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Positive future-oriented fantasies and depressive symptoms: Indirect relationship through brooding



Natalia Macrynikola^{a,b}, Shama Goklani^a, Julia Slotnick^a, Regina Miranda^{a,b,*}

^a Hunter College, City University of New York, 695 Park Ave., Room 611HN, New York, NY 10065, United States

^b The Graduate Center, City University of New York, United States

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ABSTRACT

Although a positive future outlook is generally associated with psychological well-being, indulging in positive fantasies about the future has been found to exacerbate negative mood-related outcomes such as depressive symptoms. We examined rumination as a cognitive mechanism in this relationship, using an objectively coded measure of future-oriented fantasies, among 261 young adults assessed twice. Engaging in a positive fantasy about the future was associated with the brooding subtype of rumination but not with reflection at baseline. There was an indirect relationship between fantasies at baseline and depressive symptoms at six-week follow-up through brooding at average and high levels of fantasy positivity when fantasizing was consistent or increased over time but not when it decreased. Engaging in fantasies was indirectly associated with perceived difficulty anticipating likely positive future outcomes through brooding. These findings extend previous research on positive fantasies by suggesting brooding as a mechanism to explain when they are maladaptive.

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1. Introduction

Positive future-oriented thinking is generally considered adaptive. Positive expectations about the future are associated with greater resilience to stress (Brisette, Scheier, & Carver, 2002; Souri & Hasanirad, 2011), improved physical health outcomes (Ironson et al., 2005; Rasmussen, Carver, & Greenhouse, 2009), and protection against depressive symptoms (Giltay, Zitman, & Kromhout, 2006; Sergeant & Mongrain, 2014). However, increasing evidence suggests that not all types of positive future-oriented thinking are beneficial. One form, in particular – indulging in positive fantasies about a desired future outcome – has been linked to lower motivation, thwarted goal attainment (Oettingen & Mayer, 2002; Pham & Taylor, 1999), and most recently, increased depressive symptoms over time (Oettingen, Mayer, & Portnow, 2016). The present study seeks to extend recent literature by examining the relation of positive future-oriented fantasies to cognitions known to be associated with depressive symptoms.

1.1. When positive fantasies become maladaptive

Studies suggest that future-oriented thoughts and fantasies play a large role in human cognition. People appear to spend as much time thinking about the future as the past (Finnbogadottir & Bernsten, 2013), with many of those thoughts being

* Corresponding author at: Hunter College, City University of New York, 695 Park Ave., Room 611HN, New York, NY 10065, United States.

E-mail address: regina.miranda@hunter.cuny.edu (R. Miranda).

visual (D'Argembeau, Renaud, & Van Der Linden, 2011; Klinger & Cox, 1987). One study found that one future-oriented thought occurred every 16 min among young adults (D'Argembeau et al., 2011). Engaging in a conscious fantasy involves a shift of attention inward, away from external stimuli. This process has been described as consisting of “pictures in the mind’s eye” and “the unrolling of a sequence of events, memories, or creatively constructed images of future events which have varying degrees of probability of taking place” (Singer, 2014, p. 3). The ability to envision both a desired goal and the steps needed to get there can help with many important aspects of cognition, including planning, decision-making, and emotion regulation (D'Argembeau et al., 2011; Suddendorf & Corballis, 2007). However, fantasies that arise naturally in daily life instead of being induced experimentally often do not occur as accurate or complete visualizations of both the process and the outcome of attaining a desired goal. On the contrary, fantasies tend to capture the most salient rather than the most likely aspects of a potential future experience, and they tend to have a positivity bias, zeroing in on positive details while leaving out negative ones (Finnbogadottir & Bernsten, 2013; Bertsen & Jacobsen, 2008; Dunning, 2007; Gilbert & Wilson, 2007). By presenting an idealized view of the goal and any steps it may take to get there, fantasies may distort one’s estimation of the amount of work required to reach the goal.

