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Self-compassion and compliance with health behaviors as predictors for psychological well-being in chronic illness patients

Bachelor Thesis
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Abstract

This research aimed to expand the field of chronic illness in psychology by investigating the role of self-compassion and performing health behaviors as predictors of psychological well-being. More precisely, the first research question was "which dimensions of self-compassion are most strongly correlated with psychological well-being?" where the dimensions of one scale involved the "positive" and "negative" dimension, and the second scale involved "compassionate boundary guarding", "compassionate self-regulation", and "use of support". The second research question was "to what extent is the relation between self-compassion and psychological well-being mediated by health behaviors?". The sample consisted of participants above the age of 18 who suffer from a chronic illness. The study consisted of two questionnaires investigating the level of self-compassion (SCS-SF and SCCC), one questionnaire to assess psychological well-being (MHC-SF) and the last one to measure the frequency of performing health behaviors (WBI+). The WBI+ is an adapted form of the Well Behavior Inventory that was tailored for chronic patients for the purpose of this study. These questionnaires were completed online. The results indicated a positive correlation (SCS-SF r=0.65; SCC r=0.58) between the constructs of self-compassion and psychological well-being. For the SCS-SF the dimension that correlated the strongest with psychological well-being was the negative one and for the SCCC, the most strongly correlated dimension was compassionate self-regulation (r=0.60) .As expected, the relationship between self-compassion and psychological well being was partly mediated by health behaviours. However, this mediation effect was only found for the SCCC (B=0.80). No evidence for mediation was not found when using the SCS-SF (B=0.85). To conclude, the findings of the study can contribute to the area of clinical psychology by establishing the most relevant aspect of self-compassion and the role of performing health behaviours as contributors in achieving psychological well-being for chronic patients.

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Introduction

The World Health Organization (WHO) defines chronic illness as a long-lasting and slowly progressing disease that cannot be transmitted, where the four main types involve "cardiovascular diseases, cancers, chronic respiratory diseases and diabetes" (WHO, 2016 as cited in Bernell & Howard, 2016, p.2). Despite a lack of agreement in constructing a universally used definition, the characteristics of the disease mentioned above are the widely accepted ones. The long-lasting aspect of chronic illness suggests a constant battle and burden patients are forced to live with on a daily basis. According to research, in the United States chronic disease represents 7 out of 10 causes of death, it is present in 6 out of 10 Americans and it is the leading cause of disability (Hacker, Briss, Richardson, Wright & Petersen, 2021). Life with chronic illness takes a toll on both the physical and mental well-being of patients. They are more limited in terms of participating in certain activities, experience high levels of stress due to treatments, and social divisions, as well as from dealing with stigma and adapting previously made plans (Sawyer, Drew, Yeo & Britto, 2007). Additionally, patients are required to receive continuous medical care, monitoring and engaging in healthy behaviors, in order to maintain a healthy lifestyle, such as having dietary restrictions (Sirois & Hirsch, 2018). This raises questions as to how chronic illness patients cope with the above-mentioned stressful burdens. Especially, because it has been found that unsuccessful management of negative emotions such as stress can have a negative effect on psychological and physical well-being (Maunder & Levenstein, 2008).

When it comes to defining psychological well-being, it seems to be a surprisingly difficult task, which has been debated for a significant number of years (Ryff & Singer, 2006). However, there is a consensus about the assumption that mental health is a multidimensional construct consisting of three dimensions - emotional, psychological and social (Petrillo, Capone, Caso & Keyes, 2014). Looking further, well-being has been divided into two pathways, where in the first one, well-being is equal to happiness, referred to as "hedonic", and the second stream, "eudaimonic", defines effective functioning as the realization of human potential (Petrillo, et al., 2014). Generally speaking, mental health is improved when positive feelings are maximized, and negative ones are minimized (Keyes 2009). In the context of chronic illness patients, research indicated that they have an increased chance of suffering from psychological issues due to the burdens imposed by their condition (Edwards & Titman, 2011). Statistically, depression in chronic patients is more frequent, more severe and more difficult to treat than in a healthy

population (Ali et al., 2019). Chronic patients deal with a number of issues that can impact their psychological health that healthy people do not experience, such as an inability to carry out certain basic day-to-day activities, recurrent pain and stress (Gettings, 2010). Additionally, stress was discovered to increase the levels of "proinflammatory cytokine" which facilitates the worsening of chronic conditions, suggesting the importance of minimizing negative feelings (Breines, Thoma, Gianferante, Hanlin, Chen & Rohleder, 2014, p.110).

