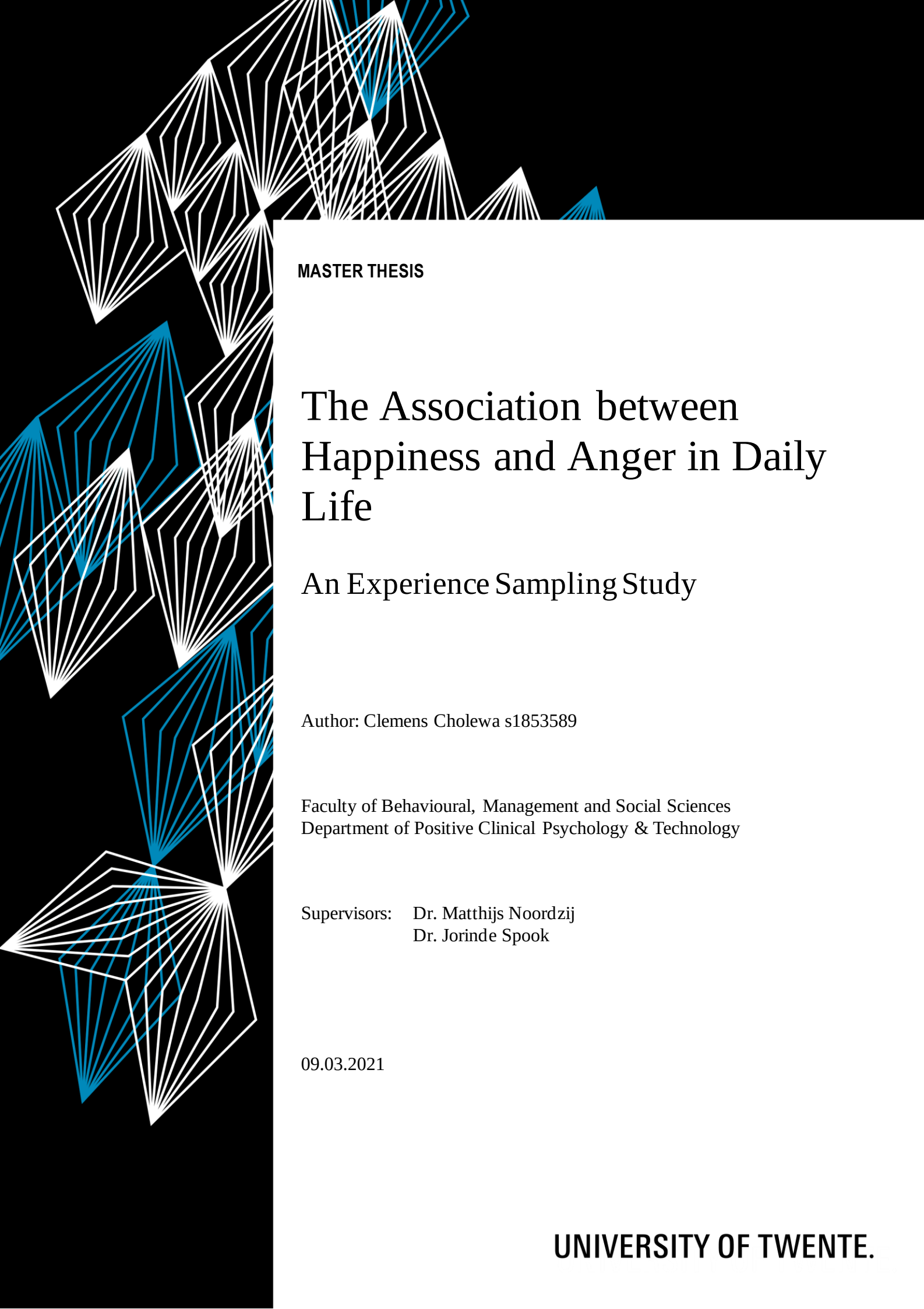




MASTER THESIS

The Association between Happiness and Anger in Daily Life

An Experience Sampling Study

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Abstract

Background. In recent years, more research has focused on the association of different emotions. However, the association of anger and happiness has only been studied in narrow applications like interrogation tactics and on a trait level but not within a general state level. Further research could improve the understanding of the associations between emotions and whether they can be used in intervention designs.

Objective. This study aims at providing new information and background to the trait and state association between anger and happiness. Furthermore, this study investigates a potential association of the two emotions with each other over two hours.

