



# Private self-consciousness in daily life: Relationships between rumination and reflection and well-being, and meaning in daily life



David B. Newman<sup>a,\*</sup>, John B. Nezlek<sup>b,c</sup>

<sup>a</sup> University of Southern California, United States

<sup>b</sup> College of William & Mary, United States

<sup>c</sup> SWPS University of Social Sciences and Humanities, Poznań, Poland

## ARTICLE INFO

### Article history:

Received 1 February 2017

Received in revised form 22 June 2017

Accepted 26 June 2017

Available online 30 June 2017

### Keywords:

Rumination

Reflection

Meaning in life

Search

Daily diary

Well-being

## ABSTRACT

The present study moved beyond trait reports of rumination, reflection, and meaning in life (presence and search) by examining within-person relationships between daily states of these constructs and well-being. Participants ( $N = 130$ ) completed reports at the end of the day for 14 days. When analyzed together, daily rumination was negatively related to daily well-being whereas daily reflection was not (with one exception). In contrast, daily reflection was positively related to daily search for meaning in life, whereas rumination was not related to daily search for meaning in life. Reflection moderated the within-person relationships between rumination and well-being such that negative relationships between rumination and well-being were stronger at higher levels of reflection. In contrast, rumination had virtually no effect on search for meaning in life at higher levels of reflection. Lagged analyses found that daily reflection led to increases in daily positive deactivated affect (e.g., relaxation) and searching for meaning in life, and daily rumination led to increased presence of meaning in life the following day. These results highlight the importance of considering both reflection and rumination in studies of within-person variation and the value of considering within-person variability in understanding presence of and search for meaning in life.

© 2017 Elsevier Ltd. All rights reserved.

## 1. Introduction

The present study concerned within-person (daily) variability in private self-consciousness, also referred to as self-focused attention. Much of the research on private self-consciousness has focused on this construct as a trait, and although such research is valuable, we believe private self-consciousness can also be understood as a state, an entity that varies within individuals. We based our conceptualization of private self-consciousness on the distinction between rumination and reflection introduced by Trapnell and Campbell (1999).

Trapnell and Campbell were motivated by what had come to be known as the “self-absorption paradox”: the incompatibility of research indicating that private self-consciousness is positively related to well-being and research indicating that it is negatively related. Trapnell and Campbell argued this could be due to the fact that private self-consciousness had separable components that could stem from different motives and have different outcomes. They proposed that private self-consciousness had two components: rumination, a neurotic self-attentiveness, and reflection, an intellectual self-attentiveness. They found

that rumination was positively related to neuroticism, negative affect, and depression, whereas reflection was positively related to openness, need for cognition, and need for self-knowledge. Furthermore, they found that their measures of dispositional rumination and reflection were uncorrelated.

The present study assumed that the distinction between rumination and reflection is important not only at the between-person level but also at the within-person level. Such an assumption was based on the possibility that within-person relationships between constructs might be different from, and represent different processes than, between-person relationships between the same constructs (Affleck, Zautra, Tennen, & Armeli, 1999). We were also motivated by the possibility that daily measures might be less influenced than trait level measure by various types of bias (e.g. Nezlek, 2012, pp. 3–4). In the present study, participants provided measures describing their daily rumination, reflection, well-being, and meaning in life. Our analyses focused on relationships between daily rumination and reflection and daily well-being and meaning in life.

### 1.1. Existing research on state private self-consciousness

Previous studies about naturally occurring within-person variability in private self-consciousness have examined rumination but not

\* Corresponding author at: Department of Psychology, University of Southern California, Los Angeles, CA 90089-1061, United States.  
E-mail address: [davidnew@usc.edu](mailto:davidnew@usc.edu) (D.B. Newman).

reflection (e.g., Kashdan, Young, & McKnight, 2012; Puterman, DeLongis, & Pomaki, 2010) or have not distinguished the two (e.g., Nezlek, 2002). Nevertheless, this research has consistently found positive, same-day relationships between rumination and negative affect or negative events (e.g., Dickson, Ciesla, & Reilly, 2012; Genet & Siemer, 2012; Jose & Lim, 2015; Kashdan et al., 2012; Moberly & Watkins, 2008). Moreover, similar to research at the trait level, much of the research on daily rumination has examined relationships between rumination and negative predictors and outcomes. To our knowledge, only two studies have examined within-person relationships between rumination and positive outcomes, and each found a negative relationship between rumination and positive affect (Pe et al., 2013; Ruscio et al., 2015).