One factor that has been found to be effective in facilitating well-being, such as stress in chronic illness patients is the ability to treat oneself with compassion (Sirois, Molnar, & Hirsch, 2015). Neff (2003, as cited in Sirois, et al., 2015, p.2) has defined self-compassion as "a positive self-view that involves relating to oneself with kindness and acceptance in times of failure and difficulty". She identified 3 key features, being "self-kindness, common humanity and mindfulness" as the components of self-compassion. The first, implies recognizing one's suffering and using this acknowledgement as a motivating factor to alleviate the pain through kindness (Neff, 2003). The second component focuses on perceiving failure and inadequacy as part of the human experience and realizing that the individual, as well as everyone, is deserving of compassion. Lastly, "mindfulness" involves taking on a perspective that is balanced in terms of negative emotions, meaning that the individual is not entangling oneself within the negative states (Neff, 2003). Defining the concept of self-compassion has been done by several researchers, however, there has been a lack of clearly defined actions evoking self-compassion for patients with chronic conditions (Volkov, 2020).

Identifying these actions was recently accomplished by Volkov (2020), who identified 3 relevant dimensions of self-compassion in a study focused on creating a self-compassion and self-criticism measurement instrument specifically made for patients with chronic diseases. Firstly, "compassionate boundary-guarding" entails a judgment-free and patient-oriented protection of boundaries related to their condition (Volkov, 2020). Further, "use of support" involves the idea that patients use, accept and are aware of assistance practices such as medical regimes, emotional help and other types of support (Volkov, 2020). Lastly, "compassionate self-regulation" refers to "an autonomous and compassionate way of managing emotions, behaviors, and cognitions resulting from condition-related challenges" (Volkov, 2020 p.39). The statistical analysis showed that these dimensions are indeed significant in understanding self-compassion. However, there is a gap in research concerning the correlation of each separate

dimension to this construct. An investigation of this relation could shed more light on how these different dimensions relate to psychological well-being, which could help in better tailoring of care and interventions. Additionally, due to the differentiation between general and illness-specific self-compassion introduced by Neff and Volkov, the current research will also aim at determining how these concepts relate to achieving psychological well-being.

As previously mentioned, chronic illness patients are required to undergo regular medical check-ups and monitor their health (Sirois & Hirsch, 2018). Therefore, another important aspect of well-being is performing health behaviours. In the Wellness Behaviors Inventory (WBI), healthy behaviors include those that are preventive as well as the ones that help to improve health, such as healthy eating and exercising (Sirois, 2001; 2019). Furthermore, in a study conducted by Hwu, Coates & Boore (2001), chronic patients identified health behaviors that are most accurate and relevant from their perspective and experience. The established category of action focused behaviors, referred to as "physical health behaviors" involved "seeking and using the health care system, having a diet, exercising, sleep/resting/relaxing, avoiding known health risks and self-management of health" (Hwu, et al., 2001 p.634-637). Adherence to health behaviors is of the highest importance as it was found to be a significant contributor to mortality (Martin, Williams, Haskard & DiMatteo, 2005). Studies show that there is a close relation between self-compassion and performing health behaviors because it involves taking on a mindful and kind attitude towards oneself which promotes taking on health behaviors (Neff, 2003). This relationship was further confirmed by Sirois & Rowse (2016), who stated that self-compassion is a particularly important tool in helping patients with chronic conditions in self-regulation of health behaviors. Sirois, Kitner & Hirsch (2015), discovered two pathways through which self-compassion leads to psychological well-being, and one of them involves performing health behaviors, whereas the second one relates to stress. This first pathway can be explained by the role of affect, meaning that self-compassion helps in decreasing negative emotions caused by setbacks and failures, and promotes positive feelings that are needed to stay motivated in pursuing health goals (Sirois et al., 2015). Moreover, adhering to self-care behaviors is one of the dimensions of self-compassion identified by Volkov (2020), which arguably suggests and demonstrates the relevance of health behaviours in achieving psychological well-being. One study showed that remaining physically active could be associated with positive psychological well-being as well as health, and self-compassion is

beneficially related to engaging in health behaviors (Kelliher Rabon, Sirois & Hirsch, 2017). Therefore, it would be interesting to further investigate the role of the "health promoting behaviors and treatment adherence" (Volkov, 2020 p. 16) dimension from the self-compassion construct in achieving psychological well-being. Especially since it is yet uncertain how significant the role of this dimension is in the relationship between self-compassion and psychological well-being. Additionally, the research that was conducted and mentioned so far focuses on the healthy population, meaning that there is still a gap of research when it comes to chronic patients and the role that health behaviours plain in achieving psychological well-being.

