Self-compassion and mood fluctuations amongst cancer patients

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Masterthesis

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Abstract

Introduction: The diagnosis of cancer brings a lot of physical and psychological difficulties. Self-compassion can help alleviate these problems, but it is unclear which levels of self-compassion are apparent and whether they fluctuate, or are stable over time.

Method: Participants were recruited from two different hospitals by oncology nurses. By applying the experience sampling method (ESM) we study the diurnal patterns of participants by sending a questionnaire through the participants' Smartphone four times a day (at random times during specific timeslots) for a week.

Results: Mood and self-compassion strongly positively correlated with each other ($p<0.001$). No clear diurnal pattern could be found. Mornings, early afternoon, late afternoon, or evening did not show significant differences on various days for either self-compassion or mood.

Conclusion: Although this study was limited in its sample size, the usage of the experience sampling method slightly made up for it by bringing many data points per respondent compared to cross-sectional research. The experience sampling method was the strength of the study, by allowing to depict the diurnal patterns, and giving insight into how this changes for patients with cancer. Cancer patients show some variance within and between days for mood and self-compassion. It was found that self-compassion correlates strongly with both positive mood, and negatively with negative mood over time.

Overview

1. Introduction

The diagnosis of cancer can bring many challenges for a patient. Difficulties such as going through medical procedures, having a loss of energy, pain, and trouble with sleeping (Dekker & de Groot, 2018; Stark et al., 2012) can have a big impact on a person. In addition, cancer often includes a wide range of psychological consequences such as uncertainty about the future, anxiety & depressive symptoms, and avoidance of physical activity (Kwakkenbos et al., 2014; KWF, 2018; Glauss et al., 1996; Bukberg et al., 1994). Overall, patients with cancer are at an increased risk for psychological and physical complaints, which might lower their quality of life (Bjordal et al., 1999; Pinto-Gouveia et al., 2014).

One concept that can help cancer patients cope with some of these difficulties is self-compassion. According to Neff (2003a, 2003b, 2007): self-compassion refers to a wise and kind attitude towards oneself in times of difficulty and the ability to be sensitive to personal suffering. Self-compassion consists of three interrelated components: self-kindness, common humanity, and mindfulness. Self-kindness refers to being gentle and understanding towards ourselves when confronted with painful experiences rather than responding with anger or frustration when something does not go your way. Being imperfect, failing in life's difficulties is an inevitability, so therefore it can be more rewarding to accept it rather than denying or fighting it. Common humanity involves a sense that suffering is part of the human experience which humans all go through. Recognizing this and accepting our inadequacies is acknowledging the shared human experience. Mindfulness refers to awareness of painful experiences. This awareness stems from relating personal experiences to that of others who are suffering, therefore putting a personal situation into the larger perspective. It is also about being non-judgmental and being able to observe thoughts and feelings as they come without suppressing them. In short, self-compassion is defined as being kind towards yourself while being less self-critical and could benefit cancer patients as a way to cope with some of their difficulties.

How does self-compassion fit in with the psychological consequences following a cancer diagnosis? Many studies have shown that self-compassion is negatively related to distress and positively related to well-being. Self-compassion also relates negatively to negative affect and psychological symptoms such as depression, anxiety, and stress (Barnard & Curry, 2011; Ehret et al., 2014; Hofmann et al., 2012; MacBeth & Gumley, 2012; Muris et al., 2015; Johnson & O'Brien, 2013). Self-compassion can be used as a buffer to protect against mental health problems, especially for those who have lower self-esteem (Marshall et al. 2015; Neff et al,

2007; Pinto-Gouveia et al., 2014). Other studies also confirmed that positive mental health or wellbeing can protect against psychopathology, with higher levels of self-compassion promoting resilience against psychopathology (Trompetter, De Kleine & Bohlmeijer, 2017). Zhu et al (2020) found that self-compassion is closely linked to cancer patients' depressive & anxiety symptoms with perceived consequences (of cancer) playing a mediating role. Furthermore, self-compassion helps reduce self-criticism, (Campos et al, 2012; Neff et al, 2007) which is helpful since cancer patients tend to be overly critical about themselves (Vlierberghe, 2019). Although studies have shown the mediating effect of self-compassion against psychopathology, little is known about how self-compassion changes over time and how it relates to mood for cancer patients. Yet, these insights could help create a better understanding of how and when self-compassion protects patients against psychopathology.

One psychological aspect that cancer patients experience is fluctuations in mood and symptoms. Some patients experience depression and anxiety right after diagnosis, while others might experience mood changes during treatment (Cardoso et al., 2016). Depressive symptoms are common during the period after patients have gotten the diagnosis of cancer. One article found that from a group of early-stage breast cancer patients that 36% of them met (shortly after diagnosis) the criteria for depressive disorders (Love et al., 2002). For patients with depression, it is known that diurnal changes in mood are very present. Meaning that there is a fluctuation in the severity of symptoms with mornings being associated with stronger symptoms, and the evening with slightly stronger symptoms (Rusting & Larsen, 1998). Diurnal mood variation with early morning worsening is, according to the Diagnostic and Statistical Manual 5th edition (American Psychiatric Association, 2013), a classic symptom of melancholic features of major depressive disorder (Morris et al., 2009). Although a lot of research has been done on diurnal mood variations among people with depression, there has not been any research about diurnal mood variations among people who were diagnosed with cancer. Since diurnal mood variation is common among people with depression, finding these same patterns could lead to help diagnosing depression among cancer patients if they show similar patterns.

Traditional cross-sectional research is not a fitting method to research diurnal patterns because it does not include multiple assessments on the same day. A research method that does take into account the diurnal fluctuations is the experience sampling method (ESM). ESM is a longitudinal research method that assesses participants multiple times a day but for a shorter period, making it possible to measure diurnal variations (Shiffman et al., 2008, Bolger & Laurenceau, 2013). Due to an increase in smartphone usage (Statista, 2020), which enables

people to take multiple assessments a day more easily with the use of push notifications, ESM has seen a rise in popularity. During these assessments, people describe what they are feeling, what they are thinking, or their behavior (Larson, Prescott & Czikszentmihalyi, 2014; Larson & Csikszentmihalyi, 1983; Hormuth, 1986). The ESM is designed to encapsulate momentary assessment ratings of experiences, which makes it valuable for the assessment of mood or symptoms which are very dynamic and can change over time (Ebner-Priemer et al., 2009). Multiple studies have shown that significant differences can be found between retrospective assessment and real-time assessment when it comes to measuring mood (Solhan et al., 2009). In conclusion, the ESM is a fitting method to measure diurnal patterns due to the multiple assessments on the same day for a longer period.

From the previous introduction, the following research questions have been established

1. *What is the longitudinal relationship between self-compassion and mood?*
2. *What are the diurnal patterns of mood for cancer patients?*
3. *What are the diurnal patterns of self-compassion for cancer patients?*

2. Method

To answer the research questions, the experience sampling method (ESM) was applied. ESM is an ecologically valid method that allows assessing various constructs and psychological mechanisms at the moment (Verhagen et al., 2016). ESM is an intensive longitudinal research methodology that involves asking participants to report on their thoughts, feelings, and behaviors multiple times a day for a set period. For this study, multiple questionnaires were filled in four times a day during specific timeslots for seven days. To increase the fill-in rate of the questionnaires, micro-incentives were employed.

2.1. Setting

This study was part of an overarching research-study about a self-compassion app for patients with cancer. Participants (patients who recently got diagnosed with cancer) of that study were asked if they wanted to try out an app that teaches them about self-compassion. In essence, it is a 6 week-long self-compassion training that addresses a different theme of self-compassion each week. Examples of the themes are; (1) being kind to yourself; (2) dealing with anxiety and insecurity; (3) taking care of your body; (4) asking for support from others and setting boundaries; (5) experiencing positive sides of life. Participants were required to use the app for two hours each week. The start of the ESM study was done after the participant had access to the self-compassion app for 3 weeks. That way it corresponded with the available module of the app which informs participants about being self-critical, an aspect within the concept of self-compassion.

2.2. Participants & Procedure

The aim was to recruit 20 participants from two different hospitals through the oncology nurses. This became 11 participants because of difficulties in recruitment. The oncology nurses informed the participants about the study “zelfcompassie bij kanker”. The two participating hospitals were the MST (Medisch Spectrum Twente) in Enschede and the UMCG (Universitair Medisch Centrum Groningen) in Groningen. The inclusion criteria were that the participants need to be aged 18 and older and recently (within 12 months) gotten any cancer diagnosis and were treated with curative intent. Participants also needed to be proficient in Dutch, have a Smartphone, computer, or tablet at their disposal, and were willing to try out the app for 2 hours per week and fill in questionnaires.

The procedure first started at the hospital. Nurses were informed about the research and are given the most important points of the research and the app as well as a brochure. On the brochure, there is a QR-code and web-link that direct towards the website of the study. The

prospective participants can register for the study through the website. During this registration, the data of first names, last names, hospital, and phone numbers were collected.

After they gave their informed consent, they were able to participate in the study. The informed consent also included information about the current ESM study. In the informed consent, on the website and after 1-week participation with the app the participants were informed about the additional micro-incentives they could earn when filling in the ESM questionnaires. This was done to increase the adherence and fill-in rates of the ESM questions (Musthag et al., 2011; Singer & Ye, 2013).

2.3.ESM distribution

A short survey of 7 questions was established in Qualtrics, a web-based survey program, and used to repeatedly distribute among the participants. The survey was filled in four times a day for seven days (28 time points). The distribution of the survey was done on 4 different timeslots throughout each day: first timeslot (09:00 – 11:50), second timeslot (12:10 – 14:50), third timeslot (15:10 – 17:50), and fourth timeslot (18:10 – 21:00). A random number generator was used (random.org) to create random times within each time slot, thus creating 28 unique times for distribution. The duration of the ESM questions was set on seven days with the eighth day being used for the debriefing questionnaire. This aligns with the advice from Csikszentmialy et al (2007) for having a minimum of a week for the ESM questions to have a representative sample of the feelings of the participants.

The distribution of the ESM questions was through the instant messaging app WhatsApp. WhatsApp was chosen because it was already widely utilized, thus lowering the burden for participants by not having to familiarize themselves with another new application, and used in conjunction with the scheduling app SKEDit. SKEDit allows the user (researcher in this case) to schedule messages and also repeat the messages at a time interval. The message contained a brief statement and a link to the Qualtrics survey. A possible message might look like this:

2.3.1. ESM questions

Only seven questions were used in creating the questionnaire. That is because the ESM works best with a short survey. If longer and validated constructs were taken from another survey, the assessment might be too exhausting for participants since they need to answer all the questions

multiple times a day. Mood was measured with items 1 – 4 of the questionnaire. The constructs were not taken from an existing validated survey but were inspired by the Profile of Mood States Questionnaire (POMS). This is also because standardized ESM item sets with evidence-based psychometric criteria are not available (Haynes & Yoshioka, 2007). Self-compassion was measured with items 6 and 7 of the questionnaire (see table 1 for the full items). Physical wellbeing (item 5) was measured with a single item, "I feel physically well at this moment". This item has not been used for the current study. All items within the survey had a forced response so there were no partially filled-in surveys. Participants were excluded from this study if they filled in less than 50% of the total amount of questionnaires (time points). The questions in Qualtrics were randomized - meaning that the order of the questions is different each time the survey is started - to prevent order bias.

Although item 5 showed high internal consistency, it has fewer ties with the concept of mood than the other 4 items. Cronbach's Alpha of the 4-item mood scale was 0.86 and the Alpha of the 2- items self-compassion scale was 0.79 (table 3). No items were deleted to reach a sufficient Cronbach's Alpha.

Table 1

The 2 constructs with their underlying items and choice of answers translated to English

Mood	Totally not	Somewhat not	Neutral	Somewhat	Totally
Item 1: "I feel Cheerful at this moment"	1	2	3	4	5
Item 2: "I feel Anxious at this moment"	1	2	3	4	5
Item 3: "I feel Sad at this moment"	1	2	3	4	5
Item 4: "I feel calm at this moment"	1	2	3	4	5
Item 5: "I feel Physically well at this moment"	1	2	3	4	5
Self-compassion					
Item 6: "At this moment I am Kind towards myself"	1	2	3	4	5
Item 7: "At this moment I am Self-Critical"	1	2	3	4	5

On the eighth day, participants received a debriefing questionnaire. It consisted of five questions about whether the ESM questions had any influence on the participants' behavior, feeling, and thoughts, in addition to asking whether they experienced technical difficulties (regarding the ESM questionnaires) during the past week. These questions were asked to check

whether the ‘daily life’ of the participant was, in any way, influenced by the ESM questions and if their behavior, thoughts, or feelings were therefore influenced (Hormuth, 1986).

2.4. Data analysis & Data preparation

Data was cleaned up by removing unnecessary columns of data that Qualtrics automatically tracks. Additionally, the data about the respondent’s name was transformed to a unique identifier to anonymize it. Qualtrics also tracks starting date and end date of the survey. Only the end-date is necessary as this will be used to create the variable ‘Time’ which translates to date plus the exact moment when the survey was finished. A final variable that is needed for ESM-data-analysis is ‘Timepoint’. This variable indicates the chronology of the ESM question that is answered. For example: If the ESM question for a particular respondent started on Monday, then the first ESM question that is distributed and answered can be indicated by 1 (first day, first ESM time), which continues further until 28 (last day / Sunday, fourth ESM time of the day). Item 2, 3, and 7 were recoded as they were negative, meaning a high score on these questions did not cohere with the other questions in the construct (more positive mood or higher amount of self-compassion).

The Statistical Program for Social Sciences (SPSS) 26th edition was used for the data analysis and creating the graphs. A univariate general linear model was used to estimate the marginal means of the construct's mood and self-compassion. Finally, the time point was set as a fixed factor to estimate marginal means for the time point and to compare the information about the different data points over time within and between the participants. This shows how self-compassion and mood vary over time. The same univariate general linear model was used for the single item analysis. Linear Mixed-Methods was used to highlight differences of various timepoints compared to the intercept, also the output SPSS provided showed descriptive statistics of each timepoint and respondent. One-way ANOVA tests were used to examine whether different timepoints and timepoints had different group means, independent samples t-test was used after a significant group mean was found with one-way ANOVA to examine the different times of the day.

3. Results

3.1 Description of the study group

From the 11 participants that engaged in this study, six were used for data analysis based on the exclusion criteria. The other 5 participants did not fill in enough questionnaires and were not included.

The mean age of the participants was 43 years, with all 6 of them being female (Table 2). Three participants were employed, two participants were on sickness benefit and one was unemployed by illness not caused by cancer. All of the participants had the Dutch nationality. Education level was spread out evenly with 2 participants having lower education, two middle education, and two having completed higher education. Throughout the study, questions were filled in 144 times by the 6 respondents. The total response rate of the ESM questions (after exclusion) was 86%.

Table 2

Demographics of the participants (N=6)

Item	Category	Frequency	%
Gender	Male	0	0
	Female	6	100
Age	65+	0	0
	55 - 64	1	16.67
	45 - 54	3	50
	35 - 44	0	0
	25 - 34	1	16.67
	18 - 24	1	16.67
Nationality	Dutch	6	100
Educational level	Higher (HBO+)	2	33.33
	Middle (MBO)	2	33.33
	Lower (-MBO)	2	33.33
Occupation	Employed	3	50
	Sickness benefit	2	33
	Unemployed	1	16.67
	Self-employed	0	0

3.2 Description of the main variables

The descriptive statistics of the main variables Mood, Self-compassion, and their underlying items are shown in table 3. Mood has a mean score of 3.74 (SD=0.89) with a minimum of 1.5 and a maximum of 5. Self-compassion has a mean score of 3.72 (SD=1.04) with a minimum of 1 and a maximum of 5. A positive mood and a high amount of self-compassion overall, considering that the participants are experiencing a potentially life-threatening illness.

All mean scores of mood and self-compassion over time are shown in Figure 1. Participants scored the highest mood on time point 27 with the mean being 4.38 (SD=0.41), this measurement was the late afternoon (third timepoint) of Sunday and was measured between 15:10 – 17:50. The lowest timepoint was on 22 (M=2.75, SD=0.41. Timepoint 22 was the early afternoon (second timepoint) on Saturday (12:10 – 14:50). Participants scored the highest amount of self-compassion on time point 6 with the mean being 4.5 (SD=0.5), this measurement was the early afternoon (second timepoint) on Tuesday and was measured between 12:10 – 14:50. The lowest self-compassion was measured on timepoint 15 with a mean of 2.9 (SD=1.52). This was the late afternoon (third timepoint) on Saturday.

