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OPTIMAL AND NORMAL AFFECT BALANCE IN PSYCHOTHERAPY OF MAJOR DEPRESSION: EVALUATION OF THE BALANCED STATES OF MIND MODEL

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Abstract. The reformulated balanced states of mind (BSOM) model (Schwartz, 1997) proposed new cognitive-affective set-point ratios based on a mathematical model of consciousness (Lefebvre, 1990) to differentiate among pathological, normal and optimal balances. Using data derived from the Affects Balance Scale (Derogatis, 1975), the reformulated set-points were empirically evaluated by tracking changes in affect balance SOM (ratio of positive to total affect) in 66 depressed male outpatients undergoing cognitive-behavior therapy (n = 45) or pharmacotherapy (n = 21). Confidence interval estimations indicated that across treatments both remitted (SOM = .35) and unremitted (SOM = .35) patients had pathological pretreatment affect balances near the predicted set-point (.38). At post-treatment, affect balance for remitted patients (SOM = .74) progressed to a normal dialogue near the predicted set-point (.72), whereas unremitted patients maintained a negative balance (SOM = .41). Using Hamilton and Global Assessment Scale ratings, remitted patients were classified into average and optimal responders. At post-treatment, average responders achieved an affect balance (SOM = .70) near the normal dialogue set-point (.72), whereas optimal responders progressed to an affect balance (SOM = .81) at the optimal dialogue set-point (.81), supporting the theoretical distinction between normal and optimal balance. A mathematically generated measure that distinguishes normality and optimality permits increased quantitative precision in comparative psychotherapy outcome research.

Keywords: Depression, states of mind, affective balance, psychotherapy outcome.

Introduction

Recent approaches to cognitive-affective assessment suggest that a single ratio reflecting the balance of positive and negative elements adds theoretically important information beyond

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reporting each dimension separately (e.g., Benjafield & Adams-Webber, 1976). The original states of mind (SOM) model (Schwartz & Garamoni, 1986) proposed that a balance of 62% positive cognition or affect correlated with general psychological adaptation. Despite considerable empirical support for aspects of the SOM model (Schwartz & Garamoni, 1989), anomalous findings suggested that higher balances of 70% to 85% were adaptive and possibly optimal in diverse areas such as agoraphobia (Michelson, Schwartz, & Marchione, 1991), public speaking (Davison, Haaga, Rosenbaum, Dolezal, & Weinstein, 1991), and supportive helping situations (Fichten, Amsel, Robillard, & Tagalakis, 1991).

Closer examination of the studies reporting participants with a SOM of .62 reveals that this balance may represent a subnormal state of mind associated with successful coping in negative, stressful situations such as asserting oneself against another's unreasonable demands (e.g., Bruch, 1981; Schwartz & Gottman, 1976). Studies involving more positive situations such as cured agoraphobics taking a walk (Michelson et a., 1991), normal subjects helping another person (Fichten et al., 1991), or high functioning subjects completing a mood inventory (Garamoni et al., 1991) typically found higher average SOMs.

In response to these anomalous findings, Schwartz (1994, 1997) proposed a reformulated balanced states of mind model (BSOM) to differentiate SOMs associated with coping with stress from those associated with optimal psychological functioning. The BSOM model draws upon Lefebvre's (1985, 1990) theory of consciousness, which generates through mathematical modelling of interpersonal situations additional balance points that differentiate among coping with stress (SOM = .62), normal functioning (SOM = .72) and optimal functioning (SOM = .81).

Lefebvre (1990) proposed that humans have an ''inner computer'' that allows them to model self and other at increasing levels of reflexion and to precisely regulate the ratio of positive and negative thoughts and feelings in a variety of human contexts. Reflexive awareness is the human capacity of persons to see themselves (and others) and to observe themselves seeing themselves (and others). We can depict consciousness as a reflexive hierarchy whereby individuals have an image of themselves and an image of the other, with these images also having images. Linguistically this might be expressed as ''I (physical person) see myself in the mirror (Image) and I know that I am seeing myself (cognizant image or image of the image)''. Additional levels of reflexion are possible, but these are sufficient to model most interpersonal situations.

