Physiotherapy and Health Activity
www.ptha.eu pth@awf.katowice.pl
2014;22:8-14 ISSN: 2392-2664

The activity and its barriers and the well-being of older Poles

Received: 26-11-2014
Accepted: 28-11-2014
Published: 9-12-2014

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Abstract

Background: Research of health determinants confirmed its beneficial relationships with the optimum level of physical activity at any age. The problem is the physical passivity of societies. In the elderly, this problem is of particular importance, which is conditioned by both biological factors and social. This justifies the diagnosis of relationships: the barrier activity - activity - well-being.

Material/Methods: 393 people were tested: 216 women and 177 men aged 65 - 85 years. A questionnaire with closed questions was used as a tool in the research. Physical activity was examined using selected questions of Baecke questionnaire, barriers to physical activity using a scale KCS, and self-assessment of health – by using the SF-36.

Results: Correlation analysis of age and the activity showed a low relationship for the women and no relationship for the men. There were no differences in activity due to sex, either due to the occurrence of chronic diseases. There is a weak correlation between age and kinesiophobia among women, no relationship was found in the group of men. Prevalence of chronic diseases differentiated the level of kinesiophobia only in women. Analysis of health self-assessment showed a relatively well-being in the test - the average PC and MC were above 50 points.

Conclusions: Women represent a lower level of physical activity than men, but at an older age, these differences are no longer statistically significant. However, the level of activity barriers is still higher. Aging is a process which varies greatly individually, and this applies to activity, its barriers, and self-assessment of health. Age is not a category that fully explains the complex issues depending on the variables examined.

Keywords: older age, barriers to physical activity, kinesiophobia, well-being

Word count: 2158
Tables: 4
Figures: 4
References: 25

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INTRODUCTION

In the seventies of the twentieth century started the criticism of the dominant so far biomedical mainstream thinking about health (Biley 2010). It was one of the reasons for the development of prospecting beyond biological determinants of health, especially in the area of psychology and sociology (Antonovsky 1979, 1979*, Lowen 1984). The new theories rised then, among which a very interesting and finding broad support in the form of empirical research, was the theory of salutogenesis Antonovsky (1984). The key assumption of this theory was the search for determinants of health [salutogenetic approach] and the formulation of the concept of behavioral immunology - relating to capacity building of health (Dolińska-Zygmunt 2001). The consequence of this approach are countless studies on the lifestyle elements that modification may have some beneficial health effects. Areas of exploration research are very broad and diverse, including the sphere of biology, psychology, sociology, economics, and many others. These studies relate to different social groups, people of all ages. Works devoted to the elderly represent a significant pool among these studies. This should be regarded as a natural consequence of demographic change taking place in many countries. Extending the duration of life and at the same time often accompanying decline in fertility in many communities creates a problem of the "old society". This problem concerns many European countries, including Poland (Błędowski 2012, Report from the Economist Intelligence Unit 2012, Central Statistical Office 2013). Broad social significance of this problem in many areas (social policy, health, education) is obvious. In turn, for the individual the crucial [regardless of how individually it is understood] is a sense of well-being (Diener & Tov 2012) which, in accordance with the current WHO definition is synonymous with health.

Research of health determinants confirmed its beneficial relationships with the optimum level of physical activity, which also applies to the elderly (Bokovoy & Blair 1994, Knapik et all. 2011). The problem is the physical passivity of societies (Blair 2009). In the elderly, this problem is of particular importance, which is conditioned by both biological factors and social. This justifies the diagnosis of relationships: the barrier activity - activity - well-being.

The aim of this study was to examine the relationship: barriers to activity - activity - self-assessment of health in the elderly. It was decided to analyze the variables studied, taking into account aspects of gender and age.

