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Does goal generation vary as a function of depressive status?

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Does Goal Generation Vary as a Function of Depressive Status?

by

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A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Arts
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College of Arts and Sciences
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Dedication

To Mom, Dad, and Grandpa.

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ABSTRACT

Although many theories attempt to explain the manner in which deficits in goal generation may lead to an episode of Major Depressive Disorder (MDD), few studies have actually described how persons with depression vulnerability generate goals for themselves. The current project used a multi-dimensional approach to examine the types, numbers, and domains in which goals are generated, comparing individuals with MDD with individuals with remitted depression, and never-depressed controls. In addition, we examined possible mechanisms that may mediate the relationship between depressive status and goal generation. Surprisingly, results suggested little group difference in the types of goals or subjective ratings of goals that were generated. Instead, we suggest that cognitive and behavioral aspects of motivation may underlie an individual's efficacy of achieving goals. Limitations and future directions are discussed.

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Background

Major Depressive Disorder (MDD) is a chronic illness that afflicts nearly 20% of the population (Kessler, 2002). MDD is also highly recurrent: by some estimates, at least 60% of those who suffer from a single episode of depression will likely experience another; 70% who experience two episodes will experience yet another episode, and almost 90% of those who experience three episodes will experience yet another episode (Monroe & Harkness, 2005). In addition, the average depressive episode lasts four to nine months (Durand & Barlow, 2006). The recurrent nature of MDD has motivated extensive research into factors that may promote and maintain depressive episodes. Research on the assessment and treatment of MDD has begun to focus on goal generation and the manner in which it is dysregulated by the cognitive, affective, and motivational deficits associated with the disorder (Strauman et al., 2006; Dimidijian et al., 2006). As such, the current project seeks to investigate differences in goal generation (i.e., typology, level of abstraction, level of complexity, and domain) as a function of depressive status.

Diagnostic Criteria for Depression

MDD is characterized by the cardinal symptoms of a persistently depressed mood and/or the presence of anhedonia for two weeks or longer. In addition, to meet criteria for MDD individuals must endorse several of the following associated symptoms: significant change in appetite, weight loss or weight gain, difficulty sleeping,

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psychomotor agitation or retardation, difficulty concentrating or making decisions, excessive or inappropriate guilt, feelings of worthlessness, or suicidal thoughts or attempts. Diagnostic criteria for MDD require that an individual endorses at least one cardinal symptom, with five symptoms in total (American Psychiatric Association [APA], 2000).

The DSM-IV-TR symptoms of depression do not, of course, capture the complete array of deficits associated with MDD. For example, individuals with MDD often have difficulty managing everyday tasks such as personal hygiene (APA, 2000), experience a reduced responsiveness to reward (Kasch, Rottenberg, Arnow, & Gotlib, 2002), have difficulty recalling detailed idiographic memories (Williams & Broadbent, 1986) and may have difficulty pursuing and generating specific goals (Street, 2002). Although there is evidence that qualities such as responsiveness to reward and appetitive motivation may be trait-like qualities of the disorder (Kasch et al., 2002), it is unclear to what extent other characteristics, such as goal generation, may be state-dependent qualities produced by MDD.

DSM diagnostic criteria, clinicians, and research have often asserted that MDD involves deficits in goal-related activity. However, upon closer inspection, most descriptions of these deficits are not well specified. The generation of goals potentially refers to a complex set of processes, and the field has often been imprecise and reliant on lay terms or informal conceptualizations to explore goal-related activities in MDD. Fortunately, recent advances in social and personality psychology provide additional

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theoretical and methodological sophistication in this domain. Developments regarding

the typology and generation of goals as they pertain to MDD will be discussed.

Definition and Assessment of Goal Generation

Although goal generation is defined slightly differently by researchers working in

different fields (APA, 2000; Dickson & MacLeod, 2004, 2006; Higgins 2006; Dykman,

1998), we define goal generation as the ability to generate personal accomplishments for

the future. This definition was chosen as research suggests that the ability to plan for the

future (generate goals) is a process which is disrupted in individuals with MDD (Higgins,

1996; Strauman et al., 2006).

To date, the paucity of research regarding goal generation has relied upon the

individuals' capacity and willingness to list desired future events in response to specific

prompts.   For example, Dickson and MacLeod (2004, 2006) utilized the Goal Task,

which required individuals to respond to prompts regarding goals to be achieved or

avoided in the future. Similarly, Lecci, Karoly, Briggs, and Kuhn (1994) asked

participants to list personal goals which they were planning or pursuing in predetermined

domains (e.g., academic, health, leisure, family relationship, social/nonfamily). Thus,

research has yet to utilize tasks in which individuals respond to less directive prompts, or

when goals were examined in a multidimensional manner.   The following section

explicates the various theoretical dimensions upon which goals can be examined.

Goal Typology

One important typology of goals from basic research on personality and

motivation has been articulated by Higgins (1996), who proposes that goals fall within

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two distinct categories that facilitate self-regulation: promotion or prevention. Promotion goals are characterized by themes of advancement, achievement, experience of positive affect (i.e., cheerfulness), and focus on positive outcomes (i.e., pursuing a promotion at work). Prevention goals, conversely, are characterized by themes of safety, responsibilities, experience of feelings of calmness, and focus on preventing negative outcomes (i.e., not losing a current job).

Strauman et al. (2006) draws upon this distinction between promotion and prevention goal pursuit and applies it to individuals with MDD. The authors suggest that individuals with a history of failed attempts to attain promotion goals (particularly in a social domain) have future difficulty attaining these goals, as they likely have not developed adequate strategies to achieve promotion goals. In addition, an inability to attain promotion goals is thought to increase an individual's vulnerability for depression (Scott & O'Hara, 1993). For example, individuals who fail to achieve promotion goals may not view social situations as venues in which promotion goals can be pursued (whereas they may for non-depressed individuals), thus limiting opportunities to pursue promotion goals and experience positive affect (Strauman et al., 2006). As environmental cues relating to the goal being pursued provide feedback to the individual regarding his/her progress towards the goal (Klinger, 1975), the continued perception of cues of failure are likely to decrease incentive and motivation to pursue such goals, and decrease an individual's feelings of self-worth (Strauman et al., 2006).

Dickson and MacLeod (2004, 2006) use similar language about in their theoretical discussion of how depressed and dysphoric individuals generate promotion

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and prevention goals. Dickson and MacLeod suggest that approach goals, akin to promotion goals, encourage the achievement of positive outcomes and maintenance of positive situations. Avoidance goals, similar to prevention goals, encourage the prevention of negative outcomes and avoidance of negative situations. Results from this body of research suggest that depressed and dysphoric individuals generated fewer approach goals but did not differ in the number of avoidance goals compared to control participants (Dickson & MacLeod, 2004, 2006). These findings support the notion that individuals with low mood may have a deficit in the generation of approach or promotion goals, as suggested by Strauman et al. (2006). For the purposes of this review, we will refer to "promotion/approach goals" from this point on simply as "approach goals," and "prevention/avoidance goals" as "avoidance goals."

Goal Organization

It does not appear that goal generation is a simple linear process. Instead, Carver and Scheier (1990) suggest that goals are construed within a hierarchy. More specifically, small concrete goals act as intermediary steps towards achieving a large, abstract goal. Concrete goals refer to those which are clearly defined and have a definitive point of achievement (e.g., say hello to my neighbors every morning this week), while abstract goals refer to those which are not clearly defined, and are broad in content (e.g., become a model citizen; Emmons, 1992). Further, abstract goals may be more difficult to achieve than concrete goals, as abstract goals are usually more complex and intricate than concrete goals. More specifically, without a clear endpoint it is difficult to ascertain when an abstract goal has been achieved (Emmons, 1992). Street

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(2002) claims that the generation and pursuit of abstract goals has been linked to increases in negative affect and depression. In addition, Carver and colleagues (1988) suggest that abstract goals are more often connected to an individual's self worth (as compared to concrete goals), and as such, are more difficult from which to disengage.

