

Letting go of unmet goals: Does self-focused rumination impair goal disengagement?

Annette van Randenborgh · Joachim Hüffmeier ·
Joelle LeMoult · Jutta Joormann

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Abstract Self-regulation of behavior frequently requires that people disengage from goals that are too difficult to attain. The current studies investigate whether self-focused rumination hinders the execution of this crucial self-regulatory competence. In study one, participants attempted to solve anagrams, some of which were unsolvable, and their predisposition to engage in self-focused rumination was assessed. The tendency to ruminate was associated with getting stuck in the attempt to solve unsolvable anagrams. In study two, ruminative thoughts were manipulated by asking participants to focus on their self, personality, and goals in life, a task frequently employed to induce rumination. Compared to participants undergoing a distraction induction, ruminating participants were more likely to get stuck trying to solve unsolvable anagrams. These results suggest that self-focused rumination hinders disengagement from unattainable goals.

Keywords Rumination · Goal disengagement · Self-regulation · Goals

Persistence and endurance are valued virtues in western societies. In contrast, abandoning a goal has the stigma of failure (e.g., Seligman 1975). However, we cannot always

get what we want in life. Some goals we have set may turn out to be unattainable or a disadvantageous match between costs and benefits of goal attainment may emerge (Tan and Yates 2002). In other situations, a goal may lose its attractiveness with changing life circumstances. It is therefore critical that we learn how to disengage from goals that are no longer worth being pursued (e.g., Miller and Wrosch 2007). Supporting this view, the ability to disengage from unattainable goals has been shown to promote well-being and general health and to reduce depressive symptoms (Martin et al. 1993; Rasmussen et al. 2006; Wrosch et al. 2007). Likewise, there is evidence that a lack of goal disengagement is associated with depression (Kuhl and Helle 1986; Nolen-Hoeksema et al. 1994). Given the links among goal disengagement, adaptive functioning, and risk for emotional disorders, research examining factors that help and hinder disengagement is clearly needed (Lench and Levine 2008; Wrosch et al. 2003). The current studies investigate a mechanism that may prevent goal disengagement, namely self-focused rumination.

In situations in which goal attainment is difficult, goal disengagement is usually not the first response. The deliberative and thorough assessment of the problems at hand and of the likelihood of success is usually a first response to unexpected difficulties (e.g., Carver and Scheier 1981, 1998). Ideally, this assessment results in adjustment of behavior in ways that lead to the attainment of the desired goal. In these instances, persistence is more adaptive than disengagement. Some problems in life, however, cannot be overcome. In other instances, the costs of further goal pursuit may be too high. A person may then respond in one of two ways: Preferably, the person disengages from the goal to prevent wasting time and effort. Alternatively, the person may exhibit prolonged reflection about the current situation and the unmet goal. Whereas a thorough assessment of the

A. van Randenborgh · J. Hüffmeier
Department of Psychology, University of Muenster,
Muenster, Germany

J. LeMoult · J. Joormann
University of Miami, Coral Gables, FL, USA

A. van Randenborgh (✉)
University of Applied Science Bochum, Bochum, Germany
e-mail: vanrandenborgh@efh-bochum.de

problem at hand may be functional as an *early* response, *continued* reflections of this kind become dysfunctional once an individual can no longer change his or her behavior in a way that increases the chances to obtain the desired goal. Goal-related reflections may persist for quite some time after goal-related behavior has ceased (Di Paula and Campbell 2002; Martin et al. 1993; Zeigarnik 1938). This form of prolonged goal-related thinking tends to be unproductive, repetitive and may act to hinder engagement with more realistic goals. It is, however, not completely clear why some people engage in prolonged goal-related thinking whereas other people find it easy to disengage.

