

The Origins and Current Status of Behavioral Activation Treatments for Depression

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Annu. Rev. Clin. Psychol. 2011. 7:1–38

First published online as a Review in Advance on January 18, 2011

The *Annual Review of Clinical Psychology* is online at clipsy.annualreviews.org

This article's doi:
10.1146/annurev-clipsy-032210-104535

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1548-5943/11/0427-0001\$20.00

Keywords

behavioral activation, depression, psychotherapy, history, review, cognitive behavior therapy

Abstract

The past decade has witnessed a resurgence of interest in behavioral interventions for depression. This contemporary work is grounded in the work of Lewinsohn and colleagues, which laid a foundation for future clinical practice and science. This review thus summarizes the origins of a behavioral model of depression and the behavioral activation (BA) approach to the treatment and prevention of depression. We highlight the formative initial work by Lewinsohn and colleagues, the evolution of this work, and related contemporary research initiatives, such as that led by Jacobson and colleagues. We examine the diverse ways in which BA has been investigated over time and its emerging application to a broad range of populations and problems. We close with reflections on important directions for future inquiry.

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INTRODUCTION

Recent years have witnessed a renewed interest in behavioral activation (BA) for the treatment of depression. Although depression is one of the most prevalent and disabling mental disorders, the vast majority of depressed patients are poorly served by our current treatment delivery systems, with most receiving either no treatment or inadequate care (Wang et al. 2005). Multiple elements contribute to this pressing public health problem; however, the shortage of transportable, efficacious treatments is widely recognized to be an important factor. In this context, scientific and clinical attention has turned to the potential value of BA as a parsimonious, evidence-based treatment for depression that may be particularly amenable to broad dissemination.

This recent interest in BA arises within a context of a long history of innovative clinical research and practice. Specifically, contemporary work is rooted in the work of Lewinsohn and colleagues, whose use of an iterative process of theoretical development, clinical practice, and empirical investigation led to the pioneering of both behavioral theory and practice. In contrast to the ahistorical stance that often characterizes the field of clinical psychology, we suggest here that awareness of the origins and trajectory of work on BA will enrich contemporary clinical research and practice.

This review thus summarizes the development of a behavioral model of depression and the BA approach to the treatment and prevention of depression, highlighting the initial work by Lewinsohn and colleagues and ongoing work

in this tradition. We discuss early influences, both theoretical and empirical, and describe the evolution of these models over time, including contemporary work by some who collaborated with Lewinsohn on seminal research. We also discuss the lines of research initiated more recently by Jacobson and colleagues and other contemporary researchers, which have revived interest in the value of BA in the treatment of depression. We examine the diverse ways in which BA has been investigated over time and its extensions to a broad range of populations and problems. Finally, we close with reflections on the development of this field and important directions for future inquiry.

WHAT IS BEHAVIORAL ACTIVATION?

Although Lewinsohn and colleagues pioneered the development of the behavioral model and the application of BA strategies to the treatment of depression, they did not specifically use the term BA to refer to their clinical approach. The earliest use of the term behavioral activation appears in the neuroscience literature referring to the consequences of compounds on an organism (e.g., “achieving behavioral activation with imipramine”) (Mandell et al. 1968). Later, Gray (1982) defined the “behavioral activation system” and “behavioral inhibition system” as fundamental motivational systems. To our knowledge, the first use of the term in the psychotherapy literature appears in 1990, with Hollon & Garber (1990) defining behavioral activation as a set of clinical procedures used in cognitive therapy for depression. Jacobson and colleagues (1996) retained the term to describe the behavioral interventions that were a focus of the component analysis study of cognitive therapy and subsequently to describe a stand-alone treatment for depression (Jacobson et al. 2001). Lejuez and colleagues (2001) similarly used the term to describe a stand-alone treatment for depression.

We define BA as a structured, brief psychotherapeutic approach that aims to (*a*) increase engagement in adaptive activities

BA: behavioral activation

(which often are those associated with the experience of pleasure or mastery), (b) decrease engagement in activities that maintain depression or increase risk for depression, and (c) solve problems that limit access to reward or that maintain or increase aversive control. Treatment focuses directly on these targets or on processes that inhibit a focus on these targets (e.g., avoidance). To achieve these primary aims, therapists may use a variety of behavioral strategies such as self-monitoring of activities and mood, activity scheduling, activity structuring, problem solving, social skill training, hierarchy construction, shaping, reward, and persuasion. A behavioral model of depression and a process of behavioral assessment guide the implementation of these strategies, and treatment is conducted in a collaborative manner. Some therapists include covert behaviors as targets of behavioral intervention (i.e., increasing frequency of reinforcing thoughts and decreasing frequency of punishing thoughts).

In the past four decades, multiple articulations of BA have been examined by different investigator groups for use across a range of settings and populations. We suggest here, however, that the shared presence of these fundamental principles and strategies defines these approaches as BA. Moreover, we suggest that the principles and strategies of BA are, in fact, not unique to BA. Not only are they common to standard behavior therapy (e.g., Goldfried & Davison 1994), they also may be a core element of many evidence-based treatments for depression (Dimidjian & Davis 2009). For example, the behavioral strategies that form the core of BA were incorporated as a fundamental part of cognitive therapy for depression and are emphasized heavily early in cognitive therapy and in the treatment of more severely depressed patients (Beck et al. 1979). Many of these strategies also are consonant with the emphasis on modifying the interpersonal context in interpersonal therapy for depression (Klerman et al. 1984).

BA, thus, is distinguished from other approaches by the reliance on the principles of a behavioral model, the use of behavioral

interventions, and an exclusive focus on behavior change. BA fits squarely within this tradition of behavior therapy, which could justify abandoning the specific term BA and using simply “behavior therapy.” Such a change in nomenclature would have undeniable benefits for the field with respect to countering a problematic trend toward an increasing number of “brands” of psychotherapy (e.g., Rosen & Davison 2003). Moreover, the term BA is problematic in its overlapping application to biological processes (i.e., behavioral activation as a neural system), behavioral processes (i.e., a patient engaging in increased activity), and a set of therapeutic procedures (i.e., behavioral activation as a treatment for depression). Nevertheless, after much reflection, we have elected to retain the specific designation “BA” as a treatment for depression given its increasingly widespread recognition and the frequency of its use in the literature.

HISTORICAL CONTEXT OF PIONEERING WORK

The seminal work on BA as a treatment for depression emerged at a time when psychoanalysis was the predominant framework for clinical intervention. Although alternative theories of depression were being articulated, including Beck’s groundbreaking cognitive theory of depression (Beck 1979) and Ferster’s behavioral theory of depression (Ferster 1973), clinical practice continued to be rooted primarily in psychodynamic principles. The BA approach to treatment as developed by Lewinsohn and colleagues represented a radical departure from the prevailing paradigm and provided the foundation for the decades of research that have followed.

Lewinsohn began developing a behavioral approach to the treatment of depression shortly after arriving at the University of Oregon in 1965. This work thus began in the context of a period of enormous shifts in the theory, practice, and research of clinical psychology. As Bandura (2004) has explained, “The 1960’s ushered in remarkable transformative changes in the explanation and modification of human

functioning and change” (2004, p. 616). The culture at the University of Oregon provided the setting for the initiation of much of this work. The prevailing principles emphasized an iterative process of theoretical development, clinical practice, and empirical investigation. All of this was conducted in a stimulating environment that engaged graduate and undergraduate students in key roles. Moreover, it was an exciting time of collaboration with other experts around the country. For example, Jean Endicott was influential in shaping the early methods for clinical assessment and diagnosis, as were Grinker and colleagues, who developed the structured diagnostic interview used in the early clinical research studies (Grinker et al. 1961). B.F. Skinner also visited the University of Oregon early in the development of BA; members of the clinical faculty presented emerging work on the clinical application of behavioral theory, which Skinner greeted with enthusiasm.

The engagement of students in the research process was a core element of the context and culture that predominated at the University of Oregon during the early years of Lewinsohn’s work. Notably, a similar culture also was to characterize work on BA decades later, led by Neil Jacobson at the University of Washington. In the “Oregon Model” of graduate training, each clinical psychology faculty member taught year-long courses that integrated practicum training and clinical research on that faculty member’s specialty area (e.g., depression with Peter Lewinsohn, childhood disorders with Stephen Johnson, marital distress with Robert Weiss, sexual dysfunction with Joseph LoPiccolo, smoking cessation with Ed Lichtenstein, and social anxiety with Hal Arkowitz). Graduate students sampled from these integrated practica/research teams and typically specialized in one over the last two years of their on-campus training. With the strong behavioral orientation that permeated the entire clinical program came an appreciation for the value of innovation through $N = 1$ research, behavioral observation, development of treatment manuals, and outcome research.

Students who worked with Lewinsohn became key members of the treatment development and investigation team. They learned how to use structured clinical interview and diagnostic measures, daily self-monitoring, and home observation for assessing depressed clients. They developed skill in implementing therapy procedures by conducting joint sessions with Lewinsohn or by being supervised closely by him using a two-way mirror and videotapes. After they had been trained in the essentials of assessment and treatment, students assisted in clinical research studies by screening prospective research participants, conducting outcome assessments, and serving as therapists. The team experimented with methods to apply the behavioral theory of depression in clinical practice, and it was in this context that many of the core intervention techniques were developed. Because each cohort of students was aware of the basic theoretical framework and the research that Lewinsohn and students had done before them, there existed a continually evolving understanding of what research needed to be done to add to the programmatic, incremental understanding of a behavioral approach to depression.

The studies from this era of work laid the foundation for innovative and rigorous approaches to clinical assessment, intervention, and research, all of which continue to influence powerfully the key questions and methods used in clinical practice and research on BA today. Moreover, the integrated model of student training, theoretical development, intervention development, and empirical investigation continues to stand as a guide for how to advance the future evolution of this field.

THEORETICAL AND EMPIRICAL FOUNDATIONS: THE INITIAL BEHAVIORAL MODEL OF DEPRESSION

Overview

BA as a treatment approach is rooted in a theoretical conceptualization of depression,

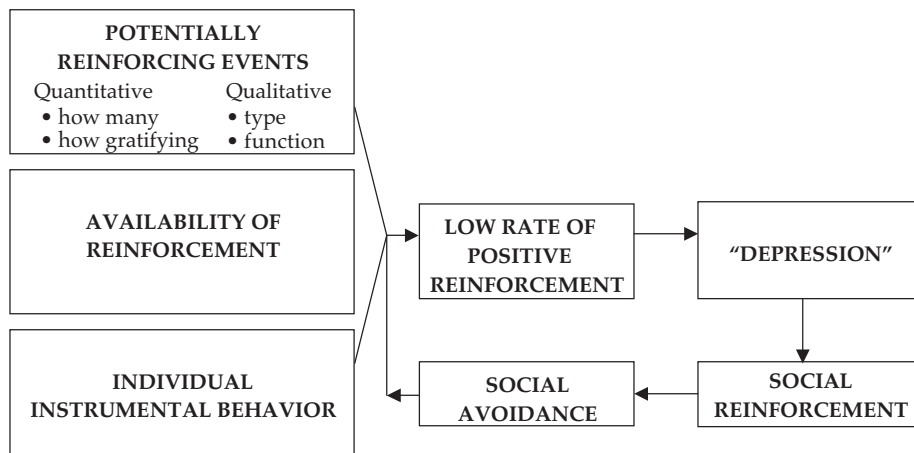


Figure 1

Lewinsohn's Behavioral Model of Depression. (Adapted from Lewinsohn 1974.)

including its causes, correlates, consequences, and maintaining processes. Lewinsohn articulated an initial behavioral model in 1971 (Lewinsohn & Shaffer 1971) that was refined in 1974 (Lewinsohn 1974, Lewinsohn et al. 1979; see **Figure 1**).