To conclude, a positive relationship between self-compassion and psychological well-being has been proven by several researchers (Dunne, Sheffield & Chilcot, 2018; Costa & Pinto-Gouveia, 2013). However, there is a lack of evidence concerning individual dimensions of self-compassion and their relevance in achieving psychological well-being. Also, there is a lack of information whether illness specific self-compassion is more strongly associated with psychological well-being than general self-compassion. Furthermore, evidence in healthy populations suggests that the influence of self-compassion on mental well-being could be direct due to lower stress levels, or indirect, through improved health behaviours, which in turn promotes psychological well-being (Sirois et al., 2015). Since these pathways are not yet thoroughly researched for patients with chronic conditions, the current study aims to examine them. Accordingly, the two research questions to be answered are the following:

RQ1: Which dimensions of self-compassion are most strongly correlated with psychological well-being?

RQ2: To what extent is the relation between self-compassion and psychological well-being mediated by health behaviors?

Methods

Design

In order to measure the research questions a correlational survey design was used.

Participants & Procedure

This research was approved by the Ethical Committee of the Faculty of Behavioral, Management and Social Sciences of the University of Twente. The inclusion criteria for participants were being over the age of 18, and suffering from any type of chronic illness. The recruitment process included opportunity and convenience sampling, as the participants were contacted through a variety of pathways. These included, online forums, online support groups, researcher's personal social media accounts and support centers. The response resulted in 179 respondents, after the recruitment message was distributed to approximately 10 online support groups, and 3 support centers and clinics, where some included patients with any chronic illness and others were illness-specific.

 This research consisted of an online questionnaire created using Qualtrics. The first page consisted of a short introduction which informed the participants about the general outline of the study. The next page contained an active consent form, in which the goals and expectations of the study were described as well as personal rights and contact information, the handling of the data, ethical approval, costs and potential burdens as well as non-participation rules were described. The survey consisted of 6 validated questionnaires and a few illness-related and demographic questions. Completing the questionnaire took approximately 20-30 minutes. On the final page, the respondents were thanked for their participation and given the possibility to provide their email address in case they were interested in receiving the results of the study. The questionnaire was originally written in English and later interlangualy translated to German by other researchers in the study, therefore, both options were available.

Instruments

This study was part of an overarching study in which the following variables were measured: demographic variables, characteristics of the condition, (e.g., visibility, duration, etc.), self-compassion and self-criticism, psychological well-being and distress, social support and health behaviors. In this study, the variables of self-compassion, mental well-being, and health behaviors are included.

Personal background variables

The participants were asked several demographic questions: their age, gender, education level, and migration background. The question format consisted of a multiple choice for all the background variables.

Self-compassion

  In order to measure the concept of self-compassion, two questionnaires were used. Firstly, the Self-Compassion and Self-Criticism Scale for Patients with Chronic and Life-Threatening Conditions (SCCC) consists of answering 31 items in a self-report manner (Volkov, 2020). These items refer to action-focused statements about behaviors, emotions and cognitions in the context of chronic conditions and related experiences. Here, self-compassion contains 3 subscales with the first one being: "compassionate boundary-guarding" containing 4 items such as: *"when I felt like I reached my limit, I allowed myself to rest"*, ($\alpha = 0.83$). The second subscale, "use of support", where 7 items such as *"to take care of myself, I underwent the treatments or lifestyle changes prescribed to me"* appear ($\alpha = 0.85$). Lastly, the third subscale is "compassionate self-regulation", and it contains 16 items such as *"when I thought about my condition, I accepted that it is there, and I cannot change it"* ($\alpha = 0.89$). Participants assess the frequency of each experience described in the items for a period of the past 4 weeks, with answering options extending on a five-point Likert-scale, from "never" to "always". The items were combined into a scale through creating a mean score of scale, meaning that a higher score indicates more self-compassion. The alpha of this questionnaire measured in the study is equal to 0.93.

  To investigate both general and illness-specific dimensions of self-compassion, self-compassion was also measured by the Self-Compassion Scale-Short Form (SCS-SF). This self-report questionnaire consists of 12 items and measuring self-compassion is accomplished by investigating the frequency at which an individual responds to emotions of shortcomings with different components of self-compassion (Neff, 2015). Here, those components consist of 6 subscales, and the short-from of the questionnaire contains 2 items to represent each subscale. The following are the 6 subscales of self-compassion: (1) Self-Kindness, (2) Self-Judgement, (3) Common Humanity, (4) Isolation, (5) Mindfulness, (6) Over-Identification (Raes, et al., 2010). Accordingly, are listed item examples corresponding to the subscales: (1) *"I try to be*

understanding and patient towards those aspects of my personality I don't like", (2) *"I'm disapproving and judgmental about my own flaws and inadequacies"*, (3) *"I try to see my failings as part of the human condition"*, (4) *"When I'm feeling down, I tend to feel like most other people are probably happier than I am"*, (5) "*When something upsets me I try to keep my emotions in balance"*, (6) *"When I fail at something important to me I become consumed by feelings of inadequacy"* (Raes, et al., 2010, p. 252). Due to there being only two items per subscale, the positive (self-kindness, common humanity, mindfulness) and negative subscales (self-judgment, isolation, overidentification) were computed in order to calculate the coefficient alpha of the subscales(Muris, Otgaar & Petrocchi, 2016). The alpha of the positive was equal to 0.83 and the negative was 0.80. Items 1,4,8,9,11 and 12 were negatively worded, therefore they were reversed during the statistical analysis. The respondents indicate the frequency of those experiences on a 5-point Likert-scale, ranging from "almost never" to "almost always". Combining the items into a scale was done through creating a total score, meaning that a higher score indicates more self-compassion. The alpha of this questionnaire measured in the study is equal to 0.88.

