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Daily activities mediate the relationship between personality and quality of life in middle-aged women

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Abstract

Purpose: The aim of this study was to test a model proposing that the relationship between personality factors and women's quality of life (QoL) is mediated by degree of depression and the way in which every day activity and general health were appraised. Specifically, the paper addressed the mediating contribution of activity.

Methods: 488 women, 38 or 50 years old, filled out questionnaires regarding the target variables. The personality traits measured were extraversion and neuroticism, and the activity aspect addressed was the value linked with everyday activities. Additionally, general health and depressive state was rated. Structural Equation Modelling was used to analyse the data.

Results: A model was found where health, activity and depressive state mediated the association between personality and QoL. Health explained in total nearly 30% of the variation in QoL. Activity predicted 12% of the variance in QoL, partly as a unique factor and partly mediated by depressive state and health. Extraversion was linked to QoL only through activity, and neuroticism through depressive state and health.

Conclusions: Our analysis supported that there was a link between personality and QoL and that perceived general health was an important contributor to QoL. Moreover, it contributed new knowledge regarding the importance of valued and satisfying activities. If this proves to be a consistent finding in future studies, including intervention research, monitoring women's daily activities might be a pathway to improved QoL.

Key words: Neuroticism, extraversion, occupational value, depression, self-rated health, well-being.

Introduction

A high quality of life is a desired state among people in general, and it constitutes an important outcome of health care and social care. Female gender seems to be related to lower quality of life, as reported in virtually all populations studied, including patients with diabetes (1), asthma (2), musculoskeletal pain (3), coronary disease (4), schizophrenia (5) as well as he general population (6, 7). This trend has been found for young (8) as well as older people (9). Studies also indicate that the mechanisms that influence quality of life may differ between the genders (5, 8) and that equal overall scores may hide gender differences in specific quality of life domains (10).

The reports of lower levels of quality of life among women serve as an incentive for focusing particularly on women as one step of the process when further penetrating the issue of factors that may explain quality of life. One of the most significant factors influencing quality of life seems to be personality. For example, Kitamura and associates (7) found neuroticism to be related to worse quality of life among younger women. In a study among women living with HIV/AIDS, Penedo et al. (11) showed that neuroticism was associated with poorer quality of life and extraversion and conscientiousness were related to better quality of life. Among women with breast diseases, the personality trait of state anxiety was more strongly related to quality of life than the fact that the disease was malignant or benign (12). In addition, neuroticism, extraversion and other factors of the Big Five model of personality (13) have been shown to be of importance for how both women and men perceive their quality of life. All five factors (neuroticism, extraversion, openness, agreeability, conscientiousness) were shown to contribute to personality profiles that distinguished groups of high and low life satisfaction among university students of both genders (14). Similar results were found in a study of patients with mood and anxiety disorders (15), where all factors but conscientiousness influenced quality of life. However, Schimmack and associates

(16), in a study based on student samples of both genders, recognized neuroticism and extraversion as the most influential personality factors. They speculated that both neuroticism and extraversion have a strong influence on the hedonic aspect of subjective well-being, and their findings confirmed this theoretical assumption.

Thus, when investigating factors with importance for quality of life in women, personality seems to be fundamental. However, other factors need to be considered as well. It is increasingly acknowledged that people's quality of life is related to their engagement in everyday activities (17, 18), and activity has shown to be an important mediator in quality of life models that successfully have explained quality of life among people with psychiatric diseases (19, 20). Activity is an interesting issue when focusing on quality of life in women, who tend to be involved in a variety of everyday activities, such as work and taking care of home, children and older relatives, as well as spending time on leisure and fitness activities (21). Erlandsson and Eklund (22, 23) studied working, healthy women with pre-school children and found complex patterns of daily activities; for these women, the more complexity, the greater risk for decreased well-being. In particular, interruptions and unexpected activities were causes of such complex patterns. Another study showed that meaningful daily occupations and a balance between the different activities of everyday life were associated with satisfaction with life as a whole (24). Also physical activity has shown to be positively related to quality of life (25). Thus, an active life with meaningful and valuable daily activities, but without stressful events and interruptions in the environment, can be seen as part of a wholesome lifestyle and may mediate the relationship between personality and quality of life.

Another possible mediator is self-perceived general health, sometimes interwoven in health-related quality of life measures, for example the commonly used SF-36 (24, 26). In fact, most quality of life measures include health items (27, 28). Still, although quality of life

and health have been shown to be distinct phenomena (29), it is not well understood to what degree health explains quality of life. Moreover, depression has been shown to be consistently related to quality of life, not least among women (30-33). In fact, it has been suggested that measures of depression and positive emotions are necessary and sufficient to predict life satisfaction from personality traits (16). That study also argued that a cheerful temperament, the antipode of depression, is more important for quality of life than being active or sociable.