Prolonged goal-related thinking in response to unattainable goals closely resembles rumination (Di Paula and Campbell 2002), a personality trait associated with a high risk for depression and other forms of psychopathology. Rumination is a style of responding to the experience of sad mood or negative events that has been defined as repetitively going over past events, wondering why they happened, and thinking about the meaning and consequences of those events (Nolen-Hoeksema 1991; Nolen-Hoeksema et al. 2008). When ruminating, an individual dwells on a topic, an idea, or a thought for an extensive period of time and reports difficulty controlling his or her thinking (Watkins and Baracaia 2001). Individuals differ in their proneness to either ruminate or engage in distracting activities when in a sad mood. Rumination has been studied extensively as a risk factor for the onset and maintenance of depressive episodes (for an overview, see Nolen-Hoeksema et al. 2008). Given that ruminative thoughts frequently revolve around past losses, failures, and mistakes, rumination can be thought of as a failure to cognitively disengage from past unattained goals (Di Paula and Campbell 2002).

In the last decades the cognitive, emotional, and behavioral consequences of rumination have been studied extensively. In the behavioral domain, the literature has focused primarily on decrements on performance measures, e.g., poor social problem solving, difficulties in concentration, attention, decision making, and inadequate solution implementation (Lyubomirsky and Nolen-Hoeksema 1995; Lyubomirsky et al. 1999; Van Randenborgh et al. 2010; Ward et al. 2003; Watkins and Brown 2002; Watkins and Moulds 2005). Surprisingly, however, the effect of rumination on spontaneous, volitional control of behavior has not received much attention. We propose that individuals who are prone to ruminate and thus exhibit problems letting go of unmet goals and past failures also find it difficult to disengage from unattainable goals in the present.

In two studies, we investigate whether self-focused rumination affects behavior when facing a goal that is unattainable. Study 1 examines whether individual differences in the habitual tendency to engage in rumination are associated with people's readiness to abandon unattainable

goals in an experimental anagram task. In Study 2, ruminative thinking is experimentally induced and its impact on the experimental task is investigated. It is hypothesized in this study that self-focused rumination will inhibit goal disengagement.

The majority of studies investigating goal disengagement and unproductive persistence have presented participants with unsolvable tasks such as unsolvable anagrams (e.g., Lench and Levine 2008; Strube et al. 1989) or Feather line drawings (Feather 1961). Aspinwall and Richter (1999) provided some guidelines as to how an experimental task should be designed in order to capture dysfunctional rather than functional persistence. The authors argue that it is necessary to present both unsolvable and relatively easy trials (i.e., anagrams) within the same task and that time resources should be limited. Such a task provides participants with an alternative behavior to working on unsolvable trials. If participants fail to make use of the opportunity to work on relatively easy instead of unsolvable trials, this behavior can be classified as dysfunctional. Aspinwall and Richter provided participants with two sets of anagrams, one solvable and one unsolvable. In their task, participants could disengage at one point during the experiment: when abandoning the first set of anagrams to work on the second set. Extending this work, we use only one set of anagrams containing both multiple solvable and unsolvable anagrams to capture several instances of goal disengagement behavior and their relation to rumination. The task was designed in a way that it would be most effective to give up on the goal of solving every single anagram and to skip the anagrams that cannot be solved easily.

Study 1

Method

Forty-eight undergraduate psychology students (73% female) took part in this study in exchange for course credit.

Measures

Response style questionnaire Rumination was assessed with the rumination subscale of the Response Style Questionnaire (RSQ-R; Nolen-Hoeksema and Morrow 1991; Treynor et al. 2003). The RSQ-R comprises 22 items assessing ruminative responses to negative mood states.

Anagram task Goal disengagement was assessed by participants' behavior in an anagram task (cf. Aspinwall and Richter 1999; Lench and Levine 2008; Strube et al. 1989). In the experimental task, we focused on whether or not

participants skipped unsolvable anagrams for the sake of working on easier anagrams.

