Development and First Validation of a Self-Compassion and Self-Criticism Scale for Patients with Chronic and Life-Threatening Physical Conditions

Master Thesis

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Abstract

Background: The negative influence of self-criticism and positive impact of self-compassion on mental and physical health have been established in research. However, no comprehensive theoretical frameworks and validated measures of self-compassion and self-criticism in the context of facing a chronic or life-threatening physical condition exist yet. It is important to know the various ways in which patients are self-critical and self-compassionate to extend research about maladaptive responses and adaptive coping strategies and to facilitate intervention development and clinical practice. ***Aim:*** The present study aimed at developing and validating a questionnaire for self-compassion and self-criticism for patients with chronic and life-threatening physical conditions. ***Method:*** Based on a literature review and analysis of interviews with cancer patients about self-criticism, a theoretical framework was established. Items and scales were developed in iterative rounds. To validate the scales, a cross-sectional online survey was conducted in a sample of patients with various chronic and life-threatening physical conditions (n = 285). Next to the newly developed scales, the MHC-SF, PHQ-9, SCS-SF, and CERQ Self-Blame Subscale were used. The factorial structures of the scales were investigated through exploratory factor analysis. Convergent and divergent validity were examined through Pearson regressions. Multiple regression analyses were used to investigate added variance by the new scales in explaining mental wellbeing (MHC-SF) and depression (PHQ-9). ***Results:*** The Self-Compassion and Self-Criticism Scale for Patients with Chronic and Life-Threatening Physical Conditions (SCCC) was developed. The SCCC-Compassion consists of the subscales Compassionate Self-Regulation (16 items), Use of Support (7 items), and Compassionate Boundary-Guarding (4 items). The SCCC-Criticism includes the subscales Harshness (9 items), Guilt (5 items), Self-Critical Cognitions (4 items), and Shame (9 items). Analysis indicated adequate construct validity and internal consistency reliability. Cronbach's alpha values ranged from .77 to .86 for SCCC-Compassion subscales and from .71 to .91 for SCCC-Criticism subscales. Significant correlations were found between the SCCC-Compassion and the MHC-SF (r = .51) and SCS-SF (r = .46) and the PHQ-9 (r = -.33). The SCCC-Criticism correlated with the SCS-SF (r = -.57), MHC-SF (r = -.42) and PHQ-9 (r = .59). The SCCC added to explanations of positive mental health and depression beyond the influence of established general measures of self-criticism and self-compassion. ***Conclusion:*** The study suggests that the SCCC is a psychometrically sound and theoretically valid measure of condition-related self-compassion and self-criticism. The scales can be applied in research, intervention development and evaluation, and clinical practice with patients with chronic conditions.

Table of Contents

Introduction

Chronic physical conditions are defined as conditions with a minimum duration of 6 months that produce a pattern of recurrence or deterioration, have a poor prognosis, and cause consequences impacting the patient's quality of life (O'Halloran, Miller, & Britt, 2004). Chronic conditions may affect a person's functioning, require long-term treatment, and cause progressive physical disability and pain (de Ridder, Geenen, Kuijer, & van Middendorp, 2008). Dealing with chronic conditions leads to an array of challenges that can strain patients not only physically but also psychologically. This includes acute stressors such as receiving a diagnosis, undergoing medical treatment, experiencing a deterioration of the condition, and enduring symptoms (Dekker & de Groot, 2018). Next to that, chronic conditions can cause ongoing stressors such as uncertainty about the future and threats to autonomy, self-image, and social relationships (Dekker & de Groot, 2018). Due to these adversities, patients frequently experience psychopathological symptoms such as depression and anxiety (Pinto-Gouveia, Duaerte, Matos, & Fráguas, 2014; Revenson & Hoyt, 2016). On top of these challenges, patients are often very harsh and critical towards themselves, which constitutes an additional burden threatening their well-being.

Self-Criticism

Self-criticism is an experience that patients frequently encounter in relation to their condition (Pinto-Gouveia et al., 2014). It entails perceiving the self as defective or inferior, as well as an internal attribution of responsibility for flaws and setbacks (Trindade, Irons, Ferreira, Portela, & Pinto-Gouveia, 2019). This negative self-directed attitude may further involve feelings of hostility, inadequacy, and shame (Gilbert & Procter, 2006). In addition, it is associated with feelings of isolation related to one's suffering, and an over-identification with negative affect during difficult times (Neff, 2003a). In both clinical and non-clinical populations, self-criticism constitutes a transdiagnostic symptom and a vulnerability factor to a wide range of mental disorders, specifically eating disorders, depression, social anxiety, personality disorders, and psychotic symptoms (Werner, Tibubos, Rohrmann, & Reiss, 2019). In patients with chronic conditions, self-criticism and self-directed feelings of inadequacy can negatively affect physical health, as they are associated with symptoms of depression, which can further exacerbate the condition through the negative effect on coping and treatment adherence (Pinto-Gouveia et al., 2014; Revenson & Hoyt, 2016; Trindade et al., 2019).

Despite these negative consequences of self-criticism on mental and physical health outcomes, research about the phenomenology of self-criticism in patients with chronic or life-

threatening conditions is scarce. Existing generic instruments measuring self-criticism such as the Functions of Self-Criticizing Scale (Baião, Gilbert, McEwan, & Carvalho, 2015) lack specific aspects of self-criticism in the context of the condition. Studies that did address self-criticism in the context of living with a chronic condition have only investigated few specific concepts of self-criticism, such as self-blame (Callebaut, Molyneux, & Alexander, 2017) and shame (Trindade, Ferreira, & Pinto-Gouveia, 2017). To our knowledge, no studies have examined the different dimensions and behavioral manifestations of illness-related self-criticism, and no comprehensive instrument exists for measuring self-criticism in patients with chronic conditions.

The development of a theoretical foundation and psychometrically sound measuring instrument of condition-related self-criticism seems important as it can benefit both research and practice in several ways. First, it can serve as a basis for further research about self-criticism in patients with different (types of) chronic conditions. Second, it can constitute a theoretical foundation for intervention development targeting self-criticism in patients with chronic conditions, and facilitate intervention evaluation by serving as a baseline, process, and outcome measure. Third, an instrument measuring self-criticism related to chronic conditions can be beneficial in clinical practice with patients with comorbid physical and mental health conditions. Comprehensive insight into patients' self-criticism in relation to their condition can help tackle maladaptive cognitions and establish adaptive coping strategies instead.

Self-Compassion

To face the aforementioned challenges, stressors, and self-critical thoughts resulting from a chronic condition, patients are known to adopt various coping strategies. Resources such as self-efficacy, emotional processing, and healthy behaviors (e.g. exercise) are associated with improved physical functioning and successful psychological adjustment (Dekker & de Groot, 2018; de Ridder et al., 2008). A specific adaptive way of coping with difficulties is self-compassion, which is defined as the kind and non-judgmental understanding of one's own pain with a wish to relieve the suffering (Neff, 2003a). Self-compassion entails three main dimensions: self-kindness (versus self-judgment), common humanity (versus isolation), and mindfulness (versus over-identification) (Neff, 2003a). The former involves treating oneself with kindness, gentleness, and understanding as opposed to engaging in self-judgment and self-criticism for one's pain and inadequacies. Common humanity pertains to perceiving one's experiences as a part of being human, thus increasing feelings of interconnectedness.

Lastly, mindfulness includes approaching one's experiences with a balanced and aware perspective instead of over-identifying or dissociating with them (Neff, 2003a).

Self-compassion is an important factor in helping patients deal with adversities, including physical conditions. It has been shown to increase resilience and protect against symptoms of psychopathology connected to chronic conditions (Neff, Kirkpatrick, & Rude, 2007; Pinto-Gouveia et al., 2014). Self-compassion facilitates adaptive coping skills and emotion regulation, both of which are crucial in medical contexts: the former promotes effective self-regulation and health-prone behaviors, while the latter reduces negative affect (Pinto-Gouveia et al., 2014; Terry & Leary, 2007). Furthermore, it predicts positive psychological strengths such as happiness, optimism, personal growth, and understanding of oneself and others (Neff, Kirkpatrick, & Rude, 2007; Neff, Rude, & Kirkpatrick, 2007). Conversely, self-compassion is negatively associated with anxiety, depression, rumination, thought suppression, and self-criticism (Neff, Kirkpatrick, & Rude, 2007; Neff, Rude, & Kirkpatrick, 2007).

While the positive effect of self-compassion on mental well-being in the context of chronic conditions has been established in previous research, little is known about in what ways people with chronic conditions are self-compassionate. This is because previous studies only used general instruments for measuring self-compassion, for example, the Self-Compassion Scale (Neff, 2016). However, generic measures lack the manifestation of self-compassion into health-related behaviors and cognitions, such as adopting health-promoting behaviors and maintaining a positive self-dialogue when confronted with condition-related difficulties. This lack of consideration of health-related factors can give an incomplete estimation of patients' self-compassion and coping with their condition.

Insight into the operationalization of self-compassion in the context of chronic conditions is crucial since it contributes to the theoretical foundation of both self-compassion amongst different groups and adaptive coping strategies in light of condition-related difficulties. The development of a psychometrically sound measuring instrument for self-compassion in patients with chronic conditions can benefit intervention development by indicating relevant intervention elements and serving as an evaluation tool. In addition, such a measure can be applied as an assessment tool of specific mental health aspects in clinical practice with chronic condition patients. Lastly, it can facilitate further research about self-compassion amongst patients with chronic conditions, as well as differences between various (types of) conditions.

The present study

The purpose of the present study is the development and first validation of a questionnaire for self-compassion and self-criticism for patients with chronic and life-threatening physical conditions. The research questions are as follows:

RQ1: Which dimensions of self-criticism and self-compassion can be distinguished in the context of facing a chronic physical or life-threatening condition?

RQ2: To what extent can these dimensions be translated into a reliable and valid questionnaire to measure self-criticism and self-compassion?

Method

To develop and validate a scale for self-compassion and self-criticism for patients with chronic and life-threatening physical conditions, the present study entailed three parts. The first part consisted of a rapid literature review and analysis of interviews with cancer patients, to establish the dimensions of self-criticism and self-compassion in the context of facing a chronic physical or life-threatening condition (in line with Research Question 1). The second part involved the development of questionnaire items, carried out through an iterative approach with the research group. The third part was composed of the first validation of the scales in a sample of patients with chronic physical and life-threatening conditions (in line with Research Question 2).

Part 1 -Literature Review and Analysis of Interviews

The dimensions of self-criticism and self-compassion in the context of facing a chronic or life-threatening physical condition were established through (1) a rapid literature review (Ganann, Ciliska, & Thomas, 2010) and (2) analysis of qualitative data from interviews with cancer patients about self-compassion and self-criticism related to their condition.

The rapid literature review was carried out between the 17th of February 2020 and the 10th of April 2020 through search on Google scholar and Scopus, as well as snowballing. Selection criteria focused on articles that included populations of patients with chronic or life-threatening physical conditions, described self-compassion or self-criticism in the context of facing chronic or life-threatening physical conditions, and operationalized dimensions and

subdimensions of self-criticism or self-compassion. Keywords used on google scholar and Scopus included *'self-criticism', 'self-critique', 'self-compassion', 'chronic illness', 'chronic disease', 'chronic condition',* and *'cancer'.* In addition, snowballing was used to find relevant literature. Aspects that were identified in the literature as subdimensions of self-compassion and self-criticism (e.g. acceptance, shame) were further researched through snowballing and new literature searches with the respective subdimension and *'chronic condition', 'chronic disease',* or *'chronic illness'* as keywords.

Next to the rapid literature review, 17 interviews with cancer patients about self-compassion and self-criticism were analyzed. The interviews were conducted in a qualitative study about the experience of self-compassion and self-criticism amongst cancer patients (Austin, Drossaert, Schroevers, Sanderman, & Bohlmeijer, n.d.). In the study, participants were first asked to do eight reflective and meditative exercises to become acquainted with the concept of self-compassion. After that, semi-structured interviews were conducted to investigate the ways in which participants are self-critical and self-compassionate. All interviews lasted between 30 minutes and 90 minutes and were transcribed verbatim.

The final theoretical framework was established through iterative search strategies and integration of dimensions found in the literature review and interviews. Aspects found in the interviews were taken up in the literature search, and subdimensions mentioned in articles were extracted.

