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Activities of the elderly and their satisfaction with life

Streszczenie:

Pomyślne starzenie się (Rowe i Kahn, 1997) uwarunkowane jest dążeniem do bycia aktywnym i umiejętnościami podtrzymywania relacji społecznych. Aktywność polepsza życie emocjonalne seniorów i wiąże się z redukcją niektórych objawów starzenia się. Podjęte badania weryfikowały czy liczba aktywności (nieformalnych i samotniczych) wiąże się z jakością życia oraz czy subiektywny wiek może być mediatorem tej relacji. Przebadano 136 osób powyżej 60 r.ż. autorską skalą aktywności oraz WHOQOL-BRIEF. Wyniki pokazały, że wyższe wskaźniki zadowolenia w poszczególnych domenach jakości życia osób starszych wiążą się nie tylko z liczbą podejmowanych aktywności, ale są również funkcją częstości wykonywania tych czynności. Wykazano również słabą pośredniczącą rolę subiektywnego wieku w relacji aktywność – jakość życia, która w przypadku ogólnej jakości życia okazała się supresją kooperatywną.

Słowa kluczowe:

aktywność, osoby starsze, jakość życia, subiektywny wiek, pomyślne starzenie się

Abstract:

Successful aging (Rowe & Kahn, 1997) is conditioned by aspiration to be active and by the ability to maintain social relations. Activity improves the emotional lives of seniors and is associated with a reduction of some symptoms of aging. Our study verifies if the number of activities (informal and solitary) is associated with quality of life and whether subjective age may be a mediator of this relationship. The 136 seniors above 60 were tested by our authorial scale of activity and the WHOQOL-BRIEF. The results showed that older persons' higher quality of life levels are related not only to the number of activities undertaken, but also to the frequency that these activities are engaged in. The mediating role of subjective age in relation to one's activities and quality of life was also indicated, which, concerning general quality of life, turned out to be a cooperative suppression.

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Keywords:
activity, older people, quality of life, subjective age, successful aging

Introduction

Aging is a gradual process, influencing many areas of human functioning simultaneously. Socio-economic and medical changes contribute to increasing life expectancy, so quality of life in old age should be a key issue to make that period as happy as possible. The European Commission, recognizing that increasing numbers of elderly people is a serious issue, declared the year 2012 to be the European Year for Active Ageing and Solidarity between Generations. This action was intended to draw the attention of Member States to the needs of older people and at the same time emphasize the possibility for using the potential of seniors. Analyzing factors associated with older people's life quality is therefore a current and socially needed subject.

The quality of life of older people

Quality of life is a broad and multi-dimensional construct. It includes both internal (human experiential states) and external factors (economic and social conditions), as well as mechanisms for coping with stress developed by the human (Derbis, 2007). Analyzing quality of life can be carried out generally, referring to the assessment of life as a whole, as well as to assessing satisfaction within specific areas (domains) , focusing then on so-called partial satisfaction. Theories assuming that human activity is aimed at a target include the hypothesis that quality of life depends on engagement in interesting activities. Activities are interesting when they are balanced between the individual's capacity and the undertaken task's requirements. It is a given that an activity is tedious if it requires little skill from the individual and is stressful when task requirements are too high. Activity balanced between the skills and demands brings a pleasant feeling of „flow" (Csikszentmihalyi, 1975).

Analyzing the seniors' quality of life, factors relating to their health cannot be omitted, but Berg et al. (2006) demonstrated that objective measures of health have no significant relationship with assessing the quality of life for people over 80. On the other hand, Borg, Hallberg and Blomquist (2006) showed that low assessment of seniors' own health (performed as self-description) has a big part in shaping life satisfaction among older people. According to the World Health Organization's concept of quality of life conditioned by health, how to function within the social, mental, physical, and environ-

mental domains should be subjectively assessed by the patient (Górna, Jaracz, 2008). A meta-analysis of studies on factors that affect older people's life quality showed that financial satisfaction (not the size of income), positive evaluation of health, independence in decision-making and the ability to build positive relationships with the environment, affect most strongly its level (Zelikova, 2014). According to Halicka (2004, p. 34−40), among the most significant factors influencing this are health, functional efficiency, family situation, economic status, activity and social contacts. Based on the above it can be assumed that undertaking a variety of activities by elderly people, particularly those activities associated with social functioning and cognition, will most strongly affect their quality of life assessment.