Table 3

Constructs with Cronbach's Alpha, number of items for the constructs, number of data points for each construct or item, mean (+SD), and underlying items with their mean (+SD) and each min-max score with the range

Construct	Cronbach's Alpha	No. of items	No. of data points	Mean (SD)	Min – Max (Range)
Mood (Scale of items 1 - 4)	0.86	4	144	3.74 (0.89)	1.5 – 5 (3.5)
Item 1: "I feel Cheerful at this moment	-	-	144	3.55 (1.01)	1 – 5 (4)
Item 2: "I feel Anxious at this moment" [1]	-	-	144	2.12 (1.16)	1 – 5 (4)
Item 3: "I feel Sad at this moment" [1]	-	-	144	2.35 (1.09)	1 – 5 (4)
Item 4: "I feel Calm at this moment"	-	-	144	3.88 (1.01)	1 – 5 (4)
Item 5: "I feel Physically well at this moment"			144	3.26 (1.22)	1 – 5 (4)
Self-compassion	0.79	2	144	3.72 (1.04)	1 – 5 (4)
Item 6: "At this moment I am Kind towards myself"	-	-	144	3.82 (0.97)	1 – 5 (4)
Item 7: "At this moment I am Self-Critical" [1]	-	-	144	3.12 (1.23)	1 – 5 (4)

[1] = reverse-coded in computing the scale scores, but the raw data was used for displaying them individually in the table

3.3 Relationship between self-compassion and mood

The first research question was: "*What is the longitudinal relationship between self-compassion and mood".* Figure 1 shows that self-compassion and mood are closely related over time. And only diverting slightly at measure points 25, 26, and 27. Measure point 25, 26 and 27 are from Sunday 09:00 – 11:50 (25), 12:10 – 14:50 (26), and 15:10 – 17:50 (27). Although self-compassion was equal on measure point 28 (evening on Sunday) it shows that Sunday could be tied to lower self-compassion relative towards mood while staying equally the same throughout the rest of the week. Figure 2 shows how self-compassion and mood are similar among the different respondents.

Figure 1

Self-compassion and mood over time

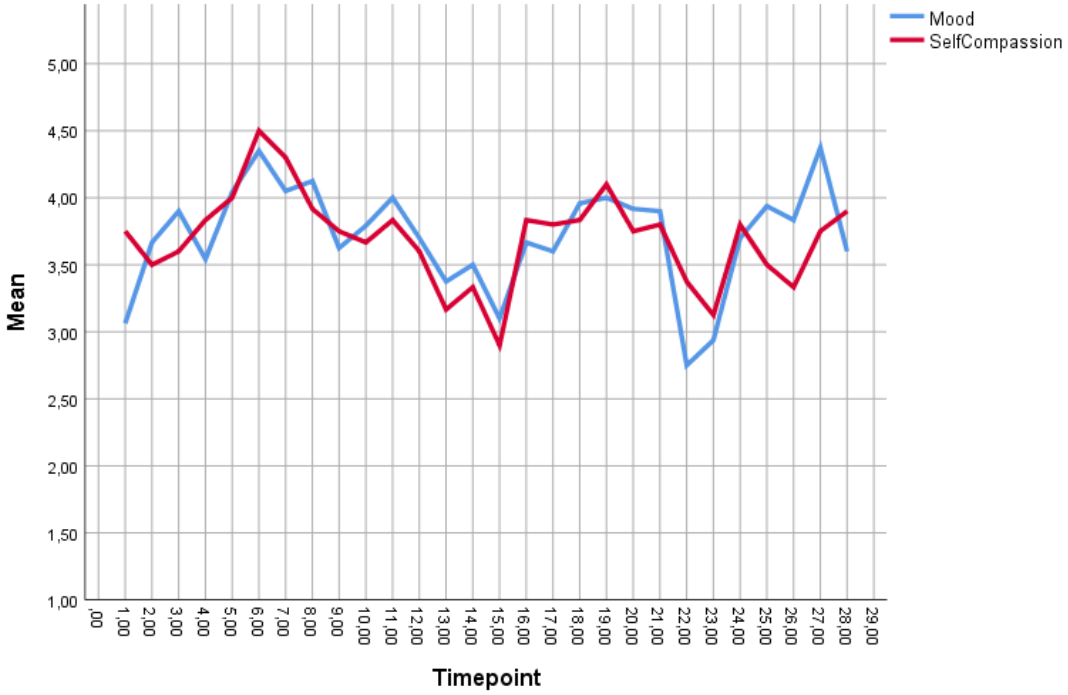
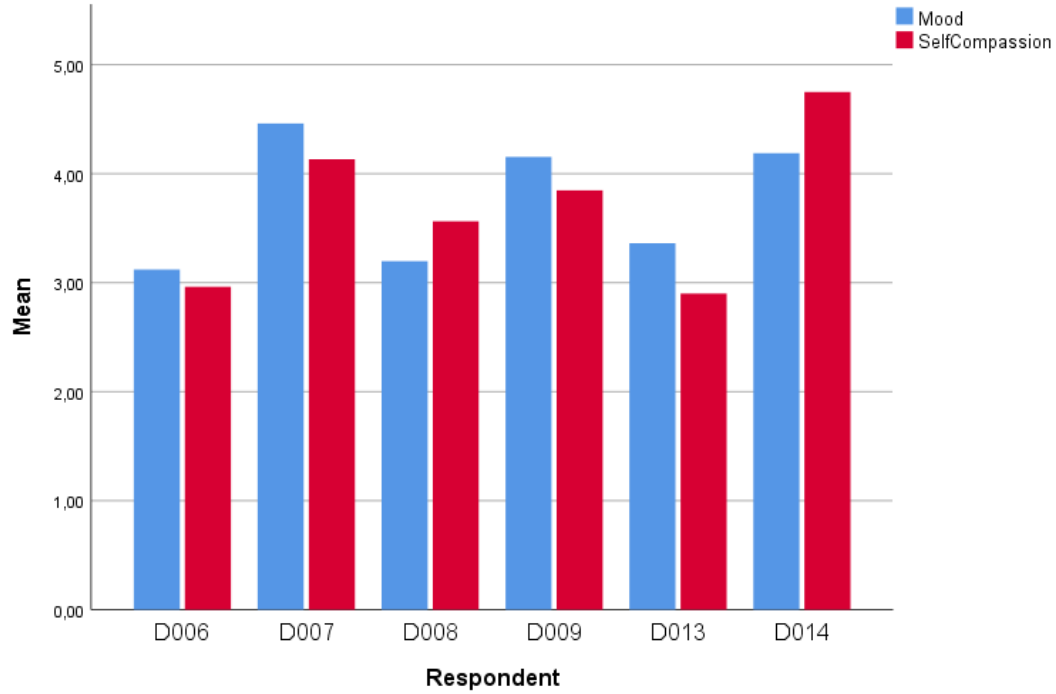


Figure 2

Histogram of self-compassion and mood, divided by respondents



To investigate if there is also a cross-sectional relationship between Self-Compassion and Mood a bivariate Pearson correlation test was conducted (n=144). Self-compassion and mood were found to be strongly positively correlated, $r = 0.68$, $p < 0.001$. This is also reflected in Figure 1 where the lines of self-compassion and mood are closely related over time. This implies that self-compassion and mood strongly correlate with each other across the 28 timepoints.

3.4 Diurnal patterns of mood

The second research question was: *"What are the diurnal patterns of mood for cancer patients?"*. Figures 3 & 4 show that mood for cancer patients has fluctuated throughout the day. Most respondents report a positive mood on most timepoints as only three timepoints had a score below 3 (timepoints 15, 2 & 22). The intercept of the construct Mood was 3.44. (see Appendix 6). None of the timepoints differed significantly from the intercept. Timepoint 6 (+1.06) shows the biggest difference.

The lowest mood was on timepoint 22 (early afternoon on Saturday) with a mean score of 2.75 (n=144). The highest mood was on measure point 6 (2nd measurement on Tuesday, mean score = 4.5, (n=144). Figure 3 shows the fluctuations of mood for participants over time while figure 4 shows the estimated marginal means of the respondents over time. In figure 3, all six

respondents are shown with broken lines to showcase the missing values whenever a survey was not filled in during a particular timepoint.

It also shows a drop in mood from measure point 20 towards measure point 22. This is from Friday to Saturday meaning that the beginning of the weekend on Friday evening is tied to a high mood while Saturday morning has a low mood, which steadily climbs up until Sunday. However, on the final timepoint (28, Sunday evening) it drops again showing that Sunday morning and afternoon are tied to a higher (positive) mood while the evening shows a sharp decrease in mood. The prospect of the upcoming week could be related to this, and the pattern continues on Monday until it reaches a peak in positive mood on Tuesday.

To investigate whether there are differences between the times of the day, a one-way ANOVA was conducted to compare timepoint per day 1 (morning), 2 (early afternoon), 3 (late afternoon), and 4 (evening). There were no statistically significant differences in mood, between the different times of the day as determined by one-way ANOVA (F=0.182, p=0.908).

Individual items were also analyzed to investigate whether there are differences between the times of the day. One-way ANOVA was conducted on each item to compare the timepoints per day. No statistically significant difference in either individual item (cheerfulness, sadness, anxiety, or calmness) was found. See Appendix 7 for the individual graphs and the analyses.

Figure 3

Mood over time for each participant

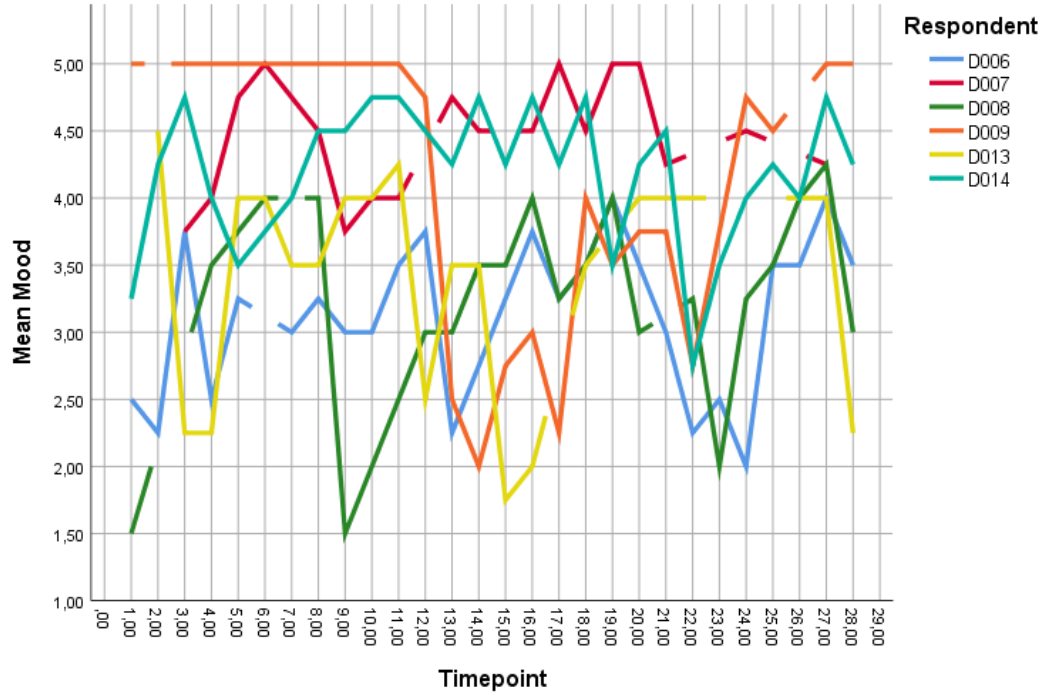
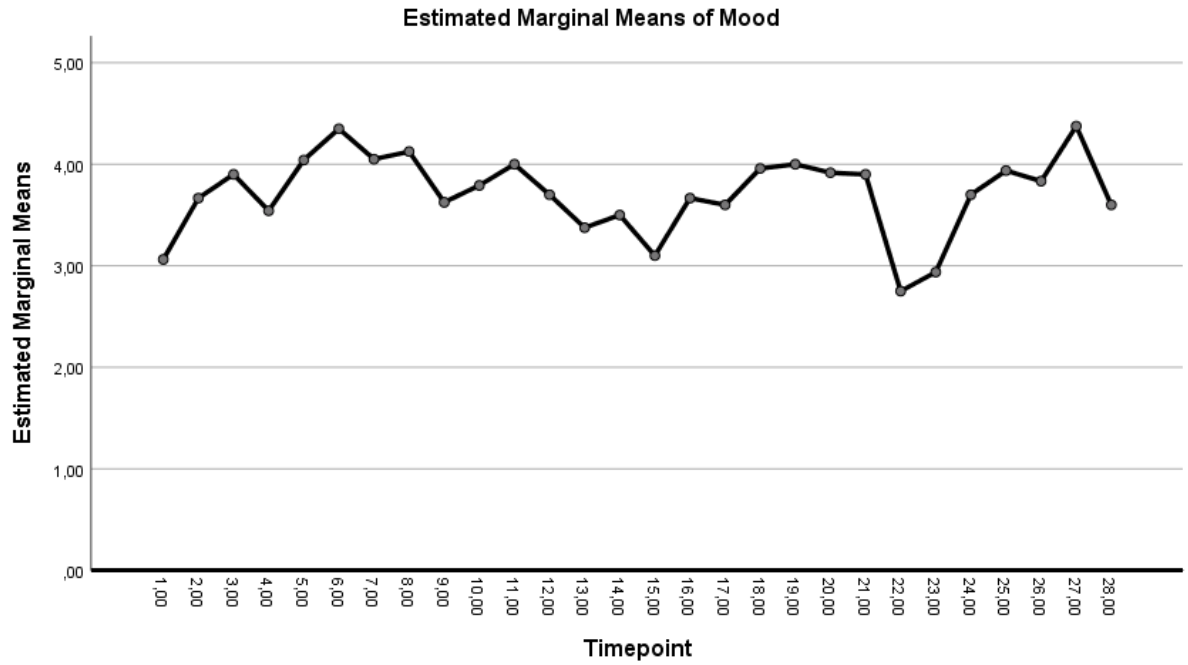


Figure 4

Estimated marginal means of mood throughout the week



3.5. Diurnal patterns of self-compassion

The 3rd research question was: *"What are the diurnal patterns of self-compassion for cancer patients?"*. Figure 5 shows that self-compassion has a slight fluctuation throughout the day Figure 6 shows the fluctuations of self-compassion for the individual respondents and depicting them with broken lines to showcase missing values on specific timepoints. There is a low point on timepoint 15 (late afternoon on Thursday, mean score = 2.9, SD=1.52) and a high point on timepoint 6 (early afternoon on Tuesday, mean score = 4.5, SD=0.5). Another low point further down the week is on timepoint 23 (early afternoon on Friday, mean score = 3.13, SD=1.44).

To investigate whether there are differences between the times of the day, a one-way ANOVA was conducted to compare timepoint per day 1 (morning), 2 (early afternoon), 3 (late afternoon), and 4 (evening). There were no statistically significant differences in self-compassion, between the different times of the day, as determined by one-way ANOVA (F=0.138, p=0.937). Individual items were also analyzed to investigate whether there are differences between the times of the day. One-way ANOVA was conducted on each item to compare the timepoints per day. No statistically significant difference in either individual item (self-critical and self-kindness) was found. See Appendix 7 for the individual graphs and the analyses.

