The potential buffering role of psychological flexibility on the relationship between personality and quality of life

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Abstract
INTRODUCTION: An individual's personality type influences the level of mental and physical health through life. To gain insight into the possible buffering effect of psychological flexibility on the connection between extraversion and neuroticism, and health this cross-sectional study examines associations between these variables.
METHODS: Data on mental and physical health using the Short Form-36 (SF-36) and the PHQ-15 (Patient Health Questionnaire-15), personality styles neuroticism and extraversion using the BFI-2 (Big Five Inventory-2) and psychological flexibility using the FIT-60 (Flexibility Index Test-60) where obtained by letting 373 participants (Mean age 43 years, *91 male, 224 female*) fill out these questionnaires online.
RESULTS: The associations of flexibility with the relationship between personality (neuroticism and extraversion) and health (mental and physical) showed no significant interaction with p=.070, p=.782, p=.568 and p=.559. Significant correlations were found between the factors Physical health and Flexibility r=.296, p<.001, Extraversion r=*.175,* p<.01 and Neuroticism r=-*.316,* p<.001. Stronger correlations were found between Mental health and Flexibility r=.756, p<.001, Extraversion r=.364, p<.001 and Neuroticism r=-.801, p<.001.
CONCLUSION: The findings suggest that even though psychological flexibility has a significant association with good health it does not appear to fulfil the role of buffering factor in the relationship between personality and health. The existence of an additive model showing that both psychological flexibility and personality are independently associated with physical and mental health does suggest that it is valuable to try to increase psychological flexibility.

Introduction

Health, in both physical and mental form, is a factor that is believed to contribute a great deal to general happiness (Siahpush, Spittal, & Singh, 2008; Touburg & Veenhoven, 2015). Therefore, the quest of many a researcher has become to distinguish the factors that influence our health. One factor that has been discovered to affect both mental and physical health is personality. People with a personality high in neuroticism and low in extraversion generally are less happy and healthy in life (Strickhouser, Zell, & Krizan, 2017). The issue with this is that personality cannot be changed much and is quite stable through someone's life, thus seemingly condemning an individual with this kind of personality to a less happy life. More knowledge on what factors can potentially be a buffer for the influence personality has on health could help individuals to have more impact on their own health.

Psychological therapy is one of the ways in which people have tried to have an influence on the client's health and happiness. Acceptance and commitment therapy, known as ACT, is a mindfulness based behavioural therapy which has as goal to create a rich and meaningful life, while accepting the pain that inevitably goes with it (Wicksell, Olsson, & Hayes, 2010). By teaching clients more psychological flexibility this therapy focuses on behavioural change instead of symptom reduction. A systematic review of randomized controlled trials that use ACT as a treatment for adults with chronic pain has shown that it enhances general and physical functioning and decreases mental distress (Hann, & McCracken, 2014). A study within a group of elderly in the united states suffering from chronic pain has shown that ACT is effective in improving functioning and mental health and leads to an increase in the acceptance of the pain (Scott, Daly, Yu, & McCracken, 2017). But because ACT is still a relatively new therapy, for the partakers in this therapy and the therapists offering it, it is important to know what the effectiveness of the therapy is dependent upon. If the effectiveness turns out to be influenced by the personality of the patient the therapist can take this into account when choosing the appropriate therapy for the client.

Aside from more well-known factors that influence happiness such as having positive emotions (Fredrickson, 1998) or being satisfied in the basic needs for belonging, competence and autonomy (Deci & Ryan, 2000) another factor seems to be the personality type. A large meta synthesis recently published gives compelling evidence that this factor predicts overall health and wellbeing (Strickhouser et al., 2017). To be more specific, an individual high in the personality trait of neuroticism seems to have more negative affect and dissatisfaction where an individual who is more extravert has a more positive affect or satisfaction (Costa & McCrae, 1980). During the last 18 years a construct of the 'type D' personality has been proposed (Denollet, 2000). The personality traits 'negative affectivity' and 'social inhibition' are

encompassed within this construct. Negative affectivity is defined as the tendency to experience negative emotions across various times and situations. This is closely related to neuroticism. Social inhibition is having the tendency to inhibit the expression of emotions in social interactions. This is related to the personality trait extraversion (Sajadinejad, Molavi, Asgari, Kalantari, & Adibi, 2012). Therefore, individuals who are high in neuroticism and low in extraversion fall into the category of this type D personality.

Multiple studies investigated the influence of type D personality on the quality of life of different groups of patients suffering from all sorts of illnesses. The results are consistent and in agreement with the previously mentioned studies that show that people high in the personality trait neuroticism have a lower QoL than people high in the trait extraversion. Among other patients with atrial fibrillation (Son & Song, 2012), coronary heart disease (Saeed, Niazi, & Almas, 2011) or ovarian cancer (Kim, Nho, & Nam, 2017) who had type D personality showed lower health related QoL compared to non-type D personality patients or healthy participants.

Box 1	**The six pillars of the ACT Hexaflex**
Cognitive defusion	This trait described the ability to 'step back' and observe language, without being caught up in it. You can recognise that your thoughts are nothing more or less than transient private events, a stream of words, sounds and pictures. As we defuse our thoughts, they have much less impact and influence. Than you are able to say instead of 'I am incompetent', 'I'm having the thought that I'm incompetent' After that most people will notice a distance from the thought.
Acceptance	This trait describes the ability to make room for unpleasant feelings, sensations, urges, and other private experiences; allowing them to come and go without struggling with them, running from them. You can look at your body as if you were a scientist and you just notice what happens, without judgement.
Present moment	This trait describes the ability to bring full awareness to your here-and-now experience, with openness, interest, and receptiveness; focusing on, and engaging fully in whatever you are doing.
Values	This trait describes the ability to clarify for yourself what is most important, deep in your heart; what sort of person you want to be, what is significant and meaningful to you, and what you want to stand for in this life.
Commited Action	This trait describes the ability to set personalised goals which are guided by your values. After which you take effective action to achieve them.
Self as context	This trait describes the ability to live from a perspective where it is possible to experience that you are not your thoughts, feelings, memories, urges, sensations, images, roles, or physical body. These phenomena may constantly vary and are aspects of you, but they are not the essence of who you are.

A promising buffering factor for the impact of personality on health is psychological flexibility. It describes acceptance of or openness to experiences as opposed to avoidance, awareness of experiences and perspective taking rather than being stuck in unhelpful thinking patterns, and an active focus on goals and values rather than a focus on problems or disengagement (Scott et al., 2017, p.253). A treatment that is developed specifically for improvement of this factor in its partakers is ACT. It is built upon 6 different pillars which together form a Hexaflex (BOX 1). When the goal of reaching a higher level of psychological flexibility is achieved, the client is better able to accept the pain they must deal with and to

focus their energy on the things that are most important to them in life (Hayes, Luoma, Bond, Masuda, & Lillis, 2006).

Already back in the sixties a relationship was established between psychological flexibility and personality. Watson (1967) showed that individuals with a higher level of neuroticism are less tended less to modify their behaviour after feedback, thus they were less able the respond in a flexible manner. This has also been shown by Kashdan and Rottenberg (2010) who state showed that generally people high in the personality trait ‘extraversion’ are also high in the trait ‘flexibility’. The opposite is true for people high in neuroticism who turn out to be generally low in flexibility.

Even though psychological flexibility is a trait that comes with a certain type of personality it seems to not be as fixed as personality is. The results of ACT show that it is something that can be trained following therapy. Since psychological flexibility has a positive effect on QoL and is a trait that people can grow in, acquiring a higher level of it may have a positive buffering effect on the impact that personality has on QoL. When this is true people can, even though they have a personality that on average makes them have a less healthy life, have influence on the impact that personality has on their quality of life by learning to be more psychologically flexible.