In addition to the type of goals a person generates, the number of goals to which an individual strives may differ across individuals with and without a history of MDD. Champion and Power (1995) suggest that the rigid fixation upon a single goal increases an individual's cognitive vulnerability to depression. With a unitary focus, the individual is thought to exert all of her/his resources toward achieving a single goal. When this goal is not achievable, this may lead to excessive persistence and difficulty in goal disengagement. Moreover, if an individual fails to attain this single goal, the failure may decrease the individual's self-worth more intensely than if the individual had diversified goals. As such, individuals who generate a single goal may be more vulnerable to MDD than individuals who generate multiple goals. Conversely, according to Champion and Power (1995) and Street (2002), generating multiple goals may enhance a specific type of cognitive flexibility that buffers the individual from experiencing intense feelings of loss after failed goal pursuit, and may also allow an individual to disengage from an unachievable goal before resources are wasted.

An alternative, though related, hypothesis is that depression vulnerability may reside more in the number of domains in which these goals are generated rather than in the absolute number of goals an individual generates or pursues. For example, depressed individuals may generate an equivalent amount of goals as non-depressed individuals, but

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the goals of the depressed individuals may fall within a single domain while non-depressed individuals may generate goals that span multiple domains. Within this conceptualization, depressed individuals put effort forth within a single domain, which in turn may have the same negative consequences as pursuing a single goal. Meaning, an individual's self-worth is dependent upon achievement within a single domain, which increases an individual's difficulty disengaging from a goal or goals in the single domain, which is thought to increase an individual's vulnerability to depression (Champion & Power, 1995; Klinger, 1975; Nesse, 2000).

Lam and Power (1991) examined the correlation between number of goals and domains in which these goals were generated and future onset of depression in an elderly sample. Results suggest that valuing or pursuing goals in a single domain, as opposed to multiple domains was predictive of future depression. The absolute number of goals generated, however, was not predictive of future depression. Although this information provides insight as to how the number and domains in which goals are generated correspond to MDD vulnerability, processes that underlie both goal generation deficits and MDD vulnerability remain unclear.

Potential Mechanisms for Depression-Related Deficits in Goal Generation

Research and theory have provided an outline of areas in which deficits in goal generation may exist. What are the mechanisms that explain these deficits among individuals with MDD? As MDD is conceptualized as a disorder of motivation, affect, and cognition (Strauman et al., 2006), the current project proposes to examine the manner in which these three areas interact to promote deficits in goal generation. More

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specifically, we propose that deficits in the behavioral motivation system and the ideographic interpretation of goal pursuit (i.e., goal orientation) mediate the relationship between depressive status and deficits in goal generation.

   Broader Motivational Systems. The concept of motivation, similar to that of goal generation, is a broad construct that can be conceptualized in various ways. Motivation, as related to goal generation and goal pursuit, can be defined in terms of responsiveness to reward (Carver & White, 1994), an individual's desire to change his/her current state of being (Higgins, 1996; Strauman et al., 2006), or the ability to persist in goal-oriented activities (Nesse, 2000). The variety of conceptualizations of motivation has been complimented by an array of assessment tools, ranging from experimental measures of reward response bias in goal-attainment tasks (ex- Johnson, Ruggero, & Carver, 2005) to self-report measures of personality, attitudes, or cognition (ex.- Carver & White, 1994).

   For the purposes of this project, the term "motivation" is used to describe of the process by which cognitive, affective, and behavioral components drive an individual to engage with his/her environment, strive towards achieving a goal, and allow the individual to persist in these strivings until a desired state or goal is achieved. This conceptualization is premised upon the proposed connection between the core MDD symptom of anhedonia, (reduced experience of pleasure), and reduced motivation. Interestingly, anhedonia appears to encompass both the affective quality of finding activities less pleasurable than they once were (APA, 2000), as well as a reduced responsiveness to reward (Henriques & Davidson, 2000; Kasch et al., 2002), which are both integral components of goal generation and pursuit (Strauman, 2002). When

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pleasure and responsiveness to reward associated with a given activity are reduced, the likelihood of an individual engaging in that activity in the future is reduced (Dickson & MacLeod, 2004, 2006). When this model of motivation is applied to goal generation, it can be theorized that reduced experience of pleasure and reward associated with goal generation and pursuit, coupled with a history of failed goal strivings (Strauman et al., 2006), may cause an individual with MDD to be apprehensive to generate goals, unresponsive to the reward of pursuing and achieving a generated goal, and may be less likely to generate and pursue similar goals than an non-depressed individual.

Perhaps the most commonly used motivational constructs used in the literature are the Behavioral Activation System (BAS) and the Behavioral Inhibition System (BIS). These systems were conceived from animal models of affect and motivation, which suggested that two separate systems controlled engagement with and avoidance from the environment (Fowles, 1980). Additionally, it is conceived that these systems are controlled by distinct areas of the brain (see Carver & White, 1994).

The BAS is associated with appetitive motivation, concentration, reward responsiveness, as well as producing the emotions of elation, hope, happiness (Carver & White, 1994), and frustration and anger in situations when motivation towards a goal is thwarted (Carver, 2004). The BIS is theoretically responsible for aversive motivation (withdrawal behaviors), responsiveness to threat or punishment, as well as feelings of anxiety, frustration, and sadness (Carver & White, 1994). While BAS sensitivity is associated with the promotion of goal-related behaviors, the BIS is associated with the inhibition of goal-related behaviors (Carver & White, 1994).

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In non-depressed individuals, it is assumed that a balance between BAS sensitivity and BIS sensitivity exists, such that individuals are not euphoric or excessively responsive to reward (high BAS sensitivity) or completely uninhibited or unaware of potential harm (low BIS sensitivity); instead, non-depressed persons are motivated by potential rewards, and aware of potential consequence of its pursuit. In individuals with MDD, however, it is theorized that individuals are thought to be anhedonic and particularly unresponsive to reward (low BAS sensitivity), and are also speculated to be nervous or anxious, and have a heightened sensitivity to cues of potential harm (high BIS sensitivity; Depue & Iacono, 1989). Furthermore, research by Kasch and colleagues (2002) support this theory, as individuals with MDD reported lower BAS sensitivity and higher BIS sensitivity on self-report measures of the behavioral system sensitivity (e.g., BIS/BAS scales; Kasch et al., 2002; Carver & White, 1994), when compared to non-depressed controls.

Although the mediating role of BAS in goal generation has been alluded to in previous research (Dickson & MacLeod, 2004), this relationship has yet to be tested empirically. As the BAS is associated with appetitive motivation and reward responsiveness (Carver & White, 1994), and approach goals are typified by engagement with the environment to ensure a positive outcome (Higgins, 1996; Dickson & MacLeod, 2004, 2006), it is plausible that BAS activity mediates approach goal generation. Likewise, as the BIS is associated with avoidance of aversive or potentially harmful situations (Carver & White, 1994), and avoidance goals are typified by those which attempt to prevent the occurrence of negative outcomes (Higgins, 1996; Dickson &

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MacLeod, 2004, 2006), it is also plausible that BIS activity mediates avoidance goal generation.

As evidence suggests that diminished BAS sensitivity is a trait-like marker for MDD (Peeters, Nicolson, & Berkhof, 2003), and BAS sensitivity is theorized to mediate deficits in approach goal generation (Strauman et al., 2006; Dickson & MacLeod, 2004, 2006), it is possible that the deficits in promotion/approach goal generation thought to typify MDD may be sustained in individuals with a history of MDD, even when the depressive episode remits. Conversely, as there is a lack of evidence to substantiate the importance of BIS (Johnson et al., 2003) and avoidance goals in MDD (Strauman et al., 2006; Dickson & MacLeod, 2004, 2006), or how individuals with and without MDD differ in these domains (Dickson & MacLeod, 2004, 2006), the examination of BIS sensitivity and avoidance goals across currently depressed, remitted-depressed, and never-depressed individuals was of secondary interest in the current project.

