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BODY COMPOSITION AND HEALTH BEHAVIORS AMONG OLDER WOMEN ATTENDING REGULAR FITNESS CLASSES: A PILOT STUDY

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A – study design, **B** – data collection, **C** – statistical analysis, **D** – interpretation of data, **E** – manuscript preparation, **F** – literature review, **G** – sourcing of funding

ABSTRACT

Background: The average lifespan is increasing worldwide, although the healthspan and quality of life is not. Many older adults either have a chronic disease, excessive body mass, or do not follow the healthy lifestyle recommendations as for nutrition and physical activity.

Aim of the study: This study aimed to assess the relationship between body composition among senior women and health behaviors in the five domains of nutrition, body care, rest, safety and physical activity.

Material and methods: The study group consisted of 36 women attending fitness classes. The Positive Health Behavior Questionnaire was used as the qualitative measurement and participant height, weight and body composition were measured. Body Mass Index (BMI), Waist-to-Hip Ratio (WHR), Basal Metabolic Rate (BMR) were calculated.

Results: Significant correlations ($p \leq 0.05$) were found between attending organized physical activities and higher muscle mass and higher BMR. Moreover, (a) sleeping at least six to seven hours at night correlated with a lower BMI and lower body fat mass; (b) spending at least 20–30 minutes a day resting correlated with lower visceral fat; (c) devoting at least 30 minutes daily to moderate or heavy physical exertion correlated with lower body fat mass, percent of body fat and visceral adiposity.

Conclusions: The study shows strong relationships between physical activity, dietary patterns, rest, length of sleep, BMI, adiposity and muscle mass of physically active senior women. The results suggest it is necessary to actively promote and support older women in implementing healthy behaviors consistently in their life.

KEYWORDS: body composition, health behaviours, physical activity, senior women, health indicators

Background

The older adult population in Poland has been steadily increasing in recent years. At the end of 2018, people aged 60 years and over accounted for nearly 25% of the total population of Poland (9.5 million), compared to 19.6% in 2010. According to the Polish Central Statistical Office (GUS) forecast, the number of people aged 60 years and more in 2030 will be 10.8 million, and in 2050 will be 13.7 million, comprising 40% of the population [1]. People aged 60 and over rarely indicate good or very good health. In 2018, 1.9% of senior citizens considered their health status as very good and 23.8% as good. Furthermore, 67.0% cited suffering from long-term health problems or chronic diseases [1]. Therefore, it is important to put more attention to healthy ageing, functional fitness and maintaining independence in older

adults. Although there are many areas that influence the health status of seniors, for example, access to medical care, economic status, and social support, in a long-term it is the everyday health behaviors that may have the highest impact. Health behaviors are defined as the reactive, habitual or purposeful activities contributing in a significant relationship with maintaining health or recovering [2]. One of the ways to educate, integrate and activate seniors in order to improve the quality of their life and increase their participation in social life are the Third Age Universities. In Poland, there were 640 Third Age Universities in 2018 operating in all provinces and attended by more than 113 000 seniors (1% of senior population) [1].

This study targets senior women who already attend fitness classes at the Third Age University in Opole, Poland. Many studies indicates that functional fitness is one of the most important factors influencing life satisfaction, a key element of healthy living and healthy ageing [3]. Also, that maintaining regular activities of moderate and high intensity is an important factor for preserving functional fitness.

Aim of the study

The study aims to investigate the relationship between health behaviors and body composition in women over 60 years who regularly attend fitness classes.

Material and methods

Study design

The cross-sectional study was performed using standardized questionnaire and Bioelectrical Impedance methods. The study was carried out in April 2019.

Study population

A total of 36 women attending physical activity classes for seniors at the University of the Third Age, University of Opole (former Opole Medical School) in Opole, Poland were included in the study. The inclusion criteria were: 1) aged over 60 years; 2) no presence of contraindications to Bioelectrical Impedance measures such as pacemaker and other electronic or metal implants; 3) no diagnosis of chronic systemic disease or metabolic disorders; 4) no swelling of the lower limbs due to venous or lymphatic insufficiency; 5) informed written consent.

Ethical considerations

The research was approved by the Bioethics Committee of the Opole Medical School in Opole, Poland (permission no. KB/1/2020) and the study conformed to the standards set by the Declaration of Helsinki. All participants were briefed and provided signed consent for the study's purpose and methods.

