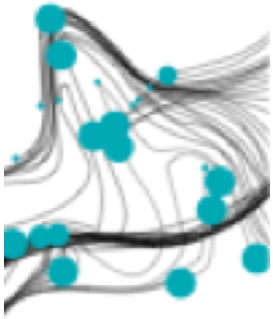

UNIVERSITY OF TWENTE.

The Relationship between Anger and Happiness: An Experience Sampling Study

Master Thesis in Psychology

University of Twente

Faculty of Behavioural, Management and Social Sciences

Department of Psychology, Health and Technology

25.01.2021

Author: Mehmet Akif Sensoy

Supervisor: Dr. Jorinde Spook & Dr. Matthijs Noordzij

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Mehmet Akif Sensoy

University of Twente

Abstract

This present paper had the purpose of investigating how individuals' anger and happiness is associated during their daily life. Therefore, the current paper explored possible relationships between trait and state levels of anger and happiness of individuals over seven days. Specifically, trait to trait, trait to state and state to state relationships of anger and happiness. To measure individuals' (mostly students) daily experiences over the course of one week, an online survey with the method of experience sampling was utilised with a sample of 31 mostly German (77% female) young adults (M = 21.25, SD = 1.34). Results of the multilevel analysis show that state anger and state happiness are negatively related to each other on a within-person (b = -.29, $t(849)$ = -18.11, $p < .001$) and between-person level (b = -.43, $t(849)$ = -31.68, $p < .001$), while trait anger and trait happiness did not show a relationship. Neither did trait anger and trait happiness show any significant relationship on state anger or state happiness. Thus, the findings of the current study indicate that the trait emotions of anger and happiness are on a separate dimension than the state levels of anger and happiness, implying that the traits and states of their respective emotion are independent of each other. Results contribute to the understanding of individuals' anger and happiness emotions, their relationship towards each other and their fluctuations, in order to decrease the negative impact of high anger levels and low happiness levels.

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

Introduction

Humans experience all kinds of different emotions in their daily lives. In his research about emotions, Ekman (1992) identified and summarised six basic emotions that are universal to humans. These universal emotions are happiness, anger, fear, disgust, sadness and surprise. These emotions manifest in being a permanent trait of a person and as being present with regard to a state that someone is momentarily in (Larsen & Ketelaar, 1991). Therefore, it is possible that an individual can experience a wide variety of several emotions over the course of the day (Silk et al., 2003). Additionally, there is the possibility of experiencing different emotions simultaneously, by experiencing one emotion, while a second emotion can be triggered in a specific state (Carrera & Oceja, 2007). For example, a person that thinks back at the transition time from ending high-school and starting university first feels euphoric (looking forward to a new life) but then in addition also feels very sad (thinking about missing old friends) (Carrera & Oceja, 2007).

Anger and happiness are two universal and important emotions that concern all humans (Ekman, 1992). One factor regarding their influence in everyday life is their level of fluctuation. Emotional fluctuation provides an additional understanding about individuals' emotional lability (Liu et al., 2016) and is also important in understanding the impact of emotion generally (Chan et al., 2014). Moreover, these fluctuations of emotional experience over time are associated with impaired levels of mental health, with fluctuations of negative affect being related to depressive symptoms, borderline personality disorder and suicidal ideation whereas fluctuations in positive affect being related to lower levels of satisfaction with life (Chan et al., 2014).

Especially with findings about possible negative consequences of anger and (lack of) happiness on our mental health (DiGiuseppe & Tafrate, 2007) and medical conditions (cancer or coronary artery disease) (Kassinove, 1995), they are an important field of investigation. Thus, with more knowledge about the relationships between anger and happiness, it is possible to create interventions targeted towards the better coping of fluctuations of them. Accordingly, by understanding more about this relationship there would be an approach towards the increase of positive emotions such as happiness and a decrease of negative emotions such as anger through deliberate implementation of the results of this study and through further research.

This study aims to combine all three trait to trait, trait to state and state to state assessments in one study regarding anger and happiness. Thus, this would represent a novelty in this field due to the combination of these assessments. Moreover, this study aims to contribute to fill the gap in literature regarding the state to state assessment of anger and happiness. In the following sections happiness and anger will be discussed more in detail to get a general overview of the two constructs and about previous research on their trait and state levels. In emotion research, the state-trait model is used to describe two ways on how individuals experience emotions (Spielberger et al., 1983). A state is referred to a temporary mood state, whereas a trait represents a stable personality dimension (Abdu et al., 2012).

Anger

Anger can generally be defined as the emotional state that an individual can experience, from mild irritation to fury or rage (Butcher et al., 2013). Thus, the emotion of anger is experienced in higher or lower intensities every day in our lives. Main triggers that can cause anger are the disconfirmation of expectations, insults and threat to self-esteem and perceptions of injustice (DiGiuseppe & Froh, 2002). Moreover, anger can increase one's optimism regarding success in confrontational situations, which leads to more confidence and thus more approach behaviours towards risk taking (Gordon et al., 2016).

Furthermore, in the definition of anger, two types can be distinguished, namely overt and suppressed anger (Kassinove, 1995). The negative consequences of overt anger are named to be a negative self-concept, lower self-esteem and verbal and physical assault, whereas negative consequences of suppressed anger are mostly about medical conditions such as cancer or coronary artery disease (Kassinove, 1995).

State vs Trait Anger

Following the state-trait model (Spielberger et al., 1983), state anger is known as the momentary experience of anger in response to different situations that vary in duration, intensity and seem so serve as triggers (Quinn et al., 2014). These situations can serve as triggers for anger due to misinterpretation of them by the individual. Such misinterpretations develop in individuals high on state anger, which are prone to interpret situations more negatively and have a decreased perception of positive situations (Gordon et al., 2016). Thus, such individuals experience negative situations more intense. Furthermore, state anger was

found to strongly correlate with an increase in one's level of aggression, aggressive behaviour and risky behaviour (Deffenbacher et al., 2003; Gordon et al., 2016). On the contrary, individuals that can control and regulate their anger, by using regulation strategies, such as distraction (Rivers et al., 2006), can have benefits from their anger. One of such benefits is the pursuit of achieving confrontational goals (Tamir et al., 2008). Also, the level of state anger of an individual is strongly influenced by the persons level of trait anger, by an increase in the duration and intensity of a persons state anger when trait anger is high (Quinn et al., 2014).

Trait anger can be described as a persistent personality type of an individual, which manifests in easier irritability and more frequent experiences of anger compared to individuals with lower levels of trait anger (Quinn et al., 2014). Therefore, some people are prone to have higher trait anger levels whereas others might have lower levels of trait anger (Lievaart et al., 2016). There are several consequences regarding high levels of trait anger which have been identified. Individuals with high trait anger have lower self-esteem, perceive lower social support, are prone to suicidal ideation and alienate greater from school or university (Quinn et al., 2014). Additionally, higher levels of anger have been associated with mental disorders such as bipolar disorder, borderline, antisocial personality disorder and paranoid personality disorder among others (DiGiuseppe & Tafrate, 2007).