We presented twelve solvable and eight unsolvable anagrams on a computer screen and instructed participants to type in their answers using a computer keyboard. The solvable anagrams were easy in task difficulty. Each had been solved by at least 8 out of 10 student volunteers in a pilot study and the solution times were fast ($M = 7.24$ s; $SD = 2.02$ s). Solvable and unsolvable anagrams were matched in length and frequency of letters. Participants were informed that they had 7 min to solve as many anagrams as possible, but that they could only work on each anagram for 40 s. A backward counting clock in the upper right corner of the screen reminded participants of the time limit of 40 s per anagram. Participants were told that bonus points would be assigned for their performance according to the following principle: For each anagram that was solved correctly, the remaining seconds displayed on the backward counting clock (from 40 to 0) were assigned as bonus points. Participants were instructed to strive to maximize their points and to focus on the goal of doing well. Previous research indicates that such instructions are effective in eliciting an achievement orientation in the laboratory (e.g., Henderson et al. 2007).

Importantly, to increase participants' motivation to disengage, it was explicitly pointed out that there was no limit on the number of anagrams they would see and that the anagrams would not become more difficult towards the end of the task. It was further explained that to do well on this task, they could save time by skipping an anagram if they could not solve it (by hitting the "Enter" key). Participants were informed that skipping anagrams they could not solve would allow them to spend the majority of the 7 min solving the easier anagrams, thus maximizing their points. From the participants' view, skipping "difficult" (i.e., in fact unsolvable) anagrams therefore represented adaptive behavior for the goal of maximizing bonus points. This behavior, however, required disengagement from the goal of solving every single anagram. By contrast, not skipping unsolvable anagrams represented maladaptive behavior as participants were to assume that spending effort on difficult anagrams would compromise their overall performance as they could not work as long on easier anagrams.

Although participants were told that they had only 7 min to complete the anagrams, each participant was actually given as much time as was needed to attempt all anagrams. Overall performance (i.e., bonus points earned), therefore, reflected the speed and accuracy with which participants solved the 12 solvable anagrams. The main dependent measure of this study, disengagement from unattainable goals, was assessed by the number of times a participant skipped an unsolvable anagram before the allocated time expired.

Results

As a first step in the analysis, the correlation among trait rumination (Nolen-Hoeksema and Morrow 1991) and overall performance measures on the anagram task was assessed to rule out the possibility that trait rumination was related to the general ability to solve anagrams. Participants' trait rumination score did not correlate with the amount of bonus points earned, $r = -.02$, *ns*, the number of anagrams that were solved correctly, $r = -.03$, *ns*, or the number of times participants skipped an anagram that was in fact solvable, $r = -.01$, *ns*.

To test our hypothesis that trait rumination is associated with difficulties in goal disengagement, we correlated the RSQ-R scores and the number of times participants skipped an unsolvable anagram. The resulting highly significant correlation of $r = -.41$, $p < .01$, suggests that an increased tendency to ruminate in response to negative mood and negative events is associated with less skipping of unsolvable anagrams. This result reflects less successful goal disengagement among participants high in trait rumination.

Discussion

The observed correlation between trait rumination and failure to disengage from unattainable goals is consistent with our general hypothesis. It should be acknowledged, however, that different causal relations may have given rise to the observed association. Individuals who regularly fail to disengage from unrealistic goals experience heightened stress and strain in life (Martin et al. 1993; Wrosch et al. 2007), which may precipitate in a repetitive, self-focused, and analytical style of thinking, i.e. rumination. Furthermore, depressed mood may be an associated variable that may have given rise to the correlation between goal-disengagement and rumination. To allow for a more definite causal conclusion, Study 2 was conducted, which applied an experimental method to manipulate ruminative thinking.

Study 2

Method

Participants

Participants were recruited from introductory psychology courses. A total of 68 students (57% female) took part in the protocol in exchange for course credit. Participants were randomly assigned to a rumination or distraction condition under the constraint of assigning an equal number of male and female participants to both groups.

