was conducted in west-central Greece but further investigations should now be undertaken in southern and northern Greece, in order to obtain a more complete overview of the problem from a national perspective. Finally, the instrument to measure PA was a questionnaire which is considered a subjective method [22]. Future studies should use pedometers, accelerometers and heart rate monitoring.

Conclusion

Results of the present study showed that the Greek sample of elderly community-dwellings in Achaia had limited PA and minimal regular exercise. The main type of PA in women is household tasks. It was interesting that only 4% of the sample participated in any form of regular exercise. These findings are important for healthcare practitioners to ensure the appropriateness and effectiveness of physical activity programs and intervention. PA and exercise maintain health and psychology of older people. Older people should be encouraged to increase their activities in order to maintain health status and quality of life.

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