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Abstract

As societies grow older, the problem of maintaining the quality of life of older adults is particularly topical. The focus of this study is on the importance of selected factors in the assessment of quality of life of older women. The WHOQoL-Bref questionnaire, geriatric depression scale and the FFFT test were used. The study involved 114 women aged over 60 years with different levels of life activity. The data were analysed using the Pearson correlation coefficient, whereas the predictors of changes in life quality were established using the stepwise regression analysis. The results suggest that increased life activity of older adults has a positive effect on quality of life, self-rated health status and life satisfaction. The risk of depressive disorders is lower in active people. It is worth continuing the research, taking into account the analysis of the environmental domain as a factor affecting the quality of life of people over 60 years of age.

Keywords: aged, quality of life, predictors, functional fitness, depression

Predictores de la Calidad de Vida en Mujeres Mayores con Actividad Vital Diversa

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Abstract

Cuando las sociedades envejecen, el problema de mantener la calidad de vida de los mayores es relevante. Este estudio se centra en la importancia de determinados factores en la evaluación de la calidad de vida de las mujeres mayores. Se utilizó el cuestionario WHOQoL-Bref, la escala de depresión geriátrica y el test FFFT. Participaron 114 mujeres de 60 años con diferentes niveles de actividad. Los datos se analizaron con el coeficiente de correlación de Pearson, y los predictores de cambios en la calidad de vida se establecieron mediante el análisis de regresión por pasos. Los resultados sugieren que el aumento de la actividad vital de los mayores tiene un efecto positivo sobre la calidad de vida, el estado de salud autocalificado y la satisfacción vital. El riesgo de trastornos depresivos es menor en personas activas. Merece la pena seguir investigando, teniendo en cuenta el análisis del ámbito ambiental como factor que afecta a la calidad de vida de las personas mayores de 60 años.

Palabras clave: participación de los pacientes, política sanitaria, planificación de la atención a los pacientes, fragilidad de los ancianos

Changes in the demographic structure of societies have been observed all over the world, with the percentage of people aged 65 and older growing significantly. These changes are inevitable and currently affect both European countries and people from other continents. The WHO estimates that by 2050, there will be almost 158 million people aged 65 years and older in the world and that the proportion of older adults in Europe will have increased to 30% (WHO, 2015; Ingrand, et al., 2018). Characteristics of population ageing can be observed in most countries, including feminization in the group of adults over 65 years of age, singularization (more women living in single-person households), double ageing (increase in the percentage of the population over 80 years of age), internal differences in retirement age (WHO, 2015; Jurek & Dobrowolska, 2017; Leś, et al., 2019a). As societies grow older, the problem of maintaining the quality of life of older adults is particularly topical.

Quality of life is a broad concept that can be considered not only in terms of economic conditions. It is a multidimensional concept, consisting of 9 aspects (Eurostat, 2015) - natural and living environment, material living conditions, governance and basic rights, productive or the activity, economic and physical safety, health, social relations & leisure, education. The last element is the overall experience of life, i.e. satisfaction with life so far, a sense of meaning in life, a sense of fulfilment. Adopting them as an indicator of subjective quality of life, economic aspects or the level of economic and social development can be treated as a complementary element. With regard to older adults, health-related quality of life (HRQL) is critical, i.e. quality of life closely related to health in physical, mental and social terms (Avis, et al., 2018; Kossakowski et al., 2016; Karimi & Brazier, 2016). Health, family/social relations, financial situation, autonomy in everyday life, attitude to life and health are important determinants of the quality of life of older people (Fernandez-Mayoralas, Rojo, 2005, Prieto-Flores, et al., 2010). Furthermore, maintaining fitness and independence by older adults is of health, social and economic importance (Machón, et al., 2017; Janjusevic, et al., 2019).

