

**Examining the Relationship between Psychopathology, Subjective Well-Being, and the
Utilisation of Maladaptive Coping Mechanisms: A Daily Life Perspective**

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Abstract

Background. The frequent usage of distraction and rumination is associated with the mental health indicators: depression, anxiety, and subjective well-being (SWB). Response styles theory predicts that gender further impacts strategy preference, with women preferring rumination, while men tend to opt for distraction when facing stressors. **Objective.** This study aimed to examine whether SWB relates positively to rumination and distraction, and whether depression and anxiety link negatively to both strategies. Potential multicollinearity between depression, anxiety, and SWB was evaluated. Lastly, it was investigated whether women engage in more rumination while men employ more distraction. **Method.** Participants (*M*_{age}: 23) completed a baseline questionnaire assessing depression, anxiety, SWB and gender, along with several daily questionnaires measuring rumination and distraction. Multivariate analysis of variance (MANOVA) was used to examine the associations between trait depression, anxiety, SWB, gender and mean state distraction and rumination. The Variance inflation factor (VIF) was used to assess the level of multicollinearity between depression, anxiety and SWB. **Results.** MANOVA revealed no association between trait anxiety, SWB, gender and mean state distraction and rumination and a small significant association between mean state distraction and trait depression. No concerning VIF factor for depression, anxiety and SWB was found. **Conclusion.** Average momentary fluctuations in rumination and distraction showed no association with anxiety disorder, SWB, gender, and average momentary fluctuations in rumination with depression. These discrepancies from prior findings could be due to daily coping measurement. However, considering the substantial methodological disparities in the present study, further research is essential to confirm these insights.

Examining the Relationship between Psychopathology, Subjective Well-being, and the Utilisation of Maladaptive Coping Mechanisms: A Daily Life Perspective

According to the Mental Health Foundation, 74 % of the general population regularly experiences high levels of stress, causing an increasing risk of somatic, psychosomatic and psychological illnesses (Bebbington et al., 2016). To mitigate this growing health concern and facilitate the creation of preventive interventions, it is crucial to comprehend the risk factors that contribute to the development and persistence of chronic stress levels. Literature finds that one majorly influencing variable on the level of stress experienced in response to negative events is the choice and effectiveness of coping strategies (Lazarus & Folkman, 1984).

Coping refers to the strategies individuals use to deal with adversity or challenges, also called stressors (Broom, 2001), that are perceived as important to their welfare (Averill et al., 1974). The selection of coping strategies is strongly influenced by contextual factors and emotional states, leading to high variability across situations and time (Lazarus & Folkman, 1984; Nicolson, 1992). Thus, coping should be regarded a state variable, which is best assessed through longitudinal methods such as the experience sampling method (ESM). This structured self-report approach measures variables several times throughout participants' daily lives (Myin-Germeys et al., 2018) and therefore reduces the risk of memory biases and reinterpretation of past events based on present emotions and knowledge (Ben-Zur, 2009; Martos Martínez et al., 2021). While past research mostly investigated coping patterns as a reaction to major life events, recent studies focusing on state coping increasingly investigate and work with minor stressors, also known as daily hassles (Nicolson, 1992). This shift is driven by the need to frequently capture coping preferences to assess their state level, which can only be done by selecting a commonly experienced stressor like daily hassles (Marco & Suls, 1993; Monroe, 1983). While effective coping strategies can help individuals adapt to

stressors, ineffective or maladaptive coping strategies may perpetuate or intensify stress levels (Heim, 1995). Maladaptive coping strategies involve avoidance-oriented behaviours like rumination, characterized by dwelling on negative thoughts, feelings and experiences, or distraction, entailing the redirection of attention away from the stressor (DeLongis et al., 1986).

One factor potentially leading to a heightened usage of these coping mechanisms is depression, which entails depressed mood (e.g., irritability, feeling down) and loss of pleasure or interest in activities (Agam & Belmarker, 2008). Berg et al. (2017) showed that individuals with depression often avoid stressors by engaging in distractive, more pleasant behaviours to prevent further bad feelings (Boon et al., 2003; Beblo et al., 2009; Saniah & Zainal, 2010). Prior research suggests that despite the initial relief and stress reduction (Nolen-Hoeksema, 1991), this ultimately results in increased feelings of loneliness and a higher risk of suicidal ideation (Cliffe & Stallard, 2023). In addition to distraction, Morrow and Nolen-Hoeksema (1993) suggest that due to an increased negative self-focus, people with high levels of depression often engage in rumination when dealing with stressors. According to Nolen-Hoeksema's (2000) response styles theory (RST), this in turn promotes and maintains depression levels by creating low self-esteem and hopelessness (Abela et al., 2002; Abela et al., 2007; Brown & Jose, 2008; Moberly & Watkins, 2008). ESM studies supporting this assumption however applied infrequent measurement intervals, providing less ecologically valid and rich data, potentially leading to misinterpretation and should therefore be considered cautiously (Hakin, 2008; McLaughlin et al., 2013).

