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Goal Attainment as a Function of Depressive Status in Women: The Role of Problem-Solving

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Goal Attainment as a Function of Depressive Status in Women:

The Role of Perceived Problem-Solving

by

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Dedication

I am forever grateful for my family and friends. Without their support, this would not have been possible.

Table of Contents

List of Tables

Abstract

Despite the theoretical importance of goal-related deficits in individuals with Major Depressive Disorder (MDD), relatively empirical research has examined goal generation and perceived goal attainment in depression vulnerable individuals. The current project sought to examine the impact of depressive status on perceived goal attainment in currently depressed, remitted depressed, and never-depressed women. In addition, perceived problem-solving skills, a construct thought to be critical for goal striving and in goal attainment was also examined. Unexpectedly, no effects of depressive status on perceived goal attainment or overall perceived problem-solving skills were observed. Results did however reveal group differences in perceived control in problem-solving, and this was associated with perceived goal attainment. These surprising results suggest that developing positive expectations for goal pursuit may serve to aid in goal pursuit among depression-vulnerable populations. Limitations and future directions are discussed.

Introduction

Major Depressive Disorder (MDD) is a chronic and highly recurrent illness that afflicts nearly 20% of the population (Kessler, 2002). A number of theories propose that MDD reduces the quantity and quality of goal-related behaviors, such that during an episode of depression depressed individuals generate fewer goals that promote environmental engagement (Dickson & MacLeod, 2004, 2006; Strauman et al., 2006; Higgins 1996), generate fewer goals across fewer life domains (Champion & Power, 1995; Strauman et al., 2006), and formulate goals that are more abstract (Emmons, 1992; Carver & Scheier, 1990) and complex (Carver & Scheier, 1990; Street, 2002), making goal pursuit more difficult (see Street, 2002). Surprisingly, these theories have rarely been tested and there are only a handful of studies that obtained supportive data in symptomatic (Dickson & MacLeod, 2004) and dysphoric samples (Dickson & MacLeod, 2006). In addition, Brauer (2009) found no differences in goal generation between currently depressed, remitted depressed, and never-depressed college students. As such, the lack of conclusive results suggests that MDD may not influence the generation of goals, but instead may have its greatest effect on the pursuit of goals after goals are generated (Johnson, Carver & Fulford, 2010).

In order to understand why depression may affect goal striving more than goal generation, we must first consider the array of cognitive, affective, motivational, and behavioral deficits associated with MDD, and the manner in which these deficits could impact goal striving and attainment. After defining key terms, we will draw on the

1

literature on problem-solving, likely a crucial aspect of goal striving. Ultimately, we propose a study that is both cross-sectional and longitudinal, in order to assess the relationship between depressive status and goal attainment, the role of perceived problem-solving in this relationship, as well as state and trait effects of depression on perceived goal attainment and perceived problem-solving skills.

Definition of Goals

Goals have been defined in several ways, including the conceptualization of a desired end-state, an aim, motivation to engage in a behavior, or a purpose one strives towards (Ferguson & Porter, 2009; Moskowitz & Grant, 2009). Our working definition incorporates these concepts, defining goals as psychological entities for which an individual has attitudes and affective evaluations, marked by a desired endpoint. This definition was chosen as it represents cognitive, affective, behavioral, and motivational components of goals and goal striving that are suspected to be impacted by MDD. Goal pursuit, in turn, will refer to the cognitive, affective, motivational, and behavioral components involved in the planning and progress towards goal attainment.

Goals may be examined in terms of content or motivation. The content of goals can be analyzed in terms of complexity (i.e., number of steps involved in attainment; Carver & Scheier, 1990; Street, 2002), abstractness (i.e., marked by a clear endpoint or lack thereof; Emmons, 1992; Carver & Scheier, 1990), or orientation (i.e., involve engagement or avoidance of the environment; Dickson & MacLeod, 2004, 2006; Strauman et al., 2006; Higgins 1996). The motivation underlying pursuit may be related to validating one's self-worth, competence, or likability (Dykman, 1998; Dweck & Leggett, 1988), maintaining or enhancing self-esteem (Crocker, Niya, & Villacorta,

2006), creating opportunities to learn or grow (Dykman, 1998; Dweck & Leggett, 1988), or as a basis to compare one's self and abilities to others or a given standard (Grant & Dweck, 2003). One possibility suggested in the literature is that some kinds of goal orientation may be depressogenic. Specifically, pursuing goals to validate one's self-worth or maintain or enhance one's self-esteem may interfere with appropriate goal pursuit and promote vulnerability to MDD (Crocker et al., 2006).

Major Depressive Disorder (MDD)

Major Depressive Disorder (MDD) is a disorder with a defined set of diagnostic symptoms, but is also associated with numerous other cognitive and motivational deficits. The disorder 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, 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 at least five symptoms in total (American Psychiatric Association [APA], 2000). As will be discussed below, several symptoms of depression connect to deficits that bear upon goal striving processes.

Cognitive features of MDD. MDD is associated with reduced attentional control (Preskorn & Drevets, 2009), diminished executive functioning (Ottowitz, Dougherty, & Savage, 2002), and difficulty engaging in problem-solving strategies (Lyubomirsky et al., 1999; Wrosch et al., 2003), and overgeneral cognitions (Williams, 1996; Williams,

3

Heally, & Ellis, 1999; Williams & Broadbent, 1986; Carver & Scheier, 1990; Watkins &Moulds, 2002). In terms of goal pursuit, Kruglanski and Kopetz (2009) suggest that attention to goal-relevant cues is essential in goal striving, as such cues provide information pertaining to progress towards goal attainment, as well as serving as signals to notify the individual that goal-striving strategies may need adjustment, or when problem-solving may be necessary. As such, it appears that goal generation and striving draws heavily upon cognitive generation (i.e., determination of goal), attention (i.e., attending to goal-relevant cues), and executive functioning (i.e., adjusting goal-striving strategies, problem-solving). It is plausible that these cognitive deficits impair goal striving and goal attainment among depressed persons.

Extant research theorizes the manner in which MDD and its associated cognitive deficits impact goal pursuit. Dickson and MacLeod (2004) examined goal generation and goal pursuit plans in depressed and non-depressed adolescents. Depressed adolescents generated fewer and less concrete plans to attain their goals than non-depressed adolescents. Similarly, Dickson and MacLeod (2006) examined goal generation and goal attainment expectancies in dysphoric and non-dysphoric adolescents. Dysphoric adolescents had lower attainment expectancies, and were able to generate more reasons why their goals would not be attained, and fewer reasons why their goals could be attained compared to controls. These results suggest that depressed individuals may be less able to plan for goal pursuit, and feel less capable to manage potential complications in goal pursuit. These results, in combination with the evidenced cognitive deficits associated with MDD (impaired attention, executive functioning, and cognitive generation; Ottowitz et al., 2002; Kruglanski & Kopetz, 2009; Wrosch et al., 2003;

4

Preskorn & Drevets, 2009) highlight that the larger process of problem-solving may be awry. Problem-solving presents as a process which encompasses both awareness of obstacles as well as requisite skills to mitigate them. This process is likely deficient in depression-vulnerable individuals, and as a result may be a key factor relating to unsuccessful goal attainment (Lyubomirsky et al., 1999).