Research to date allowed for the identification of the factors that affect the quality of life of older adults. Solitude and stress have a negative impact on physical and mental well-being (Scocco & Nassuato, 2017; Szabo, et al., 2017; Beller & Wagner, 2017). Depressive disorders, decreased interest in the environment, problems with sleeping and eating are important for the perception of quality of life. These factors lead to decreased self-assessment

of quality of life (Scocco & Nassuato, 2017; Becker et al., 2017; Becker et al., 2016; Moryś, et al., 2016; Zhi et al., 2016; Potvin et al., 2014).

Good social relations with people (friendship, being in a partnership, sense of trust, positive relations with loved ones, indirect contacts via the Internet) have a positive impact on self-rated quality of life of older adults (Liao & Brunner, 2016; Bahramnezhad et al., 2017; Khalaila & Vitman-Schorr, 2018). Similar relationships were found with regard to physical activity. Physical activity that meets the needs of older adults can have a positive effect on quality of life. Everyday physical activity helps improve quality of life (Rayward et al., 2017; Puciato, et al., 2017; Gothe et al., 2019; Leś, et al., 2019b). Available research highlights the importance of physical activity in older women's self-reported quality of life. There is a growing body of research showing differences in quality of life scores according to physical activity levels.

Previous research has identified various quality of life factors related to the perceived quality of life of older adults. Among the factors that reduce quality of life is depression, whereas those that improve are autonomy in everyday life, physical fitness and social activity. However, data on the relative importance of these factors are still lacking. Therefore, it seems interesting to attempt to find an answer to the question of whether the importance of these factors varies depending on the level of life activity of seniors. There is little research in this area in Poland, but it may have important implications for the programming of physical activity in older adults. In this study we focused on women, because the current demographic situation and forecasts show that there will be a significant increase in the number of women over 60 in Polish society. To this end, we have examined which factors may be predictors of quality of life in women with different levels of activity. We searched for them among the following factors: the level of depression, independence in terms of daily and self-service activities and functional efficiency, taking into account the age of the respondents.

Methods

Research design

The research design of the study was cross sectional study. The purpose of the study was to find the differences in quality of life assessment between

active and inactive people over 60 years of age. Cross-sectional studies were carried out at one time point.

This method allowed the necessary data on health, quality of life and activity to be collected in the short term.

Participants

The study involved 114 people, including 58 inactive women aged 72.60 ± 7.47 years and 56 active women aged 73.3 ± 6.21 . The criterion for assigning the respondents to the groups was the declaration of undertaking additional activities in leisure time. A group of active women took part in regular physical activity (classes within the University of the Third Age program), health gymnastics, Nordic walking, water aerobics), activities developing interests, and cultural events. Inactive women declared to be active only in the area of the activities of daily living (shopping, meal preparation, hygiene activities) or locomotion (moving within the apartment or in the immediate vicinity). Table 1 shows the characteristics of the study group. The experiment lasted from May 2018 to June 2019. The study was positively assessed and approved by the Bioethics Committee.

Table 1
Characteristics of the group ($M \pm SD$).

| | Inactive (n=58) | Active (n=56) |
|------------------|-----------------|---------------|
| Age (years) | 73,30±9,83 | 73,3±6,21 |
| Eduaction | | |
| higher | 23% | |
| secondary | 53% | 57% |
| primary | 22% | 20% |
| Body mass (kg) | 69,35±11,24 | 67,94±10,87 |
| Body height (cm) | 157,51±6,45 | 158,93±6,49 |
| BMI | 28,25±5,22 | 26,93±4,26 |
| WHR | 0,859±0,11 | 0,882±0,05 |
| HR | 67,32±12,44 | 74,29±10,07 |

Instruments

Results obtained with the use the WHOQOL-Bref questionnaire and responses to questions regarding the overall perception of quality of life and health and scores from the depression scale (negative indicators of quality of life) were considered to be the indicators of quality of life.