In summary, previous research indicates that depressive state, self-perceived general health, daily activities and personality should be taken into account when investigating factors of importance for women's quality of life. Research has also shown that personality tends to be related to depressive mood (34), subjective health (35) and the way in which daily activities are perceived (36). Therefore, we set up a hypothetical model proposing that personality factors would be related to women's quality of life and that degree of depressive symptoms and the way in which everyday activity and general health are appraised would be mediating factors in such a relationship (Figure 1). The aim of this study was to test that hypothetical model. Specifically, the paper addresses the contribution of activity, since this is a largely unresearched phenomenon in relation to quality of life, yet shown to be important in the few studies that exist (19, 20, 36).

Figure 1 in here

Methods

Sample

This study was part of an epidemiological study investigating women living in an urban area in Sweden for health-related and life-style factors, the Population Study of Women in Gothenburg (37), comprising a cohort of 38- and 50-year-old women. A total of 343 women

aged 38 years and 503 aged 50 years were invited to a free health examination 2004-2005. The sample was obtained from the Revenue Office Register and the sampling method was based on birth days to make it representative. A total of 500 women (207 of the 38-year-olds and 293 of the 50-year-olds) accepted the invitation (corresponding to a participation rate of 60% and 58%, respectively) and took part in the study. Sociodemographic characteristics are shown in Table I.

An analysis of participation rate indicated no statistically significant difference between the 38- and 50-year-olds, nor were there any differences between participants and non-participants concerning districts of residence and marital status (being unmarried/married/divorced/widowed). However, the non-participant group had a lower mean income and a higher share of immigrants (37).

Instruments

In order to maintain comparability over time and between older and newer cohorts, similar measures were used during all waves of data collection, including the tool for assessing quality of life, the Göteborg Quality of Life Instrument. It measures subjective well-being, originally by 15 items that are scored from 1, “very bad” to 7, “excellent, could not possibly be better”, and has been shown to have good predictive validity and test-retest reliability (28). The items are proposed to reflect (i) social, (ii) physical, and (iii) mental dimensions of well-being, although no three-factor solution has actually been presented. The respondents rate their current satisfaction with their situation in defined respects, such as home – family, housing, leisure time, self-esteem, mood, energy and performance capacity. The present study was based on an extended version of the instrument, comprising 17 items. Since no dimensional structure has been identified for this version, we chose to make parcels on the basis of the questions’ content. This resulted in four parcels for the latent variable Quality of

Life (QoL), tapping work/leisure, home/housing, physical well-being and psychological well-being. (The terms 'latent variable' and 'factor' will be used largely interchangeably, although the latter will be used preferably when referring to theory. Latent variables will be indicated by the use of capitals).

The Eysenck Personality Inventory (EPI) (38), which measures the personality dimensions of extraversion and neuroticism by 24 questions answered by "Yes" or "No", was used to assess personality. The inventory also includes a "lie scale" consisting of 9 questions by which the trustworthiness of the responses is estimated. Only the personality factors of extraversion and neuroticism, shown to be stable across studies (38), were used as latent variables in this study. Four parcels were created of the EPI items for each of Extraversion and Neuroticism, the items being randomly sampled to the parcels.

Activity was measured by the Occupational Value with pre-defined items (OVal-pd) scale (39). The term *occupation* is in this scale used to denote people's everyday doings and the Oval-pd assesses the frequency by which people take part in daily activities they find valuable. It consists of 26 statements, answered on a four-point scale graded from 1=seldom to 4=often. Some examples of the statements are: "I feel that during the past month I have done things - where I felt I could be myself; - that were for fun and joy; - where something important was done; - where I learned something new". The OVal-pd has good construct validity and reliability. The OVal-pd was used to estimate the latent variable Activity in the model, on the basis of three parcels corresponding to the three constructs proposed to compose Occupational Value, namely concrete, symbolic and self-reward value (40).

Perceived health was assessed by three items from the Short Form - Medical Outcomes Survey (SF-36) (Ware & Sherbourne, 1992), measuring general self-rated health. The first of these items concerned general health, and the rating scale was a five-point scale from 1 (*excellent*) to 5 (*poor*). The second and third items were statements, worded a) "I am

as healthy as anyone I know" and b) "My health is excellent". Both of these items were rated on a five-point scale ranging from 1 (*totally agree*) to 5 (*totally disagree*). These observed variables were used in the model to estimate the latent variable Health.