Happiness

Happiness is generally defined as the individuals' appreciation and satisfaction of the own life as a whole (Veenhoven, 1989; Tatarkiewicz, 2011). In other words, happiness can be understood as overall life satisfaction, presence of positive affect and the absence of negative affect (Demır & Weitekamp, 2006). Furthermore, happiness can be described as the subjective evaluation of one's life regarding one's feelings and emotional outcome (Jalloh et al., 2014). The happiness set point, circumstances, and intentional activities of an individual are three factors that precede its level of happiness (Lyubomisky et al., 2005). The happiness set point refers to fixed and stable genetic preconditions, the circumstances refer to demographic (e.g. gender), geographic (e.g. residence), and contextual (e.g. culture) factors and intentional activities refer to voluntary, effortful activities that sustain one's level of happiness (Lyubomisky et al., 2005).

Moreover, elevated happiness levels come with some positive consequences on individuals' lives. For instance, lower levels of stress (Schiffrin & Nelson, 2010) due to more adaptive coping styles (Rim, 1993), improved social skills (Argyle & Lu, 1990) and enhanced productivity (Oswald et al., 2015). Additionally, individuals experiencing much positive affect have elevated levels of extraversion, activity, enthusiasm and cooperation, whereas high satisfaction with life is linked to being warm, having a positive self view and not being anxious or critical in interpersonal relations (Emmons & Diener, 1985).

State vs Trait Happiness

When it comes to happiness, there is also state-and trait-like happiness that needs to be taken into account. State happiness refers to the situational elevation in the experience of happiness as an emotion by positive events (Csikszentmihalyi, & Hunter, 2003). These positive events mostly involve activities that are freely chosen and that include the company of peers, whereas activities where the individual has no freedom of choice such as school work lower the level of happiness (Csikszentmihalyi, & Hunter, 2003). Additionally, happiness can also be positively influenced by small events such as „finding a dime on a copy machine" (Schwartz & Strack, 1999). Therefore, also seemingly small events can have a significant influence on us.

Trait happiness on the other hand, is described as the propensity to experience positive affect with a continuous and frequent production of pleasant events (Veenhoven, 1998). Therefore, in order to be a trait temporal stability, cross-situational consistency, and inner causation need to be present in an individuals repertoire (Veenhoven, 2005). With regard to the Top-Down approach, this means that a person is prone to enjoy things more positively and thus enjoys pleasure which results in happiness, instead of happiness resulting because of the sum of small pleasures (Furnham & Cheng, 2000). So, happiness as a stable personality trait has an influence on how a person reacts to an event, namely with continuous elevated levels of state happiness (Furnham & Cheng, 2000).

Anger and Happiness

Regarding the relation between anger and happiness, there have not been many studies that researched the association of these two constructs. Nevertheless, some studies conducted

research on the relationship between anger and psychological wellbeing, of which happiness serves as a component (Kim-Prieto et al., 2005). In this context, higher levels of anger expression were related to lower levels of psychological well-being (Diong & Bishop, 1999). So, a person that is expressing anger consistently through physical and verbal aggression is related to lower psychological well-being and lower life satisfaction (Howard et al., 2010). This kind of anger expression is commonly found among men, whereas women engage more in behaviors such as retreating or giving the silent treatment. (Howard et al., 2010).

The expression of anger in this aggressive fashion consequently might impair relationships and impede career progress, which in turn again lowers the satisfaction of life (Howard et al., 2010). Thus, life satisfaction correlates in the negative direction with anger (Howard et al., 2010). This relation was also found by Hong and Giannakopoulos (1994), who state that lower anger levels are related to higher life satisfaction and vice versa. Nonetheless, there is also a positive effect of anger on satisfaction with life, namely the creation of a positive basis for communication and an energizing effect in life (Hong & Giannakopoulos, 1994).

The Current Study

This study aims to investigate the relationship between the state and trait levels of anger and happiness to provide an overview of the associations in one study. Especially, the relationship between trait and trait, trait and state and state and state of anger and happiness will be investigated. Consequently, the two of these constructs will be examined on their association on a daily basis. Based on previous findings in emotion research, it is hypothesised that the two constructs of trait anger and trait happiness have a negative relationship (Hong & Giannakopoulos, 1994). In this case, individuals that experience angry emotions feel less happy and individuals that feel happy experience less angry emotions on a regular basis.

Additionally, the current study aims to investigate on the state or trait nature of the relationship between anger and happiness. Here, it is hypothesised that higher levels of trait anger are associated with lower levels of state happiness, hence expecting a negative relationship (Quinn et al., 2014). Moreover, a negative association is predicted regarding the relationship between trait happiness and state anger (Furnham & Cheng, 2000). Granted that

these associations are negative, higher levels of trait happiness would be associated with less experience of state anger and vice versa. Furthermore, a negative relationship between state anger and state happiness is expected, resulting in a decrease of anger when happiness increases and vice versa (Martin et al., 2013). Consequently, based on the previous predictions, several hypotheses (H) can be derived for the study:

H1: The emotions of trait anger and trait happiness have a negative relationship towards each other.
H2: There is a negative relationship between trait anger and average state happiness.
H3: Trait happiness has a negative association with average state anger.
H4: State anger and state happiness have a negative relationship with regard to their average and momentary levels.

Methods

Design

To measure individuals' daily experiences over the course of one week, the method of experience sampling was utilised. Furthermore, individuals' cross-sectional data was compared with their longitudinal data. The Behavioural, Management, and Social Sciences (BMS) Ethics Committee of the University of Twente granted ethical approval for the data collection of the study in 2020.

Participants

The Test Subject Pool SONA of the University of Twente was used for the purpose of recruiting participants by using a convenience sampling method. In addition, the survey was distributed via several social media platforms such as Whatsapp. Participants that took part via SONA received an incentive of one credit as compensation for their efforts, whereas participants who did not partake via the SONA System did not receive any compensation. In order to participate in this study, a smartphone able to download the app Ethica was needed and partaking individuals needed to be at least 18 years old. Participants with incomplete data and outside the range of young adults between 18 to 30 (Duggan & Brenner, 2013; Pelling & White, 2009) were excluded from the sample. The final dataset consisted of a sample size of

31 young adults (Male = 23%, Female = 77%) in the age range of 19 to 25 (M = 21.25, SD = 1.34) after cleaning the original sample based on the exclusion criteria mentioned above. Moreover, the study consisted mostly of German students (German = 30, Other = 1) (Full-time Student = 18, Part-time Student and Part-time Working = 11 , Other = 2). Individuals participated by agreeing to the informed consent and on a voluntary basis in the current study.

Materials

This online survey was created with the online survey tool Ethica which is especially suited for smartphone use. Because of the present study being part of a more extensive research, the total test battery included six daily state items and four trait questionnaires. Nevertheless, for the purpose of the current study, only questionnaires related to anger and happiness were used (see *Measures*).