Psychological well-being

The variable of psychological well-being is measured by the Mental Health Continuum-Short Form (MHC-SF), which is self-administered and consists of 14 items that represent the three facets of well-being: emotional, psychological and social (Lamers, Westerhof, Bohlmeijer, ten Klooster & Keyes, 2010). These facets constitute as subscales, where in the first, "emotional well-being" there are 3 items (*e.g., during the past month, how often did you feel interested in life*) ($\alpha = 0.87$). The second subscale, "psychological well-being", consists of 6 items, where one example is: *"During the past month, how often did you feel that you liked most parts of your personality"* ($\alpha = 0.85$). The third subscale, "social well-being", consists of 5 items with one of them being: *"During the past month, how often did you feel that people are basically good"* ($\alpha = 0.79$). Participants indicate the frequency of experiencing positive mental health symptoms in the past month on a Likert-scale from 1 (never) to 6 (everyday). The scale was made by combining a total score of all items, meaning that a higher score indicates more well-being. The alpha of this questionnaire measured in the study is equal to 0.92.

Health behaviors

The last variable is health behaviors, and it was measured using the Wellness Behavior Inventory (WBI) (Sirois, 2001; 2019), combined with one of the categories of behaviors created by Hwu, Coates & Boore (2001). Firstly, the WBI is a self-administered questionnaire consisting of 12 items directed at measuring the performance frequency of common health promoting behaviors. There are two domains to which health behaviors are assigned: "preventive health behaviors" and "risk taking behaviors". An example of an item in the preventive health behaviors dimension is *"I take time to relax"*. This dimension consists of 9 items and the alpha is equal to 0.58. In the risk-taking behaviors dimension items such as: *"I eat junk foods, such as crisps, chips, sweets, French fries, etc."* are present. This dimension consists of 2 items and the alpha is equal to 0.40. The items were combined into a scale by making a mean score, meaning that a higher score indicates performing more health behaviors. The alpha for this scale was equal to 0.59. On top of the items in this questionnaire, four more behaviors were added. They were suggested by chronic illness patients in the study by Hwu, et al., (2001), which proves their relevance to the context of this research. Hwu, et al., (2001) created two dimensions as part of the "physical health behaviors" category, being "avoiding known health risks" and "self-management of health". These two dimensions are closely related to the already existing dimensions of the WBI, therefore 4 items were added to them. In the "preventive health behaviors" the specific added behaviors are: *"I take the prescribed medication", "I monitor my illness"*. The second dimension ("risk taking behaviors") consists of: *"I drank alcohol", "I smoke"*. Therefore, the final revised version of the WBI+ questionnaire consists of 16 items. With the added items, the alpha for the "preventive health behaviors" subscale was 0.63, and for the "risk taking behaviors", it was equal to 0.40. Items 3,10,12, and 13 were negatively worded, therefore they were reversed during the statistical analysis. The measurement of the scale is done with a 5-point Likert scale, where 1 is equal to "less than once a week or never" and 5 is "every day of the week". The performance of health behaviors is measured over the past three months. Similarly, to the WBI, these additional items were combined with a mean score. The alpha of this questionnaire measured in the study is equal to 0.67, after excluding item number 9, which is "I take vitamins". The full version of the questionnaire can be found in the Appendix.

Data analysis

The data was measured using the statistical program SPSS Statistics with the PROCESS extension used for the mediation. The analysis conducted for this research aimed to explore the relationship between the dimensions of self-compassion and psychological well-being. Additionally, the role of health behaviors was introduced into this relationship to measure its mediation effect. Descriptive statistics were measured for the key variables in the study to identify central tendencies. Moreover, the internal consistency was measured to receive the reliability coefficient of the used questionnaires.