Problem-Solving

Problem-solving, as described by D'Zurilla and Goldfried (1971) has been conceptualized as a multi-stage behavioral process by which individuals develop a variety of responses to a given problem, which in turn increases the likelihood of selecting an effective solution. Problem-solving is thought to encompass several stages: 1.) problem-solving orientation, 2.) problem definition and formulation, 3.) generation of alternative solutions, 4.) decision making or selection of a solution, and 5.) solution implementation and verification (D'Zurilla & Nezu, 1980; D'Zurilla & Goldfried, 1971). Perceived problem-solving refers to an individual's perception of his/her ability to effectively engage in the five stages of problem-solving described by D'Zurilla and Goldfried (1971) (Heppner & Petersen, 1982). Perceived ineffective problem-solving is highly correlated with ineffective problem-solving behavior (ex., avoidance of problems, lower likelihood of engaging in brainstorming; Heppner, Hibel, Neal, Weinstein & Rabinowitz, 1982).

By this definition, goal generation and attainment requires effective problem-solving. First, an individual must recognize an unresolved conflict or desired change, assess his/her ability to generate such change, and estimate the feasibility of making the desired change (problem-solving orientation). Next, an individual typically determines

5

an endpoint to be met, whether it is attaining a goal or resolving a conflict (problem definition and formulation). Then, the individual needs to generate alternatives, either alternative goals be generated to take the place of the original goal if it cannot be attained, or a set of alternative solutions to be employed (generation of alternatives). After options are generated, an individual must select either a goal or a solution, and generate a plan to attain the chosen goal or implement the given solution (decision-making, selection of solution). Finally, individuals must implement the strategy and attend to goal or problem-relevant cues to determine its efficacy (implementation and verification).

A body of work suggests that MDD is associated with impairments in different aspects of problem-solving (Gotlib & Asarnow, 1979; Nezu & Ronan, 1987; Nezu, Nezu, et al., 1986; Ceyhan, Ceyhan & Kurtyilmaz, 2005; Thompson & Heller, 1993; Watkins &Moulds, 2005; Watkins & Baracaia, 2002). Moreover, there is evidence that perceived ineffective problem-solving inhibits appropriate coping with stress to maintain and promote depressive episodes. For example, Thompson and Heller (1993) examined problem-solving in response to vignettes in depressed and non-depressed women. Results indicated that depressed women generated similar numbers of solutions as non-depressed women, but the depressed women's responses were scored as less effective means of problem resolution as they typically involved avoidance or ignoring the problem. Nezu and Ronan (1988) found that that problem-solving moderated the relationship between life stress and depressive symptoms, such that life stress in conjunction with poor problem-solving skills enhanced negative life stress and promoted future depressive symptoms. Prospectively, the use of effective problem-solving skills in

reaction to negative life stress was found to buffer the impact of stressful events and reduce the development of depressive episodes at follow-up (Nezu & Ronan, 1988).

Problem-Solving and the Promotion of MDD

Perceived ineffective problem-solving may not only maintain the current depressive episode, but may represent a vulnerability factor which promotes future episodes of MDD. Nezu (1987) suggests that ineffective problem-solving promotes hopelessness and helplessness, due to its activation of global, stable, and internal attributions of negative events. When such attributions are adopted, an individual feels that negative events will occur irrespective of his/her effort to stop them (Abramson, Seligman, & Teasdale, 1978). As such, ineffective problem-solving may cause individuals to be unable to prevent or solve negative problems, confirming negative causal attributions, which in turn promotes hopelessness and helplessness.

Numerous results indicate that poorer problem-solving skills are related to future depressive episodes, and may degrade efforts to cope with stressors (Nezu, Nezu, & Perri, 1989; Ceyhan et al., 2005; Nezu & Ronan, 1988; Nezu, 1987). In addition, perceived ineffective problem-solving skills predict the development of future depressive episodes following life stress (Nezu & Ronan, 1988; Nezu, Kalmar, Ronan, & Clavijo, 1986). As such, perceived deficient problem-solving promotes stress and depressive symptoms.

Limitations of Previous Research

Despite the numerous theories that are predicated on the impact of MDD on goal generation and goal pursuit, supportive evidence for such theories is relatively limited. The strong prediction that individuals with MDD should generate fewer approach and

more avoidance goals than non-depressed individuals (Higgins, 1996; Strauman et al., 2006) has received only mixed support. Dickson and MacLeod (2006) were able to demonstrate this pattern in dysphoric adolescents, but Dickson and MacLeod (2004) found that dysphoric adolescents generated fewer approach but no more avoidance goals than non-dysphoric adolescents, and Brauer (2009) was unable to detect any impact of MDD on the quantity of goals generated in depressed college students. The prediction that individuals with MDD should generate fewer goals across fewer domains (Champion & Power, 1995; Strauman et al., 2006), has yet to be supported (Brauer, 2009). Finally the prediction that MDD promotes the generation of abstract (Emmons, 1992; Carver & Scheier, 1998) and complex goals (Carver & Scheier, 1990; Street, 2002) has yet to be supported empirically (Brauer, 2009).

Theoretical and empirical works have begun to describe goal pursuit processes in MDD. Johnson and colleagues (2010) suggest that the cognitive deficits associated with MDD do not interfere with goal generation but likely disrupt self-regulatory processes employed during goal pursuit. This theory may help to explain the discrepancy between theory and empirical findings related to goal generation. Supporting this notion, a recent project by Dickson, Moberly and Klinderman (2011) examined goal generation and goal attainment expectancies in currently and never-depressed individuals, and likewise found that depressed individuals generated equal numbers of approach and avoidance goals and equal ratings of importance compared to never-depressed individuals. Dickson and colleagues (2011) did find, however, that currently depressed individuals held more negative goal attainment expectancies for approach goals, more positive expectancies for avoidance goals, and lower perceived control over general goal attainment as compared

8

to never-depressed individuals.   These results illustrate the impact of MDD on an individual's perceived role and anticipated results of goal pursuit. We posit that perceived problem-solving skill deficits associated with MDD may contribute to an individual's negative expectations and perceived lack of control over goal outcomes.

Vergara and Roberts (2011) examined goal generation, behavioral system sensitivity, commitment and planning of goal striving in remitted and never-depressed male undergraduate students. Results indicated that individuals, irrespective of depressive status, generated equivalent numbers of approach goals and also endorsed equal levels of commitment to goals and implementation intentions. Remitted individuals, however, generated more avoidance goals than never-depressed individuals, demonstrating a trait-like vulnerability to a maladaptive style of goal generation. Interestingly, remitted individuals also endorsed higher behavioral activation system sensitivity than never-depressed individuals. This overactive behavioral activation system sensitivity may motivate individuals to engage in behaviors to prevent unwanted outcomes (avoidance goals). This project illustrates the complicated manner in which MDD theoretically influences goal pursuit. What remains unclear, however, is the extent to which these theoretical impairments in goal pursuit relate to actual goal outcomes.

Research has yet to examine goal generation, goal attainment, and perceived problem-solving within the same project. Although one could posit the manner in which these factors intertwine and potentially impact goal pursuit over time, research to date has been cross-sectional, focusing on goal generation and goal pursuit plans at a single time point (Dickson & MacLeod, 2004, 2006). Little is known about how MDD impacts goal pursuit over time, including how it impacts the attainment of previously-articulated goals.

Thus, a longitudinal design in which measures goal generation, perceived problem-solving skills, and outcome of goal pursuit could shed light on how MDD impacts goal generation and perceived problem-solving, and the extent to which these factors interfere with the pursuit of personally-relevant goals.

