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### Personality Traits and Subjective Health in Retirement Age – The Role of Personal Resources

**Abstract** *The aim of the study was to analyse the relationship between five-factor personality traits and subjective health in retirement age, including the mediating role of personal resources. The sample comprised of 240 older adults approaching or of retirement age; aged 55-70 ( $M = 60.1$  years). Subjective health was negatively associated with neuroticism and positively associated with extraversion and openness to experiences. Multiple mediation analyses indicated that personal resources (especially the sense of meaningfulness) mediated most of the analyzed associations between personality and subjective health. For conscientiousness suppressive effects were found.*

**Keywords:** *subjective health, personality, personal resources, retirement, mediator.*

#### Introduction

According to the data by Eurostat (2010), in the last 50 years the world population has more than doubled, whereas the population of Europe (and also that of Poland) has grown only slightly. Furthermore it has been observed that the population of Europe has had a decrease in the number of working age people, and at the same time a dramatic increase in the number of retirement-aged people. The prognoses for the next half century indicate that the proportion of old people in Europe will grow even higher. According to the forecasts, in the year 2060 people above 65 will constitute 30% of the population of the European Union, as compared to 17% in the year 2008 (cf. Finogenow, 2011). Facing the ongoing changes, studies and searches related to broadly meant life quality of the elderly, becomes particularly important. Besides looking for new ways of prolonging human life, researchers make attempts at finding ways of improving its quality.

Getting old is often defined as gradual lowering of physical and mental fitness until death (Straś-Romanowska, 2000). According to this approach, successful aging (in late adulthood) consists of accepting and adequate adapting to

these limitations (e.g. Chapman, 2005). In contrast Rowe and Kahn (1987) claim that successful aging means lack of marked diseases or complaints, high level of cognitive functioning, and maintaining high involvement in social life.

It seems impossible, however, to avoid all diseases in old age. Furthermore, a majority of old people who suffer from chronic diseases or experience a decrease in their physical or mental capabilities claim that they grow old in a successful way (e.g. Stawbridge, Wallhagen, & Cohen, 2002). An attempt at integrating varied approaches has been made within the contemporary concept which refers to aging as an individual process that is dependent on characteristics of a given person, and successful aging is a function of many variables (Baltes & Baltes, 1990; Kaplan, 1994, 2003). Numerous authors (e.g. Bothmer & Fridlund, 2003) also point out the need of considering subjective opinions on one's own life and health, as these opinions often play a greater role in predicting happiness than objective medical diagnoses do.

Exceeding the threshold of the old age is frequently considered equivalent to reaching the retirement age and ceasing occupational activity. Going into retirement is treated as one of the most important critical events in

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this period of life (cf. Adejumo, 2010; Finogenow, 2008; Finogenow, 2011; Pinguart & Schindler, 2007; Straś-Romanowska, 2000), which may influence varied aspects of life quality in every sense of the notion (Pasik, 2007). For many people it is linked with loss of the previous professional and financial status, and also with decrease in the sense of importance, prestige, and an increase in the sense of being useless. Becoming included in a group of people in an “unproductive” age is sometimes felt as being equal to becoming “unnecessary”.

Although some researchers (cf. Wu, Tang, & Yan, 2005) state that this change may be perceived in a positive way and linked with developing new interests, Langlois and Cramer (2004) indicate that it is always a difficult situation which demands adapting to new circumstances. For many people the moment of making the decision and going into retirement is a landmark in their life, which is related to a change in the role played before, reorganisation of the former life-style, and a change in the number and quality of interpersonal contacts. Many researchers who study retirement (cf. Beehr, 1986) focus also on the fact that retirement is a process that starts with the planning and decision making about retiring still before the time of ceasing one’s career and it lasts for several years after this moment.

Research results that refer to the influence of a difficult situation - and retiring belongs to this category - upon health indicate that the situation may remain stable or even better in the first period of retirement (lowering incidence rate, increase in the level of energy, good subjective health) (Gall, Evans, & Howard, 1997). It is only in the later years of retirement that physical and psychological health become worse, which may be related to general deterioration of health in the elderly (Palmore, 1986). It is also shown clearly in some research results that health plays a crucial role in the process of adapting to retirement. Physical health is referred to as one of the most important predictors of adaptation to a new situation (Hardy & Quadagno, 1995; Seccombe & Lee, 1986).

A number of studies have been devoted to psychological determinants of health (e.g. Schröder et al., 2011). A particular aspect is attributed to personality traits, especially the dimensions distinguished within the Five-Factor Model (FFM), with focus on a significant influence of neuroticism and extraversion.