Ethica

Ethica (ethicadata.com) is an online survey tool that focuses on smartphones which run on Android or iOS for collecting scientific data. It can be used to construct different questionnaires using different functions of the platform as a researcher or to partake in studies as participant. The online tool is especially suited for experience sampling due to its mobile use as an app and its trigger mechanism, which enables data collection at several times a day over the course of multiple days. Regarding the current study, participants received notifications to complete a survey on four timeframes per day over seven consecutive days, which enabled the collection of sufficient amount of data.

Procedure

To join the study, participants had to either sign up for the study on SONA or join via the participation link on social media. Subsequently, they needed to download Ethica on their phone and create a participant account by using their email address and a password. Next, they had to insert the specific participation code to find the study and join it. Participants got all the necessary information for their participation, like a consent form, contact details of the researchers, and general information about the study. The participants were informed about the procedure of the study, for instance, that the app will send them notifications as soon as a

survey is ready to be completed, to turn on their notifications on their phones, and what to expect the next few days. Next, demographics including age, gender, nationality, and occupation were requested, followed by an assessment of the trait domains of happiness and anger.

On the consecutive seven days, measurements were made on four occasions per day. The questionnaires were triggered between 9-10 am, 12-1 pm, 4-5 pm, and 8-9 pm. For every short survey, the participants received a notification that the survey is ready for them to be completed. After 30 minutes, they received a second reminder that a new survey was available. If the participants did not answer the survey within the intended timeframe, it automatically expired 60 minutes after the first notification. On the last day (day 8), the participants received a final notification after answering the last questionnaire. This notification stated that this was the end of the study and thanked the participants for their participation. Students that participated via SONA received their one credit point subsequent to the end of the study as compensation for their efforts.

Measures

Trait Questionnaires

Trait Happiness. In order to assess the participants' levels of trait happiness, the happiness subscale out of the Abridged Five Factor Circumplex Model (AB5C) was used (Bäckström et al., 2009; Mitchelson et al., 2009). There were ten items, which were to be answered on a five-point Likert-Scale ranging from 1 ”very inaccurate” to 5 ”very accurate”. Five out of ten items were reverse code scale items. Items included for example “I feel comfortable with myself” and “I feel threatened easily”. Regarding psychometric properties, the subscale shows good internal consistency ($\alpha = .84$) and acceptable structural validity (Bäckström et al., 2009).

Trait Anger. The Aggression Questionnaire by Buss and Perry (1992) is divided into the four subscales of physical aggression, verbal aggression, anger and hostility. The present study only used the subscale of Anger. This subscale consists of seven items in total and was measured with a five- point Likert-Scale ranging from 1 ”extremely uncharacteristic of me” to 5 ”extremely characteristic of me”. The total score of the seven items ranges from a minimum of seven to a maximum of 35. Higher scores indicate a higher level of anger (Buss & Perry,

1992). Regarding psychometric properties, the subscale showed good reliability and validity, with internal consistency from .72 to .88 and Cronbach's alpha scores from .83 to .91. Its test-retest reliability also showed good scores with .72 (Hornsveld et al., 2008).

State Questionnaires

State Happiness. To investigate the state component of happiness, one item was designed by the researcher. This was done because no questionnaires referring to state happiness, initially designed for experience sampling, had been proposed yet. For state happiness, the item included "I feel happy at the moment". The item was to be answered on a five-point Likert-Scale from 1 "very inaccurate" to 5 "very accurate". As this item was self-made, there have not yet been investigations concerning the psychometric properties.

State Anger. State anger was measured by using the items "I am mad right now" and "I feel irritated right now". The items were answered using a five- point Likert scale from 1 "Not at all" to 5 "Very much so". Previous studies that also used single or a small set of multiple questions included very similar items compared to the two used in the current study (Borders & Lu, 2016; Fresnics & Borders, 2016; Hamdan-Mansour et al., 2012). There have not yet been investigations concerning the psychometric properties of these self-made items.

Data Analysis

For the data analysis IBM SPSS Statistics (Version 25.0) was used. First, the collected data was cleaned by excluding participants younger than the age of 18 and participants with incomplete data from the dataset. Second, a factor analysis was done on the state and trait items of anger as well as state and trait items of happiness, in order to test their construct validity. Third, descriptive statistics and their means, standard deviations, skewness and kurtosis values for the variables of trait anger, trait happiness, state anger and state happiness were calculated. These values provide insight into the normality in data distribution. If there were values beyond the cut off points of -2 and 2 for skewness and -7 and 7 for kurtosis (Byrne, 2010), additional Q-Q plots were performed in order to inspect the normal distribution visually. Next, a reliability analysis was done for the trait questionnaires AB5C and the Aggression Questionnaire to test their internal consistency by calculating Cronbach's

Alpha. Here, values >.9 are interpreted as excellent, >.8 as good, >.7 as acceptable, >.6 as questionable, >.5 as poor and <.5 as unacceptable (Gliem & Gliem, 2003).

In order to test the hypotheses (see *Introduction*), multilevel analyses were performed for every hypothesis individually. For the present study, a correlation is considered significant when its *p*-value is lower than .05. Moreover, to run the analysis the average state anger and state happiness levels were calculated by identifying person mean scores (PM). This was done by aggregating the mean of the data per person. By calculating the PM score, the multilevel analysis accounts for between-person differences. Additionally, for each participant person mean-centred scores (PM-centred) were calculated in order to analyse within-person differences regarding state anger and state happiness. The PM-centred scores were calculated by subtracting the aggregate variable from the original state variable (Curran & Bauer, 2011).

Results

The missing values of participants at 111 of 850 timepoints have been imputed with the median of the respective variable. The reason for choosing the median was the overarching stability compared to the mean.

Testing for Normality

Descriptive statistics and their means, standard deviations, skewness and kurtosis values for the variables of trait anger, trait happiness, state anger and state happiness were also calculated. These values provide a good insight into the normality in data distribution. The skewness and kurtosis values indicate a normal distribution of the sample regarding the state and trait questionnaires, since these scores did not exceed the cut off points of -2 and 2 for skewness and -7 and 7 for kurtosis (see Table 1) (Byrne, 2010).

By comparing the means of the scales to their minimum and maximum scores (see Table 1), there is a tendency towards happier individuals in the trait happiness scale, a tendency towards slight more anger in the trait anger scale, no tendency in any direction on PM state happiness and a tendency towards less anger on PM state anger. It can therefore be concluded that the sample shows lower levels in anger in state and trait and higher levels in happiness in state and trait.

Table 1

Descriptive Statistics

	M	SD	Range	Skewness		Kurtosis	
				Statistic	S.E.	Statistic	S.E.
TH	34.32	5.35	24-45	-.03	.42	-.73	.82
TA	19.12	4.75	10-27	.08	.42	-.95	.82
SH (PM)	3.82	.01	3.14-4.54	-.17	.08	-.58	.16
SA (PM)	3.06	.60	2-4.96	.86	.08	1.75	.16
SH (PC)	.00	.07	-3.11-1.71	-.89	.08	1.24	.16
SA (PC)	.00	1.39	-2.96-7.29	1.45	.08	2.74	.16

Note. TA = Trait Anger, TH = Trait Happiness, SH = State Happiness, SA = State Anger; *N* = 31.