MATERIAL AND METHODS

Participants

Examined 393 people: 216 women (W) (55%) and 177 (45%) men (M) aged 65 - 85 years (x = 70.75 ± 4.71). Selection to the research was purposeful. The subjects had to meet the following criteria: age of 65 years and more, to be independent in terms of locomotion and self service and present a sufficient level of mental capacity for understanding the questions put - in order to respond. Recruitment of studied was carried out in two ways. Some participants were the students of Universities of the Third Age - 120 persons (30.5%). Other respondents - 223 people (69.5%) were recruited by trained students of Medical University of Silesia - they were members of their families and friends. In case of any doubt, the person responsible for the test were used by people considered.

Data Processing

Data were collected on gender, age and the occurrence of chronic diseases, concerning regular visits to the doctor and the use of drugs. Among women, the absence of disease was declared by 31.5%, and 25.4% among men.

A questionnaire with closed questions was used as a tool in the research. Answers to questions were rank - assigned the corresponding point.

1. Physical activity

In population-based studies the most commonly are used psychometric techniques concerning the self-assessment of respondents activity. Taking into account the age of the respondents for this purpose was used selected questions of Baecke questionnaire (Baecke et all. 1982, Ono et all. 2007, Hertogh et all. 2008). These questions were about:

• self-assessment of activity in relation to persons of the same age: considerably reduced / lower / the same / higher / much higher;
• assessment of the frequency of walking in their spare time: never / rarely / sometimes / often / very often;
• the average daily walking time in minutes:
<5 / 5-15 / 15-30 / 30-45 / >45.

Responses were scored on a scale of 1-5. Average points obtained from the answers expressed a physical activity index - PAI. An analysis of the reliability of this indicator was done. Cronbach's alpha coefficient (IC) was 0.79 for women, 0.84 for men. It must therefore be assumed that the construction of this index showed sufficient reliability.

2. Barriers to physical activity

The diagnosis of barriers to physical activity was based on the assumption of the subjectivity of the individual in making activity, rejecting the thesis of the existence of external barriers. Justification for that was the selection of study - these people were motor-independent, in which the occurrence of chronic diseases does not affect the possibilities of locomotion. Hence, the barrier activity equated with kinesiophobia treated as a personality disposition. The KCS questionaire (Kinesiophobia Casuses Scale) was used in the investigation. It allows the diagnosis of barriers in two domains: biological and psychological. Each domain contains the following four factors. Biological domain (BD): morphologic (M), individual need for stimulation (INS), energetic substrates (ES), power of biological drives (PBD). Psychological domain (PD):

self-acceptance (SA), self-assessment of motor predispositions (SA MP), state of mind (SM), susceptibility to social influence (SSI). Domain creates its factors' mean, and the mean of both domains gives a general kinesiophobia index - index KCS. Scale score ranges: 0 (minimum) - 100 (maximium). The more points – the greater the severity of kinesiophobia (Knapik et all. 2010,2012). The analysis showed sufficient reliability of this tool. For BD Alpha Cronbach' was: women = 0.809; men = 0.825. For PD: women = 0.783; men = 0.843.

3. Quality of life related to health - self-assessment of health

The SF-36 questionnaire was used to measurement. It allows you to determine the health self-assessment in two components: physical component (PC) and mental component (MC). Each of the health components has four dimensions of health, which forms a standard component. PC consists of: physical functioning (pf), role limitations due a physical health (rlph), pain(p), general health (gh). Dimensions of health in the MC are: role limitations due this emotional problems (rlep), energy/fatigue (e/f), emotional well-being (ewb) and social functioning (sf). Score on a scale of 0 - 100 allows you to estimate the health in both the individual factors as well as components. The more points – including better health self-assessment (Ware & Sherbourne 1992, Żołnierczyk-Zreda 2009).

Statistical Analysis

Descriptive statistics of respondents were done: mean ± SD. Relationships between variables were calculated using Pearson's correlation coefficient. The differences between the analyzed variable was calculated using ANOVA analysis. Accepted level of statistical significance: $p < 0.05$.