The initial behavioral model was based on three assumptions; specifically that (a) low levels of response-contingent positive reinforcement were eliciting stimuli for depressive behavior (mood and somatic experiences), (b) low levels of response-contingent positive reinforcement were a sufficient explanation for depression, and (c) the total amount of response-contingent reinforcement was a function of the number of events that are potentially reinforcing for an individual, the availability of such events in the environment, and the instrumental behavior of the individual in eliciting such reinforcement from the environment. Moreover, it was assumed that depression covaries with amount of response contingent reinforcement and is preceded by a reduction in such reinforcement. Response-contingent positive reinforcement was a phrase introduced by Lewinsohn into the behavioral model to address two issues: (a) a key characteristic of depressed individuals is that

the rate with which they engage in behaviors is low, and (b) some episodes of depression follow the achievement of major goals and accomplishments.

This initial behavioral model served as the organizing framework for a systematic program of empirical research. This research was conducted in the clinical science tradition described previously, including measurement development, case studies, laboratory studies, comparative research with depressed and nondepressed clinical subsamples, and treatment outcome research (Lewinsohn 1974). In case studies and outcome research, procedures were designed to change depressed clients' engagement in pleasurable activities and to improve social skills as mechanisms for decreasing depression. The wisdom of grounding much of the initial empirical research in accessible clinical practices would subsequently translate into intervention developments that were diverse, practical, and broad in scale.

The review of early empirical work is organized around the primary theoretical propositions of the initial behavioral model of depression (Lewinsohn 1974, Lewinsohn et al. 1979). Because the measurement of pleasant and unpleasant events was so integral

to foundation research, a description of two central measures, the Pleasant Events Schedule (PES) and Unpleasant Events Schedule (UES), precedes the review of research on the theoretical propositions.

Development of the Pleasant and Unpleasant Events Schedules

Clinical research on a behavioral model of depression necessitated the measurement of reinforcement that individuals receive from their natural social environments. Lewinsohn and his collaborators were well aware that in laboratory paradigms of learned behavior, reinforcing events were identified in moment-to-moment transactions by the effects they had on subsequent behavior (see Lewinsohn et al. 1979, pp. 293–295). Nevertheless, for measuring reinforcement in natural environments, it was assumed that pleasurable events would have reinforcing properties and that individuals' self-reports of pleasurable events would approximate the amount of reinforcement they received. The PES, a 320-item self-report measure, had central importance in foundation research that was conducted as early as 1971 (MacPhillamy & Lewinsohn 1982). Initial item generation was done with university students; however, efforts to strengthen the content validity of the PES led to studies with more diverse samples of adults who nominated pleasant events, and these items subsequently replaced original items that were reported infrequently or that had low enjoyability ratings.

The PES was an extremely versatile measure. It not only assessed event frequency during the past month, the potential reinforcement value of events (subjective enjoyability ratings), and obtained reinforcement (the product of enjoyability and event frequency), but it also was used as the source of information for activity schedules. Activity schedules were subsets of PES items that became the special focus of intervention efforts to boost the reinforcement that depressed clients received in their daily lives (Lewinsohn & Youngren

1976, Lewinsohn et al. 1980). Development of the PES, derivations of subscales, and studies to establish psychometric properties have been summarized in several papers (Hammen & Kratz 1985, Lewinsohn et al. 1979, MacPhillamy & Lewinsohn 1982). The PES and activity schedules were used in much of the research conducted by Lewinsohn and his colleagues in tests of behavior theory tenets and treatment procedures derived from that model.

The UES is a 320-item measure of the frequency and aversiveness of unpleasant events that is similar to the PES in its structure and development (Grosscup & Lewinsohn 1980, Lewinsohn et al. 1985b, Lewinsohn & Talkington 1979). Items were generated by asking diverse samples of adults to (*a*) list events that they had experienced that were high, medium, and low on unpleasantness, and (*b*) self-monitor unpleasant events that occurred during a seven-day period (Lewinsohn & Talkington 1979). Conceptually, aversive events were linked to depression through several mechanisms (Lewinsohn et al. 1979): Aversive events punish behaviors that could have been sources of pleasure, the occurrence of aversive events elicits dysphoria, and the enjoyability of pleasant events is diminished when they occur shortly after aversive events. Like the PES, the UES was used to create subsets of unpleasant events that were monitored daily to identify aversive events that were most highly related to mood (Grosscup & Lewinsohn 1980, Lewinsohn & Talkington 1979).

Is Depression Associated with Low Rates of Response-Contingent Positive Reinforcement?

Perhaps the most fundamental assertions of early behavioral models of depression specified associations of depression and low rates of response-contingent positive reinforcement (see **Figure 1**). The central hypotheses were that low levels of reinforcement were key antecedents to the onset of depression, that fluctuations in depressed mood covaried with the

PES: Pleasant Events Schedule

UES: Unpleasant Events Schedule

receipt of positive reinforcement, and that treatment-induced increases in positive reinforcement led to reductions in depression.

Basic research directed at these core assertions used several strategies. One approach was to conduct home observations of clinical cases during which behavioral transactions between depressed clients and their family members were coded to assess the nature of behaviors emitted and the consequences of those behaviors (Lewinsohn & Shaffer 1971, Lewinsohn & Shaw 1969). The paper by Lewinsohn & Shaffer (1971) was a prime illustration of behaviorally oriented clinical research in which home observations were used to inform the selection of intervention goals, evaluate treatment effectiveness, and test theory. Case descriptions and home observation data from five families showed that the depressed partner received less positive reinforcement than the nondepressed partner in family interactions prior to the initiation of treatment and that reinforcement contingencies could be changed through assessment feedback to family members and other treatment interventions.

Another research strategy was to conduct field studies in which participants monitored the daily occurrence of pleasant activities and depressed mood. Results of those studies showed that there was, in fact, an association between depressed mood and number of pleasant activities that were experienced daily (Grosscup & Lewinsohn 1980, Lewinsohn & Graf 1973, Lewinsohn & Libet 1972). Mood was related to pleasant activities for depressed, nondepressed psychiatric controls, and normal controls (Lewinsohn & Graf 1973, Lewinsohn & Libet 1972). Comparative research also showed that depressed individuals reported engagement in fewer pleasant activities than did nondepressed normal controls and nondepressed psychiatric controls (Lewinsohn & Graf 1973, MacPhillamy & Lewinsohn 1974). Additional support for the link between depression and reinforcement came from treatment efforts that increased pleasant events as a means of reducing depression. In summarizing the results from three treated samples, Lewinsohn et al.

(1979) observed that depressed individuals who decreased depression the most also showed the greatest increases in obtained reinforcement (the cross-products of PES event frequency and enjoyability). Illustrative case studies and three samples treated with strategies for increasing pleasant activities also all showed substantial reductions in depression (Lewinsohn et al. 1980). One randomized controlled study that used a group therapy format found evidence that an initial phase of self-monitoring mood and pleasant events boosted the depression-reduction effects of treatment methods for increasing pleasant events (Barrera 1979).

Unfortunately, these early studies were conducted before quantitative methods for evaluating mediation were available (MacKinnon & Luecken 2008). Even though studies showed that pleasant events interventions increased pleasant events and decreased depression, they lacked methods for testing the theory-based hypothesis that increases in pleasant events accounted for (i.e., mediated) reductions in depression. Moreover, despite the strong support for the covariation of reduced pleasant events and depressed mood, research directed at specifying the temporal relationship between response-contingent positive reinforcement (as operationalized by the PES) and depression was less convincing. In the study by Lewinsohn & Libet (1972), the strongest relationship between depressed mood and pleasant events was found when those two variables were assessed on the same day. However, correlations calculated when depressed mood and activity scores were lagged by one or two days failed to show clear evidence for temporal precedence. The relation of pleasant activities to next-day depressed mood was similar to the relation of depressed mood to next-day pleasant activities (Lewinsohn & Libet 1972). Studies by Rehm (1978) used measures of daily pleasant events and daily mood that differed from those used by Lewinsohn, but the results also demonstrated relations between mood and pleasant events that are assessed on the same day and little association between mood and pleasant events that were lagged by a day.

Is Depression Associated with High Rates of Punishing Events?

Similar to the research on pleasant events, studies on daily fluctuations in depressed mood and studies that compared diagnostic groups found relations between depression and the frequency of aversive events. Some of the relevant research was done to establish the reliability and validity of the UES (Lewinsohn et al. 1985b, Lewinsohn & Talkington 1979). Lewinsohn & Talkington (1979) used 30-day self-monitoring data from a mixed group of depressed clients, nondepressed psychiatric controls, and normal controls to show that the daily occurrence of negative events and mood were related. A similar association between fluctuations of unpleasant events and depressed mood was found in daily self-monitoring data of depressed clients in treatment (Grosscup & Lewinsohn 1980) and college students (Rehm 1978). Rehm's studies added robustness to these findings because, as noted previously, they relied on measures of mood and unpleasant events that differed from those used by Lewinsohn and colleagues.

In research that contrasted diagnostic groups, the frequency of unpleasant events differentiated depressed and nondepressed control participants even after accounting for the frequency of pleasant events (Lewinsohn et al. 1985b). In research by Lewinsohn & Talkington (1979), three subgroups were formed on the basis of the Minnesota Multiphasic Personality Inventory (MMPI) and structured interviews: depressed, nondepressed who scored high on other dimensions of psychopathology (high-MMPI controls), and normals. Compared to normal controls, the depressed and nondepressed high-MMPI controls showed small but statistically significant elevations on total unpleasant events.

Is Depression Associated with Low Reward Value of Positive Events and High Aversiveness of Negative Events?

Early behavioral models included the propositions that depression stemmed not only from

inadequate engagement in pleasurable activity and excessive experience of aversive events, but also from the diminished reward value of potentially pleasant events and the heightened aversiveness of unpleasant events. As noted previously, the PES calls for ratings of both event frequency as well as the event enjoyability. Consistent with behavioral theory, studies using the PES found that the subjective enjoyability of events for depressed individuals was lower than for nondepressed normals and nondepressed psychiatric controls (MacPhillamy & Lewinsohn 1974). It is interesting that more contemporary research that integrates neuroscience and laboratory paradigms for studying the effects of reward and punishment has found that depressed individuals are less responsive to reward than nondepressed individuals, and that such differences are correlated with hypoactivation of brain regions indicative of a deficit in approach-related behavior (Henriques & Davidson 1991, Henriques et al. 1994, Pizzagalli et al. 2005). Studies suggesting genetic associations to differential levels of positive affect in response to pleasant events are also intriguing (Wichers et al. 2008).