Rumination/distraction manipulation

The experimental manipulations were adapted from previous research (Nolen-Hoeksema and Morrow 1993) and have been used in numerous studies investigating rumination and distraction (Nolen-Hoeksema et al. 2008). Participants in both conditions were instructed to focus their attention on a series of sixteen phrases presented on a computer screen. They were asked to read the phrase and to concentrate on the idea described in the phrase. Participants were further instructed to think about the causes, consequences, and meanings of each of the ideas and to try to make sense of the issues raised by these ideas. Each phrase was displayed for 20 s, totalling about 6 min. In the rumination condition, the phrases were self-focused and directed participants' thoughts towards their character, feelings, and personal situation. Sample items are "Think about why you turned out this way" and "Think about the expectations your family/friends have for you". In the distraction condition, items had no relation to the self, such as "Think about the outline of a cello" and "Think about the parts that make up a car".

Measures

Questionnaires Current mood state was measured by the negative affect subscale of the Positive and Negative Affect Schedule (PANAS; Watson et al. 1988). The vocabulary subtest of the Shipley Institute of Living Scale (Shipley 1940) was administered to assess participants' verbal abilities.

Manipulation check As a manipulation check we assessed whether participants in the rumination compared to the distraction condition endorsed an increased focus on personally relevant and meaningful ideas. This measure intends to demonstrate that the participants in the two groups engaged in slightly different activities although both induction tasks require participants to concentrate and use their imagination. After each presentation of a phrase (i.e., sixteen rumination or sixteen distraction phrases), participants were asked to indicate how strongly they could personally relate to the respective issue raised in the phrase. Participants' responses across the 16 phrases were averaged to obtain the manipulation check measure.

Furthermore, negative mood was assessed before and after the rumination and distraction manipulation to rule out the possibility that effects on the dependent measures were merely due to negative mood among ruminating participants. Previous research demonstrated that an increase in negative mood following a rumination manipulation is specific to dysphoric participants (e.g., Nolen-Hoeksema and Morrow 1993). The current study, however,

targeted individuals in normal mood states and thus no effect of the manipulation on the mood measure was expected.

Anagram task A total of 23 anagrams were presented in Study 2, nine of which were unsolvable. Participants in the rumination and distraction condition worked equally long on the anagram task ($M = 6.47$ min, $SD = 2.61$, in the rumination and $M = 5.65$ min, $SD = 1.96$, in the distraction condition, $t(66) < 1.5$, *ns.*)

Procedure

Sessions were run in groups of up to eight participants. Participants were told that they were about to take part in separate tasks that assessed their ability to concentrate, their verbal skills, and their imagination. Each participant was seated in front of a computer screen. First, the measure of negative mood states was administered in a paper-pencil version. Subsequently, the rumination or the distraction task was presented on the screen and afterwards the mood measure was repeated. Next, participants were thanked for participating in the first task and received instructions for the anagram task. Finally, participants completed the Shipley test to assess verbal ability.

Results

Even though participants were randomly assigned to the experimental conditions, the groups differed significantly in baseline negative affect (see Table 1). Thus, this variable was treated as a potential covariate. The groups did not differ in verbal ability (Shipley vocabulary test).

Rumination/distraction induction

Participants' endorsement of how personally meaningful the phrases were should be stronger in the rumination than in the distraction condition, because the rumination condition involved a high self-focus. As predicted, participants in the rumination condition ($M = 5.35$, $SD = 0.59$) compared to the distraction condition ($M = 4.57$, $SD = 0.70$) indicated

Table 1 Demographic variables and questionnaire scores in the two experimental conditions

	Rumination <i>M</i> (<i>SD</i>)	Distraction <i>M</i> (<i>SD</i>)	<i>t</i> (66)
Age	18.65 (3.51)	19.84 (4.46)	−1.15
Shipley vocabulary test	28.97 (4.17)	29.76 (4.69)	−.72
Negative affect	1.91 (.52)	2.26 (.72)	−2.17**

** $p < .01$

that the phrases presented during the manipulation phase were more personally meaningful, $t(66) = 5.13, p < .001$.