Factor Analysis

A factor analysis with the extraction method of maximum likelihood was conducted for the three self-developed state items and the trait items of anger and happiness, to establish its preliminary construct validity. Factors were extracted according to the „a priori“ criterion. This criterion suggests factors based on the theoretical structure of the items used, for instance state items and trait items should therefore measure their respective constructs. Additionally, a Varimax rotation was applied for the sake of clarity concerning the factor loadings. Regarding the first factor, the trait happiness items generally confirm a common construct with two exceptions namely, item 4 ”Look at the bright side of life“ and item 10 ”Am filled with doubts about things” from the trait happiness scale. The second factor also confirms a common structure across the states. Similarly, for the third factor trait anger items generally confirm a common construct with the exception of item 5 ”Some of my friends think I’m a hothead“ and item 6 ”Sometimes I fly off the handle for no good reason” from the trait anger scale, which loaded on the fourth and first factor respectively. The fourth factor however appears to be a rather random factor with the fourth item of the trait happiness scale and the fifth item of the

trait anger scale loading the highest on this factor. Table 2 represents the items with their factor loadings with items 1 to 3 being state items, items 4 to 13 being trait happiness and items 14 to 20 being trait anger items.

Table 2

Factor Matrix

	Factor			
	1. Trait Happiness	2. States	3. Trait Anger	4. Unknown Construct
1. I am mad right now	.03	**.88**	-.21	-.03
2. I feel irritated right now	.08	**.92**	-.01	-.19
3. I feel happy at the moment	.22	**-.87**	.04	-.18
4. Seldom feel blue.	**.75**	-.07	.06	.28
5. Feel comfortable with myself.	**.85**	.11	-.26	-.15
6. Adapt easily to new situations.	**.68**	-.05	-.06	.09
7. Look at the bright side of life.	.24	-.00	.01	**.40**
8. Am sure of my ground.	**.59**	-.02	-.01	.32
9. Often feel blue.	**.59**	-.07	.12	.04
10. Worry about things.	**.52**	.25	-.20	.13
11. Feel threatened easily.	**.35**	.35	.15	.32
12. Dislike myself.	**.62**	.07	-.09	.19
13. Am filled with doubts about things.	.26	-.01	-.12	**.67**
14. I flare up quickly but get over it quickly.	-.25	-.30	**.31**	.16
15. When frustrated, I let my irritation show.	-.29	-.24	**.64**	.15

16. I sometimes feel like a powder key ready to explode.	.04	-.05	**.78**	-.31
17. I am an even-tempered person.	-.28	-.06	**.37**	-.07
18. Some of my friends think I'm a hothead.	.11	.09	.47	**-.55**
19. Sometimes I fly off the handle for no good reason.	**-.47**	-.29	.35	.11
20. I have trouble controlling my temper.	.15	.00	**.95**	-.03

Extraction Method: Maximum Likelihood.

Reliability Analysis

In order to test the reliability of the two trait scales with regard to few of their items loading on different constructs, a reliability analysis was conducted. Additionally, running a reliability analysis gives insight into possible changes in Cronbach's alpha if suspicious items get excluded from their respective scale (see Appendix Table 1 & Table 2). The internal consistency of the trait anger scale had a Cronbach's alpha of .78 in the current study. Excluding items from the scale which loaded on another factor (items 5 & 6) did not result in a change or only in a slight positive change of Cronbach's alpha, namely by excluding item 5 (see *Appendix* Table 1).

The internal consistency of the trait happiness scale had a Cronbach's alpha of .84 in the current study, which is even with the reported Cronbach's alpha by Bäckström et al. (2009). In this case, excluding item 4 and 10 of the scale due to them loading on another factor results in no change or a slight decrease of Cronbach's alpha in the case of item 10 (see *Appendix* Table 2).

Correlations

A significant negative correlation has been found between state anger and state happiness ($r = -.73$, $p < .001$). Therefore, it is assumed that individuals who have higher state

anger levels, experience lover levels of state happiness and vice versa. In tendency, there were no significant correlations between the variables implying that there is not much multicollinearity. The only variables that significantly correlated with each other were state anger and state happiness.

Table 3

Correlation Matrix with p-values

	1	2	3	4
1. Trait Happiness	-			
2. Trait Anger	-.28	-		
p-value	.117			
3. State Anger	-.31	.25	-	
p-value	.081	.164		
4. State Happiness	-32	-.20	**-.73****	-
p-value	.080	.261	**<.001**	

**p*-value significant at .05 margin, *** p*-value significant at .01 margin. $N = 31$.

Multilevel Analysis

In order to answer the hypotheses, a conceptual model was tested. A linear mixed model was calculated in order to draw inferences about the different hypotheses, except the first hypothesis for which a linear regression analysis was used. The first analysis, was conducted with trait happiness as dependent variable and trait anger as independent variable. Results indicated that trait anger was not associated with trait happiness ($b = -.32$, $t(31) = -1.61$, $p = .117$).

The analysis for the second hypothesis was conducted with trait anger as independent variable and state happiness (PM) as dependent variable. Results showed that state happiness (PM) was no significant variable for trait happiness in the model ($b = -.01$, $t(31) = 1.18$, $p = .245$).

The analysis for the third hypothesis was conducted with trait happiness as independent variable and state anger (PM) as dependent variable. Results indicate no associarion between the variables, b = -.03, $t(31)$ = -1.87, p = .071.

The analysis for the fourth hypothesis was conducted with state happiness (PC) as dependent variable and state anger (PC) as independent variable for within-person analysis and with state happiness (PM) as dependent variable and state anger (PM) as independent variable for between-person analysis. Results of the within-person analysis indicated state anger as being a significant variable for state happiness in the model, b = -.29, $t(849)$ = -18.11, $p < .001$. An increase in one unit in the standard deviation of state anger leads to a decrease in .29 points in state happiness. Results of the between-person analysis indicated state anger as being a significant variable for state happiness in the model, b = -.43, $t(849)$ = -31.68, $p < .001$. An increase in one unit in the standard deviation of state anger leads to a decrease in .43 points in state happiness.