RESULTS

PAI calculated for women was: 3.06 ± 0.82; for men: 3.25 ± 0.88. There were no differences by gender: p=0.2051. Correlation analysis of age - PAI showed a low relationship for the women: r=-0.278 (p=0.012), and no relationship for the men: r=0.091. There were also no differences concerning this index between healthy and chronically ill. Levels of differences for women were: p=0.7765; for men: p = 0.4446. Average PAI together with the min-max values according to the age are presented on figures 1 and 2.

Descriptive statistics of kinesiophobia domains and factors and differences – including gender are presented in Table 1.

Effect of BD, PD and KCS index on PAI in the group of women were as follows:

- BD – PAI: r=-0.496 (p<0.01)
- PD – PAI: r=-0.401(p<0.01)
- KCS index – PAI: r=-0.483 (p<0.01).

The correlation coefficients for men:

- BD – PAI: r = -0.626 (p<0.01)
- PD – PAI: r= -0.548 (p<0.01)
- KCS index – PAI: r= -0.649 (p<0.01).

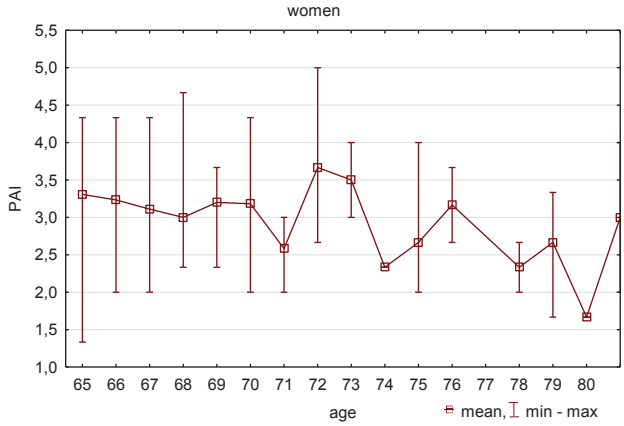

Figure 1. Age and PAI - women

Figure 2. Age and PAI – men

The next step was the examination of dependence between age and kinesiophobia. Among women, there was no correlation or they were low. Only factor (INS) correlated moderately with age. No relationship was found in the group of men. Levels of correlation are presented in Table 2.

Diversity - gender was also observed in kinesiophobia differences between people declaring no chronic disease and chronically ill. Statistically significant differences were observed among women. These differences are related to two domains: BD p=0.0360, PD p=0.0107 and KCS index p=0.0127. In any case, the higher values of indicators were in the group of women chronically ill. Among men, no differences were found.

The next stage of the analysis concerned the respondents' self-assessment of health. Descriptive statistics and differences by gender are presented in Table 3.

The relationship of age - PC and age - MC were also examined. In women, the correlations were

Table 1. Descriptive statistics of kinesiophobia and comparison of gender

Kinesiophobia: domain and factors	Gender	Mean ± SD	Min-max	Differences based on gender: p=
Biological domain	W	44.47 ± 18.93	3.13-96.88	0.0588
	M	40.90 ± 18.14	3.13-96.87	
Morphologic	W	35.72 ± 30.50	0-100	0.0268*
	M	29.17 ± 27.20	0-100	
Individual need for stimulation	W	45.52 ± 21.29	0-100	0.0410*
	M	49.94 ± 21.21	0-100	
Energetic substrates	W	46.91 ± 28.23	0-100	0.0036*
	M	39.08 ± 23.98	0-100	
Power of biological drives	W	49.74 ± 25.01	0-100	0.0982
	M	45.42 ± 26.56	0-100	
Psychological domain	W	54.94 ± 19.43	14.58-100	0.0002**
	M	48.15 ± 16.57	8.33-88.89	
Self-acceptance	W	46.53 ± 28.23	0-100	0.0000**
	M	35.40 ± 23.83	0-100	
Self-assessment of motor predispositions	W	54.11 ± 25.54	0-100	0.0116*
	M	47.67 ± 24.44	0-100	
State of mind	W	57.99 ± 23.06	0-100	0.0027*
	M	51.13 ± 21.62	0-100	
Susceptibility to social influence	W	61.20 ± 26.84	0-100	0.2964
	M	58.40 ± 25.72	0-100	
Index KCS	W	49.70 ± 17.80	9.90-89.24	0.0027*
Kinesiophobia Casuses Scale	M	44.52 ± 15.83	5.73-91.49	