Part 2- Item Development

Items were generated based on the theoretical dimensions resulting from Part 1. Each dimension was divided into various aspects (e.g. 'acceptance' was divided into acceptance of the condition and acceptance of limitations). The development approach was executed in line with the guidelines for developing, translating, and validating questionnaires in medical fields (Tsang, Royse, & Terkawi, 2017). For each sub aspect, at least 3 items were developed. In addition, items from already validated, generic scales related to concepts of the framework (e.g. guilt, shame) were included in the initial item collection and adapted to the context of chronic conditions (see Appendix). The initial pool of items was independently reviewed and sorted into subscales by the members of the research team (NV, JA, and SD), and differences were solved by discussion until consensus was reached. In an iterative process, this was repeated several times and resulted in 8 subscales (31 items) for self-compassion and 4 subscales (27 items) for self-criticism. All items were phrased as statements or questions referring to behaviors, thoughts, and feelings experienced in the past 4 weeks, to be rated by

frequency on a Likert scale from 1 *(Never)* to 5 *(Always)*. Lastly, similar items were grouped and preceded by introductory sentences *(e.g. 'When I was having a hard time with my condition, … a) … I gave myself the caring and tenderness I needed b) … I reminded myself of what is important in life').* Items were translated into German and backward into English to ensure the items still represented the meaning of the original questionnaire.

Lastly, a pretest using the think-aloud method was conducted with a sample of 4 participants with chronic physical conditions. Participants were asked to fill in the questionnaire while verbalizing their thinking processes when reading each question. The pretest revealed no major issues and resulted in some minor final adaptations regarding the wording of some items.

The complete questionnaire including subscales and scoring key can be found in the Appendix.

Part 3 - Validation study

Design and Procedure

The first validation study employed a quantitative cross-sectional online survey design. Ethical approval was obtained by the Ethics committee of the Behavioral, Management and Social Sciences (BMS) Department of the University of Twente.

The survey was administered online via Qualtrics, a software for constructing online surveys and collecting and analyzing data. Upon opening the link, participants were presented with information about the study, details of participation, and their right to withdraw. It was explained how data would be managed, i.e. stored on a secure server of the UT after deleting all personal data (e.g. IP-address) and only used for scientific analyses and/or presentations. Participants were also informed about the possibility to receive a summary of the study results by indicating their e-mail address, which would be handled confidentially. Lastly, participants were presented with an informed consent form indicating they understood the nature and purpose of the study and their participation, as well as the way their data would be handled. After confirming their informed consent, participants were asked to fill in the self-report measures described below. The survey ended with a message of gratitude and another provision of the researchers' contact information.

Participants

Data were collected from the 4th of May 2020 until the 18th of May 2020. Participants were German patients with chronic or life-threatening physical conditions, recruited through

snowball sampling from the researchers' personal networks, as well as through various patient self-help groups on social media. Administrators from 60 groups were contacted with the request to share the study in the groups; 10 administrators permitted sharing the study.

Inclusion criteria were a minimum age of 18 years, the diagnosis of at least one chronic or life-threatening physical condition, and access to a mobile device or computer with an internet connection. The exclusion criterion was the diagnosis of only a chronic mental condition (e.g. depression). A total of 362 respondents began the study; 77 respondents terminated participation early, resulting in a final sample of 285 participants with various chronic and life-threatening physical conditions.

Instruments

To conduct a first validation of the scale for self-compassion and self-criticism amongst patients with chronic and life-threatening physical conditions, several instruments were included in the online survey. Participants were asked to fill in the newly developed scale named Self-Compassion and Self-Criticism Scale for Patients with Chronic and Life-Threatening Conditions (SCCC) with the scales SCCC-Compassion and SCCC-Criticisms, as well as some personal and condition-related characteristics. To assess convergent and divergent validity, the German adaptations of the Self-Compassion Scale-Short Form (SCS-SF), the Patient Health Questionnaire (PHQ-9), the Mental Health Continuum-Short Form (MHC-SF), and the Cognitive Emotion Regulation Questionnaire (CERQ) Self-Blame subscale were used.

Self-Compassion Scale-Short Form (SCS-SF). The Self-Compassion Scale-Short Form (SCS-SF) is a 12-item version of the Self-Compassion Scale (SCS) measuring 6 components of self-compassion (self-kindness vs. self-judgment, common humanity vs. isolation, and mindfulness vs. over-identification) (Raes, Neff, & van Gucht, 2011). The SCS-SF is self-administered and scored on a 5-point Likert scale ranging from 1 (*Almost never*) to 5 (*Almost always*). A total self-compassion score is computed by reverse scoring the negative subscale items (self-judgment, isolation, and over-identification) and calculating a total mean. The shortened scale constitutes a reliable and valid alternative to the long-form SCS: it has a near-perfect correlation with the original scale and represents the same six-factor structure and single higher-order factor of self-compassion (Raes et al., 2011). In the present sample, the SCS-SF demonstrated good internal consistency reliability ($\alpha = .83$).

Patient Health Questionnaire (PHQ-9). The Patient Health Questionnaire (PHQ-9) is a self-administered measure of depression severity consisting of 9 items (Kroenke, Spitzer, & Williams, 2001). Respondents rate the frequency of depressive symptoms (e.g. fatigue, feeling down, poor appetite or overeating, suicidal thoughts) in the last 2 weeks on a Likert-scale from 0 to 3 *(not at all, several days, more than half the days, nearly every day).* The questionnaire is scored by summing up the scores on the items, with a higher score indicating higher depression severity, with cut-off scores of ≥ 5 (mild), ≥ 10 (moderate), ≥ 15 (moderate-severe), ≥ 20 (severe) (Kroenke et al., 2011). The PHQ-9 is a valid measure, with good demonstrated criterion validity, construct validity, and external validity (Kroenke et al., 2011). The German translation of the PHQ-9 has excellent criterion validity for the diagnosis of major depression and constitutes a reliable and valid adaptation of the English original scale (Gräfe, Zipfel, Herzog, & Löwe, 2004). In the present sample, the PHQ-9 demonstrated good internal consistency reliability ($\alpha = .86$).

Mental Health Continuum-Short Form (MHC-SF). The Mental Health Continuum-Short Form (MFC-SF) is a self-report questionnaire consisting of 14 items measuring positive mental health (Lamers, Westerhof, Bohlmeijer, ten Klooster, & Keyes, 2010). The items represent various feelings of emotional, psychological, and social well-being (e.g. happiness, self-acceptance, social integration). Respondents rate the frequency of every feeling in the past month on a 6-point Likert scale *(never, once or twice a month, about once a week, two or three times a week, almost every day, every day).* Scores are computed by calculating the sum of all item scores, thus ranging from 14 to 84, with higher scores indicating higher positive mental well-being. The MHC-SF has demonstrated good convergent and discriminant validity, as well as moderate test-retest reliability, suggesting that the MHC-SF is both sensitive to change and stable over time (Lamers et al., 2010). The current study used a German adaptation of the MHC-SF, developed by the University of Twente. In the present sample, the MHC-SF demonstrated excellent internal consistency reliability ($\alpha = .91$).

Cognitive Emotion Regulation Questionnaire (CERQ) – Self-Blame Subscale. The Cognitive Emotion Regulation Questionnaire (CERQ) is a self-report questionnaire measuring nine cognitive emotion regulation strategies in response to the experience of stressful or threatening life events (Garnefski & Kraaij, 2007). The self-blame subscale involves thoughts of accusing the self for what has happened. The German version of the self-blame subscale has 3 items to be rated on a 5-point Likert scale ranging from 1 *(Almost*

never) to 5 *(Almost always)*; scores are computed by calculating a mean of all item scores (Loch, Hiller & Witthöft, 2011). In the present study, an introductory sentence preceding the items explained that they were to be interpreted in relation to the condition *(The next questionnaire relates to feelings of self-blame regarding your condition.*
Please read the next statements carefully and choose the answer that fits best). The German adaptation of the self-blame subscale has good test-retest reliability and is positively correlated with depression and anxiety and negatively correlated with adaptive coping strategies, indicating good convergent and discriminant reliability (Loch et al., 2011). In the present sample, the self-blame subscale of the CERQ demonstrated good internal consistency reliability ($\alpha = .91$).

Visual Analogue Scale (VAS) Physical Health. To assess perceived physical health, participants were asked to indicate their physical health on a visual analog rating scale ranging from 0-100, where 0 indicates the worst possible health and 100 indicates the best possible health.

Questions about the Chronic Condition. To get an overview of the types of chronic and life-threatening physical conditions represented in the sample, participants were asked to indicate which condition they have. If they had more than one chronic condition, they were asked to indicate the condition that was the most relevant for them. In addition, participants were asked to indicate how long ago they were diagnosed *(less than 6 months ago, between 6 months and 1 year ago, between 1 and 5 years ago, between 5 and 10 years ago, more than 10 years ago).* Furthermore, participants were asked if they were currently prescribed medical treatment, with the answer options *'No', 'Yes, I am prescribed medication or other medical treatments' and 'Yes, I am prescribed lifestyle restrictions.'.* Participants who indicated that they were prescribed medical treatment were asked to indicate on a visual analog rating scale from 0-100 how burdensome their treatment was, with 0 indicating the least burdensome and 100 the most burdensome.

Demographics. To collect general information on the sample, questions about demographics were included in the survey. Participants were asked to indicate their age, the gender they identify most with, their highest completed education level, and whether they have a migration background. All questions included a 'prefer not to say' option.

Data Analysis

The collected data were processed and analyzed with SPSS v25 (IBM, 2017). Descriptive statistics including means and standard deviations of all variables were calculated. To check the normality of the data, Kurtosis and Skewness were determined, using cut-off scores of -1 and +1.

Factorial Structure of the SCCC. To investigate the underlying factorial structure of the SCCC, exploratory factor analysis (principal axis factoring) with oblique rotation was used. Various well-established criteria for the factorability of a correlation were applied. All items were examined regarding their correlation with other items. Items that did not have a correlation of at least .30 with at least one other item were excluded from analysis. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was used, with the minimum value indicating suitability of the data for factor analysis set at .60. Furthermore, Bartlett's Test of Sphericity was conducted to examine whether the variance-covariance matrix was significantly different from an identity matrix (Field, 2009). Communalities were inspected, with a minimum score of .3 to indicate that all items shared some common variance with other items. Lastly, the Q-Q plots were inspected to see whether item scores were normally distributed. Initially, factors with Eigenvalues higher than 1 were extracted. To assess the number of factors to keep, the scree plot was analyzed. Factor loadings lower than .30 were suppressed (Field, 2009).

Reliability. To investigate the internal consistency of the SCCC, Cronbach's alpha was computed for each of the two scales as well as for their subscales. Acceptable values of Cronbach's alpha range from .70 to .95 (Tavakol & Dennick, 2011).

Construct Validity. To examine the convergent and discriminant validity of the SCCC, Pearson correlations with theoretically related constructs were analyzed. For Pearson correlations, correlation magnitudes can be defined at .10 (small correlations), .3 (moderate correlations), and .5 (large correlations) (Cohen, 1988). Statistical significance was set at $p < .05$ and $p. < .001$.

For the SCCC-Criticism and subscales, we expected a moderate to large negative correlation with the SCS-SF and the MHC-SF (discriminant validity). Further, we expected a moderate to large positive correlation with the self-blame subscale of the CERQ and the PHQ-9, and a small to moderate negative correlation with physical health (convergent

validity). For the SCCC-Compassion and subscales, a moderate to large positive correlation with the SCS-SF and the MHC-SF were expected (convergent validity). Further, a moderate negative correlation with the self-blame subscale of the CERQ and the PHQ-9 and a small to moderate positive correlation with physical health were expected (discriminant validity). Lastly, we expected a moderate to large negative correlation between the SCCC-Compassion and the SCCC-Criticism, as well as the respective subscales.

Group Differences. Independent samples t-tests were conducted to investigate differences in condition-related self-compassion and self-criticism between different groups. A significance level of $\propto < .05$ was employed.

As an example of patients with different types of conditions, participants with Morbus Crohn and Chronic obstructive pulmonary disease (COPD) were compared regarding their scores on the SCCC and complementary measures. Morbus Crohn is a type of inflammatory bowel disease (IBD) with an unclear etiology. Due to the symptomatology, clinical features, consequences, and associated difficulties to perform daily tasks, IBD patients frequently report feelings of condition-related shame, embarrassment, and stigma (Trindade et al., 2019; Wåhlin, Stjernman, & Munck, 2019). COPD is a chronic lung condition characterized by reduced lung function, impaired oxygen intake, periods of deterioration, and consequences such as difficulties in managing everyday life (Lindqvist & Hallberg, 2010). Cigarette smoking is by far the most commonly identified risk factor for COPD; patients frequently feel guilty for having caused the condition by their own behavior (Lindqvist & Hallberg, 2010). Because of the differences in symptomatology between the two conditions and the previously studied feelings of shame and embarrassment related to IBD, we expected patients with Morbus Crohn to score significantly higher on condition-related shame than COPD patients. Due to the differences in etiology, we expected COPD patients to score significantly higher on the CERQ Self-Blame Subscale and the SCCC-Criticism guilt subscale than Morbus Crohn patients.