Successful ageing

The concept of successful aging appeared in the early 50s in the works of Havighurst and Albrecht. According to Rowe and Kahn (1987, 1997), it consists of three elements: low probability of disease or disorders, high functional cognitive and physical abilities, and an active approach to life. In line with this appraisal, successful aging cannot be based only on avoiding disease, but on the pursuit of becoming an active person and on the ability to sustain social relationships. This is consistent with Csikszenmihaly's approach and concepts, which assume a positive relationship of social bonds or social capital with well-being (see Putnam, 2000, 2008; Sabatini, 2009 or Halpern, 2011). This includes bridging capital – participation in associations, groups of friends – and bonding capital – the presence in the family. Rowe and Kahn listed factors that support successful aging. It takes into account *health risks* (considering elements such as heredity, lifestyle or natural somatic involution), *contributory factors* maximizing the cognitive and physical health of older people (including training, exercises and socio-demographic factors such as income) and factors *strengthening the commitment to life* (including social relationships, productive activities or stress tolerance). Bowling (2007), based on analysis of available data, concluded that successful aging includes five important areas: *social functioning* (e.g. social involvement, participation and activities, and positive relationships with others), *life satisfaction* (including good mood and quality of life), *mental resources* (including creativity, autonomy, coping, having a goal and self-esteem), *biomedical condition* (including longevity, active life, lack of chronic diseases, high cognitive and mental levels) and a *subjective perception* of successful aging (here criteria are set by the elderly people themselves). On this basis, areas contributing to positive aging can be identified, thus distinguishing people aging „normally" from those aging „successfully" (Rowe and Kahn, 1997). A longitudinal study, conducted for eight years

on 1,947 seniors above 70, showed that successful aging is promoted by lower age, being male, a higher educational level and wealth and better health (risk of unsuccessful aging increases six times with low-rated health), mobility, cognitive skills (faster processing, abstract reasoning, and memory). In addition, psychological resources (i.e. sense of control and self-esteem) are more essential to successful aging than affective factors (i.e. depression and morale). These studies also showed that a higher rate of successful aging is associated with lower mortality among seniors (Andrews, Clark, & Luszcz, 2001).

Types of activities among older people

Dzięgielewska (2006) distinguishes three possible types of activities in old age: 1) *formal* – including participation in various social associations, working for the local environment, engagement in politics, volunteering; 2) *informal* – including maintaining contacts with family, with friends or neighbors, and 3) *solitary* – including the doing a hobby, watching TV or reading. This article focuses on the last two activities – informal activities (social / family) and activities performed individually (solitary).

Quality of life, especially for older people, is connected with the ability to participate in society and reap joy from it (Wiggins et al., 2008). However, due to the fact that with age a gradual withdrawal from performing certain professional or family roles can be observed, the emotional life of older people and their sense of social utility may significantly change (Gabriel & Bowling, 2004). Some studies show (e.g. Arai et al., 2007) that lack of informal activities (social activities) in the elderly, even highly physical activity, can lead to mental disorders such as depression. Antonucci et al. (2001) suggest that maintaining positive friendships and family relationships is a source of physical and emotional wellbeing for older people. On this basis, it can be assumed that engaging in informal activities will significantly affect life quality. Research shows that older people, aside from informal activity, more frequently prefer passive activities such as listening to the radio, watching television, and reading books and newspapers, particularly in cases where low overall physical activity is involved (Bicka & Kozdroń, 2003). These activities are usually performed individually; they are „costless" and often lead to increased knowledge (Nimrod, 2014). And while not all the content is perpetuated in memory, they exercise the mind, shape and modify world perception. Each activity forcing increased mental effort brings positive results for the elderly. On this basis, it can be assumed that solitary activities will be significantly associated with life quality.

Research shows that assessing the above mentioned factors may vary depending on how old one feels. One factor is subjectively experienced biological age. Data also concludes that feeling younger than their chronological age indicates that people per-

form better both physically and mentally, have fewer symptoms of depression, their cognitive decline is slower and they live longer (see Kotter-Grühn, Kornadt & Stephan, 2015). Research on predictors and correlates of subjective age support the thesis that subjective age reflects physical and mental aging. People who are extraverts, open-minded, and have a sense of self-efficacy and environmental control are also characterized by feeling subjectively younger (Infurna et al., 2010). It is believed that subjective age is a sensitive indicator of overall health status and chronological aging thus affecting daily functioning. The younger the subjective age is the higher the health status evaluation will be (Stephan, Demulier and Terracciano, 2012). Individuals with better health can feel younger, because they experience fewer adverse effects of aging and draw more positive feelings from physical activity connected with daily routine. On the other hand, people with poor health can feel older than they really are, because disease (poor health) can act as a „reminder" of biological age and expected physical decline (Stephan, Sutin and Terracciano, 2015). On this basis, it can be assumed that subjective age may be a factor mediating between undertaken activities and life quality.

Based on the above concepts and research findings the following hypotheses were formulated:

H1. The more informal and solitary activities older persons have, the higher their sense of life quality will be and the greater satisfaction with their health they will possess.