The UES instructs participants to rate the frequency and subjective aversiveness of unpleasant events. Also consistent with theory, depressed participants rated unpleasant events as more aversive than did normal controls and nondepressed "psychiatric" controls who had high scores on MMPI scales (Lewinsohn & Talkington 1979). Grosscup & Lewinsohn (1980) found that there was a decrease in the experienced aversiveness of events that was associated with clinical improvement in depression. In addition, two laboratory studies found that compared with nondepressed controls, depressed participants showed a greater autonomic response during the presentation of an aversive stimulus (electric shock) (Lewinsohn et al. 1973).

Are Social Skill Deficits Associated with Depression?

In Lewinsohn's (1974) initial behavioral formulation of depression, low rates of positive

reinforcement were determined by three factors: (a) the extensiveness of events that were potentially reinforcing for an individual, (b) the availability of those events in the environment, and (c) an individual's instrumental skills in obtaining reinforcement (see **Figure 1**). Social skills had special importance within the broader domain of instrumental skills because perturbations in social relationships have such prominence in theories of depression, as articulated in later work such as that of Gotlib and Hammen (e.g., Gotlib & Hammen 1992). Social skill was defined as "the complex ability both to emit behaviors which are positively or negatively reinforced and not to emit behaviors which are punished or extinguished by others" (Libet & Lewinsohn 1973, p. 304).

The hypothesis that depressed individuals have less social skill than nondepressed individuals received substantial research support in early studies. Studies of depressed and nondepressed people in quasi-therapy ("self-study") groups (Libet & Lewinsohn 1973), home environments (Lewinsohn & Shaffer 1971), and group and dyadic interactions in laboratory settings (Youngren & Lewinsohn 1980) demonstrated that depressed individuals are less likely to be positively reinforced by others for the behaviors that they emit. Similar results were found in an analog study in which college students interacting with a depressed confederate responded with more silences, direct negative comments, and less overall verbal responding compared to those who interacted with nondepressed confederates (Howes & Hokanson 1979). In addition, daily reports of one particular social skill, assertiveness, were negatively correlated with daily ratings of depressed mood (Sanchez & Lewinsohn 1980). That study also found that assertiveness was prospectively related to depressed mood, but depressed mood was not prospectively related to assertiveness.

A study by Youngren & Lewinsohn (1980) was a multifaceted investigation of the relation between depression and interpersonal behavior. Observational measures of verbal behavior (speech rate and volume) and nonverbal behavior (eye contact, facial expressions) showed

some evidence of impairment for depressed participants who differed from normals, but not from nondepressed participants who showed elevations on MMPI scales. Deficits that were unique to depression were found on ratings of social skill during group interactions when participants, group members, and nonparticipant observers were the raters.

THEORETICAL AND EMPIRICAL FOUNDATIONS: THE INTEGRATIVE MODEL OF DEPRESSION

Overview

Informed by some of the limitations of the initial behavioral model of depression, Lewinsohn expanded the initial model into an integrative model of depression in 1985 (see **Figure 2**). The integrated model recognized both the existence of four primary models of depression at the time (i.e., the behavioral, interpersonal, cognitive, and biological models) and the limitations of each in fully accounting for the etiology of depression.

Proposing that depression is a heterogeneous disorder caused by the interplay of a multiplicity of factors, Lewinsohn and colleagues contended that a useful model of depression needed to explain recent scientific advances, to articulate the way in which variables interact to produce depression, and to generate novel tractable hypotheses. Lewinsohn and colleagues identified 10 contributions of prior research on depression that must be addressed in an explanatory model: (a) the heterogeneity of depression with respect to symptom patterns and severity, (b) the centrality of dysphoria as the only symptom that is experienced by nearly all depressed individuals, (c) the broad impact of depression on a multiplicity of behavioral and cognitive domains, (d) the high prevalence and incidence of depression in the general population, (e) the relationship between age and prevalence of depression (assumed at that time to be curvilinear), (f) the increased risk among females and people with prior histories of

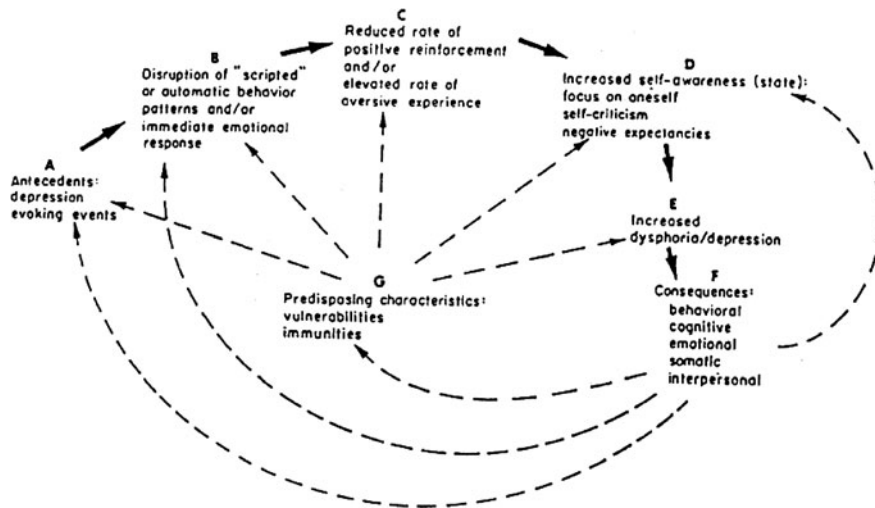


Figure 2

Lewinsohn's integrative model of depression. (Reproduced with permission from Lewinsohn et al. 1985a.)

depression, (g) the lack of differences between previously depressed and never depressed individuals and the possible importance of conditions that activate risk, (h) the time-limited nature of depression suggesting that there are multiple pathways for recovery, (i) the potential effectiveness of many interventions and the nonspecificity of treatment effects, and (j) the unique role of stress and low social support as precipitating factors.

Central Components

In line with the stated aims of a useful model of depression, the integrative model reflected greater complexity with respect to the relationship between cognition, behavior, and mood. Specifically, Lewinsohn and colleagues explained that “we would argue that past cognitive and reinforcement positions have offered too simplistic views; in particular, we contend that while the cognitive models have overemphasized cognitive dispositional factors, the reinforcement models have, in turn, overemphasized situational factors” (Lewinsohn et al. 1985a, p. 343). For example, early studies on the PES were intended to test predictions about positive reinforcement. Criticisms of defining

reinforcement in terms of pleasant events have been made historically (Sweeney et al. 1982) and more recently (for a review, see Abreu & Santos 2008). Empirically, in prospective studies conducted by Lewinsohn and colleagues, the PES did not predict occurrence of depression or sufficiently explain gender differences in episodes of depression (Amenson & Lewinsohn 1981, Lewinsohn et al. 1988). Studies like these help to inform the need for a revised behavioral approach to depression.

The integrated model was intended to explain the interacting nature of dispositional (including cognitive) and environmental factors. As illustrated in **Figure 2**, environmental stressors (A) were identified as the primary triggers of the depressogenic process. The assertion continues to be supported empirically (Lewinsohn et al. 1994, Risch et al. 2009). Stressors such as the death of a close relative, disabling physical illness, or serious failures to accomplish important goals can disrupt an individuals' behavioral repertoire, including interacting with others, working, and other routine behaviors, and result in initial negative affect (B). The degree to which these changes produce depression is related to the degree to which they reduce positive reinforcement or

increase aversive control (*C*). Efforts to cope with the effects of the stressors also are included in the model and failures to influence the stressor through use of such efforts are hypothesized to increase self-focused attention (*D*). The combination of increased self-focused attention (*D*) and dysphoria (*E*) are presumed to result in the cognitive, behavioral, and emotional correlates of depression (*F*), which themselves serve to maintain and exacerbate depressive states. Finally, all parts of the process are influenced by both individual and environment vulnerability factors (*G*), such as gender, age, prior history, low coping skills, increased sensitivity to aversive events, poverty, self consciousness, accessibility of a depressive self schema, high interpersonal dependency, and presence of young children in the home. The behavioral response of others in one's environment also was highlighted as a potential vulnerability factor. Finally, duration and severity of depressive episodes were understood as influenced by feedback loops among the various elements of the model, yielding the possibility of "vicious" or "benign" cycles serving to exacerbate or reverse the depressogenic process.

Lewinsohn's increased focus on the role of cognition in the integrative model was influenced, in part, by the collaboration of his graduate student team. Although Lewinsohn had included cognitions as reinforcing and punishing activities from the start (e.g., "Thinking about something good in the future" is an item on the PES), until Lewinsohn began working with Muñoz, who joined his team as a graduate student in 1975, cognitions were not addressed explicitly as part of the theory or treatment for depression. Muñoz began his graduate training with Lewinsohn already having been greatly influenced by working with Albert Bandura and his students and colleagues at Stanford. Bandura and colleagues, within the context of what was then known as Social Learning Theory (1977a; later described as Social Cognitive Theory; Bandura 2001), were extending behavioral approaches to "covert behaviors," that is, thoughts, memories, and expectations, and other cognitions (Mahoney 1970). Homme

(1965) had coined the term "coverants" to refer to "the operants of the mind." Case studies published in the journal *Behavior Therapy* specifically focused on "the self-management of covert behavior" (Mahoney 1971) or "coverant control of self-evaluative responses in the treatment of depression" (Todd 1972). The approach taken by Muñoz in his dissertation reflected this perspective: "Thinking is behavior—it is something one does. Thinking can have stimulus properties. . . . It can also have operant-response properties. . . . One can think without being aware one is thinking just as one can act without being aware one is acting. . . . It is assumed here that covert behavior and overt behavior are most easily modified when brought to awareness. . . . Covert events comprise a very special kind of environment. . . . potentially modifiable at any time by the individual. . . . This plasticity makes the internal environment a potentially great source of adaptive influence" (Muñoz 1977, pp. 9–11).

Results from studies intended to test whether depressed individuals did indeed report lower levels of self-reinforcing cognitions and higher levels of self-punishing cognitions yielded support for this hypothesis (Lewinsohn et al. 1982, Muñoz 1977). Similar results were found when cognition was operationalized as expectations (according to Beck's hypothesis that depressed individuals have negative views of the self and the world) and as "irrational beliefs" (according to Ellis's model) (Lewinsohn et al. 1982, Muñoz 1977). The integrative theory of depression was proposed to incorporate such complexities. Negative cognitions (*F* in **Figure 2**) were conceptualized as leading to antecedents (*A*) (i.e., depression-evoking events) and as predisposing vulnerabilities (*G*).