In addition, we investigated gender differences regarding self-compassion and self-criticism. In previous studies, men had slightly higher levels of self-compassion than women, while females tended to be more self-critical (Yarnell et al., 2015). For this reason, we expected women to score significantly higher on self-criticism and significantly lower on self-compassion than men.

Added Predictive Value for Mental Health by the SCCC. To investigate whether the SCCC added to the amount of explained variance of positive mental well-being and symptoms of depression beyond the established measures, several hierarchical multiple regression analyses were conducted. For all analyses, the independent variables were initially analyzed for collinearity utilizing the variance inflation factors (VIF) and the collinearity tolerance statistics. VIF below 10 and tolerance statistics above .2 indicate that no collinearity is present in the data (Field, 2009). To investigate whether the SCCC adds to the explanation of variance in mental wellbeing (MHC-SF) and depression (PHQ-9) beyond established validated measures, various 2-step hierarchical multiple regression analyses were conducted. In the first step gender, physical health, treatment burden, CERQ-Self-Blame scores, and SCS-SF scores were entered as independent variables. In the second step, the SCCC-Criticism subscales were entered into the model to see if this could increase the total explained variance of MHC-SF scores; the same analysis was conducted with PHQ-9 scores as the dependent variable. Next, this multiple regression analysis was repeated for both MHC-SF and PHQ-9, with the SCCC-Compassion subscales in the second step.

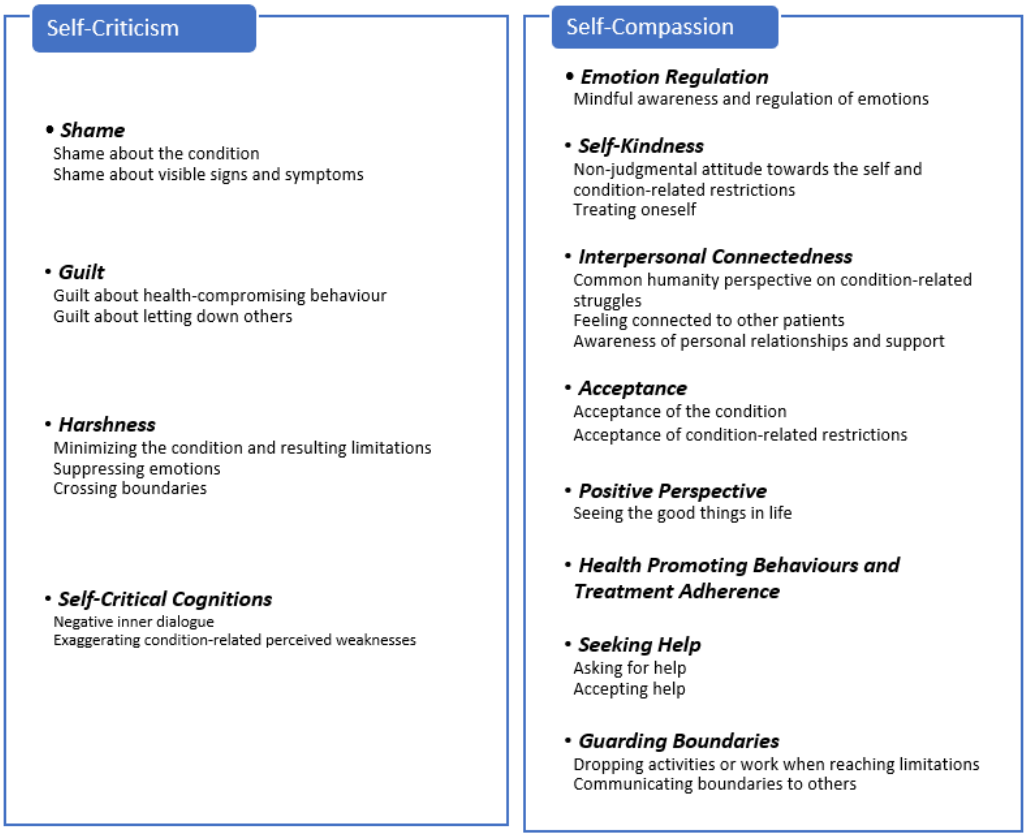
Results

Part 1- Literature Review and Analysis of Interviews

Based on the literature review and analysis of interviews with cancer patients, a framework of theoretical and practical attributes of self-criticism and self-compassion in the context of living with a chronic or life-threatening physical condition was established. Figure 1 shows a summary of the distinguished dimensions and subdimensions.

Figure 1

The 4 Dimensions of Self-Criticism and 8 Dimensions of Self-Compassion in the Context of Facing a Chronic or Life-Threatening Physical Condition



Dimensions of Self-Criticism in the Context of Living with a Chronic or Life-Threatening Physical Condition

The literature review and analysis of interviews resulted in the distinction of 4 dimensions of self-criticism in the context of living with a chronic or life-threatening physical condition.

Shame. The first dimension of self-criticism related to facing a chronic condition was shame. In general, shame is defined as a self-conscious, hurtful emotion warning an individual from the risk of being excluded or rejected by their social group (Gilbert, 1998). Shame encompasses the feeling of being inadequate or inferior to others and unable to present a positive image to others (Trindade et al., 2017). It is associated with the perception that personal characteristics such as personality traits, physical appearance, or behaviors might be judged negatively by others and result in social rejection (Trindade et al., 2017). Gilbert (1998) distinguishes between external and internal shame: the former involves the recognition that the self exists negatively in the mind of others and controls the attentional

focus for social threats, while the latter refers to one's own perception of the self as inferior or flawed.

Patients with chronic conditions can feel both external and internal shame about the same condition-related aspects. The experiences however can differ: external shame might manifest as not wanting others to know about the condition, while internal shame can lead to a hurtful perception of the self as inadequate because of the condition (Trindade et al., 2017). Feelings of shame can concern the condition itself, related restrictions, and visible signs. Especially patients with conditions with visible manifestations tend to experience feelings of embarrassment, isolation, and unattractiveness due to the features of their condition (Trindade et al., 2017).

From our interviews, it also appeared that an important factor of shame concerns signs of illness or weakness. Specifically, patients feel ashamed for visible signs of the condition and want to protect themselves from the pity of others *('I thought that was the worst thing about being bald ... then you were really visible cancer patient (while I actually thought it was pretty), but I said give me that wig anyway because otherwise others will look at you as a cancer patient and be scared like that.';* '*Because then your illness becomes very visible, and if there is something that I did NOT want, it is for it to be visible.., because then you are (only) that patient and you are pathetic').* This is further related to not wanting to need help and consequently hiding the need for assistance and negative feelings from others *('I also just noticed that I often said to others that it was going well, while of course, it was not going well…'*). Thus, a central aspect of self-criticism in the context of living with a chronic condition was found to be shame about the condition and its features, as well as the conveying of illness to others.

Guilt. The second dimension of self-criticism was guilt. Guilt has been defined as a feeling of dysphoria resulting from the acknowledgment that one has breached a personally relevant moral or social standard (Kugler & Jones, 1992). Feelings of guilt are connected to thoughts of having done something one should not have done (Lindqvist & Hallberg, 2010).

Individuals with chronic conditions frequently feel guilty about not being able to carry out work duties and needing support from others, and consequently perceive themselves as a burden to others (Trindade et al., 2017; Wåhlin et al., 2019). Further, patients with chronic conditions experience feelings of guilt concerning the distress family members might experience due to their condition (Wåhlin et al., 2019). Another factor causing guilt is people's role in causing or aggravating their condition (Callebaut et al., 2017). This can

include feelings of guilt concerning not having consulted a doctor earlier or having behaved in unhealthy ways (Pinto-Gouveia et al., 2014). Particularly patients with conditions that are seen as self-inflicted, i.e. caused by the individual's own behavior, experience feelings of guilt and responsibility for the consequences of their behavior, such as smoking (Lindqvist & Hallberg, 2010).

From our interviews, it became apparent that patients feel guilty for not being able to conduct social roles such as helping others, caring for children and friends, or completing work responsibilities (*'I have my own company, and I do that together with a colleague… and that colleague must now keep things going… I sometimes feel guilty about that'*). This also included feeling useless for not being able to contribute as much as before the diagnosis (*'feeling useless…'; 'I don't add anything anymore, I contribute nothing').* Additionally, patients frequently mentioned feeling like a burden due to the limitations caused by their condition, and finding it difficult to ask for help because of this (*'People do not want to be a burden ... everyone is always busy with everything, and then you come again with your shit'; 'Yes, I find that difficult to indicate, to ask for help, I find that difficult .. then I think: oh they have already done so much for me, and then I come back again….').*

Another aspect was guilt and self-blame for not having consulted a doctor earlier and having behaved in unhealthy ways *('For having waited too long with seeking help, damn it, why haven't I been to the doctor with these complaints before, because I had been walking around with them for a long time. What a terrible thing you are...'; 'Then you will look differently, for example at the things you have done ... if only I had not drunk or smoked').* Further, patients reported feeling guilty for losing their temper easily and for not being nice to themselves or others (*'Because I quickly lose my patience, eg with my son… then I feel like grrrr… and later I can be angry about that again, that I was angry about that.'; 'at the time of diagnosis, I was not very nice to myself and others ..'*).

Harshness. The third dimension was harshness. In the context of living with a chronic condition, patients might frequently treat themselves with harshness or strictness. Thus, they try to go on about their daily life while ignoring the restrictions imposed on them by their condition. Patients who were accustomed to being independent might try to preserve this by carrying on as usual as they do not want to be a burden to the people in their environment (Refsgaard, & Frederiksen, 2013). This is also connected to denial, i.e. downplaying the seriousness of the impact of a medical condition, which has been negatively associated with self-compassion (Allen & Leary, 2010; Garssen, 2007). Further, individuals with low self-

compassion tend to harshly attribute responsibility for errors and shortcomings to themselves (Neff, 2003b). Harshness is also a factor particularly in patients who blame themselves for their condition, for instance, individuals with self-inflicted conditions who perceive themselves as having no right to complain due to their past health-compromising behavior (Lindqvist & Hallberg, 2010).

From our interviews, it became apparent that an important factor was being too harsh or strict on oneself, specifically continuing as if nothing had happened, and crossing personal boundaries *('Just continue, keep on living, stick to the routine, whether you do or don't feel well…'; 'I am very strict with myself .. that you want to do a lot of things on your own and so ... I will do that all myself … (further on'*). Harshness also meant suppressing emotions and not allowing oneself to feel down (*'Don't make such a fuss, what is it all about?! Just do normal… it is not so bad'; 'Not crying, not letting out emotions, standing tall').* The statements made by the interviewees about their strictness and harshness towards themselves suggest the presence of an inner critical voice towards the self and the limitations and negative experiences resulting from the condition.

In sum, being harsh towards oneself for patients with chronic conditions means to minimize their condition and associated limitations, to go beyond boundaries and forbid themselves to feel and express the negative affect resulting from the condition.

Self-Critical Cognitions. The fourth dimension addressed self-critical cognitions. Self-critical cognitions involve several cognitive factors including a selective focus on negative information and memory recall, exaggerating weaknesses and failures, comparison of the self to a high standard, and negative self-expectations (Ishiyama & Munson, 1993). In the context of chronic conditions, patients might narrow their focus on negative factors about themselves and their cognition, including the restrictions imposed on them by the condition. Negative internal dialogue might further arise due to the comparison of the current self with the condition and associated limitations and the standards patients set themselves without considering their condition. Thus, patients may expect themselves to function and to be able to carry on as before the condition and therefore experience a discrepancy between the standard they set and the reality with the condition. Exaggerating weaknesses and failures might further involve the focus on condition-related weaknesses such as the inability to carry out certain tasks and feeling like a burden to others.

Research suggests that self-criticism involves an 'inner voice' engaging in self-devaluation and self-critical cognitions and feelings, implying the existence of a part of the

self that engages in criticism and another part that submits to these attacks (Gilbert, Clarke, Hempel, Miles, & Irons, 2004). The presence of such an inner voice attacking the self also became apparent in our interviews (*'Come on man, don't make such a fuss!')*.

In conclusion, self-criticism amongst patients with chronic and life-threatening physical conditions encompasses harsh and judgmental responses to limitations, symptoms, visible manifestations, and other challenges resulting from the condition. The subdimensions correspond with a distinction into behaviors (harshness), cognitions (self-critical cognitions, harshness), and emotions (shame, guilt). The dimensions found in literature were largely corresponding with the dimensions from the interview analysis; interestingly, the interviews added some behavioral aspects, specifically related to harshness (i.e. crossing boundaries).

Dimensions of Self-Compassion in the Context of Living with a Chronic or Life-Threatening Physical Condition

Emotion Regulation. The first dimension of self-compassion was emotion regulation. Self-compassion involves a mindful awareness of one's emotions – hurtful or upsetting feelings are not avoided or overidentified with, but rather met with gentleness, comprehension, and sentiment of common humanity (Neff, 2003a). This understanding of one's feelings and present-moment experience allows for a shift to a more positive emotional experience and a pursuit of actions that beneficially transform the self or the environment (Chambers, Gullone, & Allen, 2009; Neff, 2003a).