Depressive state was estimated by another four items from the SF-36 (Ware & Sherbourne, 1992). The respondents rated the situation over the past four weeks regarding *nervousness* ("having felt very nervous"), *gloominess* ("having felt so down that nothing could cheer you up"), *dysphoric mood* ("having felt dreary and sad") and *exhaustion* ("having felt drained"). A scale of 1-6 was used, where a low rating indicated a worse situation, and the sum of these four items formed the Depression latent variable.

Procedure for the analysis

There was an attrition of 12 women on the OVal-pd instrument, due to incomplete data, resulting in a final sample of 488 women for the present analysis. To achieve the study aim, we created a path model that, besides daily activity, included important personality factors and important states known to be related to quality of life. The states included were perceived health and depressive state, both previously shown to have high correlations with quality of life. The personality factors were defined as endogenous, e.g. they were thought of as stable traits influencing variables in the model, but not being influenced by others. Regarding the factors considered in the model, Activity, Depressive state and Health were supposed to mediate the relationship between personality (Extraversion, Neuroticism) and QoL. These three supposedly mediating factors were expected to correlate with each other. Since Activity was the most crucial and untested factor of our hypothetic model we tested the unique contribution of this factor to QoL, including how Activity was related to the different facets of QoL. This was to find out if this factor contributed generally or only to a sub-set of factors.

Since the total sample consisted of two subsamples, one aged 38 years and the other 50 years, the two subsamples were tested for path model equivalence. In addition, the variable age was included in the model to investigate if it was related to any of the latent variables in the model.

In order to estimate different versions of the model we used AMOS 7.0 (41) and evaluated our model by changes in χ^2, but also the overall fit between the different versions and the covariance structure. To measure this we used RMSEA (42) and CFI (43) two often used indexes measuring model fit. The RMSEA indicates good fit when it is below .05 and CFI indicates good fit if it is above .90. The model was estimated with the Maximum Likelihood method (see Table 2 for means and standard deviations and Table 3 for correlations among all observed variables). The variables were tested for skewness and kurtosis and it was found that three of the depressive state variables were much skewed; only few subjects reported symptoms of depression. There were other variables with significant deviation from normality, but since the number of subjects was relatively high these deviations were not considered as serious threats.

The latent variables estimating the factors were formed by creating parcels, as described above. When it was possible to discern the underlying components of a scale, the parcels were based on these components (QoL, Occupational Value). In the remaining cases where parcels were created, randomization was used (Extraversion, Neuroticism). In these cases, different randomizations were performed to check whether the way in which the parcels were created influenced the results. All the measurement models were tested separately, e.g. we estimated if the observed variables included in a latent variable were highly related to it, in other words if the loadings of the latent variable were high. All estimations were based on the covariance matrix and the reported coefficients were standardized. It was found that the loadings were in the range between .60 and .95 for all

latent variables, except for Extraversion where two loadings were somewhat lower. The fit measured with CFI was in the range between .96 and .99, indicating good fit for the measurement models.

Results

The first step was to estimate the hypothetical model as outlined in Figure 1. This version of the model was found to have a rather good fit to the data, although far from perfect, $\chi^2(197) = 492.89$; RMSEA = .063, CFI = 0.92. There were a number of problems in this model. The modification indexes indicated a rather high covariation between Extraversion and Neuroticism and, besides, a few of the paths in the model were not significant. The paths from Extraversion to Depressive state and Health were non-significant, as was the path from Neuroticism to Activity. Deleting these three paths resulted in a new model with better fit to the data, $\chi^2(58) = 431.72$; RMSEA = .056, CFI = 0.94.

To test if the relation between Neuroticism and QoL was mediated by Health and Depression we added a direct path from Neuroticism to QoL. The added path increased the model significantly, $\Delta\chi^2(1) = -4.33$; $p < .05$. The standardized path was only -.13, however, while the total standardized effect from Neuroticism to QoL was -.55. The comparatively low standardized path indicates that the relation between Neuroticism and QoL was almost totally mediated by Health and Depression.

To test if Activity mediated the relation between Extraversion and QoL we added a path from Extraversion to QoL and it was found that this path did not increase the fit significantly, $\Delta\chi^2(1) = -3.10$; $p > .05$. In other words the relation from Extraversion to QoL (total standardized effect was .170) was almost totally mediated by Activity.