The work on behavioral approaches to depression provided a valuable foundation for understanding the causes and maintaining factors in depression and possible targets for intervention. A return to these historical roots is important in highlighting studies that often are neglected in contemporary discussions of depression. In addition, this discussion

illustrates the evolution of behavioral approaches to depression over time, highlighting key elements of the early models and the ways in which such work has paved the way for contemporary and future efforts.

RELATIONSHIP OF THE BEHAVIORAL MODEL TO OTHER CONCEPTUAL MODELS OF DEPRESSION

In a retrospective account of the development of behaviorally oriented approaches, Bandura (2004) characterizes the response within the field in dramatic terms. He explains, “The transformative changes followed the predictable sequence of all fruitful innovations. Outright rejection was the first reaction. Behavior therapy was regarded not only as superficial symptom removal but dangerous” (2004, p. 617). Although certainly not all perceived emerging behavioral approaches as potentially harmful, there is no doubt that a strong contrast existed with the prevailing model of depression offered by psychodynamic theory. The behavioral model of depression was viewed primarily in relation to this theory, and early presentations of the behavioral model frequently addressed core psychodynamic constructs, presenting these in alternative behavioral formulations. Over time, cognitive models of depression gained prominence and increasingly became key reference points for the behavioral model. Here, we discuss the relationship of the behavioral approach to depression to each of these major alternative models of depression.

Psychodynamic Model of Depression

The psychodynamic understanding of depression focused on fixations at stages during which the individual relies on external sources to regulate self-esteem (e.g., early development) or during periods of time when feelings of guilt cause regression to such early stages (Fenichel 1945). The psychodynamic position suggested that depressions followed either experiences that resulted in a loss of self-esteem or a loss of the external supplies that an individual had

hoped would maintain or enhance self-esteem (Fenichel 1945).

The idea of “external supplies” seemed to resemble the idea of access to reinforcers in the environment, yet the psychodynamic model stressed the importance of internalized development of self-esteem rather than reliance on external supply. The behavioral model represented a radical departure from the prevailing psychodynamic views of depression. In contrast to the psychodynamic emphasis on the construct of self-esteem, the behavioral model did not highlight the centrality of self-esteem or the loss thereof. In fact, Flippo & Lewinsohn (1971) undermined the purported role of self-esteem with results that failed to confirm the hypothesis that depressed, as compared to nondepressed, participants would evidence greater worsening of self-esteem in response to failure experience. Although depressed individuals do evidence greater sensitivity to aversive experiences than nondepressed individuals and may be more likely to withdraw from such experiences (Lewinsohn et al. 1973), there was little evidence to support that the construct of “self-esteem” was central.

The psychodynamic model of depression also included the idea that hostility, originally directed at others who did not meet the patient’s narcissistic needs, was redirected against the ego through a process of introjection (Fenichel 1945). Thus the idea of depression being defined as anger turned against the self was predominant in the psychodynamic conceptualization. Other psychodynamic models also proposed different types of depression, including a dependent type and a self-critical type (Blatt 1974, Blatt et al. 1982).

The behavioral model of depression accounted for many of these core psychodynamic propositions by emphasizing schedules of reinforcement. Ferster wrote most directly in response to the psychodynamic constructs, and his work influenced the early thinking of Lewinsohn, who overlapped with him at the Indiana University Medical Center. According to Ferster (1974), “the low frequency of positively reinforced behaviors in the depressed person’s

repertoire might perpetuate the incomplete or distorted perception of the environment” (p. 35). Ferster argued that the decrease in frequency of many different kinds of positively reinforced activities was characteristic of the depressed client. Fenichel theorized failure to develop self-esteem independent of a reliance on external supply. Similarly, Ferster (1981) explained that early environments lacking consistent positive reinforcement would occasion verbal behaviors that were avoidant responses to the individual’s deprivation schedule rather than responses to the presence of a listener who could “minister to the distress” (p. 185). Thus, Ferster did not appeal to the construct of poor development of self-esteem but rather to a limited behavioral repertoire that did not enable the individual to engage his or her environment in such a way that behavior would be positively reinforced. Ferster argued that depressed individuals emitted responses based on a sense of need, which temporarily provided relief but ultimately perpetuated avoidance behaviors.

Ferster also provided a behavioral account for the psychodynamic notion of hostility toward the self in depression. He suggested that negative statements about the self resulted from a process of counter control over behaviors, which when emitted publicly, such as angry outbursts, are punished. In order to avoid punishment, the individual performs the behavior covertly. Such covert behavior is maintained through negative reinforcement, because it provides temporary relief from distress (Ferster 1981). Unfortunately, such covert behavior also results in a limited repertoire, maintaining a pattern of activity, or inactivity, that does not result in manipulation of the environment in such a way as to obtain positive reinforcement. Similarly, Lewinsohn and colleagues described the phenomena of low self-esteem and pessimism in terms of an attempt by the individual to describe an unpleasant feeling state that he or she is experiencing. The hostility that was held to be a central aspect of depression in psychodynamic theory as “anger turned inward” was described behaviorally as secondary to the low rate of response-contingent positive

reinforcement in an individual’s transactions with his/her environment (Lewinsohn 1974). Lewinsohn, like Ferster, understood that the expression of an aggressive response serves to alienate other people and leads to further isolation; it is therefore punished, and the individual “learns to avoid expressing hostile tendencies by suppressing (or repressing) them” (Lewinsohn 1974, p. 161).

Cognitive Models of Depression

Lewinsohn’s early work developed in the context of two emerging cognitive models of depression. Ellis’s work on Rational Emotive Behavior Therapy (Ellis 1962) was anchored in an emphasis on the ways in which irrational thinking leads to problematic emotions and behaviors. Ellis’s work had a strong influence on Lewinsohn, who adapted Ellis’ basic A-B-C method with clients. Specifically, Ellis taught that “A” stands for “activating event” (the event about which one feels distress, e.g., being rejected by someone, doing poorly on the task). “C” is the emotional consequence of the events, which includes specific emotions (e.g., sadness, anger) and nonconstructive self-talk (e.g., I should have been much more successful). “B” refers to the belief about “A” (e.g., I am a failure, nobody loves me). Under Lewinsohn’s supervision, Muñoz developed a self-report measure, the Personal Beliefs Inventory, which was used in the early Lewinsohn studies (Lewinsohn et al. 1982), and adopted strategies from Ellis (Ellis & Harper 1961, 1975) and Kranzler (1974) for disputing irrational beliefs and nonconstructive self-talk and for replacing irrational beliefs with more constructive beliefs.

Beck’s cognitive model of depression was articulated at approximately the same time as the early behavioral model. Specifically, Beck and colleagues (1979) proposed that depression resulted from cognitive distortions and that depressed individuals in particular were prone to viewing themselves, the world, and the future in negative terms. Being in a depressed mode of thinking led the individual to misperceive much of his or her experience in a

way that confirmed negative biases. This model challenged the behavioral conceptualization of depression by situating particular forms of depressogenic thinking as a causal factor in depression (Beck 1967, Beck et al. 1979).

The past four decades have witnessed an explosion of research on Beck's early and other related cognitive models, and many studies have provided partial evidential support. In fact, even early work by Lewinsohn and colleagues reported support for cognitive biases among depressed individuals (Lewinsohn et al. 1982). Depressed participants had negative expectancies for present and future events pertaining to the self; specifically, they had negative expectancies about their ability to perform in situations that required competence. This finding was consistent with Bandura's (1977b) self-efficacy theory and also with Rehm's assertion that depressed individuals reinforce themselves less and punish themselves more (Rehm 1977).

The cognitive model guided the development of cognitive therapy for depression (Beck et al. 1979), which included behavioral strategies as a core component. In fact, BA is heavily emphasized in the beginning of cognitive therapy and with more severely depressed patients in particular. In keeping with the emphasis on cognition as the principal etiological factor in depression, however, behavioral strategies are used not solely for the explicit purpose of overt behavior change but as a means to test thoughts and beliefs. As Hollon (1999) has explained, "The key point is that even when cognitive therapists are focusing on behaviors, they do so within the context of a larger model that relates those actions to the beliefs and expectations from which they arise and views them as an opportunity to test the accuracy of those underlying beliefs" (p. 306). Thus, although cognitive therapy and BA share many elements, they diverge on the point of cognition as a privileged causal factor in depression and as an essential therapeutic target. The initial behavioral model postulated that negative cognitions accompany depression but that they are not necessarily antecedent to a depressive episode. The subsequent integrative

model (Lewinsohn et al. 1985a) proposed a chain of events that included environmental and dispositional factors. As described previously, antecedent events were assumed to be environmental stressors that disrupted relatively automatic behavior patterns of the individual. Cognitive biases were conceptualized as correlates of depression that could serve to maintain and exacerbate depressive states. Such problems could lead to antecedents and could constitute predisposing vulnerabilities.

Summary

BA was developed during a period when the prevailing paradigm emphasized psychodynamic constructs and interventions, and its development contributed significantly to the transformative process by which behavioral approaches gained ascendance (Bandura 2004). This model also was developed in parallel with Beck's cognitive theory of depression, which shares many components but diverges on the question of the causal nature of cognition and the importance of targeting cognitive processes directly during treatment.

CLINICAL FOUNDATIONS: BEHAVIORAL ACTIVATION APPROACHES TO THE TREATMENT OF DEPRESSION

BA as a treatment approach is defined, most fundamentally, by reliance on the principles of a behavioral model and an exclusive focus on behavior change. Since the seminal work of Lewinsohn and colleagues in the 1970s, multiple investigator groups, including members of the original Lewinsohn team and independent investigator groups, have articulated and investigated specific BA versions. Two broad lines of research emerged initially from Lewinsohn's initial behavioral model of depression. One line branched from the randomized controlled trial conducted at the University of Oregon by Zeiss et al. (1979) that concluded that pleasant activities, social skills, and cognitive approaches were comparable in effectiveness and merited integration. This work resulted in the

Control Your Depression (CYD) self-help book (Lewinsohn et al. 1978), which subsequently led to the Coping with Depression course and the San Francisco General Hospital manuals. Another line branched from outcome research addressing treatments specifically described as BA. A major initiator of this research was the work of Jacobson et al. (1996, Gortner et al. 1998) suggesting that a behavioral approach could stand on its own and was not more effective with the addition of cognitive methods. Parallel work by Hopko and colleagues similarly supported the stand-alone status of a BA approach to depression (Hopko et al. 2003a). Here, we summarize briefly the core BA treatment approaches and their evolution over time. In the following section, we detail the empirical studies that extend these core approaches across populations and settings.

Control Your Depression

Originally published in 1978 and revised in 1986, CYD (Lewinsohn et al. 1978) was written as a self-help manual based on the interventions used in the seminal treatment outcome study conducted by Lewinsohn and his doctoral students (Zeiss et al. 1979). This study was a randomized controlled trial comparing three treatments that specifically targeted only one of three potential goals: (a) increasing mood-related pleasant activities, (b) increasing assertiveness, positive social impact, and social interaction, and (c) changing cognitions to increase mental reinforcers to improve patients' internal reality. Patients received individual therapy three times a week for four weeks, either as immediate treatment or after a one-month delay. Those receiving immediate treatment were less depressed at post assessment than those receiving delayed treatment, with no differences across the three types of treatment. Patients who improved in each treatment condition also exhibited changes across all the hypothesized targets (activities, interpersonal variables, and cognitions) rather than only those explicitly addressed by the treatment approach.