To assess the effect of the manipulation on negative mood, a repeated measures analysis of variance (ANOVA) was performed with type of experimental manipulation (rumination vs. distraction) as a between-subjects factor and mood (time of assessment: pre- and post-induction measures) as a within-subjects factor. There was a main effect for time of assessment, $F(1, 66) = 8.76, p < .01, \eta_p^2 = .12$, indicating a decrease in negative mood in both groups ($M = 2.08, SD = 0.08$, and $M = 1.99, SD = 0.08$, for the pre- and post-induction measure, respectively). Most importantly, there was no significant interaction effect, $F(1, 66) = .04, ns$.

Anagram task

Performance measures We assessed overall performance on the anagram task to investigate whether our experimental manipulation had unpredicted effects on task performance, for example, on participants' ability to solve anagrams. There was a trend for participants in the rumination condition to earn fewer bonus points ($M = 152.84, SD = 40.77$) compared to participants in the distraction condition ($M = 171.01, SD = 46.63$), $t(66) = 1.71, p = .09$. Participants in the rumination and distraction conditions did not differ significantly in the number of anagrams solved, $t(66) = .48, ns$ ($M = 9.77, SD = 1.86$, and $M = 10.00, SD = 2.08$, for ruminating and distracted participants, respectively).

Main statistical analysis

To test our main hypotheses, a multivariate analysis of covariance (MANCOVA) was conducted with manipulation (rumination vs. distraction) as the independent variable. As dependent measures, the number of skipped solvable anagrams and the number of skipped unsolvable anagrams were entered. Participants' current negative affect served as a covariate to control for possible mood effects, but was not significant, $F(1, 64) < 3.1, ns$. There was no difference regarding the number of skipped anagrams that were solvable between ruminating participants ($M = 2.46, SD = 0.30$) and distracted participants ($M = 2.23, SD = 0.30$), $F(1, 66) < .40, ns$. Most importantly and in accord with our hypothesis, there was a significant difference between the experimental groups regarding unsolvable anagrams: Participants who had been instructed to ruminate skipped less frequently ($M = 6.94, SD = 0.41$) than their distracted counterparts ($M = 8.30, SD = 0.42$), $F(1, 66) = 4.26, p < .05, \eta_p^2 = .06$. This result reflects less successful goal disengagement among ruminating participants.

General discussion

In two independent studies, we established evidence that self-focused rumination is associated with goal disengagement in the face of unattainable goals. Study 1 provided correlational evidence for a negative association between rumination and goal disengagement: Participants high in trait rumination were less likely to skip unsolvable anagrams to save time to work on solvable anagrams. In Study 2, an experimental induction of self-focused rumination compared to distraction resulted in reduced goal disengagement in the same anagram task.

These findings suggest that a tendency to ruminate may well be associated with individual differences in the self-regulation of behavior. Research on self-focused rumination is primarily concerned with examining its impact on individuals who experience major distress, particularly depressed or dysphoric mood (Nolen-Hoeksema et al. 2008). Our findings suggest, however, that rumination may impact the self-regulation of behavior independent of an individual's current level of stress. The reduced disengagement from unattainable goals may render an individual inflexible in his or her goal pursuit and possibly leads to performance decrements in daily functioning. Whereas the current research demonstrates that rumination affects the readiness to disengage from an unattainable goal, future studies are needed to explore the adverse consequences of hindered goal disengagement.

Our findings also have important implications for our understanding of how rumination impacts the development and course of depression. Rumination has been shown to contribute greatly to the onset and maintenance of depression and people prone to rumination have been identified as more vulnerable to experiencing depressive episodes (e.g., Roberts et al. 1998). Research focusing on the mechanisms underlying the relation between rumination and depression has identified different pathways of impact (see Nolen-Hoeksema et al. 2008, for a recent review). It has been demonstrated that rumination directly maintains and aggravates depressed mood (e.g., Nolen-Hoeksema et al. 1994). Rumination has also been shown to impact depression less directly, as its detrimental consequences (e.g., poor social problem solving, inadequate solution implementation) may lead to elevated levels of everyday stress, which in turn constitutes a higher risk for depression (e.g., Hammen 1991). The current research suggests an additional, specific pathway: Rumination may inhibit effective goal disengagement, which prevents the engagement with more realistic and ultimately more rewarding goals. A lack of rewarding experiences is known to be associated with depression (e.g., Lewinsohn 1974). Additional research is needed to further look into these possibilities and to investigate a possible pathway of

rumination as an antecedent of depression via deficient goal disengagement.