H2. Undertaking informal and solitary activities are associated with higher evaluations in the domains of quality of life: social, psychological, somatic and environmental.

H3. Subjective age mediates between the number of activities undertaken and assessed quality of life (at a general level and in each domain), as well as between the number of activities and satisfaction with health.

Materials and Methods

The participants filled in a battery of tests comprising three parts. The first collected information on respondents' socio-demographic data and answers concerning subjective age (independent from the biological). In the second part the participants had to determine which listed activities (5 informal and 7 solitary) they took part in and how often they undertook them in their leisure time. The list was developed from the survey „Ways of spending time in retirement" conducted by the Public Opinion Research Center in 2012. The activity scale reliability was $\alpha = 0.89$ ($\alpha = 0.79$ for informal activity and $\alpha = 0.85$ for solitary activity). The third part measured the respondents' life quality using the Polish version of WHOQOL-BRIEF (The World Health Organization Quality of Life, 2004). This is a 26 item scale with a five-point Likert response format. The score reflects the

individual's life quality sense and has a positive direction – it means that the higher the score, the better the evaluation. The scale allows one to evaluate general life quality, satisfaction with health status and satisfaction in four domains: social, psychological, somatic and environmental. The score for each domain is the arithmetic mean of the items included in the particular domains. Scale reliability was $\alpha = 0.92$ for the entire scale (26 items).

Participants

One hundred and thirty-six people aged 60 to 89 years (M = 67.9 SD = 7.1) living in the Opole region and the provinces of the Lower and the Upper Silesia were tested. Females constituted 69.8% (n = 95). More than half had spouses (55.1% n = 75), 31.6% (n = 43) were widowed, 5.1% (n = 7) were divorced and 7.4% (n = 10) were unmarried. The majority of respondents (77.9% n = 106) lived with the family or relatives, 18.4% (n = 25) lived alone. No individual lived in a nursing home or used its services, and 59.5% (n = 81) lived in the city.

Procedure

The participants were chosen randomly from the interviewers' – research assistants' residential area. Respondents completed the scales independently or in cooperation with an interviewer. The completion order was as follows: socio-demographic data, subjective age evaluation, activities undertaken, and the WHOQOL-Brief scale. Filling in the entire battery took about 30 min**.**

Results

Preliminary analysis has shown that participants rather positively assess their quality of life (M = 3.39 SD = 1.16) and are rather satisfied with their health condition (M = 3.49 SD = 0.83). Furthermore, in each life quality domain a positive tendency was observed: social (M = 3.56 SD = 0.76), psychological (M = 3.53 SD = 0.43), somatic (M = 3.29 SD = 0.37) and environmental (M = 3.62 SD = 0.55). Spearman correlation analysis showed no significant relationship between the level of life satisfaction and the respondents' biological age ($r_s = 0.08$ $p > 0.05$) and a moderate negative correlation between age and satisfaction with health ($r_s = -0.39$ $p < 0.05$). In other words, health turned out to be unrelated to the elderly's sense of quality of life despite its deterioration with age. Satis-

faction with health or any other domain of quality of life was not related to gender, marital status, place of residence or the seniors' roommates.

Correlation analysis showed that in general, the older the participants were, the less activities they undertook. This relationship was statistically significant, but weak ($r_s = -0.24$).

The most common activities undertaken by the respondents were[3]:

- Meetings with friends at home (96.3%) and outside the home (86.0%);
- Watching TV news and current affairs programs (95.6%) as well as films and television series (92.6%);
- Visiting relatives away from the participants' own residence (92.6%).
- The least frequent activities undertaken by the respondents were[4]:
- DIY and needlework (35.3%);
- Helping the family in running the house (31.1%);
- Grandchildren / great-grandchildren babysitting (23.5%).

In order to verify the first hypothesis, the answers to all 12 proposed activities were summarized and correlated with the sense of quality of life and satisfaction with health. The analysis showed a weak positive correlation between the number of undertaken activities and general life satisfaction ($r_s = 0.29$, $p < 0.001$) and a moderate positive correlation with satisfaction with health ($r_s = 0.39$, $p < 0.001$). These results show that the more informal and solitary activities undertaken by the elderly, the higher their sense of quality of life and satisfaction with health that they have. These results confirm hypothesis H1. In addition, it was examined how the number of the activity undertaken by the seniors was associated with the remaining domains of quality of life. The analysis demonstrated that the assessment of all domains was associated positively (but moderately) with a number of the undertaken activities: the social domain $r_s = 0.48$, $p < 0.0001$; the psychological domain $r_s = 0.39$ $p < 0.01$; the somatic domain $r_s = 0.43$, $p < 0.001$; and the environment domain $r_s = 0.35$ $p < 0.01$. The higher the number of informal and solitary activities, the higher the score for all quality of life domains.

