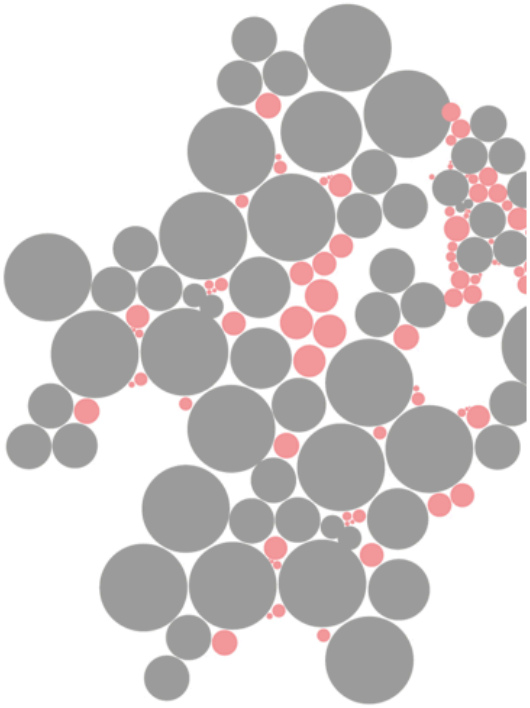

SELF-COMPASSION AS A MEDIATOR OF THE EFFECT ON WELL-BEING IN A SELF-COMPASSION BASED TRAINING: A RANDOMIZED CONTROLLED TRIAL

MASTERTHESIS (10 ECs)

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Abstract

The aim of this study was to investigate to what extent self-compassion acted as a mediator of well-being in a self-help training of self-compassion for adults with reduced well-being. The study design was a randomized-controlled trial and the data of 213 participants of the general population, 107 in the experimental group and 106 in the control group, who filled in the Self-Compassion Scale Short-Form (SCS-SF) and the Multi Health Continuum Short-Form (MHC-SF) before and after the training, was analysed. On the one hand, results showed that the training was effective and participants in the experimental group improved their level of self-compassion and well-being significantly. On the other hand, analysis showed that self-compassion partially mediated the effect of the training on well-being. These findings are in line with previous research and support the idea that self-compassion positively influences well-being. Therefore, the developed training is an effective and efficient way to improve self-compassion and well-being, and could presumably be used to improve these two constructs in the broader public. Future research could examine the effectiveness of the training in the clinical population.

Samenvatting

Het doel van deze studie was te onderzoeken in hoeverre zelfcompassie een mediator van welbevinden is in het kader van een zelfhulptraining met betrekking tot zelfcompassie voor volwassenen met verminderd welbevinden. Het onderzoeksdesign was een gerandomiseerde-gecontroleerde trial en de data van 213 respondenten uit de algemene populatie, 107 in de experimentele conditie en 106 in de controle conditie, die de Self-Compassion Scale Short-Form (SCS-SF) en de Multi Health Continuum Short-Form (MHC-SF) voor en na de training hebben ingevuld, werd geanalyseerd. Aan de ene kant kwam naar voren dat de training effectief is gebleken en zowel het level van zelf-compassie, als ook het level van welbevinden van de respondenten in de experimentele groep significant verbeterde. Aan de andere kant kwam naar voren dat zelf-compassie het effect van de training op welbevinden deels medieerde. De resultaten lieten zien dat de ontwikkelde training een effectieve en efficiënte manier is om zelfcompassie en welbevinden te verbeteren en het derhalve zou kunnen worden toegepast om deze twee constructen in de brede bevolking te verhogen. Toekomstig onderzoek zou zich kunnen richten op het exploreren van de effectiviteit van de training in de klinische populatie.

Introduction

Well-Being

Since Seligman and Csikszentmihalyi (2000) introduced the field of positive psychology, there has been a growing interest to focus not only on human shortcomings and psychopathology, but to embrace and promote optimal functioning of individuals, relations, and society. In a summary report from 2005, the World Health Organization (WHO) supports this view and proposes not to limit mental health on the absence of mental illness. In relation to this matter, mental health is described as 'a state of well-being' and defined through the three components emotional well-being, psychological well-being, and social well-being (Bohlmeijer, Bolier, Westerhof, & Walburg, 2013; WHO, 2005).

Emotional well-being is primarily related to the subjective perception of well-being and comprises three dimensions. Firstly, the degree of emotional well-being is dependent upon the presence of positive emotions. Secondly the absence of negative emotions contributes to the level of emotional well-being. Lastly, the subjective perception of satisfaction with life accounts for the level of emotional well-being (Diener, 1984). The second dimension of well-being, psychological well-being, is related to the concept of self-realization and includes the ambition to realize one's own potential with the goal of optimal functioning (Bohlmeijer et al., 2013; Ryff, 1989). Furthermore psychological well-being correlates with certain socio-demographic variables, such as age, gender, and income (Ryff & Singer, 2008). Lastly, social well-being focuses on how an individual functions in society and how it evaluates it's own relationship to society and the community (Bohlmeijer et al., 2013; Keyes, 1998). Similar to psychological well-being, social well-being correlates with several socio-demographic variables. Especially socio-economic status, education, and the amount of prosocial community involvement showed consistent relations to social well-being.

The scope and the content of well-being and it's underlying dimensions indicate that it is not only a complex and extensive concept, but also of great importance for our mental

health (Bohlmeijer et al., 2013). In order to categorize a person's state of well-being, the terms *languishing*, *flourishing*, and *moderately mentally healthy* were introduced. If a person possesses a low level of emotional-, psychological-, and social well-being he is languishing, which indicates the absence of mental health. On the other hand, if a person scores high on the three dimensions he is flourishing, indicating the presence of mental health. A person, who does not fit those categories, is described as moderately mentally healthy (Keyes, 2005).

In 2007, Keyes investigated the benefits of flourishing to individuals and society. He found that flourishers, thus people who experience much positive affect, see themselves as fulfilled with regard to their own capacities, and are contributing members of society, have several personal and societal benefits in comparison to people with lower levels of well-being. Flourishers reported the fewest missed days at work, showed the healthiest psychosocial functioning, tend to have lower health limitations, and exhibit lower health care utilization. Overall, flourishers seem to have excellent mental and physical health, which lessens their vulnerabilities and enhances their resilience to life-challenges (Schotanus-Dijkstra et al., 2015; Huppert, 2009; Kobau et al., 2011, Ryff & Singer, 2008). Due to the fact that the prevalence of flourishers among the adult population in the USA was found to be less than 20%, the importance of a strategy to comprehensively promote well-being in the broader population is evident (Keyes, 2002).

In the past years, there has been a growing interest to not solely focus on treating mental illness, but promoting and enhancing well-being, as well (Huppert & So, 2013; Seligmann, 2011). In order to achieve a high level of well-being, which not only could enable individuals to function optimal in a variety of situations, but combined with the absence of mental illness could also lead to a complete state of mental health, the questions of how to improve well-being arises (Keyes, 2005; Seligman & Csikszentmihalyi, 2000). There are several strategies aiming to improve well-being or one of its sub-dimensions emotional-, psychological-, and social well-being. Among the most used strategies are investigating and

determining one's norms and values, consciously increasing positive emotions, focusing on talents, and regulation of emotions (Bohlmeijer et al., 2013). Another competence, which in the past years gained much attention and has been found to improve well-being effectively, is self-compassion (Zessin, Dickhäuser, & Garbade, 2015).