Method. This study utilised the Experience Sampling Method (ESM) to explore possible associations between state and trait levels of happiness and anger. The sample consisted of 29 female and 17 male participants ranging from ages 17 to 52 ($M_{age} = 21.59$; $SD_{age} = 5.95$). The participants were all German except for one being of another nationality. Besides measuring trait scores using the AB5C and aggression questionnaire the momentary state scores of anger and happiness were measured using single-item questions 4 times a day.

Results. A multilevel analysis showed no significant association between the trait level scores ($\beta = .00$, $SE = .035$, $p = .99$ $CI_{.95}[-.07; .07]$). However, a negative association was found between state anger and state happiness ($\beta = -.37$, $SE = .035$, $p < .001$, $CI_{.95}[-.44; -.31]$). Furthermore, a lagged analysis showed that anger was negatively associated with happiness in two hours. The within-person variable had a significant negative association with happiness ($\beta = -.63$ $SE = .13$, $p < .001$, $CI_{.95}[-.85; -.43]$).

Conclusion. This study contributes to the current research by investigating the association between different emotions. The study suggests that anger and happiness are associated on a state level but appear to be independent when looking at the general association between the traits in a student population. These findings may serve as a starting point for further research that can utilize the association of happiness and anger to specific fields of application like anger management.

Keywords: Anger, Happiness, Emotions, Experience Sampling Method, Trait, State

Introduction

Everyone experiences different emotions throughout their lives. Emotional states can vary not only from day to day but also within a day and thus can result in feeling multiple emotions at the same time.

According to Ekman (1992), there are emotions that every human being experiences, namely fear, anger, disgust, happiness, surprise and sadness. These emotions are not necessarily present at one moment but can be experienced simultaneously to different degrees (Carrera & Ocejja, 2007). Emotions are also linked to bodily functions such as heart rate, blood pressure which means that they can influence not only mental health but also the physical health of a person (McGaugh, 2016). This becomes especially clear with the emotions of anger and happiness. Emotions such as anger are important to monitor as they are indicators for psychological distress and well-being (Spielberger & Reheiser, 2009).

Research showed that measuring happiness and anger can be accomplished through physiological measures, such as heart rate and psychological measure such as questionnaires (Herrero et al., 2009). However, there is a lack in understanding of the association between these two fundamental emotions (Chan et al., 2014). Knowledge about their relationship could be used to prevent potential negative effects the emotions can produce. Particularly anger can have negative health effects (Staicu & Cutov, 2010). Furthermore, using ESM allows to investigate how emotions coexist together by allowing the measurement of momentary state levels. Thereby, providing details about the association of the emotions. With that information, new interventions can be designed that utilise the strengths of anger and happiness. Consequently, a deeper understanding of this topic is necessary.

Anger

The characteristics of anger are described by Kassinove and Sukhodolsky (1995), as a “multidimensional construct that encompasses physiological, cognitive, phenomenological, and behavioural variables”. Anger can be triggered by an experienced annoyance or as a

response to a stressor. It is experienced and exhibited differently by each person. Research has shown that anger has an overall negative impact on one's health unless people utilise the anger as a motivational factor (Gordon et al., 2016; Staicu & Cutov, 2010; Szasz et al., 2011).

Research has also shown that when anger is positively processed it can increase motivation to complete goals and strengthens optimism for success (Gordon, et al., 2016; Szasz, et al., 2011).

State and Trait Anger

Anger is one of the basic emotions experienced by the individual on both the state and trait level demonstrating that it can be experienced as a general state of personality (trait) or experienced multiple times throughout the day in different contexts (states) (Spielberger & Reheiser, 2009).

The trait level depicts the personality of a person and thus indicates the tendency of an individual to experience stronger anger when having higher trait anger (Quinn, et al., 2014). This is also shown by the individual interpreting events negatively and thus reacting more aggressively to them (Gordon et al., 2016).

The state-level, contrary to the trait level is known as momentary experiences of anger in the context of different situations (Quinn et al., 2014). For example, one might interpret a current situation as annoying. As a result, the current level of anger can rise indicating an elevated state anger.

Happiness

Happiness can be seen as an opposing emotion to anger for its general positive regard in society compared to the negative view on anger (Schlegel et al., 2012). Improving happiness has been a societal goal, reaching back to ancient Greek. Thus, many different definitions have been derived and no uniform definition can be stated. However, in the context of happiness in daily life, the definition of subjective well-being is used. Subjective well-being is often used as a synonym for happiness which includes affective appraisal and

positive cognition an individual holds about their life (Diener et al., 2002). Thus, it can be stated that happiness is the absence of negative affect and the presence of positive affect, resulting in overall satisfaction with life (Demiur, & Weitkamp, 2007). This is also the definition of happiness that will be used in this study.