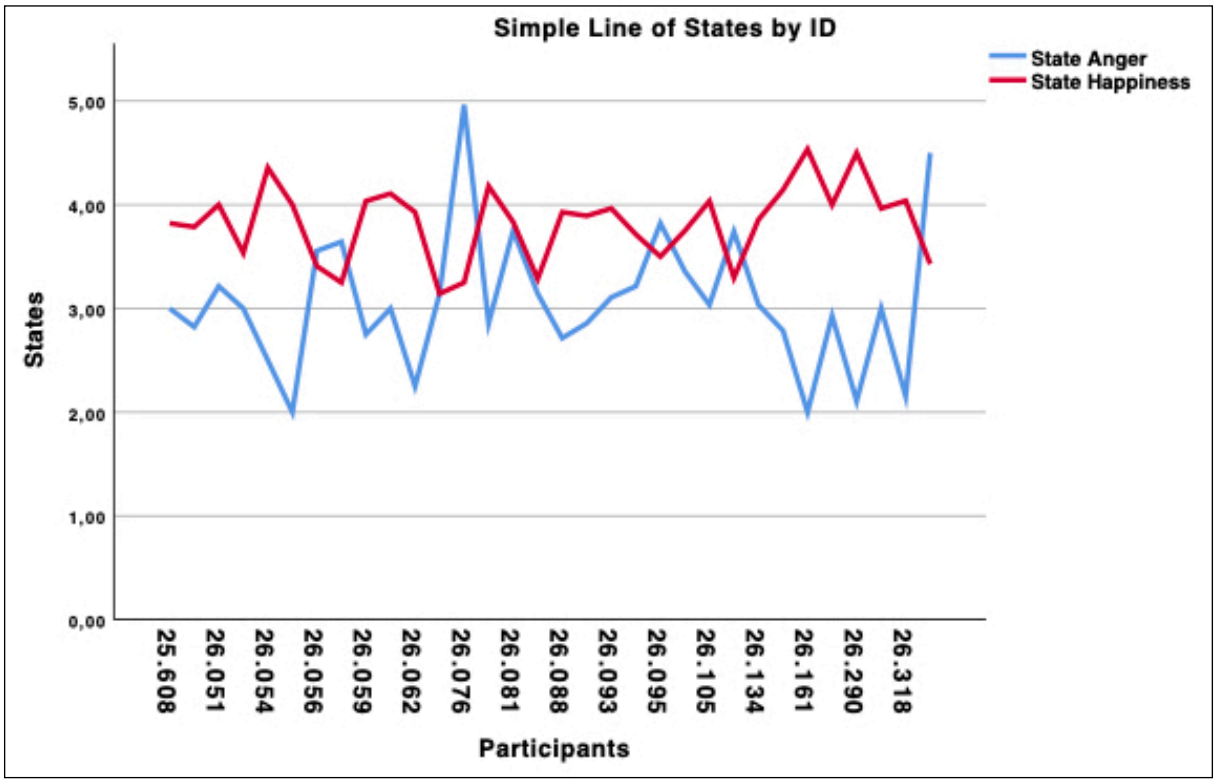

Figure 1. Graphical illustration of mean state anger (PM) and mean state happiness (PM) scores across participants.

Discussion

General Discussion

The current study aimed to study the relationship between the emotions of happiness and anger on a trait and state level. The overall results found in the present study indicate that individuals tend to be stable in their situational (state) emotions regarding the possible influence of their personality (trait) emotions, while situational emotions tend to be influenced by other situational emotions and thus fluctuate.

The first hypothesis, stating a negative relationship of trait anger and trait happiness was not supported. This finding is not in line with previous research which found an existing negative relationship (Hong & Giannakopoulos, 1994). This difference may be explained by age and study population differences, with older people being generally less angry than young people (Schieman, 1999) and men expressing their anger more compared to the current papers majority of female respondents, who tend to cover their anger up (Timmers et al., 1998). Nevertheless, anger and happiness were also found to have no relationship (Schwartz & Weinberger, 1980), thus implying ambiguous results in the literature. This ambiguity could be explained by differences in sample characteristics and sizes.

Next, the second hypothesis about a negative relationship between trait anger and average state happiness was not supported. Previous research referred high trait anger to lower self-esteem, perception of lower social support, prone of having suicidal ideation and alienation from school or university (Quinn et al., 2014), whereas state happiness was related to activities which include social environments (company of peers) (Csikszentmihalyi, & Hunter, 2003). Also, it was found that activities with no freedom of choice like school work decrease one's happiness level (Csikszentmihalyi, & Hunter, 2003). Therefore, this additionally supports the aspect of alienation from school or university in higher trait anger and reinforces the claim about a negative relationship between trait anger and state happiness. Nonetheless, results showed a floor effect with a tendency towards lower trait and state anger levels throughout the sample, while results of happiness imply a tendency towards higher levels in trait and state across the sample. Subsequently, this distribution is in line with the definition of happiness as the presence of positive affect (higher happiness levels) and the absence of negative affect (lower anger levels) (Demır & Weitekamp, 2006). Nevertheless,

there was no relationship between these two constructs, implying that they lie on two separate dimensions independently from each other.

The third hypothesis, predicting a negative association between trait happiness and average state anger could also not be supported. Here, the same topic is in question as in the second hypothesis, namely whether trait and state like emotions are in their entirety independent from another or if this only applies for the constructs of anger and happiness. As research has found, state anger is influenced by trait anger (Quinn et al., 2014) and trait happiness has an influence on state happiness (Furnham & Cheng, 2000). Neither of these trait to state relationships within anger and within happiness could be found in the current study, which might also explain why there was no support of a trait to state relationship across anger and happiness. With regard to the state-trait model (Spielberger et al., 1983), the results show no support, as they do not imply a reinforcement of anger and neither of happiness in individuals with high levels of their respective emotion. In contrast, the distribution of anger and happiness across the sample again is in favour of an increase in happiness of individuals with high levels, due to higher happiness levels and lower anger levels, thus supporting the state-trait model (Spielberger et al., 1983).

Finally, the fourth hypothesis regarding a negative relationship between state anger and state happiness on average and momentary levels was supported. This emphasises present fluctuations between the emotions of anger and happiness on a state level, because results show that in momentary experiences of anger or happiness individuals are able to get influenced in an either emotionally happier or angrier state. Furthermore, this finding is in line with previous research presenting similar findings, thus being in support of a negative relationship between the states of anger and happiness (Martin et al., 2013). With regard to state anger correlating strongly with increased aggression, aggressive behaviour and risky behaviour (Deffenbacher et al., 2003; Gordon et al., 2016) and state happiness being associated with lower levels of stress (Schiffrin & Nelson, 2010) through more adaptive coping styles (Rim, 1993), it can be deduced that these emotions, which increase and decrease stress, indicate a negative relationship.

Moreover, with happy individuals having a higher satisfaction with life, they are inclined to being warm, having a positive self view and not being anxious or critical in interpersonal relations (Emmons & Diener, 1985). This stands in contrast to angers previously

mentioned association to mental disorders such as bipolar disorder, borderline and paranoid personality disorder (DiGiuseppe & Tafrate, 2007) where individuals do not maintain a positive self view and are anxious in interpersonal relations. Thus, this underlines the negative relationship on a deeper level between state anger and state happiness. On the one hand, these attributes come on trait levels of anger and happiness, but on the other hand they also apply to their state levels by previous research findings, explaining an influence of trait anger and happiness on state anger and happiness (Quinn et al., 2014; Furnham & Cheng, 2000).

Factor Analysis Implications

Regarding the factor analysis, a fourth unknown factor appeared, on which some of the items loaded. With the fourth and tenth item of the trait happiness scale and the fifth item of the trait anger scale, three items loaded on this unknown factor. Potential reason for this could be that these items correlated the highest with each other, implying that those items interact with each other more than with the rest of the scale. This unknown factor could represent a depressive factor with items loading on it asking the participant about negative cognitions (“Am filled with doubts about things“), negative misinterpretations (“Some of my friends think I’m a hothead”) and about one’s (negative) perception of life (“Look at the bright side of life”). These categories are in line with Beck’s formulation of the cognitive triad in depression, which can be transformed into the expectations a person has. Namely expectations of negative outcomes regarding the self, negative expectations about others and negative expectations about future events (Rief & Joormann, 2019).