To verify the second hypothesis a series of U Mann-Whitney tests were conducted to distinguish the activities that were significantly associated with the quality of life level (the general as well as in 4 highlighted areas), and with satisfaction with health. In the next step it was tested how the frequency of particular activities was associated with life quality of in all domains and with satisfaction with health status (the U Mann-Whitney tests were also conducted). The results are presented in Table 1 for informal activities and Table 2 for solitary activities. Data analysis confirms the second hypothesis

[3] The percentage of older people undertaking a particular activity.

[4] The percentage of older people not taking a particular activity.

H2, showing that the higher satisfaction levels in various domains of life quality were related not only to undertaking the particular activities ascribed to them, but also with the frequency of these activities. Additionally, a correlation analysis was performed between the indicator of activities (summed up informal and solitary activities) and different quality of life domains. The results showed that the higher the number is of activities undertaken by the elderly, the higher the satisfaction they have with the various quality of life domains. Detailed results are presented in Tables 1 and 2. These data also support hypothesis H2.

Table 1. Informal activities differentiating the quality of life of elderly people.

	General quality of life	Satisfaction with health	Social domain	Psychological domain	Somatic domain	Enviromental domain
Grandchildren / great-grandchildren babysitting	M_{reg}=3.9 vs. M_{sel}=3.1 U= 399.5 *	M_{reg}=3.7 vs. M_{sel}= 2.8 U= 15.0 *	M_{reg}=3.7 vs. M_{sel}=3.3 U= 16.0 A			
Helping the family in running the house	M_{reg}=3.7 vs. M_{sel}=3.4 U= 354.0 **	M_{do}=3.6 vs. M_{nd}=3.2 U= 325.0 A		M_{reg}=3.6 vs. M_{sel}=3.3 U= 58.0 *		
Visiting relatives away from the place of own residence	M_{reg}=4.0 vs. M_{sel}=3.2 U= 490.5 **		M_{reg}=3.9 vs. M_{sel}=3.2 U= 105.5 **			M_{reg}=3.8 vs. M_{sel}=3.4 U= 125.0 *
Meetings with friends at home	M_{do}=3.4 vs. M_{nd}=2.4 U= 166.0 A M_{reg}=3.9 vs. M_{sel}=3.1 U= 631.0 *		M_{reg}=3.8 vs. M_{sel}= 2.9 U= 48.5 **	M_{reg}=3.7 vs. M_{sel}=3.3 U= 81.5 *		M_{reg}=3.9 vs. M_{sel}=3.3 U= 72.5 *
Meeting friends outside the home	M_{reg}= 4.1 vs. M_{sel}=3.1 U= 362.0 **	M_{do}=3.6 vs. M_{nd}=3.0 U= 257.0 A M_{reg}= 4.0 vs. M_{sel}=3.3 U= 64.5 *	M_{do}=3.7 vs. M_{nd}=3.0 U= 195.0 ** M_{reg}=3.9 vs. M_{sel}=3.4 U= 77.5A	M_{reg}=3.7 vs. M_{sel}=3.3 U= 55.5 **	M_{reg}=3.6 vs. M_{sel}=3.1 U= 12.5 ***	M_{reg}=4.0 vs. M_{sel}=3.3 U= 52.5 **
Total indicator	r_s=0.29***	r_s=0.33**	r_s=0.39***	r_s=0.28*	r_s=0.29*	r_s=0.11

A- p<0.1 *p<0.05 **p<0.01 ***p<0.001

Nd – not doing it at all; Do – doing it (regardless of frequency);
Reg – undertaking regularly; Sel – undertaking seldom

Table 2. Solitary activities differentiating the quality of life of elderly people.