In patients with chronic conditions, self-compassion facilitates adaptive emotion regulation, specifically in difficult circumstances such as threatening medical situations (Austin et al., 2020). Patients with high levels of self-compassion are able to soothe themselves and adopt new strategies to handle threat-based emotions such as anxiety or anger. Instead of only relying on others for emotional support, they can be a source of support and comfort for themselves (Austin et al., 2020). Effective emotion regulation skills in the context of chronic conditions are further characterized by the acknowledgment, experience, and expression of emotions (de Ridder et al., 2008).

Emotion regulation through mindful experiencing and expressing of emotions can reduce emotional distress and build opportunities for social support, enhanced closeness with others, and benefit finding. Thus, the enhanced emotion regulation skills associated with self-compassion can further enhance the interpersonal connectedness patients experience.

In our interviews, expressing emotions was also characterized as an important part of self-compassion. Participants described different forms of releasing emotions: writing (*'Write it down… I wrote it down, and when I read it again, I started crying…'*), crying (*'If you feel that you can cry, don't hold it back, let it out, it gives such relief'*) and sharing one's emotions with others (*'I can just indicate, say to others 'I am not feeling well right now'… it is so much more that you mention it, that for me is self-compassion'*). Thus, the results from the analysis of the interviews reflected the acknowledgment and expression of emotions and concomitant social support.

Self-Kindness. The second dimension of self-compassion was self-kindness. In general, self-kindness is defined as an understanding and gentle approach towards the self and its perceived shortcomings, as opposed to self-criticism and harshness (Neff, 2003a). In patients with chronic conditions, self-compassion encompasses a kind, caring, and non-assessing stance towards perceived flaws and limitations and the inability to meet one's expectations due to the restrictions caused by the condition (Sirois & Rowse, 2016). This understanding and benevolent attitude towards perceived shortcomings resulting from the condition can be recognized in both self-compassionate thoughts and actions.

In our interviews, participants illustrated thinking with self-kindness as positive internal dialogue, for instance through complimenting the self for its strength and taking pride in the difficulties one has overcome *('Praise yourself, or acknowledge or congratulate yourself for succeeding', 'Proud… I did that').* Next to that, the importance of taking a kind perspective when thinking about the self and possible drawbacks was mentioned *('in my case, it does not work that I pick up my life for a week as it was. And you have to find your way in that, what next? There you must indeed be softer to yourself.';'allow yourself to be human and make mistakes';'being kind to yourself').*

A kind and understanding attitude towards the self can also be reflected through actions. Specifically, participants in our interviews identified the importance of taking time for themselves, treating themselves, and behaving in a way that increases their well-being *('sometimes just take your time', 'planning fun outings and stuff, positive energy…').* Thus, self-kindness translates into both benevolent thoughts and kind actions towards the self.

Interpersonal Connectedness. The third dimension of self-compassion entailed interpersonal connectedness and common humanity. Common humanity is a core component of self-compassion and constitutes a view of one's struggles as a part of the human

experience rather than seeing them as disconnecting and isolating (Neff, 2003a). In the context of living with a chronic condition, common humanity is extended to include a sentiment of interpersonal connectedness with the people in one's personal environment. Thus, the two main aspects of interconnectedness constitute a view of one's experiences as shared with humankind and increased awareness of personal connections.

The common humanity perspective entails an awareness that others might experience similar difficulties, and a sentiment of shared experiences specifically with other patients with chronic conditions (Austin et al., 2020; Sirois & Rowse, 2016). Framing suffering in this way can help patients release the adjustment-compromising 'why me?' view of their condition and encourage a connection with people experiencing similar conditions (Sirois & Rowse, 2016). This was also reflected in our interviews *('I feel more connected to people who also have cancer, even those who are going to die')*.

Extending the sentiment of common humanity, self-compassion in patients with chronic conditions increases awareness of the positive relationships and support already available in their environment (Austin et al., 2020). In our interviews, participants reported being more conscious of the support they received by the people in their surroundings, as well as the existing and increasing depth of their relationships *('because of this whole situation you notice how many good friendships you actually have, and how family is always there for you… and you suddenly also get deeper, sometimes very deep conversation, that you might not have that much otherwise'; 'actually you realize that you are more loved than you thought… that was so nice to notice… so the bond between people actually gets stronger'; 'I actually found out that I have a lot of people around me who are very sweet and good for me… very nice… suddenly I realized that I am actually not so lonely').*

Acceptance of the Condition and Related Restrictions. The fourth dimension entailed acceptance. Acceptance in the context of chronic conditions involves the two main components of acceptance of the condition and acceptance of resulting limitations (Austin et al., 2020). These components are contrasting to feelings of guilt or self-blame for the onset or deterioration of the disease, as well as associated restrictions (Austin et al., 2020).

In chronic pain patients, acceptance is defined as the readiness to experience pain without trying to reduce or escape it (Vowles, McCracken, McLeod, & Eccleston, 2008). In relation to chronic conditions, this might encompass the willingness to experience both symptoms and limitations imposed by the condition, as opposed to efforts to reduce symptoms or overcome limitations. Acceptance of the condition and resulting restrictions can

be strengthened through the main components of self-kindness and mindfulness according to Neff's conceptualization (Neff, 2003a). Accordingly, self-compassionate patients take a kind, caring, and non-judgmental perspective towards perceived shortcomings resulting from their condition (Sirois & Rowse, 2016). This can further protect against negative self-evaluations resulting from patients' inability to meet their expectations due to the limitations imposed by their condition (Sirois & Rowse, 2016). Mindfulness can encourage a balanced and non-judgmental view of the condition and its associated restrictions. Thus, mindfulness may further foster acceptance of the condition and limitations by helping patients view their suffering from a more balanced perspective. Additionally, accepting the condition allows for a more balanced sense of self that is less connected to the condition, empowering patients to rediscover different parts of the self (Austin et al., 2020).

In our interviews, patients mentioned acceptance of the condition as an essential part of self-compassion *('That is perhaps the most important thing, that you accept it, let it happen… because then you do not get frustrated, or angry or sad. Because it is the way it is. You cannot change it'; 'The disease is simply there, you have to accept it, and that is a process…').* Furthermore, participants acknowledged the acceptance of limitations imposed by the condition ('*You are confronted with the fact that you can no longer do what you could, and you can no longer realize the dreams you had… and that unleashes many feelings from disappointment, anger, and frustration towards yourself and the world, say and then you need some help to accept that …'; 'also a piece of acceptance, that not everything goes as it went before').*

Positive Perspective. The fifth dimension addressed the cultivation of a positive perspective. Self-compassion enables people to view their struggles and shortcomings from a balanced perspective instead of overidentifying with their problems (Neff, 2003a). As patients refrain from overidentification with difficulties, they can adopt a positive and balanced perspective and keep in mind the positive and important things in life. This reflects a manifestation of self-compassion in patients' thinking, characterized by a habitual acknowledgment of positive things in life. This was also indicated in the analysis of the interviews: participants mentioned the importance of putting things in perspective and being aware of what is important and good in life *('keep seeing beautiful sides of life'; 'having an eye for small things').*

Health Promoting Behaviors and Treatment Adherence. The sixth dimension involved health-promoting behaviors and treatment adherence. Current research links self-compassion, specifically self-kindness, to the adoption of health-promoting behaviors and better treatment adherence (e.g. Sirois, Kitner, & Jameson, 2015; Sirois & Rowse, 2016; Terry & Leary, 2011; Terry, Leary, Mehta, & Henderson, 2013). The caring and comforting stance patients high in self-compassion have towards themselves promotes the adoption of behaviors that are beneficial for both physical and psychological health (Pinto-Gouveia et al., 2014). This includes behaviors aimed at maintaining health and managing the condition, such as ingesting medication, taking diagnostic tests, and managing weight to reduce the risk of condition progression or complications (Sirois & Rowse, 2016). Additionally, people high in self-compassion seek medical attention sooner compared to people with low self-compassion (Terry et al., 2013).

The analysis of the interviews reflected undergoing treatments and adopting behaviors that benefit health as important aspects of self-compassion in the face of chronic conditions *('do what you have to do… you just really want to get through the treatments'; 'Build stamina, in between treatments… keep moving '; 'just eat, even if it doesn't taste good after the chemo'; 'So I had colon cancer and it was said: do not eat red meat. I loved it…. But I don't eat it anymore ... then I'm nice to myself, I don't want to do it, I want to stay healthy.')*. To sum up, health-promoting behaviors and treatment adherence constitute a manifestation of self-compassion into actions aimed at decreasing suffering and increasing well-being.

Seeking Help. The seventh dimension of self-compassion in the context of chronic conditions entails various aspects of relating to support, particularly seeking help and accepting it. In general, self-compassionate individuals treat themselves with the care and kindness they need instead of harshly judging themselves when they are going through difficult times (Neff, 2003a). In the context of chronic conditions, a kind and caring approach towards the self in times of suffering allows patients to take the actions they need to alleviate their pain – seeking and accepting help from others is an essential expression of this. Additionally, research suggests that self-compassion mediates the effect of perceived stigma on seeking help (Heath, Brenner, Lannin, & Vogel, 2016). In line with accepting their limitations, taking care of their body, and being aware of social support in their environment, patients with chronic conditions might be self-compassionate by seeking help when needed. Asking for and accepting help as an aspect of treating oneself with compassion was also an

important theme in our interviews *('accept help'; 'ask for help'; 'I can now indicate better if I need help…').*

Guarding Boundaries. The last dimension of self-compassion in the context of facing a chronic or life-threatening condition entails guarding boundaries. In general, people high in self-compassion take a kind and understanding stance towards their perceived shortcomings or boundaries and adapt behaviors aimed at decreasing their suffering (Neff, 2003a). In the context of dealing with condition-related limitations, this translates into being aware of one's boundaries and protect them to decrease one's discomfort. In our interviews, participants explained the importance of guarding both physical and social boundaries. The former relates to paying attention to bodily needs and resting when needed (*'you can accept that you are in pain, that you might need a rest…'),* and allowing oneself to drop activities or work *('I allowed myself to stay at home and be sick, and not try to do things or work anyway')*. The latter involves indicating boundaries to others *('I also indicated via WhatsApp […] I prefer not to have you keep asking how I am doing, I will send an update')* and limiting social activities according to one's needs *('manage your agenda, not schedule a visit every day').*

To sum up, self-compassion amongst patients with chronic and life-threatening conditions can be distinguished into self-compassionate thinking and resulting actions aimed at understanding and alleviating suffering, as well as increasing well-being. Self-compassionate thinking is characterized by the following:

1. Mindful awareness and regulation of emotions
2. Self-kindness characterized by positive internal dialogue and a non-judgmental, understanding attitude towards the self and condition-related limitations
3. Awareness of shared difficulties with other people with chronic conditions, interpersonal relationships, and support received from others
4. Acceptance of the condition and related restrictions
5. Acknowledgment of positive things in life

These self-compassionate ways of thinking and relating to the self can reflect through the following self-compassionate actions:

1. Adopting health-promoting behaviors and lifestyle changes, including adherence to medical treatments
2. Taking time for oneself, treating oneself
3. Seeking and accepting help

4. Guarding social and physical boundaries and communicating them to others

Most aspects of self-compassion found in literature and the analysis of interviews corresponded, such as expression and regulation of emotions, acceptance, self-kindness, treatment adherence, common humanity, and positive perspective. However, the results of the interviews extended the results from literature by adding more action-focused forms of self-compassion, specifically treating oneself, seeking help, and guarding boundaries.

Part 2- Item Development

Based on the theoretical framework, items reflecting behaviors, emotions, and cognitions related to the experience of self-compassion and self-criticism in the context of facing a chronic condition were developed. The newly developed self-report scale was named Self-Compassion and Self-Criticism Scale for Patients with Chronic and Life-Threatening Conditions (SCCC), with the division into the 31-item self-compassion scale (SCCC-Compassion) and 27-item self-criticism scale (SCCC-Criticism). The items consist of statements about cognitions, emotions, and behaviors related to self-compassionate and self-critical responses to the condition and associated experiences (e.g. *'I felt that it is okay if I do not have control over my condition', 'I felt ashamed of talking with others about my condition or symptoms')*. Respondents rate the frequency of every experience in the past 4 weeks, with answer options ranging on a Likert-scale from 1 *(Never)* to 5 (*Always).* Total self-compassion and self-criticism scores are computed by calculating means of the item scores from the respective scales. The complete scales including subscales and scoring key can be found in the Appendix.