The positive-negative regulatory process can be functionally described using a Boolean algebra (i.e., an algebra of bipolar situations), defined by zeroes and ones. An individual's state of mind can be structurally represented by a formula that models their reflexive process. By assigning 1's for positive (e.g., happy, calm) and 0's for negative (e.g., sad, tense) states of the individual at higher levels of self-reflexion, a ratio can be computed using Boolean algebra, which, depending on situational demands and internal responses of the person, represents the outcome probability of the individual making a positive response to the environment. Thus, we can theoretically model interpersonal situations such as stressful or pleasant encounters, assign 1's and 0's based on assumptions about the positive and negative inner states of the individual produced by the situations, and calculate through Boolean computations a single score from 0–100%, representing the predicted positivity of mood or other positive responses to specified environmental demands [See Lefebvre (1990) for mathematical details]. We can then compare the theoretically derived predictions with actual scores derived from standard cognitive-affective assessment instruments.

Using this theory of reflexion, Lefebvre, Lefebvre and Adams-Webber (1986) modeled and empirically replicated pre-existing experimental results (Adams-Weber & Rodney, 1983) in which subjects evaluated themselves and others three times on bipolar constructs with instructions that induced positive, neutral, and negative mood states. Using the above Boolean calculations, Lefebvre et al. theoretically derived specific ratios representing the likelihood that an individual will evaluate him/herself positively under five distinct mood states as follows: positive evaluations of self in deep positive mood = .875; positive evaluations of self in positive mood = .813; positive evaluations of self in neutral mood = .719; positive evaluations of self in negative mood = .625; positive evaluations of self in deep negative mood = .500.

Drawing upon the work of Lefebvre et al. (1986), the BSOM model (Schwartz, 1997) defines five mathematically derived set-points that correspond to different psychological states of mind under varying situationally induced mood conditions: positive evaluations of the self in deep negative mood = .500; positive evaluations of the self in negative mood = .625; positive evaluations of the self in neutral mood = .719; positive evaluations of the self in positive mood = .813; positive evaluations of the self in deep positive mood = .875. As with the original SOM model (Schwartz & Garamoni, 1986), we assume that the preference of the mind for certain balances (good forms) implies a preference for the inverse (1.00 – x) of these balances as well (Garner, 1974; Weyl, 1952). We can thus derive the following negative set-points: 1 – 875 = .125; 1 – .813 = .187; 1 – .719 = .281; 1 – .625 = .375.

Drawing upon the cognitive-behavioral formulation of thought as an internal dialogue (Meichenbaum, 1977), the BSOM model organizes the mathematically derived set-points into seven catagories: positive monologue = .91 – 1.00; positive dialogue = .67 – .90; successful coping dialogue = .59 – .66; conflicted dialogue = .42 – .58; failed coping dialogue = .34 – .41; negative dialogue = .10 – .33; and negative monologue = 0.00 – .09. The positive dialogue includes the normal dialogue (set-point = .719; range = .67 – .77); optimal dialogue (set-point = .813; range = .78 – .84); and super optimal dialogue (set-point = .875; range = .85 – .90). The negative dialogue includes the high negative dialogue (set-point = .281; range = .23 – .33); moderate negative dialogue (set-point = .187; range = .16 – .22), and low negative dialogue (set-point = .125; range = .10 – .15).

These SOM categories have qualitative differences from the original SOM model that change the conception of normal and optimal balances. The normal dialogue is the state of mind expected for healthy persons who are in neutral, rather than specifically positive (e.g., success) or negative (e.g., failure) situations. This represents the average expected balance for normal persons whose state of mind oscillates slightly above and below this level depending on environmental fluctuations. The optimal dialogue characterizes healthy persons who are in a positive mood and represents the standard for cheerful and optimistic SOMs associated with optimal well-being. The super-optimal dialogue is associated with healthy persons in a ''deep'' positive mood who are experiencing a more pervasive feeling of well-being associated with less frequently occurring successes or peak experiences. The newly defined positive monologue is more circumscribed, but remains related to excess positivity associated with denial, grandiosity, and current manic states. The negative SOMs, although quantitatively redefined, remain consistent with the original model in distinguishing degrees of psychopathology including mild (conflicted dialogue), moderate (failed coping dialogue), severe (negative dialogue), and profound (negative monologue) (Schwartz, 1997).