*p<0.05; **p<0.001

Table 2. Correlations age - domain and factors of kinesiophobia

Gender	BD	M	INS	ES	PBD	PD	S-A	S-A MP	SM	SSI	Index KCS
W	0.147*	0.095	0.401**	0.083	0.263**	0.329**	0.221**	0.240**	0.317**	0.373**	0.343**
M	-0.014	0.066	-0.022	-0.050	-0.011	0.085	0.086	0.030	0.042	0.088	0.039

BD-Biological domain , M-morphologic, INS-individual need for stimulation , ES-energetic substrates , PBD-power of biological drives, PD-Psychological domain, SA-self-acceptance, MP-self-assessment of motorpredispositions, SM-state of mind, SSI-susceptibility to social influence, *p<0.05; **p<0.001

PC - r=-0.345 (p<0.001); MC - r=-0.198. Respectively, in the group of men: PC - r=-0.027; MC - r=0.078.

Mean and the min - max values in each year of life represent figures 3 and 4.

DISCUSSION

Measurement of physical activity aroused and still arouses much controversy. In terms of population the most commonly used method is the estimation on the basis of subjects' self-esteem. Researchers used a lot of tools, each of them carries some limitations. The design of the indicator presented in this study is a compromise, where simplicity and clarity were the most important.

Examined group of the elderly showed a relatively good level of activity according to the adopted rate of PAI - the mean was more than half of the adopted scale. However, the value of the SD indicates the characteristic, not only for old age, individual differences. Good level of mean was conditioned by the criteria of selection of respondents. In turn, the reasons for the adopted selection of criteria was searching for the determinants of health (Dolińska-Zygmunt 2001), which excluded people motorically dependent.

In many studies, age is treated as a variable to explain the given phenomenon. The presented study considering dependence on the age and the activity showed a low correlation among women and the lack of correlation in group of men. With regard to the structure of applied factor, this suggests that this is a weak determinant of presented activity in the eldery. In this context, observations of Breuer and Wicker seem to be very interesting (2007, 2009). The researchers suggest to treat age as a proxy variable by which one can try to explain the complexity of the determinants of activity. In the next paper Breuer et al (2010). distinguish four factors of decrease activity with age. These are: the lowering of physical fitness and health [physical factor], changing motivations and attitudes to

Table 3. Self-assessment of health in the investigated group (SF-36)

Health components and factors	Gender	x ± SD	Min - max	Differences based on gender: p
Physical component	W	50.32 ± 24.79	6.46 – 95.83	0.0007**
	M	58.78 ± 24.22	4.38 – 97.92	
Physical functioning	W	58.21 ± 25.89	0 -100	0.0023*
	M	66.62 ± 28.25	0 -100	
Role limitations due a physical health	W	47.21 ± 44.01	0 -100	0.0047*
	M	59.75 ± 42.64	0 -100	
Pain	W	54.53 ± 28.17	0 -100	0.0155*
	M	61.26 ± 26.17	10.00 - 100	
General health	W	41.34 ± 21.27	0 – 83.33	0.0036*
	M	47.51 ± 20.08	0 – 91.67	
Mental component	W	50.51 ± 22.40	9.50 – 99.00	0.2461
	M	63.24 ± 24.06	10.25 - 100	
Role limitations due this emotional problems	W	56.67 ± 45.34	0 -100	0.0129*
	M	67.80 ± 42.03	0 -100	
Energy/fatigue	W	54.30 ± 19.87	10.00 - 100	0.2124
	M	56.86 ± 20.72	10.00 - 100	
Emotional well-being	W	64.06 ± 19.15	0 -100	0.5965
	M	62.98 ± 20.88	12.00 - 100	
Social functioning	W	67.01 ± 25.56	0 -100	0.5337
	M	65.31 ± 28.45	0 -100	