Part 3- Results Validation Study

Description of the study group

The sample consisted of 285 participants, aged between 18 and 72 (M = 37.5, SD = 14.24). Females were overrepresented in the sample, comprising around 80% of participants (see Table 1). The majority of participants had no migration background and were highly educated. The most common conditions in the sample were autoimmune conditions, lung conditions, and digestive tract conditions. Regarding the time since diagnosis, the sample was heterogeneous; however, most participants were diagnosed longer than 1 year ago.

Table 1
Participant Characteristics (n = 285)

Item	Category	*n*	%
Gender	Female	233	81.80
	Male	39	13.70
	Nonbinary	1	.40
	Prefer not to say	11	4.40
Migration background	Western (e.g. UK, Poland)	19	6.70
	Non-Western (e.g. Turkey, Marokko)	9	3.20
	None	245	86.00
	Missing	11	3.90
Highest completed education level	Primary/ Secondary / Comprehensive School	52	18.30
	Entrance Qualification for Higher Education	73	25.60
	Higher Education (University/ University of Applied Sciences)	63	22.10
	Vocational Training	84	29.40
	Missing	13	4.60
Chronic condition	Lung conditions (e.g. COPD, Asthma)	47	16.50
	Autoimmune conditions (e.g. Hashimoto)	47	16.50
	Conditions of the nervous system (e.g. Parkinson, Epilepsy, MS)	21	7.40
	Skin conditions (e.g. Neurodermitis)	14	4.90
	Cancer	3	1.10
	Endocrine, nutritional or metabolic conditions (e.g. diabetes, thyroid gland)	12	4.20
	Conditions of the musculoskeletal system (e.g. disc prolapse, rheumatism)	28	9.80
	Digestive track conditions	68	23.90
	Chronic pain conditions	12	4.20
	Conditions of the circulatory system (e.g. hypertension, heart diseases)	7	2.50
	Allergies (e.g. hay fever)	6	2.10
	Conditions of the female genital system (e.g. Endometriosis, Adenomyosis)	5	1.80
	Conditions of the neuromuscular junction or muscle (e.g. Myasthenia Gravis)	4	1.40
	Developmental anomalies (e.g. hip dysplasia, usher syndrome)	2	.07
	Other chronic conditions (e.g. tinnitus, uveitis, kidney disease, Mastocytosis)	9	3.10
Time since the diagnosis	Less than 6 months ago	12	4.20
	Less than 1 year ago	20	7.00
	Between 1 and 5 years ago	102	35.80
	Between 5 and 10 years ago	54	18.90
	More than 10 years ago	97	34.00
Prescription of medical treatment	Medication or other medical treatment	243	85.30
	Lifestyle restrictions	71	24.90
	No treatment	25	8.80

Exploratory Factor Analysis

Self-Criticism. All 27 items correlated at least .30 with at least one other item, indicating acceptable factorability. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was .91, demonstrating a relatively compact pattern of correlation. Bartlett's Test of Sphericity was significant ($\chi 2$ (351) = 4326.24, $p < .001$), indicating that the correlations between variables were overall significantly different from 0. All diagonals of the anti-image correlation were above .5. All communalities were above .3, showing that each item shared some common variance with other items. Q-Q plots indicated normal distributions of item scores. Based on these criteria, factor analysis was considered appropriate with all 27 items.

Resulting from the principal axis factoring with oblimin rotation, solutions for five and four factors were examined. Initial Eigenvalues indicated that the first two factors

explained 36.15 % and 10.91% of the variance, respectively. The third, fourth, and fifth factors had Eigenvalues of just over 1 and explained 6.71%, 4.66% and 4.33% of the variance, respectively. The five-factor solution explained a total of 62.75% of the variance, while the four-factor solution explained 58.43% of the variance in total. Due to previous theoretical support, the four-factor solution was preferred. Table 2 shows the final factorial structure of the SCCC-Criticism. The scale includes the subscales *Shame, Harshness, Self-Critical Cognitions,* and *Guilt,* as predicted in the initial scale development. Item 51 *('When I was having a hard time with my condition, I believed I had no right to complain')* from the Harshness subscale exhibited a cross-loading with the Self-Critical Cognitions subscale. The item was retained in the Harshness subscale due to the accordance with theory, and the good correspondence with other Harshness items.

Table 2
Factor loadings based on principal axis factoring with oblimin rotation for 27 items from the SCCC-Criticism (N = 285).

	Shame	Harshness	Self-Critical Cognitions	Guilt
Ashamed of the condition	.95			
Ashamed of the visible signs	.89			
Felt that symptoms or limitations are embarrassing	.83			
Felt unattractive due to visible signs	.77			
Ashamed of talking about the condition	.70			
Expected people to think less of me	.64			
Felt insecure because of my condition	.61			
Felt inadequate because of my condition	.45			
Did not like others knowing about my condition	.41			
Ignored limitations		.83		
Did not allow myself to feel down		.80		
Carried on without acknowledging limitations		.77		
Minimized my own needs for the sake of others' needs		.73		
Did not ask for help when I needed it		.72		
Crossed boundaries		.72		
Minimized the impact of my condition		.66		
Told myself to stop whining		.60		
Believed that I had no right to complain		.47	.32	
Felt beaten down by self-critical thoughts			.77	
Condemned myself			.60	
Disappointed in myself for not meeting my own expectations			.59	
Blew weaknesses out of proportion			.57	
Felt guilty about being a burden				.54
Felt guilty about letting down others				.63
Felt guilty about not having adhered to my treatment				.40
Felt guilty about delaying medical attention				.65
Felt guilty about unhealthy lifestyle choices				.55

Self-Compassion. 30 out of 31 items had a correlation of at least .30 with at least one other item, indicating reasonable factorability. Item 13 *('When I was having a hard time with my condition, I felt connected to other people who experience similar conditions')* did not correlate higher than .30 with any other item and was consequently excluded from further analysis.

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was .86, indicating a relatively compact pattern of correlation. Bartlett's Test of Sphericity was significant ($\chi 2$ (435) = 2970.43, $p < .001$). All diagonals of the anti-image correlation were above .5. Q-Q plots indicated normal distributions of item scores. Based on these criteria, factor analysis was deemed appropriate with 30 items.

Initial Eigenvalues indicated that the first three factors explained 24.61%, 9.62%, and 6.15% of the variance, respectively. The fourth and fifth factors explained 5.20% and 4.95% of the variance, respectively. The sixth and seventh factors had Eigenvalues just above 1 and explained 3.94% and 3.63% of the variance, respectively. Due to the 'leveling off' of the scree plot at the third factor, a three-factor solution was preferred (Figure 2). The three-factor solution explained 40.38% of the variance. Three items did not indicate any consistent factor loadings with the three-factor solution: Item 3 *('When I thought about my condition, I felt that it is okay if I do not have control over my condition')*, item 20 *('I treated myself to something that I enjoy'),* and item 4 *('When I thought about my condition, I allowed myself to feel all emotions that came up'*). Further, only a small proportion of the variance of these variables was explained by the factors, which was indicated by the low communalities of .26, .28, and .26, respectively. Due to the low communalities, small numbers of correlations higher than .3 with other items, and lack of consistent factor loadings, these items were omitted from the scale.

The final SCCC-Compassion includes 3 subscales (see Table 3). The Compassionate Self-Regulation subscale contains 16 items related to self-compassionate regulation of emotional, cognitive, and behavioral responses to the condition and subsequent challenges. The Use of Support subscale includes 8 items pertaining to the request, acceptance, and awareness of help from close people and medical professionals. Lastly, the Compassionate Boundary-Guarding subscale encompasses 4 items related to an understanding and patient protection of boundaries imposed by the condition.

Two items exhibited cross-loadings. Item 16 *(When I was having a hard time with my condition, I tried to distract myself without ignoring my needs)* had factor loadings with both the Compassionate Self-Regulation subscale and the Use of Support subscale. The item was categorized into the Compassionate Self-Regulation subscale due to theoretical support and the structure of the scales: the Use of Support subscale pertains more to assistance from others, while the Compassionate Self-Regulation subscale includes items referring to self-management and the awareness of one's needs. The wording of the item fits better into the latter, for this reason, it was categorized into Compassionate Self-Regulation. Item 28 *('When*

I felt like I reached my limit, I tried to be understanding and patient towards my limitations.') correlated with both Compassionate Self-Regulation and Compassionate Boundary-Guarding. This item was categorized into the Compassionate Boundary-Guarding subscale, as it 1) pertains to how patients respond to themselves when confronted with their restrictions, and 2) had a substantially higher factor loading with Compassionate Boundary Guarding (.50), than with Compassionate Self-Regulation (.31).

Figure 2

Scree Plot for the Factors of the SCCC-Compassion

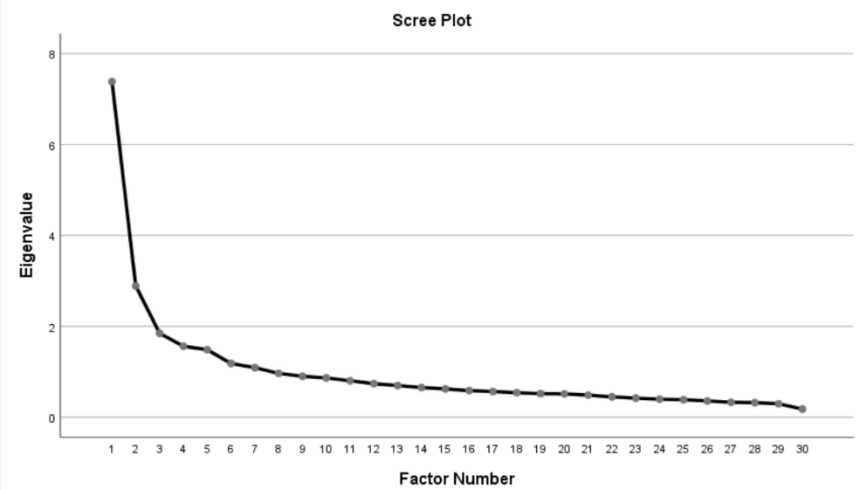


Table 3

Factor loadings based on principal axis factoring with oblimin rotation for 30 items from the SCCC-Compassion (n = 285).

	Compassionate Self-Regulation	Use of Support	Compassionate Boundary-Guarding
Kind towards myself	.62		
Stay in present	.58		
Difficulties as part of life	.58		
Reminded myself of positive things	.56		
Tried to keep my thoughts and emotions in balance	.56		
Reminded myself of what is important	.55		
Accepted condition	.54		
Accepted limitations	.54		
Proud for what I have overcome	.50		
Accepted needs	.50		
Gave myself caring and tenderness	.44		
Made things I have to do for my health easier	.44		
Soothed and comforted myself	.41		
Encouraged what I can do	.41		
Liked taking care of my body	.36		
Distracted myself	.34	.31	
Accepted help		.73	
Asked for help		.72	
Asked for emotional support		.72	
Accepted emotional support		.71	
Aware of support		.60	
Felt connected to close people		.54	
Underwent treatments		.36	
Allowed myself to rest			.81
Allowed myself to drop activities or work			.68
Indicated boundaries			.53
Understanding towards limitations	.31		.50

Reliability Analysis

Self-Criticism. The reliability analysis indicated a Cronbach's alpha of .93 for the SCCC-Criticism, which is classified as an excellent internal consistency reliability value (Taber, 2016). All four subscales demonstrated good internal consistency: the Shame-, Guilt-, Self-Critical Cognitions- and Harshness-subscales had Cronbach's alpha values of .91, .71, .80, and .90, respectively.

Self-Compassion. The reliability analysis indicated a Cronbach's alpha of .88 for the SCCC-Compassion, indicating good internal consistency reliability. The Compassionate Self-Regulation, Use of Support, and Compassionate Boundary-Guarding exhibited good internal consistency reliability, with Cronbach's alpha values of .86, .82, and .77, respectively.

Descriptive Statistics

Table 3 displays descriptive statistics including minimum, maximum, means, standard deviations, Skewness, and Kurtosis. The analysis of Skewness and Kurtosis displayed a normal data distribution of all scales (between -1 and +1) except for the CERQ Self-Blame Subscale and the VAS Treatment Burden. While the CERQ Self-Blame Subscale data were normally distributed regarding Kurtosis, Skewness was slightly above 1 (1.01), indicating a moderately skewed distribution. The VAS Treatment Burden had an approximately symmetric distribution in terms of Skewness but a platykurtic distribution (-1.02), indicating that the distribution has a thinner tail than a normal distribution.

