The Development of Life Satisfaction: Does Personality matter?

A five year longitudinal study

Master thesis

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Abstract

Life Satisfaction, which is supposed to predict happiness, has been widely investigated. As personality is part of one of the determinants of Life Satisfaction and provides an explanation for the stability of Life Satisfaction, it gained more interest to examine the role of personality in one's satisfaction with life. So far, it is evident that certain personality dimensions are related to Life Satisfaction. And although many different studies examined different domains within the topic of Life Satisfaction and personality, there are still some unexplored areas. In a longitudinal research, using a representative Dutch sample (N=3146), the development of Life Satisfaction across a time period of five years was examined in relation to certain personality dimensions. Differences in the development of Life Satisfaction across five years were examined between respondents who score high/low on emotional stability and between respondents who score high/low on extraversion. Results imply that, although the extent of Lifer Satisfaction is influenced by personality, it remains stable across time, regardless of the personality dimensions. The present study also presumes that specific constellations of personality dimensions are more important for Life Satisfaction than single dimensions by itself, providing some support for the existence of a happy personality and its relation to high LS.

Samenvatting

Levenstevredenheid, waarvan verondersteld wordt dat het gelukigheid voorspeld, is ruim onderzocht worden. Omdat persoonlijkheid een deel van een van de determinanten van levenstevredenheid is en het een verklaring biedt voor de stabiliteit van levenstevredenheid, wordt toenemend meer aandacht eraan besteden de rol van persoonlijkheid in onze levenstevredenheid te onderzoeken. Tot dusver is het evident dat bepaalde persoonlijkheids dimensies relateert zijn aan levenstevredenheid. En hoewel veel verschillende studies verschillende domeinen binnen het onderwerp van levenstevredenheid en persoonlijkheid

onderzocht hebben, zijn er nog wel gebieden die niet onderzocht zijn. In een longitudinaal onderzoek, met een representatieve Nederlandse steekproef (N=3146), wordt de ontwikkeling van levenstevredenheid over een tijdperiode van vijf jaren onderzocht in relatie tot bepalde persoonlijkheidtrekken. Daarbij worden de verschillen in de ontwikkeling van levenstevredenheid tussen personen die hoog/laag op emotionele stabiliteit scoren en tussen personen die hoog/laag op extravisie scoren, onderzocht. Resultaten van deze studie impliceren dat hoewel de omvang van levenstevredenheid door persoonlijkheid beinvloed wordt, blijft het over de tijd stabiel, ongeacht van de persoonlijkheids-dimensies. Tevens laat de studie vermoeden dat bepalde constellaties van persoonlijkheids-dimensies belangrijker voor levenstevredenheid zijn dan losse dimensies. Dit geeft verder support voor het bestaan van een zogenoemde *happy personality* en diens relatie tot levenstevredenheid.

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1 Introduction

The following study surveys the development of Life Satisfaction across time and the relation of the Big five personality dimensions to it. Although much is known about Life Satisfaction, including the determinants and the stability of it and the relation of the Big five personality dimensions to it, most of these studies examined the factors apart or at a single measurement occasion. It remains unanswered whether different extents of the personality dimensions play a role in the development of Life Satisfaction. Is there a difference in the development of Life Satisfaction between neurotic and non-neurotic individuals? Are neurotic individuals more erratic in their Life Satisfaction across time? The following study uses longitudinal data to provide first insights to answer these kinds of questions. To begin with, a brief elucidation of positive psychology and Life Satisfaction is given to access the topic. Furthermore, original evidence about determinants and stability is presented to better understand Life Satisfaction as a whole. Finally, the Big five personality traits and their relation to Life Satisfaction are delineated.

1.1 Positive Psychology and Life Satisfaction

For a long time, mental health was defined as the absence of mental disorders, investigating psychopathology of humans. Today, the focus on mental health as a positive state gained more attention. The World Health Organization (2004) defines mental health as "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community". This change of perspective on mental health created a new psychological field, called positive psychology.

Positive psychology indicates mental health to consist of three core components: psychological well-being, social well-being and emotional well-being. It is built on two

traditions: the eudaimonic tradition and the hedonic tradition (Ryan & Deci, 2001). The eudaimonic tradition focuses on the actualization of human potentials in individual and social life. Psychological well-being and social well-being fall within this tradition. The hedonic tradition views well-being as the presence of positive feelings and Life Satisfaction. The assessment of emotional well-being became the most prominent feature of hedonic psychological research. Emotional well-being (EWB) is defined as a person's cognitive and affective (positive and negative) evaluation of his or her life (Diener, 2000). The cognitive component of EWB is called Life Satisfaction (LS) and refers to a global evaluation of one's overall satisfaction with life. As LS is supposed to predict happiness (Diener, Oishi & Lucas, 2003), it has been widely investigated.

1.2 Determinants of Life Satisfaction

Researchers propose that LS is determined by three major factors: Life circumstances, including income level and marital status (1), intentional activities (2) and stable differences including personality factors and cognitive dispositions (3) (e.g. Diaz & Arroyo, 2011).

Life circumstances, including life events and demographic conditions, are of crucial interest when examining LS. For example, Salinas-Jiménez, del Artés, and Salinas-Jiménez (2011) found that LS is positively related to income and education. Moreover, Clark, Diener, Georgellis, and Lucas (2008) described the experience of unemployment to negatively effect a person's satisfaction with his or her life. Furthermore, marriage, as a life event, has a positive relation to LS (Lucas, Clark, Georgellis, & Diener, 2003).

Regarding the intentional activities as one of the major determinants for LS, the activity theory suggests a positive relation between any kind of activity and LS. To make things happen, for example to adopt new positive goals (e.g. better grades in school) or activities (new sports club), is associated with higher LS (Sheldon & Lyubormirsky, 2006).