Variables

For the purposes of statistical analysis, quantitative and qualitative variables were distinguished. The quantitative variables included: age, body height, body weight, Body Mass Index (BMI), Waist-to-Hip Ratio (WHR), Basal Metabolic Rate (BMR), skeletal muscle mass (SMM), fat mass (FM), body fat (BF) and visceral fat (VF). The qualitative variables included: relative body weight within the normal range, and overweight and obesity measures.

Data sources/measurement

Positive Health Behaviors Scale

Participants filled out the Positive Health Behaviors Scale for adults questionnaire [4] which consists of 33 statements grouped into five areas: 1) nutrition, 2) body care, 3) rest and behavior related to psychosocial health, 4) safety (e.g. avoiding risky behaviors), 5) physical activity. The tool was developed by Woynarowska-Sołdan and Węziak-Białowolska [4] on the basis of the current scale for youth [5] and women [6]. For each statement, the respondent was to determine how often the behavior was undertaken based on a four-point scale: always or almost always (3 points), often (2 points), sometimes (1 point), never or almost never (0 points) [4]. The reliability of the full Positive Health Behavior Scale and its subscales measured with the Cronbach's α coefficient ranged from 0.603 to 0.825 [4].

In addition to the scale, further factors were recorded by a group of statements about failing to undertake behaviors that are hazardous to health such as the occasional consumption of alcohol, limiting the consumption of large amounts of alcohol, avoiding being around smokers, not smoking, risky drug behaviors. These statements were formulated in such a way as to define the desired and pro-health behaviors.

Bioelectrical Impedance

The anthropometrical data of weight and body composition were collected using Bioelectrical Impedance analysis (BIA). Weight was taken with the Look'In Body 120 scale and height was measured with anthropometer with an accuracy of 0.1 cm. BMI,

WHR, BMR, SMM, FM, BF and VF were calculated with Look'In Body 120 software.

Statistical Analysis

Descriptive statistics were calculated including the mean (M), median (Me), standard deviation (SD), minimum (min) and maximum (max) values. We determined the prevalence of overweight and obesity, as well as the prevalence of visceral fat content in percentages across various age groups. The relationships between health behaviors and body composition were measured using Spearman's rank correlation. Statistica version 13.1 (TIBCO Inc., Tulsa, USA) was used for analyses. A critical level of $p \leq 0.05$ was used throughout the study.

RESULTS

Participants

The mean age of the participants was 69.07±5.01 years. All women were physically active and participated in the Sportive classes for seniors offered by Opole Medical School twice a week for 3 months. The average height of the participants was 159.44±6.12 cm. The average weight was 69.87±11.46 kg and average BMI was 27.55±4.78 kg/m^2. The average body composition metrics of the participants were: SSM 24.44±2.96 kg, FM 25.17±8.74 kg, BF 35.14±7.48%, VF 12.03±4.81, WHR 0.94±0.06, and BMR 1335±106.45 kcal. The mean values of age and body composition were shown in Table 1.

Table 1. Descriptive statistics of age, height and body composition of participants.

Variables	M	SD	Me	Min	Max	Q1	Q3	CV
Age [years]	69.07	5.01	68.50	60.67	81.28	65.74	73.00	7.26
Height [cm]	159.44	6.12	159.50	148.00	175.00	155.00	163.00	3.84
Weight [kg]	69.87	11.46	69.55	52.80	99.00	61.70	77.75	16.40
BMI [kg/m^2]	27.55	4.78	26.80	19.20	38.71	24.15	31.00	17.34
SMM [kg]	24.44	2.96	24.45	18.60	31.70	22.70	26.35	12.13
FM [kg]	25.17	8.74	24.05	8.30	43.40	18.30	31.40	34.74
BF [%]	35.14	7.48	35.10	15.40	50.60	30.35	41.00	21.29
VF	12.03	4.81	11.50	4.00	20.00	8.00	16.00	40.02
WHR	0.94	0.06	0.94	0.83	1.05	0.90	0.98	5.95
BMR [kcal]	**1335**	**106.45**	**1342**	**1127**	**1607**	**1272**	**1402**	**7.97**

M: mean, SD – standard deviation, Me: median, Min: minimum, Max: maximum, Q1: 1st quartile, Q3: 3rd quartile, CV – coefficient of variation.