Table 3
Descriptive Statistics of Key Study Variables

Variable	Minimum	Maximum	*M (SD)*	Skewness	Kurtosis
SCCC-Compassion	1.56	4.85	3.20 (.54)	-.04	.49
Compassionate Self-Regulation	1.63	5.00	2.37 (.59)	.125	.365
Use of Support	1.00	5.00	3.12 (.78)	-.10	-.31
Compassionate Boundary-Guarding	1.00	5.00	3.00 (.84)	.10	-.52
SCCC-Criticism	1.00	4.41	2.73 (.73)	-.17	-.67
Shame	1.00	4.89	2.72 (.88)	.13	-.92
Guilt	1.00	5.00	2.36 (.80)	.38	-.41
Self-Critical Cognitions	1.00	4.50	2.48 (.95)	.15	-.86
Harshness	1.00	4.78	3.08 (.89)	-.50	-.49
SCS-SF	1.33	4.92	2.84 (.67)	.38	.03
MHC-SF	2	70	33.60 (14.43)	-.04	-.58
PHQ-9	0	27	11.14 (5.8)	.30	.-.62
CERQ Self-Blame Subscale	5	5	2.07 (1.16)	1.01	-.02
VAS Perceived Physical Health	0	100	60.13 (23.50)	-.35	-.72
VAS Treatment Burden	0	100	47.26 (25.40)	-.13	-1.02

Construct Validity

Self-Criticism. ***Convergent Validity.*** Table 4 displays all Pearson correlations between self-criticism and complementary measures. The Self-Blame Subscale of the CERQ correlated positively and significantly with the Self-Criticism Scale and all subscales. While there were weak correlations of self-blame with shame (r = .19) and harshness (r = .26), moderate correlations between self-blame and self-criticism (r= .34), guilt (r = .39), and self-critical cognitions (r = .37) were found.

The PHQ-9 correlated significantly and positively with the Self-Criticism Scale and all subscales, with moderate coefficients for harshness (r = .42) and shame (r = .45), and large coefficients for self-criticism (r= .59), guilt (r =.50), and self-critical cognitions (r = .51). Thus, participants with higher scores on the Self-Criticism Scale and subscales had higher scores on the PHQ-9 and the Self-Blame Subscale of the CERQ. This confirmed the expected correlations for convergent validity.

Discriminant Validity. Pearson's correlation indicated significant negative correlations between self-criticism and subscales, and overall self-compassion (see Table 4). Large coefficients were found for self-criticism (r = -.57) and self-critical cognitions (-r = .61), while moderate coefficients were found for shame (r = -.46), guilt (r = -.38), and harshness (r = -.38). Further, analyses revealed significant negative correlations between self-criticism and subscales, and mental well-being. Coefficients were moderate for self-criticism (r = -.42), shame (r = -.30), guilt (r = -.35), and self-critical cognitions (r = -.42), and small for harshness (r = -.28).

Lastly, negative correlations with small coefficients were found between self-criticism and subscales, and perceived physical health. Thus, as expected, participants with higher self-criticism and subscale scores had lower scores on overall self-compassion, as well as positive mental well-being and perceived health.

Table 4
Pearson Correlations between the SCCC-Criticism (total scale and subscales) and complementary measures.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. SCCC-Criticism	-									
2. Shame	.83**	-								
3. Guilt	.68**	.42**	-							
4. Self-Critical Cognitions	.75**	.60**	.49**	-						
5. Harshness	.80**	.44**	.46**	.45**	-					
6. CERQ Self-Blame	.34**	.19**	.39**	.37**	.26**	-				
7. PHQ-9	.59**	.45**	.50**	.51**	.42**	.31**	-			
8. SCS-SF	-.57**	-.46**	-.38**	-.61**	-.38**	-.36**	-.51**	-		
9. MHC-SF	-.42**	-.30**	-.35**	-.42**	-.28**	-.32**	-.61**	.51**	-	
10. Physical Health	-.22**	-.15**	-.23**	-.19**	-.13*	-.23**	-.40**	.19**	.35**	-

Note. **Correlation is significant at the .001 level (2-tailed).
* Correlation is significant at the .05 level (2-tailed).

Self-Compassion. ***Convergent Validity.*** All correlations can be found in Table 5. Moderate to large significant correlations between the SCCC-Compassion subscales were found, as well as large significant correlations between the SCCC-Compassion and its subscales. Furthermore, analyses indicated significant positive correlations between scores on the SCCC-Compassion and subscales and the SCS-SF. Coefficients were small for Use of Support (r = .19), moderate for Compassionate Boundary-Guarding (r = .30) and overall Condition-Related Self-Compassion (r = .46), and large for Compassionate Self-Regulation (r = .50).

In addition, analyses revealed positive significant correlations between condition-related self-compassion and subscales, and positive mental well-being. Coefficients were small for Compassionate Boundary-Guarding (r = .14), moderate for Use of Support (r = .36), and large for condition-related overall self-compassion (r = .51) and Compassionate Self-Regulation (r = .52). Lastly, analyses indicated small significant positive correlations between condition-related overall self-compassion and perceived physical health (r = .14), as well as Compassionate Self-Regulation and perceived physical health (r = .18). Thus, in line with our expectations, participants who scored higher on the SCCC-Compassion and subscales also scored higher on overall self-compassion, perceived physical health, and positive mental well-being, confirming the predictions regarding convergent validity.

Discriminant Validity. Table 5 displays correlations between the SCCC-Compassion and complementary measures. Pearson's correlation indicated small significant negative correlations between self-blame and condition-related overall self-compassion (r = -.16), and self-blame and Compassionate Self-Regulation (r = -.21). Furthermore, analyses revealed small to moderate significant negative correlations between the PHQ-9 and condition-related overall self-compassion (r = -.33), Compassionate Self-Regulation (r = -.38), and Use of Support (r = -.19). Thus, as expected, participants who scored higher on condition-related self-compassion and subscales scored lower on self-criticism, self-blame, and depression symptomatology, confirming the predictions regarding discriminant validity.

Table 5
Pearson correlations between the SCCC-Compassion and complementary measures.

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. SCCC-Compassion	-								
2. Comp. Self-Regulation	.87**	-							
3. Use of Support	.74**	.40**	-						
4. Comp. Boundary-Guarding	.62**	.36**	.44**	-					
5. SCS-SF	.46**	.50**	.19**	.30**	-				
6. MHC-SF	.51**	.52**	.36**	.14*	.51*	-			
7. CERQ- Self Blame	-.16**	-.21**	-.04	-.04	-.36**	-.32	-		
8. PHQ-9	-.33**	-.38**	-.19**	-.06	-.51**	-.61**	.31**	-	
9. Physical Health	.14*	.18**	.02	-.02	.19**	.35**	-.23**	-.40	-

Correlations between the SCCC-Compassion and SCCC-Criticism Subscales. Further indications of discriminant validity were investigated through correlations between the SCCC-Compassion and SCCC-Criticism subscales (see Table 6). All subscales had significant, moderate to large positive correlations with each other. In addition, analyses revealed large significant positive correlations between the SCCC-Compassion and the subscales Compassionate Self-Regulation, Use of Support, and Compassionate Boundary-Guarding.

As expected, the SCCC-Criticism and SCCC-Compassion correlated significantly and negatively, with a moderate coefficient (r = -44). Constructs related negatively in theory were correlated significantly and negatively, such as Compassionate Boundary-Guarding and Harshness (r = -.46) and Compassionate Self-Regulation and Self-Critical Cognitions (r = -.43). Each SCCC-Criticism subscale except for the Guilt subscale had significant negative correlations with both the overall SCCC-Compassion and the subscales, with coefficients ranging from large to moderate. The Guilt subscale did not correlate significantly with both the Compassionate Boundary-Guarding and Use of Support subscale, but with the Compassionate Self-Regulation subscale (r = -.27). Thus, correlation analyses indicated a negative relation between scores on the SCCC-Compassion and the SCCC-Criticism, as well as respective subscales.

Table 6
Pearson correlations between the SCCC-Criticism, SCCC-Compassion, and respective subscales.

	SCCC-Compassion	Compassionate Self-Regulation	Compassionate Boundary-Guarding	Use of Support
SCCC-Criticism	-.44**	-.38**	-.36**	-.27**
Guilt	-.22**	-.27**	-.07	-.07
Shame	-.32**	-0.35**	-.23**	-.12*
Self-Critical Cognitions	-.39**	-0.43**	-.21**	-.14*
Harshness	-.34**	-0.15**	-.46**	-.32**

Note. **Correlation is significant at the .001 level (2-tailed).
* Correlation is significant at the .05 level (2-tailed).

Content Analyses

Differences between Separate Types of Conditions. All means, standard deviations, and test statistics can be found in Table 7. To investigate differences between conditions with different etiologies and symptomatologies regarding SCCC-scores, an independent samples t-test was conducted to examine differences in self-blame, self-compassion, and self-criticism between patients with COPD (n = 30) and Morbus Crohn (n = 52). Patients with Morbus Crohn scored significantly higher than patients with COPD on the SCCC-Criticism and the Shame subscale. As expected, patients with COPD had significantly higher scores on the CERQ Self-Blame Subscale. While, contrary to our expectations, no significant differences regarding overall guilt and health-related guilt (e.g. guilt for unhealthy lifestyle choices) were found, patients with Morbus Crohn scored significantly higher on other-related guilt (e.g. feeling guilty for being a burden to others) than patients with COPD.

Table 7
Independent samples T-Test statistics for patients with COPD and Morbus Crohn

	COPD (*n* = 30)	Morbus Crohn (*n = 52))*		
	M (SD)	*M (SD)*	t(df)	*p*
SCCC-Criticism, total score	2.59 (.73)	2.92 (.70)	2.02 (80)	**.05***
Shame	2.52 (.79)	3.03 (.84)	2.71 (80)	**.01***
Guilt	2.30 (.86)	2.49 (.77)	1.02 (80)	.31
Condition-related guilt	6.86 (2.84)	6.71 (2.35)	.27 (80)	.79
Other-related guilt	4.63 (2.11)	5.73 (2.29)	-2.20 (80)	**.03***
Self-Critical Cognitions	2.43 (.94)	2.62 (.93)	.87 (80)	.37
Harshness	2.92 (.85)	3.17 (.81)	1.27 (80)	.21
SCCC-Compassion, total score	3.31 (.59)	3.24 (.46)	-.53 (49.78)	.60
Compassionate Self-Regulation	3.42 (.72)	3.27 (.52)	-1.03 (46.74)	.31
Compassionate Boundary-Guarding	3.45 (.74)	3.03 (.88)	-2.17 (80)	**.03***
Use of Support	3.20 (.78)	3.40 (.80)	1.10 (80)	.27
CERQ Self-Blame	3.15 (1.46)	1.97 (.95)	-3.98 (43.49)	**.00****
SCS-SF	3.11 (.68)	2.86 (.68)	-1.57 (80)	.12
MHC-SF	32.40 (15.11)	35.06 (15.70)	.75 (80)	.46
PHQ9	11.40 (5.02)	11.65 (5.45)	.21 (80)	.83

Note. **Correlation is significant at the .001 level (2-tailed).
* Correlation is significant at the .05 level (2-tailed).

Gender Differences for the SCCC and Complementary Measures. To investigate gender differences in the SCCC and complementary measures, independent sample t-tests were conducted (see Table 8). As expected, analyses indicated that female participants scored significantly higher on the SCCC-Criticism than male participants. Furthermore, women had significantly higher scores on the harshness subscale than men, while men scored higher on the Compassionate Boundary-Guarding subscale. Contrary to our expectations, no significant differences in both condition-related and global self-compassion were found.

Table 8
Independent samples T-Test statistics for men and women.

	Women (*n* = 233)	Men (*n*=39)		
	M (SD)	*M (SD)*	t(df)	*p*
SCCC-Criticism, total score	2.78 (.72)	2.52 (.76)	2.05 (280)	**.04***
Shame	2.77 (.86)	2.54 (.96)	1.51 (280)	.13
Guilt	2.36 (.79)	2.36 (.94)	-.02 (280)	.98
Self-Critical Cognitions	2.51 (.97)	2.37 (.86)	.83 (280)	.41
Harshness	3.14 (.88)	2.71 (.81)	.288 (280)	**.00***
SCCC-Compassion, total score	3.17 (.51)	3.21 (.53)	-.50 (280)	.61
Compassionate Self-Regulation	3.26 (.59)	3.27 (.58)	-.03 (280)	.97
Comp. Boundary-Guarding	2.94 (.83)	3.22 (.82)	-1.99 (280)	**.05***
Use of Support	3.16 (.77)	3.20 (.86)	-.29 (280)	.77
CERQ Self-Blame	2.05 (1.14)	2.13 (1.24)	-.38 (280)	.70
SCS-SF	2.81 (.65)	2.99 (.75)	-1.65 (280)	.10
MHC-SF	33.47 (14.28)	33.00 (16.54)	.185 (280)	.85
PHQ9	11.18 (5.70)	10.64 (6.41)	.54 (280)	.59

Note. * Correlation is significant at the .05 level (2-tailed).