Building on prior evidence linking distraction, rumination, and depression, Nolen Hoeksma (2000; 2001) extended his research to discover further influential factors guiding coping choices. Subsequent studies unveiled a significant gender effect. Based on this, the RST was expanded, proposing that women high in depression are more inclined to employ

rumination as a coping mechanism, whereas men tend to resort to distraction (Butler & Nolen-Hoeksema, 1994; Nolen-Hoeksema et al., 1994; Nolen-Hoeksema, 2000). Similarly, to investigations into the association between depression and these coping strategies, further studies mainly utilized cross-sectional designs, missing out on measuring coping as a state variable. Additionally, this exploration yielded conflicting outcomes, with specific studies affirming this link (Bögels et al., 2008; Conway et al., 1990; Endler & Parker, 1990; Koenig & Schwartz, 1996), while others did not (Butler & Nolen-Hoeksema, 1994; Helgeson et al., 2002). Given the high comorbidity between the initially investigated factor depression (Nolen-Hoeksema, 2000) and anxiety disorders, a substantial amount of research has been continuously dedicated to investigating the interplay among rumination, distraction and anxiety disorders (Chin et al., 2008; Koenig & Schwartz, 1996; Alden et al., 2000).

People experiencing anxiety disorders report heightened anxiety responding to certain cues that do not generally convey a threat (Craske et al., 2009). Two of its main shared features with depression are heightened negative self-focus and reduced self-esteem (Alden et al., 2000). Similarly, to depression, this ultimately leads to an elevated utilization of rumination, which in turn increases anxiety symptoms, suggesting a bilateral positive relationship (Boon et al., 2003; Ciesla et al., 2016; Legerstee et al., 2011). While studies largely suggest a positive association between anxiety disorders and rumination, studies on the association between distraction and anxiety disorders depict somewhat mixed findings. The majority of cross-sectional studies seem to suggest a positive association between anxiety and distraction (Borkovec & Roemer 1995; Byrne & Eysenck, 1992) while some longitudinal studies also found that individuals high in anxiety disorder use less distraction (Moulds & Wong, 2009). Overall, prior research however seems to imply a positive connection between psychopathology and, consequently, based on the conventional psychological perspective, mental health and both rumination and distraction. Recent studies, however, suggest that an individual's

mental health does not only depend on psychopathology but also subjective well-being (Keyes & Lopez 2002).

Subjective well-being (SWB) is the degree to which individuals evaluate their experiences and life as satisfactory (Diener et al., 2018). While depression and anxiety disorders are characterized by feelings of sadness, hopelessness and fear, high SWB encompasses joy, contentment, and satisfaction with, - and purpose of life (Keyes & Westerhof, 2010). Camart et al. (2017) suggest life satisfaction to be one of the most significant predictors of stress and thus is also greatly associated with coping (John et al., 2006). A study by Ferradás et al. (2016) showed that students low in SWB resolve their issues by lowering their goal determination and avoiding hassles (Amir et al., 2011; de Caroli & Segone, 2014). Chang et al. (2020) further specified this association by predicting that distraction is negatively associated with SWB. Individuals with low SWB also seem to exhibit an enhanced negative self-focus, which, similar to depression and anxiety disorders, leads to increased utilization of rumination (Harrington & Loffredo, 2010), suggesting a negative association. Given that SWB is a relatively new psychological concept, research on this association, especially regarding coping as a state variable, is however scarce.

Towards an approach of depicting mental health holistically, Keyes (2008) invented the dual continua model, integrating both SWB and psychopathology. This model includes both factors as dimensions that can coexist and are independent of each other. While the presumption of independence is upheld by the findings of Iasiello et al. (2020), contemporary investigations reveal a significant linkage between psychopathology and SWB (Bartels et al., 2013; Costa-Ball et al., 2018; Hajak et al., 2005). This was further confirmed by Malone and Wachholtz (2019), which detected a significant correlation between depression, anxiety and nearly every dimension of SWB in the Chinese population. The high correlation between

these factors could be an indicator of high multicollinearity, which is a strong linear relationship between them when used as independent variables in a regression analysis. Possible consequences of failing to detect and handle multicollinearity are inflated standard errors, reduced reliability of the individual regression coefficients and ultimately less reliable statistical inferences (Eberly, 2007). Surprisingly, past research has however overlooked assessing multicollinearity concerning the relationships among depression, anxiety, SWB when investigating their relationship with both distraction and rumination (Fischer et al., 2021).