BMI: Body Mass Index, SMM: skeletal muscle mass, FM: fat mass, BF:% of body fat, VF: visceral fat, WHR: Waist-to-Hip Ratio, BMR: Basal Metabolic Rate.

BMI

The Body Mass Index (BMI) is one of the most popular tools for assessing the proper nutritional status [7]. In the studied group only 33% (n=12) women had their BMI within the normal range of 18.5–24.9 (WHO guidelines), 39% (n=14) women were overweight and 28% (n=10) were classified obese. When the group was divided into two age categories being younger seniors aged 60 to 69 years and older seniors aged above 70 years, more than half of the younger seniors were classified as overweight (55%, n=12), while 57% (n=8) of the older seniors had a BMI within the healthy range. The BMI results are shown in Table 2.

Table 2. BMI range by age category groups

BMI range [kg/m^2]	Age 60–69		Age >70		Total	
	n	%	n	%	n	%
Normal (18.5–24.9)	4	18	8	57	12	33
Overweight (25–29.9)	12	55	2	14	14	39
Obesity (>30)	6	27	4	29	10	28
Total (n)	22		**14**		**36**	

Visceral fat

Body composition analysis showed that 44% (n=16) of participants had visceral fat tissue within the normal range. While 56% (n=20) were above the normal range and therefore classified as having visceral obesity. When divided into the two above

Table 3. Visceral fat tissue by age category groups

Visceral fat	Age 60–69		Age >70		Total	
	n	%	n	%	n	%
Normal (1–8.9)	7	32	9	64	16	44
Over (>9)	15	68	5	36	20	56
Total (n)	22		**14**		**36**	

Table 4. Correlations between health behaviors and body composition of senior women.

Variables	Age [years]	Body mass [kg]	BMI [kg/m²]	SSM [kg]	FM [kg]	BF [%]	BMR [kcal]	VF
Eating at least three meals a day at similar times of the day	**0.579***	0.051	0.024	0.174	−0.045	−0.129	0.168	−0.045
Drinking at least two glasses of milk, kefir or yogurt every day	−0.111	0.339	0.446	−0.189	**0.559***	**0.628***	−0.184	**0.576***
Going to the dentist and have checkups every six months	0.064	−0.345	**−0.468***	0.212	**−0.582***	**−0.634***	0.209	**−0.598***
Sleeping at least six to seven hours at night	−0.020	−0.428	**−0.511***	−0.095	**−0.493***	−0.422	−0.085	**−0.490***
Devoting at least 20–30 minutes a day to relax	−0.118	−0.301	−0.441	0.105	−0.458	−0.460	0.109	**−0.481***
Devoting at least 30 minutes every day to classes related to moderate or heavy physical activity	0.104	−0.246	−0.414	0.329	**−0.539***	**−0.649***	0.336	**−0.557***
Attending organized physical activities or training at least once a week	0.136	**0.470***	0.290	**0.591***	0.216	−0.009	**0.583***	0.179

* Spearman's rank correlation, p≤0,05.

BMI: Body Mass Index, SMM: skeletal muscle mass, FM: fat mass, BF:% of body fat, BMR: Basal Metabolic Rate, VF: visceral fat.

mentioned age groups, 32% (n=7) of younger seniors and 64% (n=9) of older seniors showed a normal range of visceral fat. The visceral fat results are shown in Table 3.

Results: correlations

Significant correlations were found between the health behaviors from the questionnaire and anthropometric data Firstly, in the area of nutrition behaviors, 69% of respondents indicated eating "always" or "almost always" at least three meals per day at regular hours (question 1). This was positively correlated with age indicating that the older respondents had more regular eating patterns (0.58). To our surprise, we found a positive correlation between a higher consumption of milk or dairy products (question 5) and higher mass of total body fat (0.56), percentage of fat (0.63) and visceral fat (0.58).

