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ORIGINAL ARTICLE

Treatment of Depression from a Self-Regulation Perspective: Basic Concepts and Applied Strategies in Self-System Therapy

Timothy J. Strauman[1] · **Kari M. Eddington**[2]

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Abstract Self-regulation models of psychopathology provide a theory-based, empirically supported framework for developing psychotherapeutic interventions that complement and extend current cognitive-behavioral models. However, many clinicians are only minimally familiar with the psychology of self-regulation. The aim of the present manuscript is twofold. First, we provide an overview of self-regulation as a motivational process essential to well-being and introduce two related theories of self-regulation which have been applied to depression. Second, we describe how self-regulatory concepts and processes from those two theories have been translated into psychosocial interventions, focusing specifically on self-system therapy (SST), a brief structured treatment for depression that targets personal goal pursuit. Two randomized controlled trials have shown that SST is superior to cognitive therapy for depressed clients with specific self-regulatory deficits, and both studies found evidence that SST works in part by restoring adaptive self-regulation. Self-regulation-based psychotherapeutic approaches to depression hold significant promise for enhancing treatment efficacy and ultimately may provide an individualizable framework for treatment planning.

Keywords Depression · Comorbidity · Anxiety · Regulatory focus theory · Self-discrepancy theory · Self-regulation · Self-system therapy

✉ Timothy J. Strauman
tjstraum@duke.edu

[1] Department of Psychology and Neuroscience, Duke University, Box 90086, Durham, NC 27705, USA

[2] University of North Carolina at Greensboro, Greensboro, NC, USA

Introduction

Unipolar depression constitutes a significant and growing public health problem. According to the National Survey on Drug Use and Health (SAMHSA 2014), an estimated 15.7 million adults aged 18 or older in the U.S. had at least one major depressive episode in the calendar year 2013—a figure representing close to 7 % of all US adults. Although a number of effective treatments for depression have been developed and disseminated, many individuals do not experience a remission of symptoms—particularly in those common instances when the depression is comorbid with an anxiety disorder (Baldwin and Lopes 2009; Kriston et al. 2014). Treatment development research must respond to the challenge of expanding the efficacy and scope of available treatments for depression, as well as to the need to develop reliable algorithms for a priori treatment selection (McMahon 2015).

This article provides an overview of the role of self-regulation in depression, including a description of several current theories as well as recent empirical work applying those theories to psychopathology research and treatment development. Although a comprehensive review is beyond the scope of this paper, we hope to familiarize the reader with some fundamental concepts from the self-regulation literature, and we will discuss how theories of self-regulation offer a conceptual framework for understanding vulnerability to psychopathology that can complement and extend standard cognitive-behavioral models. The theories we will highlight are useful for conceptualizing both depression per se and depressive/anxious comorbidity (Klenk et al. 2011).

Ultimately, the value of viewing depression as a disorder of self-regulation will be determined by successful translation of basic science into effective interventions. Our

second aim, therefore, is to describe self-system therapy (Vieth et al. 2003), an intervention that targets dysfunction in self-regulation. Of course, a skeptical reader might ask, *But do we really need more interventions for depression?* Clearly, there are a number of reliably efficacious, empirically supported interventions available, such as cognitive therapy (CT; Beck et al. 1979), behavioral activation therapy (Jacobson et al. 2001) and interpersonal psychotherapy (Klerman et al. 1984), to name a few. Nonetheless, even with the availability of such treatments, the public health burden of depression remains substantial. Furthermore, there is as yet no validated system or algorithm for a priori treatment selection based on an understanding of each treatment's mechanisms of action, and there is a large percentage of individuals who do not derive sufficient benefit from currently available treatments (Beutler and Clarkin 2014; Kasper 2014). It is our contention that there is still an enormous amount of work to be done by psychopathology researchers and clinical translational investigators to reduce the public health burden that depression represents.

Self-Regulation and Depression: Theory and Concepts

The nature and consequences of human behavior cannot be fully understood without taking into account the many ways in which people try to control their own thoughts, emotions, and behaviors. Within the discipline of psychology, the term *self-regulation* denotes the processes by which people initiate, maintain, and control their own thoughts, behaviors, or emotions, with the intention of producing a desired outcome or avoiding an undesired outcome (Carver and Scheier 1990; Karoly 1993). In this section, we explore two related lines of evidence that support the theoretical basis for interventions that target self-regulatory dysfunction. First, research based on self-discrepancy theory indicates that when individuals experience chronic failure to attain a promotion ("ideal") or prevention ("ought") goal, they manifest both a specific type of distress—dysphoria versus anxiety respectively—and an alteration of the strength of engagement within a particular motivational system. Second, research based on regulatory focus theory indicates that clinically significant dysphoric and anxious states are associated with reliably identifiable dysfunctions within those motivational systems.

Self-discrepancy theory links specific kinds of goal pursuit failure with different emotional states. Self-discrepancy theory (SDT; Higgins 1987; Strauman and Higgins 1987, 1988; Strauman 1992) explores how problems in self-regulation contribute to mood and anxiety disorders. SDT identifies self-regulation in relation to hopes and aspirations (*ideal* self-guides or goals) versus duties and obligations (*ought* self-guides or goals) and is specifically concerned with the emotional and motivational consequences of self-regulatory success vs. failure. The theory predicts that when individuals fail to meet their ideals (i.e., when there is a perceived discrepancy between their ideal self and their actual self), they experience dejection/dysphoria, whereas when individuals fail to meet their oughts (when they perceive a discrepancy between their ought and actual selves), they experience agitation/anxiety. According to SDT, what produces these different emotional syndromes are the different psychological situations (Lewin 1946/1951) that people experience in reference to their self-guides. When events are construed in reference to ideals (hopes and aspirations), people experience success as a *gain* and failure as a *non-gain*. This gain/non-gain construal triggers emotions such as happiness, joy, and satisfaction when we succeed and sadness, frustration, and disappointment when we fail. In contrast, when events are construed in reference to oughts (our duties and obligations), people experience success as a *non-loss* and failure as a *loss*. This loss/non-loss construal triggers emotions such as calmness and quiescence when we succeed and worry, guilt, and anxiety when we fail (Higgins 1998, 2001; Higgins and Tykocinski 1992; Strauman 1992).