Research conducted after the development of the reformulated BSOM model has only begun to validate the new norms. In an empirical, single-case study, a depressed male undergoing 20 sessions of integrative cognitive-dynamic therapy tracked improvements in ''personal quality'' defined as balance within three content domains: emotion, self-image, and optimism (Schwartz, 1997). Weekly self-assessment inventories indicated that the client's emotional balance progressed from a pretreatment failed coping dialogue (.34) to a post-treatment SOM that oscillated around the normal dialogue set-point (.72); optimism balance progressed from a failed coping dialogue to an optimal balance (.81); and self-image balance progressed from a conflicted dialogue (.56) to a normal dialogue (.74). Because of the limitations of clinical anecdotes and single-case study designs, Schwartz (1997) indicated the need to further evaluate the BSOM model in group-design studies.

Previous research on SOM and psychotherapy outcome is inconclusive with respect to the validity of the revised BSOM parameters. Some studies have obtained post-treatment SOM averages in the ''successful coping dialogue'' range among patients who showed clinical improvement (e.g., Bruch, Heimberg, & Hope, 1991); others yield SOM averages corresponding to an optimal balance (e.g., Michelson et al., 1991). However, in the absence of any independent information concerning whether the average remitter is functioning optimally, normally or even sub-normally, there is no way to know whether these results corroborate the model. This ambiguity can be resolved by devising independent criteria to establish optimal treatment response that allow a disconfirmable test of whether the BSOM model parameters of optimal functioning are correct within 95% confidence intervals. In the present study, remitted patients were further subdivided into average responders and optimal responders using a priori criteria based on the Hamilton Rating Scale for Depression and the Global Assessment Scale. This allows a more meaningful evaluation of the clinical significance of post-treatment SOMs.

The present study thus attempted to evaluate the reformulated BSOM set-points and to investigate finer distinctions among positive levels of psychological functioning. We used a group design to evaluate the clinical significance of the BSOM model set-points by assessing changes in affect balance during psychotherapy of major depression. Previous psychotherapy outcome research has demonstrated that the original SOM model applied to affect balance as well as cognitive balance (Garamoni, Reynolds, Thase, Frank, & Fasiczka, 1992) and a recent study of the BSOM model successfully extended the range of application to include both affect (emotional balance) and cognition (self-image balance and optimism balance) (Schwartz, 1997). The existing data suggest that affective experience is regulated in a manner similar to cognition.

The specific hypotheses of the study were that (1) affect balance SOMs in untreated major depression would fall below the positive dialogue (.67 – .90) and within the failed coping dialogue (.34 – .41) or negative dialogue (.10 – .33); (2) at post-treatment, remitted patients will shift in affect balance SOM to the positive dialogue (.67 – .90); (3) unremitted patients will not shift affect balance SOM to the positive dialogue, but will remain within the failed coping (.34 – .41) or conflicted dialogues (.42 – .58); and (4) a priori defined average remitters will shift in affect balance SOM to the normal dialogue (set-point = .719; range = .67 – .77), whereas a priori defined optimal remitters will shift in affect balance SOM to the optimal dialogue (set-point = .813; range = .78 – .84).

Method

This study is based on archival data containing positive and negative affect measures from a research program investigating the effects of cognitive-behavioral therapy and pharmacotherapy on major depression and sexual dysfunction.

Participants

The sample consisted of 66 depressed male outpatients between the ages of 20 and 60 years. Depressed males seeking outpatient treatment were clinically evaluated using criteria for major depression as presented in Diagnostic and Statistical Manual of Mental Disorders (DSM III-R; American Psychiatric Association, 1987) and Research Diagnostic Criteria (RDC; Spitzer, Endicott, & Robins, 1978).

Participants received a comprehensive medical evaluation to rule out medical conditions that cause depression or that might complicate electroencephalographic sleep studies. Endogenous, non-endogenous, melancholic, primary and secondary, non-bipolar, and recurrent unipolar subtypes of depression were eligible for the study. Inclusion required a minimum score of 14 on the first 17 items of the Hamilton Rating Scale for Depression (HSRD; Hamilton, 1960), drug free status on repeated testings during a 2-week observation period before assessment, and a Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) score of 17 or greater during this observation period. Exclusion criteria included Schedule for Affective Disorders and Schizophrenia (SADS; Endicott & Spitzer, 1978) and RDC diagnosed schizophrenia, schizoaffective disorder, or psychotic subtype of major depression or bipolar disorder. Patients with sensitivity to fluoxetine or bupropion were excluded from the pharmacotherapy protocol.