Indeed, in the act of repeatedly imagining a positive future outcome, the subjective likelihood of such an event occurring has been shown to increase (Szpunar & Schacter, 2013), potentially luring those who consistently fantasize into thinking that less effort is needed to attain the goal. Further, envisioning the desired future outcome as if it has already been attained may lower the drive to take action and attain the goal (Oettingen, 2012; Oettingen & Hagenah, 2005; Oettingen & Mayer, 2002). In a series of studies, Oettingen and Mayer (2002) found that while participants with positive expectations about the future displayed higher motivation and achieved greater success in attaining their goal over time, those who indulged in positive fantasies about a desired future outcome exerted less effort and were less likely to achieve their goal. Oettingen and colleagues suggest that the pleasure gained from simulating a positive, idealized vision of a future outcome as if it has already been attained reduces energy mobilization toward goal pursuit (Kappes & Oettingen, 2011; Oettingen, 2012; Oettingen & Hagenah, 2005; Oettingen & Mayer, 2002). Consistent with this idea, in multiple studies, positive fantasies about a desired future outcome have been found to reduce participants’ energy, as assessed by physiological, self-report, and behavioral measures of effort exerted toward a goal (Kappes & Oettingen, 2011; Oettingen & Mayer, 2002).

1.2. Positive fantasies, mood, and rumination

Few studies have examined the impact of future-oriented fantasies on mood. Daydreaming about successful goal attainment was previously found to be associated with increased depressive symptoms and reduced goal commitment among individuals high in fear of failure (Langens & Schmalt, 2002). Oettingen et al. (2016) found that positive fantasies, while associated concurrently with lower symptoms of depression, were associated with increases in depressive symptoms over time in four studies involving adults and schoolchildren and time periods ranging from six weeks to seven months. The researchers speculated that the link between fantasies and mood may be related to the use of avoidance coping. This self-regulation strategy is characterized by cognitive and behavioral attempts to avoid thinking about a problem realistically, and it predicts increases in depressive symptoms over time (Holahan, Moos, Holahan, Brennan, & Schutte, 2005).

Rumination may be one form of avoidance through which positive fantasies may lead to increased depressive symptoms. Rumination involves passive, perseverative thinking about the causes and consequences of low mood with little effort in engaging with direct experiential states, and it predicts the onset and maintenance of depression (Nolen-Hoeksema, 2000; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Importantly, rumination is seen as an involuntary behavior, characterized by persistent intrusive thoughts that may keep an individual from moving on from these cognitions (Martin & Tesser, 1996; Nolen-Hoeksema et al., 2008). Self-focused rumination has been found to consist of two factors: *brooding*, which involves passive dwelling on a negative mood, and *reflection*, which is marked by purposeful contemplation that may lead to solutions. Brooding – but not reflection – has been found to be associated with increased symptoms of depression over time (Treynor, Gonzalez, & Nolen-Hoeksema, 2003). Studies suggest that when individuals respond to negative emotions with ruminative self-focus, they experience more disengagement from problems, increased depressive symptoms, and less confidence and plan commitment (Ehring, Frank, & Ehlers, 2008; Hong, 2007; Lavender & Watkins, 2004; Ward, Lyubomirsky, Sousa, & Nolen-Hoeksema, 2003; Nolen-Hoeksema, 2000).

Since engaging in positive fantasies about a desired future outcome is characterized by similar features as rumination (i.e., involuntary, avoidant) and has been found to predict similar negative outcomes as rumination (i.e., lower plan commitment, problem disengagement, depressive symptoms), it may be a maladaptive cognitive process that impacts mood through a similar mechanism as rumination. Because involuntary positive fantasies often occur in a form that doesn’t involve purposeful contemplation (i.e., outcome vs. process fantasy), they may resemble brooding, rather than reflection, and through brooding may lead to increases in depressive symptoms.

The positive rumination literature so far has not addressed prospecting, but findings from this literature hint at an alternative explanation for how positive future fantasies may influence mood through rumination in some cases: Instead of resembling brooding, consistently engaging in positive future-oriented fantasies may *trigger* brooding, which may then lead to an increase in depressive symptoms. For instance, one form of positive rumination known as dampening (i.e., attempts to engage in cognitive responses to counter positive affect) has been found to predict depressive symptoms over time (Feldman, Joormann, & Johnson, 2008; Gilbert, Nolen-Hoeksema, & Gruber, 2013; Raes, Smets, Nelis, & Schoofs, 2012). Further, Feldman et al. (2008) found that individuals who reported dampening positive affect also reported higher rumination