SDT provides an integrative model linking the core social-cognitive process of self-regulation with research on motivation and emotion. Although there has been criticism of SDT based on some inconsistent findings in correlational studies (Phillips and Silvia 2010; Tangney et al. 1998), research using experimental techniques to "prime" or activate specific self-discrepancies has provided robust support for the theory's predictions (Higgins 1999). SDT also recognizes that situations frequently alter whether a person's ideals or oughts are more accessible at any moment. Whichever type of self-guide (ideal or ought) is more accessible at a given point in time is likely to determine how that particular situation was construed, which in turn would determine what affective experiences resulted. There is considerable evidence for emotional variability across situations as a function of individual differences in the accessibility of ideal and ought guides as well as from contextual priming (Shah 2003; Strauman and Higgins 1987).

Promotion and prevention are empirically supported constructs. Regulatory focus theory (RFT; Higgins 1997, 1998), which builds upon self-discrepancy theory, distinguishes between two motivational systems for goal pursuit: a *promotion* system that is concerned with nurturance, advancement, and fulfilling hopes (ideals) and a *prevention* system that is concerned with security, safety, and fulfilling duties (oughts). In ordinary language, the

function of the promotion system is to attain positive outcomes by "making good things happen," whereas the function of the prevention system also is to attain positive outcomes, but by "keeping bad things from happening". RFT emphasizes that promotion goal failure and prevention goal failure are distinct psychological states. Thus, if either the promotion or prevention system were activated in any specific situation, and a significant failure were to occur, then promotion-related or prevention-related distress would follow: dejection/dysphoria in the case of promotion failure and agitation/anxiety in the case of prevention failure (Idson et al. 2000). In contrast to the behavioral activation and inhibition systems, which operate as "bottom-up" temperament-based systems for *spatiotemporal* approach and avoidance in response to evolutionarily derived cues for reward or threat respectively (Depue and Collins 1999; Watson et al. 1999), the promotion and prevention systems are "top-down" socialization-based systems for strategic approach and avoidance in pursuit of personal goals (Strauman and Wilson 2010).

Promotion and prevention goal pursuit failure are associated with specific affective and motivational consequences. RFT makes predictions about the causes of acute dysphoric versus anxious states that can be distinguished from the predictions of standard cognitive-behavioral models (Klenk et al. 2011). Actual:ideal discrepancy (a failure to attain a promotion goal) is associated with dysphoria, anhedonia, and decreased engagement with sources of reward, whereas actual:ought discrepancy (a failure to attain a prevention goal) is associated with anxiety and hypervigilance (Strauman 1992). Promotion failure is experienced as the absence of a positive outcome, whereas prevention failure is experienced as the presence of a negative outcome. This distinction is important because it clarifies the critical difference in *what constitutes a failure* when the promotion versus prevention system is active. In turn, RFT implies that helping people who see themselves as failing to attain important goals requires different interventions depending on whether they are experiencing a prevention failure or a promotion failure (Strauman et al. 2015). This postulate led to the development of a psychotherapy which was organized around the promotion/prevention distinction, which we will elaborate upon in the following section.

RFT offers a novel account of dysphoric/anxious comorbidity. Although cognitive-behavioral therapies have long been targeted at the comorbid dysphoric and anxious symptoms that frequently characterize clinical depression, the theoretical bases for those targeted interventions were divergent and have only recently been integrated conceptually (Barlow et al. 2014). In contrast, RFT integrates the two kinds of symptoms within an overarching model of the motivational and emotional consequences of goal pursuit failure. First, it accounts for individual variability in affective responses to similar situations. RFT predicts distinct affective consequences depending on whether a goal is construed in terms of promotion or prevention. This framework helps determine whether an outcome is or is not construed as a failure, and, if it is, what type of negative affect will result. Second, RFT also predicts why at any given moment a person is experiencing primarily dysphoria or anxiety. That is, the distress experienced depends on whether the individual's current focus involves a promotion failure or a prevention failure (which is independent of that person's chronic self-discrepancies). Finally, RFT proposes that over time, dysfunction in one system can render an individual vulnerable to dysfunction in the other—offering a potential explanation for the emergence of depressive/anxious comorbidity over time (Klenk et al. 2011). The fact that RFT can account for acute as well as chronic anxious/depressive comorbidity suggests that self-regulation-based interventions may be effective for individuals experiencing both types of symptoms.

Dysphoric and anxious symptoms are associated with specific neural markers of self-regulatory dysfunction. Strauman (2002) predicted that depressed individuals would manifest an attenuated motivational response to promotion goal activation (weaker engagement, decreased eagerness) while anxious individuals would show an exaggerated response to prevention goal activation (increased engagement, greater vigilance). Subsequently, Eddington et al. (2009) examined the neural correlates of promotion and prevention goal priming (brief exposure to words representing one's own ideal or ought self attributes) in a sample of unmedicated adults meeting DSM-IV criteria for depression with or without comorbid GAD as well as a matched control sample of adults with no psychiatric history. They observed a significant difference in activation between the depressed and nondepressed groups following promotion goal priming, in which the controls showed greater left prefrontal cortex (PFC) activation following promotion priming than the depressed participants (i.e., lower activation of left PFC for the depressed individuals). In addition, they compared depressed participants with versus without comorbid GAD and observed a region in right PFC uniquely activated following prevention priming, but only for the individuals with comorbid anxiety (i.e., higher activation of right PFC for the anxious individuals). These neural activation patterns following promotion versus prevention goal priming were detected even though participants were not explicitly engaged in self-evaluation, providing evidence for neural activation "signatures" of self-regulatory dysfunction associated with depression versus anxiety.

It is important to acknowledge that there are a number of theories of self-regulation with implications for the etiology and treatment of depression. Outstanding examples of

applying self-regulation models to depression include Brinkman and Franzen (2015), Carver et al. (2008), Ingram et al. (2015), and Karoly (2006). Likewise, there have been highly influential discussions of self-regulation more generally which have substantial translational potential for the diagnosis and treatment of depression (e.g., Baumeister et al. 2007; Gollwitzer 1999; Heatherton 2011; Karoly 1993). Our focus here is, necessarily, on a limited subset of such theories rather than the entire domain. The concept of self-regulation, as a proximal locus for the influence of a broad range of distal biological, psychological, and social factors on affect and motivation (Strauman 2002), represents a fertile source of novel interventions for depression.