In addition, theory and research have largely overlooked the potential enduring impact of MDD on goal pursuit beyond the depressive episode. As a result, it remains unclear if the cognitive, affective, and behavioral components of goal pursuit presumed to be impacted by MDD endure beyond the depressive episode. If the deficits remit with the depressive episode, than these could be considered features associated with the episode, akin to symptoms. If the deficits are trait-like in nature, these deficits could represent vulnerability to future failed goal pursuit and promote recurrence of depressive episodes. Previous work creates a compelling notion that cognitive deficits (Lewinsohn, Steinmetz, Larson, & Franklin, 1981) as well as deficits in self-regulation (Kasch, Rottenberg, Arnow, & Gotlib, 2002; Dickson & MacLeod, 2004; Higgins, 1996) are associated with and promote future depressive episodes. When considered in light of the conceptualization that with MDD are thought to have long-standing deficits in goal generation and goal-related processes (Strauman et al., 2006; Higgins, 1996), we suggest that depression creates deficits in goal pursuit in a similar pattern leaving a cognitive, affective, and motivational scar upon its remission.

The Current Study

The current study sought to build upon previous theory and research by examining goal generation, perceived goal attainment, and the role of perceived problem-solving in goal pursuit in currently (CD), remitted (RD) and never-depressed (ND)

women. The focus on women in the current project arose from the fact that MDD in adults is twice is common in women than in men (APA, 2000). In part for this reason, there is a large extant body of literature which focuses on the phenomenon of MDD in women, without comparison to MDD in men (e.g.., Bohon, Stice, Burton, Fudell, & Nolen-Hoeksema, 2008; Cooley, VanBuren, & Cole, 2010; Dearing & Gotlib, 2009; Harkness, Washburn, Theriault, Lee, Sabbagh, 2011; Ottowitz, Deckersbach, Savage, Lindquist & Dougherty, 2010; Thompson, Mata, Buschkuehl, Jonides, & Gotlib, 2010; Thompson & Heller, 1993).

Depressive status (current, remitted, never-depressed) was determined by responses to the Inventory to Diagnose Depression (IDD; Zimmerman, Coryell, Corenthal, & Wilson, 1986), and the Inventory to Diagnose Depression-Lifetime (IDD-L; Zimmerman & Coryell, 1987b). Perceived problem-solving skills were assessed through the Problem Solving Inventory (PSI; Heppner, 1988; Heppner & Petersen, 1982). Goals were generated through use of the Goal Generation Task, a task partly based on the designs established by Dickson and MacLeod (2004, 2006) and Brauer (2009). This task prompts individuals to generate personal goals they hope to achieve during the upcoming 4-6 weeks. Patients then returned to the laboratory to assess their perceived progress towards these goals on the Goal Attainment Task. As research has yet to examine goal generation and pursuit of previously-specified goals, the longitudinal design of the current project offered insight into the manner in which MDD may have interfered in the goal pursuit process and how this related to perceived outcomes. Finally, the Positive Affect Negative Affect Scale (Watson, Clark & Tellegen, 1988) to assess affect following goal generation and assessment of pursuit.

Aim 1: Examine goal generation as a function of depressive status.

Hypothesis 1: Examine goal generation as a function of depressive status.
Based on the findings of Brauer (2009) and theory set forth by Johnson and colleagues (2010), and previous literature demonstrating mixed results (Dickson & Macleod, 2004, 2006; Dickson, Moberly, & Klinderman, 2011; Vergara & Roberts, 2011), we did not hold strong predictions regarding potential group differences in the types of goals generated. Thus, the intention of this aim was to illustrate the types of goals individuals generate with respect to overall number of goals, level of abstraction of goals (abstract and concrete), level of complexity (simple and concrete), and domains in which goals were generated.

Aim 2: Examine the relationship between depressive status and perceived goal attainment.

Hypothesis 2a: Currently depressed individuals would perceive attaining goals at a lower rate than remitted and never-depressed individuals. Based on the proposed cognitive (Ottowitz, Dougherty, & Savage, 2002; Preskorn & Drevets, 2009), affective/motivational (Peeters et al., 2003; Carver & White, 1994), and problem-solving deficits (Nezu, 1987) associated with MDD, we predicted that currently depressed individuals would perceive a lower rate of attainment of generated goals than remitted and never-depressed individuals.

Hypothesis 2b: Remitted depressed individuals would perceive attaining goals at a higher rate than currently depressed individuals, but a lower rate than never-depressed individuals. It is unclear to what extent goal-related deficits remain past the depressive episode. We hypothesized, however, that difficulty in goal pursuit is trait-like

in nature, and is exacerbated by the depressive episode. As such, we anticipated that remitted individuals would have more difficulty attaining goals than never-depressed individuals due to a history of a depressive episode and its associated goal-related deficits (Strauman et al., 2006, Higgins, 1996), but would be better able to attain goals than currently depressed individuals.

Aim 3: Examine the relationship between depressive status and problem-solving.

Hypothesis 3a: Currently depressed individuals would exhibit more perceived problem-solving difficulties than remitted and never-depressed individuals. Based on theory (Nezu, 1987) and empirical evidence (Gotlib & Asarnow, 1979; Nezu et al., 1986; Nezu & Ronan, 1987; Thompson & Heller, 1993; Watkins &Moulds, 2005; Watkins & Baracaia, 2002) we anticipated that currently depressed individuals would have more problem-solving deficits than remitted and never-depressed individuals, as indicated by higher PSI scores in CD than in RD and ND individuals.

Hypothesis 3b: Remitted individuals would exhibit more perceived problem-solving difficulties that currently depressed individuals, but fewer difficulties than never-depressed individuals. Although little research has examined problem-solving in remitted depressed individuals, problem-solving difficulties have been shown to predict future depressive symptoms when controlling for current depressive symptoms (Nezu & Ronan, 1988). These results lend support to the theory that deficits in problem-solving skills represent a chronic, unrelenting factor which may promote ongoing vulnerability to future depressive episodes. Despite null findings by Watkins and Baracaia's (2002) comparison of problem-solving skill deficits between remitted and never-depressed

individuals, limited research results still leave the question open of whether perceived problem-solving skill deficits are trait-like. In addition, we reasoned that a current depressive episode may exacerbate perceived problem-solving skills, and as a result anticipated that both CD and RD individuals will report deficits in perceived problem-solving skills compared to controls, with the CD reporting more severe impairments than RD individuals.

Aim 4: Examine the relationship between problem-solving and goal attainment.

Hypothesis 4: Problem-solving would be positively associated with perceived goal attainment. Based on the description of problem-solving by D'Zurilla and Goldfried (1971) and D'Zurilla and Nezu (1980) problem-solving appears to be a process similar to goal generation and pursuit as they both identification of and progress towards a desired endpoint. In addition, problem-solving is likely an essential component to successfully planning for goal pursuit, as well as managing obstacles as they arise during goal pursuit. As such, we predicted that problem-solving as indicated by higher scores on the PSI (denoting more effective problem-solving skills) will be positively associated with perceived goal attainment.

Aim 5: Examine the mediational role of perceived problem-solving in perceived goal attainment as a function of depressive status.

Hypothesis 5: Perceived problem-solving would mediate the relationship between depressive status and perceived goal attainment. As previously discussed, problem-solving appears to be a process inherent in goal striving, and highly affected by MDD (Nezu, 1987). As such, we hypothesized that perceived problem-solving skills (as

14

determined by scores on the PSI) would mediate the relationship between depressive

status and perceived goal attainment.