The authors concluded that all three treatments may have produced a change in self-efficacy (Bandura 1977a) and that treatments that meet the following criteria should be effective in overcoming depression: (a) begin with a well-planned, convincing rationale; (b) provide training in skills that are effective, have personal significance, and fit with the rationale; (c) emphasize the use of the skills outside of the therapy context, that is, in the patient's daily life; and (d) encourage the patient to attribute improvement in mood to their use of these skills (Zeiss et al. 1979, pp. 437–438).

Thus, the components of treatment in CYD include a clear description of depression and a rationale for treatment based on social learning theory, an emphasis on the development of a plan by the reader, and recognition of the importance of making a decision about steps to take in the future for the depressed individual's ongoing recovery and relapse prevention. Several sets of skills were presented including creating a personal plan, relaxation, increasing pleasant activities, social skills, controlling thoughts, constructive thinking, and self-instructional techniques. The chapters on pleasant activities address how to gather baseline data, identify an individualized set of pleasant activities to increase, set specific goals, engage in self-reward and self-evaluation, and monitor and modify the plan over time. The chapters on social skills address how to act assertively, in socially skillful ways, and how to use self-monitoring of progress and self-reward. The chapters on controlling thoughts use a variety of techniques, including self-assessment of thinking patterns, thought interruptions, worry time, self-rewarding thoughts, cognitive restructuring, using Albert Ellis's A-B-C method for evaluating and disputing negative thoughts (Ellis 1962, Ellis & Harper 1961) and self-instructional methods (Meichenbaum 1974).

The Coping with Depression Course

Written for clinicians and published in 1984, the Coping with Depression (CWD) course was

intended as a group treatment for depression or as a psychoeducational community outreach approach. The course consists of 12 two-hour sessions that are conducted over eight weeks. Initial sessions were conducted twice weekly in order to promote engagement in treatment and alliance building among the group and with the therapist. Setting a limited number of sessions was hypothesized to maximize the likelihood that participants would engage in the process and work on their problems. The course also included follow-up sessions called “class reunions,” which were held at one month and six months.

The CWD course begins with two sessions identifying the ground rules for treatment and providing instruction in the social learning view of depression and model for change. These orienting sessions are followed by eight sessions devoted to learning skills in the four areas of increasing relaxation, increasing pleasant activities, changing negative cognitions, and improving social skills. Participants begin by learning basic principles for designing a plan of self-change and then learning relaxation techniques. Behavioral strategies consist of monitoring the impact of specific activities on mood and then developing a plan for increasing pleasant activities. The session dealing with negative thinking explains how thoughts can be rewarded and punished and teaches a basic ABC model for understanding the consequences of particular thoughts and beliefs, as drawn from Rational Emotive Therapy (Ellis & Harper 1975). The sessions that focus on cognitive change explain the importance of constructive self-talk and also use behavioral strategies such as planning “worry time” and thought stopping. It is not assumed that all depressed individuals have poor social skills, but there is an emphasis on using effective social skills and particularly on being properly assertive. The final two sessions are devoted to maintaining treatment gains and preventing relapse. Participants in the course are expected to complete homework assignments and collect baseline and ongoing data relevant to the targeted skill. The course clearly emphasizes bet-

ter functioning in life rather than simply feeling better.

The course also provides a specific session structure for each of the two-hour sessions, which includes setting an agenda for each session, reviewing the previous session, providing a rationale for the current session, and previewing the following session and homework. Intended for broad use in community outreach, the CWD course also includes recommendations for advertising and ethical considerations as well as self-assessment measures and forms to be used by participants.

A program for adolescents was developed later (Lewinsohn et al. 1990), which consisted of 16 two-hour sessions over 18 weeks. The adolescent course was modified to reduce the amount of leader presentations and homework assignments and to emphasize group activities and role-play exercises. Clarke (1998) reported a 10-item fidelity scale that highlights the core components of the program: (a) reviewing previous session material, (b) providing structured practice for skills and techniques, (c) delivering the entire presentation as outlined in the manual, (d) clearly assigning homework, (e) monitoring the tone of session, (f) allowing equal time for participants, (g) clearly expressing ideas and pacing appropriately, (h) being organized, (i) staying on task, and (j) assessing the difficulty of the group. Although simplified and presented in a less didactic fashion for adolescents, these elements were important for the adult course as well, and the session structure remained the same.

The San Francisco General Hospital Manuals

Around the time the CYD book was published, Christensen et al. (1978) published a framework designed to help structure methods to increase mental health service delivery. The framework recommended that, in addition to professionals providing treatment, the field should expand its focus to prevention and maintenance interventions and interventions provided by agents other than professionals, such as

paraprofessionals (paid staff trained to provide specific interventions under professional supervision), partners (volunteers providing support to those being helped), peers (individuals engaging in mutual support), print, and paraphernalia (electronic and other methods of delivering interventions, such as mass media and computers).

This framework helped structure the evolution of interventions based on CYD, particularly at San Francisco General Hospital (SFGH), where Muñoz directs the Latino Mental Health Research Program. The SFGH adaptations have used the “healthy management of reality” perspective (Muñoz 1996), which was developed in response to the major psychosocial challenges facing public sector patients (Le et al. 2010b). This approach is rooted clearly in the work of Lewinsohn and the emphasis on the need to change the reinforcement frequency in people’s daily lives in order to create lasting mood changes. It also is informed by the work of Bandura and the key concepts of self-efficacy and reciprocal determinism; specifically, focusing on how patients and prevention participants can modify their internal (mental) reality using cognitive methods and their external (physical) reality using behavioral methods. This approach has been adapted for use with populations that are culturally different from the ones in which it was developed in Eugene, Oregon (Muñoz & Mendelson 2005).

The first major articulation of this emerging research program occurred with the Depression Prevention Course (Muñoz 1984). The CYD book was adapted for use as an eight-session intervention intended to prevent major depressive episodes in a public sector primary care population. The Depression Prevention Course was used in the first randomized controlled depression prevention trial (Muñoz & Ying 1993, Muñoz et al. 1995). This course also has been adapted to prevent postpartum depression (The Mothers and Babies Course; Muñoz et al. 2001, 2007) and to be administered via the Internet. The Depression Prevention Course also has been translated into Spanish, Chinese, Japanese, Korean, German,

Finnish, and Dutch. A recent meta-analysis of the CWD course for both prevention and treatment shows that it is effective for both purposes (Cuijpers et al. 2007a). It also has been tested with psychiatric inpatients (Alvarez et al. 1997) and was adopted as one of the interventions for the Outcomes of Depression International Network study in Finland, the Republic of Ireland, Norway, Spain, and the United Kingdom (Dowrick et al. 1998, 2000).

The depression prevention research project revealed the large number of currently clinically depressed primary care patients at the SFGH. In 1985, a cognitive-behavioral depression clinic was founded at SFGH by Muñoz and clinical psychology training program fellows Sergio Aguilar-Gaxiola and Jeanne Miranda. They adapted the Depression Prevention Course to a 12-session treatment manual (Muñoz et al. 1986, Muñoz & Miranda 1986) designed for public sector primary care patients in Spanish and English. The manual retained the CYD focus on activities, people, and thoughts, with four sessions dedicated to each of these elements. The manual has subsequently been used by Miranda and colleagues in a series of studies showing its effectiveness as part of quality-improvement efforts in primary care clinics (Wells et al. 2000, 2004) and in other public sector settings (Miranda et al. 2003). In 2000, the manual went through a major revision (Muñoz et al. 2000a,b). A four-session module on depression and health was added, as well as an extensive instructor’s manual. These manuals are available for downloading at no charge from the UCSF/SFGH Latino Mental Health Research Program Web site (<http://www.medschool.ucsf.edu/latino/>).

Contemporary Behavioral Activation Approaches

The contemporary BA approach articulated by Jacobson and colleagues (Dimidjian et al. 2007; Jacobson et al. 2001; Martell et al. 2001, 2010) was developed initially as part of an effort to identify the active ingredients of cognitive therapy for depression (Beck et al. 1979). Specifically, in 1996, Jacobson

and colleagues published the component analysis study, which aimed to identify the causally active ingredients of cognitive therapy for depression. The component design compared three conditions: (a) behavioral activation only, (b) behavioral activation plus cognitive restructuring focused on automatic thoughts, and (c) the full cognitive therapy package, including behavioral activation and cognitive restructuring focused on automatic thoughts and core beliefs. The prevailing notion at the time was that the full cognitive therapy package would outperform the component conditions in the acute treatment of depression and the prevention of relapse (Jacobson & Gortner 2000). Surprisingly, however, the most parsimonious condition—behavioral activation only—performed as well as the most complex condition—the full cognitive therapy package. This lack of significant differences held true not only for the treatment of acute major depression (Jacobson et al. 1996) but also for the prevention of relapse over a two-year follow-up period (Gortner et al. 1998).

On the basis of these findings, the BA component was articulated as an independent treatment, linked explicitly to the behavioral model of depression articulated by Lewinsohn and colleagues, which provided the framework for case conceptualization and selection of particular behavioral strategies. BA was compared against cognitive therapy and pharmacotherapy in a placebo controlled design (Dimidjian et al. 2006). In this trial, BA performed comparably to pharmacotherapy (paroxetine), even among more severely depressed patients, and demonstrated superior rates of retention. Both BA and pharmacotherapy significantly outperformed cognitive therapy among more severely depressed patients. Follow-up results demonstrated again the promise of BA, not only with regard to acute effects but also relapse prevention (Dobson et al. 2008). These findings contributed to the emerging evidence base for BA as a viable treatment choice among the range of available options (including antidepressant medication) and revitalized interest in clinical research on BA.

BA is characterized by a flexible course that begins with the presentation and discussion of the rationale for treatment followed by heavy emphasis on behavioral assessment through activity and mood monitoring in order to determine targets for intervention. In essence, therapists work with clients using monitoring to identify the ingredients of a “behavioral antidepressant.” The bulk of the therapy then utilizes activity structuring and scheduling to increase such “antidepressant” activities and utilizes problem solving to alter contextual problems that may be eliciting or maintaining depressed mood. The final stage of treatment focuses on consolidating treatment gains and planning for relapse prevention. BA also includes a substantial focus on identifying barriers to activation, and when barriers to activity arise, therapists and clients assess the function of behavior and generate solutions for future activation assignments. The focus on barriers often emphasizes behaviors that function as avoidance. Clients may behave in ways that allow them to avoid particular contexts, for example staying in bed late to avoid going to work, or emotions, for example using substances to avoid feeling sadness. Therapists work with clients to break down activities into small, achievable tasks and to take gradual steps toward approach rather than avoidance. BA also has focused on targeting the process of depressed thinking, or ruminating, which is conceptualized as covert behavior or as mental activity, parallel to observable physical activity. To counter ruminating, clients are taught either to engage in problem solving or to use “attention to experience” exercises (Martell et al. 2001) to fully engage in an activity rather than act in an automatic fashion while ruminating.