The present study complemented previous research by expanding well-being outcomes measures to include self-esteem, life satisfaction, and meaning in life, and by including a measure of daily reflection. Such an extension can be informative because affectively and non-affectively based measures of well-being, although related, assess different constructs (e.g., Nezlek, 2005). Drawing on trait level studies, we hypothesized that reflection would not be related to well-being as uniformly and negatively as rumination would be.

### 1.2. Meaning in life and private self-consciousness

To our knowledge, the present study is the first to examine within-person relationships between private self-consciousness and meaning in life. Given the nature of both of these constructs, we thought such an examination would be fruitful. Meaning in life has generally been considered in terms of two distinct components, presence and search (Frankl, 1963; Steger, Frazier, Oishi, & Kaler, 2006). Presence has been defined as the extent to which one finds meaning, purpose, and coherence in life (Martela & Steger, 2016). Search has been defined as the “strength, intensity, and activity of people’s desire and efforts to establish and/or augment their understanding of the meaning, significance, and purpose of their lives” (Steger, Kashdan, Sullivan, & Lorentz, 2008).

Implicit in both of these constructs is a sense that people examine, contemplate, and evaluate their lives, and such processes require thinking about the self. Consistent with this, Steger et al. (2008) found positive between-person relationships between search and rumination and reflection, and a negative between-person relationship between presence and rumination. The present study was designed to complement such research by examining within-person relationships between these constructs.

### 1.3. The present study

Participants in the present study answered a series of questions at the end of the day for two weeks. These questions consisted of measures of rumination and reflection, of presence and search for meaning in life, and of well-being, which included self-esteem, affect, and life satisfaction. Our analyses examined relationships between reflection/rumination and meaning in life and well-being. Based on previous research on within-person relationships, we expected daily rumination to be negatively related to daily well-being (i.e., positively related to daily negative affect and negatively related to positive affect, self-esteem, and life satisfaction). Based on trait level research we expected that reflection would not be strongly related to well-being if it would be related at all.

In terms of relationships with meaning in life, we expected rumination to be negatively related to presence of meaning in life. According to Park (2010), to feel that one’s life has meaning (presence), requires that some type of meaning making process has occurred. Such meaning making processes are probably in progress (or halted) as people ruminate which means that people are less likely to find meaning in life when they are ruminating compared to when they are not. Given that Trapnell and Campbell (1999) explicitly mentioned that reflection

partially consisted of “a desire for self-knowledge” we expected that daily reflection would be positively related to daily search for meaning in life. Such a prediction is also consistent with the results of Steger et al. (2008).

## 2. Method

### 2.1. Participants and procedure

Participants were 130 ( $M_{\text{age}} = 18.66$ ,  $SD = 0.99$ , 63.8% female) undergraduate students who received course credit for their participation. For 14 consecutive days, participants were asked to complete a survey at the end of the day before going to sleep. Emails were sent to participants periodically throughout the study to remind them to complete surveys at the end of each day.

Daily reports were included in the final analyses if they were completed between 9 pm and noon of the following day. Entries that were completed after noon of the following day or had incorrect responses to instructed response items were deleted (Meade & Craig, 2012). Of the initial 1710 entries, 61 were dropped. The final sample consisted of 130 individuals who provided 1649 valid diary entries ( $M = 12.7$ ,  $SD = 1.66$ , minimum = 5). A series of simulation analyses reported by Maas and Hox (2005) suggested that this sample provided adequate power to estimate level-1 covariances, the focus of our analyses.

### 2.2. Measures

#### 2.2.1. Rumination and reflection

Items assessing daily states of rumination and reflection were adapted from the trait Rumination-Reflection Questionnaire (Trapnell & Campbell, 1999). We selected items that had high loadings and reworded each item to make sense in the context of a daily diary study. Participants indicated how often they had each of the following thoughts using a 7-point scale (1 = *not at all*, 4 = *a moderate amount*, 7 = *very much*). Each question began with, “How much today, did you...” Rumination was measured with the items, “...ruminate or dwell on things that happened to you?”; “...play back in my mind how you acted in a past situation?”; and “...spend times rethinking things that are over and done with?” Reflection was measured with the items, “...think about your attitudes and feelings?”; “...think about the nature and meaning of things?”; and “...think introspectively or self-reflectively, i.e., about yourself and what you are like?”