Moreover, the sixth item of trait anger loaded on the first factor, on which all trait happiness items loaded. An explanation could be that the item interacts more with trait happiness than trait anger. Nonetheless, excluding the sixth item of trait anger from its scale did not strengthen or improve the accuracy of the scale to measure anger. Additionally, both state emotions loaded on the one common factor, which at first was unexpected. Nonetheless, this seems reasonable as high anger implies lower states of happiness.

Societal Implications

Through the worldwide spread of the COVID-19 virus in 2019, the data of this study was collected during this global pandemic. As a result of governmental regulations to deal with the spread of the virus, people around the world had to adapt their lifestyles by social

distancing, reducing social contacts and social activities. Therefore, a decrease in happiness scores was expected in the current study. In line with this expectation, it was found that high levels of perceived risk regarding COVID-19 can decrease one's level of happiness (Yıldırım & Güler, 2020).

Additionally, the possibility of anger increasing in individuals due to restrictions and lifestyle changes is also a realistic consequence of the global pandemic. Previous research supports this consequence by stating that lockdowns and characteristics of the pandemic, which include uncertainty, social isolation and worries about one's health could increase anger levels of individuals (Shanahan et al., 2020). Thus, it is important to assess the state and trait levels of individuals when they are engaging in their everyday life activities again, such as participating in social activities (Menec, 2003). Resulting deviations from the norm regarding the scores of anger and happiness can lead to a strong impact on the inferences drawn from the data. For instance, individuals with no clinical diagnosis of depression showed an increase in depressive symptoms during the pandemic, therefore implying towards decreased happiness (Pan et al., 2020).

Practical Implications

The current findings, can further contribute to practice in clinical care and accordingly to existing interventions focusing on anger and happiness emotions. Through interventions over a day that focus on a decrease in state anger, individuals' situational happiness can be positively influenced. Moreover, future intervention designs could also aim at reducing the frequent experience of anger emotions and increasing the frequency of happiness emotions by future research investigating the direction of the state anger and state happiness relationship.

Such interventions would largely benefit the practice in clinical care, which would be suited to individuals with mental disorders such as bipolar disorder, borderline or antisocial personality disorder where individuals tend to have higher levels of anger (DiGiuseppe & Tafrate, 2007). In the treatment with such clients, it would be beneficial to lower their anger levels with the help of interventions that target these emotions. Especially in bipolar disorder, manic phases would benefit from anger reduction and depressive phases would benefit from an increase in happiness emotions.

Limitations and Recommendations for Future Research

Limitations in the present study should be considered when interpreting the results. First, the present study demonstrated an overrepresentation of females in the sample (77%). This overrepresentation affects the generalisability and representativeness of the findings about anger and happiness to the population of young adults. The overrepresentation of one gender is important to consider in generalisability and representativeness of the findings because males and females respond differently on anger. More specifically, expression differences in anger account for men to be more likely to express their anger and for women to be more likely to cover their anger up (Timmers et al., 1998). In order to avoid this limitation and to ensure more valid generalisability and representativeness, future studies should strive for an even sample in their target population regarding gender.

Second, the study population included solely young adults with a student majority. This limitation is to bear in mind because of anger and age having a negative relationship (Schieman, 1999). This means that the older people get, the less angry they generally become. Thus, this can lead to different findings which can result in future studies in this field by using differently aged samples. Therefore, in order to allow for representativeness for the general population, future studies should aim for inclusion of several age groups in their sample.

Third, the present study assessed individuals' state levels of anger and happiness by self-constructed scales. Next to being self-constructed, the scales consisted of two items or of being a single item scale, which makes them very short. These two aspects make it difficult to state how reliable the measurement constructs were and therefore, whether future studies will find similar results using these state anger and state happiness scales. Future research is therefore endorsed to run a pilot test or several rounds of revision, in order to determine sufficient reliability (Tay & Jebb, 2017).

Furthermore, a recommendation for future research in this field using the experience sampling method is to conduct a dropout analysis of participants of the sample. Dropouts of a survey can be generally described as respondents who quit the study without fully completing the survey. Here, a dropout analysis can help to find possible reasons for the dropout in order to improve the survey. Improvements can result in enhancing the survey questions or the overall length of the study. Moreover, such analysis can provide insight as to which questions or which timepoints were responsible for the maximum amount of respondents leaving and

thus, the flow of the survey can be improved. Considering the emotion of anger, it could lead to more insight if angrier individuals are prone to prematurely quit the study. In previous research, trait anger more than state anger, meaning angry temperament more than situational angry emotions has been found to lead to the interruption of treatment of such individuals (Fassino et al., 2003).

Additionally, with state anger and state happiness being negatively associated, future research is recommended to examine the direction of this relationship, as the present study cannot draw inferences about causality. Hereby, measurement which lasts over a longer time period than one week can be helpful in receiving clearer and more representative results. With the knowledge about causality, interventions can profit more in their design to specifically target emotions like anger or happiness in order to achieve a decrease or increase the situational levels of these emotions. Also, there is the opportunity for future research to use this study design and apply it to other emotional traits and states as well, in order to gain a complete picture including many different emotions.

Conclusion

Following the state-trait model, the current study contributes to the literature on understanding anger and happiness with the relationships in their trait and state levels. Specifically, combining trait to trait, trait to state and state to state relationships together in one study accounts for a novelty in the research field about the emotions of anger and happiness. With the current study being able to confirm a negative state to state relationship between anger and happiness compared to the other mentioned possible relationships, it is recommended to examine the direction of this relationship, with an even sample regarding gender and the inclusion of several age groups. The investigation of these emotional fluctuations is important and needs attention in order to prevent negative consequences on individuals' mental health.

References

Abdu, R., Shinar, D., & Meiran, N. (2012). Situational (state) anger and driving. *Transportation Research Part F: Traffic Psychology and Behaviour*, *15*(5), 575–580. https://doi.org/10.1016/j.trf.2012.05.007

Argyle, M., & Lu, L. (1990). Happiness and social skills. *Personality and Individual Differences*, *11*(12), 1255–1261. https://doi.org/10.1016/0191-8869(90)90152-h

Bäckström, M., Larsson, M. R., & Maddux, R. E. (2009). A structural validation of an inventory based on the Abridged Five Factor Circumplex Model (AB5C). *Journal of personality assessment*, *91*(5), 462-472. https://doi.org/10.1080/00223890903088065

Borders, A., & Lu, S.-E. (2016). The bidirectional associations between state anger and rumination and the role of trait mindfulness. *Aggressive Behavior*, *43*(4), 342–351. https://doi.org/10.1002/ab.21693

Buss, A. H., & Perry, M. (1992). The aggression questionnaire. *Journal of personality and social psychology*, *63*(3), 452.

Butcher, J. N., Spielberger, C. D., & Spielberger, C. D. (2013). *Advances in Personality Assessment*. Taylor & Francis.

