

The significance of personality profiles and psychological
flexibility for mental health



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Master's Thesis Clinical Psychology

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Preface

First and foremost, I would like to express my sincere gratitude to my supervisor, Dr. Rinie Geenen, for his kind support, patience and immense knowledge. It was my greatest pleasure to work with him.

I am extremely grateful for my family, from whom I felt the love and support despite the 10.055,41 kilometers between us.

I extend my deepest appreciation to Gianfranco for his constant encouragement, inspiration and company when I needed a walk.

Abstract

Background and aim. The link between personality and mental health has been thoroughly studied. Psychological flexibility shows potential to be a buffer against maladaptive personality profiles. This study examined the moderation effect of psychological flexibility on the relationship between personality profiles and mental health. *Method.* Participants were 208 Dutch individuals aged between 18 and 72 (86.1% female). They completed the Big Five Inventory 2 (BFI-2), Flexibiliteits Index Test 60 (FIT-60) and RAND Short Form 36 (SF-36). Hierarchical clustering with Ward's method and K-means cluster analysis were performed. Then, a moderation effect was tested. *Results.* Adaptive and maladaptive personality profiles were found. These profiles and psychological flexibility were significantly and additively associated with mental health. No moderation effect of psychological flexibility on the relationship between personality profiles and mental health was found. *Implications.* Interventions that aim to develop psychological flexibility taking into account personality profiles may help increase mental health and prevent the development of psychopathology.

Key words: Personality, Psychological Flexibility, Mental Health

Introduction

Personality refers to individual differences in people's patterns of thinking, feeling and behaving (Kazdin, 2000). These are often defined by the Big Five personality traits: extraversion, agreeableness, conscientiousness, negative-emotionality (neuroticism) and open-mindedness (Soto & John, 2017). The relationship between personality and mental well-being has been extensively studied, with extraversion and neuroticism being the most important correlates (Anglim & Grant, 2016) and predictors of high percentages of variance of positive (19-28%) and negative affect (29-41%), respectively (Steel, Schmidt, & Shultz, 2008). In fact, higher levels of extraversion are related to greater well-being (Lai, 2018; Soto, 2015; Stead & Bibby, 2017) while high neuroticism is linked to poorer well-being (Kahlbaugh & Huffman, 2017; Lai, 2018; Soto, 2015; Stead & Bibby, 2017).

Despite the usefulness of understanding the link between personality and mental health, the stability of personality traits restricts the use of this information in a clinical setting. This limitation evidences a relevant knowledge gap: the need of variables that have an influence on the relationship between personality and mental health, and may allow psychotherapists to use this knowledge in their practice. In this context, the concept of psychological flexibility appears as a variable that is measurable and trainable, and may impact specific personality profiles to promote mental health.

Acceptance and Commitment Therapy (ACT) is a third wave therapy that takes into consideration the context and function of psychological phenomena to develop therapeutic strategies (Hayes, 2004). Within this framework, the concept of psychological inflexibility is the primary source of psychopathology. Moreover, it has been indicated that two of its factors have an impact on psychological well-being: cognitive fusion and experiential avoidance (Bardeen & Fergus, 2016; Kashdan, Farmer, Adams, Ferssizidis, McKnight & Nezelek, 2013; Pinto-Gouveia, Dinis, Gregorio

& Pinto, 2018; Solé, Tomé-Pierre, de la Vega, Racine, Castarlenas, Jensen & Miró, 2016; Tyndall, Waldeck, Riva, Wesselmann, & Pancani, 2018; Zettle, Hocker, Mick, Scofield, Petersen, Song & Sudarjanto, 2005).

To enhance psychological flexibility, ACT focuses on six main processes to develop the ability to connect consciously to the present moment and change behavior based on personal values (Hayes, Luoma, Bond, Masuda, & Lillis, 2006; Hayes, Levin, Plumb-Villardaga, Villate & Pistorello, 2013). These are acceptance, cognitive defusion, being present, self as context, values and committed action (Hayes, 2004; Hayes, Luoma, Bond, Masuda, & Lillis, 2006).

Through these six processes, a significant increase of psychological flexibility is expected, which also impacts different measures of well-being in a positive way. In fact, during an ACT intervention, higher psychological flexibility is related to an increase in emotional, psychological and social well-being as well as a decrease in stress (Wersebe, Lieb, Meyer, Hofer, & Gloster, 2018). It has also been found that psychological flexibility can work as a protective factor. It attenuates the negative relationship between work overload and negative affect (Novaes, Ferreira, & Valentini, 2018), protects against the development of burnout syndrome (Ruiz, 2017) and buffers the impact of risk factors (stressful events, daily stress, and low social support) on physical health, mental health and well-being (Gloster, Meyer, & Lieb, 2017).

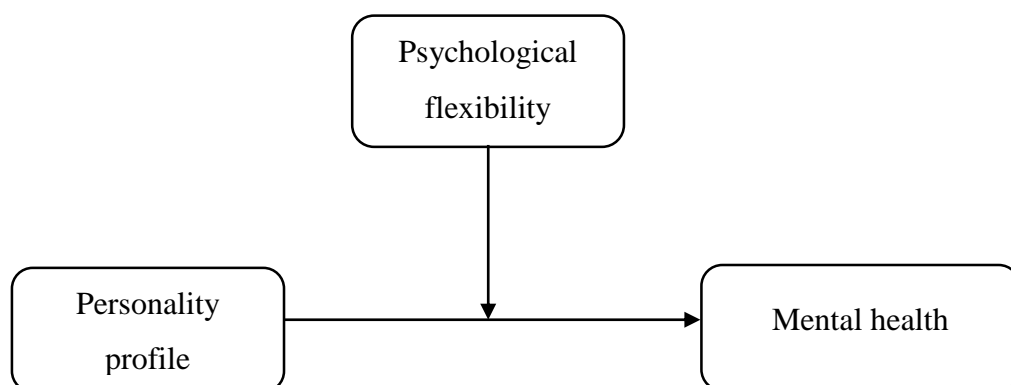
The relationship between psychological flexibility (cognitive flexibility in some studies) and personality has been well documented. For instance, psychological flexibility is associated with a better assessment of situational risks in proactive personalities (Ji, Xu, Xu, Du & Li, 2018) and negatively related to interpersonal difficulties, negative affects, aggressiveness and anxious attachment (Salande & Hawkins, 2016).

Based on the literature above, the following hypothesis are proposed. First, it is hypothesized that adaptive and maladaptive personality profiles will be found within the sample. An adaptive personality consists of a high level of extraversion and low negative emotionality, while maladaptive profiles show low extraversion and high neuroticism.

Second, over and above positive effects on mental well-being, psychological flexibility may maximize the effect of adaptive personality profiles on mental well-being and act as a buffer against maladaptive personality types. Instead of individual traits, personality clusters were chosen to classify the participants. This person-centered approach considers the combination of different traits in the same person (Robins, John, Caspi, Moffitt & Stouthamer-Loeber, 1996) because effects of single traits are not sufficient to predict adaptation (Vollrath & Torgersen, 2000). This also allows to individualize treatment protocols according to personality types.

Figure 1 shows the hypothesized moderation effect of psychological flexibility in the relationship between personality profiles and mental health.

Figure 1. Moderation Model where Psychological Flexibility Moderates the Relationship between Personality and Mental Health



This research aims to provide knowledge to improve clinical psychological treatments by considering individual differences and the participation of psychological flexibility to improve mental well-being. Thus, the research question in the present study is: Does psychological flexibility influence the relationship between personality profiles and mental health?

Method

Participants

A total of 777 subjects started the online survey but many of them failed to answer all the questions. The final sample consisted of 208 people who filled in all the instruments (Table 1). It includes 29 men (13.9%) and 179 women (86.1%). Age ranged from 18 to 72 with a mean age of 44.14 ($SD = 12.84$) years. More than half of the sample was highly educated and a small percentage had low education.