#### 2.2.2. Meaning in life

Daily presence of and searching for meaning in life were measured using items adopted from Steger et al. (2006) that have been used successfully in previous studies (e.g., Kashdan & Nezlek, 2012). Items were worded to reflect a focus on daily experience. The presence items were “How meaningful did you feel your life was today?” and “How much did you feel life had purpose today?” The search items were “How much were you searching for meaning in your life today”, and “How much were you looking to find your life’s purpose today?” Participants responded to these items on a 7-point scale (1 = *not at all*, 7 = *very much*).

#### 2.2.3. Well-being

Daily positive and negative affect were measured using a circumplex model of emotions (e.g., Feldman Barrett & Russell, 1998). Each day, for each of 20 emotions, participants indicated how strongly they felt that way using a 7-point scale, (1 = *Did not feel this way at all*, 4 = *Felt this way moderately*, 7 = *Felt this way very strongly*). Participants indicated how enthusiastic, alert, happy, proud, and excited they were (positive activated emotions – PA), how calm, peaceful, relaxed, contented, and satisfied they were (positive deactivated emotions – PD), how stressed, embarrassed, upset, tense, and nervous they were (negative activated

emotions – NA); and how depressed, disappointed, sluggish, bored, and sad they were (negative deactivated emotions – ND).

Self-esteem was measured with four items that were adapted from Rosenberg (1965) and that have been used successfully in previous research (e.g., Nezlek, 2005). On a 7-point scale (1 = *Very characteristic of me today*, 4 = *Neither characteristic nor uncharacteristic of me today*, 7 = *Very characteristic of me today*), participants were asked to rate how characteristic each statement was of them today. These items were, “Today, I felt like a failure,” “Today, I felt that I had many good qualities,” “Today, I thought I was no good at all,” and “Today, on the whole, I was satisfied with myself.”

Daily life satisfaction was measured with two items that have been used in previous research (Oishi, Diener, Choi, Kim-Prieto, & Choi, 2007). The first item was “How was today?” Responses were recorded on a 7-point scale (1 = *very dissatisfied*, 7 = *very satisfied*). The second item was “How satisfied were you with your life today? (1 = *terrible*, 7 = *excellent*).

Note: The data that were analyzed in this article are available via the Open Science Framework (Newman, 2017). The measures we discuss in this paper were collected as part of a larger study, and more details about this study are available from the first author. Other analyses of data from this study were published in Nezlek, Newman, and Thrash (2017).

### 3. Results

#### 3.1. Reliability

The data were conceptualized as a multilevel data structure (days nested within persons), and we analyzed the data using HLM 7.0 (Raudenbush, Bryk, & Congdon, 2011). Before conducting the primary analyses, we examined the reliability of each of the daily measures. As recommended by Nezlek (2016), reliabilities were estimated using three level models (items nested within days, days nested within persons).

The reliabilities of the original scales measuring reflection, PA, NA, and ND were not as high as desired (0.47, 0.55, 0.45, and 0.50, respectively). To improve these reliabilities we deleted items from scales. For reflection, we deleted the item, “How much today did you think about the nature and meaning of things?” For PA and ND, we deleted two items, and the final measures consisted of enthusiastic, happy, and excited (PA), adjectives sad, depressed, and disappointed (ND). For NA, we deleted one item leaving nervous, upset, stressed, and tense. Final reliability estimates are presented in Table 1.

Next, we conducted two-level unconditional models (days nested within persons) in which no predictors were entered at either level. These models estimated the variance at each level of analysis. The results of these analyses are summarized in Table 1. The distribution of variances suggested that there was sufficient within-person variance to examine within-person relationships. The means of each of these

**Table 1**  
Descriptive statistics of daily measures.

Daily measure	Mean	Variance		Reliability
		Within	Between	
Rumination	3.30	1.33	1.49	0.78
Reflection	3.53	1.29	1.47	0.59
Presence meaning in life	3.95	1.04	1.60	0.86
Search meaning in life	2.34	1.00	1.20	0.92
Self-esteem	5.23	0.92	0.92	0.62
Satisfaction with life	4.81	1.21	0.64	0.81
Affect-PA	4.23	1.30	1.00	0.71
Affect-PD	3.93	0.81	0.87	0.74
Affect-NA	3.27	1.17	0.88	0.57
Affect-ND	2.43	1.14	1.00	0.67

measures were sufficiently far away from the minimum and maximum so ceiling effects were not an issue.