Furthermore, the fact that individuals with a type D personality generally have a lower QoL gives reason to suspect that they would benefit more from a high level of flexibility than individuals who are both low in neuroticism and high in extraversion and already have a higher QoL.

These two suspicions bring us to the first hypothesis of this paper: The relationship between personality (extraversion and neuroticism) and QoL is moderated by the level of psychological flexibility. It is expected that, as the value of the moderator flexibility increases, the relationship of personality (neuroticism and extraversion) with QoL decreases. It is expected that the relationship between neuroticism and QoL is more influenced by the amount of flexibility compared to the relationship between extraversion and QoL.

Moreover, it is hypothesised based on the previously discussed literature that first of all a negative correlation exists between neuroticism and quality of life and a positive correlation exists between extraversion and quality of life. Secondly, it is expected that a positive correlation exists between flexibility and quality of life. And lastly it is expected that a positive correlation exists between extraversion and flexibility and a negative correlation between neuroticism and flexibility (Figure 1).

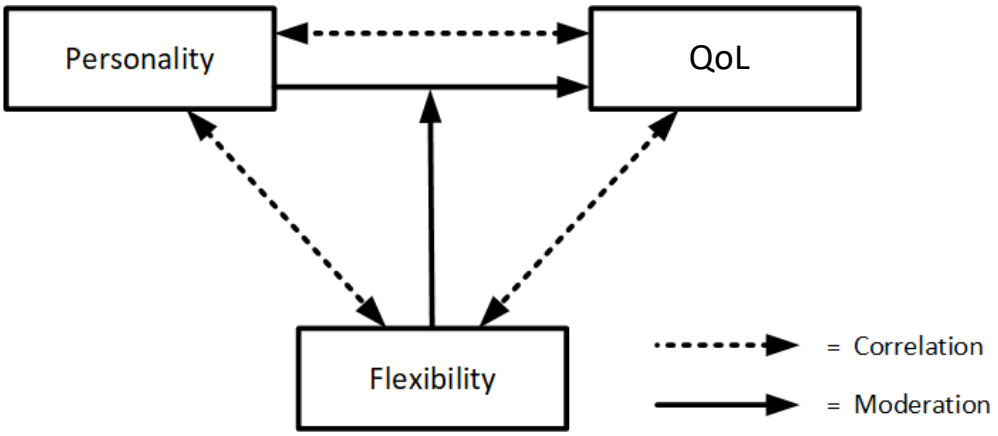

Figure 1. Hypothysed moderation and correlation relationships.

Methods

The study was approved by the ethical review board of Utrecht University, the Netherlands (FETC17-120). The study is part of a larger project conducted by fellow master students. All subjects provided informed consent before being allowed to participate in this study.

Participants

For this research two groups of participants have been approached. The first group is the general population, the second group consists of patients with a chronic somatic condition within the general population. The reason to also include the second group is that the results and implications of this research could be particularly important for these patients since they benefit most from ACT.

The sample consisted of 315 Dutch speaking individuals with an age evenly spread throughout different generations (Table 1). The gender and education level are not representative of the population though. This could have influenced the results since these factors do correlate with personality, flexibility and health (Kashdan & Rottenberg, 2010).

Table 1

Characteristics of participants (N=315)

Characteristics	***n***
Gender Male	91
Gender Female	224
Age 15-25	76
Age 25-65	219
Age 65+	20
Education high	254
Education low*	61

Procedure

Both participant groups were convenience samples that were approached through social media like Facebook and text message, via personal connections and via email. Furthermore, the patient group has also been approached through messages on internet sites of patient associations.

No reimbursement has been promised or given for partaking in this research to ensure their full voluntarily participation. The survey took about 30 min to complete and was conducted online at a time and place of the participants' choosing. The option was given to the participant to save the answers that had already been given, take a break and proceed at a more convenient time to ensure that the participant would fill out the questionnaire in the most optimal circumstances and without a time rush.

Design

This research consists of a single data collection via online questionnaires using LimeSurvey. It is a cross-sectional design.

Instruments

The following questionnaires have been filled out by the participants:

- Demographic characteristics: Gender, age, education, work status and work satisfaction, relationship status, diseases and chronic conditions.
- SF-36: RAND short-form 36 (VanderZee, Sanderman, Heyink, & de Haes, 1996) Measures the physical functioning and mental wellbeing.
- PHQ-15: Patient Health Questionnaire-15 (Kroenke, Spitzer, & Williams, 2002). Measures somatic symptoms.
- FIT-60: Flexibiliteits Index Test (Batink, Jansen, & de Mey, 2012). Measures the six facets of flexibility.
- BFI-2: Big Five Inventory-2 (Denissen, Geenen, Van Aken, Gosling, & Potter, 2018 and Soto & John, 2017b). Measures the five personality types among which is neuroticism and extraversion.
- SCS: Self-control scale (Tangney, Baumeister, & Boone, 2004)
- SBC: Scale of Body Connection (Price & Thompson, 2007).

The full questionnaires can be found in appendix A.1-4.

Justification of chosen instruments

This study was part of a larger project to get inside into the role of flexibility in health. Therefore, not all the above-mentioned questionnaires that were filled out by the participants are useful for the current paper. The data from the SBC and SCS will not be analysed or used within this paper.

The considerations for the chosen questionnaires were the psychometric qualities, the availability of a decent Dutch version and the required time for filling it out. Because a significant number of questionnaires had to be included in this research and no reward was promised for participation, it was important to keep the total time investment a participant had to make acceptable so that enough people would take the step to take part in this research.

- RAND-36: The Dutch version of this test has been given a 'good' for reliability, a 'satisfactory' for construct validity and a 'not satisfactory' for criterion validity. With these scores it is an adequate measure for health (Egberink, Holly-Middelkamp, & Vermeulen, 1997).
- PHQ-15: Has been proven to be a good short measure testing general health. It has good criterion validity and reasonable sensitivity and specificity (Löwe et al., 2004).
- Fit-60: This is a psychometrically strong questionnaire that was developed in Dutch from existing questionnaires. This questionnaire is particularly used to measure progress in patients partaking in ACT (Batink et al., 2012).
- BFI-2: Dutch version has good psychometric qualities (Denissen et al., 2018).

Data preparation

The data were analysed by correlation and regression analyses using IBM SPSS software. After exporting the data from Limesurvey to excel, all the participants who had not filled out any questionnaire were removed from the sample. Through listwise deletion participants who had not completed the questionnaire that was scored were excluded before scoring each questionnaire. Therefor the number of participants analysed is not the same for the different questionnaires (Table 2).

Table 2

Number of participants analysed for each questionnaire

	Total	**Demographic information**	**FIT-60**	**BFI-36**	**PHQ**	**Rand-36**
Participants (*n*)	582	450	373	349	229	317

After importation and scoring of the questionnaires pairwise deletion was used to ensure that not more participants were excluded from analyses than necessary.
For the RAND-36, using the analysing method of Hays, the two composite scores of mental and physical health were calculated. These scores are the two scores used for the variable of health. For the PHQ-15 the answer options on the online survey were ‘1,2,3’ instead of ‘0,1,2’ which are the original answer options in the questionnaire. Therefore, these answers had to be changed into ‘0,1,2’ before running the syntax. For the Fit-60 the answer options on the online survey were 1-5 whereas the original FIT-60 had the options 0-6. The impact that this mistake made on the final results has been tried to be minimalized by changing the answers before scoring from (1=0) (2=1.5) (3=3) (4=4.5) (5=6). With this change the original syntax could be used.