	General quality of life	Satisfaction with health	Social domain	Psychological domain	Somatic domain	Enviromental domain
Hobbies / interests	M_{reg}= 4.0 vs. M_{sel}= 3.0 U= 475.0 ***	M_{do}=3.6 vs. M_{nd}=2.5 U= 61.5 ** M_{reg}=3.8 vs. M_{sel}=3.1 U= 96.0 *	M_{do}=3.7 vs. M_{nd}=2.5 U= 67.0 **		M_{do}=3.3 vs. M_{nd}=3.0 U= 96.0 *	M_{do}=3.7 vs. M_{nd}=2.9 U= 65.0 **
Watching the news / current affairs programs	M_{reg}=3.7 vs. M_{sel}=3.0 U= 1101.5 **				M_{reg}=3.4 vs. M_{sel}=3.0 U= 66.5 *	M_{reg}=3.7 vs. M_{sel}=3.1 U= 71.5 A
Watching movies and TV series					M_{do}=3.3 vs. M_{nd}=3.0 U= 65.5 *	M_{do}=3.7 vs. M_{nd}=3.1 U= 79.5 A M_{reg}=3.7 vs. M_{sel}=3.5 U= 171.5 A
Listening to the radio / music	M_{reg}=3.9 vs. M_{sel}=3.1 U= 693.0 *					
Reading a newspaper / current affairs magazine	M_{do}=3.5 vs. M_{nd}=2.9 U= 675.0 A M_{reg}= 4.0 vs. M_{sel}=3.2 U= 626.0 **	M_{do}=3.5 vs. M_{nd}=3.0 U= 120.0 A	M_{do}=3.6 vs. M_{nd}=2.9 U= 124.0 A	M_{reg}=3.7 vs. M_{sel}=3.4 U= 137.5 *	M_{do}=3.3 vs. M_{nd}=2.9 U= 100.5 * M_{reg}=3.5 vs. M_{sel}=3.2 U= 110.5 **	
Reading entertainment magazines	M_{reg}= 4.0 vs. M_{sel}=3.1 U= 260.5 *	M_{do}=3.7 vs. M_{nd}=3.0 U= 281.5 **	M_{do}=3.7 vs. M_{nd}=3.2 U= 367.0 A M_{reg}= 4.1 vs. M_{sel}=3.5 U= 51.5 *	M_{do}=3.6 vs. M_{nd}=3.4 U= 347.5 * M_{reg}=3.9 vs. M_{sel}=3.4 U= 24.5 **	M_{do}=3.4 vs. M_{nd}=3.1 U= 371.0 A M_{reg}=3.6 vs. M_{sel}=3.2 U= 39.0 *	M_{do}=3.7 vs. M_{nd}=3.4 U= 353.0 *
DIY / needle-work	M_{reg}=3.9 vs. M_{sel}=3.0 U= 321.0 *		M_{reg}=3.9 vs. M_{sel}=3.4 U= 54.5 *	M_{reg}=3.7 vs. M_{sel}=3.3 U= 61.5 *	M_{reg}=3.5 vs. M_{sel}=3.1 U= 54.5 *	M_{do}=3.7 vs. M_{nd}=3.5 U= 337.0 A M_{reg}=3.9 vs. M_{sel}=3.6 U= 62.0 *
Total indicator	r_s=0.29***	r_s=0.33**	r_s=0.40***	r_s=0.40***	r_s=0.47***	r_s=0.52***

A – p<0.1 *p<0.05 **p<0.01 ***p<0.001

ND – not doing it at all; Do – doing it (regardless of frequency);

Reg – undertaking regularly; Sel – undertaking seldom

Before verifying the third hypothesis about the respondents' subjective age as a mediator, a preliminary analysis of this parameter was conducted. On average, respondents indicated that they felt they were 61.1 years old (SD = 17.1) – on average seven years younger than in reality. Spearman correlation analysis showed that subjective age is moderately negatively connected with both general life satisfaction ($r_s = -0.38$ $p < 0.01$) and satisfaction with health ($r_s = -0.43$ $p < 0.01$). This means that the younger the respondent felt, the better they evaluated their life and health. Also in particular quality of life domains, the lower the subjective age, the higher assessment: social ($r_s = -0.33$ $p < 0.05$), psychological ($r_s = -0.29$ $p < 0.05$) and somatic ($r_s = -0.24$, $p = 0.052$). In the environmental domain subjective age was not significantly associated with it. As for the number of undertaken activities, the lower the subjective age was, the more activities the seniors undertook ($r_s = -0.24$ $p < 0.05$) – especially informal activities ($r_s = -0.34$ $p < 0.01$). This relationship disappeared however, when taking into account only solitary activities undertaken by the elderly ($r_s = -0.08$ $p > 0.05$).

In order to verify the hypothesis about mediating role of subjective age, a mediation analysis in accordance with the approach by Preacher and Hayes (2008) was performed. Each quality of life dimension (the general as well as the 4 distinguished domains) and satisfaction with health were analyzed separately. The number of activities was a predictor and the subjective age was a mediator. To estimate the mediation effects, the bootstrap method was used for 5000 trials; confidence intervals were bias corrected. Detailed results are presented in Table 3.

Six multiple regression analyses were performed separately for general quality of life, satisfaction with health, and for four life quality domains. According to earlier analyses the subjective age was negatively associated with the number of undertaken informal and solitary activities (path a) and with each life quality dimension (path b). However, this relationship between activities and subjective age was at the statistical trend level. Significant positive correlations between the number of activities undertaken by seniors and all the analyzed dimensions of quality of life as well as for satisfaction with health also have been observed (path c). These results are in accordance with hypotheses H1 and H2. An indirect effect turned out to be weak, but statistically significant, suggesting mediating role of subjective age in the relationship between the number of undertaken activities and all the analyzed dimensions of life quality and satisfaction with health. In addition, an analysis of paths c and c' has shown that for general quality of life cooperative suppression was observed (Cohen and Cohen, 1975 in: Cichocka and Bilewicz, 2010), where subjective age strengthens the relationship between the number of activities and general life quality among the elderly. Other results confirm the partial

mediation of subjective age in the relationship between informal and solitary activities and all other life quality domains. The results therefore support hypothesis H3.