State and Trait Happiness

Similar to anger, happiness is exhibited as one construct but can be differentiated into a state level and a trait level. Trait happiness is the level and frequency at which a person experiences pleasant and happy events (Veenhoven, 2005). Thus, trait happiness describes a person that is prone to interpret events more positively. These individuals are enjoying life not solely based on the positive events happening in their life, but rather view their life generally as satisfactory (Furnham & Cheng, 2000).

State happiness, on the other hand, is the degree to which an individual experiences happiness at a positive event (Csikszentmihalyi, & Hunter, 2003). These situations are based on what the individual considers to be a “happy” situation. This could be a nice evening with friends but also a quiet evening at home reading a book. State happiness can be overall influenced by smaller events such as receiving a compliment on one’s outfit.

Anger and Happiness

In recent studies, the two emotions have been investigated in different contexts such as negotiation techniques, but little research has been conducted that has focused on the association between the two emotions on a state level in daily life (de Melo et al., 2017; van Doorn et al., 2014). When looking at the relationship between anger and happiness, limited research has been conducted that allows for drawing any clear interpretation about this association (Hong & Giannakopoulos, 1994; Schwartz & Weinberger, 1980). However, higher levels of anger were found to be associated with lower levels of psychological well-being (Diong & Bishop, 1999). As psychological well-being is described as a component of happiness, a connection between anger and happiness could be possible through the

connection of psychological well-being (Kim-Pietro, et al., 2005). Consequently, people that experienced anger and expressed both physical aggression and verbal aggression displayed lower scores regarding psychological well-being as well as general life satisfaction (Howard, et al. 2010). As this anger expression result in lower life satisfaction a negative correlation between anger and life satisfaction was found (Howard, et al. 2010). However, the connection between anger and happiness itself still needs to be investigated. Especially, to understand whether the connection of life satisfaction to anger can be compared to the association between anger and happiness itself.

Experience sampling

The previous studies relied mainly on the use of cross-sectional data, indicating the associations found were based on data gathered from participants at one point in time and only compared between the participants. Therefore, the use of the Experience Sampling Method (ESM) could be used to add further information to the already existing data. With the usage of ESM, it is possible to take multiple time points of a person and put the data into the context of their average day as well as comparing them to other participants at the same time. This is conducted by having the individuals perform systematic self-reports throughout their days, which allows to collect data of feelings multiple times per day (Larson & Csikszentmihalyi, 2014). This technique allows to gather data on the association between anger and happiness not only between subjects but also evaluate the fluctuations participants have throughout their day to draw more concise conclusions of the previous findings. Furthermore, ESM allows to investigate how these two emotions associate with each together on the momentary state level and over a certain time period. The latter can be investigated through a lagged analysis of these emotions. Thereby, allows to draw information about possible interactions between emotions.

The Current Study

This study aims at investigating the relationship between anger and happiness on both their trait and state levels and at providing information about their association. The relationship between traits as well as states will be investigated. Based on previous research that found a connection between anger and general well-being, it is hypothesised that trait anger and trait happiness show a negative association. Research has found that people who feel angry experience less happiness. This leads to the hypothesis that the state levels of anger and happiness will also show a negative association. In addition, the negative association between the state scores will be visible after two hours of an elevated anger level. Consequently, these hypotheses can be derived for the current study.

H1) The association between trait anger and trait happiness is negative.

H2) The association between state happiness and state anger is negative.

H3) An increased anger level will show a negative association with happiness two hours after the incident.

Methods

This paper utilises data that was previously collected in April 2020 and was approved by the Behavioural, Management, and Social Sciences (BMS) Ethics Committee of the University of Twente in 2020 (Nr: 200371).

Design

ESM was used to assess the daily experiences of the participants over one week. Besides, the cross-sectional data, the longitudinal data of the participants will be compared.

Participants

The study participants were recruited using convenience sampling through a university intern recruitment tool (i.e. SONA Systems). The participants had to have good English

proficiency and had to own a smartphone that was able to install the Ethica App. Participants that did not meet these requirements were excluded from this study. Out of 48 participants, 46 remained after the exclusion with the age between 17 and 52 ($M_{age} = 21.59$; $SD_{age} = 5.95$). The sample consisted of 29 female and 17 male participants. Out of all participants, 45 were German and one was of another nationality. 22 participants were students, 19 were working students and 5 participants were others.

All participants were taking part voluntarily and had to give informed consent before starting this study.