Importantly, previous research has proposed that sadness plays a critical role in promoting goal disengagement (Van den Elzen and MacLeod 2006) and that depression thus serves the adaptive function of supporting disengagement when goals are unattainable (Nesse 2000). It therefore seems surprising that the current studies identify a cognitive style typically associated with depression (i.e., self-focused rumination) as an obstacle to goal disengagement. How can these conflicting views be reconciled? As a possible explanation we suggest that the relation between sadness and goal disengagement may be qualified by proneness to rumination. For individuals not prone to ruminate, sadness and even depression may help goal disengagement (Nesse 2000; Van den Elzen and MacLeod 2006). In contrast, among individuals with a strong tendency to ruminate, sadness or depressed mood may not serve this adaptive function and may indeed hinder goal disengagement. As a consequence, reinvestment of effort in more realistic goals will not take place, which keeps people from experiencing subsequent success, thereby hindering recovery from depression. More empirical evidence is needed to clarify if rumination indeed is a moderator of the relation between depression and goal disengagement.

As the central result of these studies, we could demonstrate that participants who were either trait ruminators (Study 1) or were induced to ruminate (Study 2) showed less disengagement from unattainable goals than non-ruminators or distracted participants. Future studies are needed to explore the mechanisms that underlie this relation between rumination and goal disengagement. It is possible, for example, that unsolvable anagrams trigger intrusive, repetitive thoughts about an unmet goal (e.g., to solve the current anagram) in people who are habitually prone to engage in self-focused rumination. These goal-related intrusions have been termed rumination by various authors (Di Paula and Campbell 2002; Martin and Tesser 1996). We propose that self-focused rumination and goal-related rumination may represent two facets of a more general ruminative mindset (Moberly and Watkins 2010). Individuals who frequently experience one type of rumination (i.e., self-focused rumination) may be especially vulnerable to also experience the other type of rumination (i.e., goal-related rumination). In our studies, participants high in trait rumination and participants in the rumination condition may have become especially preoccupied with intrusive thoughts about the task. This prevented them from deactivating the respective goal intention, that is, their goal of solving the current anagram. During the anagram task, the use of the alternative behavioral strategy—namely skipping an anagram to maximize the total number of points—is thus hindered.

Of note, the second study's induction method had maladaptive effects on individuals in a neutral mood state even though previous studies have reported that rumination mostly affects depressed and dysphoric individuals (e.g., Nolen-Hoeksema and Morrow 1993). We predicted and found that the effects of rumination are independent of mood when it concerns the domain of goal-pursuit. Indeed, many researchers have suggested that goal-related rumination affects an individual's goal-pursuit (Di Paula and Campbell 2002; Martin and Tesser 1996). If goal-related rumination and self-focused rumination are indeed two facets of a general ruminative mindset, it is possible that self-focused rumination and goal-related rumination affect goal-pursuit independent of people's mood state. It would thus be desirable for future research to investigate the role of goal-related rumination as a direct precursor of disengagement problems by using a thought sampling technique or other means to assess cognition while participants are engaged in the task.