Aim 6: Examine the relationship between perceived goal attainment and depressive status at follow-up.

Hypothesis 6: Lower perceived goal attainment would be associated with higher depressive severity at follow-up. Within the currently depressed group, we predicted that those depressed individuals who perceived attainment of a higher percentage of goals would have exhibit fewer depressive symptoms at follow-up (Strauman et al., 2006; Lyubomirsky et al., 1999).

Aim 7: Examine the relationship between the three factors of the PSI (problem-solving confidence, approach avoidance style, and personal control) and goal attainment.

Participants

Participants were recruited through an online volunteer pool monitored by the University of South Florida Psychology Department. Seven hundred seventy women participated in the online portion of the study. Based on their responses to the online survey, 288 participants met initial study criteria and were invited to participate in the laboratory portion of the study. A total of 132 women agreed to participate in the laboratory session. From this sample, 34 did not meet study criteria after completion of the first laboratory session and were discontinued. Thirteen eligible participants were unable to complete the study within the 4-6 week timeframe, and were considered lost to follow-up. This rendered the final sample of 85 participants (22 CD, 27 RD, and 36 ND). All participants were undergraduate females enrolled in a psychology course at the time of study participation, fluent English speakers, between the ages of 18-55 (*M*=21.18), and racially diverse (see Table 1).

Measures

Group determination. The *Inventory to Diagnose Depression* (IDD; Zimmerman et al., 1986) consists of 22 items that cover the full range of depressive symptoms, and was used to determine group membership for this study. Score 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). To meet diagnostic criteria, an individual must denote a score of a "3" for low

mood, irritability, or hopelessness, or a "4" or higher on the anhedonia item. In addition, an individual must score a "3" on four of the eight items that describe the supplementary symptoms of depression. Lastly, the individual must endorse that these symptoms have been present for at least 2 weeks. The IDD demonstrated high internal consistency (α=.89), Spearman-Brown split half reliability (α=.87). In addition, the IDD has high specificity (98.5%; Zimmerman & Coryell, 1987a) and acceptable sensitivity (54.5%; Zimmerman & Coryell, 1987a), and high concordance with the Diagnostic Interview Schedule (97.2% agreement; Zimmerman & Coryell, 1987a).

The *Inventory to Diagnose Depression – Lifetime Version* (IDD-L; Zimmerman & Coryell, 1987b) was also 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 has similar internal consistency to the IDD (α=.89), a high Spearman-Brown split-half reliability (α=.92). In addition, the IDD-L has a high concordance rate with the DIS for lifetime diagnosis of MDD (k=.60; Zimmerman & Coryell, 1987b) high specificity (93%; Zimmerman & Coryell, 1987b) and adequate sensitivity (74%; Zimmerman & Coryell, 1987b).

Groups were determined as follows: CD individuals met criteria for a current episode (as determined by the IDD), but it was not necessary that these individuals endorse a full episode in the past (as determined by the IDD-L). Conversely, RD individuals could not endorse a depressive episode at the time of testing, but must have endorsed a depressive episode in the past through the IDD-L. Classification of ND required that an individual did not endorse a current or past mood episode, as determined

by scores on the IDD or IDD-L. Individuals who endorse one core symptom (i.e., low mood, irritability, anhedonia, hopelessness) and more than two but less than four supplemental symptoms (i.e., changes in weight, changes in sleeping patterns, difficulty concentrating or making decisions, etc.) on the IDD at Time 1 did not fall into our study groups and were considered ineligible.

Problem-solving. The *Problem-Solving Inventory* (PSI; Heppner, 1988; Heppner & Petersen, 1982). is a 32-item self-report measure of cognitive, affective, and behavioral components of problem-solving abilities. Items are rated on a 6-point likert scale, with responses ranging from "strongly agree" to "strongly disagree." The scale is comprised of 3 factors: problem-solving confidence (items 5, 9, 10, 11, 18, 21, 22, 25, 30, 31, 32), approach-avoidance style (items 1, 2, 4, 6, 7, 8, 12, 14, 15, 16, 17, 19, 20, 26, 27, 28), and personal control (items 3, 13, 23, 24, 29). The scale has acceptable internal consistency for each scale (problem-solving confidence, $\alpha=.90$; approach-avoidance style, $\alpha=.84$; personal control, $\alpha=.71$) and high internal consistency overall ($\alpha=.91$). The PSI yields an overall score, with higher scores denoting greater perceived ineffective problem-solving skills. As such, analyses involving perceived problem-solving skills use total PSI scores to operationalize perceived problem-solving skills (ex, "When my first efforts to solve a problem fail, I become uneasy about my ability to handle the situation," "After I have solved a problem, I do not analyze what went right or what went wrong").

Goal generation. The *Goal Generation Task* was used to elicit explicit goals (e.g., pass my next Psychology exam) from the participants. Participants were asked to think of goals they had hoped to achieve during the subsequent 4-6 weeks. Specifically, participants were asked to enumerate "things you are planning for, hope to happen, want

to gain, or are trying to prevent from happening during the next 4-6 weeks." The timeline of a 4-6 week follow-up period was based on the timeline of the academic calendar, as well as the belief that constricting goal generation to a relatively brief timeframe would elicit goals that may be at the forefront of the individual's mind, and therefore may be more motivating than longer-term goals. Following the enumeration of goals, participants were asked to rate on a likert scale (1-10) the importance, achievability, anticipated impact, and anticipated satisfaction upon attainment of each goal. These dimensions were included to assess goal pursuit evaluations specific to each goal.

Goal attainment. Participants scheduled the second laboratory session through Sona, at the same time they scheduled the first session. The Sona system regulated the time between sessions, so that they were no less than 4 weeks and no more than 6 weeks apart. At the follow-up, participants were reminded of their goals through the creation of an individualized *Goal Attainment Task*, which included the goals participants had generated 4-6 weeks earlier. Participants first were asked to assess their progress towards each goal, identify objective evidence to support this progress, and then identify any barriers that may have impeded their progress towards the goal. Participants were then asked to rate on a scale of 1-10 to what extent the goal had been attained, as well as the importance, achievability, impact, and overall experience of goal pursuit. These dimensions were included to mirror the design of the *Goal Generation Task*, to allow comparison ratings of these dimensions between time points.

Affect measurement. The Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) assesses an individual's affective state for an array of time periods (options range from moment to year to general). The schedule is comprised of two

scales, each containing 10 items. For the purposes of the current project, positive affect

(PA) was determined by ratings on the following items: attentive, alert, excited,

enthusiastic, inspired, proud, determined, strong, and active (Watson et al., 1988).

Similarly, negative affect (NA) was calculated based on ratings on the following items:

distressed, upset, hostile, irritable, scared, afraid, ashamed, guilty, nervous, and jittery

(Watson et al., 1988).   Individual items were rated on a 5-point likert scale, ranging

from "very slightly or not at all" to "extremely." Scores were then average across items

within each affective category to determine the final affective score. The reliability

across time periods for PA ranges from $\alpha=.86-.91$, and $\alpha=.85-.91$ for NA. Retest

reliabilities over the current project's 4-6 week test period were slightly low (PA: $\alpha=.61$;

NA: $\alpha=.41$).