Self-compassion

Self-compassion is a construct that derived from Buddhist philosophy and involves being open, non-judgemental, and understanding towards one's own suffering, failures, or individual shortcomings, and the related competence to soothe oneself in times of distress (Neff, 2003a). Research has shown that people who possess a high level of self-compassion are not only less vulnerable to psychological disorders and have less stress-related problems, but also exhibit a higher level of well-being (MacBeth & Gumley, 2012; Zessin, Dickhäuser, & Garbade, 2015). According to Neff (2003a), self-compassion consists out of the three dimensions self-kindness, common humanity, and mindfulness, which are distinct, but interact which each other.

Self-kindness deals with reacting kindly towards oneself, when encountering emotional pain and personal shortcomings. It forms the basis for preventing and handling self-criticism. The second dimension is called common humanity and entails that suffering and vulnerability are part of the shared human experience. It forms the opposite pole to self-isolation. Thirdly, mindfulness can be defined as being aware of one's own negative thoughts and emotions, but to face them openly and without judgement. It protects from overidentification and self-absorption (Neff, 2012; Neff & Dahm, 2015).

In the context of explaining the functionality of self-compassion, Gilbert (2009) proposed three distinct emotional regulation systems, which get activated dependent upon the emotion that needs to be regulated. The first system, the so called threat system, has the purpose to detect threats and to protect us from harm. It adequately triggers emotions as

anxiety, anger, and disgust, and leads to fight or flight reactions. The drive system is supposed to motivate us to approach certain resources and is focused on rewards. It handles feelings like desire, achieving, and progressing. Lastly, the soothing system has the task to manage distress and to promote bonding. It is directed towards feelings of safety, calmness, and trust (Gilbert, 2009).

It is suggested that in today's modern society a big part of the population experiences an overactivity of the first two systems, the threat- and the drive system, and an underactivity of the soothing system (Gilbert, 2009). Due to the overactivity of the first two systems, the sympathetic nervous system is active frequently and releases a high amount of cortisol, resulting in hypertension and an increased breathing rate, and subsequently leads to high levels of stress (Gilbert, 2014). On the other side, the capacity of the soothing system is not fully used, wherefore distress is not regulated sufficiently and its positive effects on well-being are suppressed (Gilbert, 2009; Gilbert, 2014; Bohlmeijer et al., 2013). Eventually, this contributes to the probability of developing physical and psychological disorders on the long term and leads to a lower level of well-being (Lamers et al., 2012). It is suggested that improving self-compassion related competences should lead to a decrease in activity of the first to systems, while giving the soothing system the possibility to function in an adequate manner (Gilbert, 2009; Gilbert & Irons, 2005).

In order to redress the imbalance of the three systems, Gilbert (2009) developed the Compassion Focused Therapy (CFT), a general therapeutic approach focusing on the training of self-compassion designed for the clinical population. It incorporates techniques from cognitive behavioural therapy and includes elements of evolutionary psychology, developmental psychology, social psychology, neuroscience, and Buddhist psychology. Within CFT, compassionate mind training (CMT) is used as a key technique to enhance self-compassion by helping people to develop experiences of inner warmth, safeness, self-assurance, and self-soothing (Gilbert, 2010). Research indicated that CFT is effective in not

only improving self-compassion, but also well-being (Gilbert, 2009; Gilbert & Irons, 2005; Gilbert & Procter, 2006; Leaviss & Uttley, 2015; Rockliff, Gilbert, McEwan, Lightman, & Glover, 2008)

Next to this, several mindfulness-based interventions, such as mindfulness based stress reduction (MBSR), or mindfulness based cognitive therapy (MBCT), have been developed in the recent past and have shown to effectively enhance the level of self-compassion, as well as having a positive influence on well-being. (Chiesa & Seretti, 2009; De Vibe, Bjørndal, Tipton, Hammerstrøm, & Kowalski, 2013; Gu, Strauss, Bond, & Cavanagh, 2015; Segal, Teasdale, Williams, & Gemar, 2002; Spijkerman & Bohlmeijer, 2016). However, Neff and Germer (2012) argued that interventions focusing specifically on enhancing self-compassion for both, the clinical and the non-clinical population, are worth developing and could extend the effects of mindfulness-based interventions like the MBSR, or MBCT.

Relation between self-compassion and well-being

Studies indicate that self-compassion promotes well-being and ensures better coping and a greater degree of resilience (Trompetter, De Kleine, & Bohlmeijer, 2016; Neff, Rude, & Kirkpatrick, 2007). The results of a meta analysis conducted by Zessin, Dickhäuser, and Garbade (2015), who investigated the data of 79 samples with regard to the relation between self-compassion and well-being, not only supported the hypothesis that self-compassion and well-being are related to each other, but showed a statistical significant effect on the causal influence of self-compassion on well-being. Therefore, it is suggested that an improvement in self-compassion should lead to an improvement in well-being. Several studies support this view and found that self-compassion and its components predict well-being to a certain extent (Bluth, Roberson, & Gaylord; Galla, 2016; Neff, Rude, & Kirkpatrick, 2007; Soysa & Wilcomb, 2015).

Given the positive effects of self-compassion on well-being, Hulsberger and

Self-compassion as a mediator of the effect on well-being in a self-compassion based training

Bohlmeijer (2015) developed the self-help training *Compassie als sleutel tot geluk, voorbij stress en zelfkritiek (Compassion as the key to happiness, goodbye stress and self-criticism)* for adults who experience lower levels of well-being. It is based on the compassion focused therapy, developed by Gilbert (2009), as well as on certain exercises aiming to improve self-compassion and mindfulness, developed by Neff (2011). In this thesis, it is investigated whether the training is effective in promoting self-compassion and well-being and whether effects on well-being are mediated by changes in self-compassion. Therefore, the research question *Does self-compassion act as a mediator of the effect of the training on well-being?* is examined. For this purpose, the following three hypotheses are formulated and illustrated in Figure 1.