on negative affect, particularly brooding. Similarly, when a future-oriented fantasy about a desired outcome arises, some individuals may actively try to change the cognition – they may dampen positive affect too quickly, giving way to a form of brooding. Involuntary future-oriented fantasies tend to be more positive and idealized than involuntary memories of past events (Bertsen & Jacobsen, 2008). Upon disengagement from the fantasy, this vision of a highly positive future may appear too good to be true and too difficult to attain, leading to a focus on negative aspects of the self and the present that may be perceived as roadblocks to attaining the desired future, thus triggering brooding on negative affect. This hypothesis is supported by findings that as people's perceived likelihood of experiencing both future positive events and future positive affect decreases, the appeal of escapist fantasies increases, while the allure of alternative positive fantasies without an escape component does not (Marroquin, Nolen-Hoeksema, & Miranda, 2013). In such cases, the contrast between an objectively likely positive future fantasy and reality may be too great, triggering a preference for escape. Similarly, when cued to fantasize about a desired future outcome, the contrast between the positive fantasy and the belief of what really is achievable may shift one's focus from the fantasy to one's shortcomings, and, through brooding, lead to greater depressive symptoms.

If positive indulging takes on a form that resembles the brooding form of rumination in depression, it may also have implications for positive future thinking, as some research suggests that reduced positive future anticipations may arise through rumination (Lyubomirsky & Nolen-Hoeksema, 1995). If fantasizing about a positive future resembles or triggers brooding, it may also lower the ability to generate positive future expectations and contribute to increases in depressive symptoms over time.

1.3. The present study

The present study sought to understand the degree to which engaging in positive future-oriented fantasies resembles brooding, versus reflection. Further, this study examined whether engaging in positive future-oriented fantasies would be associated with depressive symptoms and with ease versus difficulty in generating positive future events after a six-week follow-up period, whether these relationships would be mediated by brooding, and whether the mediated relationships would be moderated by consistency of engaging in future-oriented fantasies. Since consistency is a key feature of repetitive ruminative thinking, we hypothesized that among individuals whose level of future-oriented fantasies was consistent over time, higher engagement in fantasy would be indirectly associated with higher depressive symptoms and with more difficulty generating likely positive future events through brooding. We expected that this would be more strongly the case the greater the degree of positivity of the fantasy in which individuals engaged, as higher positivity may involve less purposeful contemplation and thus resemble brooding, or make the fantasy seem too idealized and unattainable, and thus, upon disengagement, trigger brooding.

2. Materials and methods

2.1. Participants

Participants were 261 undergraduates (213 female), ages 18–47 ($M = 20.3$, $SD = 4.4$), from a public college in the northeastern United States who participated in two study sessions over six weeks as part of a research requirement for introductory psychology courses. Self-identified race/ethnic groups were White (36%), Asian (26%), Hispanic/Latino/a (17%), Black (14%), and other (7%). A sample of 284 individuals took part in a baseline study session, with 263 (93%) individuals returning for the follow-up session. Two individuals were excluded because they did not complete primary study measures, leaving a final sample of 261 individuals. There were no statistically significant demographic differences between participants who did and did not participate in both study sessions. More details on the original sample can be found elsewhere (Marroquín, Fontes, Scilletta, & Miranda, 2010; Miranda, Fontes, & Marroquín, 2008).

2.2. Measures

2.2.1. Engaging in positive future-oriented fantasies

Our measure of engaging in positive future-oriented fantasies incorporated both objectively and subjectively rated characteristics, given that previous research (e.g., Oettingen et al., 2016) has operationalized positive fantasies based on participants' own self-ratings of degree of positivity/negativity in their fantasies but has not examined other characteristics apart from valence. Participants were asked to indicate two potential things that could happen in their lives and that had recently been on their minds and to write them down. Participants were then asked to choose the potential thing that was most important to them and to consider it happening with a *happy* ending. Participants were given the following written instruction:

Now, please take a moment to imagine just exactly what this would be like, what it would involve and require, and how it would feel. Please just let whatever pictures that come to mind do so, and take a moment to describe each image, thought, or belief that comes to your mind.