#### 3.2. Relationships among rumination, reflection, and well-being

The first set of analyses examined relationships between rumination or reflection and well-being and meaning in life. One set of analyses examined relationships between these measures and rumination, a second set examined relationships between these measures and reflection, and a third set examined relationships between these measures and rumination, reflection, and the interaction of rumination and reflection. Rumination and reflection were entered group-mean centered and as randomly varying effects. The model is below:

$$\text{Day level : } y_{ij} \text{ (well-being)} = \beta_{0j} + \beta_{1j} \text{ (rumination or reflection)} + r_{ij}.$$

$$\text{Person-level : } \beta_{0j} = \gamma_{00} + u_{0j}.$$

$$\beta_{1j} = \gamma_{10} + u_{1j}.$$

The results of the first two sets of analyses are summarized in Table 2. These results found that daily private self-consciousness (both rumination and reflection) was negatively related to daily well-being. Both daily rumination and reflection were positively related to NA, ND and were negatively related to self-esteem and life satisfaction. Rumination alone was also negatively related to PA, PD, and presence of meaning in life. In contrast to these negative relationships, both rumination and reflection were positively related to search for meaning in life.

##### 3.2.1. Joint effects of rumination and reflection

To account for the covariation between daily rumination and reflection and to examine their joint effects, we conducted analyses in which daily measures of well-being were regressed on rumination, reflection, and the interaction of the two. Prior to these models, we also examined the within-person relationship between daily rumination and daily reflection. These daily states were positively related ( $\gamma_{10} = 0.60$ ,  $t = 22.22$ ,  $p < 0.001$ ). Following Nezlek (2011, pp. 36–40), we created interaction terms by subtracting daily rumination and reflection scores from each individual’s mean rumination and reflection score and cross-multiplying these two scores. This interaction term was entered uncentered and randomly varying. The within-person model is below.

$$y_{ij} \text{ (outcome)} = \beta_{0j} + \beta_{1j} \text{ (rumination)} + \beta_{2j} \text{ (reflection)} + \beta_{3j} \text{ (interaction)} + r_{ij}.$$

The results of these analyses are summarized in Table 3. In terms of individual predictors, the primary differences between these results and the results when rumination and reflection were considered separately

**Table 2**  
Within-person relationships between daily well-being and rumination and reflection analyzed separately.

Outcome	Rumination	Reflection
Self-esteem	−0.28***	−0.21***
Satisfaction with life	−0.23***	−0.17***
Affect-PA	−0.09**	−0.03
Affect-PD	−0.10***	−0.04 <sup>a</sup>
Affect-NA	0.30***	0.24***
Affect-ND	0.35***	0.31***
Presence meaning in life	−0.08 <sup>a</sup>	−0.03
Search meaning in life	0.11***	0.19***

<sup>a</sup>  $p < 0.10$ .  
\*  $p < 0.05$ .  
\*\*  $p < 0.01$ .  
\*\*\*  $p < 0.001$ .

**Table 3**  
Combined and joint effects of rumination and reflection.

Outcome	Rumination	Reflection	Interaction
Self-esteem	−0.23***	−0.04	−0.07***
Satisfaction with life	−0.19***	−0.04	−0.05*
Affect-PA	−0.12**	0.04	0.00
Affect-PD	−0.11**	0.04	−0.03 <sup>a</sup>
Affect-NA	0.23***	0.09*	0.05*
Affect-ND	0.24***	0.14***	0.10***
Presence	−0.11**	0.04	−.03 <sup>a</sup>
Search	−0.03	0.20***	0.05*

<sup>a</sup>  $p < 0.10$ .\*  $p < 0.05$ .\*\*  $p < 0.01$ .\*\*\*  $p < 0.001$ .

were that self-esteem and life satisfaction were no longer significantly related to reflection (they remained negatively related to rumination), and search for meaning in life was no longer significantly related to rumination (it remained positively related to reflection). We should note that the coefficients for rumination and reflection from these analyses were functionally equivalent to coefficients from analyses without the interaction term.