1. After the training, the level of self-compassion is higher in the experimental condition in comparison with the control condition
2. After the training, the level of well-being is higher in the experimental condition in comparison with the control condition
3. Self-compassion acts as a mediator of the effect of the training on well-being

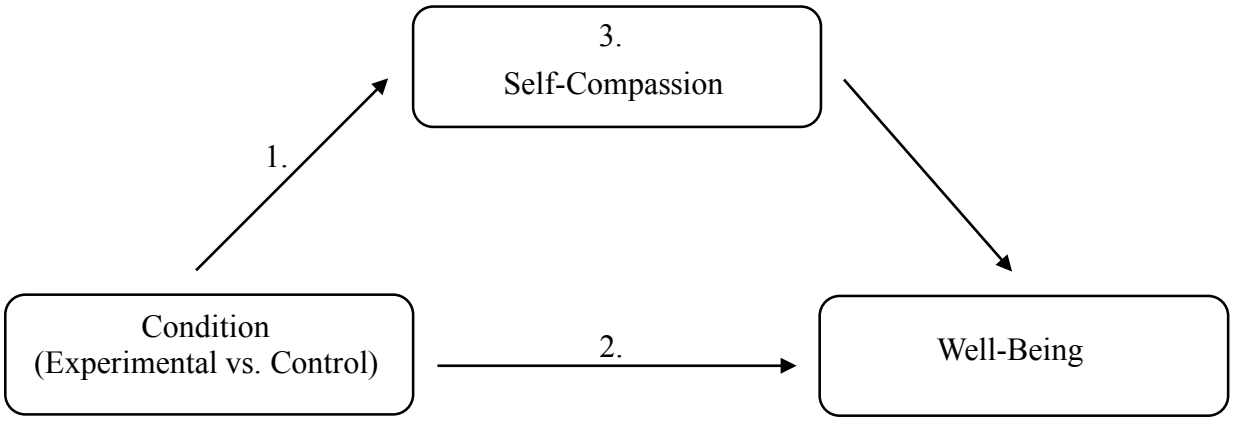


Figure 1. Hypothesized model of the relationship between Condition and Well-Being as mediated by Self-compassion

Methods

Participants

The present study was approved by the ethics committee of the University of Twente. Inclusion criteria were at least 18 years of age, being a languisher or moderately mentally healthy (identified with the Multi Health Continuum Short-Form), possession of a computer or tablet, internet connection, proficiency in Dutch, and a signed informed consent. An exclusion criterion was the presence of moderate depressive or anxiety symptoms (a score of 11 or more on the depression subscale and/or a score of 11 or more on the anxiety subscale of the Hospital Anxiety and Depression Scale). In that case, subjects were advised to contact their general practitioner.

Participants were recruited in the general Dutch population by placing advertisements in daily papers in the Netherlands. Advertisements were provided with a positively formulated message aiming to recruit subjects, who want to improve their well-being and have problems with stress and self-criticism. Additionally, a link to a website (www.utwente.nl/zelfcompassie) with further information about the study was provided. Participants could fill out the registration form including an informed consent online, and were asked to fill out several screening questions to determine whether they fit in the target group. Subjects received an answer whether they met the including criteria and could participate via e-mail within five working days.

In total, 243 subjects participated in the study. Due to missing data, 30 subjects were removed from the data pool, leaving a total number of 213 subjects. Of the 213 participants, 107 (50.2%) were part of the experimental group and 106 (49.8%) were part of the control group. The age of participants varied from 20 years to 78 years (M_{age} = 53.13; SD = 9.93), and 74.6% of the participants were female. All of the participants were of Dutch nationality. The majority of participants had received a high education (85.4%) and a steady income (71.9%). Table 1 provides an overview of the demographic characteristics of the sample.

Table 1. *Summary of demographic characteristics*

	Experimental Group (N = 107)		Control Group (N = 106)	
	Frequency (%)	M (SD)	Frequency (%)	M (SD)
Age		52.8 (9.9)		53.5 (9.9)
Gender				
Male	21 (19.6)		33 (31.2)	
Female	86 (80.4)		74 (68.8)	
Family status				
Married or registered relationship	55 (51.4)		65 (59.6)	
Divorced	24 (22.4)		16 (14.7)	
Widowed	4 (3.7)		2 (1.8)	
Never been married	24 (22.4)		25 (23.9)	
Living Situation				
Alone	31 (29)		26 (23.9)	
Living with partner and child(ren)	30 (28)		28 (25.7)	
Living with partner without child(ren)	37 (34.6)		48 (44)	
Alone with child(ren)	8 (7.5)		6 (5.5)	
With others	1 (0.9)		1 (0.9)	
Education				
Not completed	0		1 (0.9)	
Lower educational level	4 (3.7)		2 (1.8)	
Middle educational level	13 (12.2)		7 (6.5)	
Higher educational level	88 (82.3)		96 (88.1)	
Other	2 (1.9)		3 (2.8)	

Note. M = Mean, SD = Standard deviation, N = Sample Size

Design

The used design was a randomized controlled trial with two conditions, one experimental condition and one control condition. Participants were randomly assigned to either the experimental or the control condition, after being found eligible to participate in the study. The outcome of the randomisation was communicated to the participants via e-mail. The total duration of the study was 12 months with four measuring moments for both groups, in which several questionnaires had to be filled in. All questionnaires had to be filled in online and at home. The pre-test (T0) took place before the experimental group started the self-help course.

The post-test (T1) was administered after 3 months, as the participants in the experimental condition finished the course. Two follow up measurements are scheduled to take place 6 months (T2) and 12 months (T3) after the pre-test. In this study, only data of relevant measures of the pre-test (T0) and the post-test (T1) are examined.

Intervention

Experimental condition. Participants in the experimental condition received the self-help training directly following randomisation by mail. The self-help training *Compassie als sleutel tot geluk, voorbij stress en zelfkritiek* contained seven lessons and could be completed within seven weeks. Participants received a maximum of nine weeks to complete the lessons. The course covered seven different subtopics of self-compassion, namely: (1) self-criticism and self-compassion, (2) emotional systems, (3) developing self-kindness, (4) addressing resources, (5) dealing with youth experiences, (6) altering circumstances, and (7) compassion for others. The main goal of the self-help training was to promote well-being through cultivating compassion for oneself and others.

At the beginning of each lesson information about one subtopic of self-compassion was presented, followed by several related exercises, for example body scan, mindful breathing, self-forgiveness, different writing exercises, and kindness towards the self and others. It was recommended to complete at least one exercise each day, with a total duration of 2-4 hours a week. Participants could complete the lessons at a location of their own choice and on a self-determined point in time.

Furthermore, participants in the experimental condition received feedback with regard to content and process by a trained psychologist/master student via e-mail. After each week wherein a lesson was completed, the participant had to send an e-mail to the counsellor on a predefined day asking for feedback. In turn, the counsellor had to give feedback within 2-3 days. Feedback was given by three graduated psychologists/researchers, two psychology

master students, and one doctoral student, under supervision of two experienced psychologist working in health care.

Control Condition. Participants in the control group were put on a waitlist and received the self-help training after completion of the third assessment, thus after six months.

Measures

Participants completed ten self-report questionnaires with a total of 112 questions on four measuring moments. In the present study, only the data of the Mental Health Continuum-Short Form (MHC-SF) and the Self-Compassion Scale-Short Form (SCS-SF) were examined. The other questionnaires are examined in the context of further research of the University of Twente.

Well-being. The Mental Health Continuum Short-Form is a self-report questionnaire consisting of 14 items, developed by Lamers, Westerhof, Bohlmeijer, Klooster, and Keyes (2011). It aims to measure well-being and its three components; emotional well-being, psychological well-being, and social well-being. Items have to be rated on a six point Likert scale ranging from "NEVER" to "EVERY DAY". The subscale emotional well-being contains three items, for instance, "*During the past month, how often did you feel interested in life?"*. The subscale psychological well-being consists of six items, such as "*During the past month, how often did you feel that your life has a sense of direction or meaning to it?"*. Lastly, five items represent the subscale social well-being, for example "*During the past month, how often did you feel that you had something important to contribute to society?"*.