Stable differences (3) refers to personality factors and cognitive dispositions. For instance, Tellegen, Lykken, Bouchard, Wilcox, Segal and Rich (1988) investigated and compared the similarities of various types of twins (monocygotic, dizygotic, reared apart, raised together) and found that about 55% of the variability in negative emotionality and 40% in positive emotionality is predictable by genetic variation. These findings show that besides environmental influences (1 & 2), genes appear to affect characteristic emotional responses to life circumstances. In particular, Diener and Lucas (1999) examined the influences of extraversion, neuroticism, conscientiousness, openness and agreeableness (Big 5 personality traits) on LS. Extraversion and neuroticism, as global traits, are most consistently linked to LS. In more detail, one component of each explained individual differences in LS more than the global traits of extraversion and neuroticism as a whole, that is cheerful in extraversion and depression in neuroticism. Several studies confirm the linkage between extraversion, neuroticism and LS (e.g. Diener & Lucas, 1999). But not only personality traits are important when investigating LS, the way how we think about our lives plays a crucial role as well. Hope and optimism, referring to cognitive dispositions, seem to influence a person's satisfaction with life (Snyder, Harris, Anderson, Holleran, Irving, Sigmon et al., 1991; Scheier & Carver, 1993). Furthermore, Robinson and Kirkeby (2005) and Robinson, Vargas, Tamir and Solberg (2004) noted that differences in the accessibility of pleasant vs. unpleasant information and the accuracy and efficiency of processing these information influence a person's LS. That is, individuals with greater accessibility of pleasant information (e.g. positive life events) over unpleasant information (e.g. negative life events) are assumably more likely to be satisfied with their lives than individuals with greater accessibility of unpleasant over pleasant information. All in all, it is not just what we do and what we experience in life, but who we are and how we think about our lives as well.

1.3 Resilience/Stability of Life Satisfaction

As noted earlier (determinants of LS), different life circumstances (e.g. income level, marriage, experience of unemployment) influence an individual's satisfaction with his or her life. Although these influences are evidenced, several studies found that an individual's LS remains somewhat stable and resistant to life events. In detail, life events do influence an individual's momentary LS but do not have a long-term effect on it. That is, global LS is stable across the life span.

For instance, the stability of LS among people who experienced a raise in salary, a reduction in salary or who's salary stayed the same, was comparable over 10 years (Diener, Sandvik, Seidlitz & Diener, 1993). Furthermore, Lucas, Clark, Georgellis and Diener (2003) examined the influence of marriage on LS and found only marginal long-term effects. In general, LS of people who underwent major life changes (positive or negative) was as stable as LS of people who lived in steady circumstances (Costa, McCrae & Zonderman, 1987).

One explanation for the stability and resilience of LS could be the concept of hedonic adaptation. Hedonic adaptation, also known as the hedonic treadmill, refers to the tendency to quickly return to a relatively stable level of happiness regardless of positive or negative life changes or circumstances (Bottan & Perez-Truglia, 2011). Thus the concept of hedonic adaptation assumes that, as people experience a positive life event (e.g. marriage) their level of LS will increase for the moment but, as they accustom to the new circumstance (being married), their level of satisfaction will return to the initial point (before marriage). The same applies for negative events or circumstances (e.g. salary reduction). Although the hedonic adaptation principle seems plausible, recent research implies that this concept does not apply to drastic negative life changes such as unemployment (Clark et al, 2008), becoming disabled (Lucas, 2007) or divorced (Lucas et al., 2003). Moreover, these drastic negative life changes showed negative long-term effects on an individual's satisfaction with his or her life (Clark et al., 2008). Thus, people who underwent one of these changes did not return to their initial

point of LS (Diener, Lucas & Scollon, 2006). That implies that global LS indeed remains stable and resistant to positive major life changes, but regarding negative changes this resilience only applies for gently negative events (such as salary reduction). Keeping that in mind, the hedonic adaptation concept provides a reasonable explanation for the stability of LS regarding major positive and slightly negative life changes.

DeNeve and Cooper (1998) presented another explanation for the stability of LS, a so-called *happy personality*. The *happy personality* refers to the fact that the most satisfied people showed higher scores on extraversion and agreeableness and lower scores on neuroticism (Diener & Seligman, 2002). People with a *happy personality* experience their lives in a more positive way than other people (DeNeve & Cooper, 1998). Additionally, as noted earlier, cognitive dispositions such as hope and optimism influence an individual's satisfaction with life (Snyder et al, 1991; Scheier & Carver, 1993). Therefore, it seems plausible that optimistic people and those with a *happy personality* are more likely to find a positive aspect in a negative event than pessimistic people and will thus remain more satisfied with their lives than the pessimistic individuals.

In sum, LS remains stable across life span and resistant to positive and various negative life events, which can be explained by hedonic adaptation (getting used to a life change) and assumably by personality (e.g. being optimistic). Nonetheless, the stability of LS breaks when the individual is confronted with drastic negative life changes (e.g. unemployment). Furthermore, the question arises whether individuals who do not show the characteristics of the happy personality, pessimistic individuals and individuals who are more likely to be affected by negative life events, are as stable in their LS, as well. People differ because they have different personalities. One individual might focus more on positive events in life while another is more focused on negative events. Moreover, one individual might accept negative incidents just the way they come, whereas another is more affected by it. The happy personality and optimism serve as an explanation for the stability in LS, but how does LS

develop in individuals who do not show these personality characteristics? Does LS remain stable in these individuals as well?

1.4 Life Satisfaction and Personality

The detailed examination of LS, in terms of determinants and stability, shows that personality seems to play a crucial role in one's satisfaction with life. As personality is part of one of the three determinants of LS and as it provides an explanation for the stability of LS, it deserves a closer consideration.

Investigating the relation between the Big five personality dimensions and LS, Hahn, Johnson and Spinath (2013) found that Extraversion (E), Conscientiousness (C) and Agreeableness (A) were positively related to LS. Neuroticism (N), on the other hand, was negatively associated with LS and Openness to experiences (O) was found to be no consistent correlate of it. Moreover, Steel, Schmidt and Shultz (2008) found that E, N and to a lesser extent C showed highest relations to LS. In particular, among the Big five personality dimensions, E and N are mostly related to LS (Diener & Lucas, 1999). Furthermore, Magee, Miller and Heaven (2013) found that an increase in E, A, C and O across a time period of 4 years was associated with higher LS, whereas an increase in N was linked to lower LS. Diener and Seligman (2002) identified that the most satisfied individuals had higher scores on E and A and lower scores on N. And although the correlations between LS and personality dimensions were moderate, Steel et al (2008) pointed out that 39 % of the variance in quality of life measures could be explained by the personality. In other words, an indiviual's personality has a great impact on how this person perceives the quality of his/her life. Furthermore, as noted earlier, DeNeve and Cooper (1998) presented the idea of a so-called *happy personality* when investigating LS. According to them the *happy personality* is a certain combination of personality dimensions, with higher scores on E and A and lower scores on N. Taking into account that E is related to the experience of positive emotions

(Watson & Clark, 1997) and happiness (Pavot, Diener & Fujita, 1990) and neurotic persons (high scores on N) are likely to be affected by negative life events (Suls, Green & Hills, 1998), it seems reasonably that people with a *happy personality* experience their lives in a more positive way than other people (DeNeve & Cooper, 1998). However, it seems surprising that the happy personality includes the dimensions N, E and A rather than N, E and C, as these were strongest related to LS. But, as McCrae and Costa (1991) proposed, the linkage between personality and LS seem to be direct for some dimensions and indirect for others. According to them, the presence of E and the absence of N would directly lead to satisfaction, whereas A and C exert effects indirectly on specific life situations which in turn influence satisfaction. That is, A and C may create positive conditions, such as personal bonds or high achievements, which contribute to higher satisfaction. Thus, although mere individual relations yield E, N and, to some extent, C the greatest linkage to LS, it seems that A becomes more important than C when combined with E and N, referring to the happy personality.