The interaction of reflection and rumination was significant for all outcomes except PA ( $t < 1$ ), PD ( $\gamma_{30} = -0.03$ ,  $t = 1.91$ ,  $p = 0.06$ ), and presence ( $\gamma_{30} = -0.03$ ,  $t = 1.73$ ,  $p = 0.09$ ). To interpret these interactions, we calculated estimated scores for days that were one *SD* above and below the mean of rumination and reflection. As discussed by Nezlek (2011), these *SDs* were taken from unconditional models. Estimated scores are presented in Table 4, including the marginally significant interactions for PD and presence.

The pattern across all these measures, except for search for meaning in life, was the same. The main effect of rumination (lower well-being) was stronger on days when people reflected more than on days when they reflected less. For search, the rumination effect was virtually nonexistent (0.06) on days when reflection was high. The meaning of these results are considered below.

### 3.2.2. Lagged relationships

We conducted a series of analyses examining lagged relationships to provide some insight into causal relationships between private self-consciousness and well-being. One set of these models tested lagged relationships from well-being to a measure of private self-consciousness, and another examined lagged relationships from a measure of private self-consciousness to well-being. Separate analyses were done for rumination and reflection, represented by *prvsc* in the equations below. A lag

was defined in terms of one day. See Nezlek (2011, pp. 49–50) for a discussion of such analyses.

$$y_{ij} (\text{prvsc day } n) = \beta_{0j} + \beta_{1j} (\text{well-being day } n-1) + \beta_{2j} (\text{prvsc day } n-1) + r_{ij}.$$

$$y_{ij} (\text{well-being day } n) = \beta_{0j} + \beta_{1j} (\text{well-being day } n-1) + \beta_{2j} (\text{prvsc day } n-1) + r_{ij}.$$

Rumination was positively related to the next day's presence of meaning in life ( $\gamma_{20} = 0.06$ ,  $t = 2.34$ ,  $p = 0.02$ ), searching for meaning in life ( $\gamma_{20} = 0.05$ ,  $t = 2.34$ ,  $p = 0.02$ ), and PD ( $\gamma_{20} = 0.05$ ,  $t = 1.87$ ,  $p = 0.06$ ). Coefficients representing lags in the opposite direction were not significant ( $ts < 1$ ). Reflection was positively related to the next day's searching for meaning in life ( $\gamma_{20} = 0.09$ ,  $t = 3.01$ ,  $p < 0.01$ ) and PD ( $\gamma_{20} = 0.06$ ,  $t = 2.18$ ,  $p = 0.03$ ). Coefficients representing lags in the opposite direction were not significant ( $ts < 1.5$ ). No other coefficient representing a lagged relationship was significant ( $ps > 0.15$ ). To understand these relationships more fully, we entered lags for rumination and reflection in analyses of PD and search. For PD, when both lags were included, neither reflection nor rumination was significantly related to next day's PD ( $ps > 0.15$ ). Reflection was significantly related to search the following day ( $\gamma_{20} = 0.10$ ,  $t = 2.69$ ,  $p < 0.01$ ), whereas rumination was not ( $\gamma_{30} = -0.01$ ,  $t < 1$ ). Taken together, the results of these lagged analyses suggest that reflection leads one to search for meaning in life, although we cannot discount the possibility that rumination may also.

## 4. Discussion

The present results suggest that self-attentive thinking, particularly in the form of rumination, is associated with decreased well-being, defined in both affective and non-affective terms. These results are largely consistent with, and expand, previous research on relationships between rumination and well-being (e.g., Steger et al., 2008). As expected, relationships between reflection and well-being were not as consistent as relationships between well-being and rumination; however, the interaction of reflection and rumination was significant in the analyses of most outcomes.

### 4.1. The joint effects of rumination and reflection

The interaction of rumination and reflection was due to the fact that the negative effects of rumination on well-being were stronger at higher levels of reflection than at lower levels. One explanation for this is that rumination and reflection require cognitive resources. Holding available resources constant, at lower levels of reflection, more cognitive resources are available for other processes than at higher levels, and so the demands of ruminating lead to smaller decreases in well-being than at higher levels of reflection. In contrast, at higher levels of reflection, fewer cognitive resources are available for dealing with ruminative thoughts (or they might be depleted), and so ruminating decreases well-being more than it does at lower levels of reflection. This type of process could have important implications for research suggesting that daily states of rumination exaggerate the effect of negative events on negative mood (Genet & Siemer, 2012).