Contribution of the SCCC to the Prediction of Mental Health

To determine whether the SCCC-Compassion and the SCCC-Criticism could add to the total amount of explained variance of depression and positive mental health scores, hierarchical multiple regression analyses were conducted.

Predicting Positive Mental Well-Being. No multi-collinearity was detected in the models with the predictors SCCC-Criticism (VIF < 2.37, collinearity tolerance > .42) and SCCC-Compassion (VIF < 1.7, collinearity tolerance > .58).

Table 9 shows model statistics and coefficients for the hierarchical multiple regression analyses. The first model with MHC-SF as dependent variable and gender, physical health, treatment burden, CERQ Self-Blame scores, and SCS-SF scores as independent variables accounted for 37% of the variance in positive mental well-being. All independent variables made a unique significant contribution to the model, except for CERQ self-blame and gender. Controlling for these variables, the SCCC-Criticism subscales did not statistically significantly explain additional variance in positive mental health. The SCCC-Compassion subscales added explained variance beyond the first step of the model. All subscales made a unique, statistically significant contribution, resulting in an additional 14% of explained variance.

Table 9
Linear model of predictors (existing, validated scales, SCCC-Criticism, and SCCC-Compassion) of MHC-SF scores

	β		
Step 1			
Model Statistics			
SCS-SF	**.44****		
CERQ-Self Blame	-.09		
Physical Health	**.19***		
Treatment Burden	**-.14***		
Gender	-1.36		
F Change (df) = 27.80 (5, 241), *Sig. F Change* = .00**, R^2 = *.37*			
Step 2	*β*	Step 2	*β*
Model Statistics		Model Statistics	
SCS-SF	**.40****	SCS-SF	**.32****
CERQ-Self Blame	-.06	CERQ-Self-Blame	-.08
Physical Health	**.18***	Physical Health	**.16***
Treatment Burden	**-.14***	Treatment Burden	**-.12***
Gender	-.07	Gender	-.06
SCCC Harshness	.04	SCCC Comp. Boundary-Guarding	**.12***
SCCC Self-Critical Cognitions	.06	SCCC Use of Help	**.31****
SCCC Guilt	-.07	SCCC Comp. Self-Regulation	**.22****
SCCC Shame	.06		
F Change (df) = .90 (4, 237)		*F Change (df)* = 23.42 (3,238)	
Sig. F Change = .47, R^2 = .38		Sig. F Change = .00**, R^2 = *.51*	

Note. ** $p < .001$
* $p < .05$

Predicting Depression. ***Additional Explained Variance by the SCCC-Criticism.*** No assumption of collinearity was given for the model with SCCC-Criticism (VIF < 2.37, collinearity tolerance > .42) and for the model with SCCC-Compassion (VIF < 1.7, collinearity tolerance > .58).

Table 10 displays model statistics and coefficients for the hierarchical multiple regression analyses. In the first step of the model, the SCS-SF, gender, CERQ Self-Blame, physical health, treatment burden, and gender explained 42% of the variance in PHQ-9 scores. After controlling for these variables, the SCCC-Criticism subscales explained an additional 7% of the variance in PHQ-9 scores, with the subscales Harshness and Guilt displaying unique, statistically significant contributions to the model. The SCCC-Compassion subscales accounted for an additional 4% of the variance in PHQ-9 scores beyond the model established in Step 1. The subscales Use of Help and Compassionate Boundary-Guarding made unique, statistically significant contributions.

Table 10
Linear model of predictors (existing, validated scales, SCCC-Criticism, and SCCC-Compassion) of PHQ-9 scores

	β		
Step 1			
Model Statistics			
SCS-SF	**-.45****		
CERQ-Self Blame	.06		
Physical Health	**-.22****		
Treatment Burden	**.22****		
Gender	.04		
F Change (df) = 35.47 (5, 241), *Sig. F Change* = .00**, R^2 = *.42*			
Step 2	*β*	Step 2	*β*
Model Statistics		Model Statistics	
SCS-SF	**-.30****	SCS-SF	**.42****
CERQ-Self Blame	-.01	CERQ-Self-Blame	.06
Physical Health	**.19****	Physical Health	**-.20****
Treatment Burden	**.17***	Treatment Burden	**.22****
Gender	.05	Gender	.03
SCCC Harshness	**.13***	SCCC Comp. Boundary-Guarding	**.12***
SCCC Self-Critical Cognitions	.05	SCCC Use of Help	**-.20***
SCCC Guilt	**.17***	SCCC Comp. Self-Regulation	-.07
SCCC Shame	.07		
F Change (df) = 8.19 (4, 237)		*F Change (df)* = 6.02 (3,238)	
Sig. F Change = .00**, R^2 = .49		Sig. F Change = .00**, R^2 = *.46*	

Note. ** $p < .001$
* $p < .05$

Discussion

The present study aimed to establish theoretical and practical dimensions of self-criticism amongst patients with chronic and life-threatening physical conditions and to translate these dimensions into a reliable, valid questionnaire. The dimensions extracted from literature and interviews with cancer patients largely corresponded; interestingly, the analysis of interviews added specific action-focused elements not found in current literature, such as guarding and crossing boundaries. This underlines the importance of investigating manifestations of critical and compassionate self-directed attitudes into health-related behaviors, which is a research gap the present study has filled.

Based on the theoretical framework, the Self-Compassion and Self-Criticism Scale for Patients with Chronic and Life-Threatening Physical Conditions (SCCC) with the scales SCCC-Criticism and SCCC-Compassion was developed. The SCCC-Criticism is based on the initially established dimensions and consists of the subscales Shame (9 items), Guilt (5 items), Self-Critical Cognitions (4 items), and Harshness (5 items). The final SCCC-Compassion incorporates the subscales Compassionate Self-Regulation (16 items), Use of Support (7 items), and Compassionate Boundary-Guarding (4 items). Compassionate Self-Regulation pertains to an autonomous and compassionate way of managing emotions, behaviors, and cognitions resulting from condition-related challenges. Use of Support relates to the use, acceptance, and awareness of external assistance such as medical treatments, emotional support, or other types of help. Compassionate Boundary-Guarding involves non-

judgmental and patient protection of condition-related boundaries.

This first validation study suggested that the SCCC has good internal consistency reliability, as well as convergent and divergent validity. As expected, condition-related compassion was positively related to both physical and positive mental health, and negatively associated with depression symptoms and self-blame. This is in line with previous literature on the beneficial effects of self-compassion on both mental and physical health (Dunne, Sheffield, & Chilcot, 2018; Neff, 2003b). In addition, participants with higher SCCC-Criticism and CERQ Self-Blame scores had higher depression scores; this result is in agreement with previous theoretical support of the positive association between self-directed hostility and criticism, and depression scores in patients with chronic conditions (Trindade et al., 2017). These findings underline the need to consider self-criticism and self-compassion as crucial factors in establishing a holistic assessment of patients' mental well-being.

The SCCC-Criticism further explained depression beyond the predictive value of already established instruments and factors related to depression. This underlines the fact that the scale constitutes a broad conceptualization of condition-related self-criticism that goes beyond self-blame and predicts the experience of psychopathological symptoms. Notably, contrary to our expectations, the CERQ Self-Blame Subscale exhibited only weak correlations with SCCC-Shame and SCCC-Harshness. However, this highlights the different and broad facets of self-criticism beyond self-blame only in light of facing a chronic condition. For example, patients might be ashamed of the symptoms and visible signs of the condition without blaming themselves for its onset. In contrast, patients might attribute the responsibility for having their condition to themselves, but not be ashamed of the condition or symptoms. All in all, this underlines that self-criticism in patients with chronic conditions is a broad and diverse phenomenon; yet all subscales represent the negative and harsh self-directed attitude characterizing condition-related self-criticism. The SCCC-Criticism managed to capture an extensive range of harsh and self-critical cognitions, emotions, and behaviors beyond previously established factors and measures.

The SCCC-Compassion seems to be valuable in explaining both depression and positive mental health. The additional predictive value of the action-focused subscales Use of Help and Compassionate Boundary-Guarding suggests that these behavioral aspects of self-compassion can protect patients from psychopathological symptoms in the face of condition-related difficulties. This underlines the benefit of self-compassion as an active coping strategy for dealing with the challenges arising from living with a chronic condition.

Interestingly, global self-compassion as measured by the SCS-SF remained a

significant predictor of mental health, suggesting that it includes some aspects not captured by our scale. Common humanity might be such a factor: in the SCS-SF, it is distinctly included as a broad perspective of problems as a part of the human condition, while the SCCC-Compassion focuses more on feelings of interconnectedness with close people. Besides, the item about interconnectedness with patients experiencing similar conditions was excluded from analysis; thus, common humanity might be a missing factor in the SCCC. On the other hand, the SCCC-Compassion is much more tailored to the experience of self-compassion in patients with chronic conditions. Specifically, the inclusion of behavioral aspects such as treatment adherence, taking care of one's body, and resting when needed adds the dimension of condition-related self-management. Studies suggest that self-management in chronic condition patients can result in physical benefits, such as fewer symptoms and complications, better functional capacity, and improved well-being and mood (de Ridder et al., 2008). Thus, it is likely that the inclusion of compassionate self-management explains the added predictive value of positive mental health by the SCCC-Compassion. To investigate the differences and relation between the SCCC-Compassion and the general self-compassion scale further, it is recommended to use the full version of the SCS and investigate the added predictive value of both SCCC-Compassion subscales and SCS-subscales.

In addition to the first validation, the present study used the SCCC to compare gender differences on condition-related self-compassion and self-criticism. As expected, women had significantly higher SCCC-Criticism scores than men, which is in accordance with previous studies about self-criticism (Yarnell et al., 2015). In addition, women scored significantly higher on Harshness and lower on Compassionate Boundary-Guarding scores than men. A possible reason could be that women are often socialized with the norm of self-sacrifice, i.e. prioritizing the needs of others over their own (Yarnell et al., 2015). This might explain why female participants crossed their boundaries more and respected their limitations less than male participants. However, contrary to our expectations, men did not score higher than women on both global and condition-related self-compassion. This seems to contradict previous findings by Yarnell et al. (2015) who conducted a meta-analysis of gender differences in self-compassion and concluded that males had slightly higher levels of self-compassion than females. However, other factors can also be involved, for example, age: the gender gap in self-compassion is reduced with increasing age (Yarnell et al., 2015). It is possible that age was a factor leading to equal levels of self-compassion in male and female participants. However, due to the overrepresentation of women in our sample, gender differences cannot be considered completely conclusive.

The present study further compared different types of conditions regarding self-criticism. Differences in condition symptomatology and etiology can lead to varying levels of certain aspects of self-criticism (e.g. shame, self-blame) and subsequent consequences for physical and mental health. In line with previous research about condition-specific negative self-directed attitudes (e.g. Lindqvist & Hallberg, 2010; Trindade et al., 2019), our comparison showed that IBD patients experienced higher levels of self-criticism, shame, and guilt about being a burden to others compared to COPD patients, while COPD patients exhibited more self-blame. These results indicate the applicability of the SCCC for examining condition-related differences in self-criticism. Further research might investigate various manifestations of self-criticism in different conditions and develop recommendations for healthcare professionals. These insights and guidelines can facilitate mental and physical healthcare by providing indications for concrete risk factors and intervention possibilities to prevent psychopathological symptoms and condition deterioration caused by condition-specific self-critical attitudes.

Interestingly, our results were not in line with previous research indicating that COPD patients exhibit more guilt for having caused the condition than patients with conditions that are not associated with previous behavior. This contradiction most probably indicates that the Guilt subscale does not explicitly measure feelings of guilt for having caused the disease, but rather feelings of guilt for recent health-compromising behavior. To investigate how the Guilt subscale is understood by patients, a qualitative method such as the Three-Step-Test Interview can be used in further research (Hak, van der Veer, & Jansen, 2004). Yet it seems that even without measuring guilt for having caused the condition, the Guilt subscale still constitutes an important dimension in condition-related self-criticism, as it was strongly associated with depression and added predictive value for depression scores beyond self-blame. To our knowledge, no prior validated instruments have measured both guilt for unhealthy behavior and other-related feelings of guilt due to condition-related restrictions; this gap was filled by the SCCC.

To sum up, the SCCC provides a comprehensive account of both condition-related maladaptive responses and adaptive coping through self-compassionate thinking and behaving that extends previous conceptualizations and measures of self-compassion and self-criticism.

Strengths and Limitations

Several strengths of the present study can be identified. First of all, a gap in research was filled: to our knowledge, the present study was the first to thoroughly conceptualize condition-related self-criticism and self-compassion and to develop a corresponding measuring instrument. Furthermore, the dimensions of the SCCC were developed based on a comprehensive and varied body of evidence, both from literature and reported experiences from cancer patients. Moreover, the anonymous nature of the online survey excludes possible social desirability bias. This is particularly beneficial due to the sensitive nature of some questions about experiences such as shame, guilt, and depression.