Internal consistency for each of the three subscales has shown to be high ($\alpha > .80$). Furthermore, the MHC-SF shows a good convergent validity (Lamers et al., 2011). The total score is represented by the total mean, furthermore it is possible to compute scores for each subscale. In the present study, the MHC-SF showed good overall internal consistency on both measuring moments ($\alpha = .85$ and $\alpha = .89$, respectively). Reliability analysis showed moderate

to good internal consistency for the subscales of the MHC-SF; Emotion Well-Being: α(T0) = .74, α(T1) = .81; Psychological Well-Being: α(T0) = .76, α(T1) = .84; Social Well-Being: α(T0) = .64; α(T1) = .69.

Self-compassion. In order to measure the capacity of an individual to be compassionate to oneself, Neff developed the Self-Compassion Scale (2003b). The associated short version was developed by Raes et al. (SCS-SF, 2011) with a Dutch speaking sample and comprises the six subscales self-kindness, self-judgment, common humanity, isolation, over-identification, and mindfulness. It consists out of 12 representative items like "*When I fail at something important to me I become consumed by feelings of inadequacy.*" or "*I try to see my failings as part of the human condition.".* Items have to be rated in on a 7-point Likert scale ranging from 1 "Almost never" to 7 "Almost always".

To compute a total score, negatively formulated items (items 1, 4, 8, 9, 11, and 12) have to be reversed coded. Subsequently a total mean that represents the total self-compassion score can be computed. Lopez et al (2015), who examined the factor structure of the SCS, could not confirm the assumed six-factor structure, but found two higher order factors, based upon the positively and the negatively formulated items. Therefore, they proposed not to compute total scores for each of the six subscales, but to compute a total score of the positive factor, and the negative factor. The SCS-SF is validated and shows a high internal consistency (α = .87; Raes et al., 2011). Reliability of the SCS-SF in the present study has shown to be good, with a Chronbach's alpha of .88 in the baseline measurement, and .89 in the post-test. Internal consistencies of the positive factor (PF) and the negative factor (NF) were high, SCS-SF PF (T0) = .83; SCS-SF NF (T0) = .85; SCS-SF PF (T1) = .84; SCS-SF NF (T1) = .87

Data analysis

All statistical analyses were performed with IBM's software SPSS (Statistical Package for Social Sciences), version 24. The range and distribution of missing data was detected by

performing Little's Missing Completely at Random Test (MCAR, 1988). The test indicated that missing data was randomly distributed, X^2 (112, N = 243) = 102.80, p = .72. Afterwards, relevant cases were erased by listwise deletion. Normality was detected with the Shapiro-Wilk test (Shapiro & Wilk, 1965).

Descriptive statistics (mean, standard deviation, & range) were calculated for the MHC-SF and the SCS-SF. Furthermore, reliability analysis was performed in order to determine the internal consistency (Cronbach's α) for both instruments and corresponding subscales at both measuring moments. Correlations for both questionnaires were calculated, displayed by Pearson's correlation coefficient (*r)*. A rule of thumb, proposed by Moore and McCabe (2006) consisting of the categories negligable (.01 < r > .19), weak (.20 < r > .29), moderate (.30 < r > .39), strong (.40 < r > .69) or very strong (r ≥ .70), was used to classify the values. An independent sample *t*-tests was executed to compare means of the MHC-SF and the SCS-SF between the two groups at the baseline measure (T0).

A mixed design analysis of variance (ANOVA) was conducted, in order to investigate how participant's scores on the SCS-SF differed across both, measuring moments and groups (hypothesis 1). A second mixed design ANOVA was executed with regard to the MHC-SF scores, with the goal to detect within- and between-subject changes in time (hypothesis 2). For both analyses, estimated effect sizes were calculated and reported in partial eta-squared (η_p^2). A general rule of thumb proposed by Cohen (1988) was used to classify the values: .01 = small effect size, 0.06 = medium effect size, 0.14 = large effect size.

A mediator analysis was performed to test the third hypothesis, by using Andrew Hayes' PROCESS plug-in for SPSS (Field, 2013). For this purpose, a difference score of the SCS-SF was computed, by subtracting the scores of the pre-test from the scores of the post-test. Regression analyses were performed with condition, thus whether participants received the treatment or not, as the independent variable, the mean difference score of the SCS-SF as the mediator variable, and the post-test scores of the MHC-SF as the dependent variable. (see

Figure 1). In order to detect to what extent self-compassion mediates the effect of the training on the different subdimensions of well-being, three additional mediator analyses with the three subscales of the MHC-SF as dependent variables were performed.

Results

Descriptive Statistics

Table 2 shows the descriptive statistics of both, the experimental group's and the control group's scores on the SCS-SF and the MHC-SF for both measuring moments. Baseline scores of both measures were similar for both groups, SCS-SF: $t(211) = -.39$, $p = .69$; MHC-SF: $t(211) = -1.67$, $p = .10$. Thus, the levels of both groups of self-compassion and well-being did not differ significantly from each other before the training took place.

Table 2

Descriptive Statistics of the SCS-SF and the MHC-SF for pre- and post-test

	Experimental Group ($N = 107$)			Control Group ($N = 106$)		
	M (*SD*)	Min	Max	*M* (*SD*)	Min	Max
SCS-SF Pre-Test	43.32 (11.22)	21	75	43.97 (12.95)	20	80
Positive Factor	24.21 (6.02)	13	36	7.84 (2.34)	8	40
Negative Factor	19.11 (7.24)	6	41	6.70 (3.08)	6	40
SCS-SF Post-Test	54.50 (11.06)	31	80	48.09 (12.97)	24	80
Positive Factor	29.50 (5.60)	15	42	26.84 (6.54)	12	41
Negative Factor	25.01 (7.33)	8	42	21.25 (8.18)	6	41
MHC-SF Pre-Test	32.86 (9.40)	12	56	34.97 (9.15)	12	61
Emotional Well-Being	8.21 (2.53)	2	14	8.47 (2.21)	3	14
Social Well-Being	10.32 (3.79)	1	22	11.15 (4.01)	2	21
Psychological Well-Being	14.33 (4.76)	3	28	15.35 (4.49)	5	29
MHC-SF Post-Test	41.20 (10.82)	11	62	36.17 (10.07)	10	59
Emotional Well-Being	9.73 (2.49)	3	14	8.70 (2.66)	3	15
Social Well-Being	12.60 (4.42)	0	22	11.49 (4.20)	1	23
Psychological Well-Being	18.87 (5.28)	1	27	15.98 (5.06)	1	28

Note. *M* = Mean, *SD* = Standard Deviation, *N* = Sample Size, SCS-SF = Self Compassion Scale Short-Form, MHC-SF = Mental Health Continuum Short-Form

Effect of the Training on Self-Compassion (Hypothesis 1)

A mixed design ANOVA of participant's SCS-SF scores across measuring moments revealed a significant increase in SCS-SF scores over time $F(1, 211) = 148.41$, $p < .001$, $\eta_p^2 = .41$ (large effect size). There was no main effect for group $F(1, 211) = 3.53$, $p = .06$, $\eta_p^2 = .02$ (small effect size). However, analysis showed that there was a significant interaction effect between time and condition, $F(1, 211) = 31.60$, $p < .001$, $\eta_p^2 = .16$ (medium effect size). Firstly, these results indicate that the scores on the post-test increased significantly in comparison to the scores on the pre-test. Secondly, the amount of change in scores is dependent upon condition, thus whether participants received the treatment or not. Therefore, analysis showed that participants in the experimental condition scored significantly higher over time compared to participants in the control condition. The effects are illustrated in Figure 2.

