The Association between Self-Compassion and Loneliness in a Daily Context: An Experience Sampling Study

Bachelor Thesis

Julia Dreimann
Student-ID: 2144190

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Supervisors

Gert-Jan Prosman, PhD
Matthijs Noordzij, PhD

Faculty of Behavioral, Management and Social Sciences
Department of Positive Psychology and Technology, University of Twente

UNIVERSITY OF TWENTE.

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CONTENTS

ABSTRACT

Background: Young adults are at a high risk of experiencing feelings of loneliness which can lead to severe mental and physical health issues. Self-compassion is a positive psychological construct and has been linked to a high general well-being, thereby offering a potential solution in reducing feelings of loneliness. Until now, a negative association between self-compassion and loneliness could be shown on a trait level. However, research focusing on loneliness and self-compassion on a state level is still scarce. **Objective**: The current study had three objectives. First, it aimed to assess how each state self-compassion and loneliness are correlated with their trait counterparts. Second, the study investigated separately how trait self-compassion and loneliness as well as state self-compassion and loneliness are correlated with each other. Third, it was explored whether the relation between state self-compassion and state loneliness is more a between- or within association. **Method**: The sample consisted of 35 university students (M_{age} = 22), with mainly German (91%) and female (80%) participants. The Experience Sampling Method (ESM) was utilized to assess the state constructs over time. State self-compassion was measured by three items, whereas state loneliness was assessed by one item only. Trait self-compassion was measured by using the Self-Compassion Scale - Short Form (SCS-SF), and the UCLA Loneliness Scale was used to assess trait loneliness. On the first day of the study, participants filled in a demographic questionnaire as well as the two trait questionnaires and starting on the second day they answered the state questions three times a day for seven days. The data was analyzed by making use of correlation analyses and Linear Mixed Models in SPSS. **Results**: Results showed a moderate positive association between trait and state self-compassion as well as between trait and state loneliness. Furthermore, state self-compassion and loneliness were moderately negatively significantly correlated, similar to their trait counterparts. Finally, for both the within- and between association a weak negative yet significant relation was found. The association was slightly stronger for the between-person analysis. **Conclusion**: Not only trait self-compassion is negatively and significantly associated with trait loneliness, but also state self-compassion seems to be negatively significantly related with state loneliness. Thus, next to trait self-compassion, state self-compassion should become integrated in designing interventions to decrease or control loneliness levels. Although the generalizability of the present research needs to be established by future studies, this study fills a knowledge gap in that it shows that state self-compassion seems to exert an influence on state loneliness.

1

INTRODUCTION

Loneliness is a common human experience which is characterized by a painful perceived inadequacy of social relations (Lyon, 2015). Young (1982) distinguishes between two types of loneliness: situational/ transitional and chronic loneliness. Transitional loneliness refers to short and infrequent feelings of loneliness which do not last for longer than briefs time periods. However, when loneliness becomes more stable and continues for more than two successive years, loneliness is said to be chronic (Young, 1982). Chronic loneliness is associated with the development of serious psychological problems such as depression, aggression (Schinka, van Dulmen, Mata, Bossarte, & Swahn, 2013), anxiety, low self-esteem (Mahon, Yarcheski, Yarcheski, Cannella, & Hanks, 2006) and the impairment of intelligence and cognitive abilities (Gow, Pattie, Whiteman, Whalley, & Deary, 2007). Loneliness can also constitute a risk factor for physical health, since it is associated with cardiovascular diseases and sleep issues (Hawkley & Cacioppo, 2010).

One of the most successful intervention strategies for targeting loneliness involves focusing on changing maladaptive social cognitions, suggesting that cognitive therapy seems to be fruitful in treating loneliness (Masi, Chen, Hawkley, & Cacioppo, 2011). One positive psychological construct which has shown to be effective in managing cognitive constructs is self-compassion. Self-compassion can be defined as being kind and understanding towards oneself, even in times of failure, suffering or disappointment (Neff, 2003). Self-compassion has been linked to a positive psychological functioning as well as a high general well-being and thus has been introduced in various interventions targeting mental problems (Connolly-Zubot, Timulak, Hession, & Coleman, 2020; MacBeth & Gumley, 2012). Therefore, it seems reasonable that due to its beneficial aspects, self-compassion has the potential to be an successful technique in treating loneliness (Akin, 2010; Lyon, 2015).

Both self-compassion and loneliness can not only be measured as stable aspects but also as fluctuating throughout the day (Neff & Germer, 2017; van Roekel et al., 2018). This is also referred to as trait and state, respectively. Until now, research focused on investigating the trait relationship between self-compassion and loneliness, providing support for a negative association (Akin, 2010; Lyon, 2015). However, within-person measurements (state level) can reveal very different results from between-person measurements (trait level). Thus, the negative

trait relation between self-compassion and loneliness cannot be generalized to the state level (Curran & Bauer, 2011). Especially feelings of loneliness can vary during the day and thereby can negatively impact peoples' mental and physical well-being (Queen, Stawski, Ryan, & Smith, 2014). State self-compassion can serve as a coping strategy in accepting and controlling negative feelings and might be effective in acting as a buffer against feelings of loneliness (Leary, Tate, Adams, Batts Allen, & Hancock, 2007). The lack of research on the association between daily self-compassion and loneliness over a specified time enhances the importance of examining their relationship. Especially the construct of self-compassion could provide a solution for reducing or controlling unhealthy feelings of loneliness. More information on both constructs on a daily level would potentially enable the development of brief interventions targeting situational loneliness, thereby increasing peoples' quality of life.

1.1 TRAIT LONELINESS AND SELF-COMPASSION

Taking into consideration that loneliness is not the same as aloneness, loneliness can be defined as the subjective perceived gap between the actual and the desired relationships with others and the resulting negative emotions. In other words, loneliness mirrors an undesired deficiency in interpersonal relationships (Perlman & Peplau, 1981). Interpersonal relationships constitute a core meaning for many individuals, thus the lack of fulfilling social relations can cause feelings of loneliness (Rokach, 1989). Despite the universality of loneliness, recent studies suggest that among the highest loneliness rates are experienced among young adults and elderlies (Yang & Victor, 2011; Victor & Yang, 2012). Further evidence indicates that young adulthood is the peak age for displaying feelings of loneliness. For instance, several studies show that the prevalence rates of loneliness are among the highest of those aged under 25, thus placing young people at a high risk of developing loneliness (Flood & Flood, 2005; Griffin, 2010; Victor & Yang, 2012). Additionally, the current Covid-19 pandemic exposes young people to feelings of loneliness, thereby leading to the potential development of psychiatric disorders (Li & Wang, 2020). Since young adults are at high risk of developing loneliness and the Covid-19 pandemic further establishes this feeling, this study concentrates on young adults as a target group.

Interventions targeting reducing feelings of loneliness can be divided into four main categories: enhancing social support, addressing dysfunctional cognitive cognitions, reinforcing social skills and developing possibilities for social contact (Hawkley & Cacioppo, 2010). A meta-analysis of Masi et al. (2011) showed that out of the four intervention strategies, interventions addressing maladaptive cognitive functions tend to be the most successful ones.

Loneliness can act as a regulatory loop in which individuals are likely to attend to rather negative than positive social information as well as remember predominantly negative aspects of social events. Therefore, people have mainly negative expectations about their environment and behave in ways that confirm these negative perceptions. Interventions addressing these maladaptive cognitions tackle the regulatory feedback loop and aim to reduce peoples sensitivity for social threats (Masi et al., 2011). One construct which has been shown to be effective in managing cognitive constructs is self-compassion.

Self-compassion is derived from positive psychology which focusses on inner strengths and flourishing, rather than on deficits or problems. Flourishing is characterized by factors such as positive emotions, harmonious relationships, sense of accomplishment, and engagement in activities (Seligman, 2012). Self-compassion can be defined as being warm and understanding toward oneself, even if one fails, suffers, or feels inadequate. Instead of ignoring the pain or being harsh with oneself, self-compassion involves being kind and caring (Neff, 2003). Consequently, by confronting and accepting negative emotions, self-compassion elicits positive emotions and reinforces inner strengths (Neff & Dahm, 2015). Self-compassion has become popular during the past decade and research on self-compassion is growing exponentially. For instance, it has been shown that self-compassion reduces levels of depression, anxiety, and worry. Also, individuals with high levels of self-compassion exhibit healthier physiological stress responses and thus experience lower levels of stress (Neff & Germer, 2017).