Present study

The current study aims to provide insight into the association between depression, anxiety, SWB, gender and the until this point mostly overlooked state levels of both rumination and distraction. ESM will be employed to enable the measurement of daily fluctuations. Furthermore, the present study will evaluate the potential level of multicollinearity among depression, anxiety, and SWB, as suggested by certain previous research. Therefore, the following research question was formulated: *To what extent are depression, anxiety disorder, SWB and gender associated with rumination and distraction in daily life?* In accordance with prior research, four hypotheses were theorized:

Hypothesis 1. Depression and anxiety disorder is positively associated with the frequent usage of state rumination and state distraction in response to daily hassles.

Hypothesis 2. SWB is negatively associated with the frequent usage of state rumination and state distraction in response to daily hassles.

Hypothesis 3. Depression, Anxiety and SWB demonstrate a high level of multicollinearity.

Hypothesis 4. Male participants report more frequent usage of state distraction, while female participants report more frequent usage of state rumination in the face of daily hassles.

Method

Participants

Participants were recruited via convenience sampling by spreading information about the study in the private circle of the researcher. They were required to be 18 years or older and have sufficient skills in the English language to enable correct answers to the various questions in the self-report measurement. Furthermore, all participants needed to provide informed consent and had to have a phone with at least iOS. 8 or Android 5.0 to enable the usage of the application Ethica. Ethical approval was obtained from the BMS ethics committee.

Procedure

An intensive longitudinal study design over the course of one week utilizing ESM was chosen. The study was carried out from the 13th of February 2023 the 19th of February 2023. After agreeing to participate in the study, participants received an invitation email with the instruction to download the application Ethica and register with their email addresses to get to the study environment. The study started on the same date for all participants by administering the baseline questionnaire (Appendix A) including demographic questions, the Mental Health Continuum- Short form, Patient Health Questionnaire – 9 and the Generalised Anxiety Disorder Questionnaire. This questionnaire did not expire, meaning participants could answer it for the whole study duration. If they did not completely it immediately, they were additionally reminded to fill it in after 8, 24 and 72 hours. Apart from the baseline questionnaire, participants were presented with the state questionnaire, which is a short self-report questionnaire, that can be filled in throughout their daily life including self-constructed measures to assess the current experience of daily hassles, rumination and distraction. It was triggered ten times daily at random moments between 07.30 and 22.30 in blocks of 90 minutes. This sampling frequency was chosen to enable high data density and, therefore, the

increased documentation of fluctuations in state coping (Myin-Germeys et al., 2018). Participants were notified to take the state questionnaire once, which expired after 15 minutes, meaning it was deleted and could not be filled in after that time period. Afterwards, the participants were thanked and instructed to email the supervisor for questions or further information about the study and its results.

Measures

Trait Measures

Trait SWB. SWB was measured using the Mental Health Continuum- Short form (MHC-SF) (Keyes, 2005). This self-report scale consists of 14 items that can be answered on a 6-point Likert Scale, ranging from 0 (never) to 5 (every day). After adding all items, the sum score ranges from 0 to 84. Participants with high sum scores reveal a high level of SWB. The MHC-SF showed robust psychometric properties with good convergent and divergent validity (Kuppens et al., 2019) and good internal consistency (Cronbach's alpha = .91) in this study.

Trait Depression. Depressive symptomatology was measured using the Patient Health Questionnaire – 9 (PHQ-9) (Kroenke et al., 2001). This self-report scale consists of 9 items that can be answered on a 4-point Likert scale, ranging from 0 (not at all) to 3 (nearly every day). After adding all items, the sum score ranges from 0 to 27. Participants with high sum scores reveal a high level of depressive symptoms. Scores above 10 indicate a depressive disorder (Kroenke et al., 2001). The PHQ-9 has proven good internal consistency (Cronbach's alpha >.86) in this study.

Trait Anxiety. Anxiety was measured by using the Generalised Anxiety Disorder Questionnaire (GAD-7) (Kroenke et al., 2006). The self-report scale consists of 7 items that can be answered on a 4-point Likert, ranging from 0 (not at all) to 3 (nearly every day). After adding all items, the sum score ranges from 0 to 21. Participants with high sum scores reveal

a high level of anxiety. Scores above 10 indicate a clinically relevant anxiety disorder (Kroenke et al., 2006). The GAD-7 showed robust psychometric properties with good internal consistency ($\alpha < 0.82$) in this study and good convergent and discriminant validity (Hoffart et al., 2019).