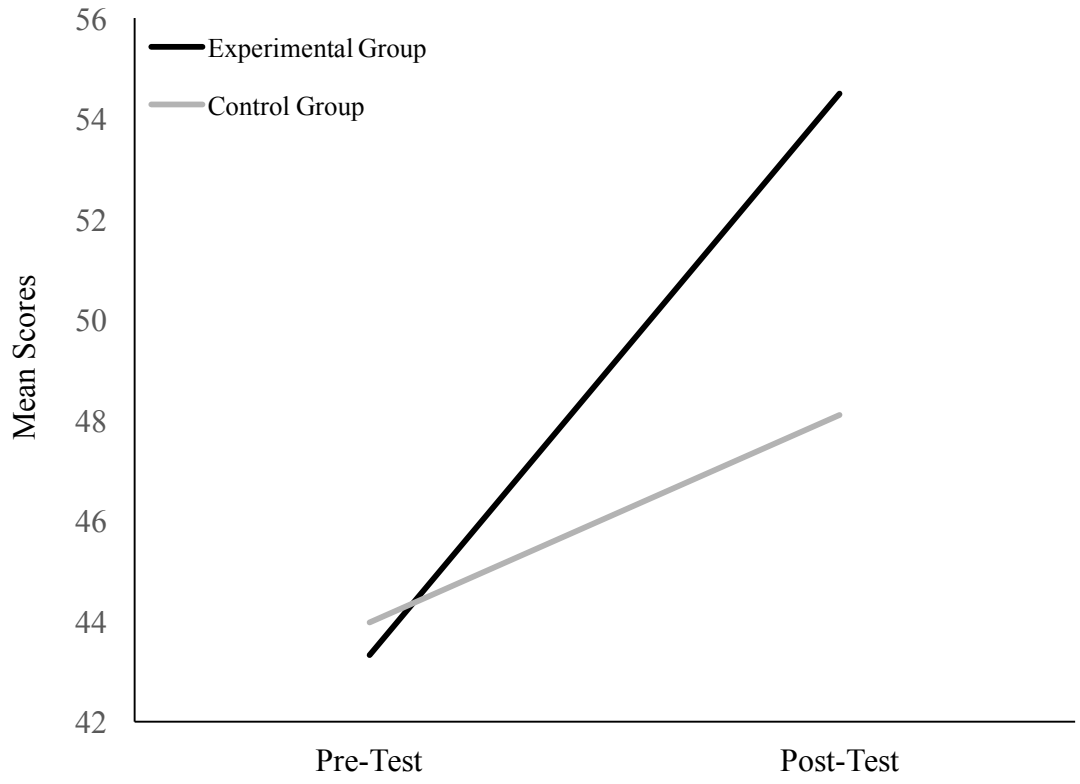


Figure 2. Participant's mean scores on the SCS-SF across time and condition

Effect of the Training on Well-Being (Hypothesis 2)

A mixed design ANOVA of the MHC-SF scores across measuring moments showed a significant increase in MHC-SF scores over time, $F(1, 211) = 69.38$, $p < .001$, $\eta_p^2 = .25$ (large effect size). The main effect for group was not significant, $F(1, 211) = 1.41$, $p = .24$, $\eta_p^2 = .1$ (small effect size). Analysis revealed further, that there was a significant interaction effect between time and condition, $F(1, 211) = 38.89$, $p < .001$, $\eta_p^2 = .16$ (large effect size). Based on these results, it is evident that participants scored higher over time on the post-test compared to the pre-test in both conditions. Furthermore, participants in the experimental condition, who received the treatment, scored significantly higher over time than participants in the control condition, who did not receive the treatment. Therefore, the change in scores over time is dependent upon condition. Figure 3 illustrates these effects.

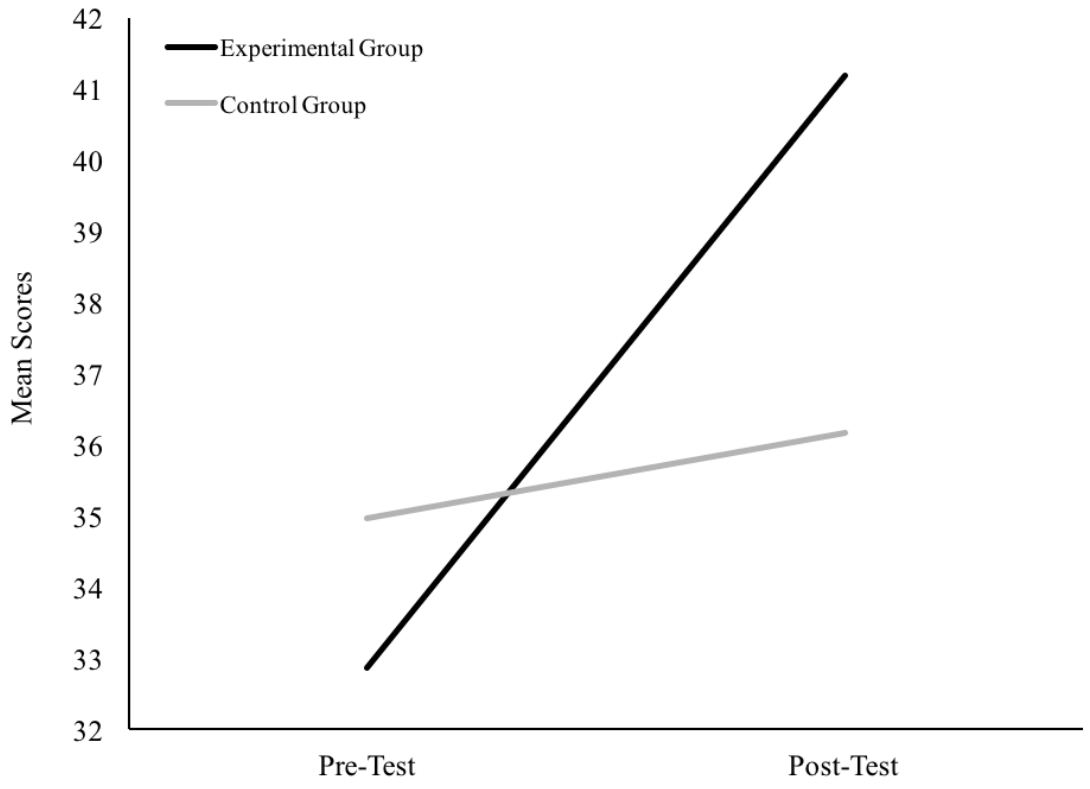


Figure 3. Participant's mean scores on the MHC-SF across time and condition

Relationship between Self Compassion and Well-Being (Hypothesis 3)

Table 3 illustrates the correlations between the SCS-SF and the MHC-SF per group, for pre- and post-test. In the experimental group, there was a weak correlation between the SCS-SF and the MHC-SF on the pre-test, whereas the correlation of the two instruments on the post-test was strong. Furthermore, there was a non significant correlation between the difference score of the SCS-SF and the pre-test scores of the MHC-SF. The correlation between the SCS-SF difference score and the post-test scores of the MHC-SF, on the other hand, was moderate and significant. In the control group, the correlation between the SCS-SF scores and the MHC-SF scores were significant at both, pre- and post-test. However, there was no significant correlation between the SCS-SF difference scores and the MHC-SF scores in the control group.