Goal Orientation. The meaning assigned to goal pursuit may be equally important mediating factor in goal generation. Dykman (1998) has distinguished between growth-seeking (GS) and validation-seeking (VS) orientations. Individuals with a GS orientation have the tendency to view goals as an opportunity to learn and grow. It is theorized that assuming a GS orientation increases a person's resistance to MDD, as failures in these pursuits are considered an inherent part of the learning process, and not reflective of the individual's competency, likability, or self-worth. Conversely, an individual with a VS orientation is presumed to be particularly vulnerable to MDD, as

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validation-seekers base their self-worth on the achievement of goals, and experience failure as a product of a lack of competency, likability, and worth (Dykman, 1998). In sum, Dykman (1998) suggests that adopting a GS orientation decreases an individual's vulnerability to MDD, whereas adopting a VS orientation increases an individual's vulnerability. Based upon Dykman's (1998) depiction of goal pursuit, it may be that individuals with a validation-seeking orientation (who are thereby vulnerable to MDD), who continually fail to achieve promotion goals (thought to characterize individuals with MDD), may not only feel dejected from not attaining the goal and receiving environmental cues of failure, but may also feel as though their self-worth is continually invalidated. Theoretically, adopting a VS orientation has the potential to interfere with goal generation. As Dykman (1998) suggests, individuals with a VS orientation experience anticipatory anxiety during goal pursuit, and tend to view goals as events in which individuals can fail, or their self-worth can be threatened. As a result, goals themselves might become aversive. We theorize that this aversion to goals may result in reduced goal generation by VS individuals, when compared to GS individuals. Unfortunately, the association between goal orientation and goal generation in MDD has rarely been examined.

Do Differences in Goal Generation Reflect States or Traits?

Although several theories posit differences in goal generation between depressed and non-depressed individuals, a dearth of research has been conducted in terms of how these processes may differ in individuals with MDD. Moreover, it is unclear if these deficits remit as an individual's depressive status changes. If deficits in goal generation

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are trait-like, these deficits may be related to vulnerability to MDD onset, to relapse, or to the maintenance of depressive episodes. If, on the other hand, these deficits are state-like features of MDD and fade as mood improves, these deficits are transient features of MDD. Thus, one aim of the current study is to address the functional significance of these deficits, by comparing goal generation, motivation, and goal orientation in individuals who are experiencing a depressive episode at the time of testing, with individuals who had a depressive episode that has remitted, and never-depressed controls.

Limitations of Previous Research

Although Dickson and MacLeod (2004, 2006), and Dykman (1998) paved the way for examining deficits in goal generation in depression, the theories set forth by these researchers have not been adequately tested with individuals who are currently depressed, or remitted-depressed. These studies, however, have implemented unique strategies to assess goal generation. As such, we have utilized the strategies developed by Dickson and MacLeod and Dykman to assess the manner in which goal generation varies as a function of depressive status.

Dickson and MacLeod (2004, 2006) examined approach and avoidance goal generation in dysphoric and "depressed" individuals. In each study, the groups of interest were determined by cut-off severity scores on self-report depression symptom scales. Although self-report measures add incremental knowledge regarding how intensely a low mood is being experienced by an individual, it does not connote MDD diagnosis. As previously mentioned, MDD diagnosis requires the endorsement of at least one cardinal symptom and multiple associated symptoms of MDD, yielding a total of 5 depressive

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symptoms that have caused impairment for at least two weeks. The self-report measures used in the studies by Dickson and MacLeod (2004, 2006), namely the Beck Depression Inventory-II (BDI-II; Beck, Steer & Brown, 1996) only assess the severity of depressive symptoms. Because persons with a high symptom score on the BDI-II may or may not have a diagnosis of MDD it is unclear if the results from the dysphoric samples tested in Dickson and MacLeod (2004, 2006) studies generalize to individuals who suffer MDD.

Extant studies provide insight into how individuals with low mood may differ from individuals without low mood in generating goals (Dickson & MacLeod, 2004, 2006), and how goal orientation may predict depressive symptoms amongst individuals who are experiencing stressful events (Dykman, 1998). Yet, it remains unclear as to how goal generation and goal orientation may vary as a function of depressive status. As such, the current study seeks to model the designs utilized by Dickson and MacLeod (2004, 2006) and Dykman (1998) in an attempt to examine how goal generation and goal orientation vary as a function of depressive status.

The Current Study

As MDD can be construed as a disorder that affects the domains of motivation, cognition, and affect (Strauman et al., 2006), the construct of goal generation, which involves all of these domains, is potentially integrative (Dykman, 1988; Dickson & MacLeod, 2004, 2006; Strauman et al., 2006). Specifically, approach goal and avoidance goal generation was examined in currently depressed, remitted-depressed and never-depressed control participants. The format in which these goals were examined was loosely based upon the design of Dickson and MacLeod (2004, 2006). To allow

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better generalization to MDD, groups were constituted from scores on the Inventory for Diagnosing Depression (IDD; Zimmerman, Coryell, Corenthal, & Wilson, 1986) to determine current depressive status, and the Inventory for Diagnosing Depression-Lifetime (IDD-L: Zimmerman & Coryell, 1987b) to determine depression history (instruments which correlate highly with diagnostic criteria for MDD).

Specific Aims

The general aim of the study was to compare goals and goal orientations across currently depressed (CD), remitted-depressed (RD), and never-depressed (ND) individuals. The specific aims were as follows:

Specific Aim 1: Compare the generation of approach and avoidance goals across groups.

Hypothesis 1a: Currently depressed individuals will generate fewer promotion/approach goals than never-depressed controls. This prediction is supported by theory (Strauman et al., 2006; Dykman, 1998)) and empirical findings (Dickson & MacLeod, 2004, 2006) that suggest that individuals with low mood generate fewer promotion/approach goals than individuals without low mood.

Hypothesis 1b: Remitted depressed individuals will generate fewer approach goals than never-depressed controls, but more approach goals than currently depressed individuals. As depression is a highly recurrent disorder, we reasoned that deficits in approach goal generation would be trait-like. We also expected that CD individuals would exhibit more severe deficits in approach goal generation than RD individuals, as current mood impairment is likely to exacerbate goal generation deficits. Thus we predicted that RD individuals would generate more approach goals than CD individuals, but not be able to generate as many promotion/approach goals as ND controls.

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Hypothesis 1c: Currently depressed, remitted-depressed, and never-depressed control individuals will not differ significantly in the generation of avoidance goals. Although research by Dickson and MacLeod (2004, 2006) suggests that dysphoric individuals generated more avoidance goals than non-dysphoric individuals, the difference was not statistically significant. Given the limited theoretical and empirical basis for predicting differences in the generation of avoidance goals, we did not expect group differences in this domain (Dickson & MacLeod, 2004, 2006).

Specific Aim 2: Examine the mediational role of BAS sensitivity in goal generation as a function of depressive status.

Hypothesis 2: BAS sensitivity will mediate the relationship between depressive status and approach goal generation. As the behavioral systems are thought to have a key role in motivation and affect within MDD, we expected that sensitivities to the BAS system would mediate the relationship between MDD status and approach goal generation.

Specific Aim 3: Examine the mediational role of goal orientation in the generation of promotion/approach and avoidance goals as a function of depressive status.

Hypothesis 3: Validation-seeking orientation will mediate the relationship between depressive status and approach goal generation. Dykman (1998) suggests that adopting a validation-seeking goal orientation not only increases an individual's vulnerability to future depression, but is also predictive of current symptoms. For this reason, we expected that individuals with a history of MDD would be more likely to

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adopt a validation-seeking goal orientation than never-depressed controls. This orientation, in turn, may cause an individual to avoid generating and pursuing approach goals, as they may be more difficult to achieve for individuals with a history of MDD (Strauman et al., 2006), thus posing a greater threat to a validation-seeking individual's self-worth. As such, we predicted that goal orientation would mediate the relationship between depressive status and approach goal generation.