Figure 5

Estimated marginal means of Self-compassion throughout the week

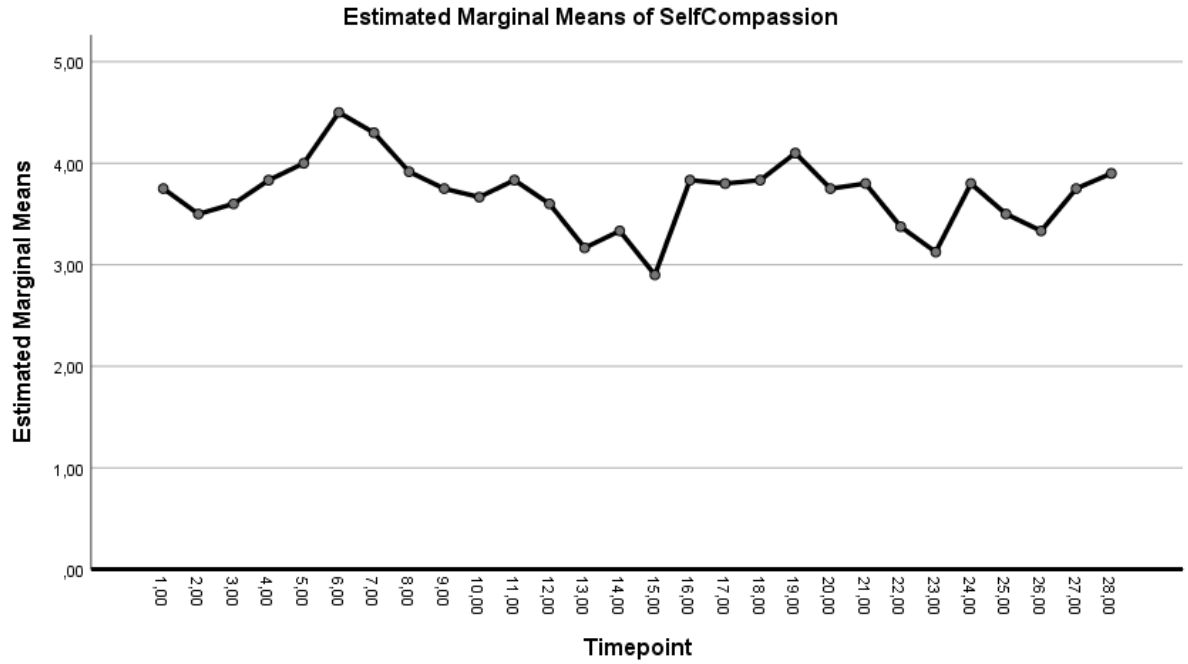
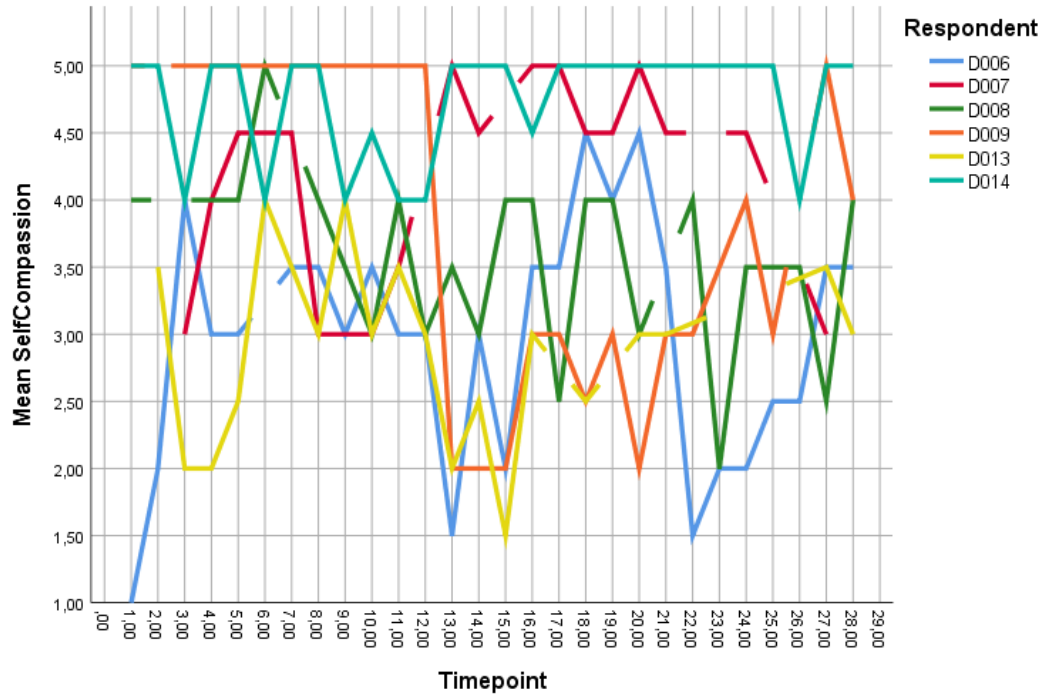


Figure 6

Self-compassion over time for each participant



3.6. Debriefing questionnaire

The debriefing questionnaire consisted of five questions about whether the ESM questions had any influence on the participants' behavior, feeling, and thoughts, and if any technical difficulties were experienced during the past week.

Most respondents reported that the past week was a ‘typical’ week except for one participant mentioning that she had chemotherapy. Most respondents answered that the ESM questions rarely affected them in their feelings, thoughts, or behavior (median = 4). However, an explanatory statement following this question showed that most respondents remarked that they became more conscious about how they were feeling by filling in the ESM questions multiple times a day. Most respondents admitted that the ESM questions rarely disturbed their daily life (median = 4). None of the respondents experienced technical difficulties.

The debriefing questionnaire results show that the ESM questions were not a disturbance on the participant’s daily life or affected their feelings, thoughts, or behavior.

4. Discussion

The main objective of this study was to explore the fluctuations of mood and self-compassion among patients who just got the diagnosis of cancer. This led to the research questions: (1) What is the longitudinal relationship between self-compassion and mood?; (2) What are the diurnal patterns of mood for cancer patients?; (3) What are the diurnal patterns of self-compassion for cancer patients? This led to applying the experience sampling method to measure mood and self-compassion, four times a day for seven days to showcase the diurnal patterns. This study confirms that mood and self-compassion can vary a lot throughout short periods such as merely hours or days, and with significant differences and patterns between individuals.

(1) What is the longitudinal relationship between self-compassion and mood?

A strong positive correlation was found between self-compassion and mood. Across all 28 timepoints, these two constructs seem to follow each other similarly. Literature (Trompetter, De Kleine & Bohlmeijer, 2017) has shown that self-compassion promotes resilience against psychopathology, and this could explain why mood and self-compassion were so closely related over time. In this study, the high amount of self-compassion - that was apparent with some respondents – may have worked as a buffer, and positively heightened the mood while protecting against psychopathological symptoms. Besides, both the 'negative' questions (anxiety and sadness) correlated negatively with the self-compassion, which aligns with the literature where self-compassion was found to negatively correlate with negative affect and positively correlates with positive affect (Barnard & Curry, 2011; Ehret et al., 2014; Hofmann et al., 2012; MacBeth & Gumley, 2012; Muris et al., 2015; Johnson & O'Brien, 2013).

(2) What are the diurnal patterns of mood for cancer patients?

Even though there were different diurnal patterns regarding mood on various days, there were no significant differences when comparing the timepoints per day with each other. Although patients experienced usually slightly lower positive mood in the mornings than in the evenings, it was not a significant difference. The same was found comparing the other timepoints per day (2, early afternoon; 3, late afternoon) with another. There is not a clear pattern throughout the day for mood but there is a notable difference between weekdays and the weekend. Literature shows that weekends were associated with higher mood and well-being while weekdays had lower mood and well-being (Ryan, Bernstein & Brown, 2010; Stone, Schneider & Harther, 2012). This partially explains the results in this study as indeed mood is almost at its highest on

Sunday but there is also a more positive mood on Tuesday. Mood was the most positive on Friday when the weekend nears and continues this throughout the weekend with a decrease on Saturday morning. The final timepoint of the week (Sunday evening, 18:10 – 21:00) showed a sharp decrease in self-reported mood. This aligns with the literature that weekdays are associated with lower positive mood while the weekends are associated with a more positive mood in the way that the prospect of the (work) week is nearing (during the final timepoint on Sunday) and that the weekend is ending.

(3) What are the diurnal patterns of self-compassion for cancer patients?

This study shows that although mornings were associated with lower amounts of self-compassion and evenings with higher amount of self-compassion, no significant difference was found between these two timepoints of the day. Further analysis of the other timepoints per day for self-compassion showed a similar pattern, although there were some fluctuations across the same day, it was not significant. Self-compassion seems very stable throughout the day and week.

Another notable point is about the type of cancer of the participants. Most of the participants in this study had breast cancer. Breast cancer is a type of cancer that these days has a relatively good outcome with an 88 percent mortality rate over 5 years. Since the outcome is decent, this could influence the constructs of self-compassion and mood compared to a more aggressive type of cancer where the outcome is more severe. Zhu et al. (2020) found that the perceived consequences of the type of cancer (severe or less severe) played a mediating role between self-compassion and depression, anxiety and fatigue over time. The outcome from the Zhu et al. article aligns with the outcome of this study since most of the participants have a decent outcome for their type of cancer (breast cancer).

4.1. Recommendations for further research

Within this study, the fluctuations were shown by asking about self-compassion and mood. The fluctuations can be explained by factors such as time of the day or day of the week. However, specific events could be influencing mood or the amount of self-compassion. Asking about events preceding the distribution of an ESM message or within the ESM questionnaire was not done in this study, and limited additional explanations regarding the self-compassion, and mood fluctuations. Experience sampling method studies sometimes ask about specific events that have occurred for the participant (Shiffman, Stone & Hufford, 2008). This could range from asking if the participant had a stressful event in the past 2 hours or another example is asking

whether they had cravings for alcohol. For the specific targeted group of patients who recently got diagnosed with cancer, asking for example whether they had chemotherapy the past day or past hour could help explain outliers within the fluctuations. Mainly because chemotherapy can have a significant short-term effect on someone's physical and mental wellbeing (Partridge, Burstein & Winer, 2001). It could also provide context on why the self-reported mood is higher. Clark & Watson (1988) found that social, and physical activity events could increase a person's self-reported mood. Therefore, it is recommended that further research delves deeper into this topic and combines the experience sampling method with questions about recent events (such as chemotherapy, or more 'pleasant events) to provide context for the fluctuations.

In this study, patients were offered micro-incentives to increase adherence (Musthag et al., 2011; Singer & Ye, 2013). However, Benabou & Tirole (2003) showed that rewards can also be counterproductive as they undermine intrinsic motivation. The patients were informed that their participation would help 'future' cancer patients as the results are used for further development. This was positively received by the participants and this intrinsic motivation played a role in their participation. However, incentives can help by increasing the response rate (Singer & Ye, 2013). Therefore, we recommend that further research should take into account whether micro-incentives undermine intrinsic motivation for participating, while still acknowledging that it is helpful to increase response rates.

4.2. Strengths

The strength of this study is found in the usage of the experience sampling method and linear mixed methods for data analysis. ESM is very useful and powerful since it can capture mood and self-compassion of participants in their natural setting. This reduces various types of bias which makes the data more accurate. This is especially relevant for this study since the participants are cancer patients who might be in the middle of treatment, and chemotherapy is known to cause memory fogs (KWF, 2018; NHS, 2020; Partridge, Burstein & Winer, 2001) therefore, increasing the risk of recall bias. The experience sampling method provides a way to examine consistency and variability throughout the situations of daily life (Runyan & Steinke, 2015) since it assesses multiple times each day. Compared to traditional survey research the ESM prevails because of a decreased risk of bias and being able to answer questions in a naturalistic setting such as at home (Runyan et al., 2019). It also accounts for the way that mood and self-compassion can fluctuate over time since the assessment is done multiple times a day, giving a more comprehensive, and accurate depiction of a participant's state.

Another strength of the current study is the debriefing questionnaire that was sent to the participants, asking whether the ESM questions influenced their behavior, feelings, and thoughts and whether they experienced technical difficulties. All of these questions were asked to see whether their 'true daily life' was influenced by the ESM questions and if they started behaving, thinking, or feeling differently. Although no participant experienced a strong influence from the ESM questions on their daily life, most of them wrote down explicitly that the ESM questions caused them to become more conscious about their emotions. The repeated effect of asking participants various times over a day caused the participants to become more mindful in a sense, therefore, acknowledging how they were feeling instead of just continuing with their day. This activated mindfulness is important for promoting self-compassion, as it is one of the three elements of self-compassion (Neff, 2003a, 2003b, 2007).

4.3. limitations

A notable limitation of this study was the small sample size of six respondents. This was lower than the expected 20 participants, causing skewness in the results. Although this study only had six participants, it brought 144 data points for a week. Another point that continues on this topic is that the exclusion criteria concerning missing values are strict, excluding everyone who did not fill in more than 50 percent of the questionnaires. This caused some participants to not be included but on the other hand, the ones that did fill in more than 50 percent of the questionnaires already made up for most of the total responses.

Even though the final sample that was used is small, only females were participating. This was not solely because of the sample size and the exclusion criteria. From the total number of participants who registered for the research, all of them were female. Some research suggests that females are more likely to participate in health research (Hawkins et al., 2013), and that could be the reason. However, if we look further at different factors, we see that most of the participants also had breast cancer. Of course, breast cancer is less likely to occur among men but it could have implications that more women go to the hospital to get checked up, and get diagnosed, which could lead to an overrepresentation among diagnosing and therefore increasing the chances of being included in this study. The question naturally arises whether gender could have played a significant role for the reported amount of self-compassion. According to literature women are generally considered to be more empathic than males (Zahn-Waxler, Cole & Barrett, 1991; Eisenberg & Lennon, 1983), therefore it is to be expected that women would be more self-compassionate compared to men. However, women tend to have a more ruminative coping style than males and are more self-critical (Nolen-Hoeksema, Larson

& Grayson, 1999; Leadbeater, Kuperminc, Blatt & Hertzog, 1999). This contradiction might even out the possibility that gender might play a significant role in levels of self-compassion

5. Conclusion

Although this study was limited in its sample size, the usage of the experience sampling method slightly made up for it by bringing many datapoints per respondent compared to cross-sectional research. The experience sampling method was the strength of the study, by allowing to depict the diurnal patterns, and giving insight into how this changes for patients with cancer.

The diagnosis of cancer brings forth a lot of psychological difficulties. However, these perceived difficulties can change within and between days. This study researched diurnal patterns of self-compassion and mood for patients of cancer who recently got diagnosed, and found that there is variance within and between days for the constructs of mood and self-compassion. It also shows that self-compassion correlates strongly with both positive mood, and negatively with negative mood over time. This provides additional evidence that self-compassion could act as a buffer against psychological symptoms such as anxiety and depression. This highlights the importance of self-compassion for cancer patients to protect them against the perceived psychological difficulties they endure.

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Appendix 1: Informed Consent (Qualtrics)

Door een vinkje te zetten bij de volgende voorwaarden ga je akkoord met het onderzoek.

☐

1. Ik heb de informatiebrief voor deelname aan het onderzoek gelezen.
2. Ik heb de mogelijkheid gehad om vragen te stellen. Mijn vragen zijn genoeg beantwoord.
3. Ik had genoeg tijd om te beslissen of ik meedoe.
4. Ik weet dat meedoen helemaal vrijwillig is. Ik weet dat ik op ieder moment kan beslissen om toch niet mee te doen. Daarvoor hoef ik geen reden te geven.
5. Ik weet dat sommige mensen mijn gegevens kunnen zien. Die mensen staan vermeld in de informatiebrief.
6. Ik geef toestemming om mijn gegevens te gebruiken, voor de doelen die in de informatiebrief staan.
7. Ik geef toestemming om mijn onderzoeksgegevens 10 jaar na afloop van dit onderzoek te bewaren.
8. Ik wil meedoen aan dit onderzoek

Appendix 2: Information letter

Wij vragen u vriendelijk om mee te doen aan een wetenschappelijk onderzoek van de Universiteit Twente, getiteld: “Zelfcompassie na de diagnose kanker: evaluatie van een smartphone app.” U beslist zelf of u wilt meedoen. Voordat u de beslissing neemt, is het belangrijk om meer te weten over het onderzoek. Lees deze informatiebrief rustig door. Bespreek het met uw partner, vrienden of familie. Hebt u na het lezen van de informatie nog vragen? Dan kunt u terecht bij de onderzoeker, die onderaan deze brief vermeld is.

Uw arts of verpleegkundige heeft u gevraagd of u interesse heeft om deel te nemen aan dit onderzoek. U heeft schriftelijk en online informatie over het onderzoek. Daarna heeft u een aanmeldformulier op onze website ingevuld. Dat is hoe wij aan uw gegevens komen.

1. Wat is het doel van het onderzoek?

De diagnose kanker heeft bijna altijd een enorme impact op het leven van mensen. Om mensen in deze moeilijke tijd een steuntje in de rug te geven, hebben wij samen met patiënten en verpleegkundigen een hulpmiddel ontwikkeld dat kan helpen de veerkracht te vergroten. Het hulpmiddel bestaat uit een zelfcompassie app voor op de smartphone. Uit onderzoek is bekend dat zelfcompassie trainingen helpen om het welzijn te verhogen en stress te verminderen bij mensen met lichamelijke aandoeningen zoals kanker. De zelfcompassie app is een laagdrempelige versie van deze trainingen, maar dan aangepast op de behoeften van patiënten en de mogelijkheden van een smartphone. Het doel van deze studie is om erachter te komen hoe de app bevalt, welke onderdelen wel en niet aanspreken, en wat de positieve effecten zijn. Deze informatie is nodig om de app geschikt te maken om aan zoveel mogelijk patiënten aan te bieden.