The final version of the model is shown in Figure 2, including standardized estimates. Some comments on the size of the paths in Figure 2 are warranted. The latent variable with

the strongest path to QoL was Health, followed by Depression and Activity. The correlations between the mediating latent variables were for Health and Depression -.41, for Health and Activity .18, and for Activity and Depression -.25.

The total standardized effect from Activity to QoL was .356. The unique contribution to QoL from Activity was tested by excluding the path and re-estimating the reduced model. The model was significantly worse without this path, $\Delta\chi^2(1) = 31.05$; $p < .001$. For completeness also the paths from Depression and Health to QoL were tested for their unique contribution, and deleting them resulted in significantly worse models in both cases; $\Delta\chi^2(1) = 30.24$; $p < .001$ and $\Delta\chi^2(1) = 48.33$; $p < .001$, respectively. Together these estimations suggest that all three latent variables contributed to the explanation of QoL.[1]

The Activity latent variable's relation to the facets of QoL (Work/Leasure, Home/Social, Psychological status, and Physical status) were also tested, but they were all found to be non-significant. This suggests that Activity was related QoL in general, and not specifically to one or more of the facets of QoL.

Figure 2 in here

Finally, the equivalence of subsamples of 38-year-olds and 50-year-olds was tested. AMOS has a ready-made procedure where group differences are tested from a totally unrestricted model to a model where all possible parameters have been restricted. Using this procedure, the only model with significant differences was that between group intercepts, indicating that the groups differed in mean values on one or more of the observed variables. However, the samples did not differ significantly regarding the measurement model (the loadings of the latent variables) and the structural model (the coefficients between the latent

[1] The estimations were repeated using the Scale Free Least Square discrepancy function. The standardized coefficients revealed the same pattern. Small differences were found for the paths to QoL from Acitivity (.29), Depression (-.33) and Health (.44).

variables).When the age variable was included in the model the only significant relation found was to Health, the older group reporting worse health.

Discussion

One aim of this study was to specifically demonstrate the importance of daily activities for quality of life when important factors known to contribute were included in the same model. The relationship was verified both by the significant path in the model and the fact that deleting the path from Activity to QoL decreased the fit of the overall model. Activity had about 32.1. % common variance with QoL. Some of the predictors had common variance with Activity. For example, Activity was related to Depression, also shown to have a significant relation to QoL. Still, as shown in the model, a fair amount of variance was unique to the Activity latent variable. A relationship between activity and quality of life has been found in previous studies too (17, 24, 25). However, to the best of our knowledge, the present study is the first to show that there is a unique contribution from activity to quality of life also when other important contributors, in terms of personality, depression and health, are considered. There was a weak relation between Activity and Health in the model. This is in agreement with other research, showing a relationship between low levels of activity and depression among women, especially among those younger than 55 years of age (44). Health and Depression both showed relationships of importance to QoL, and that from Health was somewhat stronger. This is contrary to what was hypothesised by Schimmack and colleagues who suggested depression to be a more influential factor (16). However, there was also a strong relationship between Depression and Health in the present study, so models that exclude health may find a stronger relationship between depressive state and quality of life.

The two personality variables used in the model, Extraversion and Neuroticism, both showed to be important, and Extraversion had a rather strong relation to Activity. This

relation was expected, since one of the facets of extraversion is activity (45). However, there is a difference between the activity aspects reflected in the variables of extraversion and activity. In extraversion, the activity aspect has to do with how active the person is, how much specified activity he or she does. In activity, as measured in this study, the variable is about how frequently the person engages in valued and satisfying activities. Also other estimates of personality, namely those included in the psychobiological model of temperament and character (46), have been shown to be related to activity, and the most prominent relationships have concerned the influence of self-directedness and harm avoidance on satisfaction with activity among people with mental illnesses (47). The fact that valued and satisfying activities have shown to play a role in the quality of life of different populations warrants further study and it is possible that activity so far has been insufficiently recognized in relation to quality of life.

Neuroticism was not related to Activity in the model, and only weakly related to QoL, but it was highly related to Depression and moderately to Health. Thus, the relationship from this personality variable to QoL was mostly indirect and went through Depression and Health. In previous research, a high level of neuroticism has been found to be more strongly associated with worse quality of life (7, 11, 15). However, these studies did not test models of complex relations and could not identify possible mediators, such as depressive state and perceived health.

Health was the factor with the strongest association to QoL and such a relationship between health and quality of life is well recognized in the research literature (48). However, health and quality of life have also been shown to be separate phenomena (29), and the finding from the present study was that Health explained about 30% of the variance in QoL. Thus, health needs to be acknowledged as an important contributor and possible mediator in models of quality of life, but explains only a certain proportion of its variance.