According to Neff (2003) , self-compassion encompasses three basic components. The first component is *self-kindness* which can be best described by acting kind and understanding toward oneself instead of being harsh and judgmental for possible imperfections, failures, or mistakes. The second element, *common humanity,* stands for perceiving ones' own experience as part of the human experience and raises the feeling of connectedness to other people. It acknowledges that other people also suffer and fail and that therefore one is not alone in a given situation. The third part is *mindfulness* by which a balanced awareness of painful feelings rather than an over-identification is meant. Over-identification means that when experiencing suffering and self-pity, individuals' loose control over their emotional reactions and become carried away by their own feelings. Thus, mindfulness encourages individuals to tolerate their painful experiences and to put them into a larger perspective, without trying to change or ignore them. Additionally, mindfulness has an influence on self-kindness and common humanity. It enhances self-kindness by taking time to become aware of ones' emotions and thus by decreasing self-criticism. It also positively contributes to the aspect of common humanity as with the detached perspective from mindfulness, people can see their feelings as part of human

experience, thereby lessening feelings of isolation and separateness (Neff, 2003). Hence, self-compassion is built upon these three pillars which interact with and reinforce each other.

In general, the construct of self-compassion constitutes a crucial part in the area of coping and emotional regulation. Emotional regulation refers to the ability to effectively recognize, manage and respond to emotions. In emotional approach coping strategies people try to become aware of and understand their emotions. Thus, when taking into account the three components of self-compassion, it can be seen that self-compassion can serve as an emotional approach coping strategy. Especially mindfulness creates an awareness of ones' state of being and holds painful thoughts in a balanced awareness. Thereby, painful experiences are not ignored or overlooked, but are approached in a warm and understanding way. Through the addition of a sense of shared humanity and kindness, experiences can be viewed from a meta-perspective and negative emotions can be transformed into more positive ones (Neff, 2003). As a result, self-compassion allows to see ones' inadequacy from a broader viewpoint and thus enables a more balanced reaction to ones' situation.

Overall, research shows that self-compassion is associated with many positive psychological factors, including greater levels of optimism, happiness, perceived competence, motivation and greater life satisfaction (Neff & Germer, 2017). Also, self-compassion is correlated with agreeableness which stands for the ability to get along well with others, suggesting that self-compassion could serve as a possibility to feel connected with others (Neff et al., 2007). Furthermore, self-compassion is negatively related with over-identification, indicating that it prevents individuals from feeling lonely, because of solely focusing on their shortcomings by strengthening positive psychological perceptions and feelings of interconnectedness with others (Neff, 2003). It has also been shown that self-compassion is negatively associated with psychoticism and neuroticism, two personality characteristics that are positively correlated with loneliness (Cheng & Furnham, 2002). Finally, self-compassion is associated with effective coping strategies in times of stressful events in that it can transform negative emotions into more positive ones. Therefore, it appears likely that self-compassion can also be beneficial in reducing feelings of loneliness (Neff, 2003).

Next to these indirect associations, Akin (2010) first introduced a direct relationship between self-compassion and loneliness. He found self-kindness, common humanity, and mindfulness as negative predictors of loneliness. In turn, common characteristics of loneliness such as isolation, over-identification and self-judgment positively predicted loneliness (Akin, 2010). A replication study by Lyon (2015) provides support for the findings of Akin (2010) and suggests that the stimulation of self-compassion can lead to a decrease in loneliness. While self-

criticism is a crucial predictor for depression and anxiety, a key feature of self-compassion is that individuals are kind and non-judgmental toward themselves. Neff (2003) showed that even after controlling for self-criticism, self-compassion still negatively predicted depression and anxiety. These findings provide support for a buffering effect of self-compassion. Also, self-compassion has a preventive function in terms that self-compassionate individuals become aware of when they are suffering. Thus, they can protect themselves from negative states and can provide themselves with warmth and understanding (Neff, 2003).

1.2 STATE LONELINESS AND SELF-COMPASSION

In contrast to the research conducted on trait self-compassion and trait loneliness, research examining the constructs on a state level is still rare. Until now, the majority of literature focused on assessing self-compassion as a stable part of ones' personality. However, little studies examined how state self-compassion is influenced at different timepoints and by different contexts (Neff & Germer, 2017). A study by Leary et al. (2007) showed that when participants were faced by negative or uncomfortable events, high levels of average state self-compassion led to an acknowledgement of these events and thereby decreased negative emotions. In that sense, self-compassion served as a buffer against negative situations and transformed negative feelings into more positive ones. Since state self-compassion reinforces mental well-being and contains emotion regulation elements, it seems as if state self-compassion acts in a similar manner as its trait counterpart. By investigating state self-compassion in greater detail and examining how it interacts with other psychological constructs in different situations, it would be possible to design short interventions which target practicing self-compassion in response to negative events and emotions.

Similar to self-compassion, the majority of studies examining loneliness have focused on the trait level, by measuring it at one point in time. However, loneliness is an affective state and thus is highly dynamic and context dependent. In recent years, a few studies have focused on investigating state loneliness by using momentary assessments in real life. These studies provide support for the differential reactivity hypotheses which states that loneliness might be maintained, because individuals feeling lonely respond differently to their environment than nonlonely individuals (van Roekel et al., 2014, 2018). For instance, high trait level lonely adolescents experience higher levels of momentary loneliness when they are alone, with intimate and non-intimate others than low lonely adolescents (van Roekel et al., 2018). This finding suggests that trait loneliness has an influence on a person's momentary feelings of

loneliness. A further study by Queen et al. (2014) showed that lonely people spend more time alone during the day. Also, they participated in more activities alone than with others (Queen et al., 2014). Concludingly, it is shown that state loneliness is dependent on temporal characteristics and social contexts. In order of being able to prevent individuals from feeling lonely and from developing negative health outcomes, it is crucial to examine how state loneliness interacts with different psychological constructs such as self-compassion.

As mentioned above, previous research has explored the relation between self-compassion and loneliness as character traits and has found a negative association between the two constructs. However, the negative association cannot be inferred at the state level as between-person measurements can significantly differ from within-person measurements (Curran & Bauer, 2011). Despite the promising findings on a trait-level, there is a lack of research on how self-compassion and loneliness are associated on a moment-to-moment basis. For instance, in contrast to the negative trait relationship, a positive state association between self-compassion and loneliness might be possible. Self-compassion can aid in coping with difficult situations by decreasing the experience of negative emotions and transforming them into more positive ones. Thus, it might be possible that in difficult situations self-compassionate individuals buffer against feelings of loneliness, indicating a positive relationship between state self-compassion and state loneliness (Leary et al., 2007). Concludingly, this study fills a knowledge gap by investigating the state relationship between self-compassion and loneliness to understand how both constructs fluctuate during the day and interact with each other over a specified period.

1.3 THE CURRENT STUDY

The current study aims to examine how students' daily levels of self-compassion and feelings of loneliness vary over the time frame of one week and if this association is reflected on the trait level. First, it is hypothesized that individuals high on trait self-compassion will also naturally show high levels of average state self-compassion. Similarly, trait loneliness is expected to be positively related to its state counterpart. Second, it will be investigated separately how trait and state self-compassion and loneliness are associated. It is hypothesized that on a trait level comparison between self-compassion and loneliness, a negative association is found. In contrast, on a state level a positive association is expected as intraindividual measurements can deviate from interindividual ones (Fisher, Medaglia, & Jeronimus, 2018; Geiser, Götz, Preckel, & Freund, 2017). Third, it is explored whether the association between

state self-compassion and state loneliness is more on a between- or on a within-person basis. Both outcomes could be possible since trait as well as state self-compassion can serve as a coping strategy in response to negative emotions (Leary et al., 2007; Neff, 2003).

2

METHODS

2.1 PARTICIPANTS

In order to recruit participants, a convenience sampling method was utilized by making use of personal contacts and the BMS faculty's Test Subject Pool System SONA of the University of Twente. The Test Subject Pool is a platform on which students of the Behavioral, Management and Social Sciences (BMS) have the possibility to participate in studies of other students. Participants who completed the study via the SONA system were provided with 0.75 study credits as a compensation for their participation. Participants who were recruited via personal invitations did not receive any compensation. Inclusion criteria for the participants encompassed a good English proficiency and being a student. Also, participants were required to own an IOs or Android smartphone in order of being able to download and use the App *Ethica*. The participants were informed about the purpose and the procedure of the study beforehand and filled out the informed consent in which confidentiality and anonymity of the data was ensured. Three participants were excluded from the study because their response rate on the questionnaires was lower than 60%. Table 2.1 provides a full overview about the final sample size.