Data analysis

The tests of normality have shown that, with skewness scores that all fall between -1 and 1 (Table 3), the variables did not violate the assumption of linearity. A correlation analysis was executed to examine the univariate relations between the variables mental and physical health, the personality traits extraversion and neuroticism and mental flexibility. To test the interaction hypothesis multiple regression analyses were performed. For the outcome measure of physical health two regression analysis were completed. One for the personality type extraversion and one for neuroticism. To start off the covariates ‘age’, ‘gender’ and ‘education level’ (split up into two categories) were entered into the model in block 1, 2 and 3 respectively. After that the personality style, either extraversion or neuroticism, was entered. In block 5 the flexibility score was put in and as last, in block 6 the interaction between the personality type and flexibility was entered into the model. For the outcome measure of mental health the same process was repeated.

Table 3
Skewness of the variables

	Physical health	**Mental health**	**Flexibility**	**Extraversion**	**Neuroticism**
Skewness	-.987	-.632	-.552	-.299	.569

Results

The number of participants analysed for each questionnaire together with the means and standard deviations of the participants of the current sample compared to the norm groups can be found in Table 4. It shows that the sample had a clearly higher level of psychological flexibility compared to the norm group. Both the personality and health scores were comparable with the general population since the mean scores fall well within one SD from the population mean.

Table 4

Number (n), Mean (M) and Standard Deviation (SD) for all Used Variables

	sample			***Norm groups***	
	n	***M***	***SD***	***M***	***SD***
Physical health composite (RAND-36)	317	47.34	9.91	50.0	10
Mental health composite (RAND-36)	318	46.11	10.68	50.0	10
Neuroticism (BFI2-NL)	350	2.70	.78	2,6	-
Extraversion (BFI2-NL)	350	3.45	.65	3,3	-
Flexibility (FIT-60)	381	232.77	44.73	182.8	41.9

Correlation analysis

Significant positive correlations were found between extraversion and quality of life as well as between flexibility and quality of life. Significant negative correlations were found between neuroticism and quality of life and neuroticism and flexibility (Table 5).

Table 5

Correlation matrix with strength of correlation and significance for the variables Physical health, Mental Health, Flexibility, Extraversion and Neuroticism

		Physical health	**Mental health**	**Flexibility**	**Extraversion**	**Neuroticism**
Physical health	*r*	1				
Mental health	*r*	-	1			
Flexibility	*r*	.296***	.746***	1		
Extraversion	*r*	.175**	.364***	.476***	1	

neuroticism	*r*	-.316***	-.758***	-.801***	-	1

Note. * indicates $p < 0.05$, ** indicates $p < 0.01$, *** indicates $p < 0.001$

Moderation analysis

A moderation analysis was executed to examine the moderation effect flexibility had on the relationship between personality and health. A hierarchical multiple regression analysis was completed with the demographic information about gender, age and education entered as covariates. The full regression outputs can be found in appendix D.

The results (Table 6) show that flexibility only had a small and insignificant impact on the relationship between personality and health. The interactions were not significant for any of the four regressions 1-4 with *p* values of *p*= .070, *p*=.782, *p*=.568, *p*=.559 respectively. Therefore, the hypothesis was not confirmed. In Table 6, and more clearly in the figure in appendix C, it can be seen that regression 1, where the influence of flexibility on the relationship between extraversion and physical health was analysed, showed the most promising result with a Beta of .094 and a *p* value of .070 which is close to significant. Appendix D shows that the covariates gender, age and education that were taken into account with the interaction model had a significant impact on physical health. For mental health only ‘gender’ and ‘education’ seemed to be of relevance to the outcome.

Table 6

Outcome of Regression Analysis with Beta and significance for the variables flexibility (Flex), Extraversion (E), Neuroticism (N) and Physical and Mental Health

	Physical health	***β***	***p***
Regression 1	Flex	.318	<.001
	E	.032	.587
	F*E	.094	.070
Regression 2	Flex	.144	.121
	N	-.235	.012
	F*N	-.016	.782

	Mental health	***β***	***p***
Regression 3	Flex	.740	<.001
	E	.023	.600
	F*E	.022	.568
Regression 4	Flex	.390	<.001
	N	-.435	<.001
	F*N	.023	.559

Post hoc analysis

Since regression 1 was almost significant it is good to look deeper into this relationship to see whether certain facets of flexibility were more strongly connected with personality and health than others. Therefore, a post hoc regression analysis was executed for the influence of the 6 facets of flexibility: acceptance [Acceptatie], diffusion [Defusie], self [Zelf], here and now [Hier en Nu], values [Waarden] and committed action [Handelen] on mental and

physical health (Table 7). One interaction effect was found. The facet of flexibility 'Self' had a significant positive influence on the relationship between extraversion and physical health with *β*=.143 and *p*=.007. The other facets did not have a significant impact on the relationship between personality and health.

Table 7

Outcome of post hoc Regression Analysis with dependent variables (DV) Physical and mental health and independent variables (IV) Extraversion, Neuroticism and the 6 facets of flexibility: Acceptance (acc), Defusion (Def), Self, Here and Now (HN), Values (Val), Committed Action (CA)

Regression 1 - DV physical health, IV extraversion and the 6 facets of flexibility

	Physical health	***β***	***p***
Here and No	HN	.165	.009
	E	.112	.054
	HN*E	.064	.234
Values	Val	.416	<.001
	E	-.018	.749
	Val *E	.064	.210
C. Action	CA	.256	<.001
	E	.042	.498
	CA*E	.020	.707

	Physical health	***β***	***p***
Acceptance	Acc	.245	<.001
	E	.105	.057
	Acc*E	.069	.191
Defusion	Def	.153	.013
	E	.126	.026
	Def*E	.098	.066
Self	Self	.218	<.001
	E	.111	.049
	Self *E	.143	.007

Regression 2 - DV physical health, IV neuroticism and the 6 facets of flexibility

	Physical health	***β***	***p***
Acceptance	Acc	.094	.216
	N	-.287	<.001
	Acc*N	-.019	.756
Defusion	Def	-.217	.018
	N	-.534	<.001
	Def*N	-.045	.432
Self	Self	.054	.452
	N	-.324	<.001
	Self *N	-.034	.554

	Physical health	***β***	***p***
Here and Now	HN	-.001	.994
	N	-.345	<.001
	HN*N	.000	.994
Values	Val	.300	<.001
	N	-.155	.018
	Val *N	.037	.482
C. Action	CA	.147	<.001
	N	-.269	.016
	CA*N	-.004	.940

Regression 3 - DV mental health, IV extraversion and the 6 facets of flexibility

	Mental health	*β*	*p*
Acceptance	Acc	.619	<.001
	E	.184	<.001
	Acc*E	.034	.390
Defusion	Def	.612	<.001
	E	.166	<.001
	Def*E	.004	.922
Self	Self	.488	<.001
	E	.199	<.001
	Self *E	.024	.600

	Mental health	*β*	*p*
Here and Now	HN	.517	<.001
	E	.173	<.001
	HN*E	.007	.871
Values	Val	.527	.018
	E	.120	<.001
	Val*E	.039	.381
C. Action	CA	.313	.001
	E	.199	<.001
	CA*E	-.039	.425

Regression 4 - DV mental health, IV neuroticism and the 6 facets of flexibility

	Mental health	*β*	*p*
Acceptance	Acc	.320	<.001
	N	-.537	<.001
	Acc*N	.001	.984
Defusion	Def	.161	.015
	N	-.624	<.001
	Def*N	.023	.582
Self	Self	.139	.006
	N	-.664	<.001
	Self *N	.022	.587

	Mental health	*β*	*p*
Here and Now	HN	.197	<.001
	N	-.634	<.001
	HN*N	.028	.472
Values	Val	.235	<.001
	N	-.612	<.001
	Val *N	.027	.469
C. Action	CA	.078	.075
	N	-.718	<.001
	CA*N	.009	.820

Discussion

To establish whether flexibility may be a buffer for the influence of personality on health, the current study examined the relationships of the personality types extraversion and neuroticism and psychological flexibility with both physical and mental health. Our findings confirm that people high in neuroticism are less mentally and physically healthy compared to people high in extraversion. Both physical and mental health were predicted to be high for individuals with a high level of psychological flexibility. The outcome of this study confirms that this positive connection exists. A high level of mental flexibility was expected to be found in people high in the personality trait of extraversion and less so in people who have more of the trait neuroticism. This prediction was also confirmed by the results of our research.