Table 1

Participants' level of education by gender and age

		Level of education									
		Low		Middle		High		Other		Total	
Gender	Age	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Male	18-30	0	0.0%	1	0.5%	3	1.4%	0	0.0%	4	1.9%
	31-43	1	0.5%	3	1.4%	7	3.4%	0	0.0%	11	5.3%
	44-56	0	0.0%	3	1.4%	4	1.9%	0	0.0%	7	3.4%
	57-69	0	0.0%	2	1.0%	4	1.9%	0	0.0%	6	2.9%
	70-82	0	0.0%	1	0.5%	0	0.0%	0	0.0%	1	0.5%
Total		1	0.5%	10	4.8%	18	8.7%	0	0.0%	29	13.9%
Female	18-30	2	1.0%	7	3.4%	27	13.0%	0	0.0%	36	17.3%
	31-43	0	0.0%	16	7.7%	26	12.5%	1	0.5%	43	20.7%
	44-56	3	1.4%	34	16.3%	34	16.3%	0	0.0%	71	34.1%
	57-69	3	1.4%	8	3.8%	17	8.2%	0	0.0%	28	13.5%
	70-82	0	0.0%	1	0.5%	0	0.0%	0	0.0%	1	0.5%
Total		8	3.8%	66	31.7%	104	50.0%	1	0.5%	179	86.1%
General total		9	4.3%	76	36.5%	122	58.7%	1	0.5%	208	100.0%

Note: *n* = sample size.

Design and Procedure

This study had a cross-sectional design. It consisted of a single data collection via online questionnaires using LimeSurvey. Participants were recruited through social

media since November 22nd, 2018. Before they started to answer the questionnaire, they were given written information about duration, confidentiality and anonymity (Appendix A1), and were asked to agree with a consent form (Appendix A2). Data used was downloaded on December 22nd, 2018.

Articles were reviewed from Web of Science using the advance search and linking the three variables of this study (Appendix B). Articles found were filtered by title and abstract. When relevant studies were identified, the related-articles search was also used.

Materials and operationalization

Variables (demographic characteristics, personality, psychological flexibility and mental health) were measured by the following instruments:

Demographic characteristics questionnaire (Appendix A3)

This questionnaire was used to collect data about gender, age, relationship status (single, married/cohabiting, separated, widow/widower or other) and level of education (low, middle and high). Low education included primary education and lower vocational education. Middle education included middle secondary general theoretical education, secondary vocational education and higher secondary general theoretical education. High education included university of applied sciences and university education.

Big Five Inventory 2 (Appendix A4)

The Dutch version of the Big Five Inventory 2 (BFI-2; Denissen, Geenen, Soto, John, & van Aken, 2019) was used to measure the Big Five personality traits. It consists of 60 items, divided in five dimensions: extraversion, agreeableness, conscientiousness, negative emotionality and open-mindedness. Each one of the dimensions is divided in three facets of 4 items each. Every item has the same common header: “Ik zie mezelf als

iemand die... [I am someone who...]. Example items are “communicatief, een gezelschapsmens is [is outgoing, sociable]” or “weinig interesse in abstracte ideeën heeft [has little interest in abstract ideas]”. Items are rated on a 5-points Likert scale ranging from 1 (disagree strongly) to 5 (agree strongly).

Internal consistency of the Big Five factors in the current study was good ($\alpha > 0.80$). In the case of the Big Five facets, it was overall moderate to good, with Cronbach’s alpha close to .60 or higher, except for the responsibility facet ($\alpha = .55$). These findings (Appendix C1) are similar to those reported in Denissen et al. (2019).

Flexibiliteits Index Test (Appendix A5)

The Flexibiliteits Index Test (FIT-60; Batink, Jansen, & de Mey, 2012) was used to measure psychological flexibility. It consists of 60 items, divided in 6 subscales (10 items each) reflecting the six domains of the hexaflex model of psychological flexibility: acceptance, cognitive defusion, self as context, here and now, values and committed action. Example items are “Mijn leven is goed in balans [My life is well balanced]” or “Ik ben snel afgeleid [I am easily distracted]”. Items are rated on a 7-points Likert scale ranging from 0 (totally disagree) to 6 (totally agree). A higher score reflects a higher level of psychological flexibility.

Internal consistency of the FIT-60 in the current study was very good ($\alpha = .95$). In the case of the FIT-60 dimensions, all coefficients show a good internal consistency ($\alpha > .75$), except for the self as context dimension ($\alpha = .58$). These findings (Appendix C2) are similar to those reported in Batink et al. (2012).

RAND Short Form 36 (Appendix A6)

The RAND Short Form 36 (SF-36) was used to measure mental health (van der Zee & Sanderman, 2012). The mental health composite score (Hays, 2009) was calculated from the following four scales.

The emotional well-being scale and energy/fatigue scale consist of five and four items, respectively, rated on a 6-points Likert scale ranging from 1 (all of the time) to 6 (none of the time). Every item has the same common header: “Hoe vaak gedurende de afgelopen 4 weken [How often during the past four weeks...]”. Example items are “voelde u zich kalm en rustig? [have you felt calm and peaceful]” or “voelde u zich erg energiek? [did you have a lot of energy?]”.

The role limitations due to emotional problems scale consists of three items with yes or no as possible answers. Every item has the same common header: “Had u, ten gevolge van een emotioneel probleem (bijvoorbeeld doordat u zich depressief of angstig voelde), de afgelopen 4 weken één van de volgende problemen bij uw werk of andere dagelijkse bezigheden? [During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?]”. Example items are “U heeft minder tijd kunnen besteden aan werk of andere bezigheden [Cut down the amount of time you spent on work or other activities]” or “U heeft minder bereikt dan u zou willen [Accomplished less than you would like]”.

The social functioning scale consists of two items rated on a 5-points Likert scale ranging from 1 (not at all) to 5 (extremely). An example item is “In hoeverre heeft uw lichamelijke gezondheid of hebben uw emotionele problemen u de afgelopen 4 weken belemmerd in uw normale sociale bezigheden met gezin, vrienden, buren of anderen? [During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?]”.

Internal consistency of the mental composite score in the current study was high ($\alpha = .92$). Cronbach's alphas of the scales within that score also show good internal

consistency ($\alpha > .80$). These findings (Appendix C3) are similar to those reported in Hays (2009).

Statistical analyses

First, Cronbach's alphas were used to determine internal consistency of the scales. Data was checked for skewness and multivariate outliers. None of the variables showed skewed distributions (skewness > 1) or multivariate outliers (Cook's distance > 1).

Second, z -scores for the Big Five factors were computed and a hierarchical cluster analysis with Ward's method was used to examine the number of clusters indicated. With this aim, the dendrogram was visually explored. Subsequently, a K-means cluster analysis was performed to allocate participants into clusters. The number of clusters was decided by checking the iteration history, significance of the F statistics and number of individuals in each cluster. This was done to make sure the cluster solution was stable, there was clear difference between groups and each cluster was well represented ($n > 15\%$).

Third, differences between personality profiles were analyzed by one-way analysis of variance (ANOVA). Student Newman Keuls test was used as a post hoc analysis to examine the significance of ANOVA pairwise comparisons for age, personality traits, psychological flexibility and mental health. Chi-square independence test was used to find associations between other sociodemographic variables (gender, level of education and relationship status) and the personality profiles. If the expected count cell was low, the Likelihood ratio test was used.

Finally, a moderation analysis was conducted using the PROCESS procedure v3.2 (Hayes, 2013). For this, correlations between sociodemographic variables (age and gender) and mental health scale were calculated to determine if it was pertinent to include them as covariates. Then, dummy variables were computed (one per

cluster) to indicate whether an individual belongs or not to each one of the personality profiles.

One moderation model was tested for each cluster, with belonging to a cluster as the independent dichotomous variable, psychological flexibility total score as moderator and the mental health composite score as the dependent variable. Covariates were added if indicated.