Table 3

Correlations between the SCS-SF, the Difference Scores of the SCS-SF, and the MHC-SF in both groups

	SCS-SF Pre-Test		SCS-SF Post-Test		SCS-SF Δ		MHC-SF Pre-Test	
	Exp.	Contr.	Exp.	Contr.	Exp.	Contr.	Exp.	Contr.
SCS-SF Pre-Test								
SCS-SF Post-Test	.56**	.83**						
SCS-SF Δ	-.48**	-.29**	.46**	.30**				
MHC-SF Pre-Test	.24*	.47**	.28**	.41**	.03	-.11		
MHC-SF Post-Test	.16	.40**	.48**	.42**	.34**	.03	.63**	.67**

Note. SCS-SF = Self-Compassion Scale Short-Form, MHC-SF = Multi Health Continuum Short-Form, Δ = Difference Score

*$p < .05$; **$p < .01$

Table 4 illustrates the model results of the mediation analysis. First of all, analysis revealed that the total effect of condition on well-being was significant (*c*), suggesting that participant's ultimate score of well-being was predicted by whether they received the training or not, *t*

(211) = -3.51, $p < .001$. Further, mediation analysis showed that condition was a significant predictor of self-compassion (*a*), t (211) = -5.62, $p < .001$, and self-compassion was a significant predictor of well-being (*b*), t (210) = 3.15, $p = .002$. These results depict that self-compassion improved in relation to receiving the training or not, and the extent to which participants improved their level of self-compassion predicted the final level of well-being. Scores on the MHC-SF increased by .24, for every unit the participant scored higher on the SCS-SF. After controlling for the effect of self-compassion on well-being, the total effect of condition on well-being decreased (*c'*), suggesting that the improvement in self-compassion did have a distinct impact on well-being. However, the direct effect of condition on well-being stayed significant, which indicates a partial mediation of self-compassion between condition and well-being, t (211) = -2.2, $p = .03$. The Sobel-Test was executed and showed that *c'* differed significantly from *c*, Z = -2.72, p = .007. Therefore, the mediation effect, which is illustrated in Figure 4, was significant.

Table 4

Model of the Analysis with Condition as the independent variable, Self-Compassion as the mediator variable, and Well-Being as the dependent variable

Model	*F*	*p*	R^2
Condition -> Well-Being	(1, 211) 12.31	< .001	.06
Condition -> Self-Compassion	(1, 211) 31.60	< .001	.13
Condition & Self-Compassion -> Well-Being	(2, 210) 11.38	< .001	.10

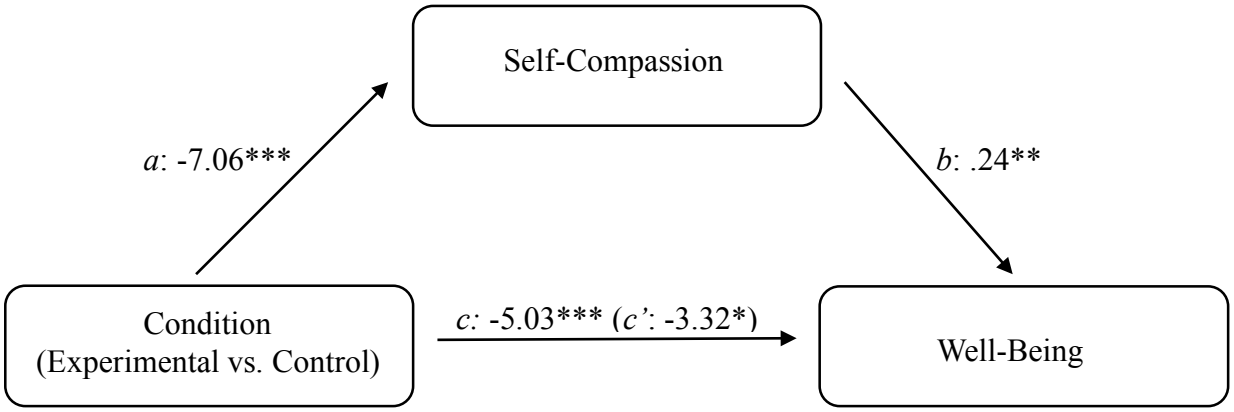


Figure 5. Unstandardized regression coefficients for the relationship between Condition and Well-Being, as mediated by Self-compassion.

*$p < .05$; **$p < .01$; ***$p < .001$

Table 5

Model of the Analysis with Condition as the independent variable, Self-Compassion as the mediator variable, and the three subdimensions of Well-Being (Emotional Well-Being, Psychological Well-Being, and Social Well-Being) as the dependent variables

Model	*F*	*p*	R^2
Emotional Well-Being			
Condition -> Emotional WB	(1, 211) 8.53	< .01	.04
Condition & SC -> Emotional WB	(2, 210) 9.38	< .001	.08
Psychological Well-Being			
Condition -> Psychological WB	(1, 211) 16.61	< .001	.07
Condition & SC -> Psychological WB	(2, 210) 12.31	< .001	.11
Social Well-Being			
Condition -> Social WB	(1, 211) 3.52	> .05	.02
Condition & Self-Compassion -> Social WB	(2, 210) 4.77	< .01	.04

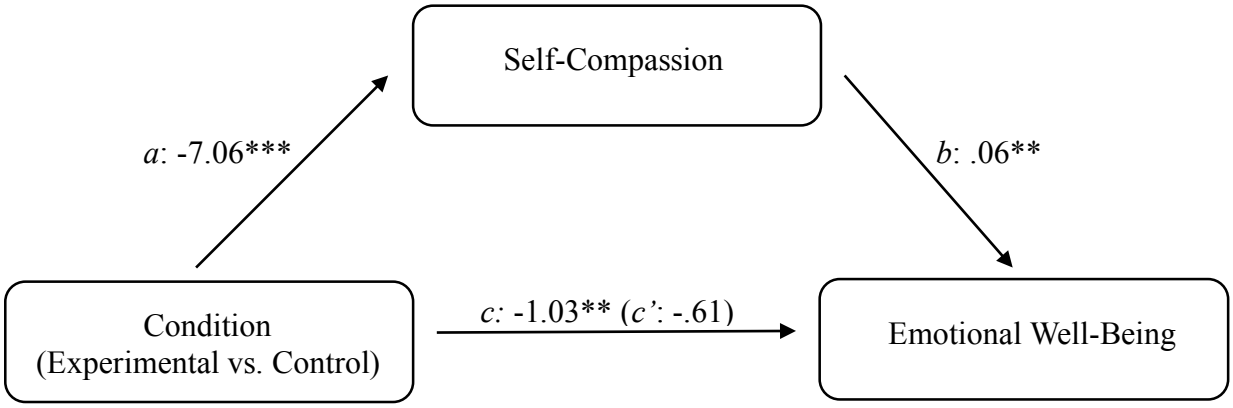
Note. WB = Well-Being, SC = Self-Compassion

Table 5 exhibits the model results of the mediator analyses with the three subscales of well-being, emotional well-being, psychological well-being, and social well-being, as dependent variables.