After writing the description, participants were asked to rate how happy they felt when they thought about what they had described happening in the way they imagined it on a Likert scale ranging from –5 (not at all happy) to 5 (extremely happy). Participants were asked to indicate the ease versus difficulty with which they could imagine the event happening with a happy ending [from extremely easy to imagine (1) to extremely difficult to imagine (7)], how commonly they thought about things in that manner [from never (1) to almost all of the time (6)], on how many different days in the previous two weeks they had thought about the event happening in the way they described [no response scale provided; participants entered a number], the longest amount of time on a given day they had spent thinking about the event happening in that particular way in the previous two weeks [from 5 to 10 min (1) to almost every day (5)], as well as whether they could foresee anything that might keep the event from happening.

Each narrative was rated by two independent judges (one female, one male) who had a B.A. degree in psychology. Judges rated the narratives for valence (how positive vs. negative the narrative was), and for the degree to which it reflected engaging in the fantasy. Valence was rated on a 5-point scale ranging from 1 (*clearly negative in tone and content*) to 5 (*clearly positive in tone and content*). There was strong interrater reliability at both time 1 and time 2, $r(282)_{t1} = 0.76$, $r(259)_{t2} = 0.71$.

Degree of engagement in future-oriented fantasies was characterized by three components: vividness (extent to which the passage contained imagery/pictures, a scene, or a dialogue), emotionality (extent to which the passage contained emotions or was emotionally evocative), and anticipation (extent to which the passage contained anticipation or excitement about the imagined event). Previous research indicates that mental simulation of future personal events involves emotional arousal (D'Argembeau et al., 2011), and this arousal is associated with vividness of mental imagery and personal importance of the event imagined (D'Argembeau & Van der Linden, 2006), as well as anticipation of future events (Van Boven & Ashworth, 2007). Thus, if participants actually engaged in fantasy, their fantasies would presumably encompass these three elements. Ratings were made on a 5-point scale, ranging from 1 (lacking in the 3 components) to 5 (definitely containing the imagery component of the rating, or containing imagery to some degree, along with one of the other components to a large extent). Given that a fantasy, by definition, contains images (Singer, 2014), we considered the presence of imagery as the most important of the three elements of fantasies. There was adequate interrater reliability at both time 1 and time 2, $r(282)_{t1} = 0.69$, $r(259)_{t2} = 0.64$.

To determine whether participants were consistent in their degree of engaging in a fantasy over time, the two raters' scores were averaged for each time point, then the difference between time 1 average score and time 2 average score was calculated. The correlation between ratings of the degree to which individuals engaged in fantasy at times 1 and 2, $r = 0.30$, $p < 0.01$, and valence of the narratives at times 1 and 2, $r = 0.12$, $p < 0.05$, were low-to-moderate.

2.2.2. Generating positive future events

After rating the characteristics of the event they described, participants were also asked to “take a moment to consider what your future will likely hold” and to list five things that “are likely to happen in your future.” After listing each potential future event, they were asked to rate how easy or difficult they found it to think of each event on a scale from 1 (*extremely easy*) to 7 (*extremely hard/difficult*). Items were classified by two independent raters as either positive, neutral, or negative, with strong reliability at times 1 ($\kappa = 0.76$ – 0.86) and 2 ($\kappa = 0.67$ – 0.84). Differences between raters were resolved by consensus. Scores were calculated to indicate number of positive items individuals generated (possible range = 0–5), along with average perceived difficulty in generating positive items (possible range = 1–7).

2.2.3. Depressive symptoms

Symptoms of depression were assessed using the Beck Depression Inventory (BDI-II; Beck, Steer, & Brown, 1996), a 21-item self-report questionnaire assessing symptoms of depression experienced in the previous 2 weeks – including sadness, anhedonia, diminished attention/concentration, psychomotor agitation/retardation, and sleep/appetite disturbance. Items are scored on a 4-point scale ranging from 0 (e.g., *I do not feel sad*) to 3 (e.g., *I feel so sad or unhappy that I can't stand it*), with total scores ranging from 0 to 63. Average scores in the present samples were 11.85 ($SD = 8.13$, range = 0–18) at time 1 and 10.08 ($SD = 8.30$, range = 0–44) at time 2. The BDI-II has demonstrated good reliability and validity in clinical and non-clinical samples (Beck et al., 1996; Whisman, Perez, & Ramel, 2000). Cronbach's alpha in this sample showed high internal consistency reliability ($\alpha_{t1} = 0.88$, $\alpha_{t2} = 0.91$). Test-retest reliability for total BDI score was $r(259) = 0.69$, $p < 0.01$.