Exploratory Aims

Specific Aim 4: Examine the number of goals generated and domains of generation as function of depression status.

Hypothesis 4: Currently depressed and remitted-depressed participants will generate fewer goals in fewer domains overall than never-depressed participants. As previously discussed, individuals with MDD may generate and fixate upon a single goal (Champion & Power, 1995), within a single domain, and may not be able to perceive alternative goals. As such, we explored whether CD and RD individuals would generate fewer goals in fewer domains overall than ND controls.

Specific Aim 5: Examine the average level of abstractness of goals as a function of depression status.

Hypothesis 5: Currently depressed and remitted-depressed participants will generate more abstract goals overall than never-depressed participants. Abstract goals are thought to be more difficult to achieve (Emmons, 1992), harder to disengage from, as well as being more related to an individual's overriding sense of self-worth (Carver & Scheier, 1988) than concrete goals. As the pursuit of abstract goals has been shown to increase negative affect and low mood (Street, 2002), and improperly disengaging from a goal is suggested to promote MDD (Nesse, 2000), we explored whether CD and RD individuals would generate more abstract goals than ND controls.

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Method

Participants

Participants were recruited through an online volunteer participant pool coordinated by the University of South Florida Psychology department. Six hundred twenty-seven female undergraduates participated in the online portion of the study. Based on their responses to the online questionnaires, 274 individuals were invited to participate in the laboratory portion of the study. One hundred twelve individuals agreed to participate in the laboratory portion, and 84 participants provided responses that qualified them for the final group assignments. For the purposes of this study, the first 20 participants eligible for each group were included in the analyses, to render the final sample of 60 participants. Final participants were female, between the ages of 18 and 55, and fluent English speakers. The final sample approximated the racial distribution of the University of South Florida undergraduate population: 67.2 % Caucasian, 14.8% African-American, 8.2% Asian, 1.6% Latino, 1.6% Native American, and 4.9% other. Table 1 contains demographic information of the sample by group.

Table 1. Demographic information

Demographics	ND	CD	RD
Age [Mean (SD)]	21.90 (5.09)	20.60 (5.29)	21.90 (6.03)
Race [Frequency (%)]			
Caucasian	10 (50)	14 (70)	17 (85)
African-American	6 (30)	2 (10)	1 (5)
Asian	2 (10)	2 (10)	1 (5)
Latino	1 (5)	0	0
Native American	0	1 (5)	0
Other	1 (5)	1 (5)	1 (5)
Education [Mean (SD)]	14.80 (1.28)	14.10 (1.21)	14.65 (1.14)
Marital Status [Frequency (%)]			
Single	17 (85)	16 (80)	15 (75)
Married	2 (10)	1 (5)	1 (5)
Living with Domestic Partner	1 (5)	1 (5)	2 (10)
Divorced	0	1 (5)	2 (10)
Widowed	0	1 (5)	0

Materials

Group Determination. The Inventory to Diagnose Depression (IDD;

Zimmerman, et al., 1986) was utilized to determine the presence of a current depressive

episode. The IDD consists of 22 items that cover the full range of depressive symptoms.

Scores range from 1 (no disturbance) to 5 (symptom presence) in ascending order of

severity. The IDD also assesses the duration of each symptom (present for either more or

less than 2 weeks). Meeting diagnostic criteria for depression on the IDD requires a

score of a "3" for low mood, irritability, or hopelessness, or a "4" or higher on the

anhedonia items. Additionally, an individual must score a "3" on four of the eight items

that describe the supplementary symptoms of depression, as well as endorse that these

symptoms have been present for at least 2 weeks.

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The IDD has high reliability (α=.98), high internal consistency (α=.92), as well as a high Spearman-Brown split half reliability (α=.91; Zimmerman & Coryell, 1987a). In addition, the IDD has high specificity (98.5%) and acceptable sensitivity (54.5%), and high concordance with diagnoses of depression rendered by the Diagnostic Interview Schedule (97.2% agreement; Zimmerman & Coryell, 1987a).

The Inventory to Diagnose Depression Lifetime Version (IDD-L; Zimmerman & Coryell, 1987b) was utilized to determine history of depressive episodes. The format and scoring is identical to that of the IDD. The directions on the IDD-L direct the individual to focus on the period in her/his life during which s/he was feeling the most depressed. The IDD-L also includes questions regarding what may have caused or precipitated the depressive episode, and if the individual sought treatment. The IDD-L has similar internal consistency to the IDD (α=.92), a high Spearman-Brown split-half reliability (.90). In addition, the IDD-L has a high concordance rate with the DIS for lifetime diagnosis of MDD (k=.60) high specificity (93%) and adequate sensitivity (74%; Zimmerman & Coryell, 1987b).

Groups were determined as follows: Currently depressed (CD) met criteria for a current mood episode as based on the score derived on the IDD, but was not required to have endorsed a past episode on the IDD-L. The CD group was not required to have past episodes of depression, as determined by the IDD-L. Recovered depressed (RD) required that individual endorsed past experience of a mood episode on the IDD-L but no current mood episode on the IDD. Never depressed (ND) required that an individual did not endorse a current or past mood episode, as determined by scores on the IDD or IDD-L.

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Structured Clinical Interview for the DSM-IV-TR Axis I Disorders, Research Version, Patient Edition with Psychotic Screen (SCID-I/P W/PSY SCREEN; First et al., 2002). In order to increase confidence in the assessment of MDD, 10 individuals from the CD group were randomly selected to have the overview and mood modules of the SCID-I completed. Due to researcher oversight, however, only 9 eligible participants were approached. The SCID-I is a semi-structured interview that assesses for psychopathology as prescribed by the DSM-IV.

Upon completion of the laboratory portion of the study, eligible participants were invited to participate in a separate laboratory session, during which the mood module of the SCID-I would be completed.   Participants were offered additional course credit for participation in this portion of the study. The interviews were audtiotaped and were completed by a clinical psychology graduate student, who was not blind to participant status. Of the CD participants, nine were approached to participate in the SCID portion of the study, and 8 agreed. Although the IDD and the SCID did not converge completely (4 met MDD diagnosis on both assessments, 1 endorsed the core symptom of hopeless on the IDD not captured by the SCID-I, 1 endorsed 4 supplemental symptoms on the IDD but only 3 were captured on the SCID-I, and 2 failed to meet criteria for other reasons on the SCID-I), the IDD did appear at a minimum to identify persons with significant depressive symptomology.

Anxiety. Johnson et al. (2003) suggest that anxiety symptoms that present with depression may confound depression-related group differences. To permit a post hoc statistical control for the possible influence of mood-state-dependent anxiety, we

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administered the Beck Anxiety Inventory (BAI; Beck, Brown, & Steer, 1988). The BAI is 21-item self-report questionnaire that assesses the presence of anxious symptoms, with scores rated on a scale of 0 (symptom not present) to 3 (symptom is present and severe). The BAI has high internal consistency (α=.92), and adequate test-retest reliability (α=.73; Beck, Brown, & Steer, 1988).

Dispositional Behavioral Inhibition and Activation Sensitivities. The Behavioral Inhibition System/Behavioral Activation System Scale (BIS/BAS; Carver & White, 1994) is a 20-item self-report questionnaire that assesses BIS and BAS sensitivity. Responses are coded on a 4-point likert scale, ranging in response of "very true for me" to "very false for me." The measure includes four subscales: BIS or punishment sensitivity, Drive, Fun Seeking, and Reward Responsiveness. The BIS scale loads onto BIS sensitivity, while the other three load on BAS sensitivity. The reliability statistics for three of the four subscales are adequate and range from .66 to .76 (BIS: α=.74, Drive: α=.76, Fun Seeking: α=.66, and Reward Responsiveness: α=.73). Retest reliabilities are a slightly lower, and range from .59-.69 (Carver & White, 1994).