State measures

State daily hassles. To assess whether the participant experienced a daily hassle lately, the single item "Think of the most striking event or activity in the last hour. How (un)pleasant was this event or activity?" was applied. Answers could be reported on a scale from -3 (very unpleasant) to +3 (very pleasant). Because analysis and interpretation depended solely on whether the most significant event since the last questionnaire was perceived as negative or not, this variable was dichotomized. Scores above or equal to 0 were omitted, as they suggest either no event or a positive event, while scores below 0 were coded as 1 and regarded as the experience of a daily hassle.

State Distraction. Corresponding to the previous question assessing whether or not participants experienced a daily hassle, the item: "How did you deal with the event?" was administered. The frequency in usage of distraction as a coping strategy was then measured by applying the self-developed item "I tried to distract my attention from it". Participants could answer by selecting either "yes" (1) or "no" (2). The variable was then dummy-coded, indicating either no use (0) or use (1). The scores of each participant were then summed up and divided by the times of recorded answers per participant, creating the new variable mean state distraction for each participant, ranging from 0 to 1.

State Rumination. Corresponding to the previous question assessing whether or not participants experienced a daily hassle, the item: "How did you deal with the event?" was administered. The frequency of usage of rumination as a coping strategy was then measured by

applying the self-developed item "I kept thinking about it ". Participants could answer by selecting either "yes" (1) or "no" (2). The variable was then dummy-coded, indicating either no use (0) or use (1). The scores of each participant were then summed up and divided by the times of recorded answers per participant, creating the new variable mean state distraction for each participant, ranging from 0 to 1.

Data Analysis

Data analysis was performed by utilising IBM SPSS Statistics, version 25. Due to the frequent measurement in daily life, ESM studies usually have a rather high participant burden, which causes smaller response rates than in studies with only a few measurement points. As too little data can skew the data and cause problems with generalizability, participants who responded to less than 30 % of the triggered state questionnaires were removed (Ferreira et al., 2017). Descriptive statistics for both trait and state variables (i.e., mean, standard deviation, minimum and maximum scores) and the demographic data (i.e., frequency and percentage) were calculated.

Multivariate analysis of variance (MANOVA) was applied to test the research hypotheses. As the number of negative events within each participant could influence their general mood and, therefore, the depression, anxiety and SWB scores, a variable calculated by adding up the number of daily hassles experienced per participant was created and used in each regression analysis. To test the first two hypotheses, a MANOVA including trait depression, trait anxiety and trait SWB as the independent variable and state rumination and distraction as the dependent variable was conducted. In order to test the third hypothesis, the Variance of Inflation Factor (VIF) was calculated for the MANOVA answering the first two hypotheses. A score of 0 suggests no multicollinearity, scores above 0 up to 5 indicate a non-concerning moderate level of multicollinearity, while scores above 5 suggest a concerning high level of multicollinearity (Chen et al., 2002). To answer the fourth hypothesis, a MANOVA including

gender as the independent variable and state rumination and distraction as the dependent variable was conducted.

Results

Descriptive statistics

In total, 111 individuals participated in the study, from which 79 participants were excluded due to a response rate under 30 % or missing baseline questionnaires. After this, 32 participants with an average response rate of 50.17 % ($SD=10.66$) were left. Participants taking part in the study were older than 18, with the majority being under 25 (81.4 %). Further information about the characteristics of the sample is illustrated in Table 1. The sample displayed an average score of 9.39 ($SD=5.10$) on the PHQ, indicating on subthreshold of depression. With an average score of 15.06 ($SD=4.80$) on the GAD-7, the sample furthermore showed on average clinically relevant levels of anxiety disorders. On the MHC-SF, the sample showed a relatively high level of well-being with an average score of 53.35 ($SD=11.63$). During all daily hassles experienced, state rumination was used on average 34 % of the time from all participants, while distraction was used on average 14 % of the time from all participants. As shown by the Intraclass correlation coefficient (ICC), there is a high variance within-participants for both rumination (.23) and distraction (.37), while less than half of the difference within the frequency of usage of rumination and distraction is accounted for by between-person variance. Further descriptive statistics are displayed in Table 2.

Table 1*Characteristics of the sample population (N=32).*

Variable	Category	Frequency	Percentage	Mean (SD)
Age	-	-	-	23.53 (6.14)
	19-25	26	81.4	-
	25-40	5	12.5	-
	40-53	1	3.1	-
Gender	Male	18	58.1	-
	Female	13	38.7	-
	Other	1	3.2	-
Nationality	Dutch	10	31.3	-
	German	20	62.5	-
	other	2	6.3	-
Occupation	Student	7	21.9	-
	Working	1	3.1	-
	Self-employed	16	50	-
	Studying and working	7	21.9	-
	Not working	1	3.1	-
Degree	Middle school	1	3.1	-
	High school	15	46.9	-
	Bachelor	14	43.6	-
	Master	1	3.1	-
	Other	1	3.1	-

Table 2

Descriptive statistics of the MHC-SF, GAD-7, PHQ-9, State negative event scale.