2.2.4. Rumination

Two forms of rumination – brooding and reflection – (see Treynor et al., 2003) were measured via the Ruminative Responses Scale (RRS) of the Response Styles Questionnaire (Nolen-Hoeksema & Morrow, 1991). The brooding subscale of the RRS consists of 5 items addressing a tendency to passively dwell on the reasons for one's negative mood and on the consequences of that mood (e.g., *Think “What am I doing to deserve this?”*). The reflection subscale, also assessed by 5 items, consists of items addressing a more active cognitive appraisal and attempts to understand the reasons for one's negative mood. Items are rated on a 4-point scale ranging from 1 (*almost never*) to 4 (*almost always*). Scores were computed by summing the 5 items of each subscale. The mean brooding score (time 1) was 12.1 ($SD = 3.5$, range = 5–20), while the mean reflection score was 10.8 ($SD = 3.4$; range = 5–20). The brooding and reflection subscales showed adequate internal consistency reliability ($\alpha_{brood} = 0.75$, $\alpha_{reflect} = 0.70$).

2.3. Procedure

Participants were recruited for two study sessions, an average of six weeks apart ($M = 45$ days, $SD = 7$ days) and completed a battery of self-report measures described above in small groups. Individuals were provided with a list of mental health resources at the end of the study session, and participants who scored a 20 or above on the BDI-II were specifically encouraged to contact the college counseling center if they wanted to speak to someone about how they were feeling. The Hunter College Institutional Review Board approved the procedures used in this study.

3. Results

3.1. Self-rated narrative characteristics

On average, participants rated themselves at close to the highest level of happiness when they thought of the event they described happening with a happy ending ($M = 4.03$, $SD = 1.62$), rated the event as “somewhat easy to imagine” ($M = 3.08$, $SD = 1.57$), rated themselves as “frequently” thinking of the future in the manner they described ($M = 4.06$, $SD = 0.97$), and reported doing so approximately 6 days per week ($M = 6.25$, $SD = 4.14$) in the previous two weeks. Half of the sample (51%) reported that the longest time they had spent in the previous two weeks thinking about their positive outcome occurring as they had described was 5–10 minutes, 25% reported spending 15–30 minutes, with the remainder (25%) spending between 30 minutes to most of the day. The majority (79%) of individuals reported that something might stand in the way of their positive outcome (see [Table 1](#)).

3.2. Correlations among study variables

There were no significant race and gender differences on most study variables, with some exceptions: Independent coders rated men as having a higher level of positivity in their narrative ($M = 4.64$, $SD = 0.73$), compared to women ($M = 4.33$, $SD = 0.87$), $t(259) = 2.20$, $p < 0.05$; and age was negatively associated with narrative positivity, $r(259) = -0.16$, $p < 0.01$, brooding, $r(259) = -0.12$, $p < 0.05$, and with difficulty generating future positive events at time 2, $r(259) = -0.15$, $p < 0.05$, but not with degree of engagement in fantasy, $r(259) = -0.04$, $p = 0.54$, or with other variables.

3.3. Relations among degree of indulging, ruminative subtypes, depressive symptoms, and positive expectations

Correlational analyses were conducted to examine associations among study measures. Degree of engagement in fantasy at time 1 was positively associated with brooding but not with reflection, and was positively associated with number of positive potential future events generated at time 1 but not with depressive symptoms. Positive valence of the narrative was positively associated with number of positive events generated (times 1 and 2) and with difficulty generating positive events at time 2. Brooding and reflection were positively correlated with depressive symptoms at both times 1 and 2. For a complete list of correlations among study variables, see [Table 2](#).

3.4. Indirect relationship between positive indulging and depressive symptoms through brooding

A moderated mediation analysis was conducted to test whether there was an indirect relationship between fantasizing at baseline and depressive symptoms at six-week follow-up through brooding, adjusting for baseline depressive symptoms, and whether this indirect relationship would be moderated by positivity of the narrative and by change in degree of fantasy engagement between time 1 and 2 (assessed as time 1 minus time 2 engagement in fantasy score). The moderated mediation

Table 1
Self-rated positive fantasy characteristics.