Goal Orientation Inventory. The Goal Orientation Inventory (GOI; Dykman, 1998) is a 36-item self-report questionnaire that assesses the extent to which an individual possesses a validation-seeking (VS) or growth-striving (GS) goal orientation. Items consist of narratives that are considered to describe facets of validation-seeking (proving self worth) and growth-striving (learning) orientations. Below are examples of validation-seeking and growth-striving narratives:

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VS: "Instead of just enjoying activities and social interactions, most situations to me feel like a major test of my basic worth, competence, or likeability."

GS: "I look upon potential problems in life as opportunities for growth rather than as threats to my self-esteem."

Responses are coded on a 7-point likert scale, ranging in response from "strongly disagree" to "strongly agree." Both scales consisted of 18 items (VS: 1, 4, 6, 7, 9, 12, 15, 16, 18, 21, 22, 24, 26, 29, 30, 32, 34, 36; GS: 2, 3, 5, 8, 10, 11, 13, 14, 17, 19, 20, 23, 25, 27, 28, 31, 33, 35). Subscale scores were calculated by summing ratings of each item on the subscale. Total goal orientation score was calculated by subtracting the GS subscale score from the VS subscale score. Higher scores denote a VS orientation, while lower scores denote a GS orientation. Reliabilities for the VS and GS subscales are quite high (VS: $\alpha=.97$, GS: $\alpha=.96$, Total: $\alpha=.97$), while test-retest reliabilities are slightly lower (VS: $\alpha=. 76$, GS: $\alpha=.78$, Total: $\alpha=.82$; Dykman, 1998).

Goal Generation. The Revised Goal Task was created for the current project, and included two timeframes in which individuals were asked to generate goals: current and future. For the current task, participants were given the following prompt:

Please list all the goals that you are either actively pursuing, or considering pursuing in the next 6 months. These can be goals that you feel it will be important for you to accomplish, or goals that involve avoiding certain situations or preventing certain outcomes.

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For the future task, participants were given the following prompt:

Please list all the goals that you are NOT currently pursuing, but are considering pursuing in the future. These can be goals that you feel it will be important for you to accomplish, or goals that involve avoiding certain situations or preventing certain outcomes.

Future and current subtasks of the Revised Goal Task were administered in counterbalanced order across participants. Goals were be examined by comparing sums of each type of goal generated, as well as by examining the proportion of abstract goals within the total amount of goals generated. After participants listed their goals, they were asked to make 4 subjective ratings of importance, likelihood of achievement, impact on one's life if the goal was achieved, and expected pleasure of achieving generated goals. All ratings were based on a scale of 1 (low) to 10 (high). The information generated in this section created subjective ratings of goals (Appendix).

Procedure

This study was completed in two phases: an online pre-screen and a laboratory session. The online portion was conducted via an online psychology volunteer pool coordinated by the University of South Florida Psychology department. During this session, participants were asked to complete the BIS/BAS, IDD, and IDD-L. Scores on the IDD and IDD-L were used to determine group status. If eligible, participants were provided an invitation code (via email) to sign-up for the laboratory session. During the laboratory portion, participants were consented, and asked to complete the following scales: Demographic questionnaire, Revised Goal Task, GOI, IDD, and BAI. The IDD

was re-administered to confirm group status. A subset of eligible participants completed the SCID interview. Following completion of study participation, all participants were debriefed.

Goal Coding

The Revised Goal Task asked participants first to list the goals they are currently pursuing (current task) or plan to pursue in the future (future task). The goals generated were coded for orientation, complexity, abstractness, and domain by 4 undergraduate research assistants. All research assistants were blind to all hypotheses, as well as participant status. Each research assistant coded all goals independently. Ratings were then entered into a database, which was then examined for interrater discrepancies. Discrepancies were then discussed between the raters until a consensus rating was reached. The consensus ratings were those used in the final analyses.

Typology (Approach v. Avoidance). Approach goals were defined as those which describe movement towards achieving a desired state, or promoting engagement with the environment (i.e., apply to graduate school; Higgins, 1996; Dickson & MacLeod, 2004, 2006). Avoidance goals were defined as those which described the prevention of an unwanted event, or withdrawal from the environment (i.e., do not fail a course this semester; Higgins, 1996; Dickson & MacLeod, 2004, 2006). Interrater reliability for typology was high (α= .81).

Complexity (Simple v. Complex). Simple goals were defined as those which involved only a single step, such as (i.e., take a Psychology course next semester," whereas complex goals were larger goals involving multiple steps (i.e., graduate from

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college with a B.A. in Psychology; Street, 2002; Carver & Scheier, 1990). Interrater reliability for complexity was high (α= .81).

Abstraction (Abstract v. Concrete). Abstract goals were defined as those which lacked a clear endpoint at which achievement could be defined (i.e., become a model citizen) whereas concrete goals, conversely, were those which did have a clearly defined endpoint (i.e., volunteer in the community next weekend; Emmons, 1992). Interrater reliability for abstraction was high (α=.83).

Domain. Goals were categorized into the following mutually exclusive domains: social, professional, scholastic, family, financial, appearance, lifestyle, and other. Goals falling within the social domain typically involved themes regarding friendships, social networking, or engaging in social activities. Professional goals typically discussed themes such as the maintenance or promotion of one's job, changing jobs, or developing a career. Scholastic goals usually referred to attaining a specific grade in a class, graduating from college, or applying for graduate school. Goals related to family either involved maintaining or repairing a relationship with one's family of origin, or creating a family of one's own. Financial goals involved those which pertained to money or one's financial status. Appearance goals typically involved wanting to change or maintain one's weight, but could have also involved wanting to change one's hair color or cut, or undergo plastic surgery. Goals which spanned more than 2 domains were classified as "lifestyle." Lifestyle goals were classified as those which spanned more than one of the aforementioned domains. Goals such as traveling or relocating were considered lifestyle goals. Goals not falling clearly within any of the aforementioned domains were

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described as "other." Interrater reliability for domain, the consistency with which raters agreed upon the domain which best described each goal, was high (α=.81).

Results

Descriptives. Individuals, irrespective of group, typically generated between 5 and 6 goals on the current and future subtasks of the Revised Goal Task. A significant majority (98%) of these goals were determined to be approach goals. Interestingly, many individuals generated approach goals relating to pursuing an academic degree (scholastic domain), going on vacation or relocating (lifestyle), getting married (family domain), and having children (family domain) (Table 2).

Goal Generation (Specific Aim 1: Comparison of approach and avoidance goals across groups). We anticipated that CD individuals would generate the least number of approach goals, followed by RD individuals who were predicted to generate more approach goals than CD individuals, but fewer approach goals than ND individuals.   A 3 (depressive status: CD, ND, RD) by 2 (task: current, future) Multivariate Analysis of Variance (MANOVA) failed to reveal significant group differences in the amount of approach goals generated [$F(2, 57)=.92$, $p=.46$] (Table 2).

A 3 (group) by 2 (task) MANOVA revealed the anticipated lack of group differences in the generation of avoidance goals [$F(2, 57)=.34$, $p=.85$] (Table 2). As the results suggest that a floor effect for the generation of avoidance goals is present, it is possible that the Revised Goal Task may not be the ideal task for examining group differences in avoidance goal generation.

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Although we collected BAI data for potential use in covariate analyses, we ultimately decided not to pursue this analysis. First, use of covariates in group analyses when groups differ significantly on the proposed covariate is controversial (Miller & Chapman, 2001). Second, covariates are typically described as nuisance variables. Anxiety is highly comorbid with MDD (APA, 2000),; in this respect, it is unclear whether it represents a substantive or a confounding variable.