In addition to the BA approach articulated by Jacobson and colleagues, the team of Lejuez and colleagues (2001, 2011) articulated a BA approach that similarly shares grounding in the principles of a behavioral model, the use of behavioral interventions, and an exclusive focus on targeting behavior change. This approach, behavioral activation treatment for depression, is based on the propositions that depression

ensues when the value of reinforcers for depressed behaviors is increased due to environmental change and the value of reinforcers for nondepressed behaviors is decreased (Hopko et al. 2003b). The protocol consists of 8 to 15 sessions that utilize self-monitoring and activity scheduling to accomplish goals based on a hierarchy of activities ranked from easiest to most difficult. Clients work through the hierarchy until weekly and final goals are achieved. Hopko and colleagues (2003b) investigated this BA model compared to usual care in an inpatient psychiatric setting, with results indicating that the effect size for improvement in depressive severity in BA was large and greater than that observed for usual care. Subsequent research, as discussed in the next section, has examined this approach in a range of settings and patient populations.

Summary

Four major programs of intervention research have been conducted since Lewinsohn's original work in the 1970s. These include (a) research leading to the CYD book, (b) research based on the CWD course, (c) research at SFGH initially inspired by the CWD course, and (d) research on contemporary BA approaches including those articulated by Jacobson and colleagues and by Hopko and colleagues. Although some of these programs were not specifically identified as "BA" at the time of their inception, and some later evolved to include an emphasis on cognitive restructuring, we classify each within the historical tradition of research on BA as a treatment for depression. Moreover, although unique elements of the approaches at times have been emphasized (e.g., BA versus behavioral activation treatment for depression), in our opinion the shared components of these models eclipse differences.

CONTEMPORARY CLINICAL RESEARCH ON BEHAVIORAL ACTIVATION

Research on BA has expanded rapidly in recent decades. **Figure 3** illustrates the number of

publications relevant to BA over the past four decades. Within the larger context of research on behavior therapy for depression that was growing in the 1970s and early 1980s (e.g., McLean & Hakstian 1979, McNamara & Horan 1986, Shaw 1977, Taylor & Marshall 1977, Wilson 1982, Wilson et al. 1983), clinical trials investigating BA were initiated as reviewed in the previous section. Empirical attention then remained relatively modest throughout the 1980s and 1990s. By the end of the 1990s, however, interest in the BA model for treating depression was revitalized, and since that time, clinical research has expanded rapidly. Studies have extended the core research on the efficacy of BA to novel populations, including populations that have medical and psychiatric comorbidity, that exist across the lifespan, and that are culturally diverse. In addition, researchers are testing the limits of the transportability of BA, examining the use of innovative delivery formats for patients and methods of training of clinicians. Finally, research is beginning to address the process of change in BA and connections to behavioral models of depression.

Extending Behavioral Activation to Populations with Psychiatric and Medical Comorbidity

Much of the renewed interest in BA has focused on extending BA to novel populations. Although this work is in the early and exploratory stage, with heavy reliance on case studies and small open-trial designs, as a collection these studies suggest that BA may have broad applicability as a parsimonious and transportable intervention. As such, these studies pave the way for future rigorously controlled clinical research on the transportability of BA to a range of populations with psychiatric and medical comorbidity.

Given the high comorbidity between major depression and other psychiatric disorders, many studies have addressed the value of BA in treating patients with comorbid diagnoses. Promising directions have been reported in

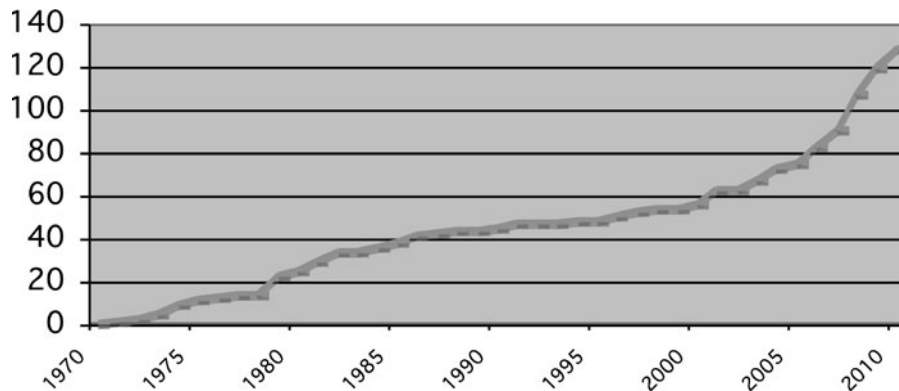


Figure 3

Cumulative number of behavioral activation–relevant publications.

the context of case studies with patients with borderline personality disorder and suicidal ideation (Hopko 2003) and mixed anxiety and depression (Hopko et al. 2004). Three studies have examined the use of BA among patients with PTSD or comorbid PTSD and depression. A case report of an 11-session course of BA with a police officer/military veteran diagnosed with PTSD and major depressive disorder reported positive change in both PTSD and depression (Mulick & Naugle 2004). A small open trial ($N = 11$) with military veterans diagnosed with PTSD reported positive change in PTSD but not depressive symptoms (Jakupcak et al. 2006). Finally, a small randomized trial ($N = 8$) with motor vehicle accident survivors compared a brief course of BA to care as usual, with evidence of significant improvement in PTSD severity but not depression (Wagner et al. 2007). Although preliminary, these findings raise interesting questions regarding the importance of specific targeting in treatment and the modifications that may be required to treat comorbid disorders. The Depression Prevention Course also was adapted at SFGH as a mood-management intervention for methadone maintenance patients in pilot study with 11 Spanish-speaking Latino individuals (Gonzalez et al. 1993). Other recent investigations also have shown strong results for the use of BA to target comorbid substance

use disorders and depression (Daughters et al. 2008, MacPherson et al. 2010). Finally, reflecting an interest in psychiatric severity in addition to comorbidity, Curran and colleagues (2007) broadly discussed issues that arise in the extension of BA to inpatient settings and reported favorable outcomes for a patient with chronic depression who was refractory to pharmacotherapy and cognitive therapy.

Interest in the value of BA in targeting medical comorbidity has been reflected in recent studies as well. A 12-week intervention, which also included nutritional counseling, demonstrated promise in reducing depression and weight in a small open trial with patients with depression and obesity (Pagoto et al. 2008). Hopko and colleagues reported promising outcomes in a series of case studies with patients with cancer and depression treated in primary care and an oncology clinic (Armento & Hopko 2009, Hopko et al. 2005). This work has been extended recently in a randomized controlled trial design that demonstrates promise for BA among depressed women with breast cancer (Hopko et al. 2010). Finally, Uebelacker et al. (2009) developed a 10-session protocol for use with depressed patients in primary care settings. In a small open trial ($N = 12$), depressive severity declined significantly over time, with promising trends indicated for social functioning, pain, and general health.

Extending Behavioral Activation Across the Lifespan

Developmental adaptations of BA across the lifespan also have been a focus of recent empirical attention. Given the high prevalence of depression among older adults, multiple investigator groups have examined the extension of BA with older adults in both community and residential settings. This research builds on the foundation of early work in the 1980s (e.g., Breckenridge et al. 1987, Gallagher 1981, Gallagher & Thompson 1982), which also has been extended more recently (Gallagher-Thompson et al. 2000). Although a wide range of specific models has been tested in this area of research on BA, each includes activity scheduling as a central component.

Meeks and colleagues developed a BA-consistent approach called BE-ACTIV, a 10-week activity-based behavioral treatment delivered as a collaborative effort between nursing home staff and mental health providers. An initial case report highlighted the potential value of this approach (Meeks et al. 2006). In subsequent treatment development ($N = 5$) and feasibility studies ($N = 20$), Meeks and colleagues (2008) reported promising results, with indications that patients, families, and staff were receptive to the intervention and that depressive severity and activity levels improved over the intervention period.

Sood and colleagues (2003) examined the Geriatric Wellness Program (GWP), which was based on the Depression in Older Urban Rehabilitation Patients Treatment Program aimed at treating depression among geriatric nursing home patients receiving rehabilitation services (e.g., Lichtenberg et al. 1998). Non-mental health personnel (i.e., occupational therapists) deliver the intervention over the course of approximately eight weeks. Each session included teaching relaxation and visualization, mood monitoring, positive reinforcement for progress, and participation in pleasant events as guided by responses to the PES. In a small, randomized trial ($N = 14$), Sood and colleagues compared participation in the GWP

to standard occupational therapy among nursing home residents. The study demonstrated the feasibility of implementing the GWP program in a nursing home setting, and differences in depressive severity between control and GWP groups were in the hypothesized directions, though not statistically significant.

In contrast to the emphasis on nursing home settings, Teri and colleagues (1997) conducted a randomized clinical trial among community-dwelling older adults with depression and dementia. Patient and caregiver dyads ($N = 72$) were randomly assigned to a BA condition, a caregiver problem-solving condition, wait-list control, or usual care. The nine-session BA protocol included both patient and caregiver and emphasized teaching caregivers to help increase pleasant events and modify contingencies that maintain depression. Both of the behavioral conditions (BA and problem solving) demonstrated superiority over the control conditions in the improvement of depressive symptoms and diagnosis at the end of the intervention. Caregivers also improved in their own symptoms of depression. Patient and caregiver gains were maintained through a six-month follow-up.

Quijano and colleagues developed the community-based Healthy IDEAS program (Identifying Depression, Empowering Activities for Seniors; Quijano et al. 2007). This six-month program is composed of four components (assessment, education, referral, and BA) and is delivered via in-person and telephone sessions by community agency case managers (versus specialty mental health professionals). In a large open trial with frail, high-risk elders ($N = 94$), participation in Healthy IDEAS was associated with improvements in both depressive severity and pain.

At the other end of the age spectrum, Clarke and colleagues (1995, 2001) have developed interventions to prevent depression in adolescents based on CWD, although some of these interventions evolved to include components of cognitive therapy (e.g., Garber et al. 2009). Similarly, McCauley and colleagues (2011) are investigating an adapted version of the

contemporary BA model among depressed adolescents, which includes a greater focus on collaboration with family members as well as more structured homework assignments and monitoring forms. A preliminary randomized trial comparing this approach with usual care is currently under way. Ruggerio and colleagues (2005) also described a positive course of BA with a 17-year-old girl in foster care with depressive symptoms.