Variable	N	M	SD	Min.	Max.	ICC
MHC-SF	32	53.35	11.63	26	76	-
GAD-7	32	15.06	4.80	7	26	-
PHQ-9	32	9.39	5.10	1	25	-
State daily hassles	1120	-.36	.76	-3	0	-
State rumination	1120	.34	.22	0	1	.23
State distraction	1120	.14	.13	0	1	.37

Note. ICC= Interclass correlation coefficient

Association between trait SWB, depression, anxiety disorder and state coping

As shown in Table 5, MANOVA showed no significant association between frequency in usage of distraction as a coping strategy and trait SWB, $\beta = 0$, $F(1,1120) = 3.7$, $p = .673$, as well as trait anxiety disorder, $\beta = -.01$, $F(1,1120) = 1.25$, $p = .07$. For trait depression and the frequency in the usage of distraction as a coping strategy it was found a significant positive association, $\beta = .02$, $F(1,1120) = 8.57$, $p = .008$. This means people high in depression show a high level of usage of distraction, while people low in depression show a low level of usage of distraction.

Furthermore, MANOVA showed no significant association between the frequency in the usage of rumination as a coping strategy and trait SWB, $\beta = 0$, $F(1, 1120) = .12$, $p = .655$, as well as trait anxiety disorder, $\beta = -.01$, $F(1,1120) = .19$, $p = .462$ and trait depression, $\beta = .02$, $F(1,1120) = 1.25$, $p = .167$.

The VIF factor showed a moderate but not yet concerning multicollinearity between the independent variables.

Table 3

MANOVA for the Dependent Variables Distraction and Rumination and the Predictors SWB, Depression and Anxiety (N = 32).

Dependent Variable	Effect	Estimate	SE	95 % CI	p	VIF
distraction	Constant	.21	.19	[-.18; .6]	.284	
	SWB	0	0	[-.01; 0]	.673	1.81
	Anxiety Disorder	-.01	.01	[-.03; 0]	.070	2.80
	Depression	.02	.01	[.01; .04]	.008	3.25
rumination	Constant	.2	.01	[-.56; .95]	.599	
	SWB	0	.01	[-.01; .01]	.655	1.81
	Anxiety Disorder	-.01	.01	[-.04; .02]	.462	2.81
	Depression	.02	.02	[-.01; .05]	.167	3.25

Note. Model significance: distraction $R^2 = .565$

Note. Model significance: rumination $R^2 = .276$

Note. SE= Standard Error; CI= Confidence Interval, p=probability, VIF=Variance Inflation Factor

Association between state coping and gender

As shown in Table 6, MANOVA showed a non-significant negative association between the frequency of distraction as a coping strategy and gender, $\beta = -.05$, $F(1, 1120) = 4.7$, $p = .266$ as well as the frequency of usage of rumination as a coping strategy and gender $\beta = -.12$, $F(1, 1120) = 6.1$, $p = .105$.

Table 4

MANOVA for the Dependent Variable Gender and the Predictors Distraction and Rumination

(*N* = 32).

Dependent Variable	Effect	Estimate	SE	95 % CI	p
distraction	Constant	.21	.07	[.08; .34]	.003
	Gender	-.05	.04	[-.13; .34]	.266
rumination	Constant	.54	.12	[.31; .34]	<.001
	Gender	-.12	.07	[-.28; .34]	.105

Note. Model significance distraction: $R^2 = .041$

Note. Model significance distraction: $R^2 = .085$

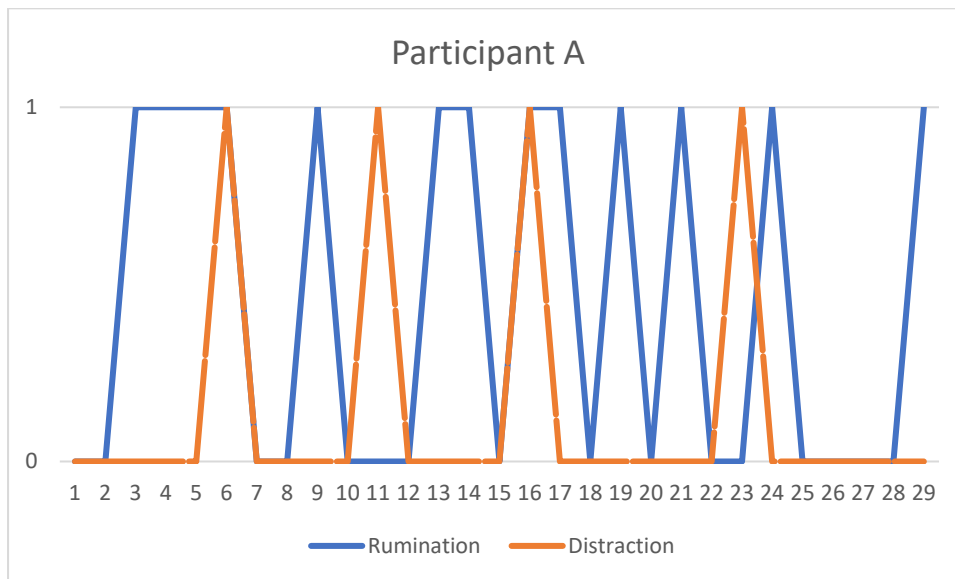
Note. SE= Standard Error; CI= Confidence Interval, p=probability