Table 2. Goal coding results by group and goal domain

Goal Typology	Group		
	ND	CD	RD
Current Approach	5.20 (2.33)	5.50 (1.93)	6.10 (3.37)
Future Approach	5.40 (1.96)	6.50 (2.42)	5.05 (2.84)
Current Avoidance	.05 (.22)	0.25 (0.91)	0.25 (0.55)
Future Avoidance	.05 (.22)	0.10 (0.31)	0.10 (0.45)
Total Goals	10.70 (3.83)	11.45 (3.98)	11.50 (6.00)
Objective Rating			
Total Abstract	5.25 (2.34)	4.40 (3.17)	3.55 (3.30)
Total Concrete	5.45 (1.85)	7.40 (3.50)	8.30 (4.12)
Total Simple	3.20 (2.57)	5.65 (2.18)	5.45 (3.02)
Total Complex	6.25 (3.06)	6.15 (2.81)	6.40 (4.11)
Domain			
Total Scholastic	3.20 (1.74)	3.20 (2.04)	2.90 (1.55)
Total Lifestyle	1.90 (1.55)	2.00 (1.38)	2.60 (1.81)
Total Professional	1.70 (0.98)	1.35 (0.81)	1.50 (1.05)
Total Family	1.50 (0.89)	1.65 (1.50)	1.55 (1.47)
Total Social	0.65 (0.99)	0.95 (1.64)	0.55 (0.83)
Total Financial	0.05 (0.22)	0.05 (0.22)	0.05 (0.22)
Total Appearance	0.65 (0.93)	0.60 (0.88)	1.20 (1.32)
Total Other	1.05 (1.82)	2.00 (1.97)	1.50 (2.01)

Note: Values represent means and standard deviations of number of goals generated for each objective description

Because group differences in approach-related goals failed to emerge, it was not possible to examine the mediational roles of BAS sensitivity and goal orientation. These factors are worthy of future examination in regards to goal generation, as they may

influence how individuals perceive and value goals. These factors, in turn, may relate to the subjective ratings of goals previously described. As such, we proceeded to examine group differences in behavioral system sensitivity and goal orientation.

Behavioral System Sensitivity (Specific Aim 2: Examination of the meditational role of BAS sensitivity in goal generation as a function of depressive status). We hypothesized that BAS sensitivity would mediate the relationship between depressive status and approach goal generation. This analysis was precluded by the lack of group differences in approach goal generation. We did, however, examine group differences in BAS and BIS sensitivity. We anticipated that CD individuals would have lower BAS sensitivity than RD individuals, who in turn would have lower BAS sensitivity than ND individuals. A one-way ANOVA was conducted to examine group differences in BAS sensitivities. Surprisingly, groups did not differ on BAS sensitivity [$F(2, 57)=.58$, $p=.56$]. We also planned to examine group differences in BIS sensitivity, anticipating that groups would not differ in BIS sensitivity. A 3 (group) by 1 (BIS sensitivity) suggested that groups did in fact differ in BIS sensitivity [$F(2, 57)=4.64$, $p=.01$], such that CD individuals had significantly higher BIS scores than ND individuals (see Table 3).

Goal Orientation (Specific Aim 3: Examination of the mediational role of goal orientation in the generation of approach and avoidance goals as a function of depressive status). As before, we could not test the hypothesis that adopting a validation-seeking (VS) goal orientation would mediate the relationship between depressive status and approach goal generation because the groups did not differ in approach goal

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generation. We did examine group differences in goal orientation. More specifically, we hypothesized that CD individuals would have higher GOI scores (adopt a VS orientation) than RD individuals, who in turn would have higher GOI scores than ND individuals (adopt a GS orientation). A one-way ANOVA was performed to examine group differences in GOI scores. Results revealed a main effect of depressive status on GOI orientation [$F(2, 57)=13.44$, $p=.0001$], such that CD individuals adopted a VS orientation, while ND and RD individuals adopted a GS orientation. This suggests that CD individuals tend to view goals as opportunities to prove (or disprove) their self-worth, and ND and RD individuals tend to view goals as opportunities to learn and grow. Pairwise comparisons revealed that CD individuals had significantly higher overall GOI scores than ND and RD individuals ($p=.0001$), and RD individuals had significantly higher GOI scores than ND individuals ($p=.001$; see Table 3).

Table 3. Scale scores

	Group		
	ND	CD	RD
IDD Symptom Total	0.10 (0.31)[b]	6.80 (2.42)[a]	0.65 (0.88)[b]
BAI	5.79 (5.07)[b]	19.80 (8.84)[a]	9.40 (5.87)[b]
BAS	41.50 (5.53)	39.80 (6.16)	41.35 (4.74)
BIS	21.00 (3.42)[b]	24.15 (3.29)[a]	22.60 (3.08)[ab]
GOI	-46.95 (27.51)[c]	11.75 (42.81)[a]	-22.70 (35.98)[b]
VS	48.95 (21.61)[b]	84.60 (22.95)[a]	61.95 (26.26)[b]
GS	95.90 (11.87)[b]	71.85 (22.26)[a]	84.65 (17.83)[b]

a,b,c denote group differences p<.01

Number of Goals and Domains of Generation (Specific Aim 4: Examination of the number of goals generated and domains of generation as function of depression status). We hypothesized that CD individuals would generate fewer goals across fewer domains than RD and ND individuals. A 3 (group) by 2 (task) MANOVA was conducted to

analyze group differences in the number of goals generated across groups. Results

suggest that individuals generated similar numbers of goals across all time points [*F(2,*

57)=1.03, *p*=.40].

A 3 (group) by 8 (domain: scholastic, professional, family, social, financial,

appearance, lifestyle, other) MANOVA revealed that individuals generated similar

numbers of goals across domains irrespective of depressive status [*F*(2, 57)=.84, *p*=.64].

In addition, results from a one-way ANOVA revealed that groups did not differ

significantly in the number of domains in which goals were generated [*F*(2, 57)=.29,

p=.75] (Table 2).

Exploratory Analyses.

All exploratory analyses were conducted using overall (current and future

combined) ratings of goals, unless otherwise specified.

Level of Abstraction (Specific Aim 5: Examination of the average level of

abstractness of goals as a function of depression status). We hypothesized that CD and

RD individuals would generate more abstract goals overall than ND individuals. Results

from a one-way ANOVA suggest that groups generated similar numbers of abstract goals

[*F*(2, 57)= .83, *p*=. 44]. We also examined the possibility that CD and RD individuals

may generate fewer concrete goals than ND individuals; however the results from a one-

way ANOVA suggest that groups generated similar numbers of concrete goals [*F*(2, 57)=

.36, *p*=.70] (Table 2).

Level of Complexity. We hypothesized that CD and RD individuals were generate

more complex goals overall than ND individuals. Results from a one-way ANOVA

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suggest that irrespective group status, individuals generated similar numbers of complex goals [$F(2, 57)=.03$, $p=.97$] . We also examined the possibility that CD and RD individuals would generate fewer simple goals than ND individuals, but results from a one-way ANOVA did not support this hypothesis, as it appears that groups generated similar numbers of simple goals [$F(2, 57)=1.21$, $p=.31$] (Table 2).

Subjective Ratings. Four separate one-way ANOVAs were conducted to analyze group differences in achievability, expected pleasure, importance, and impact. In all cases significance, groups did not differ in their appraisals concerning the likelihood of achieving goals, the amount of enjoyment expected from achieving these goals, the potential impact the goals have on their lives, or the importance of the goals (ps>.2, Table 4).

Table 4. Subjective ratings

| | Group | | |
Subjective Rating	ND	CD	RD
Achievement	8.34 (1.21)	7.70 (1.10)	8.07 (1.19)
Pleasure Expected	8.91 (0.76)	8.64 (1.68)	9.03 (1.13)
Importance	8.31 (0.92)	8.57 (0.98)	8.50 (0.73)
Impact	8.22 (1.01)	8.40 (1.07)	8.56 (0.89)

Values represent means and standard deviations

Depressive symptoms and goal generation. As the results from the group-level analyses of goal generation were counterintuitive, contrary to theory, and contradictory to the few empirical studies of the topic, we also tested our hypotheses utilizing a correlational approach, which should have greater statistical power. As such, we proceeded to conduct several independent regression analyses between the number of depressive symptoms endorsed and ratings of goal generation.