To answer the research question whether flexibility is a potential buffer for the influence of personality on health we looked at the interaction that flexibility has with the relationship between personality (extraversion and neuroticism) and health (mental and physical). Our findings disconfirm the expectation that flexibility is an influencing factor on the relationship between personality and health and do not either support the prediction that the impact of flexibility is higher on the relationship between neuroticism and health compared to the relationship between extraversion and health.

The correlations between the different constructs are all proven the be existent and in the same direction as was expected based on previous research. However, noteworthy differences can be seen between the strengths of the different connections. First of all, an interesting finding was that the personality types extraversion as well as neuroticism were more strongly connected with mental health than with physical health. High neuroticism especially had a very strong connection with a low level of mental health. This same result was shown in the meta synthesis performed by Strickhouser et al. (2017). Multiple explanations could be formulated for this result. First of all it is proposed that mental health, especially personality disorders, is an extreme expression of personality traits and therefore has a strong connection with personality (Krueger & Tackett, 2006). Secondly, personality traits affect a key mental health variable, stress, which in turn may have important consequences for physical health (Hampson & Friedman, 2008). Therefore, physical health seems to be less directly impacted by personality and with that have a weaker connection with personality than mental health does. This result indicates that personality could have a stronger negative effect on mental health than on physical health and therefore that, especially for people with a low mental health, it is important to know how to soften the negative effect of their personality on their health.

Another unexpected finding in this paper is that flexibility does not influence the relationship between personality and health. If an overlap between the constructs of flexibility and personality exists, it would mean that flexibility is an inherent part of personality and that it can therefore not be seen as two individual constructs. This overlap could explain the absence of the interaction that was expected. But it can be seen that the construct of flexibility, when corrected for personality, still has a significant effect on health. The same counts for personality when corrected for flexibility (Table 6). Therefore, no big overlap between the constructs is found and thus it cannot explain the results.

A possible explanation for the found results is that it could be that, even though a high level of flexibility does have a positive influence on health, the effect is not large enough to counter effect the large negative influence of neuroticism on health. When looking at the effects of flexibility and personality on health a slight overlap can be seen. Having a personality high in neuroticism and low in extraversion makes people less sociable, assertive

and energetic and more anxious and emotionally unstable (Soto & John, 2017a). Where people with more psychological flexibility are more sociable and open and accepting to new experiences (Scott et al., 2017). Therefore, it is possible that even though a higher level of flexibility could soften the effects of low sociability and assertiveness on health, still the other facets of neuroticism such as emotional instability and anxiousness could keep their negative influence on health. Thus, a theory could be that flexibility can maybe cancel out some aspects of neuroticism but does not significantly correct the overall negative influence of neuroticism on health.

Even though flexibility does not influence the effect of personality on health more or less with different levels of personality and therefore no interaction effect was found, the results show that an additive model seems to be present. Flexibility and personality both have a significant connection with health. And when combined they have a higher connection than when separated. This shows that individuals who have a combination of being high in neuroticism and low in flexibility generally have the lowest health compared to individuals who are high in extraversion and flexibility.

A limitation for this research was created when a mistake was made when converting the physical version of the FIT-60 into the online version that was necessary for the online questionnaire. Instead of the original answer options 0-6 the answer options 1-5 were put into the online version. After discovering this mistake, the answer options were then transformed into 0-6 before scoring the questionnaire. This fault may have negatively influenced the validity of this questionnaire. Furthermore, the gender and education level of the volunteers are not representative of the population while these factors do correlate with personality, flexibility and health (Kashdan & Rottenberg, 2010). This limits the ecological validity of this research. Therefore, the results of this study should be interpreted with appropriate caution.

The overall conclusion that can be made from this study is that even though psychological flexibility has significant association with good health it does not appear to fulfil the role of buffering factor on the above-mentioned negative effect of type D personality on health. Therefore, the level of psychological flexibility is not a factor that has to be taken into consideration when deciding upon the treatment of ACT. The existence of the additive model does show that it is valuable to pursue a heightening of the trait of flexibility since it is, together with personality, strongly associated with health.

Personality and flexibility are associated with mental and physical health. Since neuroticism seems to be strongly associated with poorer health it is important to keep on looking for ways to soften the negative impact it can have on individuals with a type D

personality. Since flexibility does seem to have a strong connection with health an important follow up research of this paper could be to look into the question whether teaching people psychological flexibility will have a positive effect on their health and could soften the effect of personality type on health. This could be done with a within-subjects design study. This to continue the quest of pursuing a good mental and physical health for individuals with any type of personality.

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Appendix A.1 - Rand-36

Vragenlijst 1: RAND-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

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

3. De volgende vragen gaan over dagelijkse bezigheden. Wordt u door uw gezondheid op dit moment beperkt bij deze bezigheden? Zo ja, in welke mate?

	ja, ernstig beperkt	ja, een beetje beperkt	nee, helemaal niet beperkt
a. Forse inspanning zoals hardlopen, zware voorwerpen tillen, inspannend sporten	❑	❑	❑
b. *Matige inspanning* zoals het verplaatsen van een tafel, stofzuigen, fietsen	❑	❑	❑
c. Tillen of boodschappen dragen	❑	❑	❑
d. *Een paar* trappen oplopen	❑	❑	❑
e. *Eén* trap oplopen	❑	❑	❑
f. Buigen, knielen of bukken	❑	❑	❑
g. *Meer dan een kilometer* lopen	❑	❑	❑

h. Een halve kilometer lopen	❑	❑	❑
i. Honderd meter lopen	❑	❑	❑
j. Uzelf wassen en aankleden	❑	❑	❑

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

	ja	nee
a. U heeft minder tijd kunnen besteden aan werk of andere bezigheden	❑	❑
b. U heeft *minder bereikt* dan u zou willen	❑	❑
c. U was beperkt in het *soort* werk of het soort bezigheden	❑	❑
d. U had moeite met het werk of andere bezigheden (het kostte u bijvoorbeeld extra inspanning)	❑	❑

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?

	ja	**nee**
a. U heeft *minder tijd* kunnen besteden aan werk of andere bezigheden	❑	❑
b. U heeft *minder bereikt* dan u zou willen	❑	❑
c. U heeft het werk of andere bezigheden niet zo zorgvuldig gedaan als u gewend bent	❑	❑

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, buren of anderen?

❑ helemaal niet
❑ enigszins
❑ nogal
❑ veel
❑ heel erg veel

7. Hoeveel pijn had u de afgelopen 4 weken?

❑ geen
❑ heel licht
❑ licht
❑ nogal
- ernstig
- heel ernstig

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

9. 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?