In sum, much research is done investigating LS. The different studies explored the determinants of LS, the stability and resilience of it and the associations between the Big five personality dimensions and LS. However, none of them investigated the development of LS across time in direct relation to personality dimensions. Although we know that N, E and, to some extent, C are associated with LS, it should be interesting to investigate whether there are differences in the development of LS by different extents of the Big five personality dimensions.

1.5 Aims and Hypotheses of the present study

Aim of the present study was to gain more insight into the development of LS within a period of five years, in consideration of the impact of the Big five personality dimensions on LS. Based on the literature it is assumed that, in general, an individual's LS is relatively stable in development. In consideration of the Big five personality dimensions and their impact on

the development of LS, neuroticism (N) and extraversion (E) are of greatest interest, as they are mostly related to LS (Diener & Lucas, 1999). Note, for the present study the International Personality Item Pool (IPIP) was used to assess the Big five personality dimensions. The IPIP measures emotional stability (ES) rather than N. Gow, Whiteman, Pattie and Deary (2005) found a high correlation (r= -0.83) between the factor N of the NEO Five Factor Inventory and the ES factor of the IPIP. Thus, there is a high association between N and ES, leading to the conclusion that ES may be regarded as the opposite of neuroticism. Therefore, for the present study high scores on ES are interpreted as low N and low scores on ES are considered as high N. Furthermore, positive relations to ES indicate negative relations to N.

The following study is implemented stepwise. To begin with, relations between the Big five personality dimensions and LS are examined for a starting point. Based on the literature and consistent with the findings of Diener and Lucas (1999), it was predicted that among all Big five personality traits, E and ES are mostly related to LS (H1). Secondly and subsequently to H1, the development of LS across a time period of five years is investigated in relation to the personality dimensions ES and E. The investigation of the development of LS was the main purpose of the present study and contains two hypotheses, as follows: Based on Suls et al (1998), who pointed out that neurotic individuals are likely to be affected by negative life events and to be emotionally labile, which may have a negative impact on their LS, it was hypothesized that respondents who score low on ES show an unstable development of LS across time compared to respondents who score high on ES (H2). The term unstable development refers to significant and distinct differences in LS among the five measurement occasions. Furthermore, considering the fact that E is related to the experience of positive emotions and happiness (Watson & Clark, 1997; Pavot et al, 1990), which may have a positive influence on an individual's LS, it was hypothesized that respondents who score high on E will have a positive development of LS across time compared to respondents who score low on E (H3). The term positive development refers to significant increases in LS among the

five measurement occasions. Additionally, as DeNeve & Cooper proposed the existence of a so-called *happy personality*, referring to the fact that the most satisfied individuals had higher scores on E and A and lower scores on N, LS was investigated in relation to this specific constellation of personality dimensions. It was hypothesized that respondents who score high on E, A and ES show greater LS than respondents who score average on these dimensions (H4).

2 Method

2.1 Procedure and Participants

The data for the present study was used from the Longitudinal Internet Studies for the Social science (LISS) panel of CentERdata, a Dutch Institute specialized in online survey research. The LISS panel is based on a representative sample of 5,000 Dutch households. Within this LISS panel, a longitudinal study is carried out once a year (the LISS core study). The LISS core study provides repeated measures of the same set of variables for the same individuals and households. The study covers eight questionnaires: *Health, Politics and Values, Religion and Ethnicity, Social Integration and Leisure, Family and Household, Work and Schooling, Personality,* and *Economic Situation and Housing*. For the present study, the data from the Personality Questionnaires from May 2008 (N=6808), May 2009 (N=5614), May 2010 (N=6084), May 2011 (N=5198) and May 2012 (N=5927) were used (five measurement occasions in total).

In total, only 31.6 % (N=3146) of all respondents (N=9960) fully completed the relevant items. Thus, participants for the present study were 3146 Dutch citizens between the age 16 and 88, with a mean age of 49.15 (SD=15.45). Of the respondents, 53.3% (N=1677) were female. Descriptive statistics of civil status and level of education for all respondents are shown in Table 1.

Table 1

Descriptive statistics of Civil status and Level of education (N=3146)

		Percentage	N
Civil status	Married	64.0	2015
	Separated	.3	9
	Divorced	8.6	271
	Widowed	4.0	127
	Never married	23.0	724
	Total	100.0	3146
Level of education	Primary school	9.8	307
	Junior High school (vmbo)	27.5	864
	Senior high school (havo/vwo)	11.1	350
	Junior college (mbo)	22.2	699
	College (hbo)	22.7	713
	University (wo)	6.8	213
	Total	100.0	3146

2.2 Measures

The Satisfaction with Life Scale (SWLS) (Diener, Emmons, Larsen & Griffin, 1985) was used to measure LS. The SWLS consists of five items: *In most ways, my life is close to my ideal* (1), *the conditions of my life are excellent* (2), *I am satisfied with my life* (3), *so far I have gotten the important things I want in life* (4) and *if I could live my life over, I would change almost nothing* (5). These items are rated on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). In total, five variables were computed, each representing the total score of LS from one measurement occasion. Furthermore, another variable was computed, wherein total scores of LS were classified and recoded into *highly*

satisfied, *satisfied*, *slightly satisfied*, *slightly dissatisfied*, *dissatisfied* and *extremely dissatisfied*. For the SWLS, present calculations yielded a reliability value (Cronbach's alpha) of .88. Descriptive statistics for each measurement occasion are shown in Appendix A. The scale was part of the Personality Questionnaire.