Materials

Ethica

Ethica (<https://ethicadata.com>) is an online research platform designed to utilise a web app and a mobile app on either iOS or Android devices to help the researcher with completing their study. The app allows for a trigger to be used which makes it suitable for Experience Sampling. Push notification can be sent to answer questionnaires at any time of the day. Using the app allowed gathering a sufficient amount of data while keeping the intrusiveness of the method low.

Measures

Trait Questionnaires

Trait Happiness. To assess the level of trait happiness, the subscale Happiness was used from the AB5C (Appendix B) (Backström et al, 2009; Mitchelson et al., 2009; Tedone, n.d.). This consisted of 10 items which used a 5-point Likert scale that ranged from one (very inaccurate) to five (very accurate) with five of the 10 items needed to be reverse coded (Appendix B). For example, “I feel threatened easily” was one included item that was reversed. The subscale had good internal consistency ($\alpha = .84$) and showed acceptable structural validity (Bäckström et al., 2009; Tedone, n.d.).

Aggression Questionnaire. This questionnaire consists of four subscales, namely Verbal Aggression, Anger, Hostility and Physical Aggression (Buss & Perry, 1992). For this study, the subscale Anger is utilised, which consists of seven items which used a 5-point Likert-scale that ranged from one (extremely uncharacteristic of me) to five (extremely characteristic of me). The sum of these scores could range from seven to 35 with higher scores indicating a higher anger level (Buss & Perry 1992). An example question that was used is “*When frustrated, I let my irritation show*”. The test showed good internal consistency ranging from .72 to .88 and good Cronbachs alpha range from .83 to .91 across multiple samples. Furthermore, the test showed a good test-retest reliability of .72 (Hornsveldet al., 2008).

Daily Questionnaires

State Anger. This was measured with two items. “*I am mad right now*” and “*I feel irritated right now*” and a 5-point-Likert-scale ranging from one (not at all) to five (very much so). As the items were self-constructed there are no psychometric properties of these items.

State Happiness. One item was used to measure state happiness, which was designed by the researcher. This was done as there were no previous questionnaires that referred to state happiness for the use of ESM. This was measured using the question “*I feel happy at the moment*” utilising a 5-point-Likert-scale ranging from one (not at all) to five (very much so). As the item was self-constructed, there are no psychometric properties of this item.

Procedure

Over one week, an experience sampling method was used to measure the experience of happiness and anger multiple times a day. The participants were recruited using a convenience sampling method by distributing the survey over social media and a university intern rest subject pool. Participants took part in the study over nine consecutive days and they were required to download and create an account for the Ethica app. After completing

the registration, the participants were asked to fill out an informed consent first. On the first day, the participants were given the procedure of the study and were asked to allow the app to send them push notifications to remind them to complete their surveys. Afterwards, the participants were asked to fill out four different trait questionnaires as well as to provide some information about their demographics, such as age, gender, nationality and employment status. The following seven days they had to complete four surveys each day with the same six questions (Appendix B). The surveys were always asked within the same timeslots, which were from 9-10 am, 12-1 pm, 4-5 pm and 8-9 pm (Appendix A). The participants received notification that a survey was available for them at the start and if they did not complete the questionnaire after 30 minutes, a second notification was sent. Overall, the participants had one hour to complete each questionnaire after which the current survey expired. On the last day, at the end of the last questionnaire, the participants were thanked for their participation and they received the researcher's contact information in case they had any questions or comments.

Data Analysis

IBM SPSS Statistics 26 was used for analysing the data. Next, the collected dataset was cleaned by removing participants under the age of 18 as well as removing participants with incomplete trait level questionnaires. Furthermore, participants were excluded that did not show at least a 65% response rate in the state questionnaires. This value was chosen after calculating the mean response rate of all participants which was 73. Other experience sampling studies mostly used a cut-off score of around 50% (Connor & Lehmann, 2012). To include enough data the cut-off score was dropped from 73 to 65 to allow more data to be used while retaining a high percentile of response rates as a minimum.

Following this, the distribution and the means for state happiness and state anger were investigated. For the state happiness as well as state anger, the person mean (PM) scores were calculated to control for between-person differences of the participants. In addition, a PM-

centred score was computed to allow an analysis of fluctuations throughout the day by relating them to the PM scores. Therefore, allowing for the analysis of within-subject associations on these parameters (Curran & Bauer, 2011).

Next, the psychometric properties for the AB5C and the Aggression Questionnaire were assessed. Consequently, Cronbach's alpha was used to establish the reliability coefficient. The tests were not tested in combination previously. Consequently, a Pearson's correlation analysis between the trait scores and the PM state scores was used to test for the validity of the state measurements.