The interaction of rumination and reflection can also be explained in terms of rumination's influence on the effects of reflection. When rumination was low, the effect of reflection on well-being was either slightly positive or not very negative. When rumination was high, the effect of reflection on well-being was more strongly negative. This could mean that the nature of reflection alters as a function of rumination. When one ruminates, reflection may focus on the negative experience that is the target of the rumination. For example, while ruminating over a failure, a person's reflection might be more likely to involve aspects of the self that are consistent with this failure which could lead to reduced well-being. In contrast, if one is not ruminating, reflection may be less

**Table 4**  
Predicted values illustrating the interaction of rumination and reflection for well-being.

Reflection		Rumination		High vs. low rumination
		Low	High	
Low	Self-esteem	5.50	5.17	−0.33
	Life Satisfaction	5.04	4.73	−0.31
	Affect-PD	4.00	3.82	−0.18
	Affect-NA	2.94	3.35	0.39
	Affect-ND	2.05	2.33	0.28
	Presence	4.01	3.86	−0.15
High	Search	2.22	2.03	−0.19
	Self-esteem	5.59	4.88	−0.71
	Life Satisfaction	5.09	4.51	−0.58
	Affect-PD	4.17	3.83	−0.34
	Affect-NA	3.02	3.67	0.65
	Affect-ND	2.10	2.92	0.82
	Presence	4.20	3.86	−0.34
	Search	2.54	2.60	0.06



likely to include a negative focus which could increase well-being or at the least, not lower well-being as drastically.

#### 4.2. Private self-consciousness and meaning in life

In addition to extending previous research by examining within-person variability in reflection and expanding the types of well-being being studied, the present study broke new ground by examining within-person relationships between private self-consciousness and meaning in life. Similar to the results of research at the trait level, (e.g., Steger et al., 2008), we found that rumination was negatively related to presence and that reflection was positively related to search for meaning. According to the meaning maintenance model (Heine, Proulx, & Vohs, 2006), a daily state of rumination would suggest that meaning has not been found, whereas a daily state of reflection would suggest that one has begun to search for meaning in another domain. Similar to other measures of well-being, the relationship between rumination and presence was stronger when reflection was high compared to when it was low.

In contrast, search was unaffected by rumination when reflection was high. When rumination and reflection are high, the focus of people's rumination may complement the focus of their reflection so that rumination does not detract from their reflection which may concern the search for meaning in life. When rumination is not accompanied by reflection, i.e., when rumination is high and reflection is low, rumination may lead to a depressed state (a possibility suggested by previous research, e.g., Nolen-Hoeksema, 2000) in which people do not try to search for meaning in life.

#### 4.3. Causal relationships

The results of our lagged analyses highlighted the importance of the relationship between reflection and search for meaning in life. Reflection was positively related to search in both the same day and lagged analyses, and in the lagged analyses, although rumination was positively related to next day search, this relationship became non-significant after controlling for lagged reflection. A positive, causal relationship between reflection and search for meaning in life is consistent with the definitions of both constructs.

Some of the relationships found in the lagged analyses differed from those found for the same constructs in the same-day analyses. For example, the same-day analyses found that rumination was negatively related to PD and reflection was not significantly related to PD, but the lagged analyses found that rumination and reflection led to increased PD the following day. Although people may not experience feelings of peacefulness and calm while they ruminate and reflect, the process of ruminating and reflecting can lead to greater peacefulness and calm. Such a possibility is consistent with the negative lagged relationship from rumination to negative affect among healthy adults reported by Kashdan et al. (2012).

Moreover, rumination was negatively related to presence in the same-day analyses but was positively related in the lagged analysis, suggesting that rumination can increase presence. Although the immediate experience of rumination may be negative, rumination may have more distal outcomes that are more positive. In terms of Park's (2010) meaning framework, it is possible that when people ruminate they make sense of or resolve (at least partially) some of the problems that are the focus of their rumination. If this happens, meaning making has occurred and the subjective feeling of meaning in life may increase, although evaluating such a possibility requires research specifically designed for this purpose.