The International Personality Item Pool (IPIP) (Goldberg, 1999) was used to assess the Big five personality dimensions: Extraversion (E), Agreeableness (A), Conscientiousness (C), Emotional Stability (ES) and Intellect/Imagination (I). The 50-item version was used, with 10 items for each of the Big five personality dimensions. The items are presented in a sentence fragment form (e.g. *Get stressed out easily*). The respondent was asked to rate how accurate the statement of the item is on a 5-point scale, ranging from 1 (very inaccurate) to 5 (very accurate). The scale contains + keyed and – keyed items, which refers to the direction of scoring. The + keyed items are scored with the response range (e.g. "very inaccurate"=1), whereas – keyed items are conversely scored (e.g. "very inaccurate"=5). Five variables were computed, representing the total scores of E, A, C, ES and I from the first measurement occasion. As there are no general defined score classifications (high, low and average) for the personality dimensions, it is assumed to self-calculate these scores by identifying the mean score and standard deviation (SD) of each dimension for the sample of individuals. Scores within one-half SD of the mean are interpreted as *average*, whereas scores outside that range are interpreted as *low* or *high* (Appendix B) (Goldberg & Saucier, 2013). A new variable was computed, wherein total scores were recoded in *high*, *low* and *average*. For the IPIP, present calculations yielded a reliability value (Cronbach's alpha) of .88 (.86 for the E-scale, .80 for the A-scale, .77 for the C-scale, .88 for the ES-scale and .77 for the I-scale). The IPIP was part of the Personality Questionnaire.

2.4 Statistical Analyses

SPSS 22.0 was used for statistical analyses. Generally, correlation analysis was performed to examine relations and multiple regression analysis was performed to explain the variance of the dependent variable (LS) by the variance of five personality domains, wherein the variance of aspects are statistically controlled. Furthermore, repeated-measures ANOVAs were used to test mean-level differences. Overall, correlations around 0.20 were considered as low and around 0.50 as moderate.

For hypothesis 1, correlation analyses were performed to test whether, among all Big five personality dimensions, E and ES are mostly related to LS. Additionally, multiple regression analysis was performed to better understand the connections between LS and the personality dimensions. LS was used as dependent variable and E, A, C, ES and I (Block 2) were used as independent variables, while the influence of the covariates *gender* and *age* (Block 1) were evaluated. All variables for these analyses were used from the first measurement occasion, as they serve as starting point.

For hypothesis 2 and 3, repeated-measures two-way ANOVAs were conducted for two purposes: first, to analyse whether there are distinct differences in LS among the five measurement occasions for respondents who score low on ES/low on E and those who score high on ES/high on E; secondly, to test whether there are differences in LS among the five measurement occasions between low and high scorers on ES/E. For this analysis, LS was used as within-subjects factor, including five levels (five measurement occasions) and ES/E was used as between-subjects factor, partitioned into low and high ES/E. Furthermore, for hypothesis 3, mean-scores of each measurement occasion were compared to find out whether there is an increase in LS among the measurement occasions. As the test of sphericity revealed no sphericity in both repeated-measures two-way ANOVAs, the Greenhouse-Geisser values were used.

For hypothesis 4, the data of respondents with a *happy personality* was used. All respondents who had high scores on E, A and ES were considered to have the *happy personality*. This specific constellation of personality dimensions was found in 147 respondents. One-sample t-test was performed to test whether there is a mean-level difference in LS of respondents with a so-called *happy personality* compared to the average. Furthermore, serving as a comparison group, the data of respondents who scored average on E, A and ES was used. A number of 348 respondents scored average on these dimensions. For more detail comparison, descriptive statistics and frequencies were calculated.

3 Results

3.1 *Connections between LS and the Big five personality dimensions*

Correlation analysis was performed to test for any relations between the Big five personality dimensions and LS, using data from the first measurement occasion. It was predicted that among all five dimensions, E and N (ES) are mostly related to LS. The analysis showed low, positive correlations of E, A, C, ES and I with LS. In detail, among all five dimensions, E, C and ES were strongest related to LS (Table 2). Hypothesis 1, among all five dimensions, E and ES are strongest related to LS could be affirmed.

Table 2

Correlation coefficients among LS and Big five personality dimensions (N=3146)

	E	A	C	ES	I
LS	.21*	.13*	.20*	.42*	.08*

* Correlation is significant at the 0.01 level (2-tailed).

Additionally, to better understand the connections between LS and the personality dimensions, multiple regression analysis was performed to explain the variance of LS by the variance of the five personality dimensions, wherein the variance of dimensions are statistically controlled and the influence of the covariates *gender* and *age* were evaluated. Again, data from the first measurement occasion were used. Results show that there was a significant increase in R Square from Block 1 (*R Square change=.01, p<.01*) to Block 2 (*R Square change=.21, p<.01*), meaning that the combination of the five personality dimensions and the covariate *gender* seem to account for the variance in LS. Note, within the combination of all variables, the covariate *age* was not significant (Table 3). Furthermore, higher scores on E, A, C and ES were associated with higher LS. Although I showed a positive correlation with LS, in combination with the other personality dimensions an increase in I was associated with a decrease in LS (Table 3). Among the combination of all five personality dimensions, age and gender, ES was of greatest importance for LS (Table 3). Overall, the combination of the Big five personality dimensions, age and gender accounted for 21% of the variance of LS (*Adjusted R Square=0.21*).

Table 3

Regression coefficients of the Big five personality dimensions, age and gender (N=3146)*

		B	Beta	Sig.
Block 1	Gender	.71	.07	<.01
	Age	-.01	-.01	.73
	E	.09	.11	<.01
	A	.04	.04	.04
Block 2	C	.12	.12	<.01
	ES	.30	.38	<.01
	I	-.06	-.06	<.01

Adjusted R Square=.21

*Dependent variable: LS

3.2 *Development of LS by certain personality dimensions*

A repeated-measures two-way ANOVA was conducted to analyse whether there are mean-level differences in LS among the five measurement occasions for respondents who score low on ES and those who score high on ES (H2). Results showed no significant differences in LS between the five measurement occasions for both groups of respondents (high/low ES) *($F_{(3.78, 1782)}=.60$, $p=.67$)*. Hypothesis 2 could not be affirmed. The results imply no unstable development of LS for people who score low on ES. Nonetheless, the analysis showed significant differences in LS among the measurement occasions between high and low scorers on ES *($F_{(1, 1782)}=468.89$, $p<.01$)*. As shown in Figure 1, individuals who score high on ES showed higher scores on LS among the five measurement occasions than individuals who score low on ES. Thus, people who score low on ES are less satisfied with their lives among the five measurement occasions compared to those who score high on ES.