A total of 45 patients (of 72 prescreened and 51 enrolled) completed the cognitive therapy protocol and the pre- and post-treatment assessments. Six of the enrolled cognitive therapy patients did not complete the study (3 withdrew, 1 dropped out for health reasons, and 2 were dropped because of failure to abstain from alcohol or recreational drug use). Of the 45 cognitive therapy patients who completed treatment, 22 (49%) were classified as remitted. Remitted status was defined by scores of <7 on the HSRD over four consecutive weeks at the end of the treatment protocol. A total of 21 patients (of 93 screened and 23 enrolled) completed the pharmacotherapy protocol and post-treatment assessment. Two of the pharmacotherapy patients did not complete the study (1 was noncompliant; 1 dropped out). Of the 21 patients who completed the pharmacotherapy treatment, 16 (76%) were classified as remitted.

Before data analyses, we established a priori criteria using both the HSRD and the Global Assessment Scale (GAS; Endicott, Spitzer, & Fleiss, 1976) to distinguish, among the remitters, between average and optimal remitters. *Optimal remitters* (n = 15) were those with HRSD scores of 0 to 3 and GAS scores of > = 91, whereas *average remitters* (n = 23) had HRSD > = 4 and GAS < = 90. The person with a GAS > = 91 score is defined in terms that are consistent with optimal functioning: ''Superior functioning in a wide range of activities, life's problems never seem to get out of hand, is sought out by others because of his or her many positive qualities, no symptoms'' (American Psychiatric Association, 1994).

Assessments

Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960). The HRSD is a 17-item clinical rating scale for assessing the severity of depression that has been shown to be reliable and sensitive to change.

Global Assessment Scale (GAS; Endicott et al., 1976). The GAS is a clinical rating scale for assessing severity of psychopathology and related impairments in functioning. Scores range from 1 to 100, with higher scores indicating superior functioning.

Experienced clinical research staff not involved with the care of patients administered the Hamilton and GAS ratings. All staff had completed extensive training and had demonstrated reliability that was reestablished annually using independent ratings of videotapes. Intraclass correlation coefficients of 0.88 – 0.93 (Hamilton) and 0.83 – 0.88 (GAS) were maintained throughout the study.

Beck Depression Inventory (BDI; Beck et al., 1961). The BDI is a 21-item self-report inventory for assessing severity of depression that has been shown to possess adequate psychometric properties.

Affects Balance Scale (ABS; Derogatis, 1975). The ABS is a list of 20 positive (e.g., happy, vigorous, loving) and 20 negative terms (e.g., sad, tense, ashamed) that describe the way people feel. Subjects were asked to indicate whether they had any of these feelings during the past week on a 5-point scale (0 = never; 4 = always). A factor analysis (Derogatis, 1982) on the ABS revealed four negative dimensions (depression, anxiety, guilt, and hostility) and three positive dimensions (joy, vigor, and affection). In correlating the primary factors in a higher order analysis, Derogatis (1982) identified two super-factors consisting of positive and negative affect items. The variables used in this study were positive affect (sum of all positive affect dimensions), negative affect (sum of all negative affect dimensions), and affect balance SOM (ratio of positive affect score to the sum of the positive and negative affect scores). The ABS has sound psychometric properties (Derogatis, 1982).

Procedure

Cognitive-Behavioral Therapy (CBT). All eligible patients who enrolled during the first 36 months of the project were treated with CBT. All eligible patients who enrolled during the final 18 months of the project were treated with pharmacotherapy. No patients in this series received both CBT and pharmacotherapy, either in sequence or in combination. Following a 2-week psychotropic drug free interval, subjects were re-evaluated for depression and all-night EEG studies were conducted. All subjects were treated with a 16-week, 20-session (50-minute) course of CBT by experienced therapists who had no knowledge about the study hypotheses or the initial assessment results. Therapists had 3 years experience in CBT, achieved external certification as research quality cognitive therapists according to methods described by Shaw (1984), and received ongoing weekly supervision by an expert cognitive therapist. Independent raters used the HRSD and GAS at 2-week intervals throughout treatment to evaluate clinical response. A self-report battery including the BDI and ABS was administered at the end of the pretreatment observation period, at weekly intervals throughout treatment, and at post-treatment.