WHOQOL-Bref (World Health Organization, 1996) is a research tool used to assess quality of life in healthy and ill individuals, both for cognitive and medicinal purposes. It allows researchers to obtain a life quality profile in the following four domains: physical health, psychological health, social relationships and the environment. The scale also includes items (questions) that are analysed separately: question 1 (Q1) regarding an individual perception of overall quality of life, and question 2 (Q2) concerning an individual perception of general health. The scores in the above-mentioned domains reflect an individual perception of life quality in these areas. The higher the score, the higher the quality of life is. Furthermore, the WHOQol-bref was analysed without division into 4 main domains, focusing on each element separately. This analysis provides more information and allows for identification of specific areas for support / improvement (von Steinbuchel, et al., 2006).

The Geriatric Depression Scale developed by Yesavage (a 15-item version) was employed to assess severity of depressive symptoms. The scale consists of 15 items describing basic symptoms of depression. The questions, which refer to the occurrence of symptoms in the last two weeks, are answered ‘yes’ or ‘no’. Scores within a range of 11-15 indicate severe depression, while scores of 6-10 are indicative of moderate depression (Yesavage, et al., 1983).

Moreover, the authors’ own questionnaire was used. It provided data on the participants’ age, education, marital status, financial situation, chronic diseases and medications taken. Blood pressure and heart rate at rest were used as health state indicators.

In order to determine physical fitness levels, Fullerton’s Functional Fitness Test (Jones & Rikli, 2006) was carried out. The test is comprised of 6 individual test items:

1. Arm Curl – measurement of upper body muscle endurance.
2. 30-second Chair Stand – measurement of lower body strength.
3. Back Scratch Test – measurement of upper-body flexibility.

4. Chair Sit and Reach Test – measurement of lower-body flexibility (specifically hamstring flexibility).
5. 8-Foot Up and Go – measurement of agility (dynamic balance) and aerobic endurance.
6. 6-Minute Walk Test – measurement of (aerobic) endurance.

Five fitness tests (tests 1-5) were selected for analysis. The 6-Minute Walk

Test was excluded from the analysis as it was impossible to carry out the examinations for the entire group.

Informed consent for patient information to be published was provided by the patients and the consent was written.

Data on age, marital status and education were obtained by means of a questionnaire developed specifically for the study. Furthermore, the respondents were asked to determine how old they felt at the time of the study (to assess the so-called subjective age). Body height and body mass (these data were used to compute BMI), and waist and hip circumference were measured.

Data analysis

Statistica version 13 software (StatSoft, USA) was used for statistical analysis. The normality of distribution was analysed using the Shapiro-Wilk test. In some cases, the results were subjected to a natural logarithmising procedure to obtain normal distribution. Each parameter was described using descriptive statistics (means and standard deviations). Correlations between variables were defined with the use of the Pearson correlation coefficient, whereas predictors of changes in quality of life were established using the stepwise regression analysis. The analysis of variance (ANOVA) was performed for groups of inactive and active. Statistical significance was set at the level of $p \leq 0.05$.

Results

The elements chosen for the assessment of quality of life were: satisfaction with quality of life, satisfaction with health and overall quality of life in the four domains (WHOQoL bref): physical health, psychological health, social relationship and environment. Furthermore, one-way analysis of variance

was performed, which allowed for the indication of the areas in which the examined groups differed significantly from each other.

Table 2

Differences in self-rated quality of life of respondents.