Figure 1

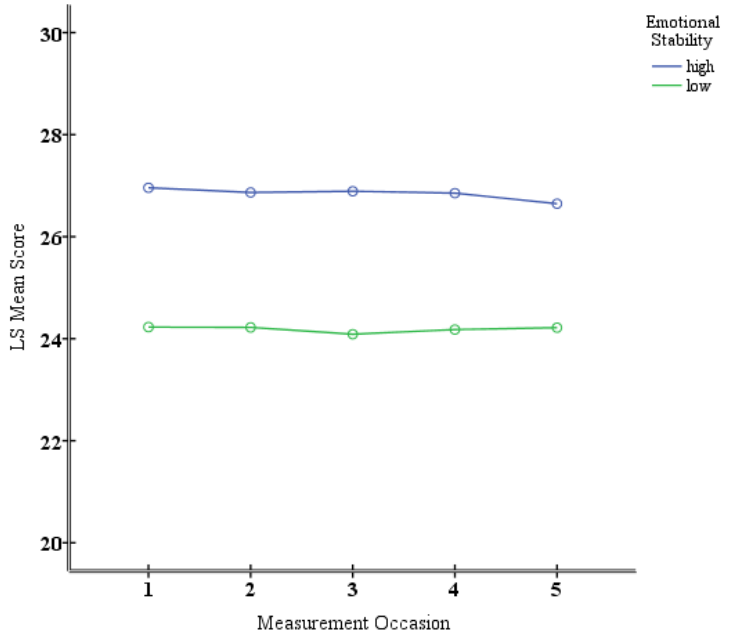

Fig 1: LS mean scores for high/low ES among the measurement occasions

Furthermore, another repeated-measures two-way ANOVA was used to test whether there are differences (increases) in LS among the five measurement occasions for respondents who score high on E and those who score low on E (H3). The results showed no significant differences in LS between the measurement occasions for both groups of respondents *($F_{(3.72, 1821)}=.75$, $p=.55$)*. The results imply no increases in LS among the measurement occasions for people who score high on E. Nevertheless, the analysis showed significant differences in LS between high and low scorers on E *($F_{(1, 1821)}=143.13$, $p<.01$)*. As shown in Figure 2, individuals who score high on E showed higher scores on LS among the five measurement occasions than those who score low on E. In sum, hypothesis 3 could not be confirmed. People who score high on E do not show a positive progress in LS in terms of increases in LS. Nonetheless, these individuals were more satisfied with their life among the five measurement occasions compared to those who score low on E.

Figure 2

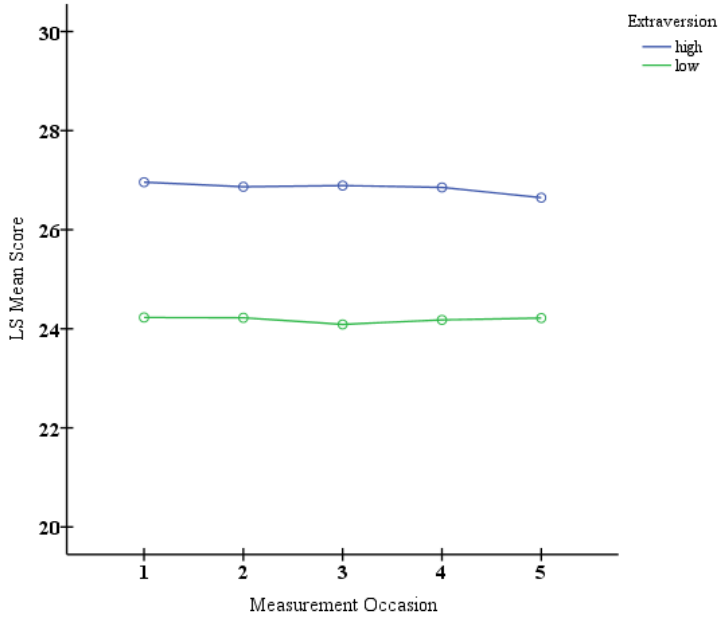

Fig. 2: LS mean scores for high/low E among the measurement occasions

3.3 *LS and the happy personality*

One sample t-test was conducted to test whether there is a mean-level difference in LS between respondents with a so-called *happy personality* and people who score average on E, A and ES. The LS mean score of people who scored average on the dimensions was used as test value. Results showed a significant difference in LS between these people *($T_{(147)}=11.26$, $p=.00$)*. Individuals with a *happy personality* scored higher on LS *($M=29.40$, $SD=3.66$)* than individuals who scored average on the dimensions *($M=26.20$, $SD=4.39$)*. Additionally, for more detail comparison, different descriptive statistics and frequencies were computed. First of all, frequencies of LS were compared between respondents with a *happy personality* and respondents who scored average on the dimensions. Results showed that among the happy personality, most of the respondents fall within the highly satisfied group, whereas most of the respondents among the average scores on E, A and ES fall within the satisfied group (Table 4). Finally, frequencies of the happy personality were computed among all respondents who were highly satisfied with their lives (N=750). This frequency analysis showed that 11.1% (N=83) of these people had the *happy personality*.

Table 4

Frequencies of LS among people with happy personality and people with average scores on the dimensions (N=147, 348)

	happy personality	average E,A,ES
highly satisfied	56.5 %	21.6%
satisfied	34.0%	49.7%
slightly satisfied	7.5%	21.0%
slightly dissatisfied	2.0%	5.5%
dissatisfied	0.0%	2.0%
extremely dissatisfied	0.0%	0.3%

4 Discussion

Life Satisfaction, referring to the cognitive component of emotional well-being, has been widely investigated. Although much is known about LS so far, including determinants and different features of it, there are still some unexplored domains concerning LS. The last years, personality gained more interest when examining LS, as it seems to play a crucial role. Not only is personality part of one of the determinants of LS, but it provides an explanation for the stability of it as well. Many studies investigated the relation between LS and personality, trying to figure out whether our personality influences our satisfaction with life. It is evident that there is a connection between different personality dimensions and LS (e.g. Hahn, Johnson & Spinath, 2003). In more detail, extraversion and neuroticism seem to be of greatest interest concerning LS (Diener & Lucas, 1999). Although these are merely some of the various results, they provide a first impression of the importance of personality when investigating LS. However, LS remains a process throughout life, as we experience different positive and negative life events across time. And although many studies found that in general LS remains stable across life span and resistant to positive and a number of negative life events (e.g. Costa et al, 1987), it is unknown whether certain personality dimensions may influence the development of LS across time. The present study contributes to provide first insights in this unexplored domain by using longitudinal data to investigate the development of LS in consideration of the impact of certain personality dimension characteristics on it.