#### 4.4. Limitations, future directions, and conclusions

Participants in the present study were undergraduates, and although there is no reason to expect that the relationships we found should be

different among non-collegians, this is certainly possible. Students live in an environment that emphasizes intellectual activity, particularly the type of self-examination that may involve private self-consciousness. Moreover, as suggested by Erikson (1958), students are more likely to be developing their sense of self than older people are, a process that may entail more self-focused thinking. Some research suggests that the negative relationship between rumination (defined as brooding) and life satisfaction is not as strong among older adults compared to younger adults (Sütterlin, Paap, Babic, Kübler, & Vögele, 2012). Although these constructs were measured as stable traits, the within-person relationships between rumination and well-being could vary across the lifespan.

The lives of collegians and non-collegians differ in other ways that may also be relevant to how private self-consciousness is manifested in daily life. For example, although collegians may be highly involved in their romantic relationships, the implications of the success or failure of these relationships may be qualitatively different from the implications of the success or failure of the marriages of non-collegians. The same could be said for the implications of success or failure in the achievement domain (e.g., exam vs. job performance). The dynamics of private self-consciousness may vary as a function of their overall level and as a function of the nature of the topics self-focused thinking concerns. Understanding such possibilities will require research that is specifically designed to do so. We hope that the present study provides some guidance for such work.

We believe that the present study has demonstrated the value of expanding the focus of studies of within-person variability in private self-consciousness to include reflection and meaning in life. More generally, we believe that the present study has advanced our understanding of relationships among rumination, reflection, meaning in life, and well-being. Finally, we hope that the present study will motivate other scholars to examine these constructs and that we have provided some guidance for that work.

## References

- Affleck, G., Zautra, A., Tennen, H., & Armeli, S. (1999). Multilevel daily process designs for consulting and clinical psychology: A preface for the perplexed. *Journal of Consulting and Clinical Psychology, 67*, 746–754.
- Dickson, K. S., Ciesla, J. A., & Reilly, L. C. (2012). Rumination, worry, cognitive avoidance, and behavioral avoidance: Examination of temporal effects. *Behavior Therapy, 43*, 629–640. <http://dx.doi.org/10.1016/j.beth.2011.11.002>.
- Erikson, E. E. (1958). Identity and the life cycle. *Psychological Issues, 1*(1), 1–171.
- Feldman Barrett, L., & Russell, J. A. (1998). Independence and bipolarity in the structure of current affect. *Journal of Personality and Social Psychology, 74*, 967–984. <http://dx.doi.org/10.1037/0022-3514.74.4.967>.
- Frankl, V. (1963). *Man's search for meaning: An introduction to logotherapy*. Beacon Press.
- Genet, J. J., & Siemer, M. (2012). Rumination moderates the effects of daily events on negative mood: Results from a diary study. *Emotion, 12*, 1329–1339.
- Heine, S. J., Proulx, T., & Vohs, K. D. (2006). The meaning maintenance model: On the coherence of social motivations. *Personality and Social Psychology Review, 10*(2), 88–110.
- Jose, P. E., & Lim, B. T. (2015). Rumination as a mediator and moderator of the relationship between unpleasant events and unhappy mood: A daily diary study. *Acta Psychopathologica, 1*, 1–11.
- Kashdan, T. B., & Nezelek, J. B. (2012). Whether, when, and how is spirituality related to well-being? Moving beyond single occasion questionnaires to understanding daily process. *Personality and Social Psychology Bulletin, 38*, 1523–1535. <http://dx.doi.org/10.1177/0146167212454549>.
- Kashdan, T. B., Young, K. C., & McKnight, P. E. (2012). When is rumination an adaptive mood repair strategy? Day-to-day rhythms of life in combat veterans with and without posttraumatic stress disorder. *Journal of Anxiety Disorders, 26*, 762–768.
- Maas, C. J. M., & Hox, J. J. (2005). Sufficient sample sizes for multilevel modeling. *Methodology, 1*, 86–92. <http://dx.doi.org/10.1027/1614-1881.1.3.86>.
- Martela, F., & Steger, M. F. (2016). The three meanings of meaning in life: Distinguishing coherence, purpose, and significance. *The Journal of Positive Psychology, 11*, 531–545.
- Meade, A. W., & Craig, B. S. (2012). Identifying careless responses in survey data. *Psychological Methods, 17*, 437–455. <http://dx.doi.org/10.1037/a0028085>.
- Moberly, N. J., & Watkins, E. R. (2008). Ruminative self-focus and negative affect: An experience sampling study. *Journal of Abnormal Psychology, 117*, 314–323. <http://dx.doi.org/10.1037/0021-843X.117.2.314>.
- Newman, D. B. (2017, June 29). *Rumination and Reflection PAID*. Retrieved from [osf.io/e55u4](http://osf.io/e55u4).
- Nezelek, J. B. (2002). Day-to-day relationships between self-awareness, daily events, and anxiety. *Journal of Personality, 70*, 249–275.