Procedure

The study included a pre-screening portion conducted in the mass testing section

of the online participant pool, and two laboratory sessions. The online pre-screening

consisted of the PSI, IDD, and IDD-L. Participants who completed the online pre-

screening portion, and were deemed eligible based on responses to the IDD and IDD-L

were invited to participate in the first laboratory session via email. During the first

laboratory session, participants consented to participate to the study procedures, and were

then asked to complete a demographics questionnaire, Goal Generation Task, PANAS,

and IDD. Scores consistent with a clear delineation of depressive status as determined by

the IDD were invited to participate in the second laboratory session. At the second

laboratory session, participants were asked to complete the demographic questionnaire,

Goal Attainment Task, PANAS, and IDD. The second part of the Goal Generation Task

was created for each participant, and included the goals generated at the first laboratory visit. Upon study completion, participants were debriefed. Participants received extra credit towards the psychology course of their choice upon completion of each portion of study participation. Credit was determined by the University of South Florida Psychology Department and awarded by the Sona system.

Coding of Goals

The responses to the Goal Task were coded by two independent research assistants blind to the participant's clinical status and to study hypotheses. Training was conducted by the primary investigator across 2-3 one-hour sessions. During these sessions, sample responses were coded by the trainer and trainees across all domains of interest. Responses were coded independently, then discussed within the group. Training sessions were also held periodically throughout the course of the project to maintain raters' understanding of constructs. The research assistants were asked to code all goals independently. Upon completion of independent goal coding, research assistants then convened to discuss any discrepancies of goal coding to reach a consensus rating for each construct for each goal. Although consensus ratings were used in the final analyses, interrater reliability was assessed for each construct. Goals were coded for the constructs described below:

Orientation. Approach goals refer to those which involve engagement in the environment (i.e., get an A on my next exam), while avoidance goals reflect a desired avoidance of an unwanted outcome (i.e., try not to fail my next exam). Interrater reliability for this code was high (kappa=.93).

Level of abstraction. Concrete goals refer to those which involve overt signals of accomplishment (i.e., waving to neighbors) while abstract goals will refer to those which lack these signals of accomplishment (i.e., be a model citizen). Interrater reliability for this code was high (kappa=.80).

Level of complexity. Simple goals refer to those which involve only a single step to attain (i.e., eat breakfast daily), whereas complex goals refer to those for which multiple steps are necessary in the goal's attainment (i.e., maintain a better dietary routine. Interrater reliability for this code was moderate (kappa=.56).

Domains of goals. Coders were asked to differentiate goals based on their overt content to determine the following domains: fall in the following domains: scholastic, professional, social, spiritual, health/fitness, lifestyle, financial, and other. Goals which crossed two or more of the aforementioned domains were categorized as "lifestyle" goals; goals which were not clearly described by one of the aforementioned categories were categorized as "other." Interrater reliability for this code was good (kappa=.77).

Results

Participation and Attrition

Based on their responses to the online survey, 288 participants met initial study criteria and were invited to participate in the laboratory portion of the study. A total of 132 women agreed to participate in the laboratory session. From this sample, 34 did not meet study criteria after completion of the first laboratory session and were discontinued. Thirteen eligible participants were unable to complete the study within the 4-6 week timeframe, and were considered lost to follow-up. This rendered the final sample of 85 participants (22 currently depressed 27 remitted, 36 never-depressed controls). Thus, 85 of 98 (87%) eligible participants completed study participation.

Demographics

All participants were female undergraduate students enrolled in a psychology course at the time of study participation, fluent English speakers, and between the ages of 18-55 (M=21.18, SD=6.19). The mean time between time one and time two was 31.39 days; groups did not differ significantly on time delay ($p<.46$). At time two, 1 control participant met criteria for a depressive episode, 6 depressed participants no longer met criteria for a current depressive episode but continued to endorse a significant number of depressive symptoms (e.g., more than 1 core symptom and 2 supplemental symptoms), 9 depressed participants no longer met criteria for a depressive episode, and 4 remitted participants endorsed significant depressive symptoms (criteria described above) but failed to meet criteria for a depressive episode.

The final sample was relatively racially diverse: 65.9% Caucasian, 8.2%

Hispanic, 2.4% Asian, 14.1% African American, 1.2% Pacific Islander, 8.2% Other. See

Table 1 for full description of demographic variables by group. Analyses revealed that

groups did not differ significantly in terms of racial composition [x^2(10, N=85)=11.48,

p=.32], age [F(2,82)=.91, p<.41)], marital status [x^2(6, N=85)=5.48, p =.48], or year in

school [x^2(8, N=85)=9.90, p=.27] [F(2,82)=2.66, p<.08].

Symptom Scale Data

As expected, groups differed significantly with respect to depression symptom

endorsement at time one [F(2,82)=178.28, p<.001], and these differences remained at

time two [F(2,82)=23.02, p<.001].   With respect to affective ratings, results from a

paired-sample T-Test revealed that irrespective of depressive status, individuals endorsed

higher PA than NA scores across time points [t(84)=13.77, p<.001]. Results from a

repeated measures MANOVA revealed a main effect of status on general affective ratings

[F(4,162)=7.75, p<.001], but failed to reveal a main effect of time [F(2, 81)=.22, p<.80]

or a time by depressive status interaction [F(4,160)=81, p<.52]. As it was determined

that affective ratings did not differ significantly across time points [PA: F(1,82)=.064,

p<.80; NA: F(1,82)=.33, p<.57)], the examination of group differences in PA and NA

were based on the average of each affective rating across time points, a value naturally

created by SPSS in the conduction of the repeated measures MANOVA. Pairwise

comparisons from the repeated measures MANOVA revealed that groups differed

significantly in ratings of positive affect [F(2,82)=4.29, p<.02], such that ND individuals

endorsed significantly higher PA scores than CD (p<.02) and RD (p<.02) individuals. In

addition, groups differed significantly in ratings of NA [F(2,82)=11.83, p<.001], such

that CD individuals endorsed significantly higher ratings of NA than RD ($p<.001$) and

ND ($p<.001$) individuals (see Table 1).

Goal Constructs

       Several patterns in goal-related behavior warrant notice. Across groups,

participants were more likely to generate concrete rather than abstract goals, complex

rather than simple goals, and approach rather than avoidant goals. In addition, as one

might expect of young adult participants, the most common domains in which goals were

generated were scholastic, lifestyle, health/fitness, and social (see Table 2).

Table 1

Demographic variables and scale data

Demographic	CD	RD	ND
Age (mean, SD)	22.18 (7.31)	21.74 (7.69)	20.14 (3.73)
Race (frequency, %)			
Caucasian	17 (77.3)	19 (70.4)	20 (55.6)
Hispanic	0	2 (7.4)	5 (13.9)
Asian	0	1 (3.7)	1 (2.8)
African American	2 (9.1)	2 (7.4)	8 (22.2)
Pacific Islander	1 (4.5)	0	0
Native American	0	0	0
Other	2 (9.1)	2 (11.1)	2 (5.6)
Year in School (mean, SD)	2.82 (1.10)	2.19 (1.18)	2.19 (1.04)
Marital Status (frequency, %)			
Single	20 (90.9)	24 (88.9)	30 (83.3)
Married	1 (4.5)	1 (3.7)	2 (5.6)
Domestic Partner	0	2 (7.4)	4 (11.1)
Divorced	1 (4.5)	0	0

Table 1 (Continued)