| | | ANOVA | | | | |
|--|-----------------|-------|-------|-------|--------------|--------|
| | | n | M | SD | F (1,112) | p |
| QOL – physical health | inactive | 58 | 23.55 | 2.728 | 2,96 | 0,088 |
| | active | 56 | 22.55 | 3.437 | | |
| | overall | 114 | 23.06 | 3.124 | | |
| | among groups | | | | | |
| QOL – psycholog ical health | inactive | 58 | 20.17 | 2.754 | 1,869 | 0,174 |
| | active | 56 | 20.91 | 3.011 | | |
| | overall | 114 | 20.54 | 2.894 | | |
| | among groups | | | | | |
| QOL – social relationsh ips | inactive | 58 | 10.60 | 2.449 | 2,521 | 0,115 |
| | active | 56 | 11.27 | 1.986 | | |
| | overall | 114 | 10.93 | 2.249 | | |
| | among groups | | | | | |
| QOL – environm ent | inactive | 58 | 28.41 | 4.168 | 10,164 | 0,002* |
| | active | 56 | 30.98 | 4.433 | | |
| | overall | 114 | 29.68 | 4.471 | | |
| | among groups | | | | | |
| Satisfacti on with life quality | inactive | 58 | 3.74 | .637 | 0,655 | 0,420 |
| | active | 56 | 3.84 | .654 | | |
| | overall | 114 | 3.79 | .645 | | |
| | among groups | | | | | |
| Satisfacti on with health | inactive | 58 | 3.14 | .981 | 8,227 | 0,005* |
| | active | 56 | 3.63 | .822 | | |
| | overall | 114 | 3.38 | .935 | | |
| | among groups | | | | | |

Life activity of the respondents (e.g. involvement in physical activity, participation in lectures, workshops, hobby classes, etc.) has a significant effect on the self-rated quality of life in the environmental domain and on health satisfaction ($p < 0.05$). Better self-esteem in the area of physical health was observed in the group of inactive women. This may be due to the fact that active women are more aware of their body and its abilities and they are more critical of their physical abilities. Being more active in life, they perform more difficult and more complex movement tasks compared to inactive women.

A detailed analysis of individual questions concerning quality of life indicated the greatest differences between the women surveyed. The diagram below shows the mean answers to each question. Differences can be seen in the answers to questions about pain (Q3), necessary medical support needed for everyday life (Q4), available financial resources (Q12), access to information (Q13) and satisfaction with sexual life (Q21).

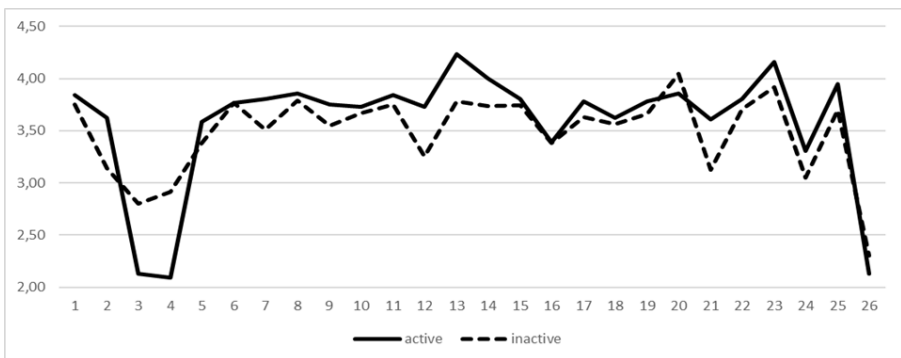


Figure 1. Mean scores in individual questions

Stepwise regression analysis was conducted to determine more closely the nature of the relationship between individual quality of life domains (dependent variables) and factors such as level of depressive disorder, chronological age and selected aspects of functional efficiency. The analysis was divided into active and inactive groups. The somatic, psychological, social and environmental domains were adopted to be dependent variables.

Table 3

Changes in QOL physical health (stepwise regression analysis).

| | step | factor | Beta | R ² ; F; p |
|-----------------|------|------------------------------------|--------|---------------------------|
| inactive | 1 | Depression | -0,609 | 0,359; 31,305; p<0,001 |
| | 1 | Depression | -0,611 | 0,415; 20,180; |
| | 2 | Chronological age | 0,256 | p<0,001 |
| | 1 | Depression | -0,536 | 0,486; 18,013; |
| | 2 | Chronological age | 0,362 | p<0,001 |
| | 3 | Back Scratch Test | 0,307 | |
| active | 1 | Depression | -0,384 | 0,131; 9,321; p=0,004 |
| | 1 | Depression | -0,401 | 0,180; 7,026; |
| | 2 | Chair Sit&Reach Test – left leg | 0,250 | p=0,002 |
| | 1 | Depression | -0,463 | 0,233; 6,576; |
| | 2 | Chair Sit&Reach Test | 0,825 | p=0,001 |
| | 3 | – left leg | -0,628 | |
| | | Chair Sit&Reach Test | | |
| | | – right leg | | |