We did not explicitly suggest any hypothesis related to the age factor, but for completeness a comparison between the 38-year-olds and the 50-year-olds was conducted. There were differences in mean levels for some of those observed variables that pertained to general health, but since such differences were not the subject of the present study they were not reported in detail. The test for age group differences regarding the structural and the measurement model did not indicate any significant differences. If comparisons had been made between groups that had differed more in age then it is possible that the models also would have differed. To give some examples, it is possible that health has an even stronger relation to quality of life in older age groups and that the relation between activity and quality of life is different for older subjects.

Methodological concerns

When estimating the latent variables of the model, parcels of items were created when the measure consisted of a large number of items, e.g., the items of extraversion. This was made in order to decrease the number of parameters in the model and make the model less complex. Regarding the quality of life measure, it has been proposed that the original 15-item version taps physical, psychological and social well-being (28). However, no three-dimensional structure has actually been identified. Since we used an extended version of the scale, we chose to make parcels on the basis of the questions' content, and this resulted in four parcels. These parcels also differed from a previously presented four-subscale solution suggested by Sullivan and associates, (49) since they also included a number of symptoms not analyzed in this study. As described in the methods section, the parcels for the EPI were constructed on the basis of a random selection of items from the scale's complete item pool. To check for possible chance results because of the item sampling, we recreated alternative parcels, using

new randomizations. Only minor differences were found, none of which changed the overall picture.

Most of the variables included in the study were not skewed or kurtotic, but three of the indicators of Depression were. Skewed and kurtotic data can inflate the χ^2 statistics, but since we had models with acceptable fit, this was not recognized as a serious threat to our conclusions. Maybe the coefficient from Depression to QoL was inflated, but on the other hand the bivariate correlation between the indicators of Depression and QoL were in the range between -.24 to -.41, with a mean of -.31, suggesting that Depression was an important factor in the model. In addition, we tested the model with other estimation methods, but these did not produce models that seriously endangered our conclusions.

The model tested in this study must not be seen as a complete model of quality of life for middle-aged women. Other factors, not included in the present study, are of potential importance, such as having a strong sense of self, having satisfying social relations, or being satisfied with care, shown to be important in quality of life studies among persons with mental illnesses (20, 50). On the basis of previous research, one can assume that socio-economic variables would play a minor role, possibly explaining a few percent of the variance in quality of life (3). However, they tend not to be significant in multivariate models (50) and were therefore not included in the hypothetical model of the present study. In a sample like this, where most subjects were working, work environment conditions should be of importance too. In addition to age, being menopausal or not would have been a relevant factor, but age group might be seen as a proxy for this. Moreover, although the model seemed promising for understanding the phenomenon of quality of life among women, it may not be valid for men. For example, Iverson and Thordal could not demonstrate a relationship between activity and depression among men, while they indeed found such an association among women (44). Other gender differences include the fact that women tend to report more disease-related

concerns (1), which are in turn important for quality of life. However, the general finding that men rate their quality of life higher than women has been hard to explain by mainstream social and health factors (3, 6). Therefore, the role of less investigated factors, such as different aspects of activity, should be explored in men too, taking additional determinants such as personality, depressive state, and perceived health into account.

Activity was estimated by the OVal-pd scale, which measures the frequency with which the respondent currently performs valued daily occupations, or activities. Conceptualizing activity differently, for example as physical activity, would probably have yielded another picture. An interesting idea for future research would be to capture different facets of activity, such as actual level of physical, intellectual and cultural activities, as well as the satisfaction and value they bring, and test them in a conceptual model of quality of life. Also cumbersome and strenuous activities need to be investigated for their importance to quality of life.

The non-participation rate was quite high in this project, and it is possible that more able and healthy women were likely to be among those who chose to participate. For example, the sample showed fairly low levels of depression, and although this is not surprising in a population sample the non-participants might have had more psychological problems. Thus, the model might be less valid for women with different kinds of health problems. However, the result pattern agrees with what has been found also in studies based on women with poor health, including depression (44). Another limitation, which limits the possibilities of making generalisations, is the fact that the educational level was high among the studied women. Besides, the cross-sectional nature of the data prevents safe conclusions about causality and is a weakness when testing mediations. Another weakness was that the design did not use a cross-validation sample to verify the impact of the modifications made to the original model.