Neuroticism is the dimension which reflects emotional adaptation *versus* emotional instability, and its high level means vulnerability to experience negative emotions, tendency to worrying, difficulties in coping with stress, and sensitisation tendencies. As a factor related to negative emotionality and difficulties in coping with stress, it leads to deterioration in health (Duberstein et al., 2003; Jerram & Coleman, 1999; Kempen, Jelicic, & Ormel, 1997; Kempen et al., 1999; Löckenhoff, Sutin, Ferrucci, & Costa, 2008).

Extraversion is linked to a higher level of activity, sociability, and positive emotionality (Costa & McCrae, 1980, 1992), which contributes to higher sense of subjective well-being (Hayes, Joseph, 2003; Steel, Schmidt, & Shultz, 2008) and lower indicators of depression (Jylha & Isometsa, 2006). Although several studies show links between extraversion and self-rated health (Korotkov & Hannah, 2004), associations with physical health are less consistent across studies than for neuroticism.

In the recent years, there has been observed a growing interest in the three remaining dimensions (c.f. Löckenhoff, Duberstein, Friedman, & Costa, 2011). Openness to experience is related to higher mental flexibility, which may facilitate adaptation to new situations and thus favour physical and psychological well-being (Duberstein et al., 2003; Jerram & Coleman, 1999; Steel, Schmidt & Shultz, 2008). Conscientiousness, which is related to higher self-discipline and being well-organised, favours undertaking healthy behaviours (Bogg & Roberts, 2004), and this contributes to better objective and subjective health, lower risk of cognitive impairment, and lower mortality (Löckenhoff, Sutin et al., 2008; Weiss & Costa 2005). Highly conscientious individuals also report a sense of competence and confidence, and this may partially account for their apparently better mental health (Jerram & Coleman, 1999; Löckenhoff, Sutin et al., 2008). The weakest role is attributed to agreeableness, which refers to being ready to cooperate and perform altruistic activities. Although multiple studies have linked it to better mental health (Löckenhoff, Sutin et al., 2008; Steel, Schmidt, & Shultz, 2008), associations with physical health are relatively small.

As this brief review suggests, five-factor personality traits appear to be associated with subjective health in general population. However, it is not clear whether these findings extend to the special situation of those over retirement age. Recent studies suggest that the association between psychosocial characteristics and health depends on sample characteristics such as age and contextual factors (Duberstein et al., 2003; Quinn, Johnson, Poon, & Martin, 1999; Staudinger & Fleeson, 1996). Moreover, as intensity of the particular personality dimensions undergoes some changes in the life cycle (Costa & McCrae, 1994, in: McCrae, 2002), it may be assumed that also their role in forming a subjective sense of health may differ depending on a period of life. The specific association of personality with subjective health in the elderly population therefore warrants further examination.

In addition to the methodological concerns outlined above, other open questions remain. Perhaps the most important of these issues concerns the underlying mechanisms by which personality of older people translates into health outcomes.

Among psychological variables that are important for subjective health the role of personal resources are accentuated as they are helpful in coping with stress and are related to the positive evaluation of one’s life and to healthy behaviours, e.g.

the sense of coherence (Lundman & Norberg, 1993; Suominen, Blomberg, Helenius, & Koskenvuo, 1999; Wainwright et al., 2007), self-efficacy (e.g. Charrow, 2006; Löckenhoff, Duberstein et al., 2011; Hampton & Marschall, 2000), self-esteem (e.g. Reitzes, Mutran, & Fernandez, 1996; Zhang & Leung, 2002), or optimism (e.g. Segerstrom, 2005).

Sense of coherence (SOC) refers to a global orientation to one's inner and outer environments that is hypothesized to be a significant determinant of location and movement on the health ease/disease continuum (Antonovsky, 1993, 1995). These factors are an interrelated sets of beliefs, namely, sense of comprehensibility, sense of manageability, and sense of meaningfulness. Dispositional optimism is considered as a generalized tendency to expect positive outcomes in the future, even in the face of obstacles (Scheier, Carver, & Bridges, 1994). Self-efficacy is a person's belief about his or her ability and capacity to accomplish a task or to deal with the challenges of life. It includes the behavioural predispositions that lead one to engage in productive strategies for mastering role changes inherent in retirement transitions (Reis & Pushkar, 1993). Self-esteem is assumed to be a positive or negative orientation toward oneself. It refers to how people feel about themselves and reflects and affects their ongoing transactions with their environment and the people they encounter (Watson, Suls, & Haig, 2003). Many previous and recent studies have found that these personal resources are associated with personality traits and have a main, moderating or mediating role in the explanation of health.