Symptom Scales (mean, SD)	CD	RD	ND
T1 Depression Symptoms[††]	8.73 (3.06)[***b]	1.11 (1.05)	0.39 (0.73)
T2 Depression Symptoms[††]	5.09 (4.79)[***]	0.78 (1.12)	0.47 (1.44)
PSI Total	94.86 (28.48)	90.65 (15.85)	90.12 (20.22)
Problem-Solving Confidence	28.59 (10.45)	27.43 (6.53)	26.20 (8.07)
Approach Avoidance Orientation	47.09 (14.21)	45.31 (9.56)	47.44 (10.81)
Personal Control[†]	19.59 (5.45)[**]	18.04 (3.87)	15.72 (4.29)
Overall PA	2.75 (.70)[*a]	2.78 (.72)[*a]	3.23 (.75)
PA (T1)	2.70 (0.75)	2.86 (0.72)	3.24 (0.75)
PA (T2)	2.80 (0.84)	2.71 (0.90)	3.23 (0.93)
Overall NA	1.97 (.63)[***]	1.44 (.35)	1.41 (.41)
NA (T1)	2.06 (0.81)	1.47 (0.46)	1.36 (0.46)
NA (T2)	1.89 (0.78)	1.42 (0.35)	1.45 (0.54)

Note: PSI Total: Problem-solving Inventory total score; PA: Positive Affect; NA: Negative Affect. †main effect of depressive status at $p<.05$; †† main effect of depressive status at $p<.001$;*[a] $p<.05$ compared to controls; *[b] $p<.05$ compared to remitted and controls; ** $p<.01$ compared to controls; *** $p<.001$ compared to remitted and controls.

Table 2

Goal construct by group

Goal Construct	CD	RD	ND
Total Number	7.27 (2.55)	7.7 (3.15)	7.22 (3.07)
Abstract	3.05 (1.40)	1.89 (2.24)	1.97 (1.36)
Concrete	4.23 (2.67)	6.26 (3.79)	5.36 (3.01)
Simple	.64 (1.29)	1.70 (1.79)	2.06 (2.65)
Complex	6.63 (2.15)	6.41 (2.74)	5.25 (2.25)
Approach	6.91 (2.88)	7.44 (3.09)	6.97 (2.97)
Avoidant	.27 (.46)	.59 (1.01)	0.28 (.51)
Scholastic	1.86 (.94)	2.37 (1.57)	2.33 (1.31)
Professional	.50 (.67)	.44 (.64)	0.25 (.50)
Social	1.09 (1.15)	1.44 (1.37)	1.25 (1.42)
Spiritual	0.14 (0.35)	.07 (.38)	0.17 (0.38)
Health/Fitness	1.18 (1.01)	1.37 (1.18)	1.06 (0.92)
Lifestyle	1.55 (1.18)	1.22 (1.12)	1.50 (1.53)
Financial	.50 (0.74)	.37 (.69)	.25 (.50)
Other	.45 (.91)	.85 (1.03)	0.53 (0.91)

Note: Means and standard deviations.

Goal-Pursuit Evaluations

As the current project sought to examine the manner in which depressive status may impact an individual's evaluation and motivation to pursue goals, a MANOVA was conducted to examine group differences in goal pursuit evaluations during the first laboratory session, when goals were generated. Overall expectancy scores for each construct were created by averaging the rating of each construct across goals generated. Results indicated a main effect of depressive status [$F(8, 160)=3.44, p<.001$] driven by differences in perceived importance [$F(2,82)=4.45, p<.025$], potential life impact [$F(2,82)=6.76, p<.002$], and anticipated pleasurable experience [$F(2,82)=3.22, p<.05$]. More specifically, CD individuals endorsed the highest ratings of importance and life impact, while ND individuals anticipated the most pleasurable experience of goals (see Table 3). Groups did not differ in terms of perceived achievability of goals ($p<.06$).

At the second laboratory session, participants were asked to evaluate their goal pursuit experience in terms satisfaction with progress, perceived importance, difficulties in achievement, perceived life impact of goal pursuit, and positive affective experience of pursuit. Results from a MANOVA yielded no effect of depressive status on any of these goal ratings [$F(12, 154)=1.79, p<.06$], suggesting that depressive status did not impact the manner in which individuals evaluated goal pursuit (see Table 4).

Table 3

Time 1 goal pursuit evaluations

Expectancy	CD	RD	ND
Importance[†]	8.43 (0.95)[**]	7.52 (1.20)	7.93 (1.00)
Achievability	7.15 (1.22)	7.40 (1.29)	7.95 (1.38)
Impact†	8.35 (0.94)[*,**]	6.95 (1.57)	7.43 (1.37)[*]
Satisfaction if attained[†]	8.62 (1.28)	8.15 (1.29)[*]	8.89 (0.90)

Note: Means and standard deviations in parentheses. † signifies main effect of depressive status at p<.05. Group differences demarcated as follows: *p*<.05 compared to controls, ***p*<.01 compared to remitted depressed.

Table 4

Time 2 goal pursuit evaluations

Expectancy	CD	RD	ND
Attainment	6.29 (1.45)	6.25 (1.38)	6.41 (1.66)
Satisfaction	6.01 (1.75)	6.59 (1.81)	6.45 (1.68)
Importance	8.73 (1.11)	8.18 (1.40)	8.36 (1.19)
Difficulty of achievement	7.54 (1.41)	7.93 (1.39)	8.31 (1.02)
Impact	7.73 (1.10)	7.15 (1.77)	7.04 (1.33)
Experience	6.49 (1.84)	7.05 (1.70)	7.32 (1.51)

Note: Means and standard deviations in parentheses.

Goal Features (Hypothesis 1)

It appears that irrespective of depressive status, individuals generated more approach than

avoidant goals, more concrete than abstract goals, and more complex than simple goals.

In order to examine the effect of depressive status on goal features, four separate

MANOVAs were conducted to analyze differences in orientation (approach, avoidance),

level of abstraction (abstract, concrete), complexity (simple, complex), and domain

(scholastic, professional, social, spiritual, health and fitness, lifestyle, financial, other) of

goals generated. Initially, results revealed a main effect of depressive status on the level

of abstraction [F(4,164)=2.48, $p<.05$] and complexity of goals [F(4,164)=3.10, $p<.02$]

such that depressed individuals generated more abstract goals than remitted ($p<.05$) and

control participants ($p<.06$), and less simple goals ($p<.04$) than controls. Groups did not

differ with respect to the orientation of goals [F(4, 164)=0.99, $p<.42$], or domains in

which goals were generated [F(16, 152)=0.85, $p<.62$]. To reduce the likelihood of Type I

error resulting from the conduction of multiple analyses, a Bonferroni correction was

made, reducing the threshold of significance to $p<.013$. As a result, the main effect of

depressive status on level of abstraction and complexity of goals did not survive the more

conservative threshold. These conservative results are consistent with the hypotheses that

groups would not differ with respect to goal generation, and thus no statistical controls

for goal type were made in subsequent analyses.

Perceived goal attainment (Hypothesis 2a, 2b)

During the second laboratory session, participants were asked to rate their

perception of goal attainment on a scale of 1 (not at all achieved) to 10 (goal complete).

The ratings for each goal were then averaged across goals, to create a total perceived goal

attainment score. Contrary to the expectation that depressed individuals would generate

the lowest rating of perceived goal attainment, followed by remitted individuals, with

never-depressed controls would endorsing the highest ratings of perceived goal

attainment, results from a one-way ANOVA revealed that groups did not differ in

perceived rates of goal attainment [$F(2,82)=.09$, $p<.92$].