Lastly, a Linear Mixed Model (LMM) analysis was used to determine whether the link between happiness and anger is better described at a trait level (between-subject) or a state level (within-subject) association. (Snir & Zohar, 2008). For this method standardized scores for the state happiness (PM-centred) as its dependent variable (DV), and the PM anger as well as PM-centred anger as independent fixed variables. The criterion to determine the significance was $\alpha < 0.05$.

For the lagged analysis, the item scores for anger were moved one timepoint up. Meaning that the values previously on timepoint t would be on timepoint t+1. Furthermore, the first time point each day was removed as it would alter the data as the difference between the time points were more than 2 hours, thus the lagged values would be from the previous day rather than two hours before the happiness score.

Results

Participants Flow

Overall, 48 participants took part in the study. Out of these participants, two were excluded due to not filling out the initial questionnaire. Furthermore, 12 additional participants were excluded as they responded to less than 65% of the state questions.

Descriptive Statistics:

Table 1 shows the descriptive statistics for the trait happiness and trait anger including the maxima, minima, means and standard deviations. Using the Shapiro-Wilks-Test it was determined that both trait scores for happiness and anger are normally distributed ($p_{\text{anger}}=.11$; $p_{\text{happiness}}=.51$). Pearson correlation indicated a moderate correlation for anger ($r=.41$; $p<0.001$) and for happiness ($r=.45$ $p<0.001$). Regarding the psychometric properties, both scales indicated a good internal consistency. ($\alpha_{\text{anger}}=.78$; $\alpha_{\text{Happiness}}=.85$).

Table 1

Descriptive Statistics for Trait Anger, Trait Happiness (AB5C) and State PM.Scores

Variable	Minimum (scale minimum)	Maximum (scale maximum)	M	SD
Anger	10(7)	28(35)	18.80	5.07
AB5C	24(10)	47(50)	35.43	5.63
State Anger PM	1.00(1)	3.08(5)	1.77	.46
State Happiness PM	3.00(1)	4.58(5)	3.80	.42

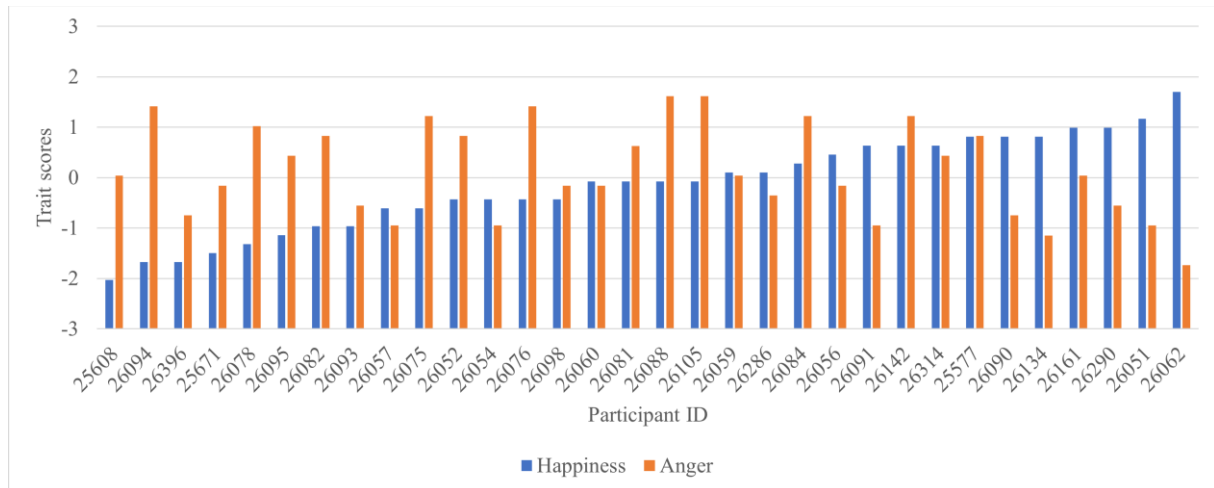
Association between trait scores

The trait scores Anger and the AB5C showed a low and non-significant correlation ($r=-.23$ $p=.13$). A visual representation can be seen in Figure 1. This is backed up by the findings of an LMM for the between-person scores (PM scores) of happiness and anger which also showed no association ($\beta = .00$, $SE = .035$, $p= .99$ $CI_{.95}[-.07; .07]$). Figure 1 shows the

trait scores for the participants arranged from lowest happiness scores to highest happiness scores.