The aim of the study was to analyse the relationship between five-factor personality traits and subjective health in retirement age, including the mediating role of personal resources. It should be noticed that a majority of previous studies dealt with a single psychological variable, with no consideration given to interactions among them. Furthermore, a role of these variables in defining subjective health in the retirement age is not thoroughly clear.

Based on the existing literature, I expected that subjective health would be negatively related to neuroticism and positively related to extraversion, openness and conscientiousness. Even though few studies have examined the health effects of agreeableness, also associations between higher agreeableness and better subjective health were expected.

Because individuals' personality influences their personal resources (self-esteem, sense of coherence, self-efficacy, dispositional optimism), and their personal resources, in turn, influence subjective health, it was also predicted that associations between older people's personality traits and their subjective health would be mediated by personal resources.

## Method

The results presented in this article constitute a part of a larger research on determinants of subjective health in

the period of retirement transition (Finogenow, 2012). The group comprised 240 people, aged 55-70 ( $M = 60.1$ ,  $SD = 4.7$ ), living in Poland. The average age of going into retirement was the criterion used in forming the examined group.

For the measurement of psychological variables the following research tools were used:

*NEO Five Factor Inventory (NEO-FFI)* (Costa & McCrae, 1989; Zawadzki, Strelau, Szczepaniak, & Śliwińska, 1998). The inventory is based on the five-factor model of personality (Costa & McCrae, 1989). It consists of 60 items - short, self-descriptive statements to be answered on a five-point Likert scale. The NEO-FFI provides scores for the five basic personality dimensions (neuroticism, extraversion, openness, agreeableness, and conscientiousness). Reliability measured with Cronbach's  $\alpha$  in the present study were  $\alpha = .82$  for neuroticism,  $\alpha = .80$  for extraversion,  $\alpha = .70$  for openness,  $\alpha = .67$  for agreeableness,  $\alpha = .80$  for conscientiousness.

*Generalized Self-efficacy Scale (GSES)* (Schwarzer & Jerusalem, 1995; Juczyński, 2001). Based on Bandura's Social Cognitive Theory and the concept of SE, Schwarzer and Jerusalem (1995) created the so-called generalized self-efficacy scale (GSES) to measure individuals' SE. In this research tool Cronbach's alpha coefficient was .84.

*Rosenberg's Self-Esteem Scale (RSES)* (Rosenberg, 1965; in: Juczyński, 2001). The scale is a one-dimension tool which allows for measuring the level of general self-esteem - a relatively constant disposition meant as a conscious attitude (positive or negative) to oneself. It comprises 10 self-descriptive statements to be answered on a four-point Likert scale. In the Polish version the higher a result the lower self-esteem is. Reliability measured with Cronbach's  $\alpha$  in the present study were  $\alpha = .86$ .

*The Sense of Coherence Questionnaire (SOC-29)* (Antonovsky, 1993; Koniarek, Dudek, & Makowska, 1993). The SOC Questionnaire was created by Antonovsky in 1983 to measure individuals' belief in the unity and logic of the world. It is based on the concept of generalized resistance resources and is deeply rooted in the salutogenic model of health and disease that assumes a lack of balance as the organism's primary state (Antonovsky, 1993, 1995). In this research tool Cronbach's alpha coefficient is .85 for comprehensibility, .87 for manageability, and .89 for meaningfulness.

*Life Orientation Test (LOT-R)* (Scheier, Carver, & Bridges, 1994; Juczyński, 2001). This test is aimed at measuring dispositional optimism, which is defined as a dispositional trait that displays general expectations of either positive or negative events. The scale comprises 10 self-descriptive statements to be answered on a five-point Likert scale. In this research tool Cronbach's alpha coefficient was .75

*The List of Somatic Symptoms* (Cofta in: Klonowicz, 2001). The scale is used to measure subjective perception of one's own health. The list consists of 16 items that

present varied common somatic complaints. An examinee is asked to assess frequency and intensity of each of the distinguished symptoms. An analysis is based upon two indicators: the indicator of range (equal to the number of enumerated symptoms) and the indicator of intensity (the sum of frequency and intensity of all the experienced complaints). Cronbach's  $\alpha$  in this research is .76 for the range and .77 for the intensity of somatic symptoms.