Clinical Application: Targeting Self-Regulation Processes in Therapy

A decade ago, we wrote about the merits of translational approaches to developing and testing therapeutic interventions, noting that empirically supported conceptual models of psychopathology provide a sound basis for predicting how, and for whom, specific interventions should work (Strauman and Merrill 2004). We also have discussed the translational benefits derived from the merging of clinical psychology with other fields such as social psychology and affective science, not the least of which has been new perspectives on clinical intervention (Strauman et al. 2007, 2008). In the past 10 years, considerable progress has been made in a number of such translational applications, including the development of therapeutic strategies for depression targeting specific problems with self-regulation.

Given the importance of how people construe situations in determining emotional responses to goal pursuit failure, self-regulation is a prime target for intervention (Mischel and Shoda 2008). SDT and RFT provide a readily applicable framework for conceptualizing depression and anxiety. In this section, we describe the approach we have taken within self-system therapy (SST; Vieth et al. 2003) in applying a set of self-regulation concepts to the treatment of major depressive disorder (MDD). While not all cases of MDD are characterized by dysfunction in promotion goal pursuit, individuals manifesting such self-regulatory deficits appear to fare more poorly in customarily efficacious treatments such as CT, IPT, or SSRI pharmacotherapy (Strauman et al. 2001). This observation suggests that existing treatments may not be optimized to target self-regulatory dysfunction. Introducing strategies focused on improving aspects of self-regulation could enhance outcomes for MDD associated with difficulties in personal goal pursuit.

There are a number of strategies within SST that exemplify the translation of self-regulatory theories into psychotherapeutic techniques. We divide these strategies into two broad categories, *awareness-oriented* and *change-oriented*. This division is for convenience of discussion only; in practice, these strategies are intended to be implemented in an integrated fashion (in the same manner as the use of daily thought records in CT evolves from increasing the individual's awareness of underlying thoughts to helping the individual challenge those thoughts). The labels do not imply that strategies aimed at increasing insight and awareness do not produce change; rather, our distinction reflects the observation that change-oriented strategies tend to be more directive than exploratory. In this section, we describe the most important organizational and content elements of SST and illustrate them with brief excerpts from the SST client worksheets. We refer the reader to other sources which provide more detail on specific techniques (e.g., Vieth et al. 2003).

SST is organized into three phases, much like other brief therapies. The initial, or *orientation*, phase is intended to set the stage for effective collaborative work between therapist and client using a self-regulation framework. This phase introduces critical concepts, examines the impact of depression on the client's life, and culminates in an initial formulation of potential targets for change. The middle, or *exploration*, phase is designed to facilitate an in-depth examination of the client's goals and standards, as well as how those goals and standards become engaged in ongoing life situations. This stage leads to a revised problem formulation and a set of targets for change. The final stage, *adaptation*, draws on a set of modules, each of which focuses on a particular aspect of self-regulation (e.g., evaluating and modifying standards; balancing promotion and prevention; increasing the effectiveness of goal pursuit; reducing self-discrepancy) and includes an emphasis on initiating change as well as developing compensatory skills. A number of specific concepts and techniques from the self-regulation literature are included, but with primary emphasis on creating a coherent, individualized set of practices and skills for clients to use for themselves. SST can be summarized in four questions: (1) *What do you want?* (goals, standards, regulatory orientation); (2) *How are you trying to get it?* (self-regulatory style); (3) *Why are you not getting it?* (self-regulatory failure); and (4) *What can you do differently?* (change and compensation).

Depression is a condition that may accompany or follow disappointments or frustrations that people experience. Furthermore, by causing changes such as sadness, lack of energy, and a disruption of eating and sleeping patterns, depression can:

Make it difficult to accomplish the goals and tasks of everyday life

Make you feel unable to do what you need to do or would like to do

Make you feel that you are not being the kind of person you would like to be or believe you should be

Our goal is to help you regain a more productive and satisfying life by working together to look at how the depression is affecting you and what might have led to it. We will look at the important experiences and relationships in your life, both past and present. We will also look at your personal goals and how you try to accomplish them, as well as the standards you use to judge how you are doing in life

In the remainder of this section, we present some of the fundamental self-regulatory principles by which SST is organized, and provide examples of strategies and techniques used within the therapy to operationalize those principles.

SST Strategies for Construing Depression as a Disorder of Self-Regulation

Drawing on basic scientific knowledge about the role of self-regulation in emotional experiences, one of the first strategies in SST is to develop a shared understanding of the client's problems from the conceptual framework we have summarized previously. The language of self-regulation can be easily understood by most clients, and a clear understanding of the basic concepts is essential for a collaborative approach to treatment. With a shared language established from the start of treatment based on personal goals, standards, and expectations, the therapist and client can begin to view problems and struggles through the lens of regulatory focus theory and the critical distinction between promotion and prevention.

This treatment emphasizes that there are two general kinds of goals that people have:

1. Promotion goals—*Making good things happen*

*Examples:

*Making a nice meal for the pleasure of it

*Going for a walk to energize myself

*What happens if we don't focus enough on making good things happen (*Promotion Goals*)? We tend to feel DOWN and DEPRESSED

2. Prevention goals—*Keeping bad things from happening*

*Examples

*Making a nice meal because it's my responsibility

*Going for a walk because I want to keep from gaining weight

*What happens if we focus too much on keeping bad things from happening (*Prevention Goals*)? We tend to feel ANXIOUS

Both promotion and prevention goals are important, but to feel our best, it is important to have a *balance*. When we live with depression, we tend to focus a lot on keeping bad things from happening and not as much on making sure good things happen in our lives.