2. Hoe wordt het onderzoek uitgevoerd?

Uw arts of verpleegkundige vraagt u mee te doen aan het onderzoek en verwijst u naar de website voor meer informatie. Wanneer u zich aanmeldt en meedoet aan het onderzoek, wordt u gevraagd om eerst een aantal vragenlijsten in te vullen. Wanneer u deze heeft ingevuld, krijgt u een toegangscode voor de app. De app mag u dan op uw eigen manier gebruiken. Vervolgens vult u na 8 weken en na 6 maanden nogmaals de vragenlijsten in. De vragenlijsten kosten ongeveer 30 minuten per keer om in te vullen.

In de derde week krijgt u via WhatsApp (of SMS of e-mail) 4x per dag een paar vragen die een halve minuut per keer kosten om in te vullen. Deze vragen zijn belangrijk om te weten hoe het gaat terwijl u de app gebruikt, in plaats van alleen achteraf. Daarnaast zoeken we een aantal vrijwilligers die een interview (per telefoon of videobellen) willen houden van 60 minuten over hun ervaringen met de app.

Deelnemers krijgen als eerste exclusief toegang tot een nieuwe zelfcompassie app voor mensen met kanker. De app bestaat uit verschillende onderdelen die gemaakt zijn om 6 weken lang te gebruiken. Daarnaast zijn er onderdelen in de app die altijd gebruikt kunnen worden. Het is niet mogelijk om van de app gebruik te maken zonder de vragenlijsten in te vullen, omdat het belangrijk is dat de app goed geëvalueerd wordt voordat het breder beschikbaar wordt.

Als u hier apart toestemming voor geeft, dan brengen wij uw verpleegkundige op de hoogte van dat u aan het onderzoek meedoet. Uw verpleegkundige is niet inhoudelijk betrokken bij het gebruik van de app, maar blijft het aanspreekpunt voor als u moeilijke ervaringen heeft. Indien u aangeeft dat de app u niet voldoende ondersteuning geeft, dan gaat uw verpleegkundige met u in gesprek over verdere ondersteuning.

3. Wat wordt er van u verwacht?

Er wordt een actief gebruik van de app verwacht, waarbij u zoveel mogelijk onderdelen van de app uitprobeert. Wij schatten dat dit 2 uur per week kost voor 6 weken. Dit is belangrijk om de app goed te kunnen evalueren. U kunt de app op uw eigen manier en in uw eigen tijd gebruiken. Dat betekent dat u oefeningen of informatie kunt herhalen die bij u passen, en iets wat niet aanspreekt kunt overslaan.

U wordt gevraagd om vooraf, na 8 weken en na 6 maanden een aantal vragenlijsten in te vullen via internet. De vragenlijsten gaan over zelfcompassie en over hoe het met u gaat. Ook zijn er enkele vragen over uw achtergrond. Dit kost 3x 30 minuten.

Tijdens de 3^{e} week van de app krijgt u 4x per dag een bericht met een vraag over hoe u zich op dat moment voelt. Dit kost een halve minuut per keer en duurt 1 week.

Bij het invullen van de vragenlijst wordt u gevraagd of u mee wilt doen aan een interview. Dit is optioneel. Als u hier ja op antwoord, dan wordt u benaderd om een interview te plannen van 60 minuten, om uw ervaringen met de app te delen. Dit mogen positieve en negatieve ervaringen zijn. De vragen zullen gaan over welke onderdelen van de app wel of niet bevielen en wat u eraan heeft gehad. Zo kunnen we de app optimaal evalueren en verbeteren voor toekomstige patiënten.

Van de interviews worden met uw toestemming audio-opnames gemaakt, zodat er geen informatie verloren gaat. Ook wordt u gevraagd toestemming te geven voor het gebruik van uw gegevens voor de doeleinden van dit onderzoek (zie punt 5).

4. Wat gebeurt er als u niet wenst deel te nemen aan dit onderzoek?

U beslist zelf of u meedoet aan het onderzoek. Deelname is vrijwillig. Als u besluit niet mee te doen, hoeft u verder niets te doen. U hoeft niets te tekenen. U hoeft ook niet te zeggen waarom u niet wilt meedoen. U krijgt gewoon de behandeling die u anders ook zou krijgen.

Als u wel meedoet, kunt u zich altijd bedenken en toch stoppen. Ook tijdens het onderzoek. U hoeft geen reden te geven waarom u wilt stoppen.

5. Wat gebeurt er met uw gegevens?

Voor dit onderzoek worden uw persoonsgegevens gebruikt en bewaard. Het gaat om gegevens zoals uw naam, leeftijd en om informatie over uw diagnose. Ook gebruiken we gegevens van de vragenlijsten en uw gebruik van de app. 'Gebruik van de app' betekent: hoe vaak bepaalde onderdelen van de app worden gebruikt en voor hoe lang. We gebruiken die informatie niet per persoon, maar als gemiddelde. Uw antwoorden op vragen in de app worden niet opgeslagen en kunnen niet door onderzoekers worden bekeken. Het verzamelen, gebruiken en bewaren van uw gegevens is nodig om de vragen die in dit onderzoek worden gesteld te kunnen beantwoorden en de resultaten te kunnen publiceren. Wij vragen voor het gebruik van uw gegevens uw toestemming.

Vertrouwelijkheid van uw gegevens

Om uw privacy te beschermen krijgen uw gegevens een code. Uw naam en andere gegevens die u direct kunnen identificeren worden daarbij weggelaten. Alleen met de sleutel van de code zijn gegevens tot u te herleiden. De sleutel van de code blijft veilig opgeborgen in de lokale onderzoeksinstelling. Ook in rapporten en publicaties over het onderzoek zijn de gegevens niet tot u te herleiden.

Toegang tot uw gegevens voor controle

Sommige personen kunnen op de Universiteit Twente toegang krijgen tot al uw gegevens. Ook tot de gegevens zonder code. Dit is nodig om te kunnen controleren of het onderzoek goed en betrouwbaar is uitgevoerd. Personen die ter controle inzage krijgen in uw gegevens zijn bevoegde medewerkers van dit onderzoek, de Inspectie voor de Gezondheidszorg en controleurs van de Raad van Bestuur van de instelling waar het onderzoek wordt uitgevoerd. Zij houden uw gegevens geheim. Wij vragen u voor deze inzage toestemming te geven.

Bewaartermijn gegevens

Uw gegevens moeten 10 jaar worden bewaard op de Universiteit Twente. Hierna worden de gegevens vernietigd.

Intrekken toestemming

U kunt uw toestemming voor gebruik van uw persoonsgegevens altijd weer intrekken. Dit geldt voor dit onderzoek. De onderzoeksgegevens die zijn verzameld tot het moment dat u uw toestemming intrekt worden nog wel gebruikt in het onderzoek.

Meer informatie over uw rechten bij verwerking van gegevens

Voor algemene informatie over uw rechten bij verwerking van uw persoonsgegevens kunt u de website van de Autoriteit Persoonsgegevens raadplegen.

Bij vragen over uw rechten kunt u contact opnemen met de verantwoordelijke voor de verwerking van uw persoonsgegevens. Voor dit onderzoek is dat de Functionaris voor de Gegevensbescherming van de Universiteit Twente: dr. Lyan Kamphuis – Blikman.

Zie bijlage A voor contactgegevens en website.

Bij vragen of klachten over de verwerking van uw persoonsgegevens raden we u aan eerst contact op te nemen met Universiteit Twente. U kunt ook contact opnemen met de Functionaris voor de Gegevensbescherming van uw ziekenhuis (zie bijlage A) of de Autoriteit Persoonsgegevens.

6. Zijn er extra kosten of krijgt u een vergoeding wanneer u besluit aan dit onderzoek mee te doen?

Indien u reiskosten moet maken, worden deze vergoed. U krijgt geen vergoeding voor algemene deelname aan het onderzoek. Wel krijgt u een vergoeding (in de vorm van een VVV-bon) voor het beantwoorden van de vragen via WhatsApp (of SMS, e-mail) in week 3. U krijgt 40 cent per keer dat u de vragen volledig invult (dit kost een halve minuut per keer). Dit wordt achteraf uitbetaald als u tenminste 60% van de vragen heeft ingevuld. In totaal kunt u 11,20 euro verdienen door in ongeveer 17 minuten deze vragen te beantwoorden. Deelname aan dit onderzoek staat volledig los van uw ziekenhuisbehandeling en de kosten die u daarvoor maakt.

7. Door wie is dit onderzoek goedgekeurd?

De Raad van Bestuur van uw ziekenhuis heeft goedkeuring gegeven om dit onderzoek uit te voeren. Het onderzoek wordt door KWF gesponsord en een beoordelingscommissie van het KWF heeft het doel en de opzet van het onderzoek positief beoordeeld.

8. Wilt u verder nog iets weten?

Voor het stellen van vragen en het inwinnen van nadere informatie voor, tijdens en na het onderzoek kunt u contact opnemen met Judith Austin (onderzoeker op dit project) op het telefoonnummer 0534897024 of via het e-mailadres zelfcompassiebijkanker@utwente.nl. Voor het nalezen van informatie over het onderzoek kunt u kijken op de website www.compas-y.nl.

Indien u na zorgvuldige overweging besluit deel te nemen aan dit wetenschappelijk onderzoek, dan vragen we u om samen met de onderzoeker het toestemmingsformulier te ondertekenen en van een datum te voorzien.

Met vriendelijke groet, mede namens het onderzoeksteam
Judith Austin

Bijlage: contactgegevens voor het UMCG

Voor vragen over het onderzoek kunt u contact opnemen met:

Mevr. Judith Austin (onderzoeker op dit project, Universiteit Twente)
Telefoonnummer: 053 489 1519
E-mail adres: zelfcompassiebijkanker@utwente.nl
Website onderzoek: www.compas-y.nl

De deelnemend arts van het UMCG is:
Dr. Janine Nuver (internist-oncoloog), 050 361 1543

Functionaris voor de Gegevensbescherming van het UMCG Mr.
Piet Dinjens en Mevr. Boudien Sieperda.

E-mail adres: privacy@umcg.nl

Voor meer informatie over uw rechten:
Functionaris voor de Gegevensbescherming van de Universiteit Twente
dr. Lyan Kamphuis-Blikman Telefoonnummer: 053- 489 3399

E-mail l.j.m.blikman@utwente.nl

Bijlage B: contactgegevens voor het MST

Voor vragen over het onderzoek kunt u contact opnemen met:

Mevr. Judith Austin (onderzoeker op dit project, Universiteit Twente)
Telefoonnummer: 053 489 1519
E-mail adres: zelfcompassiebijkanker@utwente.nl
Website onderzoek: www.compas-y.nl

De deelnemend arts van het MST [wijzigen per lokaal ziekenhuis] is:
Dr. Machteld Wymenga (internist-oncoloog), (053) 487 24 40.

Functionaris voor de Gegevensbescherming van het MST:
Mevr. mr. P.J.F. van Paridon-Boerrigter
Telefoonnummer: (053) 487 20 00
E-mail adres: privacy@mst.nl

Voor meer informatie over uw rechten:
Functionaris voor de Gegevensbescherming van de Universiteit Twente
dr. Lyan Kamphuis-Blikman Telefoonnummer: 053- 489 3399

E-mail l.j.m.blikman@utwente.nl

Appendix 3: Experience sampling questions

Op dit moment voel ik me …..

(Likert-schaal van 0-5)

1. … opgewekt
2. … angstig
3. … somber
4. ….kalm
5. …lichamelijk goed (of juist: lichamelijk onrustig)

Op dit moment ben ik….

6. …vriendelijk voor mezelf
7. …kritisch op mezelf

Appendix 4: Experience Sampling questions in Qualtrics (Desktop)

Wat is je naam?

Ruben

→

Op dit moment voel ik me ...
Van 1 (helemaal niet) tot 5 (volledig)

.. Somber

- 1. Helemaal niet
- 2. Beetje niet
- 3. Neutraal
- 4. Een beetje
- 5. Volledig

.. Angstig

- 1. Helemaal niet
- 2. Beetje niet
- 3. Neutraal
- 4. Een beetje
- 5. Volledig

... Lichamelijk goed

- ○ 1. Helemaal niet
- ○ 2. Beetje niet
- ○ 3. Neutraal
- ○ 4. Een beetje
- ○ 5. Volledig

... Opgewekt

- ○ 1. Helemaal niet
- ○ 2. Beetje niet
- ○ 3. Neutraal
- ○ 4. Een beetje
- ○ 5. Volledig

... Kalm

- ○ 1. Helemaal niet
- ○ 2. Beetje niet
- ○ 3. Neutraal
- ○ 4. Een beetje
- ○ 5. Volledig

→

Op dit moment ben ik ...

... Kritisch op mezelf

- ○ 1. Helemaal niet
- ○ 2. Beetje niet
- ○ 3. Neutraal
- ○ 4. Een beetje
- ○ 5. Volledig

... Vriendelijk voor mijzelf

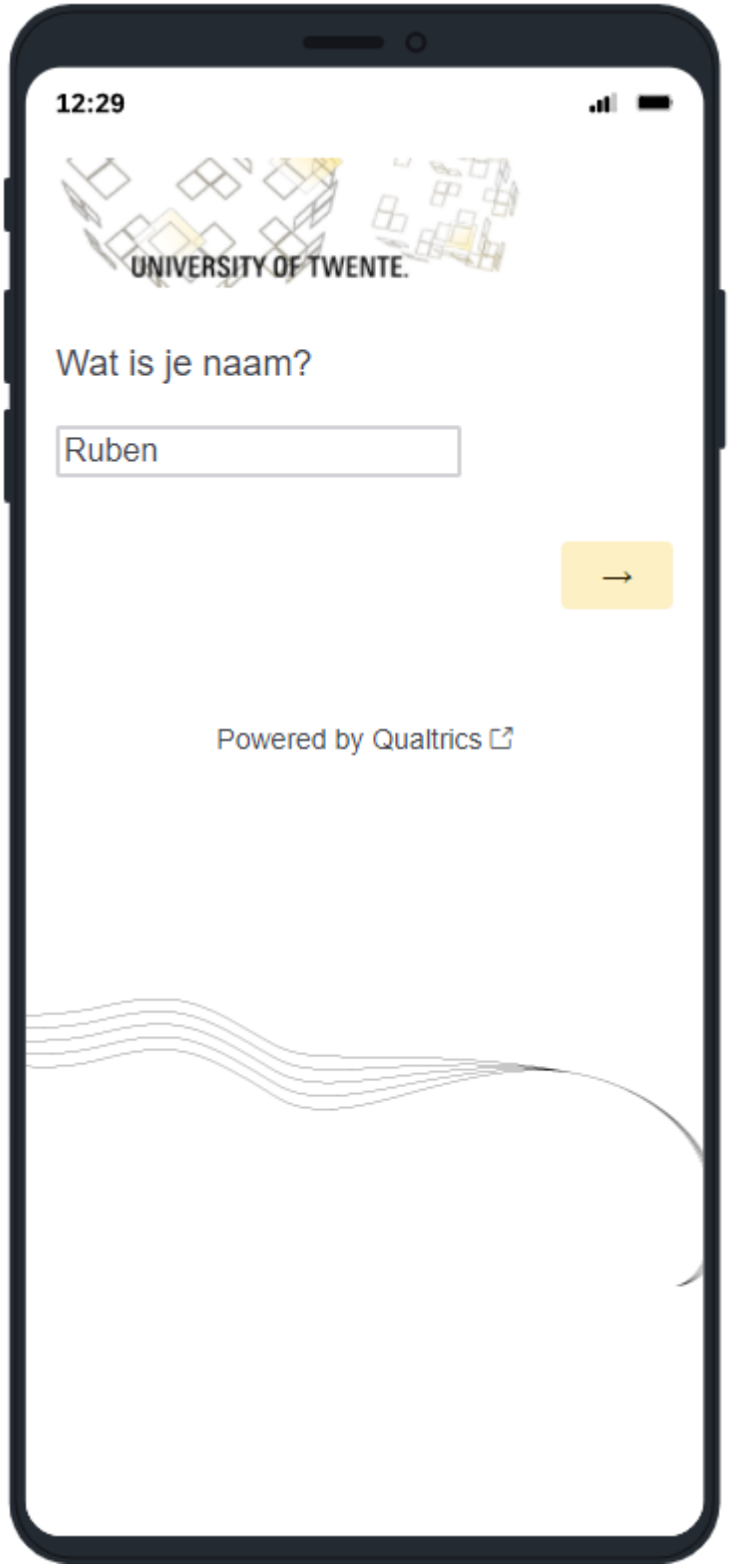
- ○ 1. Helemaal niet
- ○ 2. Beetje niet
- ○ 3. Neutraal
- ○ 4. Een beetje
- ○ 5. Volledig