Secondly, in the section of body care we found correlations only between going to the dentist for check-ups every 6 months (question 12), which was indicated by 31% of respondents as "often" and 42% as "always or almost always", with lower a BMI score (–0.47), lower mass of body fat (–0.58), lower percentage of fat (–0.63) and lower visceral fat tissue (-0.60). Thirdly, in the area of rest and behavior related to psychosocial health, a total of 72% of respondents indicated sleeping at least six to seven hours every night (17% "often", 55% "always or almost always") (question 18), which correlated with a lower BMI score (–0.51) and lower mass of fat (–0.49). Furthermore, devoting at least 20–30 minutes daily to relaxation activities was indicated by 36% as "often" and 33% as "always or almost always", which was correlated with lower visceral fat (–0.48). Finally, in the area of physical activity, 83% of respondents indicated the answer "always or almost always" for participation in organized physical activities at least once a week (question 31). This activity correlated with a higher muscle mass (0.59), a higher body weight (0.47) and BMR (0.58) (Table 4). A total of 88% of the survey women indicated devoting at least 30 minutes daily to moderate or heavy physical exertion (question 30) like power walking or working in garden (55% "often", 33% "always or almost always") which was correlated with a lower fat mass (–0.54), percentage of fat mass (–0.65) and lower visceral fat (–0.56).

Discussion

Key results

In assessing and predicting health, the measurement of body composition especially muscle mass and visceral fat is more important than calculating BMI only. Regularly getting six to seven hours sleep each night correlated with lower body fat and a lower BMI score. Daily relaxation correlated with lower visceral fat. Regular dental check-ups correlated with a lower BMI, lower body fat mass, lower percentage of fat and lower visceral fat tissue. Attending physical activity classes correlated with higher muscle mass. Undertaking at least 30 minutes of daily moderate or heavy physical exertion was correlated with a lower body mass, lower percentage of total body fat and lower visceral adiposity. Physical activity on a daily basis either alone or in organized classes specifically

for senior women appears very important in promoting functional fitness.

Interpretation

Although calculating an individual's BMI is a popular assessment tool there are many limitations of this index for example, difficulty in measuring height of seniors who cannot straighten up, or as excessive body mass by the definition is bound to excessive fat tissue people with a higher muscle mass might be classified as overweight. In the studied group only 33% of the women had their BMI within the normal range of 18.5–24.9 kg/m^2 as defined by the World Health Organization (WHO) guidelines [7], 39% of the women were overweight and 28% classed as obese. No classifications of being underweight were observed. Other surveys among people aged over 60 years old also confirm this trend. Also, it has previous been found that almost 80% of seniors carried excessive body mass and it is generally more difficult for seniors to lose weight [8]. The risk of gaining weight increases with age [9], this mainly concerns the increase in fat mass and decrease of fat-free mass such as skeletal muscle [10]. In women this is additionally correlated with menopause and hormonal imbalance [11]. Excessive body mass is particularly dangerous in older age as it is associated with multiple conditions including hypertension, hyperlipidemia, diabetes, sleep apnea, osteoarthritis, cancer, cognitive dysfunction and increased risk of all-cause and cardiovascular mortality [12,13].

When the studied group was divided into two age categories being younger senior women (age 60–69) and older senior women (age above 70), more than half of younger women was classified with having obesity, while 57% older women showed BMI within healthy range. In the PolSenior project the percentage of obese individuals and the median BMI decreased with age across the entire cohort [14]. Studies show that people living over 100 years mostly have their weight in normal range or are even underweight (62% of Japanese centenarians are underweight), while hardly any cases of obesity were noted [15]. This results, might indicate that people with lower BMI have longer life expectancy. In contrast, some studies show a so called "obesity paradox" where having BMI above healthy range was correlated with a longer life expectancy [16,17,18,19]. However, in these studies the obesity was assessed only with BMI factor and not with detailed body composition. The visceral fat and loss of fat-free mass (muscle mass) might be more important in determining the health risk associated with obesity in older ages [20]. In our study, body composition analysis showed that 44% of participants had visceral fat tissue within the normal range (1–9), while 56% were above the range and therefore classified with visceral obesity. When the cohort was divided into the two age groups, the normal range of visceral fat was shown in only 32% of the younger seniors, and 64% of older senior women. This result may indicate, that most younger women despite having higher BMI also have higher amounts of visceral fat which may put them in the risk of metabolic diseases.