The self-assessment of quality of life in physical health in the inactive group can be predicted in almost 36% based on the risk of depressive disorders. This factor is a negative predictor: a higher level of quality of life in this area can be expected in people who have a lower risk of depression. The positive predictors include chronological age and upper-body flexibility (41% and 49%, respectively, determine physical health). In the group of active women, depressive disorders are also a negative predictor. Furthermore, only 13% of them can predict the assessment of quality of life in this area. Another predictor is lower body flexibility; positive (left leg) and negative (right leg). The assessment of quality of life in this area can be predicted in 18% and 23%, respectively.

The analysis of factors influencing the psychological aspect of quality of life took into account the risk of depressive disorders in the study group.

Table 4
Changes in QOL: psychological health (stepwise regression analysis).

| | step | factor | Beta | R2; F; p |
|----------|------|------------|--------|------------------------|
| inactive | 1 | Depression | -0,526 | 0,263; 20,280; p<0,001 |
| active | 1 | Depression | -0,462 | 0,199; 14,686; p<0,001 |

In both groups, depressive factors are negative predictors of psychological health. In 26% of inactive women, and in almost 20% of those active, self-assessment of psychological health is determined by the occurrence of depressive disorders.

Table 5
Changes in QOL: social relationships (stepwise regression analysis).

| | step | factor | Beta | R2; F; p |
|----------|------|------------|--------|---------------------|
| inactive | 1 | Depression | -0,301 | 0,073; 5,270; 0,026 |
| | 1 | Depression | -0,324 | |
| | 2 | Arm Curl | 0,277 | 0,135; 5,208; 0,009 |
| active | 1 | Arm Curl | 0,265 | 0,077; 5,572; 0,022 |
| | 1 | Arm Curl | 0,258 | |
| | 2 | BMI | -0,179 | 0,133; 5,226; 0,008 |

Self-assessment of quality of life in the context of social relationships in the group of inactive women can only be predicted in 7% based on the occurrence of depressive disorders (negative predictor) and in almost 14% based on upper body muscle endurance. In active people, better self-assessed social relationships can be predicted in 7% based on the increase in upper body muscle endurance and in 7% based on BMI (negative predictor).

Table 6

Changes in QOL: environment (stepwise regression analysis)

| | step | factor | Beta | R2; F; p |
|----------|------|-----------------------|--------|---------------------------|
| inactive | 1 | Depression | -0,473 | 0,209; 15,253; p<0,001 |
| | 1 | Depression | -0,494 | 0,259; 10,452; |
| | 2 | Amr Curl | 0,252 | p<0,001 |
| active | 1 | 30-second Chair Stand | 0,277 | 0,059; 4,474; p=0,039 |
| | 1 | 30-second Chair Stand | 0,472 | 0,141; 5,505; |
| | 2 | 8-Foot Up and Go | 0,366 | p=0,007 |

In the group of inactive people, self-assessed QOL environmental domain can be predicted in 20% based on the occurrence of depressive disorders and in 26% based on the increase in upper body muscle endurance. In active women, the self-assessment in this area can be predicted only in 5% based on lower body strength and in 14% based on agility (dynamic balance) and aerobic endurance.

Discussion

The results obtained indicate differences in self-assessed quality of life and in the level of functional efficiency in the groups studied. The relationship was found between life activity and self-assessed environment domain (financial resources, freedom, physical safety and security, health and social care: accessibility and quality home environment, opportunities for acquiring new information and skills, participation in and opportunities for recreation / leisure activities, physical environment: pollution / noise / traffic / climate, transport). Active women assessed their quality of life in this aspect substantially better ($p<0.001$). This may be due to the better environmental conditions in which the respondent participating in additional activities live (Haider et al., 2016). However, there is little research available that focuses on the importance of the environment domain in improving quality of life of older adults.