Figure 1

Standardised Trait Scores per Participant arranged by happiness scores.



Association between state scores

An LMM was conducted to investigate whether momentary anger can be associated with momentary happiness (within-subject effect). The results showed that the within-person variable had a significant association with happiness (PM-centred) ($\beta = -.37$, $SE = .035$, $p < .001$, $CI_{.95}[-.44; -.31]$).

Figure 2

State scores over time for Participant ID 25608

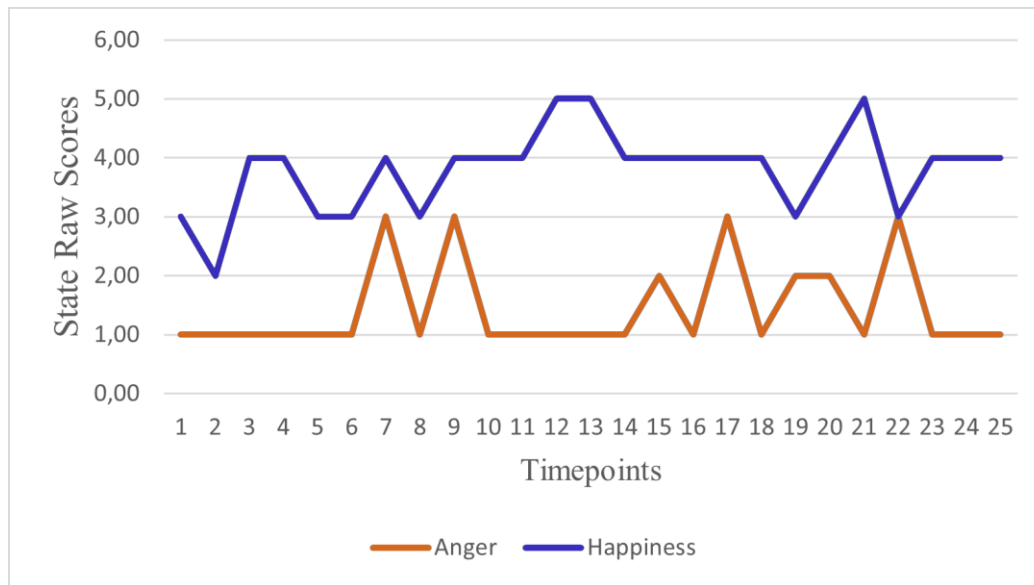
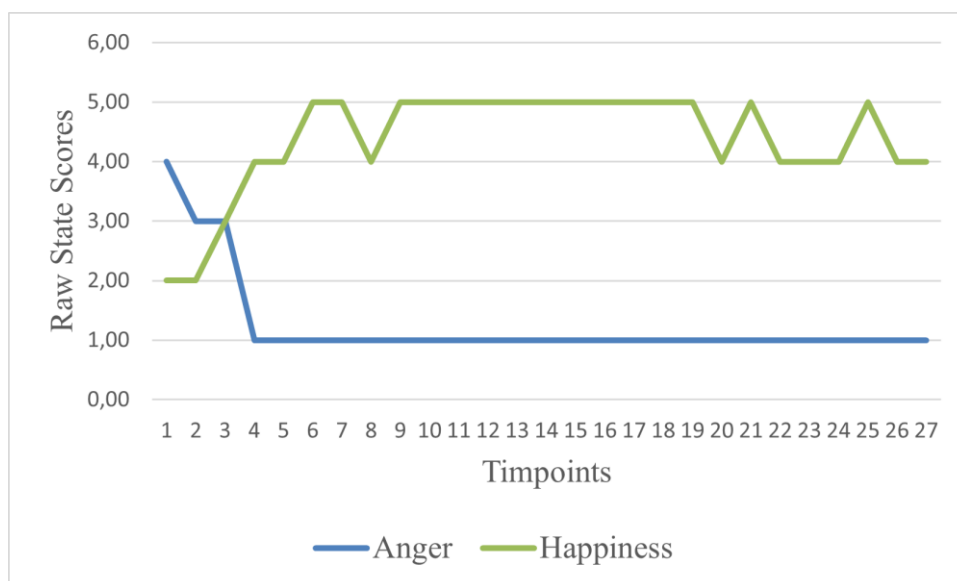


Figure 2 illustrates the relationship between anger and happiness state over time for one participant.