Predictions regarding the specific pattern of associations between personality and subjective health were tested using correlational analyses. Predictions regarding the mediating role of personal resources (i.e., self-efficacy, self-esteem, dispositional optimism, components of sense of coherence) were tested via multiple mediation analyses using the statistical software package SPSS 20.0 for Windows and SPSS Macro INDIRECT (Preacher & Hayes, 2008). Mediation analyses followed the model depicted in Figure 1. Separate analyses were conducted for each of the personality traits and the two indicators of subjective health as the dependent variables. Each time, remaining personality traits were controlled as covariates. The presentation of indirect effects (ab paths) is focused on findings based on bootstrapping (Cichočka & Bilewicz, 2010; Preacher & Hayes, 2008), a nonparametric approach to effect-size estimation that is robust to deviations from normality and yields lower Type 1 error rates based on normal theory (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). The number of bootstrap resamples was 5000 (Rucker, Preacher, Tormala, & Petty, 2011). Data used in the analyses were not standardized.

**Results**

Associations between personality traits and subjective health were largely consistent with the hypotheses (table 1). Neuroticism, extraversion, and openness to experiences were significantly related to subjective health in a group of the elderly. The lower neuroticism, and also the higher extraversion and openness to experiences, the lower indicators of range and intensity of somatic symptoms. No significant dependencies have been found for agreeability and conscientiousness.

The proposed mediators (i.e. self-efficacy, self-esteem, dispositional optimism, and the sense of coherence) were associated both with personality traits and subjective health. All the personal resources were negatively associated with neuroticism and positively associated with the remaining personality traits. In addition, the analyses show that there are significant dependencies between all the personal resources and the indicators of subjective health. The higher sense of self-efficacy, self-esteem (the higher the result the lower self-esteem), dispositional optimism, and the sense of coherence, the better opinion on one's health.

To test the associations among personality, subjective health, and the proposed mediators, the mediation analyses following the model depicted in Figure 1 were conducted. The basic prerequisite for mediation assumes considering only those variables that show significant intercorrelations, but Rucker et al. (2011) indicate the importance of considering suppression effects in mediation analyses in psychology. Evidence of suppression is found when including an intervening variable produces a value of  $c'$  that is greater in magnitude than  $c$ . In such a case, the relationship between an independent and a dependent variable is actually strengthened, not weakened, by including an intervening variable (i.e., a suppressor) (Rucker et al., 2011). In order to examine whether there exist suppression effects among the analysed variables, also agreeableness and conscientiousness were examined as predictors of self-rated health.

To test multicollinearity between the proposed mediators the variance inflation factor (VIF) and multicollinearity tolerance (TOL) were estimated in the regression model. Because they were well within acceptable limits (i.e., TOL above .2 and VIF below 10) (Adnan, Ahmad, & Adnan, 2006; Field, 2000; O'Brien, 2007), despite some correlations among the proposed mediators, collinearity may not be a serious issue for this data. Therefore all the proposed mediators were included together into mediation models.

Tables 2 and 3 show the results of multiple mediation analyses for the range and intensity of somatic symptoms. A four-step process was followed: step 1 predicts subjective health based on personality ( $c$  paths), step 2 predicts potential mediators based on personality ( $a$  path), step 3 predicts subjective health based on each of the mediators

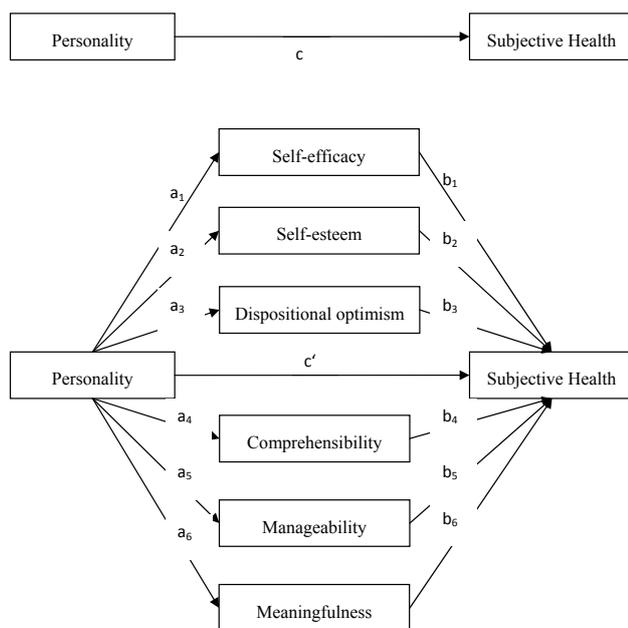


Figure 1. Schematic for proposed mediation models.