Conclusion

The theoretical model proposed on the basis of existing research regarding quality of life among women was supported when tested in a path model, as indicated by its fit to the data. But how could this model be of use in the perspective of improving women's quality of life? An individual's personality traits are mainly stable over time, although a recent, related study comparing two cohorts of middle-aged women, assessed with a 36-year interval, revealed that women's degree of extraversion had increased, as had other personality traits such as dominance and exhibition (51). It is obvious that personality change is not a feasible way of affecting one's quality of life. Depression and Health were both factors reflecting state, not trait, in this study. Compared to personality, states are easier to alter, although both depressive mood and perceived health call for major efforts when it comes to accomplishing changes. What is more feasible, however, is to deliberately change one's patterns of daily activities and increase one's activity level, especially concerning those activities that are perceived as valuable and satisfying. Besides influencing quality of life directly, benign circles may be created, in such a way that mood and perceived health are also affected by an increased level of activity, which is in turn likely to positively influence the quality of life. However, although this seems an encouraging line of thought, findings such as those from the present study need to be replicated. But if the importance of activity will prove to be a consistent finding, and if intervention studies indicate that monitoring the activity level will increase people's quality of life, such findings could be used to inform health promotion and rehabilitation in different contexts, including primary health care.

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Figure legends

Figure 1. The hypothetical model.

Figure 2. Path model for the final model with standardized coefficients.

Table 1. Characteristics of the participants in the 2004-05 Population Study of Women in Gothenburg.

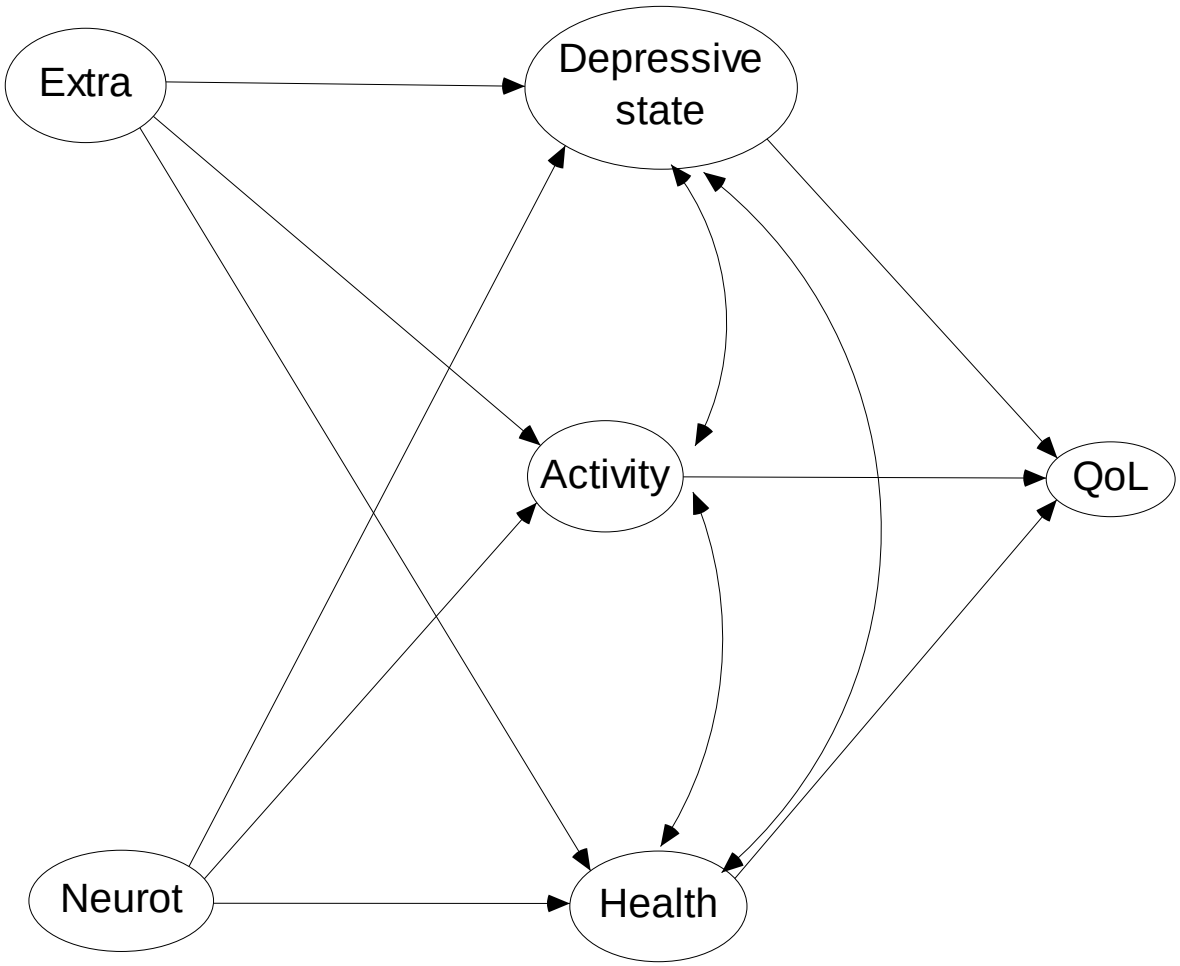
	Age 38 (n=207)	*Age 50 (n=293)*
	%	*%*
Marital status		
Unmarried	45	26
Married	42	50
Divorced	12	21
Widowed	-	3
Own income (from full- or part-time work)	92	95
Disablement pension	4	11
No children at home	28	38
Education		
Elementary school	3	13
High school	40	34
University education	57	53