Byrne, B. M. (2010). Structural equation modeling with AMOS: basic concepts, applications, and programming (multivariate applications series). *New York: Taylor & Francis Group*, *396*, 7384.

Carrera, P., & Oceja, L. (2007). Drawing mixed emotions: Sequential or simultaneous experiences? *Cognition & Emotion*, *21*(2), 422–441. https://doi.org/10.1080/02699930600557904

Chan, D. K. C., Zhang, X., Fung, H. H., & Hagger, M. S. (2014). Does emotion and its daily fluctuation correlate with depression? A cross-cultural analysis among six developing countries. *Journal of Epidemiology and Global Health*, *5*(1), 65. https://doi.org/10.1016/j.jegh.2014.09.001

Csikszentmihalyi, M., & Hunter, J. (2014). Happiness in Everyday Life: The Uses of Experience Sampling. *Flow and the Foundations of Positive Psychology*, 89–101. https://doi.org/10.1007/978-94-017-9088-8_6

Curran, P. J., & Bauer, D. J. (2011). The Disaggregation of Within-Person and Between-Person Effects in Longitudinal Models of Change. *Annual Review of Psychology*, *62*(1), 583–619. https://doi.org/10.1146/annurev.psych.093008.100356

Deffenbacher, J. L., Deffenbacher, D. M., Lynch, R. S., & Richards, T. L. (2003). Anger, aggression, and risky behavior: a comparison of high and low anger drivers. *Behaviour Research and Therapy*, *41*(6), 701–718. https://doi.org/10.1016/s0005-7967(02)00046-3

Demır, M., & Weitekamp, L. A. (2006). I am so Happy 'Cause Today I Found My Friend: Friendship and Personality as Predictors of Happiness. *Journal of Happiness Studies*, *8*(2), 181–211. https://doi.org/10.1007/s10902-006-9012-7

DiGiuseppe, R., & Froh, J. J. (2002). What Cognitions Predict State Anger? *Journal of Rational-Emotive and Cognitive-Behavior Therapy*, *20*(2), 133–150. https://doi.org/10.1023/a:1019835215935

DiGiuseppe, R., & Tafrate, R. C. (2007). *Understanding Anger Disorders*. Oxford University Press.

Diong, S.-M., & Bishop, G. D. (1999). Anger Expression, Coping Styles, and Well-being. *Journal of Health Psychology*, *4*(1), 81–96. https://doi.org/10.1177/135910539900400106

Duggan, M., & Brenner, J. (2013). *The demographics of social media users, 2012* (Vol. 14). Washington, DC: Pew Research Center's Internet & American Life Project.

Ekman, P. (1992). Are there basic emotions? *Psychological Review*, *99*(3), 550–553. https://doi.org/10.1037/0033-295x.99.3.550

Emmons, R. A., & Diener, E. (1985). Personality Correlates of Subjective Well-Being. *Personality and Social Psychology Bulletin*, *11*(1), 89–97. https://doi.org/10.1177/0146167285111008

Fassino, S., Abbate-Daga, G., Pierò, A., Leombruni, P., & Rovera, G. G. (2003). Dropout from Brief Psychotherapy within a Combination Treatment in Bulimia nervosa: Role of Personality and Anger. *Psychotherapy and Psychosomatics*, *72*(4), 203–210. https://doi.org/10.1159/000070784

Fresnics, A., & Borders, A. (2016). Angry Rumination Mediates the Unique Associations Between Self-Compassion and Anger and Aggression. *Mindfulness*, *8*(3), 554–564. https://doi.org/10.1007/s12671-016-0629-2

Furnham, A., & Cheng, H. (2000). Lay Theories of Happiness. *Journal of Happiness Studies*, *1*(2), 227–246. https://doi.org/10.1023/a:1010027611587

Gliem, J. A., & Gliem, R. R. (2003). Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales. *Midwest Research-to-Practice Conference in Adult, Continuing, and Community Education*.

Gordon, N. S., Chesney, S. A., Reiter, K., & Walla, P. (2016). Thinking positively: Optimism and emotion regulation predict interpretation of ambiguous information. *Cogent Psychology, 3*(1), 1-13. doi:10.1080/23311908.2016.1195068

Hamdan-Mansour, A. M., Dardas, L. A., Nawafleh, H., & Abu-Asba, M. H. (2012). Psychosocial predictors of anger among university students. *Children and Youth Services Review*, *34*(2), 474–479. https://doi.org/10.1016/j.childyouth.2011.12.004

Hong, S.-M., & Giannakopoulos, E. (1994). The Relationship of Satisfaction with Life to Personality Characteristics. *The Journal of Psychology*, *128*(5), 547–558. https://doi.org/10.1080/00223980.1994.9914912

Hornsveld, R. H. J., Muris, P., Kraaimaat, F. W., & Meesters, C. (2008). Psychometric Properties of the Aggression Questionnaire in Dutch Violent Forensic Psychiatric Patients and Secondary Vocational Students. *Assessment*, *16*(2), 181–192. https://doi.org/10.1177/1073191108325894

Howard, A. L., Galambos, N. L., & Krahn, H. J. (2010). Paths to success in young adulthood from mental health and life transitions in emerging adulthood. *International Journal of Behavioral Development*, *34*(6), 538–546. https://doi.org/10.1177/0165025410365803

Jalloh, A., Flack, T., Chen K., & Fleming K. (2014). Measuring Happiness: Examining Definitions and Instruments. *Illuminare, 12(1)*, 59-67.

Kassinove, H. (1995). Anger Disorders: Definition, Diagnosis, And Treatment (SERIES IN CLINICAL AND COMMUNITY PSYCHOLOGY) (1st ed.). Taylor & Francis.

Kim-Prieto, C., Diener, E., Tamir, M., Scollon, C., & Diener, M. (2005). Integrating The Diverse Definitions of Happiness: A Time-Sequential Framework of Subjective Well-

Being. *Journal of Happiness Studies*, *6*(3), 261–300. https://doi.org/10.1007/s10902-005-7226-8

Larsen, R. J., & Ketelaar, T. (1991). Personality and susceptibility to positive and negative emotional states. *Journal of Personality and Social Psychology*, *61*(1), 132–140. https://doi.org/10.1037/0022-3514.61.1.132

Lievaart, M., Franken, I. H. A., & Hovens, J. E. (2016). Anger Assessment in Clinical and Nonclinical Populations: Further Validation of the State-Trait Anger Expression Inventory-2. *Journal of Clinical Psychology*, *72*(3), 263–278. https://doi.org/10.1002/jclp.22253

Liu, Y., Bangerter, L. R., Rovine, M. J., Zarit, S. H., & Almeida, D. M. (2016). Intrinsic Emotional Fluctuation in Daily Negative Affect across Adulthood. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 159. https://doi.org/10.1093/geronb/gbw159

Martin, R. C., Coyier, K. R., VanSistine, L. M., & Schroeder, K. L. (2013). Anger on the Internet: The Perceived Value of Rant-Sites. *Cyberpsychology, Behavior, and Social Networking*, *16*(2), 119–122. https://doi.org/10.1089/cyber.2012.0130