Table 1 Means, Standard Deviations, and Correlations Among Personality Traits, Subjective Health, and Proposed Mediators

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Range of somatic symptoms	9.28	4.10	-											
2. Intensity of somatic symptoms	33.56	20.81	.76***	-										
3. Neuroticism	19.75	7.67	.33***	.45***	-									
4. Extraversion	27.45	5.93	-.13*	-.21**	-.36***	-								
5. Openness	25.65	6.15	-.16*	-.19**	-.24***	.25***	-							
6. Agreeableness	31.52	5.51	-.05	-.06	-.30***	.21**	.13	-						
7. Conscientiousness	34.07	5.87	-.02	-.00	-.22**	.28***	.05	.41***	-					
8. Self-efficacy	30.42	4.39	-.25***	-.32***	-.47***	.43***	.18**	.19**	.45***	-				
9. Self-esteem	19.39	3.59	.29***	.34***	.63***	-.43***	-.13*	-.21**	-.35***	-.55***	-			
10. Generalized optimism	15.33	4.05	-.25***	-.31***	-.55***	.38***	.23***	.23***	.20**	.37***	-.55***	-		
11. Comprehensibility	48.39	8.91	-.24***	-.35***	-.55***	.26***	.20**	.22**	.21**	.41***	-.52***	.43***	-	
12. Manageability	47.88	8.52	-.27***	-.34***	-.60***	.37***	.21**	.34***	.24***	.51***	-.48***	.53***	.68***	-
13. Meaningfulness	40.99	7.84	-.29***	-.36***	-.42***	.33***	.27***	.29***	.33***	.48***	-.45***	.40***	.51***	.72***

\*p < 0.05; \*\*p < 0.01; \*\*\* p < 0.001

while including personality as a predictor in the same equation (b path), and step 4 predicts subjective health based on personality while including the mediators in the same equation (c' paths). Finally, the significance of the indirect effects (ab paths) was determined using a non-parametric bootstrapping approach. All the proposed mediation models reached statistical significance, although the percentage of variance explained was somewhat higher for the intensity of somatic symptoms (25%) than for the range of somatic symptoms (13%).

With regard to the association between personality traits and the range of somatic symptoms (Table 2), older people's sense of meaningfulness emerged as a significant mediator for neuroticism, 95% CI [.001; .066]. Because the c' path remained significant, it is possible to indicate only a partial mediation of the effect of neuroticism on the range of somatic symptoms. However, total indirect effect (see ab path) was significant, 95% CI [.012; .137].

The total and direct effects of extraversion on the range of somatic symptoms (c and c' paths) have not reached the level of significance. However, total indirect effect was significant 95% CI [-.088; -.006]. Yet, none of the considered mediators' indirect effects obtained the level of significance itself.

Elderly people's sense of meaningfulness emerged as a significant mediator also for openness, 95% CI [-.052; -.002]. Yet, the total indirect effect was insignificant. Regarding the association between agreeableness and the range of somatic symptoms, no significant indirect effects have been found.

In case of conscientiousness the suppression effect was noted. The total effect of conscientiousness on the range of somatic symptoms was insignificant (c path). After introducing the mediators the direct effect (c' path) became significant. The increase of significance for the total effect suggests that the mediatory variables contained in the model may play the role of suppressive variables. The analysed total indirect effect (ab path) was significant 95% CI [-.117; -.021]. The role of a suppressive variable in this relation is played by the sense of meaningfulness, 95% CI [-.064; -.002].

Regarding the association between personality traits and the intensity of somatic symptoms (Table 3), older people's sense of meaningfulness emerged as a significant mediator for neuroticism, 95% CI [.067; .358], extraversion, 95% CI [-.283; -.001], and openness, 95% CI [-.298; -.036]. For neuroticism and extraversion, the role of a mediator was also played by self-efficacy beliefs, 95% CI [.006; .313] [-.313; -.008]. Yet, total indirect effects of neuroticism and extraversion were insignificant. The analysed total indirect effect of openness (ab path) was significant 95% CI [-.365; -.015]. In case of agreeableness, no significant indirect effects have been found.

In case of conscientiousness the suppression effect was noted. Total effect of conscientiousness on the intensity of somatic symptoms was insignificant (c path). After introducing the mediators the direct effect (c' path) became significant. The analysed total indirect effect (ab path) was significant 95% CI [-.662; -.130]. The role of a suppressive variable in this relation is played by the sense of meaningfulness, 95% CI [-.373; -.059] and self-efficacy, 95% CI [-.412; -.001].