Visualization of within-person fluctuation of rumination and distraction

Figure 1 illustrates a representative trajectory of within-person fluctuations in the state variables of rumination and distraction. It is evident that the selection of coping mechanisms fluctuates significantly over time.

Figure 1

State Rumination and State Distraction scores across time within participant A.



Discussion

This study aimed to test the association between mental health, gender and the frequency in the usage of the coping mechanisms distraction and rumination in response to daily hassles. No significant associations were found between rumination and depression, anxiety disorders, SWB and gender as well as distraction and anxiety disorders, SWB and gender. Trait depression and state rumination were shown to be significantly associated. There was no concerning level of multicollinearity found between anxiety disorder, depression and SWB.

The Association between Rumination and Depression, Anxiety and SWB

Contrary to prior findings, the current study was not able to find a significant association between rumination and either depression, anxiety disorder or SWB. Previous studies support the notion of a positive association between depression, anxiety disorders and rumination (Boon et al., 2003; Ciesla et al., 2016; Morrow & Nolen-Hoeksema, 1993), as well as a negative association between SWB and rumination (Harrington & Loffredo, 2010). Research until now however mainly utilised the 10-item Rumination Response Scale (Borkovek & Roemer,

1995; Byrn & Eysenck, 1992), assessing rumination on two subscales: brooding and reflection. Brooding is defined as passively focusing on one's negative emotions and problems without actively seeking solutions and thus represents the maladaptive part of rumination, while reflection involves active and constructive thinking about one's negative experiences and thus represents the adaptive part of rumination (Treyner et al., 2013). Contrary to past research, the current study did not distinguish between these categories. Borkovec et al. (2007) however found that while brooding seems to negatively influence levels of anxiety and anxiety sensitivity, reflection does not have any effect on anxiety. Based on the assumption that each dimension might have a different effect on psychopathology and SWB, the current study could have overgeneralized the effect of rumination, as it did not distinguish between them. This in turn could have resulted in the positive and negative association of each dimension with depression, anxiety disorder and SWB cancelling each other out. Future research should therefore implement measurements considering both brooding and reflection separately while testing their association with depression, anxiety disorders and SWB daily.

Secondly, the measurement of depression might have caused significant differences in results between the current study, and past research. Based on prior studies, Nolen-Hoeksema (2000) developed the RST, which predicts that individuals high in depression tend to utilise more rumination, leading to exacerbated depression symptoms, prolongation and onset of major depressive episodes. Studies supporting this notion assessed samples with clinically relevant levels of depression (Butler & Nolen-Hoeksema, 1994; Nolen-Hoeksema et al., 1994). Conversely, the current study encompassed individuals with on average subthreshold depression levels. This distinction suggests the positive correlation observed in earlier studies might only apply to highly depressed populations. This assumption is further supported by Adelson et al. (2013), who showed that individuals with lower depression scores frequently

employed adaptive coping mechanisms, such as seeking social support, without demonstrating a higher inclination towards rumination. This might be due to the association between high depression levels and increased negative self-focus (Adelson et al., 2013), which raises the likelihood of individuals resorting to rumination rather than a more problem-oriented coping mechanism. Future studies should therefore specifically investigate the association between different levels of depression and rumination to gather further insight into these effects.

Lastly, previous research showing a negative association between rumination, depression and anxiety disorders was mostly done in a cross-sectional manner (Beblo et al., 2009; Boon et al., 2003; Ciesla et al., 2016). These studies are however very prone to recall biases, which might have led to participants reporting experiences wrongly (Myin-Germins et al., 2018). This is in line with a study by Botella et al. (2020), who theorized that individuals with psychopathology tend to exaggerate negative experiences as well as their negative reactions to them, which might have caused a perceived heightened usage of rumination. In cross-sectional studies, this might have led to self-reported higher levels of rumination in individuals with higher psychopathology due to the retrospective nature of the study. When measured prospectively in the current study, this effect would have been erased as participants reported their experience in the current moment (Myin-Germins et al., 2018). The results of the current study might therefore show that individuals with depression and anxiety disorders do not engage more frequently in rumination than individuals with low levels of depression and anxiety disorders.