Characteristics	<i>M</i>	<i>SD</i>	Range
Happy ($N = 260$)	4.03	1.62	–5.0 to 5.0
Difficulty ($N = 260$)	3.08	1.57	1.0–7.0
Common ($N = 261$)	4.06	0.97	2.0–6.0
Days ($N = 246$)	6.25	4.14	0–14.0
Characteristics	<i>N</i>	%	
Time ($N = 260$)			
5–10 mins	132	51	
15–30 mins	64	25	
30–60 mins	27	10	
1–2 h/day	20	8	
Most of the day	17	7	
Obstacles ($N = 261$)	207	79	

Table 2
Correlations among study variables for (N = 261).

	1	2	3	4	5	6	7	8	9	10
1. Pos ^a	1									
2. Engage ^a	0.04	1								
3. Brood	−0.11	0.12 [*]	1							
4. Reflect	−0.05	0.06	0.32 ^{**}	1						
5. BDI ^a	−0.10	0.02	0.56 ^{**}	0.18 ^{**}	1					
6. BDI ^b	−0.11	−0.01	0.45 ^{**}	0.15 [*]	0.69 ^{**}	1				
7. PTot ^a	0.17 ^{**}	−0.07	−0.06	0.01	−0.16 [*]	−0.15 [*]	1			
8. PTot ^b	0.12 [*]	−0.08	−0.09	−0.01	−0.22 ^{**}	−0.15 [*]	0.40 ^{**}	1		
9. PDiff ^a	−0.08	0.09	0.14 [*]	0.02	0.07	0.02	0.12	0.05	1	
10. PDiff ^b	0.18 ^{**}	0.12	0.14 [*]	0.02	0.14 [*]	0.17 ^{**}	−0.06	−0.03	0.26 ^{**}	1

PTot = Total positive future events listed (out of a possible total of 5).

PDiff = Average perceived difficulty generating positive future events.

** $p < 0.01$.

* $p < 0.05$.

^a Assessed at time 1.

^b Assessed at time 2.

analysis was conducted using Model 9 of the PROCESS Script for SPSS (Hayes, 2013), and indirect effects were tested using bootstrapping with 5000 resamples. Statistically significant effects were those whose 95% confidence intervals did not include zero. Engaging in fantasy was positively associated with brooding, $b = 0.50$, $s.e. = 0.20$, $p < 0.05$, 95% $CI = 0.10–0.89$, adjusting for baseline depressive symptoms, $b = 0.24$, $s.e. = 0.02$, $p < 0.01$, 95% $CI = 0.19–0.28$, positivity of the narrative, $b = -0.24$, $s.e. = 0.21$, $p = 0.25$, 95% $CI = -0.66–0.17$, change in fantasy score, $b = -0.22$, $s.e. = 0.15$, $p = 0.14$, 95% $CI = -0.52–0.07$, and the interactions between engaging in fantasy x positivity, $b = 0.10$, $s.e. = 0.21$, $p = 0.62$, 95% $CI = -0.31–0.52$, and engaging in fantasy x change in fantasy score, $b = -0.02$, $s.e. = 0.10$, $p = 0.86$, 95% $CI = -0.22–0.19$. There was a trend toward an association between brooding and time 2 depressive symptoms, $b = 0.22$, $s.e. = 0.13$, $p = 0.09$, 95% $CI = -0.03–0.48$, adjusting for baseline depressive symptoms, $b = 0.65$, $s.e. = 0.06$, $p < 0.01$, 95% $CI = 0.54–0.76$ and engaging in fantasy, $b = -0.26$, $s.e. = 0.35$, $p = 0.46$, 95% $CI = -0.95–0.43$. There was no statistically significant direct effect of engaging in fantasy on depressive symptoms, $b = -0.26$, $s.e. = 0.35$, $p = 0.46$, 95% $CI = -0.95–0.43$.