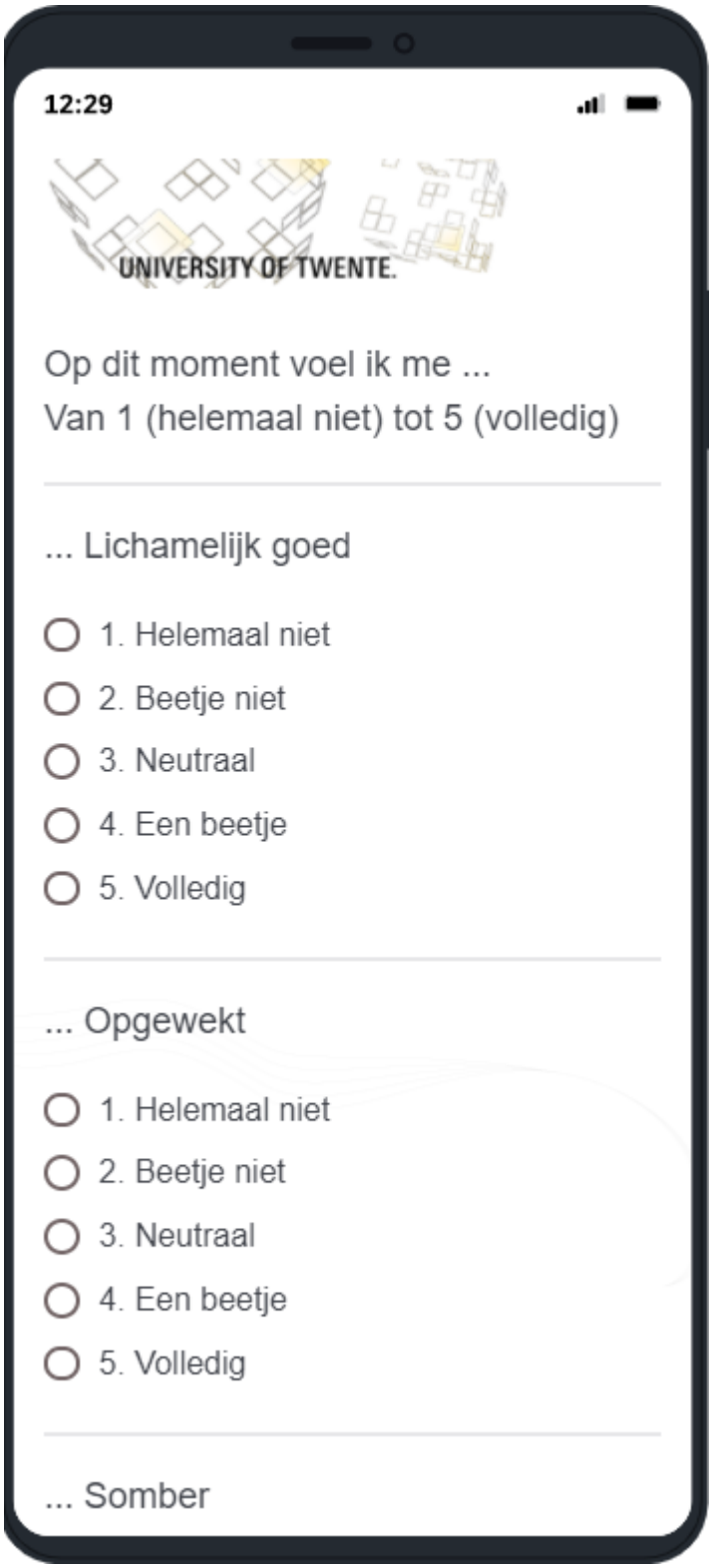
→

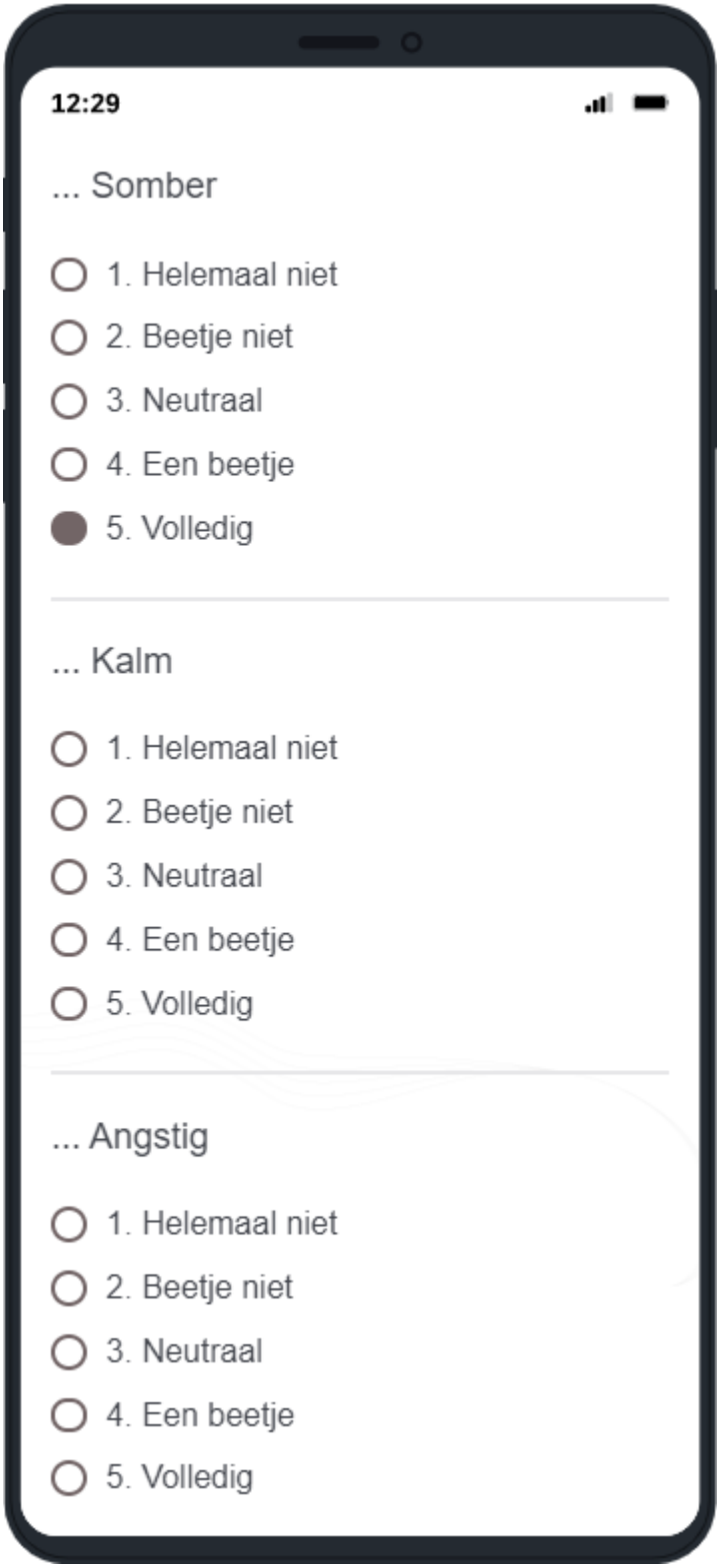
UNIVERSITY OF TWENTE.

Bedankt voor het invullen!

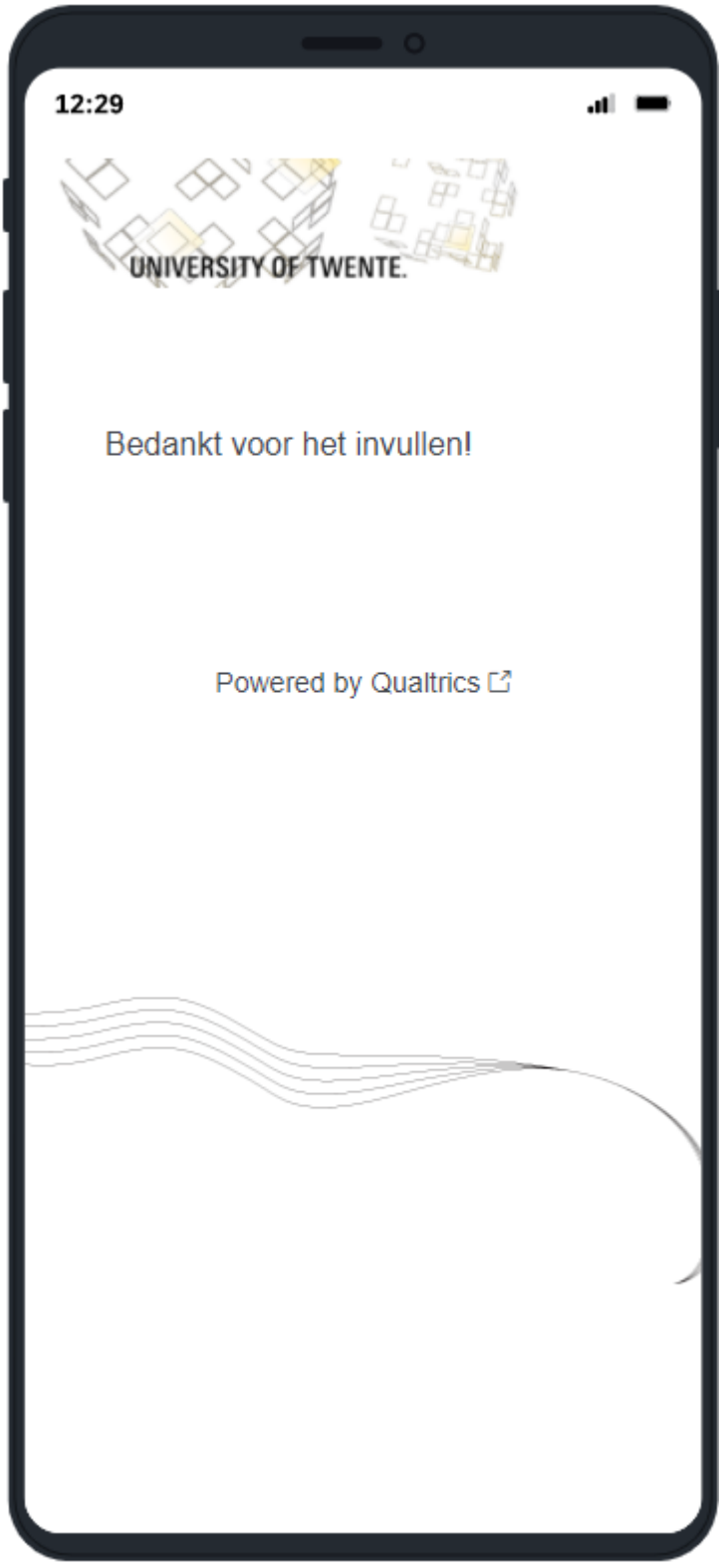
Appendix 5: Experience sampling questins in Qualtrics (Mobile)




12:29
UNIVERSITY OF TWENTE.
Op dit moment voel ik me ...
Van 1 (helemaal niet) tot 5 (volledig)
... Lichamelijk goed
1. Helemaal niet
2. Beetje niet
3. Neutraal
4. Een beetje
5. Volledig
... Opgewekt
1. Helemaal niet
2. Beetje niet
3. Neutraal
4. Een beetje
5. Volledig
... Somber


12:29
... Somber
1. Helemaal niet
2. Beetje niet
3. Neutraal
4. Een beetje
5. Volledig
... Kalm
1. Helemaal niet
2. Beetje niet
3. Neutraal
4. Een beetje
5. Volledig
... Angstig
1. Helemaal niet
2. Beetje niet
3. Neutraal
4. Een beetje
5. Volledig


12:29
UNIVERSITY OF TWENTE.
Op dit moment ben ik ...
... Vriendelijk voor mijzelf
1. Helemaal niet
2. Beetje niet
3. Neutraal
4. Een beetje
5. Volledig
... Kritisch op mezelf
1. Helemaal niet
2. Beetje niet
3. Neutraal
4. Een beetje
5. Volledig
→


12:29
UNIVERSITY OF TWENTE.
Bedankt voor het invullen!
Powered by Qualtrics

Appendix 6: Tables of the Linear Mixed Methods

Table 4

Estimates of Fixed Effects of Mood

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	3,430674	49323,958458	1,137	,000	1,000	-473880,528982	473887,390329
[Timepoint=1,00]	-,228899	69750,498680	4,495	,000	1,000	-185538,052785	185537,594987
[Timepoint=2,00]	,248878	69750,411295	4,548	,000	1,000	-184792,420586	184792,918342
[Timepoint=3,00]	,151580	69750,476797	3,403	,000	1,000	-207833,727547	207834,030707
[Timepoint=4,00]	,019316	69750,357987	4,806	,000	1,000	-181497,731460	181497,770092
[Timepoint=5,00]	,719323	69750,682369	1,643	,000	1,000	-372255,998610	372257,437256
[Timepoint=6,00]	,849287	69750,563251	3,364	,000	1,000	-209000,911459	209002,610032
[Timepoint=7,00]	,594098	69750,130134	2,717	,000	1,000	-235669,825393	235671,013589
[Timepoint=8,00]	,619330	69750,378967	4,018	,000	1,000	-193307,136136	193308,374795
[Timepoint=9,00]	,019321	69750,365646	4,629	,000	1,000	-183708,141142	183708,179783
[Timepoint=10,00]	,169319	69750,503448	4,668	,000	1,000	-183202,610310	183202,948949
[Timepoint=11,00]	,419328	69750,644694	2,774	,000	1,000	-232550,594733	232551,433389
[Timepoint=12,00]	,263654	69750,462633	4,421	,000	1,000	-186602,645225	186603,172533
[Timepoint=13,00]	-,230677	69750,700619	1,512	,000	1,000	-415167,665892	415167,204538
[Timepoint=14,00]	-,180664	69750,330418	3,192	,000	1,000	-214609,891080	214609,529753
[Timepoint=15,00]	-,355241	69750,124069	2,971	,000	1,000	-223202,346003	223201,635520
[Timepoint=16,00]	,019331	69750,329910	5,305	,000	1,000	-176245,560670	176245,599332
[Timepoint=17,00]	-,204657	69750,350117	5,130	,000	1,000	-177940,599113	177940,189800
[Timepoint=18,00]	,469328	69749,984936	1,630	,000	1,000	-375993,725334	375994,663990
[Timepoint=19,00]	,517881	69750,300053	3,387	,000	1,000	-208290,441510	208291,477271
[Timepoint=20,00]	,619315	69750,091682	2,802	,000	1,000	-231120,195576	231121,434206
[Timepoint=21,00]	,169334	69750,439872	4,974	,000	1,000	-179578,252955	179578,591624
[Timepoint=22,00]	-,399516	69750,308148	3,981	,000	1,000	-194015,444848	194014,645816
[Timepoint=23,00]	-,415814	69750,433145	4,593	,000	1,000	-184187,742875	184186,911246
[Timepoint=24,00]	,200745	69750,698240	2,896	,000	1,000	-226565,502798	226565,904288
[Timepoint=25,00]	,544149	69750,611981	3,426	,000	1,000	-207162,692981	207163,781279
[Timepoint=26,00]	,616464	69750,336506	4,240	,000	1,000	-189412,799988	189414,032917
[Timepoint=27,00]	,869323	69750,023949	1,835	,000	1,000	-327575,499131	327577,237778
[Timepoint=28,00]	0[b]	0	.	.	.	.	.

a. Dependent Variable: Mood.

b. This parameter is set to zero because it is redundant.