The Association between Distraction and Depression, Anxiety and SWB

The current study did not detect significant associations between either anxiety disorders or SWB and distraction, which is contrary to past research (Beblo et al., 2009; Boon et al., 2003; Borkovek & Roemer, 1995; Chang et al., 2020). Similar to rumination, distraction has shown to be beneficial under certain circumstances, with generally lower levels of usage and

the integration of other goal-oriented strategies having a positive effect on one's mental health (Bongers et al., 2011; Denson et al., 2012; Ossenfort et al., 2016). Armon et al. (2021) additionally found that distraction can be advantageous during high-intensity stress situations but may diminish in efficiency during low-intensity stress situations when compared to more goal-oriented coping strategies. Hence, it is possible that without considering these nuances, the study might not have captured only maladaptive aspects of distraction with the item: "I tried to distract my attention from it", but also the adaptive ones. Through measuring both, this might have ultimately cancelled out any associations with anxiety disorders and SWB. It is therefore suggested to incorporate measurement of the level of stress, as well as general usage and integration of other goal-oriented strategies in future studies about anxiety, SWB and distraction.

The Association between Rumination, Distraction and Gender

In contrast to the expectations derived from the RST (Nolen-Hoeksema, 2000) and other previous studies (Bögels et al., 2008; Conway et al., 1990; Endler & Parker, 1990; Koenig & Schwartz, 1996), the present study did not observe any gender differences in the utilisation of rumination and distraction as coping strategies. Studies testing the assumption that women tend to ruminate, while men utilize more distraction more often (RST; Nolen-Hoeksema, 2000) however already display contradicting results (McNall et al., 1997). This variation in results (Butler & Nolen-Hoeksema, 1994; Helgeson et al., 2002; Koenig & Schwartz, 1996) suggests the involvement of other influential factors that contribute to individual differences in rumination tendencies. According to McNall et al. (1997), previously observed gender differences in rumination may be influenced by participants striving to conform to gender stereotypes. Nolen-Hoeksema and Jackson (2001) found that women tend to emphasise their affective experiences and perceive it as their role in stressful situations, while men may struggle with acknowledging and expressing negative emotions due to concerns about appearing

weak. Gender norms have significantly evolved in recent years (Cislaghi & Heise, 2020), potentially leading to different responses in the present study and ultimately yielding no gender differences in rumination and distraction usage. Future research studying the effects of possible gender stereotypes is therefore suggested.

The Correlation between Depression, Anxiety and SWB

While the current study was not able to detect a concerning level of multicollinearity between depression, anxiety and SWB, the past shows mixed results. A study by Malone and Wachholtz (2019) supports the notion of a significant correlation between the factors while the dual continua model by Keyes (2002) suggests their independence. Contrary to Keyes (2002), Malone and Wachholtz (2019) however mobilize a sample from the Chinese population, which is proven to believe in privacy and moderation of emotional expression, resulting in lower reported psychopathology (Braun & McLaughlin, 1998; Chapman et al., 2005). Therefore, Malone and Wachholtz (2019) might have experienced difficulties in the measurement of depression resulting in less variance. An additional problem might have been the application of translated Western measurements, which, when used to assess intricate psychological concepts like depression, might have led to wrong measurement. Chinese people for example place higher emphasis on somatic symptoms, which is not assessed sufficiently in the measures used (Diener et al., 2015). These differences between past research and the current one might have led to the conflictive results. Future research should therefore investigate possible language and culture barriers when assessing the correlation between anxiety disorders, depression and SWB.

Strengths and Limitations

The specific design of the study comes with strengths and limitations. ESM studies are generally novel in the field of research and therefore allow for many new insights. As coping fluctuates over time (Hakin et al., 2008), measuring it only a few times in a laboratory setting

may have led to recall bias and low ecological validity in past studies, making the current study important. Another strength of the current study is that it covers a large amount of time throughout the day while inhibiting the habituation of answering in the participants by choosing a semi-random sampling interval. Additionally, triggers expired after 15 minutes, limiting the chance of recall biases and making the data more accurate (Myin-Germins et al., 2018; Drukker et al., 2016). Thirdly, results show a significant correlation between psychopathology and SWB, refuting the assumption of independence of the dual continua model (Keyes et al., 2002). Furthermore, the measurement intervals were tightly distributed, with 70 triggers per participant. Therefore, the current study enabled a high data density within persons. Another strength of the current study was the integration of SWB, anxiety disorders and depression into one statistical mode. This enabled not only the measurement of the VIF factors but also reduced error and bias in the estimates, ultimately showing the unique contribution of each factor to explain variance in both rumination and distraction.