Menec, V. H. (2003). The Relation Between Everyday Activities and Successful Aging: A 6-Year Longitudinal Study. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, *58*(2), 74–82. https://doi.org/10.1093/geronb/58.2.s74

Mitchelson, J. K., Wicher, E. W., LeBreton, J. M., & Craig, S. B. (2009). Gender and ethnicity differences on the Abridged Big Five Circumplex (AB5C) of personality traits: A differential item functioning analysis.*Educational and Psychological Measurement*,*69*(4), 613-635. https://doi.org/10.1177/0013164408323235

Oswald, A. J., Proto, E., & Sgroi, D. (2015). Happiness and Productivity. *Journal of Labor Economics*, *33*(4), 789–822. https://doi.org/10.1086/681096

Quinn, C. A., Rollock, D., & Vrana, S. R. (2014). A test of Spielberger's state-trait theory of anger with adolescents: Five hypotheses. *Emotion*, *14*(1), 74–84. https://doi.org/10.1037/a0034031

Pan, K.-Y., Kok, A. A. L., Eikelenboom, M., Horsfall, M., Jörg, F., Luteijn, R. A., Rhebergen, D., Oppen, P., Giltay, E. J., & Penninx, B. W. J. H. (2020). The mental health impact of the COVID-19 pandemic on people with and without depressive, anxiety, or

obsessive-compulsive disorders: a longitudinal study of three Dutch case-control cohorts. *The Lancet Psychiatry*, *8*(2), 121–129. https://doi.org/10.1016/s2215-0366(20)30491-0

Pelling, E. L., & White, K. M. (2009). The Theory of Planned Behavior Applied to Young People's Use of Social Networking Web Sites. *CyberPsychology & Behavior*, *12*(6), 755–759. https://doi.org/10.1089/cpb.2009.0109

Rief, W., & Joormann, J. (2019). Revisiting the Cognitive Model of Depression: The Role of Expectations. *Clinical Psychology in Europe*, *1*(1), 1–19. https://doi.org/10.32872/cpe.v1i1.32605

Rim, Y. (1993). Happiness and coping styles. *Personality and Individual Differences*, *14*(4), 617–618. https://doi.org/10.1016/0191-8869(93)90158-y

Rivers, S. E., Brackett, M. A., Katulak, N. A., & Salovey, P. (2006). Regulating anger and sadness: an exploration of discrete emotions in emotion regulation. *Journal of Happiness Studies*, *8*(3), 393–427. https://doi.org/10.1007/s10902-006-9017-2

Schieman, S. (1999). Age and Anger. *Journal of Health and Social Behavior*, *40*(3), 273. https://doi.org/10.2307/2676352

Schwartz, G. E., & Weinberger, D. A. (1980). Patterns of emotional responses to affective situations: Relations among happiness, sadness, anger, fear, depression, and anxiety. *Motivation and Emotion*, *4*(2), 175–191. https://doi.org/10.1007/bf00995197

Schwarz, N., & Strack, F. (1999). Reports of subjective well-being: Judgmental processes and their methodological implications. *Well-being: The foundations of hedonic psychology*, *7*, 61-84.

Shanahan, L., Steinhoff, A., Bechtiger, L., Murray, A. L., Nivette, A., Hepp, U., Ribeaud, D., & Eisner, M. (2020). Emotional distress in young adults during the COVID-19 pandemic: evidence of risk and resilience from a longitudinal cohort study. *Psychological Medicine*, 1–10. https://doi.org/10.1017/s003329172000241x

Silk, J. S., Steinberg, L., & Morris, A. S. (2003). Adolescents' Emotion Regulation in Daily Life: Links to Depressive Symptoms and Problem Behavior. *Child Development*, *74*(6), 1869–1880. https://doi.org/10.1046/j.1467-8624.2003.00643.x

Spielberger, C. D., Jacobs, G., Russell, S., & Crane, R. (1983). Assessment of Anger: the State Trait Anger Scale. In J. N. Butcher & C. D. Spielberger (Eds*.), Advances in Personality Assessment 2*. Hillsdale, NJ: Erlbaum.

Tamir, M., Mitchell, C., & Gross, J. J. (2008). Hedonic and Instrumental Motives in Anger Regulation. *Psychological Science*, *19*(4), 324–328. https://doi.org/10.1111/j.1467-9280.2008.02088.x

Tatarkiewicz, W. (2011). Analysis of Happiness (Melbourne International Philosophy Series (3)) (Softcover reprint of the original 1st ed. 1976 ed.). Springer.

Tay, L., & Jebb, A. (2017). Scale Development. In S. Rogelberg (Ed), *The SAGE Encyclopedia of Industrial and Organizational Psychology, 2nd edition.* Thousand Oaks, CA: Sage.

Timmers, M., Fischer, A. H., & Manstead, A. S. R. (1998). Gender Differences in Motives for Regulating Emotions. *Personality and Social Psychology Bulletin*, *24*(9), 974–985. https://doi.org/10.1177/0146167298249005

Veenhoven, R. (1989). Introduction. In R. Veenhoven (Ed.), *How harmful is happiness?* (pp. 1-6). Rotterdam, the Netherlands: Universitaire Pers Rotterdam.

Veenhoven, R. (1998). Two State-Trait Discussions on Happiness: A Reply to Stones et al. *Social Indicators Research*, 211-225

Veenhoven, R. (2005). Is Happiness a Trait? *Citation Classics from Social Indicators Research*, 477–536. https://doi.org/10.1007/1-4020-3742-2_17

Yıldırım, M., & Güler, A. (2020). Positivity explains how COVID-19 perceived risk increases death distress and reduces happiness. *Personality and Individual Differences*, *168*, 110347. https://doi.org/10.1016/j.paid.2020.110347

Appendix

Abridged Five Factor Circumplex Model (AB5C)

Items for Trait Happiness

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.

6. Often feel blue.

7. Worry about things.

8. Feel threatened easily.

9. Dislike myself.

10. Am filled with doubts about things.

Aggression Questionnaire

Items for Trait Anger

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.

Experience Sampling Questions

Items for State Anger

1. I feel mad right now.

2. I feel irritated right now.

Items for State Happiness

3. I feel happy at the moment.

Results Reliability Analysis

Table 3

Trait Anger Item Statistics

	Cronbach's Alpha if Item Deleted
Trait Anger Item 1	.77
Trait Anger Item 2	.73

Trait Anger Item 3	.71
Trait Anger Item 4	.77
Trait Anger Item 5	.80
Trait Anger Item 6	.78
Trait Anger Item 7	.73

Table 2

Trait Happiness Item Statistics

	Cronbach's Alpha if Item Deleted
Trait Happiness Item 1	.81
Trait Happiness Item 2	.81
Trait Happiness Item 3	.82
Trait Happiness Item 4	.84
Trait Happiness Item 5	.81
Trait Happiness Item 6	.83
Trait Happiness Item 7	.82
Trait Happiness Item 8	.84
Trait Happiness Item 9	.82
Trait Happiness Item	.83