Hoe vaak gedurende *de afgelopen 4 weken*:

	voort-durend	**meestal**	**vaak**	**soms**	**zelden**	**nooit**
a. voelde u zich levenslustig?	❑	❑	❑	❑	❑	❑
b. voelde u zich erg zenuwachtig?	❑	❑	❑	❑	❑	❑
c. zat u zo erg in de put dat niets u kon opvrolijken?	❑	❑	❑	❑	❑	❑
d. voelde u zich kalm en rustig?	❑	❑	❑	❑	❑	❑
e. voelde u zich erg energiek?	❑	❑	❑	❑	❑	❑
f. voelde u zich neerslachtig en somber?	❑	❑	❑	❑	❑	❑
g. voelde u zich uitgeblust?	❑	❑	❑	❑	❑	❑
h. voelde u zich gelukkig?	❑	❑	❑	❑	❑	❑
i. voelde u zich moe?	❑	❑	❑	❑	❑	❑

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

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

	volkomen juist	groten-deels juist	weet ik niet	groten-deels onjuist	volkomen onjuist
a. Ik lijk gemakkelijker ziek te worden dan andere mensen	❑	❑	❑	❑	❑
b. Ik ben net zo gezond als andere mensen die ik ken	❑	❑	❑	❑	❑
c. Ik verwacht dat mijn gezondheid achteruit zal gaan	❑	❑	❑	❑	❑
d. Mijn gezondheid is uitstekend	❑	❑	❑	❑	❑

Appendix A.2 - PHQ-15

PHQ-15 (Kroenke, Spitzer & Williams, 2002)

Gedurende de voorbije 4 weken, hoe vaak heb je last gehad van een van de volgende problemen?

	Helemaal geen last	Een beetje last	Veel last
Buikpijn	0	1	2
Rugpijn	0	1	2
Pijn in armen, benen of gewrichten (knieën, heupen etc)	0	1	2
Menstruele krampen of andere menstruele problemen (enkel vrouwen)	0	1	2
Hoofdpijn	0	1	2
Pijn in de borst	0	1	2
Duizeligheid	0	1	2
Episodes van flauwte	0	1	2
Bonzend hart of hartkloppingen	0	1	2
Kortademigheid	0	1	2
Pijn of problemen tijdens seksueel contact	0	1	2
Verstopping, slappe stoelgang of diarree	0	1	2
Misselijkheid, winderigheid of spijsverteringsmoeilijkheden	0	1	2
Gevoel van vermoeidheid of weinig energie	0	1	2
Slaapproblemen	0	1	2

Appendix A.3 - FIT-60

Flexibiliteits Index Test

(FIT-60)

Tim Batink, Gijs Jansen & Hubert de Mey.

Met dank aan: David Rinsampessy, Jos Egger & Monique Samsen.

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Introductie

De FIT is een instrument waarmee in kaart kan worden gebracht hoe flexibel u in het leven staat. Deze flexibiliteit bepaalt hoe u omgaat met vervelende gedachten, gevoelens en (lichamelijke) ervaringen. Hoe flexibeler iemand is, hoe makkelijker deze om kan gaan met de vervelende ervaringen die hij/zij op haar pad tegenkomt. De hier gemeten flexibiliteit, wordt gedefinieerd door de aanwezigheid van de zes kerncomponenten van Acceptance and Commitment Therapie; Acceptatie, Defusie, Zelf als Context, Hier en Nu, Waarden, en Toegewijde Actie. De FIT geeft zowel een totaalscore (Flexibiliteits Index Score), als een score per subschaal. Deze subschaalscores zijn tevens visueel weer te geven in het corresponderende ACT-hexaflex op het resultatenblad.

De FIT is goed te gebruiken als instrument waarmee de richting van een ACT-therapie kan worden bepaald, welke componenten extra aandacht vereisen. Tevens is het instrument goed inzetbaar om de vorderingen van een ACT-therapie/training te monitoren. Tenslotte is dit instrument ook bruikbaar bij Mindfulness trainingen, welke zich beperken tot de linker vier componenten van het ACT-hexaflex.

Instructie voor het invullen De FIT bestaat uit 60 stellingen. Lees elke stelling aandachtig door, en geef daarna aan in hoeverre deze stelling van toepassing is op u. Denk niet te lang na, maar geef uw eerste mening. Hoe hoger het cijfer dat u geeft, hoe meer deze stelling van toepassing is op u (6=helemaal eens). Hoe lager het cijfer dat u geeft, hoe minder deze

stelling van toepassing is op u (0=helemaal oneens). Er zijn geen goede of foute antwoorden. Wilt u alstublieft geen vragen overslaan.

Om uw antwoordkeuze aan te geven, kunt u het corresponderende cijfer omcirkelen.
Voorbeeld: Vraag| Ik doe mijn best om geen negatieve dingen te hoeven ervaren. 0 1 2 3 4 5 6

Indien u een verkeerd antwoord heeft omcirkeld, kunt u dit corrigeren door een streep te zetten door het gegeven antwoord. Vervolgens omcirkeld u alsnog het correcte antwoord.
Voorbeeld: Vraag| Ik doe mijn best om geen negatieve dingen te hoeven ervaren. 0 1 2 3 4 5 6

Succes met het invullen van deze lijst!
Contact: info@hoeflexibelbenjij.nl Informatie: www.hoeflexibelbenjij.nl

Naam: _____ Geslacht: M / V Leeftijd: _____
Burg. staat: _____ Opleiding: _____ Datum afname: _____

In welke mate zijn onderstaande stellingen van toepassing op u? Omcirkel het meest passende antwoord. Sla alstublieft geen stellingen over.

01| Zorgen staan mijn succes in de weg. 0 1 2 3 4 5 6
02| Ik voel me vaak beperkt door alles wat ik van mezelf moet. 0 1 2 3 4 5 6
03| Ik kan negatieve gedachten over mijzelf hebben en tegelijkertijd weten dat ik oké ben. 0 1 2 3 4 5 6
04| Als ik iets wil doen, dan ga ik ervoor. 0 1 2 3 4 5 6
05| Ik ben goed in staat om lange termijn doelen op te delen in korte termijn mogelijkheden. 0 1 2 3 4 5 6
06| Mijn leven is goed in balans. 0 1 2 3 4 5 6
07| Ik vind het moeilijk om doelgericht bezig te blijven. 0 1 2 3 4 5 6
08| Ik heb voldoende vrienden. 0 1 2 3 4 5 6
09| 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 besef 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 besef dat ik de dingen die ik doe, zelf heb gekozen. 0 1 2 3 4 5 6

In welke mate zijn onderstaande stellingen van toepassing op u? Omcirkel het meest passende antwoord. Sla alstublieft geen stellingen over.

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 hobby’s. 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

In welke mate zijn onderstaande stellingen van toepassing op u? Omcirkel het meest passende antwoord. Sla alstublieft geen stellingen over.

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

Heeft u alle stellingen ingevuld? Hartelijk dank voor het invullen van deze lijst!

Appendix A.4 - BFI-2

BFI2-NL

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Instructies:
De volgende stellingen hebben betrekking op uw opvatting over uzelf in verschillende situaties. De vijf laatste stellingen zijn overigens toegevoegd om verschillende formuleringen van bepaalde eigenschappen te vergelijken, zij lijken dus nogal op elkaar. Stoort u zich daar alstublieft niet aan maar probeert u iedere stelling gewoon op zich te beoordelen. Het is aan u om aan te geven in hoeverre u het eens bent met elke stelling, waarbij u gebruik maakt van een schaal waarop 1 helemaal oneens betekent, 5 helemaal eens betekent, en 2, 3 en 4 zijn beoordelingen daartussenin. Klik achter elke stelling een getal aan in de vakjes op de volgende schaal:

1 Helemaal oneens
2 Oneens
3 Eens noch oneens
4 Eens
5 Helemaal eens

Er zijn geen 'goede' of 'foute' antwoorden, dus selecteer bij elke stelling het getal dat zo goed mogelijk bij u past. Neem de tijd denk goed na over elk antwoord.

Ik zie mezelf als iemand die...