Emotional Well-Being. The analysis in which emotional well-being was used as the dependent variable showed that emotional well-being was significantly predicted by whether the participants received the training (*c*), *t* (211) = -2.92, *p* = .004, and the improvement of self-compassion (*b*), *t* (210) = 3.14, *p* = .002. While controlling for the effect of self-compassion on emotional well-being, the total effect of condition on emotional well-being decreased and became insignificant (*c'*), *t* (210) = -1.5, *p* = .10. This points towards a full mediation of self-compassion in the relation of the effect of the training on emotional well-being (see Figure 6). The Sobel-Test confirmed this suggestion and indicated that the mediation effect was statistically significant, Z = -2.71, p = .007.

Figure 6. Unstandardized regression coefficients for the relationship between Condition and Emotional Well-Being, as mediated by Self-compassion.

*$p < .05$; **$p < .01$; ***$p < .001$

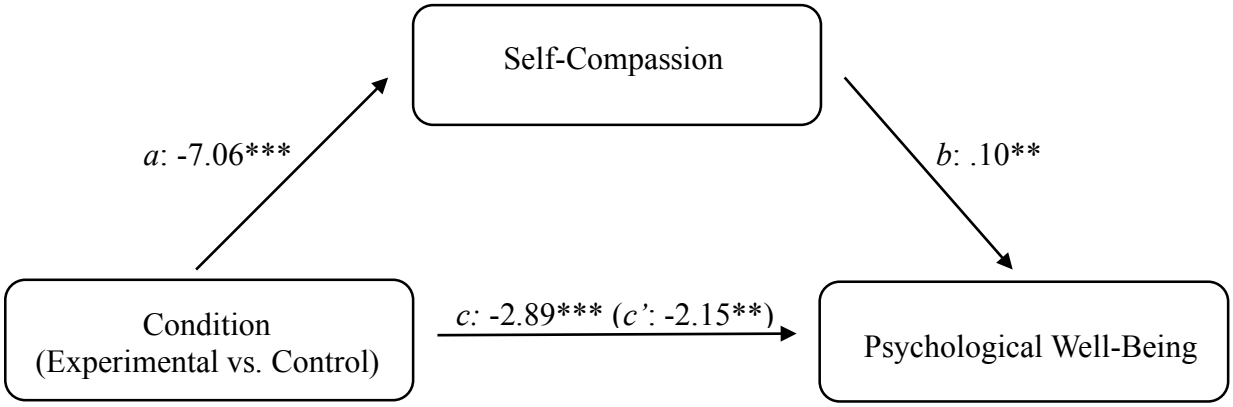


Psychological Well-Being. Condition and the amount of improvement in self-compassion were both significant predictors of psychological well-being (*c* & *b*), *t* (211) = -4.08, *p* < .001 and *t* (210) = 2.74, *p* = .007, respectively. Further, analysis found that self-compassion mediated the effect of the training on psychological well-being partially, as the total effect of condition decreased when controlling for self-compassion (*c'*), but remained significant, *t* (211) = -3.51, *p* < .001. Using the Sobel-Test, it was detected that *c* and *c'* indeed

differed from each other, and the effect of the mediation was significant, Z = -2.43, p = .015. See Figure 7 for a visual diagram of the mediation.

Figure 7. Unstandardized regression coefficients for the relationship between Condition and Psychological Well-Being, as mediated by Self-compassion.

*p < .05; **p < .01; ***p < .001



Social Well-Being. Analysis indicated that the total effect of condition on social well-being was not statistically significant, suggesting that the training did not predict the level of social well-being (*c*), *t* (211) = -1.88, *p* = .06. As the criteria needed for the presence of a mediation are not met, the hypothesis of a mediation with regard to social well-being is rejected.

Discussion

In the present study it was examined to what extent a newly developed training of self-compassion for adults with reduced well-being has influence on their well-being and whether this effect is mediated by self-compassion, by answering the research question *Does self-compassion act as a mediator of the effect of the training on well-being?*. The main aim of this study was to obtain insights in the effectiveness of a newly developed self-help training of self-compassion with regard to well-being, and to gain knowledge about the working

mechanisms of this training. It was hypothesized that, (1) after the training, the experimental group has a higher level of self-compassion than the control group. Further, it was hypothesized that (2) the experimental group has a higher level of well-being than the control group after the training. Lastly, it was hypothesized that (3) self-compassion acts as a mediator of the effect of the intervention on well-being. The results provided support for all presented hypotheses and indicated that the developed training is an effective way to improve self-compassion and well-being in the general population, and self-compassion acted as a partial mediator, suggesting that increasing self-compassion positively influences well-being.

Effect of the training on Self-Compassion and Well-Being

The results showed that participants in the experimental group, who completed the self-help training, not only scored significantly higher on self-compassion over time, but also on well-being, in comparison to the control group. These findings confirm the first two hypotheses and indicate that the intervention was successful. Though the difference was smaller than in the experimental group, the analyses further showed that participants in the control group also scored significantly higher on self-compassion in the post-test in comparison to the pre-test, without receiving the treatment. This finding might have been the result of a possible subject-expectancy effect (Supino & Borer, 2012). The participants on the waitlist might have been aware of the fact that, in the future, they will receive the self-help course and expected a positive outcome. Further, it is possible that participants on the waitlist engaged in reading and learning about self-compassion and gained knowledge about the topic, as it was the case in a study about a self-compassion training conducted by Neff and Germer (2012).

Supporting results were found in studies examining similar trainings aiming to enhance self-compassion and well-being. Leaviss and Uttley (2015) did a systematic review of the available literature regarding the therapeutic benefits of CFT, including 14 studies. The review suggested that CFT was effective in promoting self-compassion and well-being,

however, these findings should be viewed with caution, due to a lack of high-quality trials. Further, as CFT is a therapeutic program aimed to be used in the clinical setting, included studies did not use the CFT in a non-clinical population.

Beside CFT, mindfulness based trainings, such as the MBCT and the MBSR, have shown to be effective in enhancing self-compassion and well-being (Gu et al., 2015). A meta-analysis conducted by De Vibe and colleagues (2012) included 31 studies, of which 11 studies recruited people of the general population, and showed that through MBSR significant increases in self-compassion and well-being can be reached. However, these trainings focus specifically on the improvement of mindfulness, and may therefore be extended by trainings that focus on the entire concept of self-compassion (Neff & Germer, 2012)

Such a training is the Mindful Self-Compassion Program (MSC) compiled by Neff and Germer (2012). The MSC consists out of an 8-week workshop, with weekly 2-hour meetings in the evening, and has the goal to train people to be more compassionate towards themselves. As in the present study, Neff and Germer found that participants who completed the training reported a higher level of self-compassion in comparison to the control group (Neff & Germer, 2012; Neff & Germer, 2013). Furthermore, they found that increased self-compassion was significantly associated with increased well-being, with participants who completed the training reported significant increases in life-satisfaction and happiness.