There were no statistically significant differences in study participants in the assessment of quality of life in the field of physical health (i.a. activities of daily living, dependence on medical aids, energy and fatigue, mobility,

pain and discomfort, work capacity), psychological health (i.a. negative feelings, positive feelings, self-esteem, personal beliefs) and social relationships domain (i.a. personal relationships, social support, sexual activity). The analysis of the individual questions indicated that the respondents differ in their answers to questions concerning the physical health and environment domains. Differences were observed in the assessment of pain, the need for medical support, available financial resources and realization of interests.

People benefiting from social support (with lower life activity) declare a high quality of life correlated with, among others, sufficient income to live, no heart problems, good arterial pressure, no risk of depressive states and no nursing support (Bryła et al., 2013). Our results indicated a lower overall quality of life in the group of inactive women, less satisfaction with health and a higher risk of depression. The risk of depression in the group of inactive women concerned a total of 36% of respondents (severe depression: 3 people, moderate depression: 18 people) whereas in the active group, this was only 5% (3 people with moderate depression). The risk of depressive disorders was a negative predictive factor determining the quality of life of the women studied. In the group of inactive women, the relationship between self-assessed quality of life and depressive disorders can be indicated in each area. Depressive disorders can significantly affect or modify quality of life. Frequent depression, lack of self-confidence and a sense of effectiveness have a negative impact on the self-assessed quality of life. This is consistent with a study by Kurpas et al. (2013), Baernholdt et al. (2012) and Mishra et al. (2017): lower levels of QoL are more frequently observed in people who use medical and social support and who suffer from depressive disorders.

Functional efficiency also plays an important role in the assessment of quality of life of older adults. Our results indicated that significant relationships exist between self-assessment of health, selected aspects of quality of life, and functional efficiency. In the women studied, significant relationships of satisfaction with health and social relationships with upper body flexibility were observed (positive correlation between variables in both groups). The environment domain in inactive women and social relationships in active women correlated with upper body muscle strength. Available studies have shown that people with a higher level of functional efficiency (especially in terms of balance, flexibility and muscle strength) assessed their quality of life and health better (Tomczak, et al., 2019; Nawrocka, et al., 2019; Chung et al., 2017). The handgrip strength has also been indicated as a

factor affecting well-being in four aspects of quality of life (Sallinen et al., 2010; Cesari et al., 2012; Rijk et al., 2016; Musalek & Kirchengast, 2017). Daily physical activity (DPA) correlates positively with physical fitness and health-related quality of life. Furthermore, it may reduce the risk of depressive disorders in older adults (Awick et al., 2017; Acreek et al., 2006; Brown et al., 2004; Chodzko-Zajko et al., 2009; Bullo et al., 2018). It can be presumed that this is due to greater autonomy and independence in daily activities. Individuals who are fit are better able to cope with everyday challenges, can move around freely and participate actively in social life.

In conclusion, the results of this study suggest that greater participation of older adults in life (e.g. involvement in activities proposed by UTA: regular physical activity, educational meetings, workshops, etc.) can have a positive effect on quality of life, good self-assessment of health and life satisfaction. Furthermore, active people are at a lower risk of depressive disorders, which may contribute to a better self-assessment of their quality of life. Due to the small size of the study group, it is impossible to generalize the conclusions and one should be cautious when determining the causes of this phenomenon. Another limitation of the study is that it focused on female residents of a large city. It would be worthwhile to conduct similar research in smaller towns and rural areas. It is worth continuing the research, taking into account the analysis of the environmental domain (f.e. accommodations, private space, access to activity programs, and access to education for older adults, proximal environments) as a factor affecting the quality of life of people over 60 years of age.

Disclosure statement

No potential conflict of interest was reported by the authors. All authors read and approved the final version of the manuscript. No potential competing interest was reported by the authors

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