Table 2.1

Means (M), Standard Deviations (SD), Amount (N), and Percentages (%) of Participants

Variables	Category	All Students (N = 35)
Age, M (SD)	Years	22 (2.7)
Gender, N (%)	Female	28 (80)
	Male	7 (20)
Nationality, N (%)	German	32 (91.4)
	Dutch	3 (8.6)

2.2 DESIGN

In this study, a structured, repeated-measure design was employed. In this type of design, multiple measures of the same variable(s) are collected over time. This study was conducted in a team of two researchers and was therefore part of a more extensive study assessing self-compassion, loneliness, self-esteem, and anxiety. The traits were assessed with the Self-Compassion Scale - Short Form (SCS-SF), UCLA Loneliness Scale, Rosenberg Self-Esteem Scale and State-Trait Anxiety Inventory (STAI), respectively. For measuring state self-compassion, loneliness, and anxiety, the experience sampling method (ESM) in form of a time-contingent design was utilized. The four trait questionnaires were once asked at the beginning of the study, whereas the three state questionnaires containing twelve questions in total were administered three times a day (9 am, 2 pm, 7 pm) over the course of seven consecutive days. This present study focused on assessing self-compassion and loneliness, thus solely the SCS-SF and UCLA Loneliness Scale and the corresponding state questions are outlined in greater detail. The online research environment *Ethica* was used to create the trait and state questionnaires and provide them to the participants. Data was collected from the 28th March till the 26th April 2021. The ethical committee of the BMS faculty of the University of Twente approved the study (request no. 210219).

2.3 MATERIALS

All materials were provided in English and were assessed via the online research platform *Ethica.*

2.3.1 *Online Research Platform Ethica*

Ethica is an online research environment on which researchers as well as participants can operate. Researchers have the possibility to create questionnaires and other kinds of studies via a web desktop environment (ethicadata.com). Participants can in turn retrieve the questionnaires via the *Ethica* mobile app which can be installed on iOS and Android devices. On the website, researchers have an overview about the overall study, including the participants and the activities. Activities refer to the questionnaires/ tasks that the participants are requested to do. Study activities contain a few main features, including triggering logics and notifications. A triggering logic specifies when a particular activity should be prompted to a participant. Further, notifications can serve as reminders to participants to complete specific questionnaires.

The current study was piloted over two days by two participants who tested the accuracy of the questionnaires, the triggers and notifications setting and the overall usability.

2.3.2 *Trait Questionnaires*

2.3.2.1 *Self-Compassion Scale - Short Form (SCS-SF)*

Trait self-compassion was assessed by the Self-Compassion Scale - Short Form (SCS-SF) (Raes, Pommier, Neff, & Van Gucht, 2011). It was invented by Kristin Neff and is a self-report inventory consisting of twelve items in total. Participants answers are scored on a five-point Likert Scale, ranging from 1 (almost never) to 5 (almost always). The SCS-SF is composed of six subscales, each subscale covering two items. The three subscales self-kindness (items: 2, 6), common humanity (5, 10) and mindfulness (3, 7) represent positive constructs, whereas self-judgment (11, 12), isolation (4, 8) and over-identification (1,9) represent negative constructs. Sample items include for instance "I try to be understanding and patient towards those aspects of my personality I don't like" and "When I fail at something important to me I become consumed by feelings of inadequacy" (see Appendix A). The scores range between 12 and 60 with higher scores being indicative of higher levels of self-compassion. In order to compute the total self-compassion score, the negative subscale items of self-judgment, solation and over-identification need to be reversed. The SCS-SF is almost perfectly correlated with the original Self-Compassion Scale (SCS) by Neff which covers 26 items ($r > .97$). Moreover, the SCS-SF has been shown to have a high internal consistency (Cronbach's alpha > .86) (Raes et al., 2011).. The calculated reliability estimate for the SCS-SF of this study is discussed in the results section.

2.3.2.2 *UCLA Loneliness Scale*

The UCLA Loneliness Scale (Version 3) developed by Russell (1996) was used to assess trait loneliness. It is a self-report inventory measuring subjective feelings of loneliness as well as feelings of social isolation. It contains 20 items which are rated on a four-point Likert scale, ranging from 1 (never) to 4 (often). Higher levels of loneliness are indicated by higher total scores, with 20 as the lowest and 80 as the highest score. In order to get the total mean loneliness value, the positive items 1, 5, 6, 9, 10, 15, 16, 19, 20 need to be reversed. Sample items look like the following: "No one really knows me well" or "I have a lot in common with the people around me" (see Appendix B). The UCLA has been validated in several population groups. Among college students, it has been shown to have an excellent reliability (Cronbach's alpha >

.92). Moreover, the questionnaire has received support for its convergent and construct validity (Russell, 1996). The internal consistency for the UCLA in this study is explained in the results section.

2.3.3 *Daily Questionnaires*

The experience sampling method (ESM) was utilized to measure the state levels of self-compassion and loneliness. Experience sampling methodology is a structured self-report diary technique which is used to assess experiences as they occur in the real-world context. By letting participants complete a momentary questionnaire multiple times a day over a specified time period, it can capture daily moods and feelings (Myin-Germeys et al., 2018).

2.3.3.1 *State Self-Compassion*

Momentary feelings of self-compassion were assessed with three items. The items were derived from the three positive subscales self-kindness, common humanity, and mindfulness of the State Self-Compassion Scale - Long Form (SSCS-L) by Neff and were slightly transformed to be fitting as state items. The SSCS-L has been shown to have an excellent reliability, with a Cronbach's alpha of .94 (Neff, Tóth-Király, Knox, Kuchar, & Davidson, 2021). The first item 'During the last minutes, I have been kind to myself' relates to the subscale of self-kindness. 'In the current moment, I see my difficulties as part of life that everyone goes through' is the second item and was derived from the common humanity component. The third item 'In the current moment, I keep my emotions in a balanced perspective' was obtained from the mindfulness subscale. Participants answers were assessed on a five-point Likert Scale, ranging from 1 (very untrue for me) to 5 (very true for me). The reliabilities of the three items are discussed in the results section.

2.3.3.2 *State Loneliness*

For assessing momentary levels of loneliness, the single item 'I feel lonely right now' was used. The participants' answers were measured with a five-point Likert scale, containing the options 1 (not at all) to 5 (very much). This item was used in a previous study assessing state loneliness in Dutch and US American samples (van Roekel et al., 2018). The reliability of this item is explained in the results section.

2.4 PROCEDURE

The study was conducted over a time frame of eight days via the online research environment *Ethica.* Participants joined the study either via an URL link given by the researchers or via the University of Twente's SONA system. After installing the App *Ethica* on their mobile devices, participants entered a study code (1709) in order to assess the study. After the registration, participants were provided with information about the purpose and the procedure of the study as well as the informed consent. As soon as the participants gave their consent, they could start filling out a brief demographic questionnaire asking questions about gender, age, and nationality and the trait questionnaires.

The four trait questionnaires were administered at the beginning of the study and expired after two days. Since trait questionnaires measure the 'average' levels of variables and answering daily questions about the concepts first might have influenced the answers on the trait questionnaires, it was crucial to provide the trait surveys at the beginning of the study. Throughout the next seven days (days 2-8), participants were requested to fill out three state questionnaires with twelve questions in total about their daily feelings. The questionnaires were triggered three times a day in the morning (9 am), noon (2 pm) and evening (7 pm). For each questionnaire, an automatic notification was scheduled in order to remind the participants to complete the surveys. The surveys expired before the subsequent surveys emerged. In other words, the previous questionnaires were replaced by the following questionnaires.

2.5 DATA ANALYSIS

The results of the trait questionnaires as well as the daily questionnaires were analyzed by means of the IBM SPSS Statistics software program (version 26). First, descriptive analyses of the demographics including age, gender, and nationality as well as the trait questionnaires were carried out to get an overall view of the means and distributions of the data. For a visual analysis of certain within-person associations, graphs were created which displayed state self-compassion and state loneliness levels over the course of the study. As a next step, the Estimated Marginal Means (EMM) of state self-compassion and state loneliness were calculated. EMMs are slightly adjusted means of the state variables and were used for certain between-person analysis.