Next, we analyzed the correlations of the anthropometric data with answers from the Positive Health Behaviors Scale. In the Nutrition section (1) respondents were asked to answer questions about frequency of their meals per day inclusive of eating habits such as consistent breakfast times, fruits, vegetables, fermented milk products, restricting sweets, animal fats and snacking between meals. Most of the respondents provided answers that are in line with the general guidelines on healthy eating [21,22]. In our study, a statistical significance was found between age and regularity of eating at least three meals per day. For older women, the daily routine might become more rigid due to less duties, work retirement and greater freedom to adjusting it to one's own needs and preferences. Regular eating of at least three meals per day has been associated with better weight management, healthier lifestyle in general and lower risk of cardiometabolic diseases [23]. To our surprise we found a positive correlation between higher consumptions of fermented milk products (yogurt, kefir) and higher mass of total fat tissue, percent of body fat and levels of visceral fat. It is generally recommended to consume at least two glasses of fermented milk products per day, as a source of easy to digest wholesome proteins, lactic fermentation bacteria (probiotics) and their metabolites (lactic acid, short chain fatty acids, biocides, etc.) that stimulate the immune system, strengthen the intestinal barrier and nourish enterocytes. Consumption of fermented foods was associated with a reduced risk of metabolic syndrome, cardiovascular diseases, type 2 diabetes, hypertension as well as improved weight management [24,25]. We can speculate about the quality of milk products consumed by participants in our study (e.g. yogurt with added sugar, fruits or whole milk powder), where the probiotic bacteria are no longer alive and the added sugar exceeds daily limits which may lead to weight gain. Moreover, some studies indicate that milk products may increase the fasting plasma glucose and insulin concentration, and therefore promote insulin resistance, overweight and visceral obesity [26,27]. However, these results were observed with all dairy products like cheese, milk, products enriched with milk powder or whey proteins concentrate, but not with fermented milk products. There is a possibility that respondents in our study misunderstood the question and indicated the frequency not only of fermented milk but of all dairy product types..

In the body care section (2), respondents estimated the frequency of taking regular care of their teeth, measuring blood pressure, performing breast self-examination, going to medical check-ups, dressing according to the weather (avoiding overheating or hypothermia), and avoiding excessive exposure to sunlight. In this section a significant correlation was found only between going to the dentist and for check-ups every 6 months, which was indicated by 73% of respondents together as "often" and "always or almost always", with a lower BMI, lower mass of body fat, lower percentage of fat and lower visceral fat tissue. Taking regular care of one's teeth may be an indicator of greater health awareness in general that can cover other healthy behaviors such as better nutrition and higher physical activity. Moreover, in Poland most of the dental offices are available in private sector, therefore respondents who can afford regular visits may also have a higher economic status which ensures a higher standard of living and access to quality services [28,29].

The third section of the questionnaire concerned the behavior related to psychosocial health including, regularity of falling asleep, sleeping at least six to seven hours a night, spending at least 20–30 minutes a day relaxing (e.g. relaxation exercises, engaging with ones hobby), good coping strategies for stress, positive thinking about oneself and the world, asking other people for help in difficult situations, spending time with friends at least once a month. In total, 72% of respondents indicated sleeping at least six to seven hours every night (17% "often", 55% "always or almost always"), which correlated with a lower BMI and lower mass of body fat. Devoting at least 20–30 minutes daily to relaxation was indicated by a total of 79% of respondents ("often" and "always") and correlated with lower level of visceral fat. Several studies show that regular and adequate amounts of sleep affects the circadian rhythm, the levels of many hormones, e.g. those related to energy management (expenditure or storage), calories intake (satiety or hunger), cognitive functions, regeneration and general well-being [30,31,32]. Additionally, daily relaxation may help release the tension, maintain peace and tranquility which affects the life-satisfaction and also keeps the stress hormones, especially cortisol, in homeostasis. Disturbed plasma cortisol concentrations (too low in the mornings and too high in the evenings) and chronic hypercortisolemia is correlated with hyperglycemia, hyperlipidemia, higher risk of insulin resistance, metabolic syndrome and visceral obesity [33].

In the section of safety behaviors the questions referred to daily activities such as fastening seat belts, using a helmet while cycling, obedience to traffic rules, safety rules while spending time by the water and while using electrical appliances, chemicals and machines. In this section we found no statistically significant correlations between behaviors patterns, body mass and body composition.