Generally speaking, the participant showed fluctuating state levels of both emotions throughout the week and showed an increase in anger with a decrease in happiness at timepoint 22. However, the participant also indicated some contradicting timepoints such as timepoint 7 where anger and happiness both showed an increased level. An additional participant who showed an exception is participant 26054. In Figure 3, the raw scores of this participant are shown. This figure shows low anger scores and minor fluctuations in happiness over the week. These examples confirmed the low association found between anger and happiness.

Figure 3

State scores over time Participant ID 26054



Lagged happiness after elevated anger

The results showed that the within-person variable had a significant negative association with happiness (PM-centred). This indicated how and elevated level of anger had a decrease in happiness after two hours as a succession.

The participants showed that an increased level of anger was followed by a decreased level of happiness two hours after the initial measurement. Conversely, a decreased level of anger was followed by an increased level of happiness two hours after the initial measurement.

Discussion

This study investigated the association between anger and happiness both on a trait level as well as on a state-by-state level. The results indicate that anger and happiness show no association on a trait level but a moderate association on a state level.

The first hypothesis stated that the association between trait happiness and trait anger is negative. This hypothesis can be rejected, as no significant association was found. This finding contradicts previous research that suggested that there is a negative association (Hong

& Giannakopoulos, 1994). An older study, however, showed no association between anger and happiness (Schwartz & Weinberger, 1980). The difference to the study by Hong and Giannakopoulos (1994) might be explained by the study sample. The current sample consisted of mostly young female students. Research suggests that younger people tend to be more aggressive than older people, but also that females exhibit less angry behaviour than their male counterparts (Schieman, 1999; Timmers, et al., 1998). Thus, the missing male population might have shifted the anger scores as females tend to suppress their aggression more which could have impacted their perceived anger scores. With a more balanced sample, the association in the traits might shift towards a more negative correlation between anger and happiness similar to the findings of the state association.

The second hypothesis stated that the association between state happiness and state anger is negative. This hypothesis can be accepted. The findings indicate that the fluctuation a person experiences daily can impact the degree to which the other emotion is felt. This means that momentary high anger levels can negatively impact the happiness felt after an exceptional angry situation as well as conversely. Thus, happiness decreased after an elevated anger level and anger decreased after elevated happiness levels. This association can also be seen in other research, that show the associations the emotions have with daily life interpretations (Gordon et al., 2016; Martin et al., 2013). While anger is associated with more aggressive behaviour, which in turn would cause stress, happiness is more in line with lower levels of stress in life, providing a possible explanation for this negative association between the two emotions (Gordon et al., 2016; Schiffrin & Nelson, 2010).

The third hypothesis stated that there is an effect of anger on happiness after two hours. This hypothesis can be accepted. Findings suggest that an elevated level of anger is strongly negatively associated with happiness in two hours. This further strengthens the previously mentioned association between the state levels of anger and happiness. However, research has found that anger can be beneficial and used as a motivator to achieve goals

(Szasz, et al., 2011). This might suggest that when anger is utilised to the benefit of a person it might not develop the usual negative impact on happiness compared to situations in which anger is not adequately addressed. This is in line with research that suggests that anger management techniques applied correctly can help become happier (Hong & Kim, 2020). The paper showed a participant that exhibited low levels of anger and high levels of happiness over the entire week (Figure 3). This might be explained by the participant becoming more self-aware by monitoring the anger and happiness. The participant could have decided to control him-/herself more closely. Therefore, the deviating results could be observed as monitoring one's emotions can help reduce emotional reactivity (Lutz et al., 2008).

Implications

The associations on state levels provide new insights into the relationship between anger and happiness which were previously not investigated in daily life. This negative association should be further researched. A better understanding could lead to beneficial implications in clinical and private settings.

The findings from this paper can be used in the clinical setting to aid already existing anger management techniques and intervention that focus on increasing happiness. By helping people dealing with their current level of anger throughout the day the individual's momentary happiness can be positively influenced and improved. Furthermore, the improved understanding of the association between happiness and anger can help construct interventions that utilise anger management techniques in cooperation with anger state monitoring to help prevent a decline in happiness. These interventions could then also be used by people with mental disorders, which show increased levels of anger, such as bipolar disorder or borderline personality disorder. The exhibiting of anger through aggression can be prevented by helping individuals regulate their (Di Giuseppe & Tafrate, 2007)

Another implication of the findings can be found in the current environment of the pandemic world. Due to the current virus infecting the world many people are set in

lockdowns, restricted in their movement and their personal life. Research showed that people have experienced a large decrease in their emotional well-being due to constant worrying about the disease and the health of friends and family (Yang & Ma, 2020). With riots and demonstrations happening in different countries as a response to lockdowns it is clear that anger is an emotion that is quite present in the time of this pandemic. The findings might lend support to the explanation of how these experiences of intense anger and the subsequent decreases in emotional well-being come to be. Besides the constant state of worrying, which the population is experiencing, they additionally become frustrated and angry with the restrictions imposed onto them, resulting in lower levels of happiness in their life. This lower happiness could result in a higher motivation to demonstrate (Frey & Gallus, 2013). The findings in this current study could suggest that providing the public with possible small interventions to combat their frustration and anger could influence the individual's happiness and might stop the decrease of emotional well-being as well.