*p<0.05; **p<0.001

Table 4. Correlations PAI - health components and factors

Gender	PC	pf	rlph	p	gh	MC	rlep	e/f	ewb	sf
F	0.409**	0.388**	0.314*	0.232*	0.454**	0.399**	0.271*	0.405**	0.394**	0.330*
M	0.521**	0.523**	0.361*	0.378*	0.551**	0.512**	0.371*	0.505**	0.637**	0.313*

PC-physical component, pf-physical functioning, rlph-role limitations due a physical health, p-pain, gh-general health, MC-mental component, rlep- role limitations due this emotional problems, e/f -energy/fatigue, ewb-emotional well-being, sf-social functioning, *p<0.05; **p<0.001

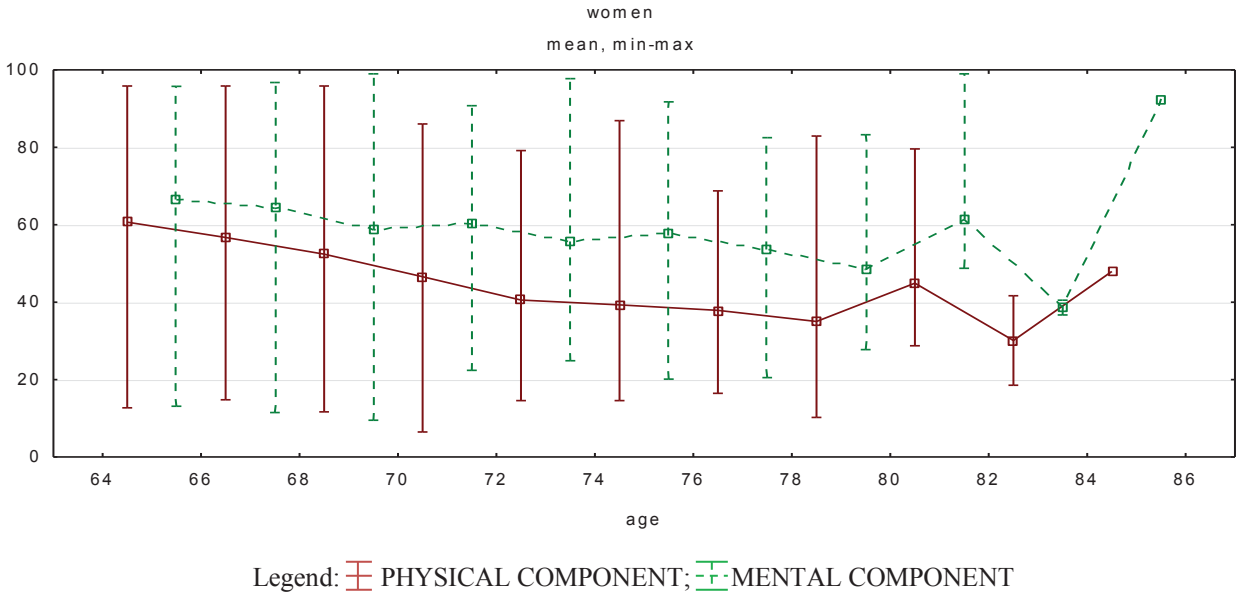

Figure 3. Physical component and mental component - women

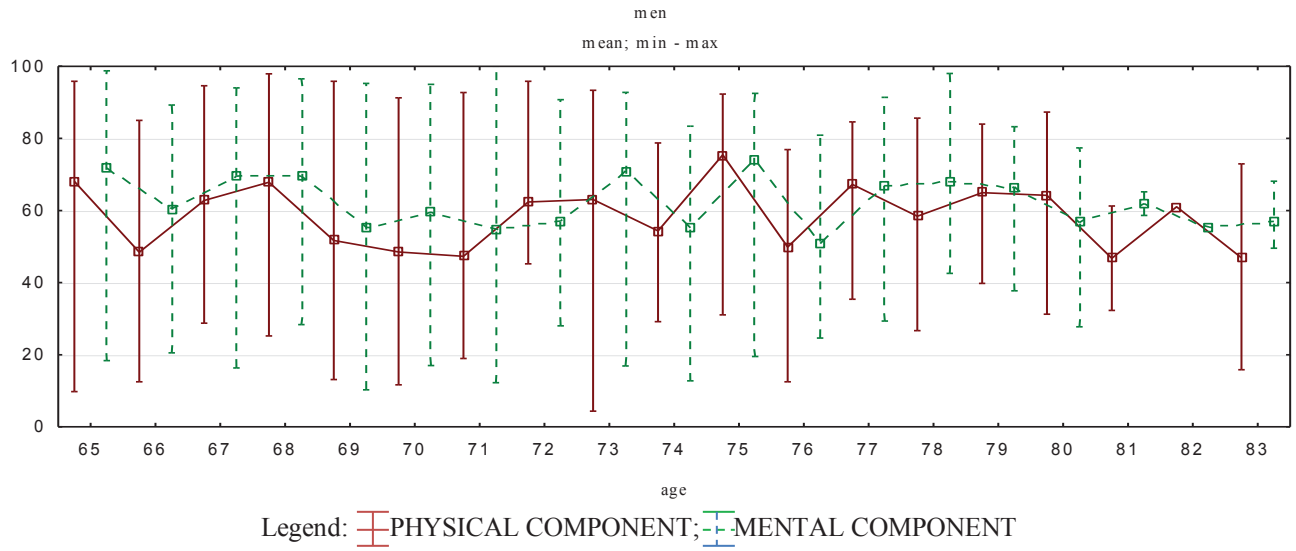

Figure 4. Physical component and mental component – men

activity [mental factor], socially acceptable norms of behavior [social factor] and age-related changes of economic resources [economic factor]. This corresponds with the views of Cevini et all. (2008). These researchers treat the aging process, as largely heterogeneous, forming a mosaic of genetic, environmental and psychosocial factors. In the light of presented results these ideas can be applied to both the level of activity presented by the elderly (Figures. 1,2) kinesiophobia (Table 1) and the self-assessment of health (Figfigures. 3,4).

The tool used in this study for measuring kinesiophobia - KCS scale (Knapik 2010, 2012) takes into account the factors mentioned by Breuer et all. (2010). However, they are not treated in terms of time – influencing the decline in activity with age, but in terms of determinants of activity, which may constitute its barriers (Knapik et all. 2010). As in previous studies (Knapik et all. 2012, 2013), the average PD were higher than the average BD. Analysis of correlation with age seems to confirm the views of both Breuer and Wicker (2007, 2009), regarding the treatment of age as a proxy variable and the thesis of the authors of this tool – treating kinesiophobia as a relatively permanent disposal of personality (Knapik et all. 2010). It is true that there are no longitudinal studies using this tool, but a large individual variability (Table 1), and confirmed the reliability of this tool seem to be a serious argument in favor of its use.

Analysis of health self-assessment shows a relatively well-being in the test - the average PC and MC above 50 points. Noteworthy are the lowest average of factor {gh} - regardless of gender, where clearly visible are cultural influences, symptomatic for the country where the research was conducted. The observed lack of correlation with age in men and women with MC and weak correlations with PC in women seem to confirm previous observations. This also applies to large individual variability (Fig. 3.4). In turn, indicators in Table 3 confirm that the activity and wellbeing are mutual correlates.

CONCLUSION

In summary, women represent a lower level of physical activity than men, but at an older age, these differences are no longer statistically significant. However, the level of activity barriers is still higher. Aging is a process which varies greatly individually, and this applies to activity, its barriers, and self-assessment of health. Age is not a category that fully explains the complex issues depending on the variables examined.

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