The reliability of the UCLA and the SCS-SF was determined by calculating Cronbach's alpha. A Cronbach's alpha ranges from 0 to 1, with an alpha of > 0.9 being indicative for an

excellent reliability and an alpha of < 0.5 standing for an unacceptable internal consistency. Additionally, the split-half reliability was used to assess the reliability of the single state items. Furthermore, Pearson's Correlation was utilized to examine the associations between state self-compassion (EMM) and the SCS-SF, and between state loneliness (EMM) and the UCLA. Pearson Correlation was further used to assess the association between trait self-compassion and trait loneliness. The interpretations of the correlation coefficients r were based on the cut-off points of Dancey & Reidy (2007): $r < 0.4$ weak, r 0.4 – 0.7 moderate, $r > 0.7$ strong.

To be able to perform Liner Mixed Model (LMM) analyses, the person mean scores (PM) and person-mean centred scores (PM-centred) needed to be calculated. PM scores are the average scores of the state questionnaires over the course of seven days. PM scores summarize the gathered state data into a single average score and can be used to perform between-person analyses. Next to the PM scores, PM-centred scores were estimated for every participant. The PM-centred scores are used for within-person analyses since it provides information about state associations. In order of being able to carry out the LMM, the variables state loneliness, PM self-compassion and PMC self-compassion needed to be standardized. The LMM was used to assess a) the association between state self-compassion (PM) and state loneliness (PM) and b) whether the association between self-compassion and loneliness is within-person (state-like) or between-person (trait-like).

3

RESULTS

3.1 PARTICIPANT FLOW

Altogether, 38 participants took part in the study. To increase the validation of our study, we chose to exclude participants with a response rate lower than 60%. We based this choice on an extensive literature review conducted by Van Berkel, Ferreira, & Kostakos (2017) which compared the response rates of 65 ESM studies. The authors showed that the average response rate was 69.6%. However due to the small sample size in our study, we decided to lower the response rate further to 60%. This increases the representability while simultaneously ensuring a level of validation similar to previous studies. For a full overview about the final sample size see Table 2.1.

3.2 DESCRIPTIVE STATISTICS

First, descriptive statistics of both trait questionnaires and state items were performed (see Table 3.1). Next, the reliability of the SCS-SF and the UCLA was calculated by using Cronbach's alpha. Analysis of both questionnaires showed a good internal consistency, with a Cronbach's alpha of .82 for the SCS-SF and a Cronbach's alpha of .84 for the UCLA. Next to the trait questionnaires, the internal consistency of each state item was tested by using the split-half reliability. The split-half reliability for the state loneliness item 'I feel lonely right now' was good with a value of .87. For the first state self-compassion item 'During the last minutes, I have been kind to myself', a reliability an estimate of .74 was calculated. The split-half reliability for the second state self-compassion item 'In the current moment, I see my difficulties as part of life that everyone goes through' was good with a result of .88, as well as the third state self-compassion item 'In the current moment, I keep my emotions in a balanced perspective' which showed an estimate of .83.

Table 3.1

Means (M), Standard Deviations (SD), and Minimum and Maximum Scores of Average Self-Compassion and Loneliness

Variables	N	Minimum (Scale Minimum)	Maximum (Scale Maximum)	Mean	Std. Deviation
SCS-SF	35	1.83 (1.0)	4.00 (5.0)	3.00	0.59
UCLA	35	1.25 (1.0)	2.95 (4.0)	1.78	0.34
State SC (EMM)	35	2.78 (1.0)	4.81 (5.0)	3.83	0.52
State Loneliness (EMM)	35	1.00 (1.0)	3.17 (5.0)	1.77	0.03

3.3 CORRELATION ANALYSES

Furthermore, a Pearson correlation between state self-compassion (EMM) and trait self-compassion (SCS-SF) was performed. Results showed a significant moderate positive correlation (r = .50, p < 0.001). Additionally, a moderate positive and significant correlation was found between state loneliness (EMM) and trait loneliness (UCLA) (r = .56, p < 0.001). The association between trait self-compassion (SCS-SF) trait loneliness (UCLA) was assessed by performing a Pearson correlation. The analysis showed a significant moderate negative

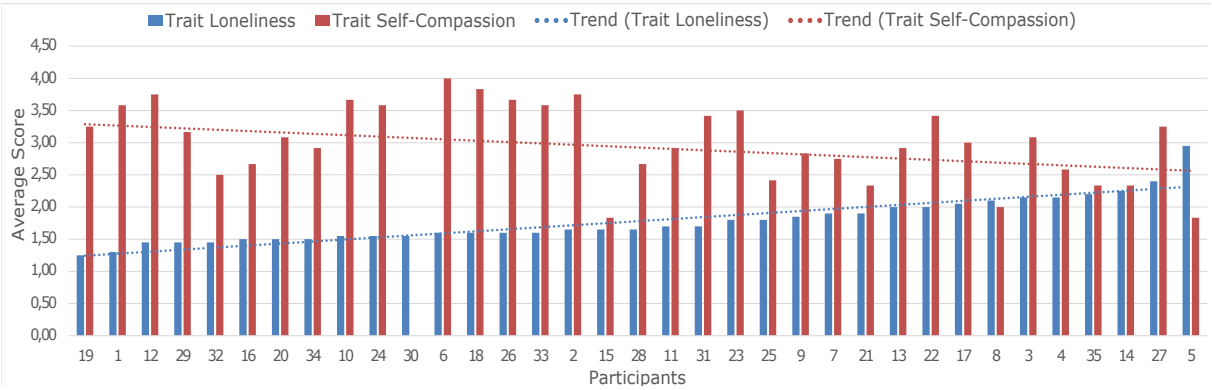

Figure 3.1. Average scores for trait loneliness (blue) and trait self-compassion (red) for each participant sorted by ascending trait loneliness.

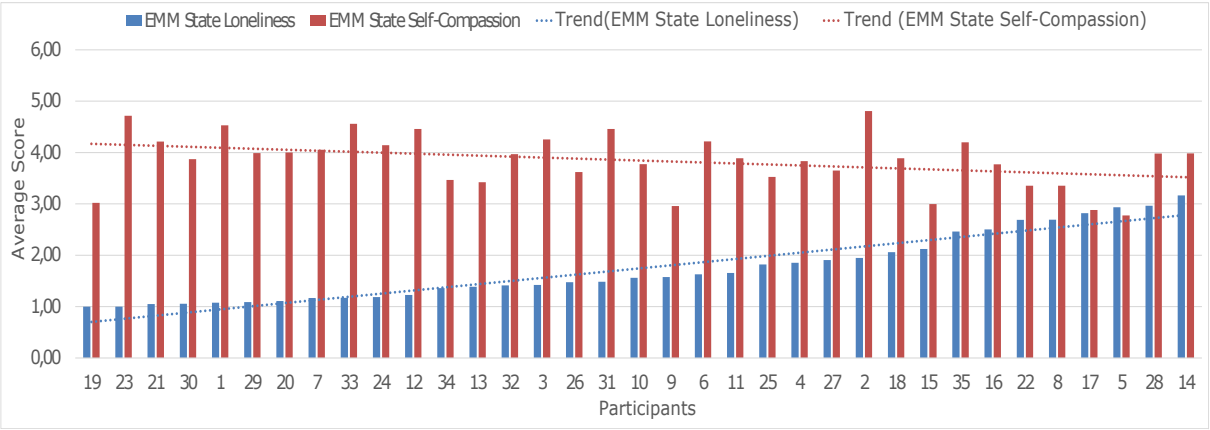

Figure 3.2. Average scores for state loneliness (blue) and state self-compassion (red) for each participant sorted by ascending state loneliness.

correlation between the variables (r = -.51, p < .001), meaning that in general higher levels of self-compassion are associated with lower levels of loneliness.

Figure 3.1 provides a visual presentation of the participants' trait scores sorted by ascending trait loneliness levels over the course of one week. As shown, within participants a significant numerical difference between loneliness and self-compassion can be found. Moreover, the Figure presents a negative trait relationship between the two constructs. *Figure 3.2* displays the average state levels of loneliness (EMM) and self-compassion (EMM) sorted by ascending average state loneliness levels for each participant over time. Similar to the trait levels, the participants scored rather high on average state self-compassion and rather low on average state loneliness (see Table 3.1 for the exact scores). Moreover, a negative average state correlation between self-compassion and loneliness can be identified.