All statistical analyses were performed using IBM SPSS 23. Significance levels were set at $p < .05$ two-tailed.

Results

The dendrogram after a hierarchical cluster analysis with Ward's method was inspected. It suggested two, three or four-cluster solutions. Interpretation of the K-means cluster analysis supported a three-cluster solution: adaptive ($n = 92$; 44.2%), maladaptive ($n = 48$; 23.1%) and uncaring ($n = 68$; 32.7%). This solution was found stable after 7 iterations, ensured between group differences ($p < .001$) in all Big Five personality traits and guaranteed inclusion of more than 15% of the total sample in every cluster.

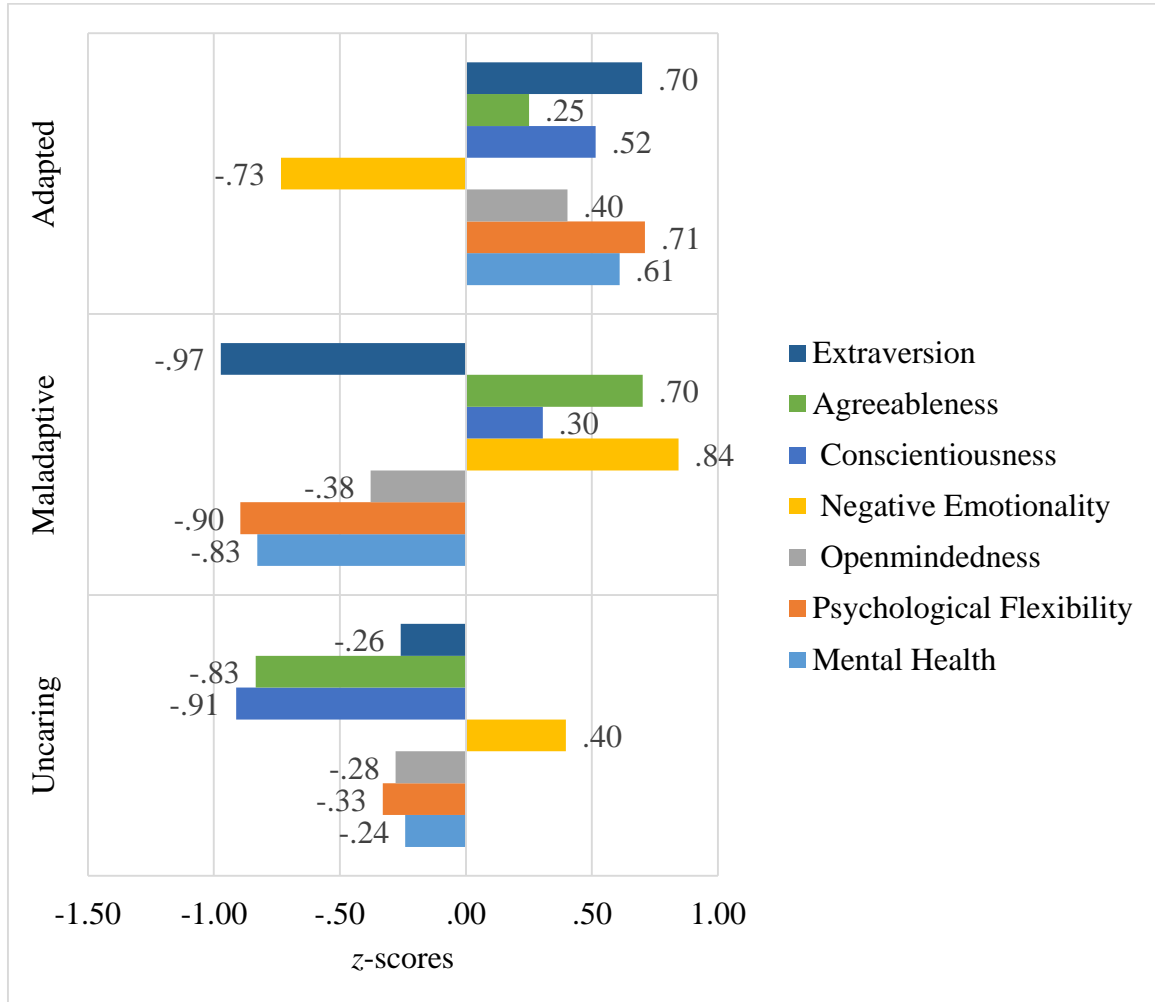
In contrast, the four-cluster solution was stable after 10 iterations and had the following subsample sizes: Cluster 1 ($n = 37$; 17.8%), Cluster 2 ($n = 35$; 16.8%), Cluster 3 ($n = 84$; 40.4%) and Cluster 4 ($n = 52$; 25.0%). In this solution, between-group differences were also significant ($p < .001$) in all Big Five personality traits and every subsample was larger than 15% of the total sample.

The three-cluster solution was chosen over the four-cluster solution because of the lower number of iterations needed to become stable. It also showed a more balanced distribution of individuals among clusters, while the four-cluster solution had 2 clusters (1 and 2) close to the minimum of 15% of the total sample. Finally, considering the conceptual validity, the three-cluster solution allowed a better theoretical explanation of the combination between traits because its parallelism with Eysenck's personality theory: adaptive cluster high on extraversion, maladaptive cluster high on neuroticism and uncaring cluster with characteristics of psychoticism.

Figure 2 shows the mean z -scores of personality traits in each profile. The adaptive profile showed a high score in extraversion (.70) and a considerably low score in negative emotionality (-.73). The maladaptive profile showed a considerably high level of negative emotionality (.84) and agreeableness (.70) and a low level of

extraversion (-.97). The uncaring profile showed a considerably low score in agreeableness (-.83) and conscientiousness (-.91).

Figure 2. The Three Personality Profiles Based on the Big Five Personality Traits



Note: Higher z-scores indicate a higher level in the dimension. For most of the factors, a higher z-score indicates better adaptation, except for negative emotionality.

ANOVA indicated significant differences between profiles in all personality dimensions (Table 2).

Table 2

Differences in dimensions between groups

Dimensions	Post hoc differences	<i>F</i>	<i>p</i>
Extraversion (BFI-2)	Maladaptive < Uncaring < Adaptive	86.677	<.001
Agreeableness (BFI-2)	Uncaring < Adaptive < Maladaptive	60.317	<.001
Conscientiousness (BFI-2)	Uncaring < Maladaptive, Adaptive	72.017	<.001
Negative Emotionality (BFI-2)	Adaptive < Uncaring < Maladaptive	85.981	<.001
Open-mindedness (BFI-2)	Maladaptive, Uncaring < Adaptive	15.439	<.001
Psychological Flexibility (FIT-60)	Maladaptive < Uncaring < Adaptive	82.570	<.001
Mental Health composite (SF-36)	Maladaptive < Uncaring < Adaptive	53.552	<.001

Note: BFI-2 = Big Five Inventory 2. FIT-60 = Flexibilitateits Index Test 60. Higher z-scores indicate a higher level in the dimension. For most of the factors, a higher z-score indicates better adaptation, except for Negative emotionality.

Table 3 shows characteristics of all 208 participants included in the cluster analysis, overall and per personality profile. ANOVA showed no significant differences in age between profiles [$F(2,205) = 2.28, p = .15$]. Chi square independence test indicated no association between clusters and gender [$X^2(2) = 3.31, p = .19$]. In the case of relationship status and level of education, the frequency for more than 20% of the cells was low (expected count < 5), so the Likelihood ratio (L^2) was preferred. It indicated no significant association between relationship status and clusters [$L^2(8) = 12.39, p = .14$]. In contrast, there was a significant association between clusters and level of education [$L^2(4) = 18.85, p = .001$].