Table 2. Range of Somatic Symptoms: Multiple Mediation Analyses

	Neuroticism		Extraversion		Openness		Agreeableness		Conscientiousness	
Model										
$F(11,228)$	4.248		4.248		4.248		4.248		4.248	
Adjusted $R^2$	.130		.130		.130		.130		.130	
$p$	<.001		<.001		<.001		<.001		<.001	
Effects (path in model)	b	SE	b	SE	b	SE	b	SE	b	SE
Personality to mediators										
Personality to self-efficacy ( $a_1$ )	-.20***	.03	.16***	.04	.03	.04	-.091*	.05	.27***	.04
Personality to self-esteem ( $a_2$ )	.26***	.03	-.12***	.03	.03	.03	.05	.04	-.12***	.03
Personality to dispositional optimism ( $a_3$ )	-.23***	.03	.12**	.04	.05	.04	.03	.04	.02	.04
Personality to comprehensibility ( $a_4$ )	-.58***	.07	.05	.09	.10	.08	.04	.10	.12	.09
Personality to manageability ( $a_5$ )	-.54***	.06	.21**	.08	.06	.07	.21**	.09	.05	.08
Personality to meaningfulness ( $a_6$ )	-.28***	.06	.15*	.08	.19*	.07	.12	.09	.26**	.08
Mediators to RSS										
Self-efficacy to RSS ( $b_1$ )	-.10	.08	-.10	.08	-.10	.08	-.10	.08	-.10	.08
Self-esteem to RSS ( $b_2$ )	.11	.11	.11	.11	.11	.11	.11	.11	.11	.11
Dispositional optimism to RSS ( $b_3$ )	-.05	.08	-.05	.08	-.05	.08	-.05	.08	-.05	.08
Comprehensibility to RSS ( $b_4$ )	<.01	.04	<.01	.04	<.01	.04	<.01	.04	<.01	.04
Manageability to RSS ( $b_5$ )	.03	.05	.03	.05	.03	.05	.03	.05	.03	.05
Meaningfulness to RSS ( $b_6$ )	-.10*	.05	-.10*	.05	-.10*	.05	-.10*	.05	-.10*	.05
Indirect personality to RSS <sup>a</sup>										
Total (ab)	<b>.07</b> <b>(.012;</b> <b>.137)</b>	.03	<b>-.05</b> <b>(-.088;</b> <b>-.006)</b>	.02	-.02	.02	.01	.02	<b>-.07</b> <b>(-.117;</b> <b>-.021)</b>	.02
Self-efficacy ( $ab_1$ )	.02	.02	-.02	.01	-.01	.01	.01	.01	-.03	.02
Self-esteem ( $ab_2$ )	.03	.03	-.01	.01	-.01	.01	.01	.01	-.01	.01
Dispositional optimism ( $ab_3$ )	.01	.02	-.01	.01	-.01	.01	-.01	.01	-.01	<.01
Comprehensibility ( $ab_4$ )	-.01	.03	<.01	.01	<.01	.01	<.01	.01	-.01	<.01
Manageability ( $ab_5$ )	-.01	.03	.01	.01	<.01	.01	.01	.01	<.01	<.01
Meaningfulness ( $ab_6$ )	<b>.03</b> <b>(.001;</b> <b>.066)</b>	.02	-.02	.01	<b>-.02</b> <b>(-.052;</b> <b>-.002)</b>	.01	-.01	.01	<b>-.03</b> <b>(-.064;</b> <b>-.002)</b>	.01
Total personality to RSS (c)	<b>.18***</b>	.04	-.01	.05	-.06	.04	.04	.05	<b>.03</b>	.045
Direct personality to RSS (c')	<b>.11*</b>	.05	.04	.05	-.04	.04	.03	.05	<b>.10*</b>	.049

a. If indirect effect is significant, bias corrected confidence intervals are presented (Lower; Upper). \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\*  $p < 0.001$