Table 3. Subjective age mediation analysis in a relationship between the number of activities with various life quality dimensions and satisfaction with health status.

Mediation path	General quality of life	Satisfaction with health	Social domain	Psychological domain	Somatic domain	Enviromental domain
X→ M (a)	−0.23[A]	−0.23[A]	−0.23[A]	−0.23[A]	−0.23[A]	−0.23[A]
M → Y (b)	−0.33**	−0.35**	−0.33**	−0.21[A]	−0.32**	−0.32**
X → Y (c)	0.35***	0.41***	0.45***	0.51***	0.54***	0.42***
X (M) → Y (c')	0.39***	0.35**	0.39**	0.44***	0.51***	0.32**
Indirect effect	0.07 95% CI: 0.02−0.08	0.08 95% CI: 0.03−0.1	0.07 95% CI: 0.01−0.05	0.05 95% CI: 0.01−0.04	0.07 95% CI: 0.03−0.11	0.07 95% CI: 0.01−0.06

X – predictor (the number of activities); M – mediator (the subjective age); Y – dimension of quality of life; a-c' – analysed paths; CI – confidence intervals

A – p<0.1 *p<0.05 **p<0.01 ***p<0.001

Discussion

Our study has shown that seniors rather positively assess their quality of life (in general and in certain domains) and their health condition (although the older they become, the lower assessed this parameter becomes). This confirms the results of previous studies showing a relatively high life quality level regardless of age (e.g. Diener and Suh, 1997), but it is also consistent with the „U-shaped" hypothesis of relationship between age and life satisfaction (Easterlin, 2006 Gwozdz, Sousa-Poza, 2010). Moreover, according to other longitudinal studies (Mroczek and Spiro, 2005), the life quality level is highest at approximately 65 years of age, and the vision of impending death causes a decrease in such assessments, notwithstanding the subjectively assessed health status.

Many studies have shown that engagement in different activities (not related with a paid job) significantly affects the satisfaction with the social, psychological, physical or spiritual areas of elderly people life (Grant & Kluge, 2012). Our study showed that the more informal and solitary activities seniors undertake, the higher will be both their life quality sense (in general and in particular domains) and their satisfaction with health (although these relationships were moderately strong). Błędowski (2012) furthermore notes that generally in recent years increased activity level among seniors has been observed, mainly in the area of physical activity. There is also an increase in active participation in family life and in autonomic activities, disclosing their own interests and im-

plementing their own plans, without subordinating to family needs. Our study has shown that seniors most often undertake activities with low levels of activation / low physical difficulties, but also those with high social value (maintaining social networking). Many factors influence the selection of different activities by seniors, for instance: personal factors (e.g. education, income, health, personality or values) and contextual factors (social programs, the facilities available in the immediate area, experienced support). Whatever the dominant factor is, studies from many countries confirm that the most popular activities undertaken by the elderly people are informal (such as visiting family and friends) and solitary (such as media consumption) (see Nimrod, 2014). In addition, our results showed that informal activities were associated with higher evaluations of social domain of life quality and satisfaction with health, while solitary activities were connected to the environment and the somatic. These results confirm the data showing that undertaking social activities (informal) allows seniors to develop and maintain the life quality by maintaining both social roles and self-integrity (Zimmer and Ling, 1996). The results are partly consistent with the activation theory which states that solitary activities more weakly promote quality of life, because they give less opportunity to build a positive self-image. On the other hand, activities that promote a competence, self-efficacy and control over the environment build psychological resources for the elderly. According to Csikszentmihalyi (1975) activities that are mentally absorbing and challenging, can strengthen environmental awareness and help develop an individual. To those activities can be included those described as „creative" (hobbies, handicrafts and reading books, see: Zimmer and Ling, 1996).