Table 3

Participants' characteristics overall and per personality profile

Characteristics	All participants (<i>n</i> = 208)	Adaptive (<i>n</i> = 92)	Maladaptive (<i>n</i> = 48)	Uncaring (<i>n</i> = 68)
Age, mean (<i>SD</i>)	44.14 (12.84)	46.22 (12.90)	43.15 (13.21)	42.04 (12.24)
Gender, <i>n</i> (%)				
Male	29 (13.9)	16 (17.4)	3 (6.3)	10 (14.7)
Female	179 (86.1)	76 (82.6)	45 (93.8)	58 (85.3)
Relationship status, <i>n</i> (%)				
Single	35 (16.8)	11 (12.0)	9 (18.8)	15 (22.1)
Married/Cohabiting	155 (74.5)	76 (82.6)	33 (68.8)	46 (67.6)
Separated	7 (3.4)	3 (3.3)	2 (4.2)	2 (2.9)
Widow/Widower	2 (1.0)	0 (0.0)	2 (4.2)	0 (0.0)
Other	9 (4.3)	2 (2.2)	2 (4.2)	5 (7.4)
Level of education, <i>n</i> (%)				
Not high	86 (41.3)	23 (25.0)	26 (54.2)	37 (54.4)
High	122 (58.7)	69 (75.0)	22 (45.8)	31 (45.6)
Psychological flexibility (FIT-60), mean (<i>SD</i>)	228.82 (46.53)	261.90 (30.71)	187.17 (40.33)	213.47 (35.82)
Mental Health (SF-36), mean (<i>SD</i>)	42.42 (12.04)	49.76 (8.11)	32.46 (12.05)	39.53 (10.14)

Note: *SD* = Standard Deviation. *n* = sample size. FIT-60 = Flexibiliteits Index Test. SF-36 = RAND Short Form 36.

Tables 4, 5 and 6 show the regression models for each of the profiles, controlled for possible gender differences. All of them indicated that the interaction between the profile and psychological flexibility had no significant association with mental health. In addition, in every model models, the association between gender and mental health was not significant.

The regression model for the adaptive profile [$F(4,203) = 65.72, p < .001, R^2 = .56$] showed that belonging to the profile contributed to a higher level of mental health in 3.76 units (0.46 *SD*, small effect). Moreover, considering a coefficient of 0.16

of psychological flexibility, an increase in one *SD* of this variable (30.71) was also associated to a higher mental health in 0.61 *SD* (medium effect).

Table 4

Mental health predicted from adaptive personality profile, psychological flexibility, interaction and gender

	coeff	se	<i>t</i>	<i>p</i>	LLCI	ULCI
Constant	47.72	3.11	15.33	<.001	41.59	53.87
Adaptive profile	3.76	1.52	2.47	.01	.76	6.76
Psychological flexibility (FIT-60)	.16	.02	9.97	<.001	.13	.19
Interaction	-.05	.03	-1.41	.16	-.11	.02
Gender	-2.48	1.63	-1.53	.13	-5.70	.73

Note: coeff = coefficient. se = standard error. *p* < .05 is considered significant. LLCI = Lower Level of Confidence Interval. ULCI = Upper Level of Confidence Interval. FIT-60 = Flexibilitateits Index Test 60.

The regression model for the maladaptive profile [$F(4,203) = 64.91, p < .001, R^2 = .56$] showed that belonging to this profile was associated to a lower mental health in 3.85 units (0.31 *SD*, small effect). Furthermore, considering a coefficient of 0.16 of psychological flexibility, an increase in one *SD* of this variable (40.33) was also associated to a higher mental health in 0.57 *SD* (medium effect).

Table 5

Mental health predicted from maladaptive personality profile, psychological flexibility, interaction and gender

	coeff	se	<i>t</i>	<i>p</i>	LLCI	ULCI
Constant	46.50	3.10	14.98	<.001	40.38	52.62
Maladaptive profile	-3.85	1.81	-2.13	.03	-7.42	-.29
Psychological flexibility (FIT-60)	.17	.01	12.45	<.001	.15	.20
Interaction	-.02	.03	-.53	.60	-.08	.05
Gender	-2.28	1.64	-1.40	.16	-5.51	.94

Note: coeff = coefficient. se = standard error. *p* < .05 is considered significant. LLCI = Lower Level of Confidence Interval. ULCI = Upper Level of Confidence Interval. FIT-60 = Flexibilitateits Index Test 60.

The regression model for the uncaring profile [$F(4, 203) = 62.09, p < .001, R^2 = .55$] showed that this profile did not predict mental health. However, considering a coefficient of 0.19 of psychological flexibility, an increase in one *SD* of this variable (35.82) was also associated to a higher mental health in 0.67 *SD* (medium effect).

Table 6

Mental health predicted from uncaring personality profile, psychological flexibility, interaction and gender

	coeff	se	<i>t</i>	<i>p</i>	LLCI	ULCI
Constant	46.93	3.14	14.95	<.001	40.74	53.12
Uncaring profile	-.10	1.28	-.07	.94	-2.63	2.44
Psychological flexibility (FIT-60)	.19	.01	14.12	<.001	.16	.21
Interaction	-.01	.03	-.16	.87	-.07	.06
Gender	-2.44	1.66	-1.47	.14	-5.70	.83

Note: coeff = coefficient. se = standard error. $p < .05$ is considered significant. LLCI = Lower Level of Confidence Interval. ULCI = Upper Level of Confidence Interval. FIT-60 = Flexibilitateits Index Test 60.

Discussion

This study found one adaptive, one maladaptive and one uncaring profile among Dutch individuals. People with an adaptive personality showed the highest psychological flexibility and mental health compared to the other groups, while the maladaptive profile had the lowest level in both variables. Both profiles significantly predicted mental health. Psychological flexibility was not found to moderate the relationship between personality profiles and mental health. However, taking into account personality profiles, psychological flexibility was additively associated with mental health.

The first hypothesis of the study was met. Both adaptive and maladaptive personality profiles were found. The adaptive personality was characterized by high extraversion and low negative emotionality. In contrast, the maladaptive personality was characterized by high neuroticism and low extraversion.

The adaptive, maladaptive and uncaring profiles found are parallel to Eysenck's personality major dimensions: extraversion-introversion, neuroticism and psychoticism (Zambrano, 2011). Not surprisingly, the first two showed to be extremes not only in specific traits like extraversion and neuroticism, but also in psychological flexibility and mental health.

The second hypothesis of the study was not met. Although psychological flexibility has been found to work as a protective factor in previous studies it did not influence the relationship between any of the personality profiles and mental health. This may be explained by the fact that psychological flexibility works as a coping mechanism against negative external events like work overload, burnout, stressful events, daily stress and low social support (Novaes, Ferreira, & Valentini, 2018; Ruiz, 2017; Gloster, Meyer, & Lieb, 2017). However, when it comes to more stable

temperamental characteristics, psychological flexibility loses its protective effect. This emphasizes the need of focusing on developing psychological flexibility, as well as addressing personality traits, such as negative emotionality, which may get in the way of learning effective coping mechanisms.