The fifth section referred to physical activity. Respondents answered how much time they spend watching TV, if they are devoting at least 30 minutes every day to activities related to moderate or intense physical activity (e.g. jogging, power walking, playing sports, gardening or farm work), attending organized physical activities or training at least once a week and if they try to increase the amount of exercise and physical effort in everyday life (e.g. walking on foot instead of going by car, bus or tram, climbing the stairs instead of using the elevator). We found statistically significant correlations in two aspects, firstly, regular participation in organized physical activities or training at least once a week indicated by 83% of respondents was correlated with having higher muscle mass and a higher body weight. Secondly, devoting at least 30 minutes daily to moderate or heavy physical exertion, indicated by 88% of the respondents, was correlated with a lower body mass, lower percentage of total body fat and lower visceral adiposity. For the women in our study who participated in the fitness classes, 33% of women had BMI in normal range, 39% were classed as overweight and 28% were classed as obese. It is worth noting that physical activity classes are attended by people who are already fit and lean (as a mean of prophylaxis) as well as by people with excessive body mass who need to lose weight. Similar results were shown in previous research [34].

Generally, with age the total body mass and fat tissue increases, while the fat-free or muscle mass decreases (sarcopenia) and the muscles becomes weaker (dynapenia). This may lead to the gradual abandonment of physical activity in general, higher fall and fracture risk, frailty syndrome and eventually loss of functional fitness. These factors may lead to immobility and dependence on others in satisfying basic life needs [3,35,36]. Therefore, it is crucial for seniors to put more attention to daily physical activity. Research conducted among the older community shows that even a small effort, like a regular walk, can be beneficial for the cardiovascular system, reducing the risk of cardiac mortality [37]. Fitness classes dedicated to seniors and led by professional coaches may be highly beneficial as well. Most senior women suffer from osteopenia and osteoporosis, therefore the exercises should focus on strengthening deep muscles, stretching and coordination to relieve bones and joints, thus reducing the risk of falls and bone fractures. Due to the weak muscles of the pelvic floor in most women the training should exclude jumps and other strenuous exercises. The trainer should also pay attention to the correct technique of the exercises, their pace and number of repetitions, which are adjusted to the age and abilities of the individual. Strengthening the

muscles does require more intense exercises though than just walking. Especially progressive resistance exercise training [38,39] high intensity training [40] or power training [41] have high impact on optimizing body composition, increasing muscle strength and mass, and functional capacity in older adults. Therefore, having benefits such as slowing down and even reversing the structural and functional losses in the skeletal system, reducing falls and fracture risk [42]. The advantages and importance of maintaining physical fitness by seniors is evident however studies by Dziedzic [43] show that in Poland only 31% of respondents claimed to perform physical activity at least three times per week and only 34% are active for 30 minutes or longer at each time. According to social surveys [1], only 25% of seniors participated in regular fitness classes and physical recreation. According to the results of the PolSenior project, 49.2% of people aged over 65 do not engage in any physical activity and this number increases with age [44]. In the opinion of seniors, the common reasons for not participating in sports activities or recreation were age, poor health status and contraindications suggested by their doctor [1].

Strengths and Limitations

In light of the current demographic shift towards an increasing number of older adults worldwide, there is a need for improved health monitoring. Measuring body composition can be an important tool in assessing visceral fat levels and the risk of obesity and muscle mass, which may indicate sarcopenia levels.

The limitations of the current study include a recruitment procedure that may influence the results due to the homogeneity of the selected population (only women attending fitness classes three times a week), such a small sample may not be representative of the elderly female population. Future studies with a control group of participant not attending fitness classes should be considered. Finally, this cross-sectional study did not track changes in body composition and health behavior.

Practical implications

Only including a body weight or BMI assessment appears insufficient as they do not provide any information about body composition, such as the amount of body fat, visceral fat, or muscle mass. However, it is the unfavorable body composition, and not the body weight itself, that is associated with a higher risk of metabolic disorders such as metabolic syndrome, insulin resistance, type 2 diabetes, visceral obesity, hypertension, ischemic heart disease, sarcopenia and sarcopenic obesity. Regular monitoring of body composition can be an easy-to-use tool for the early detection of unhealthy changes and assessing the effectiveness of physical therapies.

Conclusions

The area of the body composition and health behaviors of senior woman requires further research considering a more in-depth analysis inclusive of critical factors such as marital status, living with someone / alone, education, place of residence. Physical activity on daily basis either alone or in organized classes that are dedicated to seniors appears important for maintaining functional fitness and mobility.

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