In order to answer which dimensions of self-compassion are most strongly correlated with psychological well-being, a correlation analysis was conducted. Pearson's correlation was used, because it shows the strength and direction of the relationship between continuous variables. Each dimension of self-compassion was correlated to psychological well-being, in order to see the correlation coefficient (r). Depending on the r value (from -1 to +1), the strength of the correlation was determined, and the strength of all the dimensions was compared. In order to answer to what extent, the relation between self-compassion and psychological well-being is mediated by health behaviors a mediation analysis was conducted. It consisted of exploring the total effect between self-compassion and psychological well-being (c), and the direct effect (c') which includes the effect of the health behaviours as a mediator. The change in the c parameter after adjusting it with the mediator, c', indicates how much of the relation between self-compassion and psychological well-being is explained by the mediator. Additionally, the indirect effect (ab) was measured in order to check for the significance of the mediation using bootstrapping.

Results

Sample characteristics

A significant majority of participants who volunteered their time for the study were female (see Table 1). Most of the participants achieved a high level of education and were born and raised in Germany or the Netherlands. The sample consisted of people suffering from a chronic condition, and the most common one was Rheumatoid arthritis (see Table 2). Most participants were diagnosed between 1 and 5 years ago and reported to be taking medication or other forms of treatment. Most common description of the condition characteristic was that it is recurrent, not

visible, and most of the time limiting in social and physical functioning. The average health related quality of life was claimed to be average with substantial variation.

Table 1.

Demographic variables (n=179)

Item	n	%	M	SD
Gender				
Female	149	83.2		
Male	30	16.8		
Age			46.2	12.3
Migration background				
Western	25	14.0		
Non-Western	5	2.8		
No, Germany/Netherlands	138	77.1		
Prefer not to say	11	6.2		
Education level				
High	66	36.9		
Mediate	27	15.1		
Low	23	12.8		
No formal education	1	0.6		
Prefer not to say	4	2.2		

Table 2.

Overview of characteristics related to the chronic condition (n= 179).

Item	Category	n	%	M	SD
Type of condition	Rheumatoid arthritis	47	26.6		
	Breast cancer	39	28.2		
	Polyarthritis	17	10.2		
	Psoriasis arthritis	10	6		
	Asthma	4	2.4		
	Other	62	26.6		
Time since diagnosis				3.3	1.2
	Less than 6 months ago (1)	18	10.1		
	Less than 1 year ago (2)	22	12.3		
	Between 1-5 years (3)	61	34.1		
	Between 5-10 years (4)	39	21.8		
	More than 10 years ago (5)	39	21.8		
Current treatment				1.3	0.7
	Medication or other medical treatment (1)	140	78.2		
	Prescribed lifestyle restrictions (2)	20	11.2		
	None (3)	19	10.6		
Health related quality of life	0-100			63.8	17.5
Condition is					
	Recurrent (1)	88	49.2		
	Stable (2)	48	26.8		
	Progressive (3)	43	24		
				1.7	0.7
	Not visible	87	48.6		
	Visible under certain circumstances	63	35.2		
	Always visible	29	16.2		
Limitations in social functioning				1.7	0.7
	Not at all (1)	72	40.2		
	A lot (2)	86	48		
	All the time (3)	21	11.7		
Limitations in physical functioning				2.1	0.6
	Not at all (1)	31	17.4		
	A lot (2)	106	59.6		
	All the time (3)	41	23		

Description of key variables in the study

In the WBI+, the health behavior that was most frequently performed was "I took the prescribed medication", and the least frequent one was "I ate healthy, well-balanced meals' (see Table 3)'. Also, this was the only questionnaire where the answers were distributed amongst all answering options. When comparing the mean scores of the two self-compassion measuring tools, the participants scored higher on the SCCC. For the SCS-SF the 6 subscales were computed into 2, in order to increase reliability Lastly, the overall score of the sample on the MHC-SF was rather high.

Table 3.

Information on key variables in the study (n=179).

Variable	Minimum	Maximum	M	(SD)
Health behaviors (WBI+) [1-5]			3.6	0.6
(1) I ate breakfast	1.0	5.0	4.0	1.4
(2) I got a good night's sleep, for example, uninterrupted restful sleep	1.0	5.0	3.1	1.4
(3) I drank 3 or more caffeinated beverages, such as coffee or colas	1.0	5.0	3.1	1.7
(4) I am moderately active for at least 2,5 hours a week (e.g., cycling, walking, doing household chores)	1.0	5.0	2.2	1.2
(5) I ate at least 3 meals a day	1.0	5.0	3.6	1.3
(6) I took time to relax	1.0	5.0	3.2	1.4
(7) I ate fresh fruits and/or vegetables	1.0	5.0	4.0	1.0
(8) I walked as much as possible, for example, I took the stairs, not the lift, etc.	1.0	5.0	3.7	1.2
(9) Deleted item (I took vitamins)	-	-	-	-
(10) I ate junk foods, such as crisps, chips, sweets, French fries, etc.	1.0	5.0	4.0	1.1
(11) I ate healthy, well-balanced meal	1.0	5.0	2.1	0.9
(12) I drank alcohol	1.0	5.0	4.5	0.9
(13) I smoked	1.0	5.0	4.0	1.7
(14) I took the prescribed medication	1.0	5.0	4.7	1.0
(15) I monitored my illness	1.0	5.0	3.7	1.2
Self-compassion (SCCC)			3.4	0.6
Compassionate boundary guarding [1-5]	1.0	5.0	3.1	0.9
Compassionate self-regulation [1-5]	1.7	4.9	3.4	0.6
Use of support [1-5]	1.6	4.8	3.5	0.7
Self-compassion (SCS-SF)			3.1	0.8
Positive* [1-5]	1.0	3.2	3.2	0.8
Negative**[1-5]	1.2	3.1	3.0	0.8
Mental health (MHC-SF)			3.6	1.0
Emotional well-being [1-6]	1.0	6.0	4.1	1.1
Psychological well-being [1-6]	1.0	5.6	3.1	1.1
Social well-being [1-6]	1.0	6.0	4.0	1.1