Extending Behavioral Activation to Populations of Ethnic, Racial, and Gender Diversity

Muñoz and colleagues at San Francisco General Hospital have conducted extensive work adapting the CYD approach to multicultural public sector populations, with a special focus on Spanish-speaking Latinos (Le et al. 2010, Muñoz et al. 1997, Muñoz & Mendelson 2005, Organista et al. 1994, Perez & Muñoz 2008). Kanter and colleagues (2010) also are exploring the application of BA with Latino populations. They report that BA may have particular relevance for depressed ethnic minority clients given the relative emphasis in BA on environmental contextual variables (e.g., unemployment, displacement) as opposed to internal, individual pathology. Such work builds on earlier studies with Puerto Rican patients (Comas Diaz 1981). Additionally, recent case studies also highlight the promise of a modified form of BA with Latina populations (Kanter et al. 2008, Santiago-Rivera et al. 2008). A recent small open trial (N = 10) reported positive findings for retention and depressive severity improvement for a culturally and linguistically adapted form of BA administered by bilingual clinicians in a community mental health clinic (Kanter et al. 2010).

Multiple investigators also are examining extensions to understudied populations of depressed women. In particular, extensions of the CWD course to perinatal women and mothers of young children have been a focus of attention. A study of a Web-based modification of the CWD course for depressed mothers of

children in Head Start programs was recently completed by Sheeber and colleagues, and a Web-based modification of CWD for postpartum depression is underway currently by Danaher and colleagues. These studies build on earlier work by Meager & Milgrom (1996) in extending the CWD course to perinatal populations and the work on prevention of postpartum depression by Muñoz and colleagues (Muñoz et al. 2001a,b; 2007). Dimidjian and colleagues are launching a multisite study of BA administered in obstetric clinics, over the telephone, or in homes for women with perinatal depression.

Extending the Reach of Behavioral Activation Using Novel Delivery Formats

The potential for broad dissemination has been one of the hallmarks of interest in BA. In fact, some of the earliest work on BA models highlighted dissemination to traditionally underserved populations, including racial and ethnic minority populations as discussed previously as well as geographically underserved individuals (e.g., Padfield 1976). Recent work suggests that the relative parsimony of BA as compared to other evidence-based psychotherapies may be particularly conducive to dissemination using novel delivery formats. Studies have examined the use of brief group-based formats, telephone delivery, bibliotherapy, and the Internet. Also, investigators are exploring ways to train clinicians efficiently or to rely on the use of paraprofessionals to provide BA. Overall, these studies emphasize novel formats as a means of increasing access to evidence-based treatment.

Some investigators are beginning to examine using BA in brief formats or with group models. A recent study compared a one-session BA protocol to a no-treatment control among college students with moderate depressive symptoms (Gawrysiak et al. 2009). The one-session intervention was followed by two weeks of activation assignments, to which participants reported adhering at a high level (approximately 72% of assigned activities). The BA condition evidenced significantly greater improvement in

depression and access to environmental reward as compared to the control condition. Although the extent to which these findings generalize to other populations is uncertain, the potential promise of brief BA interventions clearly deserves attention. Another recent trial explored the delivery of BA in a group format. Porter and colleagues (2004) examined the feasibility of this format in a small, randomized trial conducted in rural community mental health center settings. All participants met criteria for major depressive disorder and were randomized to BA or wait-list control, with results suggesting promising improvement in depressive symptoms. Houghton et al. (2008) conducted an uncontrolled trial of a group BA treatment based on the Addis & Martell (2004) self-help manual and theoretically congruent interventions based on Acceptance and Commitment Therapy (Hayes et al. 1999) with 42 participants. The group intervention was accepted by patients and was effective in improving self-reported symptoms of depression, lending further support to the importance of future, more rigorously controlled studies of group BA treatment.

An early study by Brown & Lewinsohn (1984) utilized a telephone delivery condition in which therapists called patients weekly to inquire about how they were doing, what they might need, what problems they had experienced, and so forth. Sessions lasted between 10 and 60 minutes. The telephone condition was as effective as the two active treatments and superior to the wait-list control. This study was an early forerunner of the extensive work that has investigated telephone-based applications of cognitive behavioral treatments for depression (e.g., Mohr 1995) and highlights the potential value of telephone delivery of BA.

Bibliotherapy formats also have been a focus of attention. The CYD book was tested by Scogin et al. (1989) in a randomized control trial in which it was used as a behavioral printed intervention and compared with a cognitive printed intervention and a wait-list control. The CYD book and the cognitive bibliotherapy conditions produced significantly larger reductions in depressed mood than did

the wait-list control and were not different from each other, a benefit that was retained across a two-year follow-up. A simplified version of the mood management approach based on increasing pleasant activities was also used in a smoking-cessation trial conducted via surface mail with Spanish-speaking smokers (Muñoz et al. 1997). The study compared a formerly tested smoking-cessation guide versus the guide plus the *Tomando Control de su Vida* (Taking Control of Your Life) intervention based on CYD, with the combined condition yielding double the quit rate. This intervention has been included in the National Cancer Institute Web site as one of its research-tested intervention programs (*Programa Latino para Dejar de Fumar*; <http://rtips.cancer.gov/rtips/programDetails.do?programId=105455>).

A series of studies also has explored the use of media to disseminate BA interventions. In 1978, when the first edition of CYD was published, Art Ulene, a physician producing health-related programming for the NBC television network, contacted the authors and proposed preparing a series of 10 four-minute segments to present during the news program throughout the country. The segments were created and televised, and, when shown in the San Francisco area, evaluated using phone surveys of a random sample of San Francisco residents before and after the two-week period when the segments were aired. Results showed that individuals with initially high depression symptom scores who watched the segments had significantly lower post-assessment scores than those who did not watch the segments (Muñoz et al. 1982). Though not a randomized trial, this study provided evidence that the skills taught in the CYD book were associated with clinical benefit when widely disseminated using mass media.

A range of Internet media adaptations also have been developed and tested. Web-based extensions have been investigated using BA with adolescents (Van Voorhees et al. 2009) and the CWD course with adults with depressive symptoms (Warmerdam et al. 2008) and older adults (Spek et al. 2007, 2008). Muñoz and colleagues adapted the CYD book as part of a

stop-smoking Internet intervention now tested in a series of worldwide, randomized control trials in Spanish and English; over 800,000 visitors from over 200 countries have come to the site, and over 60,000 of them have signed consent and entered the outcome studies. Smoking-cessation rates have been 20% to 21% at 12 months (Muñoz et al. 2009) and as high as 26% at six months (Muñoz et al. 2006), which is comparable to the rates associated with the nicotine patch. Moreover, the SFGH manuals for prevention and treatment of depression are currently being adapted for depression prevention and management studies via the Web, and the Mothers and Babies Course is currently being tested in an Internet study. An iPhone application (UCSF SFGH Stop Smoking) using a mood management intervention focused on increasing activity has been launched and is available via iTunes.

Additionally, the University of California, San Francisco/SFGH Latino Mental Health Research Program established the Internet World Health Research Center in 2004. The center is dedicated to systematically developing evidence-based Internet interventions to target gaps in our knowledge base. The process is guided by a grid composed of columns representing health problems (smoking, depression, diabetes, pain, and so on) and rows representing languages (English, Spanish, Chinese, and so on). The center focuses on targeting cells within this grid representing health problems that have been understudied and for which cognitive behavioral interventions may be beneficial. Delivery methods also are being expanded to use such technologies as MP3 players (e.g., recording depression manual messages so patients can listen throughout the week) and text messages (so patients can monitor their mood, activity levels, and thoughts throughout the week) (Aguilera et al. 2010). The aim of these innovative dissemination methods via the Internet is to contribute to the reduction of health disparities worldwide (Muñoz 2010).

Finally, investigators are examining the use of the Internet to train clinicians to be competent practitioners of BA. The feasibility and

preliminary outcomes of using an online training format to teach clinicians the core principles and strategies of BA was tested in a recent pilot study, with promising results (Dimidjian et al. 2011). Moreover, as discussed previously, much of the work with older adults has effectively utilized non-mental health specialists to provide care. A subsequent iteration of the Depression Prevention Course for smoking cessation also used master's-level counselors (e.g., Hall et al. 1994). The 2000 version of the CBT Group Therapy manual (based on CYD; Muñoz et al. 2000a, p. vi) has been adapted for administration by substance abuse counselors for populations of depressed substance abusers and alcohol abusers, with encouraging results (Osilla et al. 2009). Finally, Ekers and colleagues (2011) have reported promising findings in a randomized clinical trial using nonspecialists to implement BA with depressed patients, and Cullen and colleagues (2006) reported favorable findings in a study of BA using graduate student clinicians. These studies suggest that BA may be amenable to widespread transportability via use of novel methods of training mental health clinicians or reliance on a range of individuals, mass media, or the Internet for service delivery, as suggested by Christensen et al. (1978).

Understanding Processes of Change

Few studies to date have addressed the question of how beneficial effects are obtained in BA. Some studies have examined the role of patient activation specifically. For example, Hopko and colleagues, using daily diary methods, have provided some evidence for the relationship between activation and mood (Hopko et al. 2003c, Hopko & Mullane 2008). Similarly, T.P. Andrusyna (unpublished data), using observational coding of BA treatment sessions, reported a correlation between patient reports of increased activation and depressive symptom reduction. A similar observational coding study replicated the finding that patients report more pleasure and mastery activities during intervals of significant symptom reduction and also demonstrated

an association between increased activation over three sessions and pre- to post-treatment change in Beck Depression Inventory-II scores (Hubley et al. 2009). None of these studies, however, provide information about the temporal relationship between change in activation level and mood. In exciting new lines of research, other investigators are exploring possible neural correlates of change in BA (Dichter et al. 2009), providing preliminary evidence of activation in brain structures associated with reward processing among responders to BA.

Summary

Contemporary research on the clinical application of BA is proceeding rapidly across multiple lines, including use with patient populations with complex and comorbid conditions, older adults and adolescents, ethnic and racial minorities that have been traditionally understudied, and perinatal women. In addition, innovative methods for delivering BA and training clinicians in BA are the focus of an increasing number of studies. Overall, the contemporary research highlights extensive promise of BA, but as discussed in the next section, requires greater methodological rigor in testing efficacy as well as expanded efforts to test empirically components of the behavioral model of depression and change in the context of clinical trials.

REFLECTIONS FOR FUTURE WORK

There has been a substantial increase in the clinical and scientific interest in BA as a treatment for depression in recent years. This work, which has its roots in the history of behavior therapy broadly and the early models and methods developed by Lewinsohn and colleagues specifically, has established a strong evidence base for BA as a treatment for depression and has highlighted the diversity of settings and clinical populations for which BA holds promise. As we look to the future evolution of this work, we identify here five important questions to guide the field.

Does Behavioral Activation Work?