3.4 LINEAR MIXED MODELS

A LMM was conducted to assess the overall relation between state self-compassion (PM) and state loneliness (PM), as well as the strength of the within person and between person associations between both constructs. First, results showed a significant moderate negative association between state self-compassion (PM) and state loneliness (PM) (β = -.49, SE = .04, p < 0.001). The negative association indicates that higher average levels of self-compassion are correlated with lower average levels of loneliness.

In order to determine if state loneliness depends more on state self-compassion (within-person association, PM-centred) or on average state self-compassion (between-person association, PM) a LMM was conducted. Results of the LMM indicate that state self-

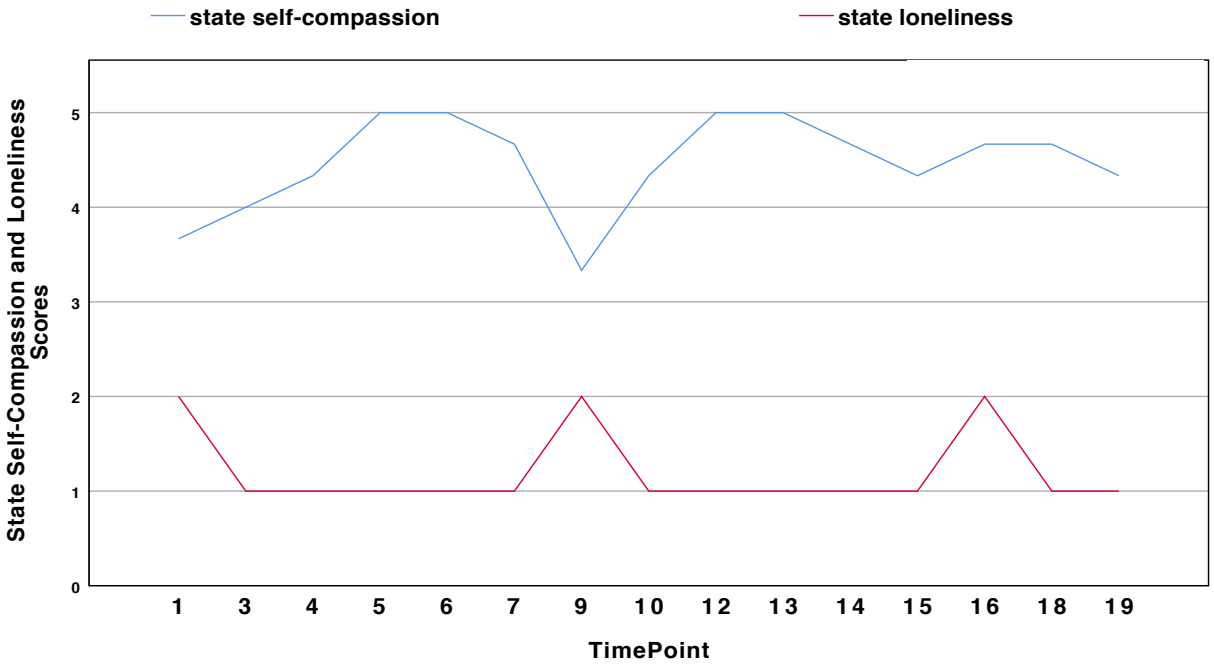

Figure 3.3. Levels of state self-compassion and loneliness of participant 12

compassion is more dependent on average state self-compassion compassion (β = -.33 *SE* = .07, $p < 0.001$) and slightly less dependent on momentary self-compassion (β = -.18, *SE* = .04, $p < 0.001$). Although both associations are significant, the associations are weak and the difference between the two variables seems to be minimal. Nevertheless, the analysis indicates that the association between state self-compassion and state loneliness is slightly more of a trait like association

3.5 INDIVIDUAL CASE ANALYSIS

In order to get a more detailed idea about the momentary association between self-compassion and loneliness, a visual case analysis of two participants with representative scores was performed. The results display that the higher the levels of state self-compassion, the lower the levels of state loneliness, thus indicating a negative relation on a within-person level.

3.5.1 *Participant 12*

Participant 12 scored high on the trait self-compassion scale with an estimate of 3.75 and rather low to medium on the trait loneliness questionnaire with a result of 1.45. When looking at *Figure 3.3*, the momentary relationship between self-compassion and loneliness can be seen. Overall, the participant has rather high state self-compassion and rather low state loneliness

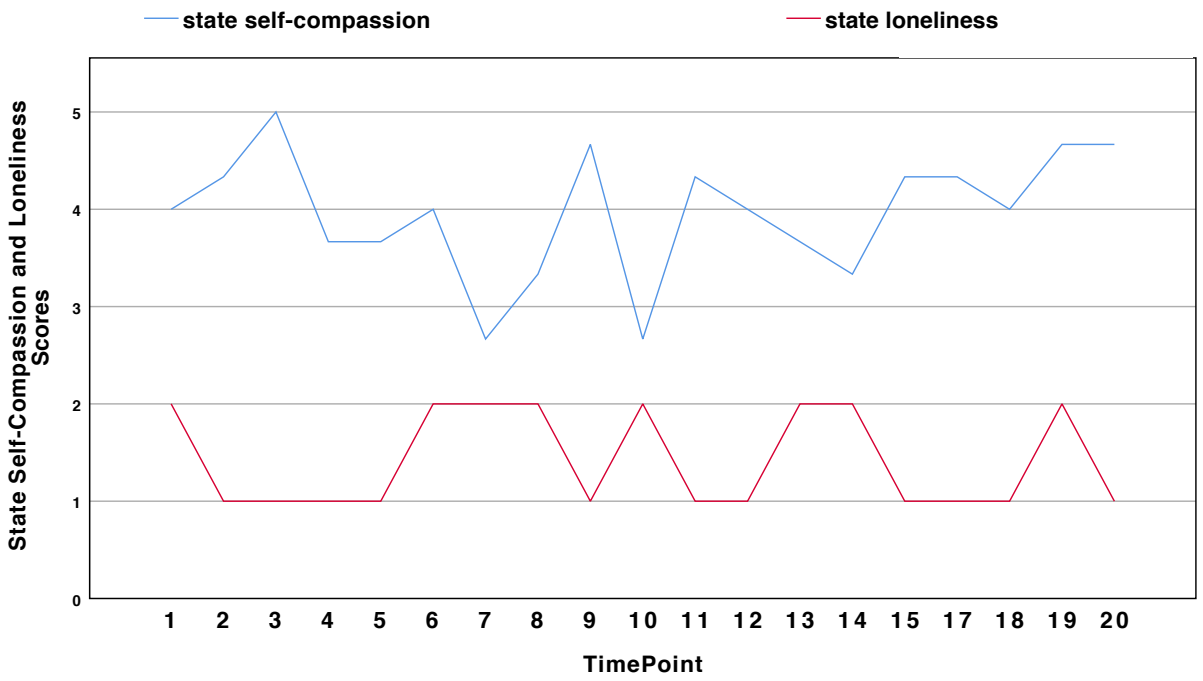

Figure 3.4. Levels of state self-compassion and loneliness of participant 32

values. As shown, both self-compassion and loneliness levels vary clearly throughout the week and do not show a stable behaviour. Also, it can be identified that when state self-compassion increased, state loneliness decreased, pointing to a negative association.

3.5.2 *Participant 32*

Participant 32 had a low to medium trait loneliness score (1.45) and a medium trait self-compassion estimate (2.50). As can be seen in *Figure 3.4*, on the state level the participant does display higher levels of self-compassion and lower scores of loneliness. Also, it is apparent that both state self-compassion and state loneliness fluctuate during the seven days and do not show a consistent pattern. Similar to the previous participant, at the timepoint where a spike is in self-compassion, a dip is in loneliness and vice versa. This pattern is again indicative of a negative association on the within-person level, since as soon as self-compassion increased, state loneliness decreased.

4

DISCUSSION

The purpose of the study was to first investigate the association between trait loneliness and its state counterpart as well as trait self-compassion and its state counterpart. Confirming the hypotheses, the results showed that both trait questionnaires are significantly moderately positively correlated to their state items. Furthermore, the study aimed at examining the trait relation between loneliness and self-compassion and seeing whether this association is mirrored at the state level. As expected, the two constructs are significantly moderately negatively correlated on a trait level. However, contrary to the hypotheses that on the state level a positive association will be found, a significant moderate negative association was found as well. Finally, a weak negative and significant association was found both at the within-person and the between-person level.