Table 3. Intensity of Somatic Symptoms: Multiple Mediation Analyses

	Neuroticism		Extraversion		Openness		Agreeableness		Conscientiousness	
Model										
$F(11,228)$	8.367		8.367		8.367		8.367		8.367	
Adjusted $R^2$	.25		.253		.253		.253		.253	
$p$	<.001		<.001		<.001		<.001		<.001	
Effects (path in model)	b	SE	b	SE	b	SE	b	SE	b	SE
Personality to mediators										
Personality to self-efficacy ( $a_1$ )	-.20***	.03	.16***	.04	.03	.04	-.09*	.05	.27***	.04
Personality to self-esteem ( $a_2$ )	.26***	.03	-.12***	.03	.03	.03	.05	.04	-.12***	.03
Personality to dispositional optimism ( $a_3$ )	-.23***	.03	.12**	.04	.05	.04	.03	.04	.02	.04
Personality to comprehensibility ( $a_4$ )	-.58***	.07	.05	.09	.10	.08	.04	.10	.12	.09
Personality to manageability ( $a_5$ )	-.54***	.06	.21**	.08	.06	.07	.21**	.09	.05	.08
Personality to meaningfulness ( $a_6$ )	-.28***	.06	.15*	.08	.19*	.07	.12	.09	.26**	.08
Mediators to ISS										
Self-efficacy to ISS ( $b_1$ )	-.74*	.37	-.74*	.37	-.74*	.37	-.74*	.37	-.74*	.37
Self-esteem to ISS ( $b_2$ )	-.06	.50	-.06	.50	-.06	.50	-.06	.50	-.06	.50
Dispositional optimism to ISS ( $b_3$ )	-.31	.38	-.31	.38	-.31	.38	-.31	.38	-.31	.38
Comprehensibility to ISS ( $b_4$ )	-.23	.19	-.23	.19	-.23	.19	-.23	.19	-.23	.19
Manageability to ISS ( $b_5$ )	.35	.26	.35	.26	.35	.26	.35	.26	.35	.26
Meaningfulness to ISS ( $b_6$ )	-.65**	.23	-.65**	.23	-.65**	.23	-.65**	.23	-.65**	.23
Indirect personality to ISS <sup>a</sup>										
Total (ab)	.33	.17	-.18	.12	<b>-.16</b> <b>(-.365;</b> <b>-.015)</b>	.09	.05	.10	<b>-.38</b> <b>(-.662;</b> <b>-.130)</b>	.13
Self-efficacy ( $ab_1$ )	<b>.11</b> <b>(.006;</b> <b>.313)</b>	.08	<b>-.12</b> <b>(-.313;</b> <b>-.008)</b>	.08	-.02	.04	.07	.06	<b>-.20</b> <b>(-.412;</b> <b>-.001)</b>	.11
Self-esteem ( $ab_2$ )	-.02	.14	.01	.07	-.01	.02	<-.01	.03	.01	.07
Dispositional optimism ( $ab_3$ )	.07	.09	-.04	.05	-.02	.03	-.01	.02	-.01	.02
Comprehensibility ( $ab_4$ )	.13	.14	-.01	.03	-.02	.04	-.01	.03	-.03	.04
Manageability ( $ab_5$ )	-.19	.14	.08	.07	.03	.04	.08	.07	.02	.04
Meaningfulness ( $ab_6$ )	<b>.18</b> <b>(.067;</b> <b>.358)</b>	.07	<b>-.10</b> <b>(-.283;</b> <b>-.001)</b>	.07	<b>-.12</b> <b>(-.298;</b> <b>-.036)</b>	.06	-.08	.07	<b>-.17</b> <b>(-.373;</b> <b>-.059)</b>	.07
Total personality to ISS (c)	<b>1.20***</b>	.157	-.24	.222	-.26	.215	.25	.25	<b>.32</b>	.23
Direct personality to ISS (c')	<b>.87**</b>	.228	-.07	.241	-.09	.209	.20	.25	<b>.70**</b>	.25

a. If indirect effect is significant, bias corrected confidence intervals are presented (Lower; Upper). \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\*  $p < 0.001$

## Discussion

The aim of the study was to analyse the relationship between five-factor personality traits and subjective health in retirement age, including the mediating role of personal resources. The obtained results show that subjective health, though determined by numerous factors is also influenced by psychological variables.

Consistent with prior studies (e.g. Duberstein et al., 2003; Jerram & Coleman, 1999; Korotkov & Hannah, 2004; Löckenhoff, Sutin et al., 2008), subjective health was positively associated with extraversion and openness and negatively with neuroticism. Agreeableness and conscientiousness were not linked to any of indicators of subjective health.

Consistent with the hypotheses, old people's personal resources mediated the observed associations between personality traits and subjective health. However, in some cases a significant indirect effect was found only for the whole model and the indirect effects of single mediators were insignificant. These results suggest that lack of significance of the indirect effects (when all of the proposed mediators were included together into mediation models) may reflect the similarity in the influence exerted by each of the mediators on the analyzed relationship.

Neuroticism was related to the range of somatic symptoms both, in a direct and indirect way. Neuroticism applies to an emotional aspect of an individual's functioning. Its high intensity is manifested with a tendency to react with tension, inability of coping with stress, excessive self-criticism, a tendency to experience social anxiety, and also weak control of impulses and a tendency to react with anger and irritation. Thus, it is easy to understand that neuroticism exerts an impact upon lowering self-esteem, the sense of being able to influence difficult situations and optimistic attitude towards one's own future. In addition, neuroticism favours sensitisation tendencies, which consist of exaggerating one's physical complaints. Therefore, its direct influence upon the declared range and intensity of complaints is fully understandable.