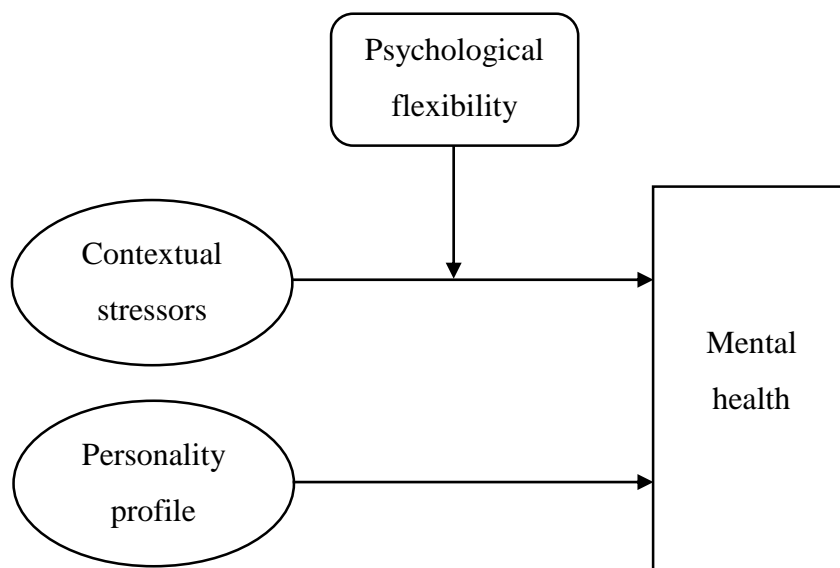
Despite the fact that psychological flexibility didn't work as a moderator, even after taking into account the association between personality profiles and mental well-being, psychological flexibility had additive beneficial influence on mental health. This suggests that interventions that develop psychological flexibility could improve mental well-being in patients, especially in the case of people with a maladaptive personality profile.

For example, based on various Randomized Control Trials (RCTs), ACT shows to be a more efficacious intervention compared to waitlist conditions, and its process of change, psychological flexibility, mediates therapeutic outcomes (Twohig & Levin, 2017). Another option is The Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (UP), which focuses on temperamental characteristics, specifically neuroticism, that underlie anxiety, depressive and related disorders (Barlow, Farchione, Bullis, Gallagher, Murray-Latin, Sauer-Zavala... Ametaj, 2017). Interestingly, some of its treatment components are analogous to psychological flexibility dimensions and the overall protocol has been found to be effective as a preventive program. Another effective treatment for people with high neuroticism is Mindfulness-based stress reduction. It has been found to significantly improve cognitive flexibility in women with neuroticism (Najafi, Ghorbani, Dehnavi, 2018). These last two could be a good option for people with a maladaptive personality.

Overall, it seems that adaptive and maladaptive personality profiles have a positive and negative influence on mental health, respectively. Considering that

personality is more or less stable, it has an ongoing impact on well-being, creating different starting points and possible therapeutic outcomes depending on the personality type. This is complemented by the positive influence of psychological flexibility, which protects against the detriment effects of environmental stressors. This relationship is explained in Figure 3.

Figure 3. Personality, Psychological Flexibility and Mental Health Relationship Model



Limitations of this study are related to the sample, type of instruments and transfer of findings to a clinical setting. First, the sample was relatively small (n=208), mainly female and highly educated. Because of this, the Dutch population was not well represented. The size of the sample for the cluster analysis influenced the number of clusters chosen, because a great difference between profiles had to be ensured. The characteristics of the sample (mostly female and highly educated) may also have influenced the types of personality described in this research. Regarding this, it is important to note that results express types of personality within a Dutch sample. Generalization to other populations is limited.

Second, the variables were measured by self-reports. This could have some disadvantages, such as biases caused by previous responses in questionnaires, feelings experienced at the moment of the recollection or social desirability.

Third, it is not clear how to transfer the knowledge from personality profiles to an individual level. Although the results give a general picture of how psychological flexibility works, taking into account personality, specific directions and individual psychotherapeutic interventions are yet to be developed. ACT would be a first choice of treatment because it is developed to increase psychological flexibility. ACT protocols should be adapted for people with adaptive and maladaptive personality profiles.

For future research, a bigger sample with a balanced number of people in each gender and level of education is needed in order to represent the Dutch population. It is also of interest to test the hypothesized moderation effect of psychological flexibility on the relationship between each one of the personality traits and mental health, with a focus on neuroticism.

In addition, RCTs would be a next step to confirm the value of psychological flexibility in the relationship between personality and mental health. It would be beneficial to assess the three variables before and after the intervention. Maladaptive personality type, like the one described in this study, should be considered as a first choice for treatment sample because they are the ones who benefit the most from psychological flexibility development.

Regarding clinical applicability, psychological flexibility should be considered as one treatment component that facilitates mental well-being, taking into account personality types. By definition, personality traits like neuroticism provide a vulnerability to stress (Widiger, 2011), as in the case of the maladaptive profile in this study. Targeting these individuals at risk by providing therapy that addresses the

development of psychological flexibility considering their personality profile could prevent the development of psychopathology and/or its severity. Due to their high level of agreeableness, it would probably be easier to establish a therapeutic alliance and get them committed at the beginning and during treatment.

Although people with an uncaring profile don't have the lowest mental health, they could also benefit from developing psychological flexibility. Considering their low level of agreeableness and conscientiousness, they may present themselves as skeptical during therapy and hesitant to develop an alliance with the therapist. They may also lack commitment with homework and treatment, and are prone to drop out. Because of this, it is important that the therapist structures the therapy process adequately and makes specific emphasis on developing alliance with the client in the first stages. Furthermore, motivational interviewing techniques and interventions may help them commit to the change process, as it can work as complementary to ACT (Bricker & Tollison, 2011).

In sum, it is important to take into consideration temperamental predisposition, not only for its influence on mental health, but also on the treatment process and its outcomes. Adapting interventions that aim to develop psychological flexibility taking into account personality profiles may help increase mental health and prevent the development of psychopathology.

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Appendices

Appendix A: Instruments

Appendix A1: Survey information

Beste lezer,

Hierbij nodig ik u uit om mee te doen met een vragenlijstonderzoek naar het belang van flexibiliteit voor welbevinden en lichamelijke klachten. Dit is mijn afstudeeronderzoek bij de Universiteit Utrecht. Ik voer het onderzoek uit met Tim Koppert, professor Rinie Geenen, Dr. Sibe Doosje en studenten van de Universiteit Utrecht. Iedere volwassene kan aan het onderzoek meedoen. Het invullen van mijn vragenlijsten duurt ongeveer 20 minuten, afhankelijk van de snelheid waarmee u werkt. Na het invullen zal gevraagd worden of u ook nog aan een vragenlijstonderzoek van een andere student wilt deelnemen. Ook het invullen van die vragenlijsten zal ongeveer 20 minuten duren. Uw gegevens worden vertrouwelijk verwerkt. Er wordt geen naam gekoppeld aan de resultaten. U kunt informatie over dit onderzoek inwinnen bij Tim Koppert: T.Y.Koppert@fsw.leidenuniv.nl. Om te kunnen deelnemen aan het onderzoek is het wettelijk verplicht dat u eerst toestemming geeft. Dat doet u op de volgende pagina. Ik hoop zeer dat u het onderzoek wilt afmaken en dank u bij voorbaat.

Met vriendelijke groet,

Daniela de Carpio

Mede namens Tim Koppert, MSc., prof. dr. Rinie Geenen, dr. Sibe Doosje, Yvonne Poel, Regina Pilz, Maaïke Meerveld, Giorgos Zachariadis

Deze enquête is anoniem.

De gegevens die worden vastgelegd over de enquête die u heeft ingevuld bevatten geen gegevens die tot u zijn te herleiden. Behalve als er in een vraag naar is gevraagd.

Als u een toegangscode heeft gebruikt om deze enquête te kunnen invullen, dan verzekeren wij u dat deze toegangscode niet bij uw ingevulde gegevens wordt opgeslagen. Het wordt in een aparte database opgeslagen en het wordt alleen gewijzigd om aan te geven of u de enquête wel of niet helemaal heeft ingevuld. De toegangscode wordt niet gecombineerd met uw ingevulde gegevens.

Appendix A2: Informed consent

Toestemmingsverklaring vragenlijstonderzoek naar ‘het belang van flexibiliteit voor welbevinden en lichamelijke klachten’.

Ik heb de informatie over dit onderzoek gelezen. Ik kon via de e-mail aanvullende vragen stellen bij de onderzoeker. Ik had genoeg tijd om te beslissen of ik meedoe. Ik weet dat meedoen helemaal vrijwillig is. Ik weet dat ik op ieder moment kan beslissen om toch niet mee te doen; daarvoor hoef ik geen reden te geven. Ik geef toestemming om mijn antwoorden op de vragen te gebruiken, voor het doel dat in de informatiebrief staat. Ik geef toestemming om gegevens nog maximaal 15 jaar na afloop van dit onderzoek te bewaren. Kruis nu één van de onderstaande vakjes aan.