* Positive subscale contains 3 positively worded subscales in the SCS-SF (self-kindness, mindfulness, common humanity)
** Negative subscale contains 3 negatively worded subscales in the SCS-SF (over-identification, isolation, self-judgment)

RQ1: Which dimensions of self-compassion are most strongly correlated with psychological well-being?

Self-compassion (SCCC and SCS-SF) was correlated with mental well-being (MHC-SF), using Pearon's two-tailed correlation (see Table 4). The correlations for all scales and subscales were positive and significant ($p<0.01$). When comparing the two scales of self-compassion, the SCS-SF was more strongly correlated with MHC-SF, however, the SCCC also showed strong results. When exploring which dimensions of self-compassion correlate the strongest with mental well-being, the answer is "compassionate self-regulation" (SCCC), and the "negative" scale of SCS-SF. In both relations, the scores for mental well-being and psychological well-being were equal.

Table 4.

Pearson's correlation (r) between self-compassion (SCCC and SCS-SF) and mental well-being (MHC-SF) (n=179).

|	Mental well-being (MHC-SF)	Emotional well-being	Psychological well-being	Social well-being
Self-compassion (SCCC)	**0.58**	0.56	0.54	0.50
Compassionate boundary guarding	0.30	0.26	0.31	0.25
Compassionate self-regulation	**0.60**	**0.60**	**0.60**	0.52
Use of support	0.46	0.45	0.40	0.42
Self-compassion (SCS-SF)	**0.65**	0.59	0.62	0.57
SCS Positive	0.59	0.54	0.56	0.50
SCSNegative	**0.60**	0.53	**0.60**	0.52

RQ2: To what extent is the relation between self-compassion and psychological well-being mediated by health behaviors?

A mediation regression was conducted to investigate the role of performing health behaviors, in the relationship between self-compassion (IV) and psychological well-being (DV). The

mediation was conducted twice, one for each scale measuring self-compassion (SCS-SF and SCCC). The first analysis, that used the SCS-SF measure, the path from self-compassion to health behaviors (WBI+), was significant (B=6.25, *p*<.001) (see Figure 1). However, the path between health behaviours and mental well-being was not statistically significant (B=0.01, *p*=.164). The total effect (c) between self-compassion and mental health, was also statistically significant (B=0.933, *p*<.001). Further, the direct effect (c'), which included the mediating variable (WBI+) also proved to be significant (B=0.85, *p*<.001). Lastly, the indirect effect (c-c') was not significant, ab=0.08, 95%-CI[-0.03, 0.21]. These results indicate the absence of a partial mediation.

Figure 1.

The mediation regression of self-compassion (SCS-SF), psychological well-being (MHC-SF) and health behaviors (WBI+) (n=169).
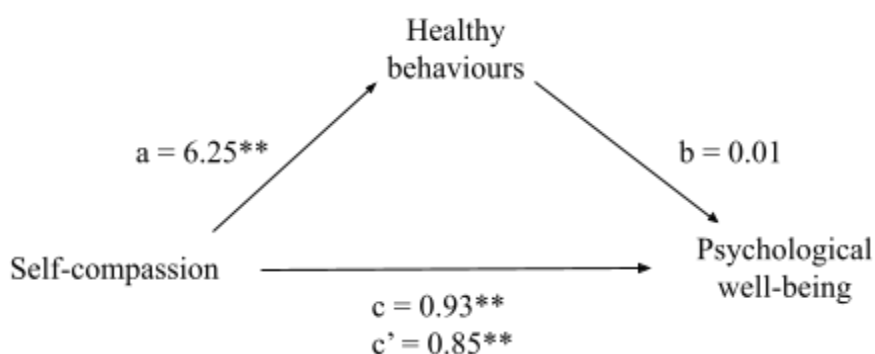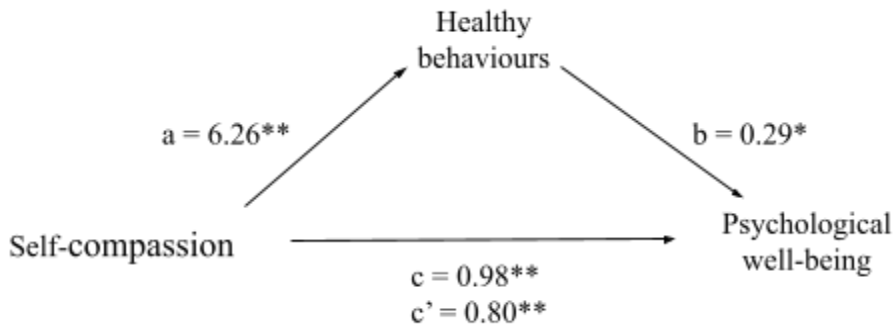