There was a statistically significant indirect effect of engaging in fantasy on depressive symptoms through brooding, varying by consistency of fantasizing. Effects were tested at low (1 SD below the mean), average, and high (maximum, given that 1 SD above the mean went beyond the maximum) levels of positivity and at low (1 SD below the mean), average, and high (1 SD above the mean) levels of difference in fantasy engagement. As difference scores ranged from negative to positive, low difference scores in fantasy represented increases in degree of fantasy engagement from time 1 to time 2, average difference scores in fantasy represented little to no change, and high difference scores represented decreases in fantasy from time 1 to time 2. There was an indirect effect of engaging in fantasy on time 2 depressive symptoms through brooding at average and high levels of narrative positivity when fantasy scores were consistent from time 1 to time 2 and when they increased from time 1 to time 2, but not when they decreased from time 1 to time 2, and not at low levels of positivity (see Table 3).

3.5. Indirect relationship between positive indulging and ease/difficulty in generating likely positive events through brooding

A moderated mediation model was also tested to assess the explanatory role of brooding (baseline) in predicting ease versus difficulty in generating likely positive future events six weeks later, and whether this mediated relationship would

Table 3
Indirect effect of engaging in fantasy at baseline on depressive symptoms at six-week follow-up through brooding at different levels of positivity and consistency of engagement in fantasy from time 1 to time 2.

	Effect	Bootstrapped S.E.	95% CI (low)	95% CI (high)
<i>Higher consistency of engaging in fantasy at T1 and T2</i>				
High positivity	0.12 ^a	0.09	0.002	0.39
Average positivity	0.11 ^a	0.08	0.001	0.34
Low positivity	0.09	0.09	−0.01	0.34
<i>Lower consistency (higher T1 engagement; lower T2)</i>				
High positivity	0.12	0.10	−0.003	0.43
Average positivity	0.11	0.09	−0.01	0.38
Low positivity	0.09	0.09	−0.02	0.38
<i>Lower consistency (lower T1 engagement; higher T2)</i>				
High positivity	0.13 ^a	0.10	0.01	0.41
Average positivity	0.12 ^a	0.09	0.001	0.36
Low positivity	0.10	0.09	−0.01	0.37

^a Statistically significant indirect effects are those whose 95% confidence intervals do not include zero.

Table 4

Indirect effect of engaging in fantasy at baseline on perceived difficulty generating positive future events at six-week follow-up through brooding at different levels of positivity and consistency of engagement in fantasy from time 1 to time 2.

	Effect	Bootstrapped S.E.	95% CI (low)	95% CI (high)
<i>Higher consistency of engaging in fantasy at T1 and T2</i>				
High positivity	0.03 ^a	0.02	0.004	0.08
Average positivity	0.03 ^a	0.02	0.003	0.07
Low positivity	0.03 ^a	0.02	0.0001	0.08
<i>Lower consistency (higher T1 engagement; lower T2)</i>				
High positivity	0.03 ^a	0.02	0.0008	0.09
Average positivity	0.03 ^a	0.02	0.002	0.08
Low positivity	0.03	0.02	–0.002	0.09
<i>Lower consistency (lower T1 engagement; higher T2)</i>				
High positivity	0.03 ^a	0.02	0.003	0.08
Average positivity	0.03 ^a	0.02	0.002	0.08
Low positivity	0.03	0.02	–0.0003	0.09

^a Statistically significant indirect effects are those whose 95% confidence intervals do not include zero.

be moderated by narrative positivity and consistency of fantasizing, using Model 9 of the PROCESS Script for SPSS (Hayes, 2013). Once again, indirect effects of engaging in positive fantasy on depressive symptoms through brooding were estimated using bootstrapping with 5000 resamples. Indirect effects were tested at low (1 SD below the mean), average, and high (maximum, given that 1 SD above the mean went beyond the maximum) levels of positivity. There was a statistically significant indirect effect of engaging in fantasy on difficulty in generating positive future events through brooding, varying by consistency of fantasizing. When fantasy engagement scores were consistent from time 1 to 2 (i.e., change in fantasizing from time 1 to time 2 was average, or close to 0), there was an indirect effect of engaging in fantasy on perceived difficulty generating positive future events through brooding at high, average, and low levels of narrative valence. When fantasy engagement increased or decreased at time 2, there was an indirect effect of engaging in fantasy on perceived difficulty generating positive future events through brooding at high and average levels of narrative valence, but not low. See Table 4 for tests of indirect effects.