Table 5

Estimates of Fixed Effects of Self-Compassion

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interv	
						Lower Bound	Upper B
Intercept	3,546576	3547,514034	8889763623680	,001	1,000	-6949,453165	6956,
[Timepoint=1,00]	-,299318	5016,556770	16853799163760	,000	1,000	-9832,569914	9831,
[Timepoint=2,00]	-,014105	5016,556733	36805079195540	,000	1,000	-9832,284628	9832,
[Timepoint=3,00]	,057719	5016,556764	14253464893933	,000	1,000	-9832,212866	9832,
[Timepoint=4,00]	,053424	5016,556775	37457518336118	,000	1,000	-9832,217181	9832,
[Timepoint=5,00]	,253424	5016,556879	12087442889270	,000	1,000	-9832,017386	9832,
[Timepoint=6,00]	,907328	5016,556736	32119753399142	,000	1,000	-9831,363201	9833,
[Timepoint=7,00]	,673649	5016,556669	14651197256014	,000	1,000	-9831,596749	9832,
[Timepoint=8,00]	,153424	5016,556979	29952461232380	,000	1,000	-9832,117580	9832,
[Timepoint=9,00]	,153424	5016,556923	12885005012459	,000	1,000	-9832,117472	9832,
[Timepoint=10,00]	-,046576	5016,557098	10563006552973	,000	1,000	-9832,317815	9832,
[Timepoint=11,00]	,253424	5016,557077	10253101607217	,000	1,000	-9832,017774	9832,
[Timepoint=12,00]	,167262	5016,556788	20128173318441	,000	1,000	-9832,103369	9832,
[Timepoint=13,00]	-,746576	5016,557077	6303147636914	,000	1,000	-9833,017774	9831,
[Timepoint=14,00]	-,546576	5016,556976	7823621634384	,000	1,000	-9832,817576	9831,
[Timepoint=15,00]	-,856446	5016,556811	14471736973664	,000	1,000	-9833,127122	9831,
[Timepoint=16,00]	,153424	5016,556973	21870348403927	,000	1,000	-9832,117569	9832,
[Timepoint=17,00]	-,249159	5016,556886	46655910457431	,000	1,000	-9832,519982	9832,
[Timepoint=18,00]	,053424	5016,556932	24905630447675	,000	1,000	-9832,217489	9832,

[Timepoint=19,00]	,125841	5016,556861	2632890017647 3	,000	1,000	-9832,144933	9832,
[Timepoint=20,00]	,153424	5016,557169	6599095091773	,000	1,000	-9832,117954	9832,
[Timepoint=21,00]	-,146576	5016,556711	4609283825504	,000	1,000	-9832,417056	9832,
[Timepoint=22,00]	-,502689	5016,556885	9812153278415	,000	1,000	-9832,773509	9831,
[Timepoint=23,00]	-,812204	5016,557078	1168637166880 2	,000	1,000	-9833,083404	9831,
[Timepoint=24,00]	-,069851	5016,556534	6428447029200	,000	1,000	-9832,339983	9832,
[Timepoint=25,00]	-,413876	5016,556627	2840895470862	,000	1,000	-9832,684192	9831,
[Timepoint=26,00]	-,261744	5016,556853	9005581511441	,000	1,000	-9832,532503	9832,
[Timepoint=27,00]	-,046576	5016,556737	2034069503079 9	,000	1,000	-9832,317106	9832,
[Timepoint=28,00]	0[b]	0	.	.	.	.	

a. Dependent Variable: SelfCompassion.

b. This parameter is set to zero because it is redundant.

Table 6

Estimated fixed effects of Cheerfulness

						95% Confidence Interval	
Parameter	Estimate	Std. Error	df	t	Sig.	Lower Bound	Upper Bound
Intercept	3,500000	,528936	49,138	6,617	,000	2,437139	4,562861
[Timepoint=1,00]	-,815597	,801166	52,886	-1,018	,313	-2,422614	,791420
[Timepoint=2,00]	,067303	,839827	64,281	,080	,936	-1,610303	1,744909
[Timepoint=3,00]	,041446	,745747	49,614	,056	,956	-1,456720	1,539611
[Timepoint=4,00]	-,100000	,723914	45,845	-,138	,891	-1,557296	1,357296
[Timepoint=5,00]	,700000	,723909	45,857	,967	,339	-,757275	2,157275
[Timepoint=6,00]	,665723	,741191	49,333	,898	,373	-,823502	2,154947
[Timepoint=7,00]	,231100	,741178	49,359	,312	,757	-1,258079	1,720279
[Timepoint=8,00]	,500000	,723868	45,938	,691	,493	-,957123	1,957123
[Timepoint=9,00]	-,300000	,723837	45,993	-,414	,680	-1,757014	1,157014
[Timepoint=10,00]	-,100000	,723790	46,074	-,138	,891	-1,556850	1,356850
[Timepoint=11,00]	-,100000	,723716	46,191	-,138	,891	-1,556603	1,356603
[Timepoint=12,00]	-,067528	,740678	49,807	-,091	,928	-1,555366	1,420310
[Timepoint=13,00]	-,500000	,723428	46,606	-,691	,493	-1,955675	,955675
[Timepoint=14,00]	-,300000	,723158	46,958	-,415	,680	-1,754840	1,154840
[Timepoint=15,00]	-,794719	,739835	50,938	-1,074	,288	-2,280044	,690606
[Timepoint=16,00]	-,500000	,722094	48,187	-,692	,492	-1,951723	,951723
[Timepoint=17,00]	-,205281	,738229	52,728	-,278	,782	-1,686158	1,275596

[Timepoint=18,00]	,300000	,719550	50,679	,417	,678	-1,144779	1,744779
[Timepoint=19,00]	,522809	,734381	56,316	,712	,479	-,948151	1,993769
[Timepoint=20,00]	,500000	,713442	55,668	,701	,486	-,929383	1,929383
[Timepoint=21,00]	,700000	,707666	59,749	,989	,327	-,715665	2,115665
[Timepoint=22,00]	,010921	,758911	73,572	,014	,989	-1,501388	1,523230
[Timepoint=23,00]	-,644040	,755121	78,508	-,853	,396	-2,147216	,859137
[Timepoint=24,00]	-,262634	,700691	81,075	-,375	,709	-1,656769	1,131501
[Timepoint=25,00]	,636737	,702288	88,694	,907	,367	-,758762	2,032235
[Timepoint=26,00]	,518556	,700356	83,611	,740	,461	-,874272	1,911385
[Timepoint=27,00]	,500000	,455832	76,607	1,097	,276	-,407751	1,407751
[Timepoint=28,00]	0[b]	0	.	.	.	.	.

a. Dependent Variable: Cheerfulness.

b. This parameter is set to zero because it is redundant.

Table 7

Estimates of Fixed Effects Anxiety

						95% Confidence Interval	
Parameter	Estimate	Std. Error	df	t	Sig.	Lower Bound	Upper Boun
Intercept	2,474087	59201,343291	,504	,000	1,000	-9370815,173277	9370820,1214
[Timepoint=1,00]	,110259	83716,101100	1,980	,000	1,000	-363643,349402	363643,569
[Timepoint=2,00]	,116035	83716,081793	2,061	,000	1,000	-350235,414505	350235,646
[Timepoint=3,00]	,297762	83715,960445	2,033	,000	1,000	-354660,300118	354660,895
[Timepoint=4,00]	,325911	83716,215027	1,572	,000	1,000	-472471,124285	472471,776
[Timepoint=5,00]	-,274086	83716,010941	1,830	,000	1,000	-394146,999868	394146,451
[Timepoint=6,00]	-,794370	83715,598040	1,297	,000	1,000	-630551,333208	630549,744
[Timepoint=7,00]	-,420549	83715,640839	1,358	,000	1,000	-584432,724613	584431,883
[Timepoint=8,00]	-,674085	83715,821510	1,359	,000	1,000	-583569,765235	583568,417
[Timepoint=9,00]	-,074090	83716,342820	,999	,000	1,000	-1066911,045319	1066910,897
[Timepoint=10,00]	-,074088	83716,654649	1,254	,000	1,000	-668373,287554	668373,139
[Timepoint=11,00]	-,474081	83715,812996	1,038	,000	1,000	-977019,888456	977018,940
[Timepoint=12,00]	,028954	83716,138120	1,957	,000	1,000	-367815,498886	367815,556
[Timepoint=13,00]	,925908	83715,779211	1,608	,000	1,000	-459117,480161	459119,331
[Timepoint=14,00]	,125911	83715,660225	1,277	,000	1,000	-647443,230438	647443,482
[Timepoint=15,00]	-,221046	83715,724979	2,444	,000	1,000	-304221,307362	304220,865
[Timepoint=16,00]	-,674085	83716,523247	,342	,000	1,000	-174622515,281191	174622513,9

[Timepoint=17,00]	,649393	83715,403798	1,659	,000	1,000	-441186,053835	441187,352
[Timepoint=18,00]	-,474087	83716,189195	,636	,000	1,000	-4432477,825093	4432476,876
[Timepoint=19,00]	-,474086	83715,989545	2,054	,000	1,000	-351226,775502	351225,827
[Timepoint=20,00]	-,474084	83715,928662	,946	,000	1,000	-1218244,176208	1218243,228
[Timepoint=21,00]	-,074087	83716,374236	2,170	,000	1,000	-334478,514522	334478,366
[Timepoint=22,00]	,462821	83716,120008	2,054	,000	1,000	-351258,787159	351259,712
[Timepoint=23,00]	,162778	83715,894973	1,783	,000	1,000	-405566,372312	405566,697
[Timepoint=24,00]	,040095	83716,054495	1,581	,000	1,000	-469164,386083	469164,466
[Timepoint=25,00]	,325955	83716,060686	2,076	,000	1,000	-347855,128193	347855,780
[Timepoint=26,00]	-,474068	83715,908375	1,839	,000	1,000	-392137,583918	392136,635
[Timepoint=27,00]	-1,274081	83715,646341	,902	,000	1,000	-1381788,856308	1381786,308
[Timepoint=28,00]	0[b]	0	.	.	.	.	

a. Dependent Variable: Anxious.

b. This parameter is set to zero because it is redundant.

Table 8

Estimated Fixed Effects of Sadness

						95% Confidence Interval	
Parameter	Estimate	Std. Error	df	t	Sig.	Lower Bound	Upper Bound
Intercept	3,020013	,552510	74,476	5,466	,000	1,919230	4,120796
[Timepoint=1,00]	-,531159	,843852	75,188	-,629	,531	-2,212129	1,149812
[Timepoint=2,00]	-,784262	,925347	85,134	-,848	,399	-2,624058	1,055533
[Timepoint=3,00]	-,777715	,780746	74,977	-,996	,322	-2,333048	,777618
[Timepoint=4,00]	-,420013	,746703	71,607	-,562	,576	-1,908677	1,068651
[Timepoint=5,00]	-1,420013	,746703	71,607	-1,902	,061	-2,908677	,068651
[Timepoint=6,00]	-1,313717	,776893	76,017	-1,691	,095	-2,861027	,233593
[Timepoint=7,00]	-1,011931	,776893	76,017	-1,303	,197	-2,559241	,535379
[Timepoint=8,00]	-,820013	,746703	71,607	-1,098	,276	-2,308677	,668651
[Timepoint=9,00]	-,420013	,746703	71,607	-,562	,576	-1,908677	1,068651
[Timepoint=10,00]	-,620013	,746703	71,607	-,830	,409	-2,108677	,868651
[Timepoint=11,00]	-,620013	,746703	71,607	-,830	,409	-2,108677	,868651
[Timepoint=12,00]	-,606260	,776672	76,064	-,781	,437	-2,153116	,940596
[Timepoint=13,00]	-,420013	,746702	71,609	-,562	,576	-1,908676	1,068650
[Timepoint=14,00]	,379987	,746702	71,610	,509	,612	-1,108674	1,868648
[Timepoint=15,00]	,290243	,776670	76,070	,374	,710	-1,256606	1,837093
[Timepoint=16,00]	-,220013	,746697	71,625	-,295	,769	-1,708659	1,268633

[Timepoint=17,00]	-,330269	,776659	76,099	-,425	,672	-1,877086	1,216548
[Timepoint=18,00]	-1,020013	,746667	71,700	-1,366	,176	-2,508573	,468547
[Timepoint=19,00]	-1,002763	,776587	76,247	-1,291	,201	-2,549389	,543862
[Timepoint=20,00]	-1,220013	,746480	72,072	-1,634	,107	-2,708068	,268042
[Timepoint=21,00]	-,620013	,746146	72,622	-,831	,409	-2,107211	,867185
[Timepoint=22,00]	,066674	,833562	80,433	,080	,936	-1,592031	1,725379
[Timepoint=23,00]	,198379	,836761	80,350	,237	,813	-1,466717	1,863475
[Timepoint=24,00]	-,773206	,779212	79,616	-,992	,324	-2,324002	,777590
[Timepoint=25,00]	-1,035883	,820363	87,333	-1,263	,210	-2,666357	,594590
[Timepoint=26,00]	-,766980	,876496	85,351	-,875	,384	-2,509586	,975626
[Timepoint=27,00]	-1,220013	,596319	70,422	-2,046	,045	-2,409208	-,030818
[Timepoint=28,00]	0[b]	0	.	.	.	.	.

a. Dependent Variable: Sadness.

b. This parameter is set to zero because it is redundant.

Table 9

Estimated Fixed Effects of Calmness

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	3,724213	69263,782898	,312	,000	1,000	-315076561,242826	315076568,691253
[Timepoint=1,00]	-,774653	97948,255892	1,253	,000	1,000	-782878,183848	782876,634541
[Timepoint=2,00]	,241066	97948,142587	1,159	,000	1,000	-905922,790045	905923,272177
[Timepoint=3,00]	,200254	97948,427335	1,250	,000	1,000	-785905,009944	785905,410452
[Timepoint=4,00]	,075788	97948,273550	1,222	,000	1,000	-819169,970131	819170,121707
[Timepoint=5,00]	,475789	97948,328844	1,151	,000	1,000	-918396,166495	918397,118073
[Timepoint=6,00]	,710218	97948,283569	1,138	,000	1,000	-939641,913401	939643,333838
[Timepoint=7,00]	,710238	97948,382660	,994	,000	1,000	-1261167,735056	1261169,155532
[Timepoint=8,00]	,475799	97949,000253	,279	,000	1,000	-1303494545,492873	1303494546,444471
[Timepoint=9,00]	-,124200	97947,946909	,806	,000	1,000	-2230512,357034	2230512,108634
[Timepoint=10,00]	,075790	97948,375404	1,216	,000	1,000	-826605,663348	826605,814929
[Timepoint=11,00]	,675784	97948,010281	,860	,000	1,000	-1843164,329648	1843165,681216
[Timepoint=12,00]	,461815	97948,466096	1,219	,000	1,000	-823234,062073	823234,985702

[Timepoint=13,00]	,075802	97948,054848	,855	,000	1,000	-1873623,808711	1873623,960314
[Timepoint=14,00]	,075778	97948,420108	,849	,000	1,000	-1913672,610046	1913672,761603
[Timepoint=15,00]	-,684833	97948,043228	1,016	,000	1,000	-1198733,204091	1198731,834426
[Timepoint=16,00]	-,324216	97947,896547	,626	,000	1,000	-5547072,157787	5547071,509354
[Timepoint=17,00]	-,201582	97948,466096	1,056	,000	1,000	-1099891,522549	1099891,119384
[Timepoint=18,00]	,075796	97947,696057	,323	,000	1,000	-332937951,090082	332937951,241674
[Timepoint=19,00]	,089774	97948,367371	1,090	,000	1,000	-1026644,186372	1026644,365921
[Timepoint=20,00]	,275773	97947,840207	,637	,000	1,000	-5149214,217469	5149214,769015
[Timepoint=21,00]	-,724197	97947,992836	1,194	,000	1,000	-854657,676626	854656,228232
[Timepoint=22,00]	-1,316199	97948,202814	1,376	,000	1,000	-670104,835135	670102,202738
[Timepoint=23,00]	-,876886	97948,100596	1,134	,000	1,000	-945083,947592	945082,193819
[Timepoint=24,00]	,304793	97948,169520	1,343	,000	1,000	-696229,408468	696230,018055
[Timepoint=25,00]	,762296	97948,738618	,764	,000	1,000	-2646240,882487	2646242,407080
[Timepoint=26,00]	,559588	97948,119759	,963	,000	1,000	-1363575,692820	1363576,811996
[Timepoint=27,00]	,475785	97948,753591	,769	,000	1,000	-2589113,734555	2589114,686126
[Timepoint=28,00]	0[b]	0	.	.	.	.	.

a. Dependent Variable: Calm.

b. This parameter is set to zero because it is redundant.