Note. *p<0.05, **p<0.001

The second analysis using the SCCC measure, the path from self-compassion to health behaviors (WBI+), was statistically significant (B=6.26, *p*<.001), as well as the path from health behaviours to mental health (B=0.29, *p*<.05) (see Figure 2). Further, the total effect (c), proved to be significant (B=0.98, *p*<.001), as well as the direct effect (c') (B=0.80, *p*<.001). Lastly, the

indirect effect (c-c'), also proved to be statistically significant, ab=0.18, 95%-IC[0.07, 0.33]. These results indicate the presence of a partial mediation.

Figure 2.

The mediation regression of self-compassion (SCCC), psychological well-being (MHC-SF) and health behaviors (WBI+) (n=169).

Note. *p<0.05, **p<0.001

Discussion

This study investigated the dimensions of self-compassion (SC) and compliance with health behaviors as predictors for psychological well-being in chronic illness patients. Two measuring tools of self-compassion were used, where one (SCS-SF) measures general self-compassion and the second (SCCC) assesses illness-specific self-compassion. When using the first scale (SCS-SF), the negative dimension correlated more strongly with psychological well-being than the positive one.

This finding is surprising and contradicts previous research that states that the negative dimension is known to produce augmented correlations with psychopathology by introducing toxic mechanisms that are not in line with the true nature of self-compassion (Muris, 2015). Meaning, that the positive dimension should be more strongly correlated with self-compassion, as it represents the essence of SC. On the other hand, previous research also states that the negative dimensions do often correlate more with well-being and distress which supports the findings of this study (Muris et al., 2016). This discrepancy is known to raise questions about the

validity of the SCS scale. One possible explanation of the results from this study is that the sample of this study consisted of chronic illness patients, who are known to struggle with mental issues, such as depression and anxiety (Ali et al., 2019). Which could explain why they scored higher on the negative dimension than a healthy population would. This claim is supported by the participants' score on their quality of life, which was average. However, it should be noted that in the current study, the difference in strengths of the correlations between the positive and negative dimension is minimal. This could suggest that the difference arises from a statistical error, caused by the merging of the negative and positive items into two overarching dimensions, rather than a conceptual error. The merging process was done to increase the internal consistency of the dimensions, however, it could have impacted the results. Therefore, future research should use the full version of the SCS-SF, and thereby avoid the merging process.

When using the second, illness-specific measuring tool of self-compassion (SCCC), the dimension that correlated the strongest with SC was compassionate self-regulation. This dimension is not part of the three core dimensions of self-compassion introduced by Neff (2003), however, in the research interviews conducted by Volkov (2020) emotional regulation showed to be a significant aspect in self-compassion for chronic illness patients. The reason for this is that it helps with adopting new strategies in dealing with threat-based emotions that can surface in difficult circumstances related to medical situations (Austin, Drossaert, Schroevers, Sanderman, Kirby & Bohlmeijer, 2020). This finding is in line with previous research that was done when constructing the scale, as Volkov (2020) correlated each of the SC scales with psychological well-being, and compassionate self-regulation had the strongest results. Considering that the SCCC is a newly developed scale, the amount of previous research is limited. However, based on the evidence gathered so far, implications can be made for the clinical area of psychology. Generally speaking, there is still limited knowledge about the ways in which chronic patients are and can be self-compassionate. However, based on this research, as well as Volkov's findings, counselling approaches can introduce and focus on promoting emotional and compassionate self-regulation for their patients. It can be achieved through the teaching of strategies that help chronic patients in dealing with anxiety and anger. To conclude, all the dimensions in the SCCC have an effect in achieving psychological well-being and should be included in therapy, however, a specific emphasis on promoting compassionate self-regulation can prove to be especially effective.