A direct translation of a core theoretical principle of self-regulation is illustrated in an SST strategy used early in therapy, Self-in-Context Assessment. The principle, discussed previously, is that individual differences in motivational tendencies are rooted in one's social developmental history. The extent to which parents and other influential people place an emphasis on rules and regulations, or on reward and accomplishment, shapes the development of the child's motivational tendencies. It follows, therefore, that exploring these developmental roots may improve a client's understanding of their own characteristic motivational orientation(s). Generating an all-encompassing story to explain current problems based on retrospective recall of events from many years past is not a likely or necessary outcome. However, this technique can provide a "distancing" effect, reducing depression and rumination (Kross and Ayduk 2008). Furthermore, exploration of the client's historical context can reveal goals, expectations, and standards that have been imposed on the client by others. Those should be carefully reconsidered, as the pursuit of externally-motivated goals is associated with lower well-being compared to goals that are self-motivated (Kasser and Ryan 1996, 2001). SST offers a specific conceptual framework for helping clients make sense of their experience:

Our goal is to help you regain a more productive and satisfying life by looking closely at the ways you approach your goals and responsibilities. We will look at the important experiences and relationships in your life, both past and present. We will also look at the standards you use to judge how you are doing in life and the ways you attempt to be the kind of person you want to be. And of course, we will look closely at how depression has interfered with all these things

Likewise, examination of historical antecedents is particularly valuable for identifying the origins of long-standing motivational tendencies (promotion and prevention orientations)—that is, how people go about pursuing goals and which particular goals they pursue. The Self-in-Context Assessment (SCA) is an adaptation of the Interpersonal

Inventory from Klerman et al.'s (1984) interpersonal psychotherapy for depression. The purpose of the SCA is to systematically assess the past and current relationships in which the client learned that being a particular kind of person was good or bad via specific consequences for behaving (or not behaving) in particular ways. The assessment involves a set of questions which can help explain how and why the client is not able to successfully attain her/his goals:

Choose one important relationship and answer the following questions. This will help us learn about how your relationships influence your goals and your beliefs about the person you are, would ideally like to be, and feel you ought to be

1. How do/did you act around this person? (e.g., loving, childish, judgmental)
2. What kind of person did/do you ***want to be*** around this person? (e.g., assertive, supportive, client)
3. What kind of person did ***they*** want you to be/not be? (e.g., responsible, adventurous, controlling) What kind of standards did they set for you?
4. What happened when you did not behave like this person expected?

In addition, careful monitoring of goal pursuit as it occurs during the course of day-to-day activities also fosters awareness of the role of contextual factors. Using self-monitoring techniques, clients can learn to recognize how the patterns predicted by SDT and regulatory focus theory play out in their daily lives, for example how the pursuit of promotion and prevention goals (ideals and oughts) impacts emotions. Consistent with the theoretical motivation-emotion connections under SDT and RFT, clients are able to see for themselves the emotional consequences when they succeed, or fail, at their promotion and prevention goals.

It's important for us to determine the ways in which depression is interfering with your everyday life right now. Having a detailed understanding of these problems will help us to get the best results from this treatment

1. What disappointments, frustrations, or failures have you been experiencing?
2. What goals or responsibilities have you been having difficulty with?
3. What behaviors or personal characteristics have you been feeling bad about?

The initial phase of SST concludes with the client and therapist jointly constructing an initial problem formulation from a self-regulatory perspective. At this point, the formulation typically is focused on stimulating more in-depth examination of specific situations and challenges that have been identified, as well as possible general patterns that may have emerged from a first pass through the difficulties of the client's current life.

Use the following questions to help identify things going on in your life that you might want to change

1. What ways of *trying to make good things happen* in your life, and *trying to keep bad things from happening*, might need to be different?
2. What ways of *thinking about yourself* might need to be different?
3. Which of these do you believe can be changed?
4. Which of these do you believe you can learn to live with better even if they cannot be changed?

SST Strategies for Exploring and Changing Self-Regulation

The second and third phases of SST are intended to facilitate in-depth *exploration* of the client's self-regulatory tendencies and how those tendencies may or may not fit optimally within her/his current life context, and to initiate the processes of *change* and *adaptation* in order to help the individual be more successful in pursuing important personal goals. SST uses two primary techniques in its exploration phase: Psychological Situation Analysis, a detailed assessment of goals, strategies, and consequences within a specific interpersonal encounter, and Self-Belief Analysis, an intensive examination of the client's goals and standards. These two techniques, used repeatedly, generate the data needed to revise the treatment formulation and identify specific targets for the final phase of therapy.

Self-Belief Analysis is derived from Beck's cognitive therapy (Beck et al. 1979), and represents a straightforward adaptation of CT techniques into the language of self-regulation. Therapist and client work together to identify and explore the client's *goals* (specific, concrete outcomes) and *standards* (the kind of person the client wants to be or believes they should be) asking a series of questions linking this exercise with the Self-in-Context Assessment: Where did the goal or standard come from (developmental origin)? Why is it important to you now, and is that different from earlier points in your life? Is it realistic? Age-appropriate? Attainable? Could it be changed or made less important?

Psychological Situation Analysis (PSA) begins by identifying a recent problematic encounter and applies a microanalytic, goal-focused perspective on the antecedents, behaviors, and consequences as they emerged. This technique draws heavily on the classic topological social psychology of Kurt Lewin (1951) as well as the tradition of functional analysis in behavior therapy (e.g., Hanley et al. 2003). It is presented in two parts, the first of

which encourages the client to analyze the encounter using a self-regulation framework:

This sheet is designed to help you practice analyzing situations in which you felt either *good about yourself* or *bad about yourself*. Please complete one sheet each day, focusing on the *most important or most emotional* experience you had that day

Examples: conversation with your spouse, difficulty with your child, a meeting at work

1. The situation itself and the other person(s) who were involved:
2. Your *goal(s)* in the situation: What were you trying to accomplish or avoid?
3. What did you actually *do* in the situation?
4. How well did it work? How did the other person(s) respond?
5. How did you end up feeling afterward?

In the second part of PSA, the client is encouraged to integrate the previous focus on characteristic goals and standards with the functional analysis of specific encounters, using questions such as, "Do any of the standards we identified before apply to this situation?" and "Did this standard come from you or someone else? If from someone else, who?"