At the same time, some limitations need to be considered when interpreting the results. First of all, the generalizability of the findings might be somewhat limited due to the homogeneity of the sample regarding gender, ethnicity, education, and condition type (most patients were diagnosed with chronic but not life-threatening conditions). Besides, it is not quite clear to what extent the Covid-19 pandemic at the time of the data collection might have influenced the results. The lockdown might have either decreased participants' confrontation with condition-related limitations or exacerbated feelings of vulnerability and inadequacy due to belonging to a high-risk group. Furthermore, large-scale disruptive events such as the pandemic pose large risks for psychological and psychiatric morbidity such as post-traumatic stress disorder (PTSD), depression, and anxiety (Sood, 2020). Thus, the pandemic and associated lockdown might have impacted mental well-being and depression scores.

Lastly, due to the self-report nature of the scale, the SCCC might be limited in its ability to accurately estimate individual levels of self-compassion and self-criticism; this is because many people might often not be sufficiently aware of their emotional responses to realize their lack of self-compassion or their amount of self-criticism (Neff, 2003b). This format can make it difficult for individuals who suppress or avoid negative emotions, due to the unconscious nature of repression (Neff, 2003b). Other ways of measuring self-compassion and self-criticism, such as clinical interviews, might be researched in future studies.

Implications for Research and Practice

The development of the SCCC has several implications for research and practice, particularly since it fills a gap in research on the operationalization of self-compassion and self-criticism in the context of facing a chronic or life-threatening physical condition.

First of all, several implications for research can be included, beginning with further

validation of the SCCC. It is advised to validate the SCCC in a population of patients with specific life-threatening conditions, such as cancer. Furthermore, validation should be conducted in a more diverse sample regarding gender and ethnicity. In addition, content validity might be explored using a qualitative method, such as the TSTI (Hak et al., 2004). This might further exclude possible problems in understanding and interpreting of the items. Moreover, it is recommended to investigate test-retest reliability to ensure that the scale is stable. Lastly, the sensitivity of the SCCC should be explored to ensure that it is responsive to changes through measures such as self-compassion interventions.

Further research can use the SCCC for investigating differences in self-compassion and self-criticism in patients with different (types of) conditions with various etiologies and symptomatologies. It can further be applied for assessing self-compassion and self-criticism in studies investigating chronic condition-related aspects in patients, such as adjustment, self-management, or coping.

Moreover, the SCCC can constitute a theoretical basis for intervention development by providing concrete theoretical and practical dimensions of condition-related self-compassion and self-criticism. In line with this, the scales can further be applied as a baseline, process, and outcome measure for studies evaluating interventions for self-criticism and self-compassion amongst patients, such as Attachment-Based Compassion Therapy (Montero-Marín et al., 2018) and compassion-focused expressive writing (Imrie & Troop, 2012). Thus, newly developed compassion-focused interventions can benefit from the use of the SCCC both as a theoretical foundation and evaluation tool.

The SCCC shows potential for application in clinical practice as an assessment tool by psychologists and psychotherapists treating patients with comorbid physical and psychological conditions. An analysis of the subscale scores might give valuable indications for treatment. For instance, to decrease the impact of condition-related shame, interventions including elements of compassion, cognitive defusion, and acceptance are recommended (Trindade, Marta-Simões, Ferreira, & Pinto-Gouveia, 2018). Thus, the SCCC can benefit mental healthcare for patients with chronic and life-threatening conditions by facilitating psychodiagnostic assessment and resulting treatment indications.

Conclusion

The results of the validation study suggest that the SCCC is a theoretically valid and psychometrically sound measure for assessing self-compassion and self-criticism in the context of facing chronic and life-threatening physical conditions. To our knowledge, the

present study was the first to establish theoretical and practical dimensions and a questionnaire for self-compassion and self-criticism amongst patients with chronic and life-threatening conditions. The scale provides a comprehensive conceptualization of self-critical and self-compassionate responses to the self when facing a chronic condition and associated challenges, extending beyond previously established measures. The SCCC provides possibilities for application in both research and clinical practice, and it aids the development and evaluation of self-compassion interventions for patients with chronic conditions.

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Appendix

Self-Compassion and Self-Criticism Scale for Patients with Chronic and Life-Threatening Physical Conditions (SCCC) with subscales and scoring key

The following questions are about how people with chronic illnesses may respond to themselves when they are having a hard time. This could be: treating themselves and thinking about themselves with kindness, wisdom, and warmth (which is called self-compassion). But it could also be: being harsh on themselves, pushing boundaries or criticizing themselves, their own choices, behaviors or feelings (which is called self-criticism).
The questionnaire includes several aspects of self-compassion and self-criticism that have been found relevant for people with chronic conditions. Please read the following statements carefully and choose the answer that best fits with your situation.

The following items are about how you relate to your condition and connected experiences and difficulties. Please indicate how often you had the following experiences ***in the past 4 weeks.***

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

When I thought about my condition, …

… I accepted that it is there, and I cannot change it. *(1)*
… I accepted the limitations imposed by it. *(2) [based on the Illness Cognition Questionnaire for Chronic Diseases (Evers et al, 2001)]*
… I felt that it is okay if I do not have control over my condition. *(3)*
… I allowed myself to feel all emotions that came up. *(4)*
… I was proud of myself for what I have overcome. *(5)*

The next items are about how you treat yourself when you have a hard time with your condition. Please indicate how often you had the following experiences ***in the past 4 weeks.***

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

When I was having a hard time with my condition, …

… I saw the difficulties as part of life that everyone goes through in some way. *(6)* *[based on the Self-Compassion Scale (Neff, 2003)]*
… I gave myself the caring and tenderness I needed. *(7)* *[based on the Self-Compassion Scale (Neff, 2003)]*
… I tried to keep my thoughts and emotions in balance. *(8)*
… I tried to be kind towards myself. *(9)*
… I reminded myself of positive things in life that I experienced. *(10)*
… I reminded myself of what is important in life. *(11)*
… I reminded myself to stay in the present instead of thinking about the future or the past. *(12)*

When I was having a hard time with my condition, …

… I felt connected to other people who experience similar conditions. *(13)*
… I was aware of the support I receive from the people who are close to me. *(14)*
… I felt connected to the people who are close to me. *(15)*
… I tried to distract myself without ignoring my needs. *(16)*
… I tried to support myself by making things I have to do for my health (for example exercise, eating) easier or more pleasant. *(17)*

The following items are about taking care of yourself, your body, and your needs.
Please indicate how often you had the following experiences ***in the past 4 weeks.***

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

To take care of myself, I underwent the treatments or lifestyle changes prescribed to me. (18)
I liked taking good care of my body. *(19)*
I treated myself to something that I enjoy. *(20)*
I tried to be accepting and forthcoming towards my own needs, even when they did not meet mine or others' expectations. (21)

When I needed it, …
… I asked for help. *(22)*
… I accepted help. *(23)*
… I asked for emotional support. *(24)*
… I accepted emotional support. *(25)*
... I soothed and comforted myself. (26)

The next items are about how you relate to your boundaries and limitations resulting from your condition. Please indicate how often you had the following experiences ***in the past 4 weeks.***

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

When I felt like I reached my limit, …
… I allowed myself to drop activities or work. *(27)*
… I tried to be understanding and patient towards my limitations. *(28) [based on the Self-Compassion Scale (Neff, 2003)]*
… I allowed myself to rest. *(29)*
... I indicated my boundaries to others. *(30)*

When I thought about what I can or cannot do,
… I encouraged or complimented myself for doing what I could, despite my limitations. *(31)*

The next part of the questionnaire includes several aspects of self-criticism patients experience sometimes in relation to their condition. Please read the following statements carefully and choose the answer that best fits with your situation.

The following items are about how you relate to your condition and its symptoms and visible signs. Please indicate how often you had the following experiences ***in the past 4 weeks.***
1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always
I felt ashamed of my condition. *(32)*
I felt insecure because of my condition. *(33) [based on the Chronic Illness Shame Scale (Trindade et al., 2017)]*

I felt inadequate because of my condition and symptoms. *(34)* *[based on the Chronic Illness Shame Scale (Trindade et al., 2017)]*

I expected people to think less of me because of my condition. *(35)* [based on the HIV and Abuse Related Shame Inventory (Neufeld, Sikkema, Lee, Kochman, & Hansen, 2012)]

I felt ashamed of the visible signs of my condition. *(36)*

I felt ashamed of talking with others about my condition or symptoms. *(37)* *[based on the Chronic Illness Shame Scale (Trindade et al., 2017)]*

I did not like others knowing about my condition. *(38)*

I felt unattractive due to the visible signs of my condition. *(39)* *[based on the Chronic Illness Shame Scale (Trindade et al., 2017)]*

I felt that the symptoms or limitations posed by my condition are embarrassing. *(40)* *[based on the Chronic Illness Shame Scale (Trindade et al., 2017)]*

The following questions are about feeling guilty in relation to your condition.

In the past 4 weeks, how often have you felt guilty about…

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

… letting down others? *(41)*

… having been a burden to others? *(42)*

… having made unhealthy lifestyle choices? *(43)*

… not having adhered to your treatment? *(44)*

… having delayed seeking medical attention? *(45)*

The following items are about criticizing yourself because of your condition and limitations. Please indicate how often you had the following experiences ***in the past 4 weeks.***

1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

When I thought about my condition, …

… there was a part of me that condemned myself because of it. *(46)* *[based on the Chronic Illness Shame Scale (Trindade et al., 2017)]*

… I was disappointed with myself for not meeting my expectations of myself. *(47)*

… I blew my weaknesses and limitations out of proportion. *(48)* *[based on the Self-Critical Cognition Scale (Ishiyama & Munson, 1993)]*

… I felt beaten down by my own self-critical thoughts. *(49)* *[based on the Forms of Criticism/Self-Attacking and Self-Reassuring Scale (Gilbert et al., 2004)]*

The following items are about how you treat yourself when you have a hard time with your condition. Please indicate how often you had the following experiences ***in the past 4 weeks.***
1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always
When I was having a hard time with my condition, …
...I did not allow myself to feel down. (50)
… I believed that I had no right to complain. *(51)*
… I told myself to stop whining. *(52)*
… I minimized the impact of my condition even if it was clearly affecting me. *(53)*
… I minimized my own needs for the sake of others' needs. *(54)*
… I did not ask for help even if I needed it. *(55)*

The following items are about how you respond to yourself when you are facing limitations imposed by your condition. Please indicate how often you had the following experiences ***in the past 4 weeks.***
1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

When I was facing limitations imposed by my condition, …
… I ignored them, even if it made me suffer. *(56)*
… I tried to carry on without acknowledging them. *(57)*
… I crossed my boundaries. *(58)*

Scoring Key
Answer options:
1 – Never 2 – Rarely 3 – Sometimes 4 – Often 5 – Always

SCCC-Compassion (initial subscales):

Global SCCC-Compassion: Items 1-31

Acceptance *(A) Items 1, 2, 3*

Emotion Regulation *(ER) Items 4, 12, 8, 26*

Self-Kindness *(SK) Items 5, 7, 9, 17, 20, 21, 28, 31*

Interpersonal Connectedness *(IC) Items 6, 13, 14, 15*

Positive Perspective *(PP) Items 10, 11, 16,*

Health Promoting Behaviors *(HP) Items 18, 19*

Seeking Help *(SH) Items 22, 23, 24, 25*

Guarding Boundaries *(GB) Items 13, 29, 30*

SCCC-Compassion (adapted subscales resulting from exploratory factor analysis):

Compassionate Boundary-Guarding: *Items 27, 28, 29, 30*

Use of Support: *Items 14, 15, 18, 22, 23, 24, 25*

Compassionate Self-Regulation: *Items 1, 2, 5, 6, 7, 8, 9, 10, 11, 12, 16, 17, 19, 21, 26, 31*

Omitted from the questionnaire: *Items 3, 4, 13, 20*

SCCC-Criticism (subscales):

Shame: Items 32-40

S1: Shame about the condition, Items 32, 40

S2: Shame about visible signs, Items 39, 36

S3: External shame, Items 35, 37, 38,

S4: Shame about inadequacy resulting from condition, Items 34, 33

Guilt: Items 41-45

G1: Guilt for not being useful/ hurting others, Items 41, 42

G2: Guilt for causing/exacerbating condition, Items 43, 44, 45

Self-Critical Cognitions: Items 46-49

Harshness: Items 50-58

H1: Emotion Suppression, Items 50, 51, 52, 53, 54

H2: Not Asking for Help, Item 55

H3: Crossing Boundaries, Items 56, 57, 58

Subscale scores are obtained by calculating a mean of all subscale items.
To calculate overall self-compassion and self-criticism scores, means of all SCCC-Compassion item scores and all SCCC-Criticism item scores are calculated.