1	Communicatief, een gezelschapsmens is	12345
2	Betrokken, meevoelend is	12345
3	Geneigd is tot slordigheid	12345

4	Ontspannen is, goed met stress kan omgaan	12345
5	Weinig interesse voor kunst heeft	12345
6	Een persoon is die voor zichzelf opkomt	12345
7	Respectvol is, anderen met respect behandelt.	12345
8	Geneigd is lui te zijn	12345
9	Optimistisch blijft na een tegenslag	12345
10	Benieuwd is naar veel verschillende dingen	12345
11	Zelden uitgelaten of gretig is	12345
12	De neiging heeft om de fout bij anderen te zoeken	12345
13	Verantwoordelijk, degelijk is	12345
14	Humeurig is, wiens stemming op en neer gaat	12345
15	Vindingrijk is, creatieve manieren verzint om dingen te doen	12345
16	Doorgaans stil is	12345
17	Weinig sympathie voor anderen voelt	12345
18	Systematisch is, dingen graag op orde houdt	12345
19	Gespannen kan zijn	12345
20	Gefascineerd is door kunst, muziek of literatuur	12345
21	De toon zet, als een leider handelt.	12345
22	Snel ruzie maakt	12345
23	Moeite heeft om met taken te beginnen	12345
24	Zich zeker, op zijn gemak met zichzelf voelt	12345
25	Intellectuele, filosofische discussies uit de weg gaat	12345
26	Minder levendig dan anderen is	12345
27	Vergevingsgezind en verdraagzaam is	12345
28	Een beetje nonchalant kan zijn	12345
29	Emotioneel stabiel is, niet gemakkelijk overstuur	12345
30	Weinig creativiteit heeft	12345
31	Soms verlegen, introvert is	12345
32	Behulpzaam en onzelfzuchtig ten opzichte van anderen is	12345
33	Dingen netjes en verzorgd houdt	12345
34	Zich veel zorgen maakt	12345
35	Waarde hecht aan kunst en schoonheid	12345
36	**Moeite heeft om andere mensen te overtuigen**	12345
37	Soms onbeleefd tegen anderen is	12345
38	Efficiënt is, klussen afkrijgt	12345
39	Zich vaak verdrietig voelt	12345
40	Genuanceerd en diep over dingen nadenkt	12345
41	Vol energie is	12345
42	**Niet zo snel uitgaat van de goede bedoelingen van anderen**	12345
43	**Betrouwbaar is, verwachtingen altijd waarmaakt**	12345
44	Zijn/haar emoties onder controle houdt	12345
45	Weinig verbeeldingskracht heeft	12345
46	Spraakzaam is	12345

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

Scoring Key

Item numbers for the BFI-2 domain and facet scales are presented below. Reverse-keyed items are denoted by “R.”

Domain Scales
Extraversion: 1, 6, 11R, 16R, 21, 26R, 31R, 36R, 41, 46, 51R, 56
Agreeableness: 2, 7, 12R, 17R, 22R, 27, 32, 37R, 42R, 47R, 52, 57
Conscientiousness: 3R, 8R, 13, 18, 23R, 28R, 33, 38, 43, 48R, 53, 58R
Negative Emotionality: 4R, 9R, 14, 19, 24R, 29R, 34, 39, 44R, 49R, 54, 59
Open-Mindedness: 5R, 10, 15, 20, 25R, 30R, 35, 40, 45R, 50R, 55R, 60

Facet Scales
Social Engagement: 1, 16R, 31R, 46
Assertiveness: 6, 21, 36R, 51R
Energy Level: 11R, 26R, 41, 56
Compassion: 2, 17R, 32, 47R
Respectfulness: 7, 22R, 37R, 52
Acceptance of Others: 12R, 27, 42R, 57
Organization: 3R, 18, 33, 48R
Productiveness: 8R, 23R, 38, 53
Responsibility: 13, 28R, 43, 58R
Anxiety: 4R, 19, 34, 49R
Depression: 9R, 24R, 39, 54
Emotional Volatility: 14, 29R, 44R, 59
Aesthetic Sensitivity: 5R, 20, 35, 50R
Intellectual Curiosity: 10, 25R, 40, 55R
Creative Imagination: 15, 30R, 45R, 60

Appendix B - Search methods and terms of all used resources

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Subject	Search terms in pubped	N results	N used	Author and year of article used	Articles found by referencing
Influence of flexibility on the relationship between personality and health	(flexibility[Title] OR coping[Title] AND personality[Title] AND health[Title])	22	1		
	flexibility[Title] AND personality[Title/Abstract] AND health[Title/Abstract]	5	1	Kashdan, T. B. & Rottenberg, J. (2010).	Deci, E. L. & Ryan, R. M. (2000).
					Fredrickson, B.L. (1998).
Flexibility and Health	(((psychological[Title] OR mental) flexibility[Title])) AND health[Title]	21	1	Kashdan, T. B. & Rottenberg, J. (2010).	
Personality and Health	(Type D personality[Title]) AND quality of life[Title]	30	3	Kim, S. R., Nho, J. H., & Nam, J. H. (2018).	
				Saeed, T., Niazi, G. S. K., & Almas, S. (2011)	
				Son, Y. J., & Song, E. K. (2012)	
	(Buffer[Title]) AND personality[Title]	2	1		
	((metasynthesis[Title]) AND personality[Title]) AND health[Title]	1	1	Strickhouser, J. E., Zell, E., & Krizan, Z. (2017).	Krueger R. F. & Tackett J. L. (2006).
					Hampson S. E. & Friedman H. S. (2008).
	((neuroticism[Title]) AND extraversion[Title]) AND wellbeing[Title]	4	1	Costa, P. T., & McCrae, R. R. (1980)	
ACT	(((cognitive[Title] OR psychological) flexibility[Title])) AND ACT[Title/Abstract]				
	((psychologiocal flexibility[Title]) AND chronic pain[Title]) AND Acceptance[Title]	9	2	Scott, W., Daly, A., Yu, L., & McCracken, L. M. (2017).	Hann, K. E. J. & McCracken, L. M. (2014).
					Wicksell, R. K., Olsson, G. L., & Hayes, S. C. (2010).
Health and happiness	(mental health[Title]) AND happiness[Title]	12	1	Touburg, G., & Veenhoven, R. (2015).	
	(physical health[Title]) AND happiness[Title]	2	1	Siahpush, M., Spittal, M., & Singh, G. K. (2008).	

	Web of science				
Type D personality	**TITLE:** (type D personality risk factor)	11	1	Denollet, J. (2000).	
	TITLE: (type D personality) *AND* **TOPIC:** (neuroticism)	19	1	Sajadinejad, M. S., Molavi, H., Asgari, K., Kalantari, M., & Adibi, P. (2012).	
ACT	((acceptance[Title] AND commitment therapy[Title])) AND model[Title]	12	1	Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006).	
	TITLE: (Big five inventory 2)	3	1	Soto & John (2017)	

The following articles have been found by referencing the original questionnaires:

- Batink, Jansen & De Mey (2012)
- Denissen, Geenen, Van Aken, Gosling & Potter (2018)
- Egberink, Holly-Middelkamp & Vermeulen (1997)
- Löwe, Gräfe, Zipfel, Witte, Loerch & Herzog (2004)

Appendix C - Regression Graphs

Interaction plots of the influence of flexibility on the relationship between personality and health