After repeated collaborative efforts between therapist and client using PSA and SBA, the exploration phase concludes with a summary and a revised problem formulation:

As you have analyzed how you felt in particular situations, you may have noticed some common themes across your experiences. By considering these themes, we may be able to learn how your depression is making it hard for you to pursue your goals and what kinds of situations are particularly challenging for you. This information can be helpful in recovering from depression as well as preventing it from recurring. Please review the standards, situations, and relationships you have described, then consider these questions

1. What common themes did you find regarding your goals?
2. What common themes did you find regarding how you tried to pursue these goals?
3. What common themes did you find regarding how people respond to you?
4. What common themes did you find regarding how people's responses made you feel?
5. Across the situations we've examined, what kind of person are you trying to be?
6. Across the situations we've examined, what kind of person are you trying NOT to be?

After jointly revising the problem formulation, the therapist and client embark on the final phase of SST, intended to jump-start the process of making changes and learning to adapt more effectively to factors that cannot easily be changed. Strategies that involve a more directive focus on change include those that reduce self-discrepancies and increase engagement with promotion goals. The strategies for evaluating and revising goals follow directly from both Self-Belief Analysis and Psychological Situation Analysis, and can involve situation-specific or cross-situational perspectives. In a number of respects, the rationale for the move from exploration to adaptation mirrors the evolution of how daily thought records are used in CT: first as an instrument for data gathering, and then as an opportunity to try things differently. The following excerpt from the client worksheets illustrates the general logic of this final phase:

Step 1: How realistic is this goal?

- Is reaching this goal possible?
- Do you have the resources or skills needed to reach the goal?
- Are there circumstances that could prevent you from reaching this goal?

Step 2: If your goal is realistic, ask these follow-up questions:

- Is the goal specific enough that you know what to do first, second, third, etc.?
- What strategies have worked for you in the past in reaching similar goals?
- What strategies have *not* worked for you in the past in reaching similar goals?
- What additional skills/resources do you need to reach your goal?

Step 3: If your goal is not realistic, ask the following questions:

- Is there a more immediate goal that should be reached first?
- Would the goal be more realistic if you changed the time frame?
- Would the goal be more realistic if you developed additional skills?

There is a well-documented association between avoidance and depression (e.g., Aldao et al. 2010; Holtforth et al. 2005), and the widespread use of behavioral activation strategies in depression treatment (Jacobson et al. 2001) points to the need to increase clients' engagement with goal-directed behaviors. Therefore, he process of change in SST for depression often involves "getting the client going" by increasing the availability and accessibility of promotion goals via daily diaries and/or using established behavioral activation techniques for overcoming obstacles such as low energy or hopelessness.

A second component might be to address cognitive biases and/or behavioral deficits associated with *ideal self* standards. CT, as well as client-centered therapy (Rogers 1959), both emphasize the need to help individuals evaluate and modulate their ideals:

Identify a standard that you want to examine:

Examples: "I must be a perfect mother" or "I should be productive most of the time."

- Does this standard involve making good things happen or preventing bad things from happening? Is it related to how you *want* to be or how you feel you *should* be?
- Where did this standard come from? (Who gave you the idea that it was important?)
- How do you know whether you are meeting the standard?
- Is it possible to meet and maintain this standard? How much effort does it take?
- What is the result of meeting this standard?
- What is the result of failing to meet this standard?
- How could you change this standard to make it more moderate/attainable?
- If you changed this standard, how might your life be better?
- If you changed this standard, would you lose anything?

A third component could involve a closer examination of the validity of the client's *actual self* perception or evaluation. Decades of research on the cognitive model of depression support the notion that depression is associated with distorted thinking (Clasen et al. 2013). Thus, the magnitude of a self- discrepancy may be exaggerated due to distorted perceptions of a client's actual capabilities and accomplishments. Cognitive restructuring techniques from CT, along with self-examination techniques from client-centered therapy, can be used to encourage a more objective evaluation of the client's *actual self* state.

Reducing discrepancies also may involve evaluating other aspects of the goals themselves. Evidence suggests that people with depression set approach goals that are less specific, less efficient, and less likely to lead to positive outcomes (Dickson and MacLeod 2004a, b). A goal of "getting into better physical condition" may involve multiple specific components. Encouraging a focus on more manageable, shorter-term goals will allow for more frequent opportunities for goal achievement and positive reinforcement. This strategy is not just a practical one. From a cognitive standpoint, a client whose only guiding beacon is a poorly specified goal like "being happy" has no real guide at all, practically speaking. Such abstract goals, which are associated with vulnerability to depression, are more difficulty to achieve and require more effort compared to more specific goals (Emmons 1992), thus reducing the chances of goal progress. Furthermore, conflict among higher-level (more abstract) goals may have a greater impact on well-being compared to lower-level goals (Kelly et al. 2015).

Write down one goal you have had difficulty reaching. Be specific. (For example, a project at work/school, a specific health habit, or a particular relationship.)

What strategies are you currently using to reach this goal?

What reasons can you (or others) give for why these strategies haven't worked?

What other strategies could you try?

How will you be able to know that you are making progress toward this goal?

Another strategy for reducing discrepancies involves lowering *ideal self* and/or *ought self* guides. For some clients, this may be particularly challenging. There is a significant correlation between depression and perfectionism, particularly when the perfectionism involves high levels of self-criticism or strong concerns about meeting other peoples' high standards (Bergman et al. 2007; Bieling et al. 2004; Enns and Cox 1999). Perfectionism has been shown to predict poorer response to treatment (Blatt 1995). It has also been shown to be associated with less flexibility in goal pursuit (Eddington 2014) and to negatively impact progress in goal pursuit (Powers et al. 2011), suggesting that perfectionism should be explicitly addressed in any intervention that aims to improve self-regulation. Techniques for lowering an extreme standard may include evaluating the relative pros and cons of maintaining the current standard, for example by emphasizing the cons and pointing out that adopting a lower standard may be a temporary strategy that can be re-evaluated when depression remits. Examining the origins of the standard is another useful technique. Standards imposed by others are more likely to involve extrinsic motivation, and evidence suggest that extrinsically motivated goals are associated with lower well-being and less emotional "payoff" than intrinsically-motivated goals (Burton et al. 2006; Kasser and Ryan 1996, 2001). A reasonable case may be made that, in some cases, certain goals and standards that are identified as being pursued for completely external reasons and are not valued by the client could be abandoned completely.