4.1 *Connections between LS and the Big five personality dimensions*

In line with the expectations and previous studies, among all personality dimensions, emotional stability and extraversion were mostly related to Life Satisfaction. It is evident that life is full of positive and negative experiences. A person who is emotional stable is less likely to be affected by such negative life events and will therefore remain more satisfied with his/her life as an negative event occurs. Therefore, it seems plausible that ES is of great

importance for LS. However, as LS is supposed to predict happiness (Diener, Oishi & Lucas, 2003) and Pavot et al (1990) pointed out that extraversion is associated with happiness, one would expect E to be of greatest interest for LS. Nonetheless, present results and previous studies (e.g. Steel et al, 2008) confirm that among all dimensions, ES is mostly related to LS. The assumption of Costa and McCrae (1991) may be helpful concerning these facts. They proposed that links between personality and satisfaction were direct for some dimensions and indirect for others. They assumed that personality dimensions influence specific life situations which in turn influence LS. Although they proposed these indirect influences for C and A, it may also account for E as well. Thus, although direct relations may be low or moderate for some dimensions, one should not conclude that these dimensions are less important, as they may have indirect influences. Another interesting, noteworthy finding may be the fact that demographic factors, such as age and gender, seem to be of little interest concerning LS. One would assume that certain age-groups (e.g. young adults) may be less satisfied with life, as life gets harder and more serious. Nonetheless, age seems to be of no relevance concerning LS. Overall, the combination of all personality dimensions, age and gender accounted only 21% of the variance in LS. This implies that, besides personality, there are additional substantial aspects to LS. However, the power of influence of the personality dimensions on LS should not be undervalued. Although effects and relations seem moderate in the first place, the virtue of indirect effects often tend to be overlooked. The association between LS and personality dimensions becomes more important when these indirect influences are considered as well.

4.2 *Development of LS by certain personality dimensions*

Contrary to the expectations, no unstable development in LS was found for respondents who score low on ES. As noted earlier, neurotic individuals are more depressive, emotional instable and are more likely to be affected by negative life events (Suls et al, 1998). These

facts probably explain why respondents who score low on ES are less satisfied with their lives compared to persons who score high on ES. However, these facts also led to the assumption of an unstable development in LS for neurotic respondents. Nevertheless, results indicate that individuals who score low on ES have an as stable development in LS as individuals who score high on ES. There may be different explanations for these contrary results. One explanation may be the general resilience and stability of LS. As previous studies found, LS remains stable across life span and resistant to various negative life events (Diener et al, 1993; Lucas et al, 2003; Costa et al, 1987). According to the hedonic adaptation concept, the stability in LS can be explained by habituation (Bottan & Perez-Truglia, 2011). That is, as a new life event occurs, one's LS may increase or decrease, but soon after, as one will get used to the circumstance, LS will return to the initial point. Measuring LS once a year, as has been done in the present study, allows enough time for the respondents to get used to a new circumstance and therefore to return to their initial point of LS. This may explain the contrary results that there were no differences in LS among the measurement occasions for persons who score low on ES. Another explanation for the contrary results may be the fact that there are no generally excepted norms to interpret the IPIP scores. That means, there are no general defined score classifications for high, low or average ES. It is assumed to self-calculate these norms by identifying the mean score and standard deviation (SD) of ES for the sample of persons and interpret scores within one-half SD of the mean as *average*. Scores outside that range are interpreted as *low* or *high*. Now, in the case of general high scores in this sample, this method would lead to distorted score classification. Thus, a person may be classified to have low ES in this sample, but may not show the neurotic scores one would expect (pathological scores e.g. highly anxious, highly emotional instable). To test the hypothesis that neurotic persons have an instable development in LS, pathological scores may be required (referring to a clinical sample). A sample, which is representative for the general population, probably won't provide these scores.

Concerning hypothesis 3, results were contrary to the expectations as well. Results showed no positively increasing development in LS for respondents who score high on E. As Watson and Clark (1997) and Pavot et al (1990) pointed out, E is related to the experience of positive emotions and happiness, which may have a positive influence on one's LS. These facts may explain why respondents who score high on E are more satisfied with their lives than respondents who score low on E. Nonetheless, there was no difference in the development of LS between these respondents. That is, for both groups, LS remained stable across the measurement occasions. Again, this evident stability in LS may be explained by the hedonic adaptation, as noted earlier.

All in all, the contrary results for hypothesis 2 and 3 may be best explained by the hedonic adaptation concept and to some extent by methodical issues. Although the hypotheses could not be affirmed, the results imply important and interesting findings. For one thing, the present results indicate a stable development of LS, regardless of the personality dimensions. This provides further support for the general assumed stability of LS as various studies implied (Diener et al., 1993; Lucas et al, 2003; Costa et al, 1987). Beside the hedonic adaptation (Bottan & Perez-Tuglia, 2011), personality, referring to optimism and the *happy personality*, served as an explanation for this stability in LS as well (DeNeve & Cooper, 1998; Snyder et al, 1991). However, as the present results suggest that LS remains stable across time regardless of the personality, it seems that personality plays no crucial role in explaining the stability in LS. For another thing, the present results indicate that personality dimensions have an influence on the extent of one's perceived LS. Respondents who scored high on E showed higher LS than respondents who scored low on E. The same occurred for ES, high scores on ES showed higher LS than low scores on ES. It indicates that personality has an influence on how satisfied we are with our lives. This is in line with the study of Magee et al (2013) who found increases in E, A, C and O to be associated with higher LS. It seems to be the extent of a dimension that influences the extent of LS. In sum, it does not matter for the stability of LS

whether one is more or less neurotic or more or less extraverted for example. But it does matter for the extent one is satisfied with his/her life.