Table 10

Estimated Fixed Effects of Physical Wellbeing

						95% Confidence Interval	
Parameter	Estimate	Std. Error	df	t	Sig.	Lower Bound	Upper Bound
Intercept	3,597885	,618998	47,985	5,812	,000	2,353296	4,842475
[Timepoint=1,00]	-1,123840	,937235	51,792	-1,199	,236	-3,004719	,757038
[Timepoint=2,00]	-,215887	,981467	63,089	-,220	,827	-2,177139	1,745366
[Timepoint=3,00]	-,358686	,872685	48,447	-,411	,683	-2,112919	1,395546
[Timepoint=4,00]	-,197885	,847467	44,727	-,234	,816	-1,905058	1,509288
[Timepoint=5,00]	,002115	,847459	44,741	,002	,998	-1,705029	1,709258

[Timepoint=6,00]	,578110	,867379	48,154	,667	,508	-1,165727	2,321947
[Timepoint=7,00]	-,551091	,867361	48,184	-,635	,528	-2,294865	1,192684
[Timepoint=8,00]	,002115	,847403	44,832	,002	,998	-1,704819	1,709049
[Timepoint=9,00]	,002115	,847362	44,894	,002	,998	-1,704671	1,708901
[Timepoint=10,00]	,002115	,847299	44,983	,002	,998	-1,704450	1,708680
[Timepoint=11,00]	,202115	,847202	45,111	,239	,813	-1,504121	1,908350
[Timepoint=12,00]	,153834	,866735	48,680	,177	,860	-1,588225	1,895893
[Timepoint=13,00]	-,597885	,846825	45,561	-,706	,484	-2,302900	1,107129
[Timepoint=14,00]	-,597885	,846476	45,939	-,706	,484	-2,301814	1,106044
[Timepoint=15,00]	-,664817	,865648	49,893	-,768	,446	-2,403614	1,073980
[Timepoint=16,00]	-,197885	,845120	47,241	-,234	,816	-1,897818	1,502047
[Timepoint=17,00]	-,305556	,863615	51,785	-,354	,725	-2,038697	1,427584
[Timepoint=18,00]	,002115	,841926	49,850	,003	,998	-1,689069	1,693298
[Timepoint=19,00]	,285978	,858821	55,532	,333	,740	-1,434767	2,006723
[Timepoint=20,00]	,002115	,834378	55,021	,003	,998	-1,670001	1,674231
[Timepoint=21,00]	,602115	,827317	59,224	,728	,470	-1,053211	2,257440
[Timepoint=22,00]	-,443198	,886167	73,257	-,500	,618	-2,209223	1,322826
[Timepoint=23,00]	-,793231	,881336	78,385	-,900	,371	-2,547700	,961238
[Timepoint=24,00]	-,451074	,817591	81,066	-,552	,583	-2,077804	1,175657
[Timepoint=25,00]	,083119	,818432	88,713	,102	,919	-1,543160	1,709399
[Timepoint=26,00]	-,103141	,814928	83,486	-,127	,900	-1,723860	1,517578
[Timepoint=27,00]	-,197885	,530018	76,499	-,373	,710	-1,253396	,857625
[Timepoint=28,00]	0[b]	0	.	.	.	.	.

a. Dependent Variable: Physically well.

b. This parameter is set to zero because it is redundant.

Table 11

Estimated Fixed Effects of Self Kindness

Estimates of Fixed Effects[a]

						95% Confidence Interval	
Parameter	Estimate	Std. Error	df	t	Sig.	Lower Bound	Upper Bound
Intercept	4,500430	30694,086455	543,391	,000	1,000	-60289,098122	60298,098982
[Timepoint=1,00]	-1,149310	43403,320000	2155,108	,000	1,000	-85117,896637	85115,598017
[Timepoint=2,00]	,016560	43403,332218	2147,469	,000	1,000	-85116,924875	85116,957994
[Timepoint=3,00]	-,701091	43403,326823	2121,051	,000	1,000	-85118,229798	85116,827617
[Timepoint=4,00]	-,700431	43403,315475	1947,959	,000	1,000	-85122,525476	85121,124614
[Timepoint=5,00]	-,500429	43403,312504	1784,421	,000	1,000	-85127,170110	85126,169252
[Timepoint=6,00]	,201314	43403,337942	1999,484	,000	1,000	-85120,304054	85120,706683
[Timepoint=7,00]	,008878	43403,362016	1878,224	,000	1,000	-85123,872379	85123,890135

[Timepoint=8,00]	-,300429	43403,418191	1093,399	,000	1,000	-85163,708786	85163,107928
[Timepoint=9,00]	-,700429	43403,328198	1350,789	,000	1,000	-85145,953132	85144,552275
[Timepoint=10,00]	-,700430	43403,298094	1489,729	,000	1,000	-85138,772931	85137,372072
[Timepoint=11,00]	-,300428	43403,315553	2210,228	,000	1,000	-85115,846255	85115,245399
[Timepoint=12,00]	-,674629	43403,290028	1876,901	,000	1,000	-85124,453395	85123,104137
[Timepoint=13,00]	-1,500429	43403,300580	2154,162	,000	1,000	-85118,230669	85115,229812
[Timepoint=14,00]	-1,100427	43403,293665	2032,019	,000	1,000	-85120,693490	85118,492636
[Timepoint=15,00]	-1,810931	43403,271671	2047,807	,000	1,000	-85120,969723	85117,347862
[Timepoint=16,00]	-,900425	43403,233206	1839,500	,000	1,000	-85125,684583	85123,883733
[Timepoint=17,00]	-1,152029	43403,328880	1558,954	,000	1,000	-85136,211014	85133,906956
[Timepoint=18,00]	-,500426	43403,224903	1507,075	,000	1,000	-85137,632582	85136,631730
[Timepoint=19,00]	-,250430	43403,300500	991,503	,000	1,000	-85173,127696	85172,626836
[Timepoint=20,00]	-,500429	43403,346364	1922,417	,000	1,000	-85123,089193	85122,088335
[Timepoint=21,00]	-,300430	43403,292103	2313,110	,000	1,000	-85113,726054	85113,125195
[Timepoint=22,00]	-1,023478	43403,372524	1218,196	,000	1,000	-85154,675246	85152,628289
[Timepoint=23,00]	-1,654816	43403,366952	1716,672	,000	1,000	-85130,711606	85127,401975
[Timepoint=24,00]	-,505215	43403,262622	1286,642	,000	1,000	-85149,436457	85148,426028
[Timepoint=25,00]	-,688359	43403,354515	1667,959	,000	1,000	-85131,474912	85130,098195
[Timepoint=26,00]	-,192659	43403,301168	2144,432	,000	1,000	-85117,141167	85116,755850
[Timepoint=27,00]	-,500429	43403,275296	1051,110	,000	1,000	-85167,425556	85166,424697
[Timepoint=28,00]	0[b]	0	.	.	.	.	.

a. Dependent Variable: Kind to myself.

b. This parameter is set to zero because it is redundant.

Table 12

Estimated Fixed Effects of Self-Criticism

Estimates of Fixed Effects[a]

						95% Confidence Interval	
Parameter	Estimate	Std. Error	df	t	Sig.	Lower Bound	Upper Bound
Intercept	3,400695	,616003	54,776	5,521	,000	2,166084	4,635306
[Timepoint=1,00]	-,600743	,935592	58,020	-,642	,523	-2,473521	1,272035
[Timepoint=2,00]	,165627	,989260	70,476	,167	,868	-1,807156	2,138410
[Timepoint=3,00]	-,781722	,868872	55,373	-,900	,372	-2,522718	,959273
[Timepoint=4,00]	-,800695	,840721	51,258	-,952	,345	-2,488307	,886917
[Timepoint=5,00]	-1,000695	,840720	51,262	-1,190	,239	-2,688301	,686912
[Timepoint=6,00]	-1,621649	,863421	55,257	-1,878	,066	-3,351804	,108505
[Timepoint=7,00]	-1,325232	,863418	55,265	-1,535	,131	-3,055373	,404909
[Timepoint=8,00]	-,600695	,840708	51,288	-,715	,478	-2,288256	1,086866
[Timepoint=9,00]	-1,000695	,840698	51,308	-1,190	,239	-2,688219	,686830

[Timepoint=10,00]	-,600695	,840680	51,340	-,715	,478	-2,288160	1,086770
[Timepoint=11,00]	-,800695	,840652	51,390	-,952	,345	-2,488063	,886674
[Timepoint=12,00]	-,982295	,863038	55,441	-1,138	,260	-2,711552	,746963
[Timepoint=13,00]	-,000695	,840527	51,587	-,001	,999	-1,687658	1,686268
[Timepoint=14,00]	-,000695	,840398	51,771	-,001	,999	-1,687254	1,685864
[Timepoint=15,00]	-,048615	,862627	56,032	-,056	,955	-1,776642	1,679413
[Timepoint=16,00]	-1,200695	,839827	52,485	-1,430	,159	-2,885560	,484171
[Timepoint=17,00]	-,679628	,861704	57,126	-,789	,434	-2,405079	1,045822
[Timepoint=18,00]	-,600695	,838254	54,128	-,717	,477	-2,281202	1,079812
[Timepoint=19,00]	-,502775	,859160	59,601	-,585	,561	-2,221587	1,216037
[Timepoint=20,00]	-,800695	,833910	57,818	-,960	,341	-2,470058	,868668
[Timepoint=21,00]	-,000695	,829389	61,073	-,001	,999	-1,659120	1,657730
[Timepoint=22,00]	,046046	,898040	74,209	,051	,959	-1,743255	1,835346
[Timepoint=23,00]	,035218	,896574	78,109	,039	,969	-1,749686	1,820121
[Timepoint=24,00]	-,369346	,833504	80,035	-,443	,659	-2,028061	1,289369
[Timepoint=25,00]	,181006	,844129	88,448	,214	,831	-1,496405	1,858417
[Timepoint=26,00]	,414361	,852870	83,793	,486	,628	-1,281726	2,110449
[Timepoint=27,00]	-,400695	,558721	75,595	-,717	,475	-1,513580	,712191
[Timepoint=28,00]	0[b]	0	.	.	.	.	.

a. Dependent Variable: Self-critical.

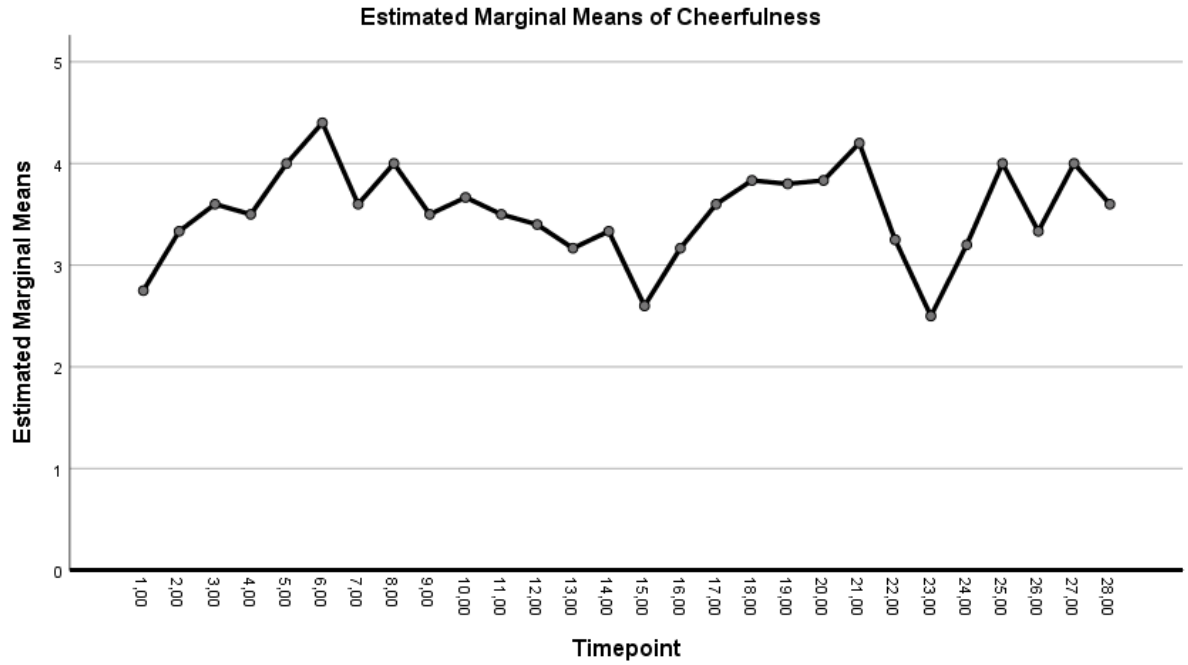
b. This parameter is set to zero because it is redundant.

Appendix 7: Individual item analysis graphs

For each of the underlying items of the construct of mood, a more in-depth analysis will be done. Since the construct is the average of the four underlying items, it only gives information about the underlying items on a lesser extent. Each item will be taken on its own for analysis so each facet of mood (as used in this study) will be investigated on fluctuations and outliers.

Figure 7

Estimated marginal means for cheerfulness throughout the week

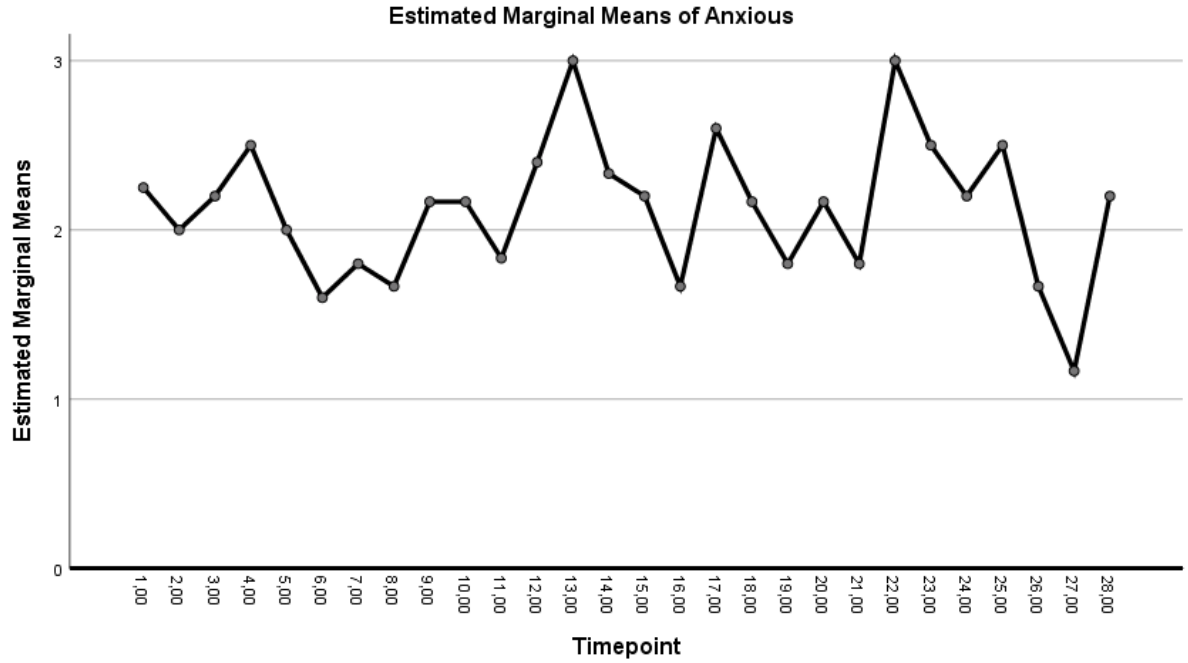


Cheerfulness has two notable low points (timepoint 15 & 23) and two high points (timepoint 6 and 21). Cheerfulness is lower on the first two timepoints on Monday but rises afterwards until the high point on Tuesday (timepoint 6). It drops slowly until the midweek on Wednesday to reach a new high point on the evening on Friday and Saturday morning (timepoints 19, 20 & 21). There is some fluctuation but it remains stable.

To investigate whether there a differences between the times of the day, a one-way ANOVA was conducted to compare timepoint per day 1 (morning), 2 (early afternoon), 3 (late afternoon) and 4 (evening). There were no statistically significant differences in cheerfulness, between the different times of the day, as determined by one-way ANOVA ($F=0.331$, $p=0.803$).