4.1 TRAIT AND STATE QUESTIONNAIRES

As part of the first hypotheses, the associations between the trait questionnaires and their corresponding state items were investigated. For both constructs the results showed significant moderate positive correlations. These findings seem reasonable and are in line with the hypotheses, indicating that the trait questionnaires measure the same constructs as their state items. In other words, both state and trait variables refer to the same psychological constructs as the internal consistencies for all questionnaires were distinctly very high. For instance, state self-compassion was measured by using three items representing the three self-compassion components of self-kindness, common humanity, and mindfulness. Additionally, state loneliness was measured by one item only which proved to be useful in a previous study assessing momentary loneliness (van Roekel et al., 2018). Also, reliability analyses of both trait questionnaires and state items yielded good internal consistencies. The positive associations between the trait questions and the corresponding state items ensure a correct interpretation of the results.

4.2 SELF-COMPASSION AND LONELINESS

On the trait level, a negative association between self-compassion and loneliness was expected. The results support the hypothesis, suggesting that, participants who think of themselves as self-compassionate also report lower loneliness levels than others. This finding is in line with previous studies examining the trait relation between self-compassion and loneliness, suggesting that people who on average score high on self-compassion, tend to show low average feelings of loneliness (Akin, 2010; Lyon, 2015). Certainly, a main component of self-compassion is that individuals provide themselves with warmth and understanding and are tolerant towards their own flaws and inadequacies. Moreover, self-compassionate individuals are aware of their own suffering and can transform negative feelings into more positive ones. In that sense, the negative trait relation between self-kindness, common humanity, and mindfulness and loneliness appears reasonable (Akin, 2010; Neff, 2003). The results could find direct application in interventions, focusing on encouraging individuals' general levels of self-compassion, thereby leading to a decrease in average loneliness levels.

On the state level, the results point to a weak, but significant negative association between self-compassion and loneliness, rejecting the hypothesis of being positively correlated on the state level. Concretely, students who make use of their self-compassion at a given moment, experience lower loneliness levels. Although no previous studies assessed the state relationship between self-compassion and loneliness before, a positive association was assumed on the grounds that interindividual measurements can differ from intraindividual measurements and thus can yield different results (Fisher et al., 2018; Geiser et al., 2017). It was assumed that as soon as average state levels of loneliness rise, average state self-compassion feelings also rise on the grounds that state self-compassion serves as a buffer against negative emotions and thus also against feelings of state loneliness (Leary et al., 2007). In that sense, self-compassion would get activated and would protect against the negative experience of state loneliness.

The state-trait discrepancy provides a potential explanation for the lower state value. In essence, participants generally over- or underestimate their behavior in certain situations, with the results of having overall over- or underestimated trait values. Hence, responses to trait questionnaires are heavily influenced by general subjective beliefs which not necessarily reflect peoples' actual behaviour in these situations. Therefore, state measurements are deemed to represent participant's responses more accurate since they are intuitive and happen in the current moment and are not conceived by beliefs about potential actions (Goetz et al., 2015).

Thus, state-trait discrepancy theory provides a potential explanation for the moderate significant association on the trait level and yet the weak significant state relation.

Next to the examination of the association between self-compassion and loneliness on a trait and on a state level, analyses regarding whether the association between self-compassion and loneliness is more a between-person or a within-person effect were conducted. Since between-person associations (trait-like) do not necessarily apply at within-person measurements (momentary), it was assumed that both associations could be possible (Curran & Bauer, 2011). The results showed that both the average levels of state self-compassion and momentary levels of self-compassion are negatively and significantly associated with state loneliness, even though the relationship is weak for both cases. As the between-person value self-compassion value is somewhat higher, it seems as if the state association between self-compassion and loneliness is slightly more on a between-person basis, however, this could be also due to the limitations of this study such as the small sample size. As both associations are quite weak the findings should be interpreted cautiously since no inferences can be drawn about the exact effect that self-compassion exerts on loneliness, that is if self-compassion decreases loneliness, leads to a better control of it, or affects the effect that self-compassion performs on loneliness.

To the best of the author's knowledge, there is no existing research on the within-person association between state self-compassion and state loneliness. However, the negative significant relationship found on the between-person level can be explained by existing research on average state self-compassion. Individuals scoring high on average state self-compassion display better abilities in managing unpleasant situations. They can face these situations in an objective way and do not get carried away by their emotions. This has the consequence that individuals do not get affected by these unpleasant events but can instead transform these negative emotions into more positive ones (Leary et al., 2007).

Based on the results of this research, the advice for people suffering from loneliness is to strengthen their self-compassion levels. An intervention program specifically targeting the development of self-compassion abilities is called the Mindful Self-Compassion (MSC) program. MSC is an eight-week workshop which teaches individuals how to accept themselves and how to stop being too self-critical. A study by Neff & Germer (2013) demonstrated the effectiveness of the program in enhancing self-compassion, mindfulness, and well-being, lasting at least one year after completion of the training. Improvements in self-compassion were associated with how much people practiced self-compassion and mindfulness in their everyday lives (Neff & Germer, 2013). This and further intervention programs intervention programs

show promising results in boosting self-compassion levels. Since these programs take several weeks of training, they are suitable for tackling trait self-compassion. However, especially a construct such as situational loneliness raises the need for immediate and short interventions strategies to prevent further harm, i.e., the development of chronic loneliness. Additional research focusing on the state association between self-compassion and loneliness would be beneficial in enabling the development these exactly tailored interventions.

4.3 STRENGTHS AND LIMITATIONS

The present study has some strengths which might serve as criteria for future research. The first main strength is the measurement of psychological constructs on a trait as well as on a state level. To the best of the authors knowledge, this study was the first investigating the direct state association between self-compassion and loneliness. Hence, this study provided new insights into both constructs and can be used for further research on this association. The second strength is the use of the ESM which allowed to assess students' daily feelings of loneliness and self-compassion at a given moment. This method improves the ecological validity since participants' feelings are captured in their naturally occurring environments. Moreover, ESM reduces the chance of forgetting previous experiences or events over long periods of time and improves the accuracy of the assessment, thereby overcoming the retrospective recall bias (Myin-Germeys et al., 2009).

Next to the strengths, the present study also encountered some potential limitations. First, state loneliness was measured by only one item, namely 'I feel lonely right now'. Although this item had a good reliability of .87, further items could have increased the reliability and validity of the construct. Since this study was a joint effort and therefore already twelve state items in total existed, solely one item for state loneliness was chosen. Second, the present study had a rather short study duration with eight days. Following the advice of Van Berkel et al. (2017), a study duration of 14 days would provide more precise results while simultaneously maintaining a good response rate. Third, the generalization of the findings is somewhat limited, because the study was only conducted with university students from only one university who were largely female and German. The results should be tested on another sample again to be able to draw more solid conclusions about the constructs examined in this study.

4.4 FUTURE DIRECTION AND CONCLUSION

Notwithstanding the limitations, this study offers two important implications for clinical practice and further research. First, the present study results show that in order to reduce or control levels of loneliness, no traditional interventions techniques such as improving social contacts are needed, but that increasing self-compassion levels provide an alternative solution. Hence, self-compassion can be seen as a new method in treating loneliness and enhancing ones' well-being. This finding can find a direct application in the clinical field since it indicates that self-compassion training is an effective solution for strengthening ones' resilience against feelings of loneliness. Second, this study provides detailed information about momentary levels of self-compassion and loneliness since these were not only measured at the start and/ or end of the study but at multiple times a day. More specifically, this study provides the first results conducted on both constructs on a daily basis and found a negative and significant relation. Since interindividual measurements can significantly differ from intraindividual measurements, it was not certain that a negative average state association would be found as well. In order to achieve more clarity about the state results, the current study should be replicated and further research on a within-person association should be conducted.

In this study, the participant group consisted out of young adults/ college students. Due to the limited scope of the thesis, this study focused solely on this narrow age group. This decision was based on the finding that young people are at a high risk of developing feelings of loneliness (Victor & Yang, 2012; Yang & Victor, 2011). Moreover, past studies on trait and state self-compassion and loneliness also focused on the young adults as a target group (Akin, 2010; Leary et al., 2007; Lyon, 2015). As a result, the present study findings cannot be generalized until further notice to different age groups such as elderlies (Ercikan & Roth, 2014). Elderlies are, next to young people, especially vulnerable to developing feelings of loneliness (Victor & Yang, 2012; Yang & Victor, 2011). Thus, future research should examine whether the present findings could be beneficial for further age groups.