The last results focused on the significance of subjective age to older people's life quality. Our study results showed that seniors felt younger than they really were, and the younger they felt, the more highly assessed became the general quality of life, their health and their social, psychological and somatic domains (for the environment domain there were no differences). Moreover, the younger the seniors felt, the more activities they undertook, especially those informal ones. Such data are consistent with other studies showing that the younger the respondents feel the better they evaluate their psychological well-being, their physical and cognitive functioning, and the longer they actually live (Stephan et al., 2015). In addition, our analysis revealed subjective age's mediating role in the relationship between undertaken activities and life quality. It has been shown that the subjective age strengthens the relationship between the number of activities and the general quality of life of seniors. Concerning satisfaction with health and other life quality domains, a partial mediation of subjective age was observed. This is consistent with studies showing that the younger the elderly feel, the higher they estimate their life satisfaction (Stephan et al., 2011) or their self-efficacy (Boehmer, 2007), which allows

them to undertake various activities without any worries. Additionally, these results support the thesis of Stephan et al. (2011), suggesting that younger subjective age is associated with a higher life quality sense, because it is linked to the seniors' mental and cognitive resources. They also showed health's mediating role in this relationship. This data as well supports what we obtained in our study, because the younger the subjective age of the senior, the less health problems they experienced, thus the greater possibility to undertake diverse activities (both informal and solitary), which results in a higher sense of quality life.

In future studies examining the relationship between activities and quality of life , the respondent's gender should be more strongly controlled (though this variable turned out to not significantly affect the results in our study). Some data reveal that women and men differ in those activities that actually benefit them – females are more likely to engage and benefit from informal activities, while males are more likely to participate and benefit from physical or solitary activities (Zimmer and Ling, 1996). Another aspect would be to more greatly diversify the undertaken activities; for instance: [informal-family, informal-friends, solitary-active or solitary-passive,] since, for example Lennartsson and Silverstein (2001) have shown that not all activities contribute to longevity in the same way.

Summarizing, our research has shown an important role for activities undertaken in by older people. These activities facilitate all life quality domains as well as provide an better assessment of their health. This is an important result, from the perspective of social policy and potential prevention programs, aimed at the elderly. Programs that promote the elderly's mobility or help to maintain social contacts should have a positive influence on senior's life quality. On the other hand, a wider range of tools facilitating engagement in solitary activities should also be fruitful for the senior's satisfaction level.

References:

Andrews, G., Clark, M., & Luszcz, M. (2001). Successful aging in the Australian longitudinal study of aging: applying the MacArthur model cross–nationally. *Journal of Social Issues, (58)*, 749−765.

Antonucci T.C., Lansford J.E., Akiyama H. (2001). Impact of positive and negative aspects of marital relationships and friendships on well-being of older adults. *Applied Developmental Science, 5,* 68−75.

Arai A., Ishida K., Tomimori M., Katsumata Y., Grove J.S., Tamashiro H. (2007). Association between lifestyle activity and depressed mood among home-dwelling older people: a community-based study in Japan. *Aging & Mental Health, 11,* 547−555.

Berg A.I., Hassing L.B., McClearn G.E. and Johansson B. (2006). What Matters for Life Satisfaction in the Oldest-old? *Aging & Mental Health*, *10, (3),* 257−264.

Bicka A, Kozdroń E. (2003). Aktywność ruchowa w stylu życia ludzi starszych. [Physical activity in the lifestyle of older people] *Ann UMCS Lublin, LVIIII, Suppl. XIII, 13*, 61−65.

Błędowski P. (2012). Starzenie się jako problem społeczny. Perspektywy demograficznego starzenia się ludności Polski do roku 2035 [Aging as a social problem. The perspective of demographic aging of Polish until 2035], [w:] Mossakowska M., Więcek A., Błędowski P (red.), Aspekty medyczne, psychologiczne, socjologiczne i ekonomiczne starzenia się ludzi w Polsce (p.11−23). Poznań: Termedia Wydawnictwa Medyczne.

Boehmer, S. (2007). Relationships between felt age and perceived disability, satisfaction with recovery, self-efficacy beliefs and coping strategies. *Journal of Health Psychology, 12*, 895−906.

Borg C., Hallberg I.R. and Blomquist K. (2006). Life Satisfaction among Older People (65+) with Reduced Self-care Capacity: the Relationship to Social, Health, andáFinancial Aspects. *Journal of Clinical Nursing*, *15*, 607−618.

Bowling A. (2007) Aspiration for older age in the 21st century: what is successful aging?, *International Journal of Aging and Human Development*, *64*, *3*, 236−297.

Cichocka, A. & Bilewicz, M. (2010). Co się kryje w nieistotnych efektach statystycznych? Możliwości zastosowania analizy supresji w psychologii społecznej. *Psychologia Społeczna, 2−3*, *(14)*, 191−198.

Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety.* San Francisco: Jossey-Bass.

Derbis, R. (2007). Poczucie jakości życia a zjawiska afektywne.[The quality of life and affective phenomena] W: S. Kowalik (red.), *Społeczne konteksty jakości życia* (p. 13−52). Bydgoszcz: Wydawnictwo Uczelniane WSG.