Figure 8

Estimated marginal means for Anxiety

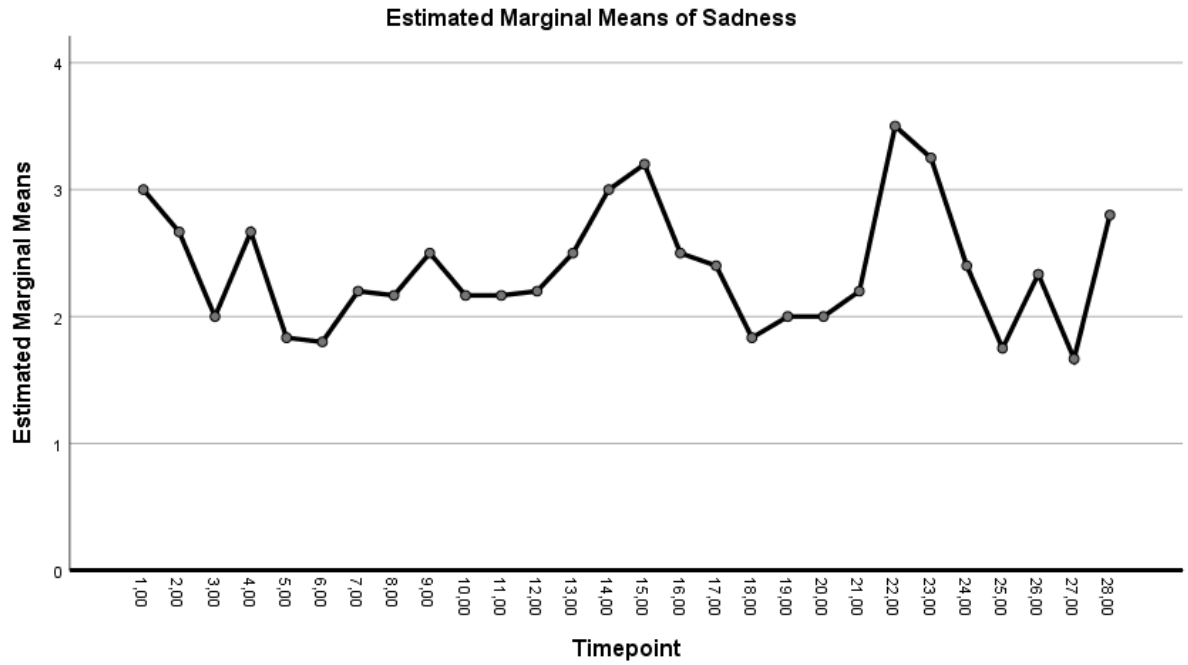


Notable high points are at timepoint 13 and 22. Low points are 6 and 27. Tuesday has lower mean scores while the weekend is relatively higher. Anxious feelings could be less during the weekend.

To investigate whether there a differences between the times of the day, a one-way ANOVA was conducted to compare timepoint per day 1 (morning), 2 (early afternoon), 3 (late afternoon) and 4 (evening). There were no statistically significant differences in anxious feelings, between the different times of the day, as determined by one-way ANOVA ($F=0.898$, $p=0.444$).

Figure 9

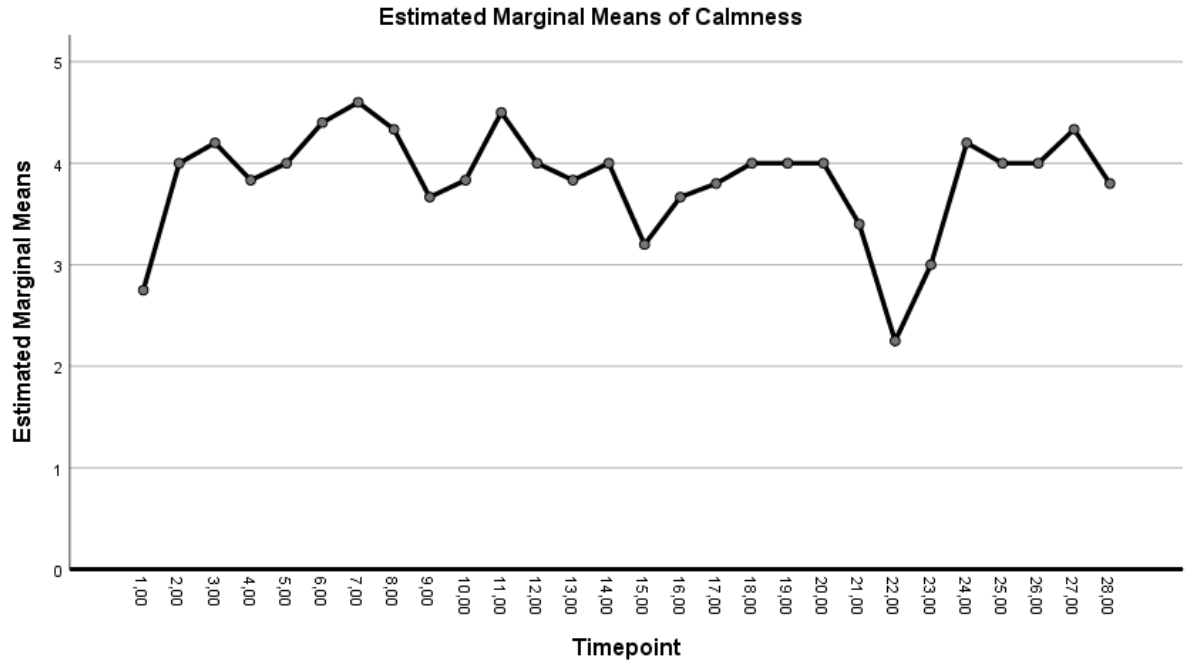
Estimated marginal means of sadness throughout the week



Notable high points are 22 and 23. Notable low points are 6 and 19. Sadness stayed relatively stable throughout the week. The weekend shows the most fluctuation. Friday late-afternoon and evening (heading into the weekend) is tied to high lower feelings of sadness, while Saturday early- and late afternoon have higher feelings of sadness. To investigate whether there a differences between the times of the day, a one-way ANOVA was conducted to compare timepoint per day 1 (morning), 2 (early afternoon), 3 (late afternoon) and 4 (evening). There were no statistically significant differences in feelings of sadness, between the different times of the day, as determined by one-way ANOVA ($F=0.102$, $p=0.959$).

Figure 10

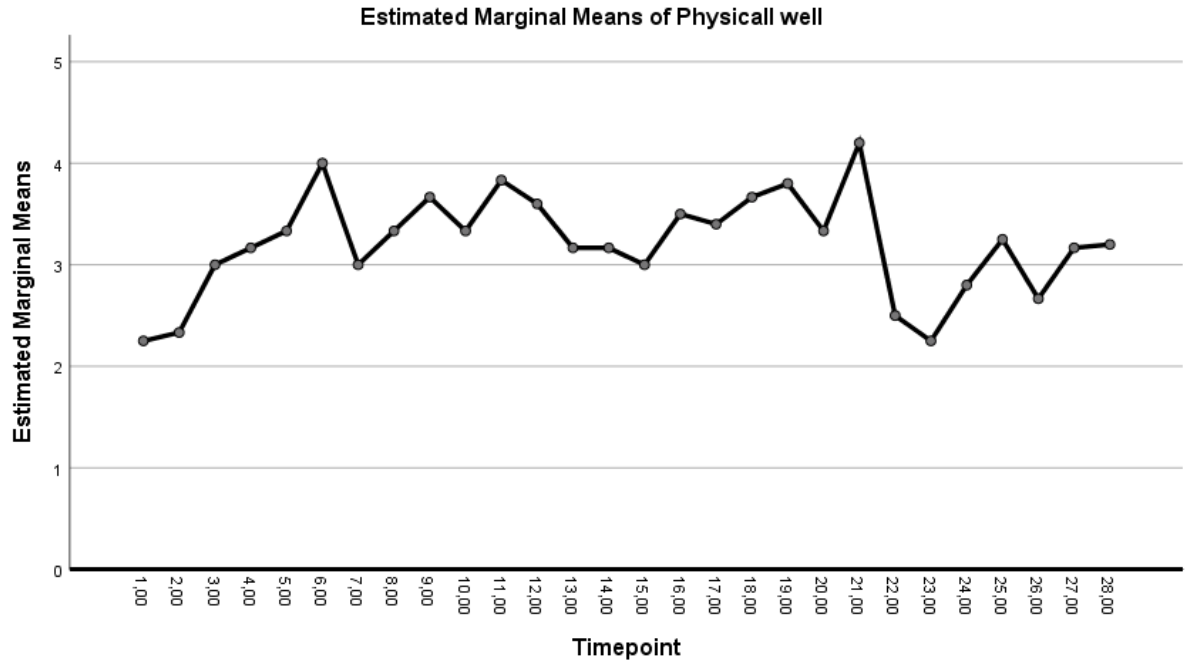
Estimated marginal means of calmness throughout the week



Notable low points are 1 and 22. High points throughout the week are 7, 12 and 27. A high amount of calmness is present on Tuesday while a drop is showcased during timepoints 21, 22 and 23 which are all 3 timepoints on Saturday. This is the main fluctuation that stands out, from a stable amount of calmness throughout the week to a lower amount of calmness on Saturday to eventually stabilize to previous levels again on Sunday. Linear mixed methods shows that timepoint 22 significantly differentiate from the intercept ($p<0.05$). To investigate whether there a differences between the times of the day, a oneway ANOVA was conducted to compare timepoint per day 1 (morning), 2 (early afternoon), 3 (late afternoon) and 4 (evening). There were no statistically significant differences in feelings of calmness, between the different times of the day, as determined by one-way ANOVA ($F=0.945$, $p=0.421$).

Figure 11

Estimated marginal means of feeling physically well throughout the week



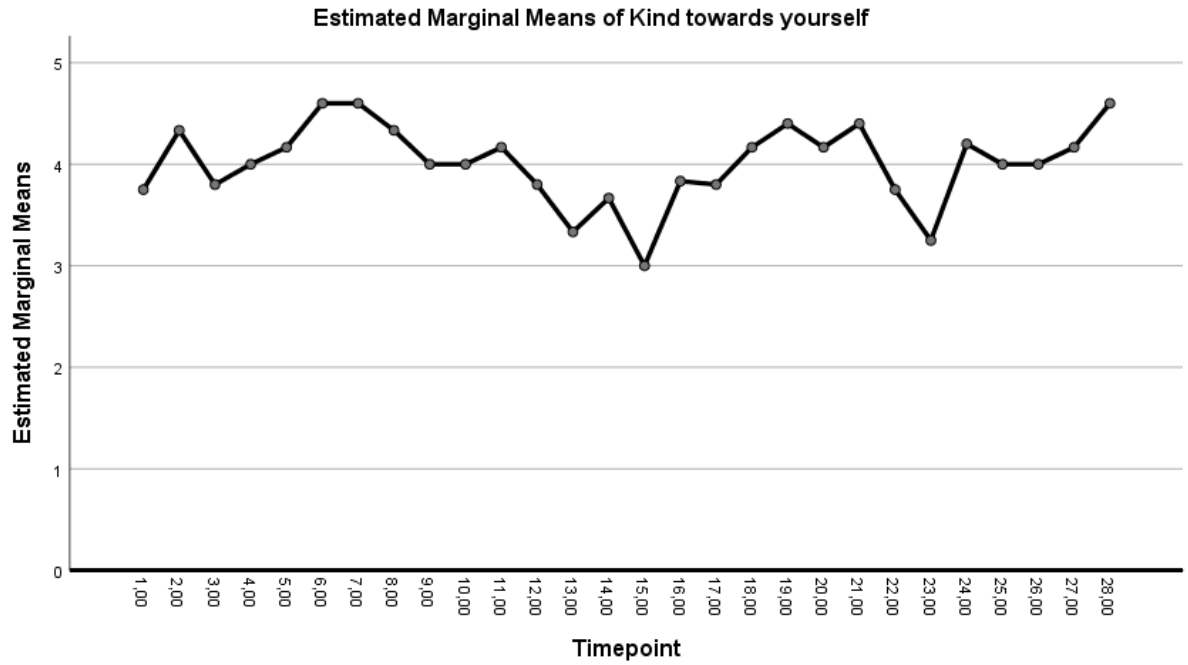
Notable low points are 1 and 23. High points are 6 and 21. Feeling physically well stays stable throughout the week with fluctuations (and low points) from Friday evening towards the entire Saturday. To investigate whether there a differences between the times of the day, a one-way ANOVA was conducted to compare timepoint per day 1 (morning), 2 (early afternoon), 3 (late afternoon) and 4 (evening). There were no statistically significant differences in feeling physically well, between the different times of the day, as determined by one-way ANOVA (F=0.136, p=0.939).

Self-compassion item-analysis

For each of the underlying items of the construct of self-compassion a more in-depth analysis will be done. Since the construct is the average of the two underlying items, it gives only information about the underlying items on a lesser extent. Each item will be taken on its own for analysis so each facet of self-compassion (as used in this study) will be investigated on fluctuations and outliers.

Figure 12

Estimated marginal means of self-kindness throughout the week.

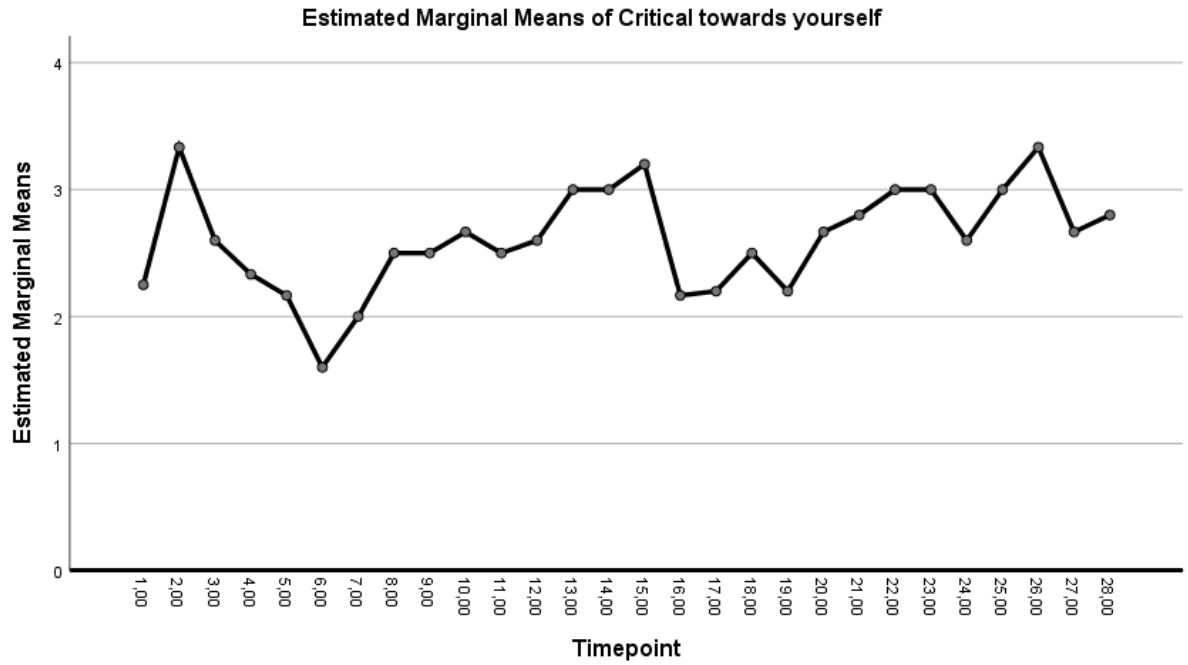


Notable low points are 15 and 23. High points are 6 and 28. Self-kindness stays stable throughout the week with a peak on Tuesday, a low on Saturday and another high point on Sunday.

To investigate whether there a differences between the times of the day, a oneway ANOVA was conducted to compare timepoint per day 1 (morning), 2 (early afternoon), 3 (late afternoon) and 4 (evening). There were no statistically significant differences in self-kindness, between the different times of the day, as determined by one-way ANOVA ($F=0.379$, $p=0.768$).

Figure 13

Estimated marginal means of self-criticism throughout the week



Notable low points are 2 and 26. While a high point is on 6. Tuesday is the day where participants have the lowest amount of self-criticism and afterwards it slowly climbs up. The progression of the week could be tied to a higher amount of self-criticism.

To investigate whether there a differences between the times of the day, a oneway ANOVA was conducted to compare timepoint per day 1 (morning), 2 (early afternoon), 3 (late afternoon) and 4 (evening). There were no statistically significant differences in self-criticism, between the different times of the day, as determined by one-way ANOVA ($F=0.127$, $p=0.944$).