This approach however also comes with limitations, as it can cause problems with linearity, normality, overfitting, homoscedasticity and independence of the variables (Eberly, 2007). The results therefore need to be interpreted carefully. Additionally, these analyses are better for larger data sets and samples, which the current study did not have (Eberly, 2007). Another limiting factor is the relatively high participant burden, which caused small response rates and having to exclude 72 % of all participants. Choosing the fitting sampling interval and timeframe depends on a study's goal and the nature of the variables measured (Myin-Germins et al., 2018; Moskowitz et al., 2009). As for this study, which compared variables on a between-person level to which more participants would have been beneficial, it is suggested to repeat the investigation with a lower sampling frequency. Another shortcoming of this study is the sole measurement of depression, anxiety disorders and SWB on a trait level. For this

reason, the variance in coping choice needed to be averaged out, leaving no possibility to compare the variables on a state level and taking into account the daily fluctuations.

Conclusion

The study's results provide valuable insights regarding the association between mental health as a whole including depression, anxiety as well as SWB, gender and the frequency in usage of the coping mechanisms distraction and rumination. The mostly non-significant results highlight the possible context dependency of state coping. Due to notable differences in methodological design choices like lower depression levels in the sample, measurement of rumination and distraction and the missing measurement of possible positive effects of distraction between the current and past studies, the differences in results should however be further investigated. Contrary to expectations, the current study also observed a non-concerning level of multicollinearity between the measured dimensions of mental health, suggesting that they can be considered and studied independently as well as combined in one statistical model. Despite the study's limitations, it provides valuable first insights into stress management, mental health and its association with the daily usage of maladaptive coping.

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Appendix A

Baseline questionnaire

Demographics:

- Age: How old are you?
- Gender: What gender do you identify as?
 - Male, female, other
- Nationality: What is your nationality?
 - Dutch, German, Other
- Occupation: What is your current occupation?
 - Student, Working, Self-employed, studying and working, not working, other
- Highest degree obtained:
 - Middle school (such as MBO, MTS, MEAO or Haupt- oder Realschule), High school (such as HAVO, VWO, HBS or Gymnasium/ Berufsschule/ Berufskolleg), High school, Bachelor, Master, PhD, Other

Mental well-being (MHC-SF):

During the past month, how often did you feel...

1. Happy Interested in life
2. Satisfied with life
3. That you had something important to contribute to society

4. That you belonged to a community
5. That our society is a good place or is becoming a better place, for all people
6. That people are basically good
7. That the way our society works makes sense to you
8. That you liked most parts of your personality
9. Good at managing the responsibilities of your daily life
10. That you had warm and trusting relationships with others
11. That you had experiences that challenged you to grow and become a better person
12. Confident to think or express your own ideas and opinions
13. That your life has a sense of direction or meaning to it

Possible answers to each statement:

- a. Never
- b. Once or twice
- c. About once a week
- d. About 2 or 3 times a week
- e. Almost every day
- f. Every day

Anxiety (GAD-7):

Over the last two weeks, how often have you been bothered by the following problems?

1. Feeling nervous, anxious, or on edge

2. Not being able to stop or control worrying
3. Worrying too much about different things
4. Trouble relaxing
5. Being so restless that it is hard to sit still
6. Becoming easily annoyed or irritable
7. Feeling afraid, as if something awful might happen

Possible answers to each statement:

- a. Not at all
- b. Several days
- c. More than half the days
- d. Nearly every day

Depression (PHQ-9):

Over the last 2 weeks, how often have you been bothered by any of the following problems?

1. Little interest or pleasure in doing things
2. Feeling down, depressed, or hopeless
3. Trouble falling or staying asleep, or sleeping too much
4. Feeling tired or having little energy
5. Poor appetite or overeating
6. Feeling bad about yourself or that you are a failure or have let yourself or your family down

7. Trouble concentrating on things, such as reading the newspaper or watching television
8. Moving or speaking so slowly that other people could have noticed. Or the opposite being so fidgety or restless that you have been moving around a lot more than usual
9. Thoughts that you would be better off dead, or of hurting yourself

Possible answers to each statement:

- a. Not at all
- b. Several days
- c. More than half the days
- d. Nearly every day

State Questionnaire

Stressful event + coping:

Think of the most striking event or activity in last hour. How (un)pleasant was this event or activity?

Possible answers:

-3 (very unpleasant) to +3 (very pleasant)

How did you deal with this event?

1. I kept thinking about it (rumination)
2. I tried to distract my attention from it (distraction)

3. I expressed my emotions (emotion expression)
4. I talked to others about it (social support seeking)
5. I tried to look at it in a different way (positive reappraisal)

Possible Answer to each statement:

- a. Yes
- b. No