Diener, E. D., & Suh, M. E. (1997). Subjective well-being and age: An international analysis. *Annual review of gerontology and geriatrics, 17(1),* 304−324.
Dzięgielewska M. (2006). Aktywność społeczna i edukacja w fazie starości. [Social activity and education in the phase of old age] W: Szatur-Jaworska B. (red.). *Podstawy gerontologii* społecznej (p.160−164). Warszawa: Oficyna Wydawnicza ASPRA-JR.

Easterlin, R. A. (2006). Life cycle happiness and its sources: Intersections of psychology, economics, and demography. *Journal of Economic Psychology, 27(4),*

463−482. Gabriel Z., Bowling A. (2004). Quality of life from the perspectives of older people. *Ageing & Society, 24,* 675−691.

Górna, K. Jaracz K. (2008). Jakość życia osób starszych.[The quality of life of older people]. W: K. Wieczorkowska-Tobis (red). *Geriatria i pielęgniarstwo geriatryczne* (s.343−345). Warszawa: Wyd. PZWL.

Grant, B. V., & Kluge, M. A. (2012). Leisure and the psychological well-being and health of older adults. [In] H. J. Gibson & J. F. Singleton (Eds.), *Leisure and aging: Theory and practice* (pp. 129−142). Champaign, IL: Human Kinetics.

Gwozdz, W., & Sousa-Poza, A. (2010). Ageing, health and life satisfaction of the oldest old: An analysis for Germany. *Social Indicators Research, 97(3),* 397−417.

Halicka, M. (2004). *Satysfakcja życiowa ludzi starych: studium teoretyczno-empiryczne*. [Life satisfaction of older people: a theoretical and empirical study] Białystok: Akademia Medyczna w Białymstoku.

Halpern, D. (2011). *Social Capital.* Malden: Polity Press.

Infurna FJ, Gerstorf D, Robertson S, Berg S, Zarit SH (2010). The nature and cross-domain correlates of subjective age in the oldest old: Evidence from the OCTO Study. *Psychol Aging, 25*, 470−76.

Kotter-Grühn, D., Kornadt, A. E., & Stephan, Y. (2015). Looking Beyond Chronological Age: Current Knowledge and Future Directions in the Study of Subjective Age. *Gerontology, 62, (1*), 86−93.

Lennartsson, C., & Silverstein, M. (2001). Does engagement with life enhance survival of elderly people in Sweden? The role of social and leisure activities. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 56(6),* 335−342.

Mroczek, D. K., & Spiro, A. (2005). Change in life satisfaction during adulthood: findings from the veterans affairs normative aging study. *Journal of personality and social psychology, 88(1),* 189.

Nimrod, G.(2014) Incredibly Diverse, Truly Challenged: Older Israelis and Leisure. [In:] Leitner, M. J., & Leitner, S. F. (eds.) *Israeli life and leisure in the 21st century* (274−284). Sagamore Publishing.

Preacher, K.J., & Hayes, A.F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*, 879−891.

Putnam, R. (2000). *Bowling Alone. Callapse and Revival of American Community.* New York: Simon& Schuster

Putnam, R. (2008) . *Samotna gra w kręgle. Upadek i odrodzenie wspólnot lokalnych w Stanach Zjednoczonych.* Warszawa; Wydawnictwa Akademickie i Profesjonalne

Rowe, J.W. & Kahn, R. L. (1987).Human aging: usual and successful. *Science*, *237*, 143−149.

Rowe, J. W.& Kahn, R. L. (1997). Successful aging. *The Gerontologist*, *37*, 433−440.

Sabatini, F. (2009) . The relationship between Trust and Networks. An Exploratory Empirical Analysis. *Economics Bulletin, 29, (2),* 674−685.

Stephan, Y., Caudroit, J., & Chalabaev, A. (2011). Subjective health and memory self-efficacy as mediators in the relation between subjective age and life satisfaction among older adults. *Aging & mental health, 15(4),* 428−436.

Stephan Y, Demulier V, Terracciano A (2012). Personality, self-rated health, and subjective age in a life-span sample: The moderating role of chronological age. *Psychol Aging, 27*, 875−80.

Stephan Y, Sutin AR, Terracciano A (2015). How old do you feel? The role of age discrimination and biological aging in subjective age. *PLoS One,10,* e0119293.

Wiggins R.D., Netuveli G., Hyde M., Higgs P. and Blane D. (2008). The evaluation of a self-enumerated scale of quality of life (CASP-19) in the context of research on ageing: A combination of exploratory and confirmatory approaches. *Social Indicators Research, 89*, 61−77.

Zelikova Yu.A. (2014) Successful ageing or when age is joy. Subjective well-being of seniors: a crossnational analysis. *Sociological Studies*, *11*, 60−69.

Zimmer, Z., & Lin, H. S. (1996). Leisure activity and well-being among the elderly in Taiwan: Testing hypotheses in an Asian setting. *Journal of Cross-Cultural Gerontology, 11(2)*, 167−186.