Besides this, it is unclear how exactly state self-compassion is associated with state loneliness. Self-compassion seems to exert a buffering effect on negative emotions, including loneliness (Leary et al., 2007; Neff, 2003). However, it is not clear if self-compassion reduces loneliness, leads to a better control of loneliness, or prevents feelings of loneliness right from the start. A possibility would be to let participants, who feel highly self-compassionate at a given moment, report their inner thoughts and perceptions by using qualitative methods such as diary entries or interviews. This could provide answers on what happens inside individuals

when they ‘apply’ self-compassion. Moreover, it is difficult to give a full explanation related to causality among state self-compassion and state loneliness because no causal analysis was conducted. Perhaps the association is mediated by a third factor such as perceived stress. Future research could test if there is a causal state relationship between self-compassion and loneliness. A combination of these qualitative and quantitative methods could provide more detailed answers on the beneficial effect of that state self-compassion exerts loneliness.

For future research it might be interesting to distinguish between different types of loneliness, that is between transient and chronic loneliness. In this study, no information about how long students experienced loneliness was collected. In further studies, the duration of feelings of loneliness should be considered to draw more conclusive results about the nature of loneliness and its connection to daily feelings of self-compassion and other constructs. Also, no information about the causes for experiencing loneliness and self-compassion was collected. In the present study, participants indicated their self-compassion and loneliness levels, however, it is not clear why a participant felt lonely at a given moment. Knowledge about the reasons for experiencing loneliness and self-compassion might help to better understand the constructs and aid in developing interventions targeting self-compassion and loneliness.

In addition to these aspects, the study was conducted during the Covid-19 pandemic which raises the need to replicate the study when students are participating in their usual everyday life activities again. Recent research suggests that due to the pandemic and the lockdowns, Covid-19 especially led to a situational increase of loneliness among several age groups (Arslan, Yildirim, & Aytaç, 2020; Li & Wang, 2020; Okruszek, Aniszewska-Stańczuk, Piejka, Wiśniewska, & Żurek, 2020; Rosenberg, Luetke, Hensel, Kianersi, & Herbenick, 2020). Although the pandemic might have influenced students’ loneliness scores, it does not necessarily mean that their self-compassion levels were influenced as well. It might be the case that the two constructs were affected unevenly, pointing to an unequal growth in loneliness as compared to self-compassion. Thus, the findings should be investigated under normal conditions again. Despite of the effect that Covid-19 had on the constructs, the present study results suggest that situational feelings of loneliness such as those initiated by Covid-19 can be reduced by increasing levels of momentary self-compassion.

Despite the Covid-19 circumstances, this study fills a knowledge gap by providing novel insights into the constructs of self-compassion, loneliness, and their association on a state-basis. Not only trait self-compassion and loneliness seem to display a negative association, but also state self-compassion and loneliness. The loneliness value at a specific point in time is affected by average state self-compassion level as well as the self-compassion score at that particular

timepoint. If future studies can confirm the negative state association between self-compassion and loneliness, attention should be paid on enhancing peoples' state levels of self-compassion to reduce their loneliness levels. Thus, the present study provides an answer for helping people suffering from loneliness, that is enhancing their self-compassion abilities. Further knowledge on this topic could aid in designing interventions targeting clinical and daily life settings and in integrating self-compassion training into existing mental health programs.

REFERENCES

Akin, A. (2010). Self-compassion and Loneliness. *International Online Journal of Educational Sciences*, *2*(3). Retrieved from https://www.researchgate.net/profile/Ahmet-Akin-10/publication/49591624_Self-compassion_and_Loneliness/links/53e37d490cf23a7ff74952ef/Self-compassion-and-Loneliness.pdf

Arslan, G., Y\ild\ir\im, M., & Aytaç, M. (2020). Subjective vitality and loneliness explain how coronavirus anxiety increases rumination among college students. *Death Studies*, 1–10. https://doi.org/10.1080/07481187.2020.1824204

Cheng, H., & Furnham, A. (2002). Personality, peer relations, and self-confidence as predictors of happiness and loneliness. *Journal of Adolescence*, *25*(3), 327–339. https://doi.org/10.1006/yjado.475

Connolly-Zubot, A., Timulak, L., Hession, N., & Coleman, N. (2020). Emotion-focused therapy for anxiety and depression in women with breast cancer. *Journal of Contemporary Psychotherapy*, *50*(2), 113–122. https://doi.org/10.1007/s10879-019-09439-2

Curran, P. J., & Bauer, D. J. (2011). The disaggregation of within-person and between-person effects in longitudinal models of change. *Annual Review of Psychology*, *62*, 583–619. https://doi.org/10.1146/annurev.psych.093008.100356

Dancey, C. P., & Reidy, J. (2007). *Statistics without maths for psychology*. Pearson education.

Ercikan, K., & Roth, W.-M. (2014). Limits of generalizing in education research: Why criteria for research generalization should include population heterogeneity and users of knowledge claims. *Teachers College Record*, *116*(5), 1–28. Retrieved from http://carme-educ.sites.olt.ubc.ca/files/2015/11/Ercikan-Roth-2014.pdf

Fisher, A. J., Medaglia, J. D., & Jeronimus, B. F. (2018). Lack of group-to-individual generalizability is a threat to human subjects research. *Proceedings of the National Academy of Sciences*, *115*(27), E6106--E6115. Retrieved from https://doi.org/10.1073/pnas.1711978115

Flood, M., & Flood, M. (2005). *Mapping loneliness in Australia*. Australia Institute Discussion Paper 76. Canberra.

Geiser, C., Götz, T., Preckel, F., & Freund, P. A. (2017). States and traits. Hogrefe Publishing. Retrieved from https://doi.org/10.1027/1015-5759/a000413

Goetz, T., Becker, E. S., Bieg, M., Keller, M. M., Frenzel, A. C., & Hall, N. C. (2015). The

glass half empty: How emotional exhaustion affects the state-trait discrepancy in self-reports of teaching emotions. *PloS One*, *10*(9), e0137441. Retrieved from https://doi.org/10.1371/journal.pone.0137441

Gow, A. J., Pattie, A., Whiteman, M. C., Whalley, L. J., & Deary, I. J. (2007). Social support and successful aging: Investigating the relationships between lifetime cognitive change and life satisfaction. *Journal of Individual Differences*, *28*(3), 103–115. https://doi.org/10.1027/1614-0001.28.3.103

Griffin, J. (2010). *The lonely society?* Mental Health Foundation.

Hawkley, L. C., & Cacioppo, J. T. (2010). Loneliness matters: A theoretical and empirical review of consequences and mechanisms. *Annals of Behavioral Medicine*, *40*(2), 218–227. https://doi.org/10.1007/s12160-010-9210-8

Leary, M. R., Tate, E. B., Adams, C. E., Batts Allen, A., & Hancock, J. (2007). Self-compassion and reactions to unpleasant self-relevant events: the implications of treating oneself kindly. *Journal of Personality and Social Psychology*, *92*(5), 887. https://doi.org/10.1037/0022-3514.92.5.887

Li, L. Z., & Wang, S. (2020). Prevalence and predictors of general psychiatric disorders and loneliness during COVID-19 in the United Kingdom. *Psychiatry Research*, *291*, 113267. https://doi.org/10.1016/j.psychres.2020.113267

Lyon, T. A. (2015). Self-compassion as a predictor of loneliness: the relationship between self-evaluation processes and perceptions of social connection. Retrieved from https://firescholars.seu.edu/cgi/viewcontent.cgi?article=1038&=&context=honors&=&sei-redir=1&referer=https%253A%252F%252Fscholar.google.com%252Fscholar%253Fhl%253Den%2526as_sdt%253D0%25252C5%2526q%253DLyon%25252C%252BT.%252BA.%252B%2525282015%252529.%252B

MacBeth, A., & Gumley, A. (2012). Exploring compassion: A meta-analysis of the association between self-compassion and psychopathology. *Clinical Psychology Review*, *32*(6), 545–552. https://doi.org/10.1016/j.cpr.2012.06.003

Mahon, N. E., Yarcheski, A., Yarcheski, T. J., Cannella, B. L., & Hanks, M. M. (2006). A meta-analytic study of predictors for loneliness during adolescence. *Nursing Research*, *55*(5), 308–315. https://doi.org/10.1097/00006199-200611000- 00009