Kies 'ja' als u het goed vindt om aan dit onderzoek mee te doen. Als u verklaart dat u 18 jaar of ouder bent en dat u kennis heeft genomen van de reden van dit onderzoek. U geeft de onderzoeker toestemming om uw gegevens te gebruiken.

Kies 'nee' als u niet mee wilt doen aan dit onderzoek

Ja	Nee
----	-----

Appendix A3: Demographics questionnaire

1. Geslacht

Kies één van de volgende antwoorden.

- a) Man
- b) Vrouw
- c) Anders

2. Leeftijd

Uw antwoord moet tussen 9 en 99 liggen.

In dit veld mag alleen een geheel getal worden ingevoerd.

3. Wat is uw burgerlijke status?

Kies één van de volgende antwoorden.

- a) Alleenstaand
- b) Gehuwd/samenwonend
- c) Gescheiden
- d) Weduwe/weduwnaar
- e) Anders

4. Wat is uw opleidingsniveau?

- a) Lager onderwijs (basisschool)
- b) Lager beroepsonderwijs (LHNO/huishoudschool/LTS/VMBO-basis, VMBO-kader)
- c) Middelbaar algemeen onderwijs (MULO/MAVO/VMBO-gemengd, VMBO-theoretisch, 3 jaar HAVO of VWO), Middelbaar beroepsonderwijs (MBO) niveau 1
- d) Middelbaar beroepsonderwijs MBO (niveau 2, 3 of 4), MTS, MEAO, etc.
- e) Voortgezet algemeen onderwijs (HBS/MMS/HAVO/VWO/Gymnasium/Atheneum)
- f) Hoger beroepsonderwijs (hogeschool, HTS, HEAO, etc.)
- g) Wetenschappelijk onderwijs (universiteit, ingenieursexamen)
- h) Anders

Appendix A4: Big Five Inventory 2 (BFI-2)

De volgende stellingen hebben betrekking op uw opvatting over uzelf in verschillende situaties.

Het is aan u om aan te geven in hoeverre u het eens bent met elke stelling.

Hierbij maakt u gebruik van een schaal waarbij het aanklikken van het meest linker bolletje betekent dat u het 'helemaal oneens' bent met deze stelling en het aanklikken van het bolletje helemaal aan de rechterkant betekent dat u het 'helemaal eens' bent met de stelling over uzelf. U kunt ook iets ertussenin kiezen.

Er zijn geen 'goede' of 'foute' antwoorden, dus selecteer bij elke stelling het bolletje dat zo goed mogelijk bij u past.

Neem de tijd en denk goed na over elk antwoord.

Ik zie mezelf als iemand die...

1	Communicatief, een gezelschapsmens is.	1	2	3	4	5
2	Betrokken, meevoelend is.	1	2	3	4	5
3	Geneigd is tot slordigheid.	1	2	3	4	5
4	Ontspannen is, goed met stress kan omgaan.	1	2	3	4	5
5	Weinig interesse voor kunst heft.	1	2	3	4	5
6	Een persoon is die voor zichzelf opkomt.	1	2	3	4	5
7	Respectvol is, anderen met respect behandelt.	1	2	3	4	5
8	Geneigd is lui te zijn.	1	2	3	4	5
9	Optimistisch blijft na een tegenslag.	1	2	3	4	5
10	Benieuwd is naar veel verschillende dingen.	1	2	3	4	5
11	Zelden uitgelaten of gretig is.	1	2	3	4	5
12	De neiging heeft om de fout bij anderen te zoeken.	1	2	3	4	5
13	Verantwoordelijk, degelijk is.	1	2	3	4	5
14	Humeurig is, wiens stemming op en neer gaat.	1	2	3	4	5
15	Vindingrijk is, creatieve manieren verzint om dingen te doen.	1	2	3	4	5
16	Doorgaans stil is.	1	2	3	4	5
17	Weinig sympathie voor anderen voelt.	1	2	3	4	5
18	Systematisch is, dingen graag op orde houdt.	1	2	3	4	5
19	Gespannen kan zijn.	1	2	3	4	5
20	Gefascineerd is door kunst, muziek of literatuur.	1	2	3	4	5
21	De toon zet, als een leider handelt.	1	2	3	4	5
22	Snel ruzie maakt.	1	2	3	4	5
23	Moeite heeft om met taken te beginnen.	1	2	3	4	5
24	Zich zeker, op zijn gemak met zichzelf voelt.	1	2	3	4	5

25	Intellectuele, filosofische discussies uit de weg gaat.	1	2	3	4	5
26	Minder levendig dan anderen is.	1	2	3	4	5
27	Vergevingsgezind en verdraagzaam is.	1	2	3	4	5
28	Een beetje nonchalant kan zijn.	1	2	3	4	5
29	Emotioneel stabiel is, niet gemakkelijk overstuurt.	1	2	3	4	5
30	Weinig creativiteit heeft.	1	2	3	4	5
31	Soms verlegen, introvert is.	1	2	3	4	5
32	Behulpzaam en onzelfzuchtig ten opzichte van anderen is.	1	2	3	4	5
33	Dingen netjes en verzorgd houdt.	1	2	3	4	5
34	Zich veel zorgen maakt.	1	2	3	4	5
35	Waarde hecht aan kunst en schoonheid.	1	2	3	4	5
36	Moeite heeft om andere mensen te overtuigen.	1	2	3	4	5
37	Soms onbeleefd tegen anderen is.	1	2	3	4	5
38	Efficiënt is, klussen afkrijgt.	1	2	3	4	5
39	Zich vaak verdrietig voelt.	1	2	3	4	5
40	Genuanceerd en diep over dingen nadenkt.	1	2	3	4	5
41	Vol energie is.	1	2	3	4	5
42	Niet zo snel uitgaat van de goede bedoelingen van anderen.	1	2	3	4	5
43	Betrouwbaar is, verwachtingen altijd waarmaakt.	1	2	3	4	5
44	Zijn/haar emoties onder controle houdt.	1	2	3	4	5
45	Weinig verbeeldingskracht heeft.	1	2	3	4	5
46	Spraakzaam is.	1	2	3	4	5
47	Koud en ongevoelig kan zijn.	1	2	3	4	5
48	Er een rommel van maakt, niet opruimt.	1	2	3	4	5
49	Zich zelden angstig of bang voelt.	1	2	3	4	5
50	Vindt dat dichtkunst en toneel maar saai zijn.	1	2	3	4	5
51	Het liefst ziet dat anderen het voortouw nemen.	1	2	3	4	5
52	Beleefd, hoffelijk tegenover anderen is.	1	2	3	4	5
53	Volhoudend is, werkt tot de taak af is.	1	2	3	4	5
54	Ertoe neigt zich terneergeslagen, somber te voelen.	1	2	3	4	5
55	Weinig interesse in abstracte ideeën heeft.	1	2	3	4	5
56	Veel enthousiasme en uitbundigheid uitstraalt.	1	2	3	4	5
57	Van het beste in mensen uitgaat.	1	2	3	4	5
58	Zich soms onverantwoordelijk en ondoordacht gedraagt.	1	2	3	4	5
59	Opvliegend is, makkelijk emotioneel wordt.	1	2	3	4	5
60	Origineel is, met nieuwe ideeën komt.	1	2	3	4	5

Appendix A5: Flexibiliteits Index Test (FIT-60)

Instructie voor het invullen:

Deze vragenlijst bestaat uit 60 stellingen. Lees elke stelling aandachtig door en geef daarna aan in welke mate onderstaande stellingen van toepassing zijn op u. Hoe meer deze stelling van toepassing is op u, hoe verder naar rechts u het bolletje selecteert. Hoe minder deze stelling van toepassing is op u, hoe verder naar links u het bolletje selecteert. Let er op dat u bij alle stellingen een antwoord geeft.