It may seem surprising that we did not find a relation between mood state and behavior during the experimental disengagement task. Indeed, previous studies have reported that negative affect, particularly fear and anger (Lench and Levine 2008; Lang 1995) as well as positive affect (Elliot et al. 1999) are related to an individual's readiness to abandon goals. It should be kept in mind, however, that previous studies using an anagram task presented their participants with a complete set of unsolvable anagrams and described participants inability to solve these anagrams as being related to their intelligence in the instructions provided prior to the task (e.g., Aspinwall and Richter 1999; Lench and Levine 2008). In contrast, we were careful not to induce affect in our participants because our studies focused on the impact of a specific cognitive style (i.e., a ruminative mindset) on the self-regulation of behavior. Intense affect during our experimental task would have been detrimental to our studies' aims as it could have overridden effects of the cognitive style.

There are some limitations of our research that need to be considered. It is possible, for example, that the higher rate of disengagement from unattainable goals in the distraction group reflects decreased motivation. Alternatively, the lower rate of disengagement in the rumination condition might also have resulted from increased cognitive load. In view of these two alternative explanations, it is, however, important to note that the experimental groups did not significantly differ in the number of solved anagrams. The observed non-difference speaks against different states of motivation or cognitive load in the two conditions.

Although participants were randomly assigned to the two experimental conditions, participants in the rumination compared to the distraction condition reported significantly

less negative mood before the task. As demonstrated in the MANCOVA, however, negative mood was not related to the dependent measure. In addition, this group difference resulted in a more conservative test of our hypotheses because participants with lower sadness scores were assigned to the rumination condition and these individuals should be less responsive to the induction of rumination (e.g., Lyubomirsky and Nolen-Hoeksema 1995).

It could further be argued that the distraction induction in Study 2 *increased* the tendency to disengage from goals rather than rumination *decreasing* this tendency. We consider this alternative explanation of our effect as implausible for two reasons: First, we could show in Study 1 that the inclination to ruminate and goal disengagement were significantly associated. As rumination and distraction are not correlated (e.g., Bagby and Parker 2001; Vickers and Vogeltanz-Holm 2003), the substantive correlation of rumination and goal disengagement cannot be due to shared variance with distraction in Study 1. It is thus plausible that the rumination induction caused the observed effect in Study 2. Second, it is hard to conceive how the specific content of the distraction induction (e.g., thinking about the outline of a cello) should have increased the tendency to disengage from goals. In contrast, the proposition that having difficulties to disengage from past goals (i.e., rumination) may lead to difficulties in goal-disengagement in the present seems theoretically more compelling. As in all comparable experimental designs with two conditions it can, however, not be excluded that the distraction induction may have also contributed to the demonstrated difference in goal disengagement.

In our experimental task, we included two kinds of anagrams: easy and unsolvable anagrams. Unlike our experimental task, people also pursue difficult, but attainable goals in real life. The current studies are limited in this respect, as they do not clarify whether rumination fosters persistence or disengagement in these instances of goal pursuit. Possibly, individuals with an inclination to ruminate benefit from less goal-disengagement when the pursued goal is central and the invested resources are within suitable limits. However, providing participants with only the two categories of easy and unsolvable anagrams in our studies afforded a critical test of our main hypothesis as there was a strong contrast in difficulty between the two categories of anagrams. It would thus have been easy for participants to notice that they were spending costly time when they were presented with seemingly very difficult anagrams, which hindered them to achieve as good a performance as possible (i.e., a maximum number of points by skipping anagrams that were difficult so solve). Under such circumstances, it is a remarkable result that rumination hindered goal-disengagement even if the resulting disadvantages were very salient (i.e., through the explicit

instruction that skipping anagrams is beneficial and the noticeable difference in difficulty between solvable and unsolvable anagrams).

In conclusion, the current studies add to the literature on rumination and goal pursuit by presenting first experimental evidence for the association of rumination and reduced goal disengagement in the face of unattainable goals. Ultimately, these findings contribute to our understanding of why some individuals engage in prolonged goal-related thinking whereas others disengage easily. Proneness to engage in self-focused rumination may lead to decrements in adaptive functioning and well-being as self-focused rumination inhibits engagement with new, realistic, and rewarding goals. These processes are assumed to play an important role for the onset and maintenance of depression.

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