Perceived problem-solving skills (Hypothesis 3a, 3b)

We had anticipated that CD individuals would endorse the weakest problem-

solving skills, with RD individuals perceiving intermediary skills, and ND individuals

endorsing the strongest skills. Although nominal scores were consistent with this

predicted pattern, a one-way ANOVA found no effect of depressive status [$F(2, 78)=.35$,

$p<.70$]. A MANOVA was also conducted to examine group differences in PSI subscales.

Results revealed that groups did not differ on problem-solving confidence [$F(2,78)=.36$,

$p<.70$], approach-avoidance orientation [$F(2,78)=.31$, $p<.73$], but did differ on perceived

personal control [$F(2,78)=4.56$, $p<.01$]. More specifically, CD individuals endorsed

significantly lower perceptions of perceived personal control than ND individuals.

Remitted individuals endorsed scores falling between CD and ND groups, but did not

differ significantly from the other groups ($p>.05$). This pattern is consistent with the

broad hypothesis that CD individuals would endorse the most negative perceptions of

problem-solving skills, followed by RD individuals, and CD individuals endorsing the

most positive perceptions.

Relationship Between Overall Perceived Problem-Solving Skills and Perceived Goal Attainment (Hypothesis 4)

Inconsistent with hypotheses, results from a regression analysis indicated that that no significant relationship existed between perceived problem-solving skills (total PSI score) and perceived goal attainment [b=-.01, t(78)=-1.56, p<.12].

Perceived Problem-Solving Skills as a Mediator Between Depressive Status and Perceived Goal Attainment (Hypothesis 5)

As previous analyses found no significant relationships between depressive status and goal attainment, or depressive status and perceived problem-solving skills, the mediational analysis could not be performed.

Relationship Between Perceived Goal Attainment and Depressive Symptoms (Hypothesis 6)

A one-way ANOVA was performed to examine the relationship between perceived goal attainment and depressive symptoms at study completion within the CD group alone. Inconsistent with expectation that depressive symptoms at follow-up would be negatively associated with ratings of perceived goal attainment, these results were not significant [b=-.07, t(20)=-1.01, p<.32]. In addition, a hierarchical linear regression was conducted to examine the relationship between perceived goal attainment and depressive symptoms in the CD group at study completion. Depressive symptoms at time one were entered in the first step, and depressive symptoms at time two were entered in the second step. Results revealed that depressive symptoms at time two were not associated with perceived goal attainment (β=-.11, p<.64).

Table 5

Hierarchical linear regression

Variable	B	SE B	B
Step 1 (adj R^2=.13)			
T1 Depressive Symptoms	-.19	.09	-.41
Step 2 (adj R^2=.09)			
T1 Depressive Symptoms	-.17	.10	-.38
T2 Depressive Symptoms	-.03	.06	-.11

Perceived problem-solving skills subtypes and perceived goal attainment (Aim 7)

As previously discussed, Heppner and Petersen (1982) differentiated three distinct factors of perceived problem-solving skills: problem-solving confidence, approach-avoidant style, and personal control. Three separate regression analyses were performed to examine the individual relationships between each perceived problem-solving factor (endorsed prior to goal generation and pursuit) and perceived goal attainment at time two. Problem-solving confidence at time one predicted goal attainment at time two [b=-.045, t(80)=-2.34, p<.02], such that lower confidence (higher scores) was associated with lower rates of perceived goal attainment. Personal control predicted perceived goal attainment at time two at the trend-level [b=-.06, t(82)=-.1.83, p<.07], while the predictive relationship between approach-avoidant style and perceived goal attainment at time two [b=-.01, t(79)=-.83, p<.41] was non-significant.

Discussion

Although many theories have highlighted the ways in which MDD impacts goal pursuit and goal attainment, no studies to the author's knowledge have described results of goal pursuit in individuals with vulnerability to depression. The current project assessed perceived goal attainment and the role of perceived problem-solving skills as a function of depressive status through a novel cross-sectional (current, remitted, never-depressed) and longitudinal design. As expected, groups did not differ principally in the number or features of goals generated. It is noteworthy to mention, however, that currently depressed individuals trended to generate more abstract and fewer simple goals than other groups. Although these differences illustrate a maladaptive pattern goal generation (Emmons, 1992; Carver & Scheier, 1990; Street, 2002), they should be interpreted cautiously because the effects did not survive Bonferroni correction. Contrary to hypotheses, we found no evidence that a vulnerability to depression negatively influences perceived goal attainment. In addition, although it was anticipated that overall perceived problem-solving skills as well as depressive symptoms following goal pursuit would be negatively associated with perceived goal attainment, results failed to support these hypotheses. Despite these null findings, results did demonstrate that vulnerability to a depressive episode decreases an individual's perception of control in problem-solving, and may also enhance an individual's evaluation of goal pursuit.

Although it was anticipated that the experience of a depressive episode (past or present) would negatively impact perceived goal attainment as a result of depression-

related deficits in cognition (Ottowitz, Dougherty, & Savage, 2002; Preskorn & Drevets, 2009), affect/motivation (Peeters et al., 2003; Carver & White, 1994; Higgins, 1996; Strauman et al., 2006; Nesse, 2000; Kasch et al., 2002), and problem-solving (Nezu, 1987), the results did not support this hypothesis. These results demonstrate that when asked to focus on goals within a relatively brief, confined time period, depressed individuals are equally successful as remitted and never-depressed individuals in attaining personal goals. It is possible that the 4-6 week timeframe of the current project may have brief enough to not deplete cognitive, affective, and motivational resources used involved in goal pursuit, increasing rates of perceived goal attainment. Alternatively, it is possible that cognitive, affective, and motivational deficits were present in depressed individuals, but the timeframe was long enough to allow depressed individuals to pursue goals at a slower but equally successful pace as remitted and never-depressed individuals. Recognizing that this timeframe promotes successful goal attainment in depressed individuals provides clinicians with additional information to refine treatment strategies, which in turn may promote perceived success and subsequently symptom recovery in depressed individuals (Strauman et al., 2006).

A unique aspect of the current project is the inclusion of the assessment of perceived problem-solving skills in the context of goal generation and perceived goal attainment. Contrary to expectations, groups did not differ in ratings of overall perceived problem-solving skills, nor did they differ in ratings of the approach-avoidant style or problem-solving confidence. Groups did differ with respect to perceptions of personal control, such that currently depressed individuals endorsed significantly lower ratings of personal control over problem-solving outcomes compared to never-depressed

individuals (consistent with Watkins & Baracaia, 2002). This finding is consistent with previous theoretical work such as the negative cognitive triad of depression (Beck, 1967) and perceived ineffectiveness to control negative events (Abramson et al., 1978). Further, a trend emerged such that remitted depressed individuals who endorsed slightly higher perceived control than currently depressed individuals but lower than never-depressed individuals. This trend is consistent with the proposed hypothesis that deficits in perceived problem-solving skills would be the most evident during a depressive episode, and remain to a lesser extent upon episode remission. In addition, these results lend support to the notion that deficits in perceived problem-solving skills represent a trait-like cognitive vulnerability to future depressive episodes (Lewinsohn et al., 1981). This information highlights the importance of including strategies which enhance perceived control over problem-solving outcomes in psychosocial treatments for depression as a means of reducing depressive symptomology and recurrence.