- Nezlek, J. B. (2005). Distinguishing affective and non-affective reactions to daily events. *Journal of Personality*, 73, 1539–1568. <http://dx.doi.org/10.1111/j.1467-6494.2005.00358.x>.
- Nezlek, J. B. (2011). Multilevel modeling for social and personality psychology. In J. B. Nezlek (Ed.), *The SAGE library in social and personality psychology methods*. London: Sage Publications.
- Nezlek, J. B. (2012). *Diary methods for personality and social psychology (SAGE library of methods in social and personality psychology)*. London, UK: Sage. <http://dx.doi.org/10.4135/9781446287903>.
- Nezlek, J. B. (2016). A practical guide to understanding reliability in studies of within-person variability. *Journal of Research in Personality*. <http://dx.doi.org/10.1016/j.jrp.2016.06.020>.
- Nezlek, J. B., Newman, D. B., & Thrash, T. M. (2017). A daily diary study of relationships between feelings of gratitude and well-being. *The Journal of Positive Psychology*, 12, 323–332. <http://dx.doi.org/10.1080/17439760.2016.1198923> (online).
- Nolen-Hoeksema, S. (2000). The role of rumination in depressive disorders and mixed anxiety/depressive symptoms. *Journal of Abnormal Psychology*, 109, 504–511.
- Oishi, S., Diener, E., Choi, D. W., Kim-Prieto, C., & Choi, I. (2007). The dynamics of daily events and well-being across cultures: When less is more. *Journal of Personality and Social Psychology*, 93, 685–698. <http://dx.doi.org/10.1037/0022-3514.93.4.685>.
- Park, C. L. (2010). Making sense of the meaning literature: An integrative review of meaning making and its effects on adjustment to stressful life events. *Psychological Bulletin*, 136, 257–301. <http://dx.doi.org/10.1037/a0018301>.
- Pe, M. L., Raes, F., Koval, P., Brans, K., Verduyn, P., & Kuppens, P. (2013). Interference resolution moderates the impact of rumination and reappraisal on affective experiences in daily life. *Cognition and Emotion*, 27, 492–501. <http://dx.doi.org/10.1080/02699931.2012.719489>.
- Puterman, E., DeLongis, A., & Pomaki, G. (2010). Protecting us from ourselves: Social support as a buffer of trait and state rumination. *Journal of Social and Clinical Psychology*, 29, 797–820. <http://dx.doi.org/10.1521/jscp.2010.29.7.797>.
- Raudenbush, S. W., Bryk, A. S., & Congdon, R. (2011). *HLM 7 for windows [computer software]*. Skokie, IL: Scientific Software International, Inc.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Ruscio, A. M., Gentes, E. L., Jones, J. D., Hallion, L. S., Coleman, E. S., & Swendsen, J. (2015). Rumination predicts heightened responding to stressful life events in major depressive disorder and generalized anxiety disorder. *Journal of Abnormal Psychology*, 124, 17–26. <http://dx.doi.org/10.1037/abn0000025>.
- Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, 53, 80–93. <http://dx.doi.org/10.1037/0022-0167.53.1.80>.
- Steger, M. F., Kashdan, T. B., Sullivan, B. A., & Lorentz, D. (2008). Understanding the search for meaning in life: Personality, cognitive style, and the dynamic between seeking and experiencing meaning. *Journal of Personality*, 76, 199–228. <http://dx.doi.org/10.1111/j.1467-6494.2007.00484.x>.
- Sütterlin, S., Paap, M. C. S., Babic, S., Kübler, A., & Vögele, C. (2012). Rumination and age: Some things get better. *Journal of Aging Research*, 2012. <http://dx.doi.org/10.1155/2012/267327>.
- Trapnell, P. D., & Campbell, J. D. (1999). Private self-consciousness and the five-factor model of personality: Distinguishing rumination from reflection. *Journal of Personality and Social Psychology*, 76, 284–304. <http://dx.doi.org/10.1037/0022-3514.76.2.284>.