Not surprisingly, many clients high in perfectionism have difficulty with the idea of lowering standards. The standards have often become something of a moral imperative for some clients, and the proposal to aim for lower hanging fruit, even temporarily, can be met with a strong negative reaction. In such cases a closer examination of the broader function of perfectionistic standards in the client's life may be necessary. Presumably, information gathered using the insight/awareness strategies discussed

previously will likely help shape a conceptualization of how perfectionistic standards relate to the client's sense of self, relationships with others, and self-regulatory behaviors. Along these lines, when reducing the magnitude of discrepancy may be difficult, techniques aimed at altering the emotional impact of the discrepancy by changing the relative importance of associated goals may be useful. Placing a discrepancy, whose importance is exaggerated in the client's view, in the proper perspective should lessen its emotional impact. Likewise, increasing the salience of positive or "non-discrepant" attributes can have similar effects.

1. List the areas in which you tend to be the most perfectionistic or have the highest standards (for example: Family: "I must always listen patiently to my children"; Health: "I must work out 6 days per week"; Office: "I must keep my email Inbox cleared out at all times").
2. Where did these standards come from? (When did you learn them? Who gave you the idea they were important? How did you decide to adopt them?)
3. Next, list the areas in which you tend to be the least perfectionistic or have more moderate standards (for example: Meals: "I am happy to use already prepared meals or order takeout on a busy night"; Home: "A few dust bunnies never hurt anyone!").
4. Why do you think you were able to develop more moderate and realistically attainable standards in *these particular areas*?

The other major change strategy rooted in SDT and RFT is to increase engagement with promotion goals. As noted previously, a defining feature of depression within a self-regulatory framework is chronic failure in promotion goal pursuit. The strategy is deceptively simple: examine the types of goals that the client is focused on in daily life, and encourage the client to increase the proportion of promotion goals by assigning behavioral homework and using activity logs. However, zeroing in on the *balance* of promotion and prevention goals is not as straightforward as it may seem. Recall that promotion and prevention goals are based on construal; they cannot necessarily be distinguished based on the behavioral description of the goal or activity itself. For example, the goal "spend more time with my kids" could be based primarily on the motive of enjoying time with the kids or creating fun memories (seemingly promotion focused). However, it could also stem from a desire to avoid looking like a bad father in the eyes of others (a spouse, in-laws; prevention focused). In the latter case, the client might be more concerned with keeping a tally of time spent with kids, resulting in him "going through the motions" in an effort to fulfill an obligation. Recalling that prevention goals are defined by non-loss in the face of success, the emotional consequences in this case will be relief and quiescence rather than pleasure or enjoyment.

Based on what you've learned so far, are you generally more focused on promotion (making good things happen) or prevention (keeping bad things from happening)?

- Where did this tendency come from? (How and when did you learn it? Who gave you the idea that it was important? How did you decide to adopt it?)
- In what situations are you are more likely to use a *promotion* focus? (e.g., hobbies, relating to my kids)
- In what situations are you are more likely to use a *prevention* focus? (e.g., work, relating to my parents)
- What are the benefits of a promotion focus?
- Are there any disadvantages to a promotion focus?
- What are the benefits of a prevention focus?
- Are there any disadvantages to a prevention focus?
- Select one of the situations you analyzed earlier. How would things be different if you had chosen the opposite goal focus in that situation (if you were more promotion-focused, for example?)

Clients may be unaware that a predominant prevention focus is actually driving decisions and actions. One of the insights of RFT is that promotion and prevention have different emotional consequences; in terms of personal goal pursuit, the only way to "feel good", in the sense of joy or happiness, is to engage in promotion strategies when pursuing a goal. Prevention strategies, when successful, can alleviate guilt and anxiety and help individuals feel more calm, but within that motivational system there is no mechanism for generating the experience of reward. Depression is complicated by the fact that experiences of pleasure and enjoyment are attenuated, so emotional consequences may be difficult to discern. Even in light of that challenge, however, collecting detailed information about how the client is thinking about, and reacting to, the goal in question can provide important clues. And as is the case for other efficacious treatments, the final phase of therapy presents an opportunity for the client and therapist to identify future challenges, anticipate potential setbacks, and solidify gains.

At the start of each day, write down one *challenging situation* you will be faced with during that day (e.g., a work or school assignment, a conversation with a family member or friend). Next, write down your *goals* for that situation. What do you want to accomplish? Remember to be *realistic*. At the end of the day, complete these ratings.

How much were you able to *accomplish your goals* for the situation you chose?

0	1	2	3	4	5
Not at all					Completely

How did you *approach* the challenging situation?

0	1	2	3	4	5
Fearful of failure					Confident of success

Did your goals for the challenging situation include *making something good happen*?

0	1	2	3	4	5
Not at all					Completely

Did your goals for the challenging situation include *preventing something bad from happening*?

0	1	2	3	4	5
Not at all					Completely

What did you learn from this situation that can help you in future situations?

Evidence for the Efficacy of SST

The strategies and techniques summarized above have been consolidated in SST, which was designed with a particular subset of depressed individuals in mind (Vieth et al. 2003). SST was specifically intended for individuals whose socialization history did not lead to the establishment of an effective promotion system and/or whose socialization led to chronic prevention system hyper-activation. The hypothesis that depressed individuals with significant difficulties in personal goal pursuit would be more likely to benefit from SST has been tested in two randomized clinical trials. In both trials, SST was compared with Beck's cognitive therapy (CT; Beck 1995). The first trial (Strauman et al. 2006) involved a sample of 45 adults with mild to moderate depression with or without comorbid generalized anxiety disorder. Two specific predictions were examined: that SST would be more effective for individuals whose depressive symptoms were associated with attenuated promotion system engagement strength, and that SST also would be effective for comorbid anxiety associated with prevention system hyperengagement. The overall efficacy of SST was equivalent to that of CT (both led to clinically significant improvement in approximately 60 % of clients after 4 months of treatment). However, consistent with our model, clients with significant promotion dysfunction who received SST showed significantly greater improvement than clients with significant promotion dysfunction assigned to CT. We also observed that clients with high levels of prevention system engagement showed greater reductions in anxiety from SST than from CT. Interestingly, CT outperformed SST for depressed clients who were not characterized by self-regulatory dysfunction, offering some initial data for potential treatment matching.