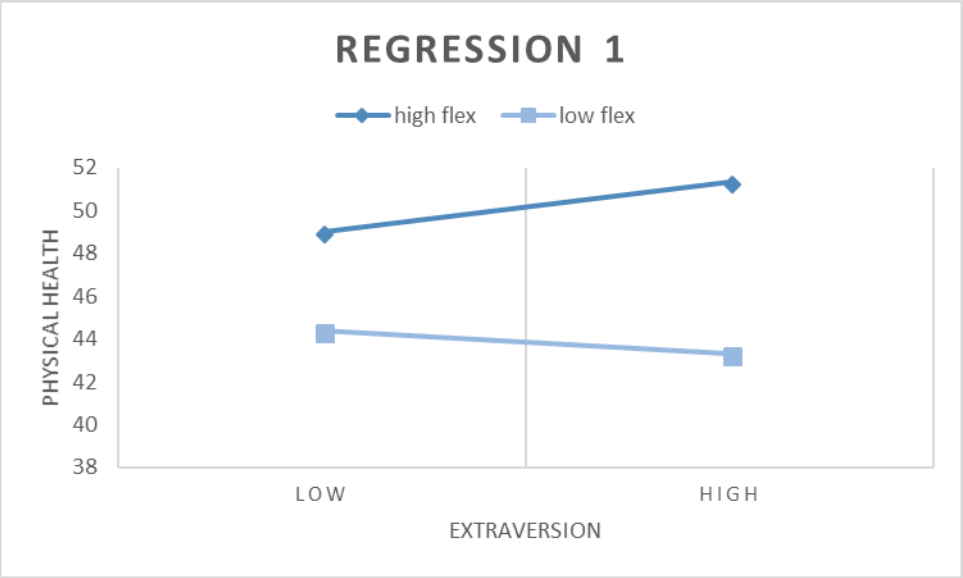

Figure 2. Interaction plot of the relationship between extraversion and psychological flexibility with the outcome measure physical health.

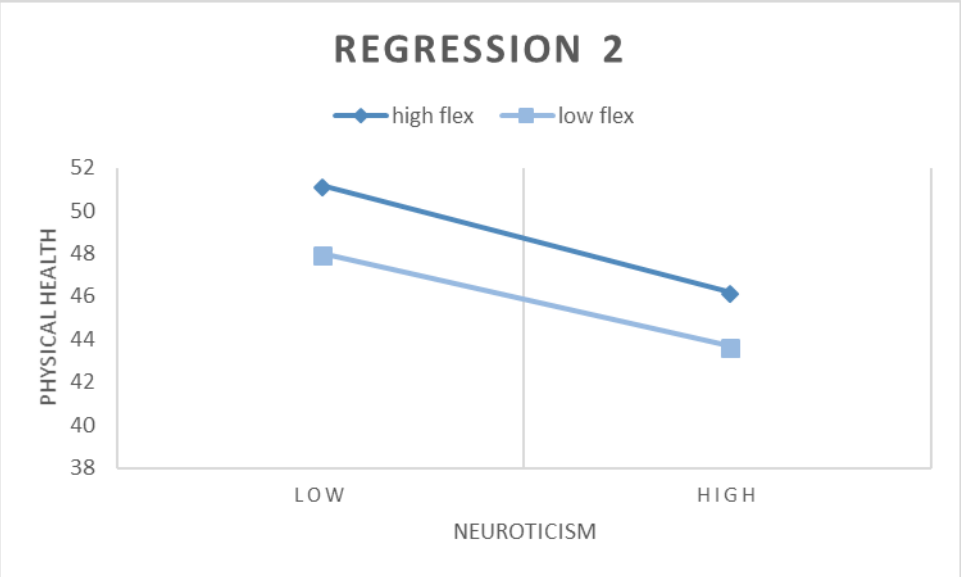

Figure 3. Interaction plot of the relationship between neuroticism and psychological flexibility with the outcome measure physical health.

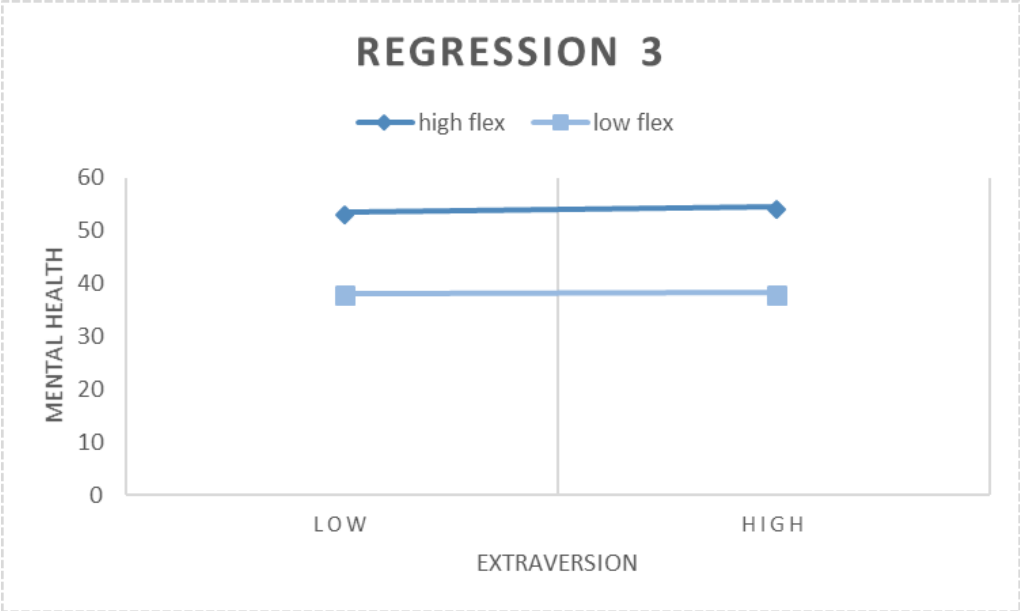

Figure 4. Interaction plot of the relationship between extraversion and psychological flexibility with the outcome measure mental health.

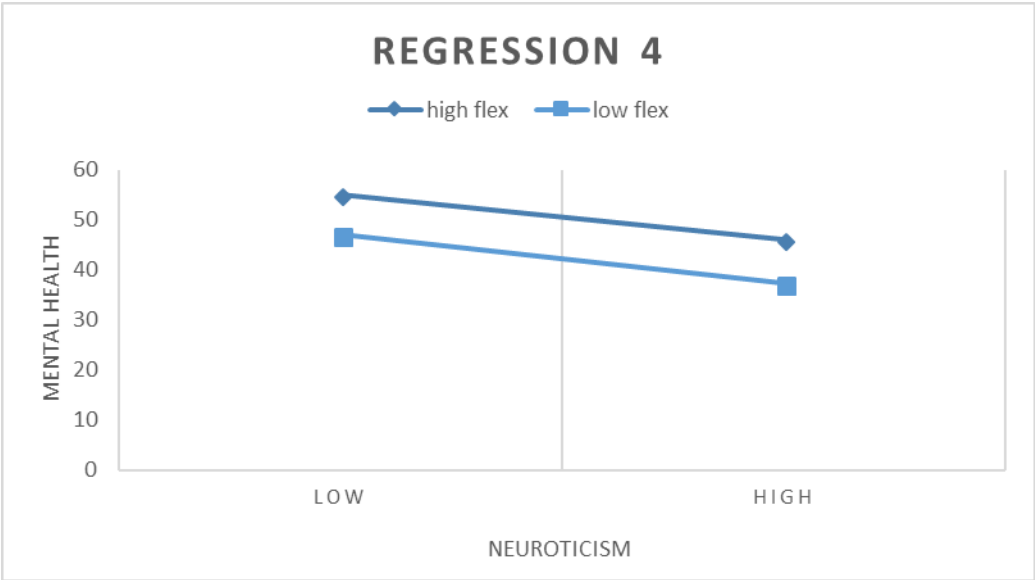

Figure 5. Interaction plot of the relationship between neuroticism and psychological flexibility with the outcome measure mental health.