An increasing number of clinical trials support the efficacy of BA, and recent reviews have concluded that BA is an efficacious treatment for depression (e.g., Cuijpers et al. 2007b, Ekers et al. 2008, Mazzucchelli et al. 2009). BA also has been included as an evidence-based treatment for depression in guidelines released by the National Institute for Health and Clinical Excellence (2009). Despite this strong support, a greater number of methodologically rigorous studies is required to answer definitively the question of whether BA works. For example, the study conducted at the University of Washington is the only study of BA to date to include pharmacotherapy and placebo control conditions. Given that pharmacotherapy is widely considered to be the standard of care for depression in the United States, such comparisons are essential from a policy standpoint. Moreover, they provide the most rigorous approach for testing causal efficacy given the complexities in designing credible psychosocial placebo controls. Although the University of Washington study provides an essential component of the BA evidence base and aligns with converging evidence from a host of other efficacy studies, the value of replication cannot be overstated. In addition, many of the other studies of BA have suffered from small samples and failure to document fully clinical samples of depressed patients (e.g., reliance on elevated depressive symptom scores rather than diagnostic assessments). The relatively young area of research extending BA to novel or specific populations also relies heavily on case studies or small open trial designs. Such recommendations are relevant for dissemination research as well. For example, studies on BA with aging populations provide emerging evidence that BA can be delivered in a range of settings by nonspecialist providers; however, future randomized clinical trials are necessary to make causal inferences regarding efficacy with such providers. In general, it will be essential for future studies of BA to employ rigorous methods, including control conditions, reliable

and valid assessments of depressive diagnoses and severity by independent blind raters, and measurement of treatment integrity, as well as standard reporting requirements such as patient flow diagrams, with clear information about retention and attrition, treatment exposure, and so forth.

How Does Behavioral Activation Work?

There has been little systematic research clarifying the processes that account for the efficacy of BA in the treatment and prevention of depression. During the foundation research on BA therapies, quantitative methods for studying mediation were not practiced routinely. Early studies laid some of the conceptual groundwork by reporting the relation of BA to hypothetical affective, behavioral, and cognitive mechanisms and showing the relation of these to depression (e.g., Jacobson et al. 1996). However, future research will benefit from an increased focus on testing conceptually based mediators of change and employing rigorous quantitative methods to do so (e.g., Kraemer et al. 2002). As Kazdin (2007) has highlighted, the benefits of identifying mediators of change are multiple, including the potential of optimizing efficacy, maximizing parsimony, and highlighting ways in which change may occur in natural, nontherapeutic contexts as well. Understanding mediators of change in BA can promote depression theory testing through the conduct of therapy outcome research (cf. Howe et al. 2002).

Multiple potential mediators may be valuable to address in future work. To do so, it will be necessary to ground inquiry in a conceptual understanding of the psychopathology of depression. Thus, continued work on the investigation and refinement of behavioral and integrative models of depression is important. Such research will need to employ multiple methods of investigation. Traditionally, clinical research has relied heavily on self-report and clinician interview methods. Future work would benefit from integrating such methods with the

use of laboratory task paradigms and biological methods, such as neuroimaging, in a translational approach to the question of how BA works.

Recent work on the potential mediator of reward processing is instructive. In their basic research on the structure of affective states, Watson et al. (1988) found that negative affect was related to both anxiety and depression. Positive affect, on the other hand, showed greater specificity with its relation to depression only. They concluded “that the loss of pleasurable engagement is a distinctive feature of depression” (p. 346). Consistent with such work and the behavioral models discussed previously, it would follow then that reward processing could be a critical element of effective depression treatment. The work of Dichter and colleagues (2009) is paradigmatic of the type of research that examines such theory-based variables incorporating multiple methods of investigation. Other particularly promising processes to examine in future studies include, for example, avoidance or behavioral control, which also have strong grounding in basic research (Maier et al. 2006).

Finally, future research could address what specific elements of BA are critical. Although BA is parsimonious compared to other evidence-based treatments for depression, it too contains multiple elements. Some of the studies included in the preceding review focused specifically, for example, on activity scheduling, whereas others included a wider range of behavioral strategies. Moreover, even within the narrow domain of activity-scheduling interventions, treatment frequently focuses on a range of targets, including increasing activation in routine, pleasant, mastery, interpersonal, and physical activities. It is not clear whether it is important for activation to target specific domains or whether any increases in activity can interrupt depressogenic cycles. Moreover, the degree to which an idiographic versus nomothetic approach to activation maximizes clinical efficacy is not known. Future research could

address such questions through the use of the types of dismantling designs that Jacobson and colleagues applied to cognitive therapy or through the use of analog laboratory designs.

For Whom Does Behavioral Activation Work?

Recent years have witnessed increasing attention to the potential promise of personalizing treatments for depression. There is no doubt that a heterogeneous disorder such as depression requires multiple approaches that are optimally suited for particular patient populations. Future trials are needed to test formally variables that may predict or moderate treatment response.

For example, advancements in behavioral neuroscience and genetics have relevance to our understanding of depression (Caspi et al. 2003, Monroe & Reid 2008) and, more specifically, possible sources of individual differences (e.g., Henriques & Davidson 2000, Pizzagalli et al. 2005, Wichers et al. 2008). The work of Wichers and colleagues (2008) on the genetic moderation of the daily experience of pleasant events may have special relevance for BA because their methodology for assessing daily events and mood resembled that used in the foundation research on a behavioral model of depression. A natural extension of this work would be to determine whether the findings from neuroscience and behavioral genetics that have linked reward systems to depression have practical implications for understanding differential responsiveness to BA.

Clinical research and practice guidelines also highlight possible moderators to investigate in future trials. Recent work has underscored the role of depressive severity in moderating pharmacological response to antidepressants (Fournier et al. 2010). Moreover, the use of BA strategies in cognitive therapy has been emphasized heavily with more severely depressed patients (Beck et al. 1979), and results suggest that BA is comparable to pharmacotherapy even among more severely

depressed patients (Dimidjian et al. 2006). Thus, BA may hold particular advantage for more complex, severe depression. On the other hand, it also is possible that BA might be aimed profitably at those who are relatively mildly depressed and may not require the involvement of a mental health professional. In such a stepped care model, mildly depressed individuals may be treated by paraprofessionals or self-administered formats of BA as an initial treatment option, followed by more intensive formats if necessary. To test formally such variables as moderators of treatment will require large randomized clinical trials; such work, however, has the potential to identify variables that may be used to personalize treatments, thereby maximizing treatment response for given subgroups of patients.

The question of for whom BA works also underscores the importance of extending future research to novel populations that have been underemphasized in prior studies. Much of the recent research on BA has examined extensions of BA beyond the treatment of outpatient depression. There are indications of promise with depressed individuals across the lifespan, with ethnically and culturally diverse populations, and with populations for whom few evidence-based treatments have been studied, such as perinatal women or individuals with comorbid psychiatric or medical illness. Although studies demonstrate the promise of BA for these populations, future research will require more rigorous methods to substantiate efficacy for these populations.

How Long Does Behavioral Activation Work?

Given the often chronic and relapsing nature of depression, it is important for evidence-based treatments to address not only the acute treatment of depression but also the relapse-prevention effects. The meta-analytic review by Mazzucchelli and colleagues (2009) observed that very few studies provided follow-up data that permitted evaluations of BA

maintenance effects beyond 1–3 months following the end of treatment. The ability to provide enduring benefits beyond treatment termination is one of the unique benefits of cognitive therapy with respect to pharmacotherapy. Although the studies conducted to date suggest that BA has beneficial long-term effects (Dobson et al. 2008, Gortner et al. 1998), it is critical for future studies to study the long-term effects of BA and ways that its beneficial effects might be maintained.

What Novel Methods Facilitate the Dissemination of Behavioral Activation?

Much of the enthusiasm for BA relates to its potential for widespread dissemination. As much of the contemporary work suggests, BA appears to be compatible with a range of novel delivery formats. Investigators are extending BA through the use of computers, Internet, and telephone technologies. BA approaches may be well-suited for patient self-guided applications using media that provides readily accessible information, vehicles for self-monitoring, the delivery of prompts for engaging in goal-directed behavior, and other BA components. Additionally, such novel methods may be used profitably to train practitioners to administer BA. Initial work demonstrates that it is feasible to use Web-based approaches to train mental health professionals in BA; future work is important to test the limits of such training with respect to the efficacy of treatment deliv-

ered by clinicians trained with such methods and with respect to the range of providers for whom such methods are useful (e.g., paraprofessionals).

SUMMARY

In describing the evolution of BA, we often rely on the classic quote from William Faulkner (1951): “The past is never dead. It’s not even past.” The pioneering work of Lewinsohn and colleagues initiated lines of research that continue to expand today. Behavioral models of depression as proposed by Lewinsohn and colleagues evolved according to new research findings and will continue to do so. An understanding of the history of research on behavioral models and approaches to depression enhances our ability as a field to identify important directions for the future. Depression is a complex and heterogeneous disorder for which current treatment delivery efforts are insufficient. The majority of patients are without access to even the chance of assistance from evidence-based psychotherapies such as BA. Clearly, there is more work to be done. In this review, we have highlighted key theoretical, empirical, and clinical components of the work that has informed contemporary research on BA. We also have identified important questions for future inquiry, which we hope will support the field in understanding the nature of depression and providing the most powerful treatments in the most efficient ways for the greatest number in need.

SUMMARY POINTS

1. Contemporary research on BA treatments for depression is rooted in a long history of research on behavioral approaches to depression.
2. Contemporary research on BA has expanded rapidly in recent decades, examining the use of BA across a wide array of patient populations and clinical settings.
3. Interest in BA derives in part from its potential as a transportable intervention for depression, and recent research has examined novel methods of delivery and clinician training.

4. Future research needs to increase methodological rigor and address key questions relevant to theoretical models of depression as well as concerns and priorities of routine clinical care settings.

FUTURE ISSUES

1. Advancing clinical research requires testing theory in the context of intervention studies, particularly focusing on identifying mediators and active ingredients of BA. Future work in these areas would enhance understanding of the processes by which BA achieves clinical benefit and may help to optimize treatment outcome and dissemination.
2. The promise of personalized treatments requires identifying potential moderators of change, specifying who is likely or unlikely to respond to BA.
3. The use of multiple methods, including self-report, behavioral observation, laboratory task paradigms, and biological, are important to include in future studies to examine mediators, moderators, and active ingredients of change.
4. Extensions of BA to novel populations are critical to address clinical needs of populations that have not been studied extensively or that are not well served by current intervention models. Particular populations of interest include racial and ethnic minority individuals, adolescents, geriatric individuals, perinatal women, and those with mental or physical health comorbidities.
5. Given the often chronic and relapsing nature of depression, it is essential for future studies to include longer-term follow-up periods in order to examine the potential relapse-prevention effects of BA.
6. Future research should continue to innovate new methods of treatment delivery and should employ rigorous methods to examine the efficacy of such methods.
7. The transportability benefits of BA require direct investigation that focuses on outcomes such as cost-effectiveness.
8. Given the promise of BA as a parsimonious and transportable intervention, there is a strong need for empirically based models of clinician training that are robust and cost-effective. Innovative methods, such as the use of Web-based approaches, to train clinicians in BA should be investigated.

DISCLOSURE STATEMENT

The authors are not aware of any affiliations, memberships, funding, or financial holdings that might be perceived as affecting the objectivity of this review. The authors receive royalties for some of the treatment manuals and books referenced in this manuscript.

ACKNOWLEDGMENTS

The authors wish to acknowledge gratefully the collaboration of Samuel H. Hubley in preparing this manuscript for publication and contributing to advancing the scope and quality of research on BA.

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