Limitations and Future Research

The study sample is a female dominant sample (65 %). This might have influenced the generalizability of the findings for young people as the difference in some emotions between the genders are present. Thus, future studies should try to maintain an equally distributed sample between the genders.

The second limitation are the state level questionnaires which used questions that were created by the researcher and thus not previously used. Besides, the items for happiness, anger and frustration consisted of one question each making the assessment of the state quite short. Even though this is beneficial in the sense that the participants might be more inclined to answer shorter questionnaires multiple times, the items make it difficult to determine how good the reliability was before the study. Therefore, future research should conduct multiple pilot studies to revise the questions and to ensure good reliability and validity so that future research can utilise the method more reliable (Tay & Jebb, 2017).

Furthermore, it is important to state that a reliability analysis for the ESM questionnaire was not computed. With trying to compute a Pearson correlation coefficient between the two halves of the data the researcher was not able to compute any results. Thus, the findings should be interpreted cautiously as no reliability is shown.

Lastly, with the findings of a negative association between anger on the level of happiness two hours after an angry time, future research should investigate this negative association more thoroughly. Deeper research into this area would allow gaining insight into possible new interventions. Besides, allowing this association between anger and happiness to lay the basis of investigating other emotions that might show a relationship with either happiness or anger. This future research would provide a complete picture of the different emotions and their connections on state and trait levels.

Conclusion

Looking at the state and trait models, this study contributes to the current literature by providing information and insight into the association between happiness and anger on both their trait and state levels. Furthermore, this study provided more in-depth insight into the negative interactions between anger and happiness with a time effect. As limited research on the field of anger and happiness on state and trait levels has been conducted, this study provides evidence that allows future research to use the findings to investigate the association more in depth. The results of the current study into the emotional connections and fluctuations of both anger and happiness could be an important focal point in future treatment and interventions.

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Appendices

Appendix A: Push Notifications

Table 1

The timeframe of Push Notifications

Time	Push Notification
After starting the study	Welcome to our study. We have some important information for you. Please read it carefully!
Day 1:	
9am – 10am	Hello 😊 We would like to have some general information about you. Please fill in the questionnaire
	Hey there, the first survey is ready for you. Please take some time to complete it.
12am – 1pm	The second survey for today is ready. Please take some time to complete it.
2pm – 3pm	Another survey is ready for you! Please take some time to finish it 😊
4pm – 5:30pm	The last survey for today is ready for you. Please take some time to complete it.
Day 2 – 8:	

9am – 10am	Good morning! Please tell us how you feel this morning 😊
12am – 1pm	Hello, we hope you are fine. Here is the 2 nd questionnaire of the day 😊
4pm – 5pm	Good afternoon 😊 Please tell us how you feel right now!
8pm – 9pm	Hello again. This is the last questionnaire for today 😊 Please tell us how you feel and have a good night!
If not done already: 30min. after first trigger	If you haven't done it already, please tell us how you feel right now 😊
Day 8: 9pm – 9:30pm	You have completed the last questionnaire for this study. Thank you for your help 😊

Appendix B: Abridged Five Factor Circumplex Model (AB5C)

Happiness

Items for Happiness

- | | |
|---------|---|
| + keyed | <ol style="list-style-type: none"> 1. Seldom feel blue. 2. Feel comfortable with myself. 3. Adapt easily to new situations. 4. Look at the bright side of life. 5. Am sure of my ground. |
| – keyed | <ol style="list-style-type: none"> 6. Often feel blue. 7. Worry about things. 8. Feel threatened easily. 9. Dislike myself. 10. Am filled with doubts about things. |

Appendix C

Aggression Questionnaire

1. I flare up quickly but get over it quickly.
2. When frustrated, I let my irritation show.
3. I sometimes feel like a powder keg ready to explode.
4. I am an even-tempered person*.
5. Some of my friends think I'm a hothead.
6. Sometimes I fly off the handle for no good reason.
7. I have trouble controlling my temper.