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Table 5. Mean number of depressive symptoms by group.

Status	Number of Symptoms
ND	.10 (.31)
CD	6.8 (2.40)
RD	.65 (.88)

Values represent means and standard deviations.

First, we conducted several independent regression analyses to examine the relationship between depressive symptoms and approach goal generation, avoidance goal generation, and total goal generation. Consistent with group-level results, all regressions failed to reach significance (ps>.1) reinforcing the initial null findings. In addition, several regression analyses were performed to examine the relationship between depressive symptoms, and the generation of abstract goals, concrete goals, simple goals, and complex goals. Again, all regressions failed to reach significance (ps>.1).

Lastly, several independent regression analyses were performed to examine the relationship between depressive symptoms and subjective ratings of goals. Results revealed a significant relationship between number of depressive symptoms and ratings of achievability ($R^2 =.11$, $p=.009$), such that as the number of symptoms increased, ratings of achievability decreased. Similarly, there was a significant relationship between the number of symptoms and subjective ratings of expected enjoyment ($R^2= .08$, $p=.03$), such that as the number of symptoms increase, ratings of expected enjoyment decreased. Conversely, there were no relationships between number of symptoms and ratings of importance and impact of goal achievement (ps>.5).

Discussion

Although many theories attempt to explain the manner in which deficits in goal generation may lead to an episode of Major Depressive Disorder (MDD), few studies have actually described how persons with depression vulnerability generate goals for themselves. The current project examined potential differences in multiple aspects of goal generation as a function of depressive status (current, remitted, never-depressed). Although we anticipated that individuals with a history of depression would generate fewer approach goals, more abstract goals, more complex goals, and fewer goals across fewer domains than never-depressed individuals, our results did not support these hypotheses. Instead, we found remarkable similarity in multiple aspects of approach goal generation, irrespective of depressive status, and regardless of whether continuous or group-level analyses were used.

Although surprising these findings do not represent a major contradiction of prior empirical work, given that much of the previous work in this area has been primarily theoretical. Although it is suggested that individuals with MDD *should* generate fewer goals (Champion & Power, 1995) across fewer domains (Champion & Power, 1995, Strauman et al., 2006), and also *should* have the tendency to generate more abstract (Emmons, 1992; Carver & Scheier, 1998) and complex goals (Carver & Scheier, 1990;

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Street, 2002) than never-depressed individuals, these theories have yet to be supported empirically.

Although limited, previous empirical work by Dickson and MacLeod (2004, 2006) has loosely supported the theoretical work of Higgins (1997) and Strauman and colleagues (2006), which suggests that depressed individuals should generate fewer approach goals than never-depressed individuals. In samples of adolescents high in self-reported ratings of depressive symptoms, Dickson and MacLeod (2004, 2006) found that individuals high in depressive symptoms did in fact generate fewer approach goals than individuals low in depressive symptoms. Because their samples differ in age and severity from the current study, it is unclear whether our null results represent a direct conflict with Dickson and MacLeod or represent differences in study construction.

To examine whether individuals with and without a history of depression differ in the types of goals they generate, we followed in the footsteps of Dickson and MacLeod (2004, 2006) and examined the relationship between depressive symptom severity and various aspects of goal generation. Here too, regression analyses revealed no significant relationships between symptom severity and approach goal generation, avoidance goal generation, number of abstract, concrete, simple, or complex goals, or the overall number of goals and domains in which goals were generated. As such, it appears that the results of the current project are both counter theory and previous empirical work (see below for discussion).

The multi-dimensional approach of the Revised Goal Task allowed individuals to generate subjective ratings of the importance, achievability, impact, and expected

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pleasure of generated goals. Although no specific hypotheses were stated regarding these ratings, group-level analyses did not reveal differences in any of the subjective ratings. Following suit of the previous analyses, we conducted several independent regression analyses to examine the relationship between depressive symptom severity and subjective ratings of goals. Results suggest that as the severity of depressive symptoms increases, ratings of achievability and expected pleasure associated with goals decreases. These findings are consistent with both intuition and theory (Carver, 2001).

Lastly, it is of worth to note the extremely low number of avoidance goals generated by the Revised Goal Task. The meager number of avoidance goals ((i.e., means < 0.25), made it difficult to examine group differences in avoidance goals because of a floor effect. In previous work, Dickson and MacLeod (2004, 2006) were able to elicit significantly higher numbers of avoidance goals from high anxiety, mixed anxiety and depressed, and depressed, and control adolescents (*M*=4.04), and dysphoric and non-dysphoric adolescents (*M*=3.90). Methodological differences may explain why Dickson and Macleod found higher levels of avoidance goals (as well as the group differences in avoidance goal generation) and we did not. Dickson and MacLeod utilized a two-part design: one part focused upon approach goal generation, while the other focused upon avoidance goal generation (as opposed the current project's focus upon time). For the approach goal task, directions were as follows: "In the future it would be important for me to [try] …and the directions for the avoidance task were as follows: "In the future it would be important for me to [try to] avoid…" As such, it is possible, if not likely, that explicit direction to generate goals of a certain type (i.e., avoidance goals) strongly

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influence on how many goals of that type are listed. It would be useful to examine the types of goals that individuals spontaneously generate for themselves (without directions for orientation or timeframe), to clarify whether individuals naturally generate both approach and avoidance goals.

As there is a dearth of empirical literature in this area, the current project was forced to develop hypotheses based on theoretical work. In order to better understand the results of the current project, we examine limitations in our own work and the small amount of previous empirical work in this area. First, it is possible that counter to theory and previous research, individuals who are vulnerable to MDD truly do not differ in the generation of approach and avoidance goals, or the number, domains, level of abstraction, and level of complexity of self-generated goals. Or it is possible that population-level group effects may exist but be smaller than our study was powered to detect.   Therefore, we decided to conduct power analyses with the current sample of 60 individuals, in order to determine what type of power we had to determine moderate and large effect sizes.

The multivariate analyses conducted to examine differences in approach goal generation, avoidance goal generation, our statistical power to detect a moderate effect size ($f^2 = .25$) at an alpha-level of $\alpha = .05$ with the current sample was .95. The univariate analyses conducted to examine group differences in BIS and BAS sensitivity, GOI scores, BAI scores, total number of goals generated, the number of domains in which goals were generated, level of abstraction, level of complexity, and analyses of subjective ratings of goals our statistical power to detect a large effect size ($f^2 = .5$) at an alpha-level of $\alpha = .05$ with the current sample was .96. Lastly, the multivariate analyses conducted to

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examine group differences in the number of domains in which goals were generated, our statistical power to detect a moderate effect size ($f^2 = .27$) at an alpha-level of $\alpha = .05$ with the current sample was .96. In sum, the current project had adequate power to detect moderate to large effect sizes with the current sample size. If by chance small effects were present (i.e., $f^2 = .10$), our sample size would need to approximate 1548 participants. As small effect sizes are considered rare and difficult to detect (Cohen, 1970), the power analyses presented here increase our confidence that our findings are not a result of an underpowered analyses.

It is also possible that results from the research by Dickson and MacLeod (2004, 2006) do not extend to samples of a different age or a sample with higher severity (i.e., diagnosable MDD). As the authors utilized adolescent samples, classified as being "depressed" or "dysphoric" by the number of symptoms endorsed on a single self-report measure, it is unclear if similar results would be found in older samples with more extreme symptomatology (i.e., actual diagnosis). As we would anticipate that larger group differences would be found in diagnosed samples, more data collection is need on goal generation in diagnosed depressed and non-depressed individuals to determine whether our null findings represent an aberrant result or reveal that diagnosed samples perform differently than symptomatic samples.