Similar findings were obtained in a second, independent trial involving 49 adults with moderate to severe depression (Eddington et al. 2015). In this study, self-regulatory dysfunction was defined differently using measures of promotion orientation (defined by success with promotion goal pursuit) and goal re-engagement (ability to flexibly establish new goals in the face of failure). Both measures were moderators of outcome, yielding outcomes similar to those for the socialization measure in the original trial. Specifically, low promotion success and low ability to re-engage in new goals when faced with obstacles in goal pursuit both predicted better symptom improvement in SST than in CT. Together, the results from these clinical trials suggest that clients who are characterized by low levels of promotion system engagement show more improvement when the treatment targets self-regulation. One interpretation of these findings is that SST works by compensating for deficits in self-regulation as opposed to capitalizing on existing strengths. However, these results cannot directly address the question of whether SST actually produced its effects via the mechanisms proposed, since the studies were not designed with a primary emphasis on treatment mechanisms of action.

Recently we have begun to investigate hypothesized mechanisms of action for interventions derived from RFT. To date we have conducted two proof-of-concept studies of

self-regulation "microinterventions" that targeted dysphoric and anxious affective states in undergraduates who reported a range of symptoms (Strauman et al. 2015). Study 1 exposed participants who varied in chronic dysphoric and/or anxious mood to a one-session microintervention designed to either strengthen or weaken engagement in goal pursuit. The participants were given a script describing a technique for dealing with adversity and were encouraged to generate examples of current problematic situations and apply the technique described in the script to those situations. They were assigned to: (a) a script that described dealing with distress by overcoming or opposing obstacles (intended to strengthen regulatory system engagement), (b) a script that described viewing the distress as an emotional nuisance (intended to weaken regulatory system engagement), (c) a combined script, or (d) an active control condition. According to RFT, dysphoria is associated with hypo-engagement of the promotion system whereas anxiety is associated with hyper-engagement of the prevention system. As such, we predicted that dealing with distress by overcoming or opposing obstacles would be beneficial for dysphoric symptoms, as reflected in an increase in state positive affectivity, whereas viewing the distress as an emotional nuisance would be beneficial for anxious symptoms, as reflected in a decrease in state negative affectivity. The results supported these predictions, providing evidence for the discriminative validity of our model for treatment mechanisms of action in SST. Study 2 tested a microintervention based on a self-regulation model of rumination (Jones et al. 2013). Because it is common for individuals suffering from depression or anxiety to ruminate over past failures, we tested whether ruminative responses to failure could be reduced by creating regulatory non-fit for the ruminative counterfactual thinking. The intervention was based on evidence (Roese et al. 1999) that prevention failure is associated with *subtractive counterfactual thinking* (e.g., "What mistake did I make?"), whereas promotion failure is associated with *additive counterfactual thinking* (e.g., "What did I fail to do?"). A regulatory non-fit is created when anxious individuals are asked to use additive counterfactual thinking or when dysphoric individuals are asked to use subtractive counterfactual thinking. We predicted that by inducing a specifically targeted regulatory non-fit by replacing the usual counterfactual responses to failure associated with anxiety or dysphoria, the intervention would decrease those participants' anxious or dysphoric feelings. We assigned participants who varied in their levels of chronic dysphoric and/or anxious mood to (a) write an additive counterfactual regarding a recent failure, (b) write a subtractive counterfactual regarding a recent failure, or (c) a no writing condition. As predicted, self-reported anxiety decreased when participants used (non-fit) additive counterfactual thinking, and self-reported sadness decreased when participants used (non-fit) subtractive counterfactual thinking. The findings of both proof-of-concept studies were consistent with our self-regulation model of dysphoric versus anxious symptoms and with the presumed mechanisms of action in SST. Unlike in the SST clinical trials, in which a full treatment "package" with multiple components was delivered, this microintervention research isolated specific components of SST and demonstrated acute effects that are consistent with the changes observed in the clinical trials.

Summary and Future Directions

A psychotherapy focused on self-regulation has the potential to be useful to a range of individuals experiencing depression, but also (via studies of potential mechanisms of action) to identify possible self-regulation-based risk phenotypes toward which preventive or therapeutic interventions could be targeted (Strauman 2017). Translational behavioral science has much to offer in terms of addressing the significant public health challenge of mood disorders. The primary objectives of SST include education about depression, re-initiation of goal-directed behavior that is relevant to the individual's promotion (ideal) goals in particular, systematic self-evaluation, identification of targets for change, and instantiating change and/or compensatory strategies to reduce distress and restore adaptive self-regulation.

How can we learn more about the ways in which treatments such as SST work? Efficacious psychotherapies share a number of active components, especially the so-called "universal" aspects such as the working relationship between client and therapist. In addition to such components, therapeutic change in SST is hypothesized to occur via several specific mechanisms drawn from RFT and from basic research in social cognition and affective science:

- Changing the *availability* and *accessibility* of goals. SST can promote change by helping the client modify the set of goals used in the process of self-regulation. For instance, SST may help the client acquire goals that are more adaptive. Having more appropriate goals should lead to increased success in goal pursuit. "Accessibility" refers to the likelihood that a particular goal representation will be used in self-regulation (Higgins and King 1981). The greater the accessibility of a goal, the greater influence it will have on self-evaluation. SST is designed to help increase the accessibility of adaptive goals and decrease the accessibility of maladaptive ones.
- Changing the *importance* and *affective significance* of goals. SST also seeks to modify the emotional

significance of goals and thus, temper the emotional and motivational consequences of failure. The therapist may encourage a client to question the 'fit' of a goal for current circumstances, help the client recognize situations where particular goals are more or less relevant, or explore the consequences of pursuing to a particular goal.