1	Zorgen staan mijn succes in de weg.	0	1	2	3	4	5	6
2	Ik voel me vaak beperkt door alles wat ik van mezelf moet.	0	1	2	3	4	5	6
3	Ik kan negatieve gedachten over mijzelf hebben en tegelijkertijd weten dat ik oké ben.	0	1	2	3	4	5	6
4	Als ik iets wil doen, dan ga ik er voor.	0	1	2	3	4	5	6
5	Ik ben goed in staat om lange termijn doelen op te delen in korte termijn mogelijkheden.	0	1	2	3	4	5	6
6	Mijn leven is goed in balans.	0	1	2	3	4	5	6
7	Ik vind het moeilijk om doelgericht bezig te blijven.	0	1	2	3	4	5	6
8	Ik heb voldoende vrienden.	0	1	2	3	4	5	6
9	Mijn gedachten bezorgen mij ongemak of emotionele pijn.	0	1	2	3	4	5	6
10	Het is OK als ik me iets onaangenaams herinner.	0	1	2	3	4	5	6
11	Ik maak regelmatig concrete plannen voor de toekomst.	0	1	2	3	4	5	6
12	Als iets me niet lukt dan zet ik door, en probeer ik het op een andere manier aan te pakken.	0	1	2	3	4	5	6
13	Ik ga graag naar mijn werk.	0	1	2	3	4	5	6
14	Ik ben bereid om mijn angst volledig toe te laten.	0	1	2	3	4	5	6
15	Ik vind het moeilijk om mijn aandacht te houden bij wat er in het hier en nu gebeurt.	0	1	2	3	4	5	6
16	Ik ben snel afgeleid.	0	1	2	3	4	5	6
17	Ik vind van mezelf dat ik altijd aardig moet zijn.	0	1	2	3	4	5	6
18	Het is moeilijk voor me om de woorden te vinden die mijn gedachten beschrijven.	0	1	2	3	4	5	6

19	Ik beseft dat mijn zelfbeeld niet zoveel over mij als persoon zegt.	0	1	2	3	4	5	6
20	Ik observeer mijn gevoelens zonder dat ik me erin verlies.	0	1	2	3	4	5	6
21	Als ik thuis ben voel ik me op mijn gemak.	0	1	2	3	4	5	6
22	Ik doe mijn best om geen negatieve dingen te hoeven ervaren.	0	1	2	3	4	5	6
23	Ik heb last van een negatief zelfbeeld.	0	1	2	3	4	5	6
24	Als ik iets niet goed doe, dan reken ik dat mezelf aan.	0	1	2	3	4	5	6
25	Ik beseft dat ik de dingen die ik doe, zelf heb gekozen.	0	1	2	3	4	5	6
26	Als ik pijnlijke gevoelens toelaat, dan ben ik bang dat ze niet meer verdwijnen.	0	1	2	3	4	5	6
27	Er zijn een aantal dingen die ik doe, die ik belangrijk vind.	0	1	2	3	4	5	6
28	Ik heb last van het gevoel dat ik door de bomen het bos niet meer zie.	0	1	2	3	4	5	6
29	Ik heb de neiging mijn pijn erger te maken met mijn gedachten.	0	1	2	3	4	5	6
30	Ik vind het makkelijk om mijn gedachten van een andere kant te bekijken.	0	1	2	3	4	5	6
31	Mijn pijnlijke ervaringen en herinneringen maken het me moeilijk om een waardevol leven te leiden.	0	1	2	3	4	5	6
32	Als iemand een vervelende opmerking maakt, kan ik daar nog lang last van hebben.	0	1	2	3	4	5	6
33	Ik hoef dingen niet altijd goed te doen van mezelf.	0	1	2	3	4	5	6
34	Mijn werk en/of studie speelt een belangrijke rol in mijn leven.	0	1	2	3	4	5	6
35	Gedachten die bij me opkomen moet ik onder controle houden.	0	1	2	3	4	5	6
36	Ik kan goed beschrijven wat ik voel.	0	1	2	3	4	5	6
37	Ik vind mijn leven waardevol.	0	1	2	3	4	5	6
38	Ik geloof dat sommige van mijn gedachten abnormaal of slecht zijn en dat ik niet zo zou moeten denken.	0	1	2	3	4	5	6
39	Sommige woorden kunnen mij heel hard raken.	0	1	2	3	4	5	6
40	Ik ben onderweg om mijn doelen en dromen te bereiken.	0	1	2	3	4	5	6
41	Ik besteed regelmatig tijd aan mijn hobbys.	0	1	2	3	4	5	6

42	Ik heb de neiging erg sterk te reageren op mijn eigen negatieve gedachten.	0	1	2	3	4	5	6
43	Ik keur mezelf af als ik rare gedachten heb.	0	1	2	3	4	5	6
44	Ik kan makkelijk mijn overtuigingen en meningen onder woorden brengen.	0	1	2	3	4	5	6
45	Emoties (zoals boosheid, verdriet) veroorzaken problemen in mijn leven.	0	1	2	3	4	5	6
46	Ik sta los van mijn omgeving.	0	1	2	3	4	5	6
47	Ik doe meerdere dingen die ik belangrijk vind.	0	1	2	3	4	5	6
48	Ik vind het leuk om nieuwe uitdagingen aan te gaan.	0	1	2	3	4	5	6
49	Ik kan goed beschrijven wat ik ervaar met mijn zintuigen, zoals wat ik hoor, zie en ruik.	0	1	2	3	4	5	6
50	Ik vind steun bij de mensen in mijn omgeving.	0	1	2	3	4	5	6
51	De gedachten die ik over mijzelf heb, bepalen niet wie ik ben.	0	1	2	3	4	5	6
52	Ik schrik soms van de gedachten die ik heb.	0	1	2	3	4	5	6
53	Ik ben bang voor mijn gevoelens.	0	1	2	3	4	5	6
54	Mijn gedachten en gevoelens staan de manier waarop ik wil leven niet in de weg.	0	1	2	3	4	5	6
55	Ik vind familie en/of vrienden belangrijk.	0	1	2	3	4	5	6
56	Wanneer ik mezelf vergelijk met andere mensen, lijkt het dat de meesten onder hen hun leven beter in de hand hebben dan ik.	0	1	2	3	4	5	6
57	Het is erg moeilijk om verontrustende gedachten los te laten, zelfs wanneer ik weet dat los laten mij zou helpen.	0	1	2	3	4	5	6
58	Van sommige gedachten raak ik van streek.	0	1	2	3	4	5	6
59	Ik ben erop uit om nieuwe dingen te doen.	0	1	2	3	4	5	6
60	Ik denk dat mijn emoties soms slecht of ongepast zijn en dat ik ze niet zou moeten voelen.	0	1	2	3	4	5	6

Appendix A6: RAND Short Form 36 (SF-36)

In deze vragenlijst wordt naar uw gezondheid gevraagd.

Wilt u elke vraag beantwoorden door het juiste hokje aan te kruisen? Wanneer u twijfelt over het antwoord op een vraag, probeer dan het antwoord te geven dat het meest van toepassing is.

1. Wat vindt u, over het algemeen genomen, van uw gezondheid?

Uitstekend	Zeer goed	Goed	Matig	Slecht
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2. In vergelijking met een jaar geleden, hoe zou u nu uw gezondheid in het algemeen beoordelen?

Veel beter dan een jaar geleden	Iets beter dan een jaar geleden	Ongeveer hetzelfde als een jaar geleden	Iets slechter dan een jaar geleden	Veel slechter dan een jaar geleden
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De volgende vragen gaan over dagelijkse bezigheden.