Table 2. Mean and standard deviation of the indicators (variables and parcels) of the latent variables.

	Mean	*Std. Deviation*
General Health 1	2.53	0.96
General Health 2	1.86	1.14
General Health 3	2.31	1.16
Extraversion 1	1.29	0.21
Extraversion 2	1.40	0.20
Extraversion 3	1.56	0.21
Extraversion 4	1.45	0.23
Neuroticism 1	1.59	0.24
Neuroticism 1	1.58	0.25
Neuroticism 1	1.71	0.23
Neuroticism 1	1.77	0.24
Nervous	5.46	0.92
Dysphoric	5.54	0.88
Gloomy	5.07	1.04
Exhausted	4.80	1.28
QoL Work/Leisure	3.11	1.07
QoL Home/Social	2.61	0.92
QoL Psych status	3.04	0.80
QoL Physical status	3.08	0.93
Activity Concrete	2.19	0.37
Activity Symbolic	2.47	0.36
Activity Self-reward	2.45	0.45

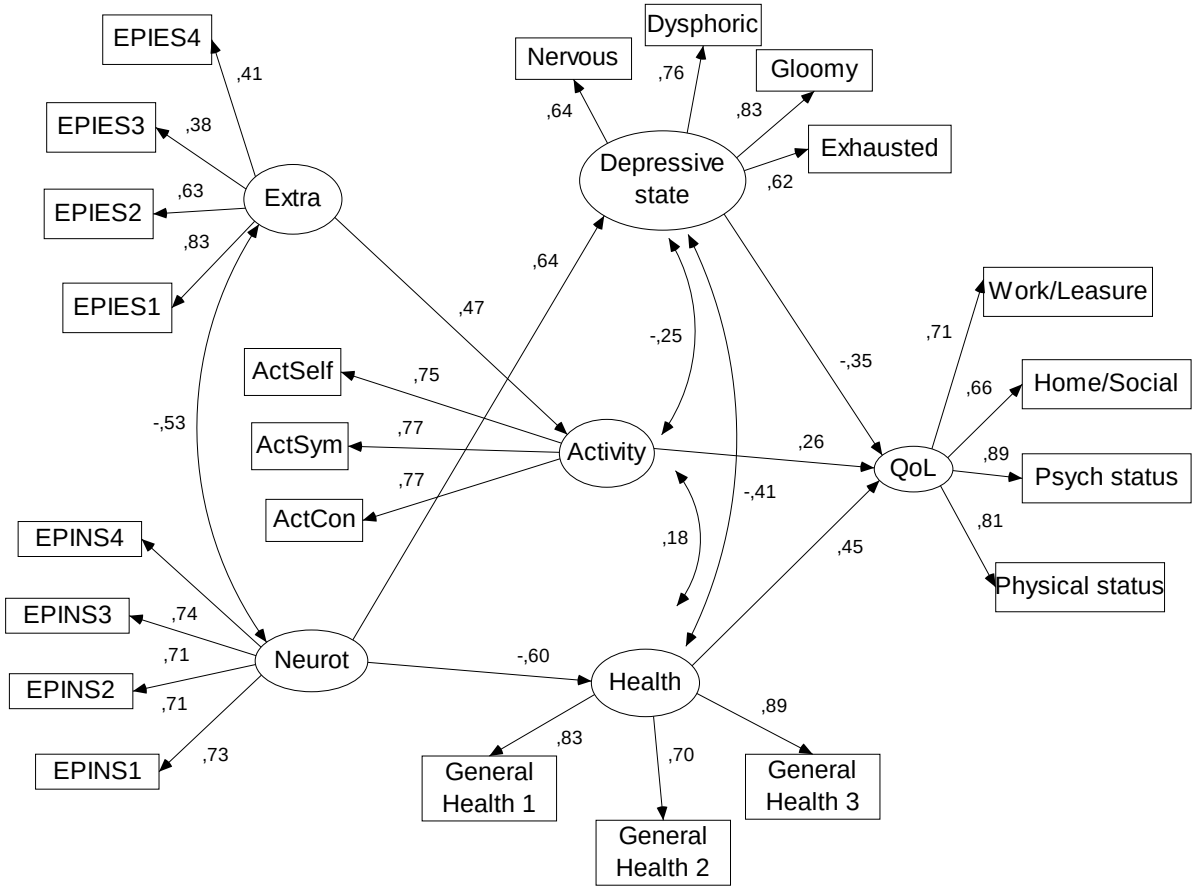
Table 3. Correlations between all indicators (variables and parcels) included in the model