- Changing patterns of *goal-directed behavior*. By teaching interpersonal skills, helping clients to deal more effectively with challenging situations, and increasing opportunities for success in attaining promotion goals, SST can help to change how individuals engage with the social world more effectively to become the kind of person they would like to be.

The primary therapeutic techniques of SST represent methods for exploring the client's goals and her/his ways of pursuing them. Each is related to techniques used in other efficacious psychotherapies. Self-in-Context Assessment, adapted from the Interpersonal Inventory technique of Klerman et al.'s interpersonal psychotherapy, occurs early in treatment. SCA also draws upon the developmental postulates of RFT, which hypothesize that dominant regulatory orientations and characteristic self-beliefs develop from early patterns of parent/child contingencies. The purpose of SCA is to generate an initial "data base" from which the therapist and client can develop hypotheses regarding the client's problems in self-regulation. The therapist and client assess the relationships in which the client learned that being a particular kind of person was good or bad through the experience of positive or negative emotions for behaving (or not behaving) in particular ways. Psychological Situation Analysis, which occurs during the middle of treatment, involves examining current or past interpersonal encounters to illuminate the client's experiences of the interactions, the goal(s) that were operative, the strategies the client used to pursue them, and the outcomes and the affective states that resulted. The therapist and client work to identify the client's modal psychological situations and her/his characteristic self-regulatory style. Self-Belief Analysis (SBA) also takes place during the middle of treatment. The purpose of SBA is to identify and examine the origins, content, and functions of the client's beliefs about her/himself in relation to others, and to determine how these beliefs may contribute to the client's symptoms. SBA parallels the analysis of automatic thoughts and core beliefs in CT; however, whereas CT targets the negative cognitive triad and underlying depressogenic schemas, SST focuses on the role of goals in maladaptive self-evaluation.

There is much more work to be done exploring how targeting self-regulatory dysfunction could reduce distress and improve well-being. In addition to randomized trials in clinical populations, an alternative approach to clinical research, described briefly above, is to design and test microinterventions that target specific mechanisms of vulnerability. Such tests not only set the stage for larger-scale treatment research, but also challenge the underlying theoretical model itself. For example, RFT suggests a number of novel strategies for behavioral intervention with individuals characterized by self-regulatory dysfunction. One such strategy is based on the notion of engagement strength—the intensity with which an individual's regulatory system is activated in the context of goal pursuit. If depression is maintained in part by an inability to discontinue pursuing particular promotion goals for which there is currently no chance for success, then helping the client to reduce (rather than increase) promotion engagement strength in response to failure feedback would have the paradoxical but salutary effect of reducing dysphoric symptoms. Another novel strategy can be derived from the concept of *regulatory fit*, the match between the type of goal being pursued and the means used to pursue it. As above, if depression is maintained in part by an inability to discontinue promotion goal pursuit, then helping the client learn to intentionally disrupt promotion fit in response to failure feedback (for example, by pursuing the troublesome goal using a prevention-based strategy instead of a promotion-based strategy) should also lead to a paradoxical reduction in dysphoric affect. Taking a microintervention approach to testing mechanisms of action in SST (or other treatments) thus provides a rigorous test of the underlying theory itself.

At the beginning of this article, we raised the question of whether there is a need for yet another treatment for depression. We hope that we have offered convincing evidence supporting the value of a self-regulation-based theoretical framework for understanding and treating psychopathology. We provided a brief overview of the basic concepts of self-regulation along with an example of its translation into a treatment approach for depression. One of the advantages of this approach is that it does not require an entirely new set of therapeutic strategies or skills. Instead, we recognize that clinicians already have an arsenal of effective tools; rather than reinventing the wheel, we aimed to capitalize on existing strengths in the field. As such, tried-and-true techniques such as activity scheduling and monitoring, examining interpersonal relationships, and analyzing daily events have been incorporated into SST.

For clinicians who are already well-versed in these techniques, the structure of SST will likely feel familiar. However, the distinction lies in how these techniques are used. For example, activity scheduling in behavioral activation for depression, strongly rooted in basic behavioral principles, operates on the principle that the key to

changing how people feel is to help them change what they do. The self-regulatory approach described here in SST also involves activity scheduling but with careful attention toward the types of activities and how they are construed by the individual (in promotion or prevention terms), the goals and standards that come into play in those activities (e.g., *"What is your goal?"* is a common refrain), and the subtleties of the emotional responses to success or failure.

Viewing psychopathology through the lens of self-regulation may lead to other innovative strategies for intervention. For example, the microintervention research mentioned earlier (Strauman et al. 2015) included a study that redirected people with mild to moderate anxiety or dysphoria to think about a distressing situation in a different way based on regulatory fit. This strategy doesn't seek to prevent or avoid repetitive thinking (rumination and worry), and it is not cognitive restructuring in the traditional CT sense; rather, it encourages people to reframe their thinking in a way that counteracts their regulatory tendencies, thereby attenuating the negative emotional impact. These findings, along with the clinical evidence for SST's benefits for depressed adults with regulatory deficits, suggest that putting a new twist on existing techniques has strong potential for enhancing clinical outcomes. In addition, as was noted in the introduction, the importance of developing reliable a priori algorithms for treatment selection remains salient for psychopathology research and the theory-driven nature of SST may be a useful model in this regard.

Finally, we believe there is significant potential for extending a self-regulation-based approach to behavior and affect change beyond our initial emphasis on mood disorders. For example, depressive/anxious comorbidity can be conceptualized in terms of regulatory focus, and different RFT-based interventions could be used to minimize dysphoric versus anxious symptoms (Klenk et al. 2011). Likewise, by identifying individuals whose personal history and self-regulatory tendencies indicate risk for depression, preventive strategies could be implemented in order to reduce the likelihood of an initial depressive episode. And of course, these interventions also constitute tests of the underlying theory itself, which in turn facilitates the ongoing translational exchange between basic and clinical science. We look forward to further developments in the application of self-regulation theory to psychological interventions.

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Compliance with Ethical Standards

Conflict of Interest Timothy J. Strauman and Kari M. Eddington each declare that they have no conflict of interest.

Informed Consent All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

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