4.3 *LS and the happy personality*

Investigating satisfaction with life, DeNeve and Cooper (1998) presented a so-called *happy personality*. They found that the most satisfied people showed higher scores on E and A and lower scores on N. According to them, this specific constellation of personality dimensions induces higher satisfaction with one's life. Although the present study focused on the progress of LS in consideration of the impact of personality dimensions on it, the happy personality seemed to be of interest concerning LS and deserved some attention. Thus, additionally to the investigation of the progress of LS, the present study examined LS in consideration of this specific personality dimension constellation.

As was expected, individuals with a happy personality scored higher on LS than those with average scores on the dimensions. The spreading among the LS classifications was very interesting. Overall, respondents with a happy personality were more satisfied with their lives, whereas the allocation among the average scores on the dimensions was more descended. It seems that a so-called happy personality does exist. Respondents who have this constellation of personality dimension are in fact more satisfied with their lives. This may suggest that a specific constellation of personality dimensions is of greater interest and influence for LS than single dimensions or single extents of dimensions. Nonetheless, the results show, among all highly satisfied people, only 11% of these people had the happy personality. This implies that the happy personality has a positive influence on LS, but it is not necessarily a condition to be highly satisfied with one's life. Other factors seem to be important for LS as well and may have equally influences on it. This might be a matter of personal attitude and mindset. We have our own goals, aims, values and norms in life. Therefore it seems reasonable that our LS may depend on personal factors as well. One might be satisfied when achieving certain goals,

whereas another is totally satisfied by being healthy. In fact, cognitive processes seem to be important concerning LS. For example, Robinson et al (2004/2005) found that the accessibility of unpleasant (e.g. negative life events) vs. pleasant (e.g. positive life event) information influences our LS. Furthermore, cognitive dispositions such as optimism effects our LS as well, meaning that an optimistic individual is more likely to be satisfied with life than a pessimistic individual (Scheier and Carver, 1993). Furthermore, Campbell, Converse and Rodgers (1976) referred to a cognitive comparison with other people, one's own past, future, prospects and ideal. They proposed that the difference between what one has and what one wants (e.g. because other people have it) influences our own judgement of LS. In this respect, Buunk, Oldesma and DeDreu (2001) stated that individuals tend to be more satisfied with their lives when they can compare their lives advantageously with those of other people.

In sum, although the happy personality seems to have a positive influence on LS, it is not a prerequisite for being highly satisfied with life. For one thing, this implies that other aspects, such as cognitive processes and dispositions for example, are important as well. For another, even more important thing, it indicates that there are aspects that positively influence LS without being a requirement for it. That means that as a certain factor is given (e.g. happy personality), it positively effects an individual's LS, but the absence of that factor does not consequently imply a disadvantage for someone's LS.

5 Strengths and Limitations

The present study provides first insights into the development of LS in consideration of the impact of certain personality dimension characteristics on it. It is evident that our personality influences, to some extent, the development of our LS and that a certain constellation of personality dimensions is related to higher LS. However, there are a number of limitations to this study. First of all, personality dimensions were measured with the International

Personality Item Pool (IPIP), which measures emotional stability rather than neuroticism. Although Gow et al (2005) found a high correlation between the factor N of the NEO Five Factory Inventory and the ES factor of the IPIP, it is unproven whether ES may be regarded as the opposite of N. As hypotheses for the present study were established on literature concerning N, whereas measures were based on ES, the results may not provide the right impressions. Furthermore, there are no generally excepted norms to interpret the IPIP scores. That means, there are no general defined score classifications for high, low or average ES. It is assumed to self-calculate these norms within the sample. In the case of general low or high scores, this method leads to distorted score classification. Additionally, the IPIP measures global personality dimensions rather than the facets of the dimensions in detail. Although the global dimensions show connections to LS, it seem to be particular facets of the dimensions that are of crucial importance. As Diener and Lucas (1999) pointed out, cheerfulness in extraversion and depression in neuroticism explained differences in LS more than the global dimensions as a whole. Overall, correlations between the personality dimensions and LS were low and the combination of the dimensions only account 21% of the variance of LS. Future research in this field may want to use a personality questionnaire which measures the common Big five personality dimensions (E, A, C, N, O) and its facets, to better understand associations between dimensions, facets and LS. This should provide a more profound insight into how personality and LS are connected. Furthermore, future research should concentrate on certain constellations of personality dimensions and/or facets, as the present study implies that constellations (the happy personality) are more meaningful than single dimensions by itself. Concerning the happy personality, future research may want to investigate whether this constellation of personality dimensions is in fact associated with being happier. Current research, including the present study, solely imply this constellation to be associated with LS. Although LS is suppose to predict happiness (Diener et al, 2003), by the fact of current findings, this special constellation may be better labelled as the *satisfied personality*.

Additionally, it seems that the power of influence of our personality on our LS is direct as well as indirect. Future research should concentrate on both (direct and indirect) effects of our personality on LS, to better understand and clarify the relation.

6 Conclusion

The present study was the first to investigate the development of LS across a time period of five years in consideration of the impact of personality dimensions on it. It provides interesting results and a first insight into an unexplored domain of LS and personality, which may intrigue for future research within this topic. Overall, the present study reveals that, to some degree, personality has a direct influence on our Life Satisfaction. In particular, extraversion and especially emotional stability are relevant. However, the present study also presumes that specific constellations of personality dimensions are more important for LS than single dimensions by itself, providing some support for the existence of a happy personality and its relation to high LS. In sum, the present study emphasized that although the extent of LS is influenced by personality, it remains stable across time, regardless of the personality dimensions.

Appendix A

Descriptive Statistics of LS for every measurement occasion

	Mean	Std. Deviation	N
LS 2008	25.68	5.26	3146
LS 2009	25.60	5.25	3146
LS 2010	25.46	5.37	3146
LS 2011	25.52	5.43	3146
LS 2012	25.46	5.49	3146

Appendix B

Mean scores, standard deviation and score range for E, A, C, ES and I (rounded values)

	M	SD	average	high	low
E	33	6	30-33	34- highest	Lowest -29
A	39	5	37-42	43- highest	Lowest -36
C	37	5	35-40	41- highest	Lowest -34
ES	34	7	31-38	39- highest	Lowest -30
I	35	5	33-38	39- highest	Lowest -32

References:

Bottan, N., & Perez-Truglia, R. N. (2011). Deconstructing the hedonic treadmill: is happiness autoregressive? *Journal of Socio-Economics*, 40(3), 224–236.