3. Wordt u door uw gezondheid op dit moment beperkt bij uw dagelijkse bezigheden?
Zo ja, in welke mate?

Forse inspanning zoals hardlopen, voorwerpen tillen, inspannend sporten	Ja, ernstig beperkt	Ja, een beetje beperkt	Nee, helemaal niet beperkt
Matige inspanning zoals het verplaatsen van een tafel, stofzuigen, fietsen	Ja, ernstig beperkt	Ja, een beetje beperkt	Nee, helemaal niet beperkt
Tillen of boodschappen dragen	Ja, ernstig beperkt	Ja, een beetje beperkt	Nee, helemaal niet beperkt
Een paar trappen oplopen	Ja, ernstig beperkt	Ja, een beetje beperkt	Nee, helemaal niet beperkt
Eén trap oplopen	Ja, ernstig beperkt	Ja, een beetje beperkt	Nee, helemaal niet beperkt
Buigen, knielen of bukken	Ja, ernstig beperkt	Ja, een beetje beperkt	Nee, helemaal niet beperkt
Meer dan een kilometer lopen	Ja, ernstig beperkt	Ja, een beetje beperkt	Nee, helemaal niet beperkt
Een halve kilometer lopen	Ja, ernstig beperkt	Ja, een beetje beperkt	Nee, helemaal niet beperkt

Honderd meter lopen	Ja, ernstig beperkt	Ja, een beetje beperkt	Nee, helemaal niet beperkt
Uzelf wassen en aankleden	Ja, ernstig beperkt	Ja, een beetje beperkt	Nee, helemaal niet beperkt

4. Had u, ten gevolge van uw lichamelijke gezondheid, de afgelopen 4 weken één van de volgende problemen bij uw werk of andere bezigheden?

U heeft minder tijd kunnen besteden aan werk of andere bezigheden.	Ja	Nee
U heeft minder bereikt dan u zou willen.	Ja	Nee
U was beperkt in het soort werk of het soort bezigheden.	Ja	Nee
U had moeite met werk of andere bezigheden (het kostte u bijvoorbeeld extra inspanning).	Ja	Nee

5. Had u, ten gevolge van een emotioneel probleem (bijvoorbeeld doordat u zich depressief of angstig voelde), de afgelopen 4 weken één van de volgende problemen bij uw werk of andere dagelijkse bezigheden?

U heeft minder tijd kunnen besteden aan werk of andere bezigheden.	Ja	Nee
U heeft minder bereikt dan u zou willen.	Ja	Nee
U heeft het werk of andere bezigheden niet zo zorgvuldig gedaan als u gewend bent.	Ja	Nee

6. In hoeverre heeft uw lichamelijke gezondheid of hebben uw emotionele problemen u de afgelopen 4 weken belemmerd in uw normale sociale bezigheden met gezin, vrienden, burens of anderen?

Helemaal niet	Enigszins	Nogal	Veel	Heel erg veel
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7. Hoeveel pijn had u de afgelopen 4 weken?

Geen	Heel licht	Licht	Nogal	Ernstig	Heel ernstig
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8. In welke mate heeft pijn u de afgelopen vier weken belemmerd bij uw normale werkzaamheden (zowel werk buitenshuis als huishoudelijk werk)?

Helemaal niet	Een klein beetje	Nogal	Veel	Heel erg veel
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Deze vragen gaan over hoe u zich de afgelopen 4 weken heeft gevoeld. Wilt u bij elke vraag het antwoord aankruisen dat het beste aansluit bij hoe u zich heeft gevoeld?

9. Hoe vaak gedurende de afgelopen 4 weken:

voelde u zich levenslustig?	Voortdurend	Meestal	Vaak	Soms	Zelden	Nooit
voelde u zich erg zenuwachtig?	Voortdurend	Meestal	Vaak	Soms	Zelden	Nooit
zat u zo erg in de put dat niets u kon opvrolijken?	Voortdurend	Meestal	Vaak	Soms	Zelden	Nooit
voelde u zich kalm en rustig?	Voortdurend	Meestal	Vaak	Soms	Zelden	Nooit
voelde u zich erg energiek?	Voortdurend	Meestal	Vaak	Soms	Zelden	Nooit
voelde u zich neerslachtig en somber?	Voortdurend	Meestal	Vaak	Soms	Zelden	Nooit
voelde u zich uitgeblust?	Voortdurend	Meestal	Vaak	Soms	Zelden	Nooit
voelde u zich gelukkig?	Voortdurend	Meestal	Vaak	Soms	Zelden	Nooit
voelde u zich moe?	Voortdurend	Meestal	Vaak	Soms	Zelden	Nooit

10. Hoe vaak hebben uw lichamelijke gezondheid of emotionele problemen gedurende de afgelopen 4 weken uw sociale activiteiten (zoals bezoek aan vrienden of naaste familieleden) belemmerd?

Voortdurend	Meestal	Soms	Zelden	Nooit
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11. Wilt u het antwoord kiezen dat het beste weergeeft hoe juist of onjuist u elk van de volgende uitspraken voor uzelf vindt?

Ik lijk gemakkelijker ziek te worden dan andere mensen.	Volkomen juist	Grotendeels juist	Weet ik niet	Grotendeels onjuist	Volkomen onjuist
Ik ben net zo gezond als andere mensen die ik ken.	Volkomen juist	Grotendeels juist	Weet ik niet	Grotendeels onjuist	Volkomen onjuist
Ik verwacht dat mijn gezondheid achteruit zal gaan.	Volkomen juist	Grotendeels juist	Weet ik niet	Grotendeels onjuist	Volkomen onjuist
Mijn gezondheid is uitstekend.	Volkomen juist	Grotendeels juist	Weet ik niet	Grotendeels onjuist	Volkomen onjuist

Appendix B: Advanced literature search

Last 8 years (4 documents): TI=(Big-five OR personality OR big-5) AND TI=(psychological flexibility OR cognitive flexibility)

Last 10 years (19 documents): TI=(psychological flexibility OR cognitive flexibility) AND TI=(moderate OR predictor)

Last 17 years (18 documents): TI=(Big-five OR personality OR big-5) AND TI=(flexibility)

Last 10 years (1 document): TI=(personality traits OR personality) AND TI=(correlation SAME correlated)

All years (20 documents): TI=(cluster OR profile) AND TI=(BFI OR Big Five OR big-five)

Appendix C: Internal consistency of the instruments

Appendix C1: Internal consistency of the Big Five factors and facets

Big Five factors and facets	α	α standardized
Extraversion	0.862	0.864
Social engagement	0.795	0.797
Assertiveness	0.737	0.739
Energy level	0.731	0.736
Agreeableness	0.809	0.822
Compassion	0.651	0.664
Respectfulness	0.646	0.676
Acceptance of others	0.615	0.629
Conscientiousness	0.832	0.832
Organization	0.832	0.836
Productiveness	0.706	0.717
Responsability	0.546	0.561
Negative-emotionality	0.925	0.925
Anxiety	0.863	0.864
Depression	0.851	0.85
Emotional volatility	0.781	0.785
Open-mindedness	0.832	0.832
Aesthetic sensivity	0.841	0.841
Intellectual curiosity	0.571	0.571
Creative imagination	0.817	0.815

Appendix C2: Internal consistency of the FIT-60 dimensions and total

FIT-60 dimensions and total	α	α standardized
Acceptance	0.854	0.853
Defusion	0.877	0.875
Observing the self	0.578	0.561
Contact with present moment	0.811	0.811
Values	0.768	0.767
Committed action	0.839	0.844
Psychological Flexibility total	0.947	0.945

Appendix C3: Internal consistency of the Mental health composite dimensions and total (SF-36)

Mental health composite dimensions and total	α	α standardized
Emotional well-being	0.83	0.865
Social functioning	0.824	0.828
Energy/fatigue	0.871	0.874
Role due to emotional problems	0.882	0.882
Mental health total	0.922	0.929