	GH1	*GH2*	*GH3*	*Ext1*	*Ext2*	*Ext3*	*Ext4*	*Neur1*	*Neur2*	*Neur3*	*Neur4*	*Nerv*	*Dysf*	*Gloom*	*Exhau*	*QLWL*	*QLHS*	*QLPS*	*QLPH*	*Act Con*	*Act Sym*
General Health 2	.53																				
General Health 3	.74	.66																			
Extraversion 1	.27	.22	.25																		
Extraversion 2	.23	.12	.18	.53																	
Extraversion 3	.16	.16	.19	.31	.23																
Extraversion 4	.10	.09	.10	.34	.27	.23															
Neuroticism 1	-.35	-.34	-.35	-.31	-.21	-.11	.02														
Neuroticism 2	-.30	-.30	-.32	-.32	-.20	-.14	-.04	.55													
Neuroticism 3	-.39	-.35	-.38	-.29	-.20	-.11	-.06	.53	.48												
Neuroticism 4	-.42	-.37	-.39	-.38	-.30	-.20	-.09	.52	.53	.53											
Nervous	-.35	-.32	-.37	-.18	-.11	-.10	-.01	.32	.37	.37	.30										
Dysphoric	-.36	-.28	-.39	-.23	-.10	-.06	00	.30	.36	.31	.34	.54									
Gloomy	-.42	-.37	-.50	-.32	-.24	-.19	-.06	.36	.39	.39	.38	.50	.66								
Exhausted	-.42	-.35	-.46	-.17	-.09	-.14	-.04	.29	.30	.37	.25	.39	.44	.51							
QoL Work/Leisure	.43	.31	.40	.25	.18	.11	.00	-.33	-.28	-.26	-.29	-.30	-.37	-.45	-.43						
QoL Home/Social	.38	.26	.35	.25	.18	.03	.06	-.32	-.29	-.29	-.27	-.26	-.30	-.42	-.34	.63					
QoL Psych status	.67	.45	.62	.29	.25	.13	.10	-.32	-.31	-.34	-.33	-.33	-.36	-.43	-.42	.54	.47				
QoL Physical status	.59	.43	.53	.40	.25	.12	.12	-.44	-.43	-.38	-.43	-.42	-.49	-.57	-.42	.61	.59	.73			
Activity Concrete	.25	.17	.22	.29	.22	.12	.20	-.18	-.19	-.16	-.19	-.17	-.23	-.23	-.09	.27	.23	.30	.33		
Activity Symbolic	.14	.09	.11	.28	.21	.12	.20	-.07	-.10	-.08	-.14	-.12	-.15	-.17	-.07	.26	.25	.22	.29	.63	
Activity Self-reward	.31	.19	.30	.31	.24	.14	.27	-.22	-.17	-.18	-.26	-.29	-.29	-.35	-.26	.43	.37	.40	.43	.56	.56



Note. EXTRA = *Extraversion*; INTRO = *Introversion*; QoL = *Quality of Life.*

Figure 1. The hypothetical model.



Note. EXTRA = *Extraversion*; EPIES1 – EPIES4 = *The four parcels of extraversion items*; INTRO = *Introversion*; EPINS1 – EPINS4 = *The four parcels of introversion items*; ActCon = *Parcel with items pertaining to concrete value*; ActSym = *Parcel with items pertaining to symbolic value*; ActSelf = *Parcel with items pertaining to self-reward value*; QoL = *Quality of Life.*

Figure 2. Path model for the final model with standardized coefficients.