Appendix D.1 - Regression 1

Regression Analyses Output with physical health as outcome variable and education, gender, age, extraversion and flexibility as Predictor

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,288[a]	,083	,074	9,49626	,083	9,391	3	311	,000
2	,421[b]	,178	,164	9,02271	,094	17,751	2	309	,000
3	,432[c]	,186	,170	8,98925	,009	3,305	1	308	,070

a. Predictors: (Constant), education_twolevels, gender, age

b. Predictors: (Constant), education_twolevels, gender, age, gecentreerde_bfi2_e1, gecentreerde_FIT_Totaalscore1

c. Predictors: (Constant), education_twolevels, gender, age, gecentreerde_bfi2_e1, gecentreerde_FIT_Totaalscore1, interac_Extra_Flex

d. Dependent Variable: T_physicalhealthcomposite

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	47,781	4,207		11,358	,000
	gender	-3,236	1,194	-,150	-2,711	,007
	age	-,074	,034	-,124	-2,163	,031
	education_twolevels	4,663	1,412	,187	3,303	,001
2	(Constant)	53,581	4,154		12,900	,000
	gender	-3,289	1,134	-,153	-2,900	,004
	age	-,135	,035	-,225	-3,872	,000
	education_twolevels	2,968	1,381	,119	2,149	,032
	gecentreerde_bfi2_e1	,385	,893	,026	,432	,666
	gecentreerde_FIT_Totaal score1	4,160	,840	,312	4,952	,000
3	(Constant)	53,570	4,138		12,945	,000
	gender	-3,368	1,131	-,156	-2,978	,003
	age	-,136	,035	-,228	-3,934	,000
	education_twolevels	2,871	1,377	,115	2,085	,038
	gecentreerde_bfi2_e1	,485	,891	,032	,544	,587
	gecentreerde_FIT_Totaal score1	4,241	,838	,318	5,060	,000
	interac_Extra_Flex	1,742	,958	,094	1,818	,070

a. Dependent Variable: T_physicalhealthcomposite

Appendix D.2 - Regression 2

Regression Analyses Output with physical health as outcome variable and education, gender, age, neuroticism and flexibility as Predictor

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,288[a]	,083	,074	9,49626	,083	9,391	3	311	,000
2	,440[b]	,194	,181	8,93442	,111	21,172	2	309	,000
3	,440[c]	,194	,178	8,94780	,000	,076	1	308	,782

a. Predictors: (Constant), education_twolevels, gender, age

b. Predictors: (Constant), education_twolevels, gender, age, gecentreerde_FIT_Totaalscore2, gecentreerde_bfi2_n1

c. Predictors: (Constant), education_twolevels, gender, age, gecentreerde_FIT_Totaalscore2, gecentreerde_bfi2_n1, interac_Nega_Flex

d. Dependent Variable: T_physicalhealthcomposite

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	47,781	4,207		11,358	,000
	gender	-3,236	1,194	-,150	-2,711	,007
	age	-,074	,034	-,124	-2,163	,031
	education_twolevels	4,663	1,412	,187	3,303	,001
2	(Constant)	51,346	4,198		12,232	,000
	gender	-2,290	1,190	-,106	-1,923	,055
	age	-,137	,034	-,228	-4,036	,000
	education_twolevels	3,307	1,369	,133	2,415	,016
	gecentreerde_bfi2_n1	-2,900	1,153	-,231	-2,515	,012
	gecentreerde_FIT_Totaal score2	1,871	1,219	,141	1,536	,126
3	(Constant)	51,265	4,214		12,166	,000
	gender	-2,282	1,193	-,106	-1,914	,057
	age	-,137	,034	-,228	-4,030	,000
	education_twolevels	3,290	1,373	,132	2,396	,017
	gecentreerde_bfi2_n1	-2,955	1,172	-,235	-2,522	,012
	gecentreerde_FIT_Totaal score2	1,916	1,231	,144	1,556	,121
	interac_Nega_Flex	-,212	,766	-,016	-,276	,782

a. Dependent Variable: T_physicalhealthcomposite

Appendix D.3 - Regression 3

Regression Analyses Output with mental health as outcome variable and education, gender, age, extraversion and flexibility as Predictor

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,266[a]	,071	,062	10,30745	,071	7,924	3	312	,000
2	,754[b]	,568	,561	7,04866	,497	178,591	2	310	,000
3	,754[c]	,569	,560	7,05632	,000	,327	1	309	,568

a. Predictors: (Constant), education_twolevels, gender, age

b. Predictors: (Constant), education_twolevels, gender, age, gecentreerde_bfi2_e2, gecentreerde_FIT_Totaalscore3

c. Predictors: (Constant), education_twolevels, gender, age, gecentreerde_bfi2_e2, gecentreerde_FIT_Totaalscore3, interac_Extra_Flex

d. Dependent Variable: T_mentalhealthcomposite

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	39,052	4,564		8,557	,000
	gender	-2,301	1,295	-,099	-1,777	,076
	age	,152	,037	,235	4,083	,000
	education_twolevels	2,481	1,532	,092	1,620	,106
2	(Constant)	53,776	3,243		16,581	,000
	gender	-2,416	,885	-,104	-2,728	,007
	age	-,003	,027	-,004	-,107	,915
	education_twolevels	-1,822	1,078	-,068	-1,690	,092
	gecentreerde_bfi2_e2	,343	,697	,021	,491	,624
	gecentreerde_FIT_Totaal score3	10,616	,656	,738	16,178	,000
3	(Constant)	53,772	3,247		16,562	,000
	gender	-2,435	,887	-,105	-2,745	,006
	age	-,003	,027	-,005	-,122	,903
	education_twolevels	-1,845	1,080	-,069	-1,708	,089
	gecentreerde_bfi2_e2	,367	,699	,023	,525	,600
	gecentreerde_FIT_Totaal score3	10,636	,658	,740	16,168	,000
	interac_Extra_Flex	,430	,752	,022	,572	,568

a. Dependent Variable: T_mentalhealthcomposite

Appendix D.4 - Regression 4

Regression Analyses Output with mental health as outcome variable and education, gender, age, neuroticism and flexibility as Predictor

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,266[a]	,071	,062	10,30745	,071	7,924	3	312	,000
2	,793[b]	,628	,622	6,53956	,558	232,552	2	310	,000
3	,793[c]	,629	,622	6,54650	,000	,343	1	309	,559

a. Predictors: (Constant), education_twolevels, gender, age

b. Predictors: (Constant), education_twolevels, gender, age, gecentreerde_FIT_Totaalscore4, gecentreerde_bfi2_n2

c. Predictors: (Constant), education_twolevels, gender, age, gecentreerde_FIT_Totaalscore4, gecentreerde_bfi2_n2, interac_Nega_Flex

d. Dependent Variable: T_mentalhealthcomposite

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	39,052	4,564		8,557	,000
	gender	-2,301	1,295	-,099	-1,777	,076
	age	,152	,037	,235	4,083	,000
	education_twolevels	2,481	1,532	,092	1,620	,106
2	(Constant)	48,887	3,071		15,918	,000
	gender	-,354	,871	-,015	-,407	,685
	age	-,004	,025	-,007	-,170	,865
	education_twolevels	-1,045	1,002	-,039	-1,043	,298
	gecentreerde_bfi2_n2	-5,992	,844	-,442	-7,101	,000
	gecentreerde_FIT_Totaal score4	5,677	,892	,395	6,364	,000
3	(Constant)	49,014	3,082		15,903	,000
	gender	-,366	,872	-,016	-,420	,675
	age	-,004	,025	-,007	-,170	,865
	education_twolevels	-1,019	1,004	-,038	-1,015	,311
	gecentreerde_bfi2_n2	-5,907	,857	-,435	-6,893	,000
	gecentreerde_FIT_Totaal score4	5,607	,901	,390	6,224	,000
	interac_Nega_Flex	,327	,560	,023	,585	,559

a. Dependent Variable: T_mentalhealthcomposite