4. Discussion

Our findings suggest that engaging in positive fantasies about the future more closely resembles a maladaptive cognitive response style such as the brooding subtype of rumination than it does a more benign or adaptive response style such as reflection. Further, results suggest that this type of fantasizing is indirectly associated with depressive symptoms over time through brooding when the degree of engagement in the fantasy is consistent or increases over time and the fantasy is average or high in positivity but not when it is low in positivity. Two possibilities may help explain these results: One, engaging in positive fantasies about a desired future outcome may be a passive, repetitive thinking style through which individuals cope with the stresses of reaching a desired outcome. People tend to ruminate about goals they deem important for their well-being (Beck, 1982; McIntosh & Martin, 1992), and the higher the perceived importance of the goal and the more extreme the consequences of not attaining it, the more frequently do unintentional goal-related thoughts arise (Martin & Tesser, 1996). Repeated fantasies can make the outcome appear more likely to happen (Szpunar & Schacter, 2013), and the pleasure gained from the fantasy may reduce the drive to exert effort toward actually attaining the goal (Oettingen et al., 2016). As a result, individuals may continue to fantasize about the desired outcome – a process resembling brooding in its dwelling-type of form rather than reflection, which involves purposeful contemplation – instead of directly engaging with reality. This process may eventually lead to non-attainment of the goal and subsequent depression. Alternatively, in some cases, individuals may not believe their fantasies can become reality, and brooding may arise directly after the positive fantasy stops. Research suggests that those who dampen positive affect also report higher rumination on negative affect, particularly brooding (Feldman et al., 2008). If the contrast between fantasy and reality is too great and it doesn't seem possible to bridge the gap, one may disengage from the fantasy and turn to brooding on perceived roadblocks. Such possibilities warrant further investigation.

Our results also showed that engaging in fantasies is indirectly associated with perceived difficulty generating positive future events – through brooding – regardless of how degree of engagement in the fantasy changes over time when that fantasy is average or high in positivity (and also when low in positivity but only when the level of fantasy doesn't change – i.e., is consistent – across time). Positive fantasies may, like brooding, lead to difficulty in generating likely positive future outcomes, which may ultimately exacerbate dysphoric mood (see Andersen & Limpert, 2001). Furthermore, by making the affect associated with a desired outcome salient rather than its likelihood, engaging in positive fantasies may ultimately lead to difficulty in perceiving likely positive future outcomes.

Relatively little is known about the form, frequency, and function of future-oriented fantasies as they occur in daily life. Future studies should examine the characteristics of naturally occurring fantasies, including when and for whom they persist and become maladaptive.

4.1. Strengths and limitations

There are a number of strengths of this study. First, it benefits from an objectively coded measure of positive fantasies. Previous research that examined positive fantasies as a predictor of depressive symptoms used a subjectively coded measure in which individuals' positivity ratings of imagined scenarios were used as indicators of positive fantasies (Oettingen et al., 2016). However, we did not include a subjective measure of fantasies to complement the objective coding. Second, this study benefits from a large and ethnically diverse sample. Finally, this is the first examination of a potential cognitive mechanism in the relationship between engaging in future-oriented fantasies and depressive symptoms. Limitations include a primarily female college-student sample (limiting generalizability) and a brief follow-up period of six weeks (versus a longer period).

One limitation is that our measure of generating future events after engaging in fantasy did not specify whether participants should generate specific or general future events. Thus, some participants may have conceived of general future events while others may have engaged in episodic future thought, affecting results. In addition, since rumination has been implicated in reduced concrete thinking (Watkins & Teasdale, 2001), for some, it may have been difficult to conceive of specific future events after engaging in positive fantasies that resemble, or trigger, brooding. One direction for future research might be to examine whether increasing the specificity component of future thinking following engagement in future fantasies may change the influence fantasies have on how easily people generate future events.

4.2. Conclusion

This research extends previous findings (Oettingen et al., 2016) that positive fantasies are associated with higher depressive symptoms over time by suggesting that positive fantasies are deleterious to the degree that they resemble maladaptive forms of repetitive thought such as brooding and to the degree that they either remain consistent or increase over time. These findings are one step in understanding the mechanisms that underlie for whom and how engaging in positive fantasies about desired future outcomes may impact mood over time.

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