Masi, C. M., Chen, H.-Y., Hawkley, L. C., & Cacioppo, J. T. (2011). A meta-analysis of interventions to reduce loneliness. *Personality and Social Psychology Review*, *15*(3), 219–266. https://doi.org/10.1177/1088868310377394

Myin-Germeys, I., Kasanova, Z., Vaessen, T., Vachon, H., Kirtley, O., Viechtbauer, W., & Reininghaus, U. (2018). Experience sampling methodology in mental health research: new insights and technical developments. *World Psychiatry*, *17*(2), 123–132. https://doi.org/10.1002/wps.20513

Myin-Germeys, I., Oorschot, M., Collip, D., Lataster, J., Delespaul, P., & Van Os, J. (2009). Experience sampling research in psychopathology: opening the black box of daily life. *Psychological Medicine*, *39*(9), 1533. https://doi.org/10.1017/S0033291708004947

Neff, K. (2003). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and Identity*, *2*(2), 85–101. https://doi.org/10.1080/15298860390129863

Neff, K. D., & Dahm, K. A. (2015). Self-compassion: What it is, what it does, and how it relates to mindfulness. In *Handbook of mindfulness and self-regulation* (pp. 121–137). Springer. Retrieved from https://self-compassion.org/wp-content/uploads/publications/Mindfulness_and_SC_chapter_in_press.pdf

Neff, K. D., & Germer, C. K. (2013). A pilot study and randomized controlled trial of the mindful self-compassion program. *Journal of Clinical Psychology*, *69*(1), 28–44. Retrieved from https://doi.org/10.1002/jclp.21923

Neff, K. D., Rude, S. S., & Kirkpatrick, K. L. (2007). An examination of self-compassion in relation to positive psychological functioning and personality traits. *Journal of Research in Personality*, *41*(4), 908–916. https://doi.org/10.1016/j.jrp.2006.08.002

Neff, K. D., Tóth-Király, I., Knox, M. C., Kuchar, A., & Davidson, O. (2021). The Development and Validation of the State Self-Compassion Scale (Long-and Short Form). *Mindfulness*, *12*(1), 121–140. Retrieved from https://self-compassion.org/wp-content/uploads/2020/09/Neff-Toth-Kiraly-2020-in-press.pdf

Neff, K., & Germer, C. (2017). *Self-Compassion and Psychological*. *The Oxford handbook of compassion science*. Oxford University Press.

Okruszek, L., Aniszewska-Stańczuk, A., Piejka, A., Wiśniewska, M., & Żurek, K. (2020). Safe but lonely? Loneliness, mental health symptoms and COVID-19.

Perlman, D., & Peplau, L. A. (1981). Toward a social psychology of loneliness. *Personal Relationships*, *3*, 31–56.

Queen, T. L., Stawski, R. S., Ryan, L. H., & Smith, J. (2014). Loneliness in a day: activity engagement, time alone, and experienced emotions. *Psychology and Aging*, *29*(2), 297. https://doi.org/10.1037/a0036889

Raes, F., Pommier, E., Neff, K. D., & Van Gucht, D. (2011). Construction and factorial validation of a short form of the self-compassion scale. *Clinical Psychology &*

Psychotherapy, *18*(3), 250–255. https://doi.org/10.1002/cpp.702

Rokach, A. (1989). Antecedents of loneliness: A factorial analysis. *The Journal of Psychology*, *123*(4), 369–384. https://doi.org/10.1080/00223980.1989.10542992

Rosenberg, M., Luetke, M., Hensel, D., Kianersi, S., & Herbenick, D. (2020). Depression and loneliness during COVID-19 restrictions in the United States, and their associations with frequency of social and sexual connections. *MedRxiv*.

Russell, D. W. (1996). UCLA Loneliness Scale (Version 3): Reliability, validity, and factor structure. *Journal of Personality Assessment*, *66*(1), 20–40. https://doi.org/10.1207/s15327752jpa6601_2

Schinka, K. C., van Dulmen, M. H. M., Mata, A. D., Bossarte, R., & Swahn, M. (2013). Psychosocial predictors and outcomes of loneliness trajectories from childhood to early adolescence. *Journal of Adolescence*, *36*(6), 1251–1260. https://doi.org/10.1016/j.adolescence.2013.08.002

Seligman, M. E. P. (2012). *Flourish: A visionary new understanding of happiness and well-being*. Simon and Schuster.

Van Berkel, N., Ferreira, D., & Kostakos, V. (2017). The experience sampling method on mobile devices. *ACM Computing Surveys (CSUR)*, *50*(6), 1–40. https://doi.org/10.1145/3123988

van Roekel, E., Goossens, L., Verhagen, M., Wouters, S., Engels, R. C. M. E., & Scholte, R. H. J. (2014). Loneliness, affect, and adolescents' appraisals of company: An experience sampling method study. *Journal of Research on Adolescence*, *24*(2), 350–363. https://doi.org/10.1111/jora.12061

van Roekel, E., Verhagen, M., Engels, R. C. M. E., Scholte, R. H. J., Cacioppo, S., & Cacioppo, J. T. (2018). Trait and state levels of loneliness in early and late adolescents: Examining the differential reactivity hypothesis. *Journal of Clinical Child & Adolescent Psychology*, *47*(6), 888–899. https://doi.org/10.1080/15374416.2016.1146993

Victor, C. R., & Yang, K. (2012). The prevalence of loneliness among adults: a case study of the United Kingdom. *The Journal of Psychology*, *146*(1–2), 85–104. https://doi.org/10.1080/00223980.2011.613875

Yang, K., & Victor, C. (2011). Age and loneliness in 25 European nations. *Ageing and Society*, *31*(8), 1368. https://doi.org/10.1017/S0144686X1000139X

Young, J. E. (1982). Loneliness, depression and cognitive therapy: Theory and application. In *Loneliness: A sourcebook of current theory, research and therapy* (pp. 379–406).

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APPENDIX A

Self-Compassion Scale - Short Form (SCS-SF)

HOW I TYPICALLY ACT TOWARDS MYSELF IN DIFFICULT TIMES

Please read each statement carefully before answering. To the left of each item, indicate how often you behave in the stated manner, using the following scale:

Almost never				**Almost always**
1	**2**	**3**	**4**	**5**

_____1. When I fail at something important to me I become consumed by feelings of inadequacy.

_____2. I try to be understanding and patient towards those aspects of my personality I don't like.

_____3. When something painful happens I try to take a balanced view of the situation.

_____4. When I'm feeling down, I tend to feel like most other people are probably happier than I am.

_____5. I try to see my failings as part of the human condition.

_____6. When I'm going through a very hard time, I give myself the caring and tenderness I need.

_____7. When something upsets me I try to keep my emotions in balance.

_____8. When I fail at something that's important to me, I tend to feel alone in my failure

_____9. When I'm feeling down I tend to obsess and fixate on everything that's wrong.

_____10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.

_____11. I'm disapproving and judgmental about my own flaws and inadequacies.

_____12. I'm intolerant and impatient towards those aspects of my personality I don't like.

APPENDIX B

UCLA Loneliness Scale (Version 3)

Scale:
INSTRUCTIONS: Indicate how often each of the statements below is descriptive of you.

Statement	Never	Rarely	Sometimes	Often
1. I feel in tune with the people around me	1	2	3	4
2. I lack companionship	1	2	3	4
3. There is no one I can turn to	1	2	3	4
4. I do not feel alone	1	2	3	4
5. I feel part of a group of friends	1	2	3	4
6. I have a lot in common with the people around me	1	2	3	4
7. I am no longer close to anyone	1	2	3	4
8. My interests and ideas are not shared by those around me	1	2	3	4
9. I am an outgoing person	1	2	3	4
10. There arc people I feel close to	1	2	3	4
11. I feel left out	1	2	3	4
12. My social relationships arc superficial	1	2	3	4
13. No one really knows me well	1	2	3	4
14. I feel isolated from others	1	2	3	4
15. I can find companionship when I want it	1	2	3	4
16. There are people who really understand me	1	2	3	4
17. I am unhappy being so withdrawn	1	2	3	4
18. People are around me but not with me	1	2	3	4
19. There are people I can talk to	1	2	3	4
20. There are people I can turn to	1	2	3	4

Scoring:
Items 1, 5, 6, 9, 10, 15, 16, 19, 20 are all reverse scored.
Keep scoring continuous.