Extraversion and openness do not influence older people's somatic symptoms in a direct way, however they modify their level by means of regulating the intensity of personal resources that an individual possesses. Extraversion is related to the skill of starting and maintaining social relations, searching for activities and emotionality in the range of positive emotions. Thus, it favours readiness to seeking support in others and helps undertaking new activities, which – in the situation of career change in elderly people – increase the sense of self-efficacy and help maintaining a positive thinking about oneself and an optimistic attitude toward the future. Also openness to experiences, which is related to seeking new ideas, helps - in the situation of the retirement transition – maintaining a high conviction that life after this change is still meaningful and

engaging one's resources in undertaking new activities is worth doing.

Among the analysed mediators, a significant indirect effect was found for the sense of meaningfulness. It was found to play a role in mediating the observed associations between most of personality traits and subjective health.

The sense of meaningfulness constitutes the emotional and motivational component of the sense of coherence and it is related to perceiving usefulness of an activity and value of being involved in it. The sense of meaningfulness provides an individual with emotional orientation in reality and the feeling that his or her life is valuable (Antonovsky, 1995; Dolińska-Zygmunt, 1996). While ceasing their professional activity the elderly may perceive this change as a signal of entering the last stage of their life. The sense of meaningfulness, which is linked with a strong conviction that creating one's own life and undertaking some efforts to cope with everyday difficulties is worth doing, favours elderly people's involvement in new tasks and activities and starting new social interactions. This becomes a source of positive social experiences, it may be a signal of fitness of one's organism, it may also reduce focusing on somatic complaints.

The sense of meaningfulness also played the role of a suppressive variable in the relation between conscientiousness and subjective health. The results obtained in the presented research are surprising.

Results of up to date studies indicate a positive relationship between conscientiousness and objective and subjective health, lower risk of cognitive impairment, and lower mortality (e.g. Weiss & Costa 2005). In the presented research, the relationship between conscientiousness and negative indicators of health was at first insignificant. However, after introducing the mediatory variables to the analyses, it has reached the level of significance, which indicates the occurrence of suppressive effects. The sense of meaningfulness (in case of both the health indicators) and self-efficacy (in case of intensity of somatic symptoms) became a hindrance to the influence of conscientiousness upon perception of one's own health. Results of the mediation analysis indicate that conscientiousness exerts a favourable impact upon the sense of meaningfulness and self-efficacy, and these two variables lower the negative health indicators. However, when their influence is controlled, it appears that the higher conscientiousness in the aged the lower perception of health (higher indicators of the range and intensity of somatic complaints).

There are some potential limitations that should be considered in the evaluating the results of this research. In drawing attention to these deficits I would like, at the same time, to suggest directions for future research.

First, the presented data is cross-sectional in nature and do not allow for the testing of temporal relationships or casual hypotheses. Second, the present study investigated the relationships between five-factor personality traits, per-

sonal resources and subjective health in a relatively small sample of older people. Consequently, one important task for future research is to compare this relationships between different age groups.

Another limitation of the conducted research lies in analysing many mediatory variables simultaneously. In some further studies it would be worth considering the role of single variables that can mediate in the relationship between personality traits and subjective health. Finally, there are some concerns about the exclusive focus on subjective health ratings. Although subjective health has been linked to objective health outcomes (Benyamini & Idler, 1999; Kaplan, Stawbridge, Camacho, & Cohen, 1993), future studies need to include measures of both objective and subjective health.

In spite of these limitations, the present study makes important contributions to the literature on personality-health links among persons in the period of retirement transition by examining the mediating role of their personal resources. The obtained results indicate that factors which are to a great extent determined biologically (personality factors distinguished in FFM) can exert both direct and indirect influence upon subjective health in the elderly. Yet, it should be noted that most of the psychological factors which appeared significant for evaluation of one's health (e.g. the sense of meaningfulness, self-efficacy) belong to factors that may be stimulated and modified by environmental influences (cf. Straś-Romanowska, 2000). Thus they may be optimised so as to make adaptation to old age more effective.

Moreover, the obtained results point that it is worth to consider also suppressor variables in testing models (Rucker et al., 2011). This is important because the investigation of suppression effects provides an opportunity to acquire a deeper understanding of the relationships between personality and subjective health.

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