Campbell, A., Converse, P. E., & Rodgers, W. L. (1976). The Quality of American Life: Perceptions, Evaluations, and Satisfactions. Russell Sage Foundation.

Clark, A.E., Diener, E., Georgellis, Y., Lucas, R.E., 2008. Lags and leads in life satisfaction: a test of the baseline hypothesis. *Economic Journal 118*, F222–F243.

Costa, P.T., Jr., McCrae, R.T., & Zonderman, A. (1987). Environmental and dispositional influences on well-being: Longitudinal follow-up of an American national sample. *British Journal of Psychology, 78,* 299-306.

DeNeve, K. M., & Cooper, H. (1998). The happy personality: A meta-analysis of 137 personality traits and subjective well-being. *Psychological Bulletin*, 124, 197–229.

Díaz, R. & Arroyo, J. (2013). Personality factors, affect, and autonomy support as predictors of life satisfaction. *Universitas Psychologica, 12*(1), 41-53.

Diener, Ed. 2000. Subjective well-being: The science of happiness and a proposal for a national index. *American Psychologist* 55(1). 34‑43.

Diener, E., Emmons, R. A., Larsen, R. J. & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment, 49*(1), 71-75.

Diener, E., & Lucas, RE. (1999). Personality and subjective well-being. In Ryan, R.M. & Deci, E.L. (2001). On Happiness and Human Potentials: A Review of Research on Hedonic and Eudaimonic Well-Being. *Annual Reviews Psychol. (2001). 52:141-66*

Diener, E., Lucas, R. E., & Scollon, C. (2006). Beyond the hedonic treadmill: Revising the adaptation theory of well-being. *American Psychologist, 61*, 305–314. doi:10.1037/0003-066X.61.4.305

Diener, E., Oishi, S., & Lucas, R. E. (2003). Personality, culture, and subjective well-being: Emotional and cognitive evaluations of life. *Annual Review of Psychology,* 54, 403–425.

Diener, E., Sandvik, E., Seidlitz, L. & Diener, M. (1993). The relationship between income and subjective well-being: Relative or absolute? *Social Indicators Research*, 28, 195-223.

Diener, E., & Seligman, M.E.P. (2002). Very happy people. *Psychological Science*, 13, 81–84.

Goldberg, L. R. (1999). A broad-bandwidth, public domain, personality inventory measuring the lower-level facets of several five-factor models. In I. Mervielde, I. Deary, F. De Fruyt, & F. Ostendorf (Eds.), *Personality Psychology in Europe*, Vol. 7 (pp. 7-28). Tilburg, The Netherlands: Tilburg University Press.

Goldberg, L.R., & Saucier, G. (2013). International Personality Item Pool: A Scientific Collaboratory for the Development of Advanced Measures of Personality and Other Individual Differences. *http://ipip.ori.org/*

Gow, A.J., Whiteman, M.C., Pattie, A., Deary, I.J. (2005). Goldberg's IPIP Big-Five factor markers: Internal consistency and concurrent validation in Scotland. *Personality and Individual Differences 39* (2005) 317–329

Hahn, E., Johnson, W., Spinath, F.M. (2013). Beyond the heritability of life satisfaction: The roles of personality and twin-specific influences. *Journal of Research in Personality 47* (2013) 757–767

Lucas, R. E. (2007). Long-term disability is associated with lasting changes in subjective well-being: Evidence from two nationally representative longitudinal studies. *Journal of Personality and Social Psychology*, 92, 717–730.

Lucas, R. E., Clark, A. E., Georgellis, Y., & Diener, E. (2003). Reexamining adaptation and the set point model of happiness: Reactions to changes in marital status. *Journal of Personality and Social Psychology*, 84(3), 527–539.

Lucas, R. E., Clark, A. E., Georgellis, Y., & Diener, E. (2003). Reexamining adaptation and the set point model of happiness: Reactions to changes in marital status. *Journal of Personality and Social Psychology*, *84*, 527–539. doi:10.1037/0022-3514.84.3.527

Magee, C. A., Heaven, P. C. L., & Miller, L. (2013). Personality change predicts selfreported mental and physical health. *Journal of Personality*, 81, 324–334.

McCrae, R. R., & Costa, P. T. (1991). Adding Liebe und Arbeit: The full five-factor model and well-being. *Personality and Social Psychology Bulletin*, 17(2), 227–232.

Pavot, W., Diener, E. & Fujita, F. (1990). Extraversion and happiness. *Personality and Individual Differences*, 11, 1299-1306.

Robinson, M.D., & Kirkeby, B.S. (2005). Belief and feeling: Evidence for an accessibility model of emotional self-report. *Psychological Bulletin*, 128, 934-960.

Robinson, M.D., Vargas, P.T., Tamir, M., & Solberg, E.C. (2004). Using and being used by categories: The case of negative evaluations and daily well-being. *Psychological Science*, 15, 521-526.

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology*, 52, 141–166.

Scheier, M.F. & Carver, C.S. (1993). On the power of positive thinking: The benefits of being optimistic. *Current Directions in Psychological Science*, 2, 26-30.

Sheldon, K. M., & Lyubomirsky, S. (2006). Achieving sustainable gains in happiness:

Change your actions not your circumstances. *Journal of Happiness Studies*, 7, 55–86.

Snyder, C.R., Harris, C., Anderson, J.R., Holleran, S.A., Irving, L.M., Sigmon, S.T., et al (1991). The will and the ways: Development and validation of an individual differences measure of hope. *Journal of Personality and Social Psychology*, 60, 570-585.

Steel, P., Schmidt, J., & Shultz, J. (2008). Refining the relationship between personality and subjective well-being. *Psychological Bulletin*, 134, 138–161

Suls J, Green P, Hillis S. (1998). Emotional reactivity to everyday problems, affective inertia, and neuroticism. *Personality and Social Psychology Bulletin*, 24, 127-1 36.

Tellegen, A., Lykken, D., Bouchard, T. J., Wilcox, K. J., Segal, N. L., & Rich, S. (1988). Personality similarity in twins reared apart and together. *Journal of Personality and Social Psychology*, 54, 1031–1039.

Watson D, Clark LA. (1997). Extraversion and its positive emotional core. In Hogan R, Johnson J, Briggs S (Eds.), *Handbook* of *personality psychology* (pp. 767-793). San Diego, CA. Academic Press.

World Health Organization (2004). Promoting mental health: Concepts, emerging evidence, practice (Summary Report). *Geneva: WHO*.