Next to this, Jazairi and colleagues (2012) conducted a randomized controlled trial of the Compassion Cultivating Training (CCT). In this study, 100 participants were randomly assigned to either the 9-week CCT program, or a waitlist control condition. During the 9-week program, participants had to visit an introductory orientation, eight weekly 2-hour meetings, and had to practice compassion-focused meditation on a daily basis. The results indicated that participants who received the training showed a higher level of self-compassion than participants on the waitlist. Further, the authors suggested that the training might also have a positive influence on well-being. However, a measure of well-being was not included

in the study, wherefore a definite improvement of well-being in the experimental condition remains uncertain.

Self-Compassion as a Mediator

In line with the meta analysis by Zessin, Dickhäuser, and Garbade (2015), who found a significant overall correlation coefficient of $r = .47$ between the two constructs self-compassion and well-being, significant relations were also found in the present study, indicated by strong correlations, r (Exp.) = .48 and r (Contr.) = .41. Further, it is striking that the results did reveal a significant correlation between the difference score of self-compassion and the post-test of well-being in the experimental condition, but not in the control condition. These findings illustrate that, on the one hand, the change in self-compassion scores, thus the extent to which the participants in the experimental group improved with regard to their level of self-compassion, corresponds to improved scores of well-being in the post-test. On the other hand, participants in the control condition did not show an improvement of self-compassion scores to an extent that their well-being scores improved as well, which ultimately did not lead to a significant change in perceived well-being. This is consistent with the results of the mediator analysis, which showed that self-compassion partially mediated well-being. These findings are in line with numerous studies that found self-compassion to be a mediator of well-being in various contexts (Baer, Lykins, & Peters, 2012; Bluth & Blanton, 2014; Bluth & Blanton, 2015; Ghali, 2015; Hall, Row, Wuensch, & Godley, 2013; Homan, 2016; Neff & McGehee, 2010; Wei, Liao, Ku, & Shaffer, 2011).

Looking at self-compassion as a potential mediator of the effect of the training on the subdimensions of well-being, it was firstly found that self-compassion fully mediated the effect on emotional well-being. The strong influence that self-compassion seems to have on emotional well-being, might be explained through it's effects on the regulation of emotions. It is suggested that self-compassionate people tend to face negative thoughts and emotions

openly and without judgement. These capacities allow to cope more constructively with negative experiences and to regulate associated negative emotions in a functional manner, thus activating the soothing system while deactivating the threat and drive system, and may therefore act as a buffer against stress (Gilbert, 2005; Leary, Tate, Adams, Batts Allen, & Hancock, 2007). Self-compassion further entails a cognitive-emotional reframing that weakens the effects of negative experiences, which eventually leads to a gain in importance of positive experiences (Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008; Zessin, Dickhäuser, & Garbade, 2015).

With regard to the effect of the training on the second subdimension of well-being, psychological well-being, self-compassion was found to be a partial mediator. Neff (2003a, 2003b) proposed that self-compassion incorporates being kind towards oneself, when facing difficult times and stress. Therefore, people with a high level of self-compassion are able to handle, or even prevent self-criticism. Further, self-compassion enables people to see negative life events as part of the human experience and not to perceive failings and shortcomings as stable and internal. These competencies might explain why self-compassionate people experience a higher level of psychological well-being.

Lastly, it was suggested that self-compassion did not mediate the effect in relation to social well-being. Although self-compassion entails capacities that are related to others and society, such as to see one's own failures in the light of the general imperfection of humanity, it mostly focuses on competences that are relevant to the individual itself (Neff, 2003a). An individual's social well-being, thus how it functions within and contributes to society, might therefore not be influenced significantly by the level of self-compassion.

All in all, self-compassion seemingly incorporates critical competences that are relevant for the different forms of well-being of the individual. These competences reach from the regulation of emotions, to better coping strategies, and seeing ones own failures as human. Ultimately, through better emotional and psychological functioning induced by the training of

self-compassion, individuals may also perceived an improved well-being.

Strengths and Limitations

First of all, it has to be mentioned that the present study used a randomized controlled trial, which is seen as the most reliable form of scientific evidence, apart from systematic reviews or meta-analyses (American Psychological Association, 2006). Further, the training was based upon content of several already existing trainings (CFT, MBSR/MBCT) that have shown to be effective, and only measures with good psychometric qualities (SCS-SF, MHC-SF) have been used. Lastly, the newly developed training was a self-help training, which has several benefits in comparison to face-to-face trainings. Bolier and colleagues (2013) conducted a meta-analysis with regard to the effectiveness of positive psychological interventions and found self-help trainings to be an effective alternative to face-to-face trainings, as they are not as cost-intensive and reach larger target groups.

However, the present study only investigated the first two of four measuring moments and measured self-compassion and well-being directly after the training. Thus, the observed effects of the training need to be considered as short-term effects and may change in time. The long term effects of the training are going to be investigated in follow-up measurements. Secondly, nearly 13% of the participants did not fill in the questionnaires completely. This drop-out could have had an influence on the psychometric qualities of the study. Thirdly, the representativeness of the sample has to be questioned, as nearly two-third of the participants were female. Previous research found that gender predicts the level of self-compassion and well-being, and women tend to have slightly lower levels of both constructs (Soysa & Wilcomb, 2013; Yarnell et al., 2015). Further, the majority of the participants had received a high education, yet it remains unknown whether the educational level does have an influence on the effectiveness of the training.

Future Research

Several studies have shown that self-compassion seems to have a positive influence on well-being. However, it is not completely clear how the working mechanisms within this relation exactly function. It should be further investigated *how* self-compassion influences well-being in the framework of the training and which exercises are most beneficial. The present study focused on enhancing well-being in the general population, wherefore a non-clinical sample was used for this purpose. However, according to the two-continua model (Keyes & Westerhof, 2010), full mental health can only be reached if a high level of well-being is present on the one side, and psychopathology is absent on the other side. Therefore, it would be interesting to utilize the training in the clinical setting, and to examine the effects of the training with regard to psychopathology and well-being in the clinical population. Next to this, the data of the follow-up measures has to be investigated, in order to gain insight into the long-term effects of the training. Due to the fact that the sample of this study did not include as many male subjects, the effects of the training on men should be investigated and compared to the findings of the present study.

Conclusion and Implications

The present study investigated to what extent self-compassion influenced well-being in a newly developed training of self-compassion for adults with diminished well-being in the general population. It was found that the training was successful in enhancing self-compassion and well-being. Further, the study showed that self-compassion acted as a partial mediator and that well-being improved depending upon the improvement in self-compassion. First of all, the findings of the present study give more insight into the relation between self-compassion and well-being. Further, due to the fact that the training was delivered through a self-help book, it could be a cost-effective way to improve self-compassion and well-being in the broader public.

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