Although groups differed in ratings of perceived personal control, this factor was only associated with goal attainment at a trend level. It is possible that this deficit did not largely impact goal attainment due to the heightened positive expectations for goal pursuit which may have motivated depressed individuals to avoid failure and enhance attention to goal-related cues and goal striving behaviors which in turn promoted successful goal pursuit (Vergara & Roberts, 2011). Thus, it appears that depression may impact an individual's perception of control during goal pursuit, but does not impact perceived outcomes of goal pursuit. Surprisingly, the only problem-solving factor significantly associated with goal attainment was problem-solving confidence, such that lower confidence was associated with negative appraisals of goal attainment. As groups

did not differ on this factor, nor did they differ in perceived goal attainment, it is possible that confidence in perceived problem-solving skills is a factor which is untouched by MDD and is integral in successful goal pursuit. Thus, it appears that the manner in which MDD may impact aspects of perceived problem-solving skills does not influence perceived goal attainment, and that aspects integral in successful goal pursuit are unaffected by MDD.

Limitations and Future Directions

It is possible that various aspects of the methodology of the current project limited our ability to detect effects of MDD on goal pursuit or perceived goal attainment. The study was conducted over a relatively brief timeframe (4-6 weeks), eliciting shorter-term goals. Although these results demonstrate that the timeframe may represent a factor which promotes successful pursuit, it does not negate the possibility that MDD impacts goal pursuit in some manner. It is possible that given a longer timeframe, differences in goal pursuit as a result of depressive status may be evidenced (Johnson et al., 2010). Given a longer timeframe, individuals may have to put forth more effort to maintain attention to goal-relevant cues, and may have to mitigate more barriers in the path to successful goal pursuit. These factors would likely cause individuals to rely heavily on cognitive, affective, or motivational resources to successfully pursue goals (Ottowitz et al., 2002; Kruglanski & Kopetz, 2009; Wrosch et al., 2003; Preskorn & Drevets, 2009). Thus, future work should examine goal generation and pursuit over a longer timeframe in order to fully assess the impact of MDD on goal pursuit.

The timeframe for the study was designed, in part, to coincide with the academic semester. It was thought that the academic calendar provided a structure through which

39

individuals may naturally plan for goals. More specifically, the timing and timeline of study participation elicited goals to be pursued by mid semester and the end of the semester - endpoints for which many students may naturally be mindful. Thus, in addition to the somewhat abbreviated timeline, conducting the study within a structured context such as an academic setting may have supported goal pursuit through reminders of goal pursuit deadlines. Further, the academic context likely supplied goal-related cues, increasing attention and motivation to pursue goals (Ottowitz et al., 2002; Kruglanski & Kopetz, 2009; Wrosch et al., 2003; Preskorn & Drevets, 2009), promoting heightened levels of perceived goal attainment.

It is important to note, however, that undergraduate students exist within a variety of environments. While the university setting is likely one of the most structured environments, it does not explain the perceived successful goal attainment in other arenas. On average, only two of the seven goals generated by participants were denoted as "scholastic" goals. Thus, individuals would likely have to draw upon cognitive, affective, and motivational resources to pursue goals in less structured environments. In addition, cues promoting scholastic goals may have served to distract from the pursuit of goals in other domains. As rates of perceived goal attainment were relatively high, it appears that individuals were able to successfully pursue goals in all domains despite distraction for scholastic goals, and without the aid of the structured university setting. Thus, although the context in which the study was conducted is a potential limitation to be considered, it is unlikely that it wholly explains the successful goal attainment of depressed and remitted participants. Future work may be able to speak to this issue by 1.) continually enrolling participants so that endpoints of goal pursuit may have fewer ties to

an imposed schedule (e.g., academic schedule) than that of the current project, 2.)

recruiting participants from a less structured environment such as an outpatient clinic, as

expectations for types or timelines for goals may be less strong than those in the current

project, 3.) recruiting individuals who are active in multiple environments to determine

the extent to which the structure of an environment relates to goal attainment.

As the current project recruited female undergraduate students, concerns may be

raised as to the generalizability of the results to other samples. First, previous work has

demonstrated that depression in undergraduate samples has similar features to other

groups of participants, such as outpatient community samples (e.g., Goldston et al.,

1990). Thus, results from the current study, with respect to goal generation, evaluations

of goal pursuit, as well as changes in depressive symptom severity and affect likely

generalize to other MDD samples. Second, in regard to gender, previous work has failed

to demonstrate an effect of gender on goal generation with respect to type

(approach/avoidant) or overall number of goals (Dickson & MacLeod, 2004, 2006). In

addition, recent work in a male sample by Vergara and Roberts (2011) found results

similar to the current project, such that irrespective of depressive status individuals did

not differ with respect to goal generation or commitment to goals. With respect to goal

pursuit plans, Dickson and colleagues (2011) failed to discuss whether or not goal

generation or expectancies of goal pursuit varied by gender, but Dickson and Macleod

(2006) did find that males generated less reasons as to why goals would or would not be

achieved compared to females. Thus, it appears that although gender may not affect goal

generation or motivation to pursue goals, it may impact the manner in which individuals

anticipate goal pursuit. It is unclear, however, if these gender differences in goal

planning relate to goal pursuit outcomes. Future could extend the findings of extant work by examining goal pursuit and perceived goal attainment in currently, remitted, and never-depressed male and female individuals.

The issue of depression symptom severity and recovery during goal pursuit merits discussion. Sixty-eight percent of participants who met criteria for a depressive episode at time one did not meet criteria at time two[1]. This represents a significant change in depressive status across the 4-6 weeks of the study. Research suggests that the depressive symptom severity experienced by undergraduate samples does not differ significantly from other depressed samples, such as community samples (Goldston et al., 1990). Thus, the changes in depressive symptom severity demonstrated in the current project are likely not unique to the sample, but may represent affective changes associated with goal pursuit. Previous work suggests that successful goal pursuit may act to combat symptoms of depression (ex, amotivation, anhedonia), and increase positive affect (Strauman et al., 2006; Higgins, 1997). Unfortunately, the current project is unable to address whether symptom remission preceded, coincided, or resulted from successful goal pursuit. Thus, manner in which goal pursuit may have impacted depressive symptomology remains unclear. Future work examining goal pursuit with more periodic assessments of affect and status of goal pursuit would be better able to address this limitation, enhancing the field's understanding of the role of affect in goal pursuit.

Finally, potential power and psychometric limitations of the current project warrant discussion. First, although the sample size exceeded the estimated sample size

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[1] Although 68% of individuals identified as CD at T1 fell below the threshold criteria for a current depressive episode at T2, the group continued to endorse symptoms, and differences in depressive symptom endorsement remained significant at T2 (see Table 1). These results suggest that although CD individuals endorsed improvement in depressive symptoms, they remained distinct from other groups on this factor.

necessary to detect a moderate to large effect size, having a larger sample may have enhanced marginally significant results to become statistically significant results. Second, the Goal Generation Task was a measure of goal pursuit created for the current project. As it is a new measure, the psychometric properties have not been investigated. In addition, the subjectivity of the measure may have captured an optimistic reflection of one's progress which may be not be directly related to objective evidence. Although the current project was invested in the participants' subjective perceptions, the subjectivity of the measure and the lack of psychometric knowledge of the measure may have muted the results of the current project. Future work examining goal generation and goal pursuit may benefit from the coupling of objective measures of goal pursuit such as standardized self-report scales and/or laboratory investigations of goal generation and pursuit, with more subjective designs such as that included in the current project.

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