A mediation analysis was conducted to further explore the relationship between self-compassion and psychological well-being by adding another variable to the equation, being health behaviours. To begin with, the relationship between SC and psychological well-being proved to be in line with previous research, meaning that in both SCS-SF and SCCC the relationship was positive and significant (Sirois et al., 2015; Dunne et al., 2018; Costa & Pinto-Gouveia, 2013). The effect was stronger when the SCCC measuring tool was used, which could be explained by the fact that the sample consisted of chronic patients for which this scale was especially designed for. When considering the analysis which included the SCS-SF the results show that health behaviours did not have a mediation effect. This is in line with another finding in this study, which showed that the relationship between health behaviours and SC was not significant. This result is surprising and contradicting of previous research conducted by Sirois et al., (2015), who discovered that one of the pathways through which self-compassion leads to psychological well-being is one that involves performing health behaviours. As much as this was not supported in the case of SCS-SF, the mediation analysis that included the SCCC measure did show a partial mediation effect. A possible explanation for the different results between the two measures of self-compassion is that the SCCC is tailored to chronic illness patients, and contains items that explicitly relate to the performance of self-care behaviors, which in the case of chronic patients are health care behaviours (Volkov, 2020). Additionally, the healthy behavior that was most frequently performed by the sample was taking the prescribed medication, which is a crucial aspect when dealing with an illness (Martin, Williams, Haskard & DiMatteo, 2005). Even though the mediation is only partial, illness-specific compassion is still shown to be relevant. This finding could suggest that health behaviors are an expression of illness-specific self-compassion. The role of performing health behaviours for chronic patients has been proven by a number of researchers, who state its importance in achieving psychological well-being through reducing stress and anxiety, as well as increasing a kind attitude towards oneself (Neff, 2003). Being self-compassionate also involves self-regulation which further promotes performing health behaviours (Sirois & Rowse, 2016). Based on this evidence, as well as the different results between the two scales, it can be said that when achieving psychological well-being, through illness-specific self-compassion performing health behaviors seems to be a relevant aspect for chronic illness patients. This finding can also be used as an implication for the counseling area of psychology. Informing patients about the importance of staying physically

active, taking prescribed medication and monitoring one's illness, in achieving psychological well-being could come as a surprise. It might be something that they are not yet aware of and could potentially be beneficial for them. This suggestion could be combined with already existing approaches such as in cognitive behavioural therapies and self-management interventions (Newman, Steed & Mulligan, 2004). However, future research should still investigate the relationship between self-compassion, health behaviours and psychological well-being.

Limitations

There are a few potential limitations that might have influenced the results of this study. Firstly, the sample was overrepresented by female participants, which takes away from the point of social research that aims to conduct investigations using the differences in people (Dickinson, Adelson & Owen, 2012). Meaning that, men differ from women and having a much smaller number of men in the study could change the final results. Previous research states that there are reasons to believe that women are more likely to lack self-compassion than men (Yarnell, Stafford, Neff, Reilly, Knox & Mullarkey, 2015). Secondly, in order to measure self-compassion, the short version of the SCS was used. This was done because the online data collection included the measuring tools of another overarching study, therefore, the overall length of the study had to be shared between 4 researchers. In the future, in an individual study, the full version of the questionnaire should be presented to the participants, as it is more detailed and can yield more accurate results. Another limitation relates to the older age of some of the participants. Due to the questionnaire being online, they struggled with filling it out on their own, which forced them to have someone to do it with them, which in turn could have influenced the way they answered, for example, through the presence of social response bias.

Conclusion

In conclusion, this study shed more light into the field of psychological research focusing on chronic illness. To begin with, it was confirmed that there is a positive correlation between the constructs of self-compassion and psychological well-being. Further, it was found that in the

SCS-SF the negative dimension correlated more strongly with psychological well-being than the positive one. In the SCCC the most strongly correlated dimension was compassionate self-regulation. Moreover, another modification was added to the relationship between self-compassion and psychological well-being. Performing health behaviors was introduced as a mediator to examine its role in the relationship. It was found that when the SCS-SF was used as a measuring tool for self-compassion, the mediation effect was insignificant. However, when using the SCCC there was a partial mediation effect, suggesting that the presence of health behaviors was only relevant when the aspect of chronic illness was at play. Overall, this research was both exploratory and confirmatory, which led to new as well as expanded findings. A specific recommendation that can be made for future research is to further examine if the compassionate self-regulation dimension is indeed the most strongly correlated with psychological well-being. If the results are confirmed, it could be an important finding for the field of clinical psychology, due to its potential effect in increasing psychological well-being for chronic patients. Further, there has been an inconsistency in the role and importance of health behaviours in achieving psychological well-being. Therefore, this relationship should be explored further as it could also be influential in the area of clinical psychology.

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