Although our results show that individuals, irrespective of depressive status, generated similar types and numbers of goals for themselves, it is quite possible that differences in behavioral system sensitivity and goal orientation may influence the an individual's ability and motivation to effectively pursue goals. Despite the fact that

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analyses failed to reveal significant relationships between behavioral system sensitivity and approach or avoidance goal generation, or between goal orientation and approach or avoidance goal generation (ps<.42), BAS sensitivity was significantly related to ratings of achievement (R^2=.16, p=.002) and expected pleasure (R^2=.11, p=.01). In addition, goal orientation was also significantly related to ratings of achievement (R^2=.11, p=.001) and expected pleasure (R^2=.08, p=.03). More specifically, higher BAS sensitivity and a growth-seeking orientation are associated with higher ratings of achievability and expected pleasure of goals.

These results suggest that although behavioral system sensitivity and goal orientation are unrelated to the types of goals individuals generate, these factors are related to an individual's confidence in her ability to achieve goals, which in turn may be related to goal pursuit deficits. In line with this hypothesis, work by Strauman and colleagues (2006) suggest that individuals with a history of MDD have a history of failure experiences. These failure experiences may result from the use of ineffective goal pursuit techniques (i.e., being overly sensitive to signs of threat and withdrawing from goal pursuit), and may influence how individuals view goal generation and striving (i.e., as threats to their sense of self-worth). In order to explain this thesis further, we turn to the results regarding group differences in behavioral system sensitivity and goal orientation.

Contrary to expectations, groups did not differ in BAS sensitivity, but did differ in BIS sensitivity, such that CD individuals had significantly higher scores of BIS sensitivity than ND and RD individuals. Heightened BIS sensitivity is associated with

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anxiety, nervousness, and behaviors which encourage an individual to withdraw from the environment and decrease goal-related behaviors (Carver & White, 1994). As anticipated, CD individuals were also higher in self-reported levels of anxiety. In regards to goal orientation, results from the current project suggest (consistent with theory) that CD individuals were characterized as adopting a validation-seeking orientation (VS), while RD and ND individuals were characterized as adopting a growth-seeking (GS) orientation, as identified by the Goal Orientation Inventory (Dykman, 1998). These results suggest that CD individuals tend to view goals as a way in which to prove their self worth, and when not achieved pose a threat to their self-worth.

Although speculative, we theorize that individuals do generate similar goals for themselves irrespective of depressive history (as results from the current study suggest), but individuals differ in their ability to effectively stride towards these goals. More specifically, we posit that goal orientation and behavioral system sensitivity may influence an individual's goal striving ability. Results from the current project revealed that CD individuals were unique that that they adopted a VS orientation and had heightened BIS sensitivity when compared to RD and ND individuals. Viewing goals as threats to self-worth, while also having a heightened sensitivity to threat may immobilize goal-related activities, thereby making goal-striving seemingly more difficult. These factors unique to CD individuals may be related to a history of failed goal strivings Strauman and colleagues (2006) suggest is characteristic of individuals with MDD. Although we are unable to speak directly to this hypothesis with the results of the current study, we feel it is important to speculate the influence of motivational factors such as

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goal orientation and behavioral system sensitivity in the larger scheme of goal generation

and goal pursuit.

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Limitations and Future Directions

Sample Demographics. Because this was a sample of undergraduate females, findings may not generalize to other populations. Although previous research failed to find gender differences in goal generation (Dickson & MacLeod, 2004, 2006), it is unclear to what extent the specific goals generated by this particular sample generalize to males (i.e., get married, have a family). In addition, a significant proportion of our participants were in their early 20's and single. Thus, the types of goals and domains in which goals were created (i.e., graduate from college, get married, have a family) may be more prevalent amongst this sample than others, thereby reducing the generalizability of these results.

Sample Severity. The IDD and IDD-L have been shown to converge with the diagnostic interviews, when used with an undergraduate-aged sample (Goldston et al., 1990). Our sample, however, included very few individuals with extreme scores on either measure.   The average number of symptoms endorsed by women identified as depressed by Goldston and colleagues was much higher (M=13.8) than that of the current sample (M=6.8). In addition, it appears that only a subset of individuals identified as CD by the IDD also met diagnostic criteria on the SCID-I. In sum, it appears that the current project's aspirations to recruit a more severe sample than that utilized in previous work (i.e., dysphoric individuals; Dickson & MacLeod, 2004, 2006), did not completely

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succeed. Thus, it is important to acknowledge that the sample recruited here is likely to be a relatively high functioning subset of individuals with a history of MDD, and as such may not be representative of all individuals with a history of MDD. With the recruitment of individuals with more severe levels of MDD, it is possible that differences in the number, level of abstraction and complexity, and domains in which individuals generate goals may emerge.

Context. As the current project was conducted in an academic setting, as partial fulfillment of course credit (on the part of the participants), it is possible that the recurrent scholastic themes seen in the individuals' goals may have been unintentionally cued by the strong academic context surrounding study participation. In addition, it is possible that the groups may differ naturally in the types of cues they generate, but the strong contextual cues may have overridden this tendency, and masked potential group differences in the number and domains of goal generation. Future research should examine goal generation in a more neutral or ambiguous setting in order to better examine the domains in which, and orientation of goals individuals tend to generate.

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Conclusion

Despite the potential limitations of the current project, we feel that the unanticipated findings shed light on the area of goal generation as a function of depressive status. Contrary to theory, individuals with and without a history of MDD did not differ in the numbers of goals within similar domains (Champion & Power, 1995, Strauman et al., 2006), levels of goal abstraction (Emmons, 1992; Carver & Scheier, 1998) or complexity (Carver & Scheier, 1990; Street, 2002). In addition, the findings of the current study challenge those of previous empirical work in this area, in that individuals generated similar types of goals irrespective of depressive history (Dickson & MacLeod, 2004, 2006). As groups did differ in BIS sensitivity and goal orientation, we propose that these aspects of motivation may influence an individual's ability to achieve similar goals.

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Appendices

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Appendix A

Goal Generation Task (Current)

This study is interested in what types of goals people generate for themselves. We define goals as an ambition or achievement an individual would like to occur for him or herself, and is willing to work towards accomplishing.

Please list all the goals that you are either actively pursuing, or considering pursuing in the next 6 months. These can be goals that you feel it will be important for you to accomplish, or goals that involve avoiding certain situations or preventing certain outcomes.

Goals I am currently pursuing or plan to pursue within the next 6 months…	Importance (1= not very important, 10= very important)	Likelihood of Achievement (1=not at all possible, 10=definitely achievable)	Level of Impact (1=no impact, 10=life changing)	Experience of Achieving Goal (1= very unpleasant, 5=not unpleasant, but not pleasant, 10=very pleasant)

Goal Generation Task (Future)

Please list all the goals that you are NOT currently pursuing, but are considering pursuing in the future. These can be goals that you feel it will be important for you to accomplish, or goals that involve avoiding certain situations or preventing certain outcomes.

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Goals that I plan to pursue at some point in the future… (NOT within the next 6 months)	Importance (1= not very important, 10= very important)	Likelihood of Achievement (1=not at all possible, 10=definitely achievable)	Level of Impact (1=no impact, 10=life changing)	Experience of Achieving Goal (1= very unpleasant, 5=not unpleasant, but not pleasant, 10=very pleasant)

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Ratings of Goals

Please rate on a scale of 1-10, how important these goals are to you (1= not very important, 10=very important).

Next to each goal, please rate on a scale of 1-10 how likely you are to achieve this goals (1 = not at all possible; 10= I will definitely achieve this goal).

Next to each goal, please rate on a scale of 1-10 how much impact achieving the goal will have on your life (1= no impact at all; 10= life changing).

Next to each goal, please rate on a scale of 1-10 how you will feel if you achieve this goal (1=little to no satisfaction, 10= extremely happy).

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