Pharmacotherapy (PT). After a 2-week psychotropic drug-free interval, patients were re-evaluated for depression and randomly assigned to open-label treatment cells for depression in a medication-supportive clinical setting with either fluoxetine or bupropion. The starting dose for fluoxetine was 20 mg. per day. Subjects whose HRSD scores remained at 8 or higher after 8 weeks of PT had dosage increased to 40 mg. per day. The mean ± standard deviation (*SD*) dose of fluoxetine was 25.5 ± 9.3. The mean ± *SD* duration from initiation of fluoxetine therapy to remission was 17.4 ± 5.8 weeks. The starting dose for bupropion was 100 mg. b.i.d. in the first week, increased to 300 mg. total daily dose in weeks 2 and 3, and increased to 450 mg. total daily dose thereafter. The mean ± *SD* daily dose of bupropion was 428.6 ± 56.7. The mean ± *SD* duration from initiation of bupropion treatment to remission was 16.4 ± 4.1 weeks.

Results

Table 1 presents clinical and demographic characteristics of 66 patients treated with cognitive-behavioral therapy ($n = 45$) and pharmacotherapy ($n = 21$). Patients assigned to these groups did not significantly differ in age, education, duration of current episodes, age of onset of first episode, pattern of depression (acute vs. chronic), time in therapy, or level of depression (Hamilton and BDI). Pharmacotherapy patients, compared to cognitive therapy, tended to be more recurrent and more endogenous. The pharmacotherapy patients were rated as slightly less impaired on the GAS, but the scores for both groups were within the same category so the difference may not be clinically important.

Table 2 indicates that both remitted and unremitted patients obtained a pretreatment SOM of .35. As predicted by hypothesis 1, this SOM fell within the failed coping dialogue and

Table 1. Demographic and clinical characteristics

	CBT ($N = 45$) M (*SD*)	Pharmacotherapy ($N = 21$) M (*SD*)	
Age	37.8 (9.7)	38.9 (10.9)	$T = -.41$
Education (years)	15.7 (2.3)	16.1 (2.1)	$T = -.46$
Number previous depressive episodes (median)	0	2	Wilcoxon test = 2.95*
Duration current episode (weeks) (median)	26	30	Wilcoxon test = 0.01
Age of onset first episode	33.1 (10.7)	30.2 (13.4)	$T = .96$
Recurrent (%)	45	71	$X^2 = 3.86$*
Endogenous (%)	84	100	$X^2 = 3.74$*
Intermittent (%)	33	52	$X^2 = 2.18$
Number therapy sessions	21.6 (6.5)	22.1 (11.4)	$T = -0.20$
Therapy duration (weeks)	25.6 (14.8)	24.3 (12.1)	$T = 0.35$
HRSD	20.2 (3.9)	18.5 (3.6)	$T = 1.69$
GAS	51.0 (7.3)	55.8 (6.0)	$T = -2.64$*
BDI	29.1 (9.2)	26.7 (8.1)	$T = 1.04$

Note. *$p < .05$. HRSD = Hamilton Rating Scale for Depression (17 items). GAS = Global Assessment Scale. BDI = Beck Depression Inventory.

did not differ significantly from the set-point of .375 (Remitters [n = 38]: 95% CI = .30 – 40; non-remitters [n = 28]: 95% CI = .28 – .42). At post-treatment, remitters progressed to SOM of .74 that, consistent with hypothesis 2, fell within the positive dialogue range and did not differ significantly from the normal dialogue set-point of .719 (95% CI = .69 – .79). In contrast, non-remitters obtained a post-treatment SOM of .41 that, consistent with hypothesis 3, remained within the failed coping dialogue and did not differ significantly from the set-point of .375 (95% CI = .34 – .48). Note that in all the above comparisons, the 95% Cis were sufficiently narrow so that they captured the theoretically relevant set-point while excluding both the higher and lower adjacent set-points.

To explore hypothesis 4 regarding theoretically generated distinctions between normal and optimal SOMs, the a priori defined criteria of average and optimal end-state functioning based on Hamilton and GAS scores were used to select remitted patients who achieved these levels at post-treatment. Table 3 shows that average remitters progressed from a pre-treatment SOM of .36 that did not differ significantly from the failed coping dialogue set-

Table 2. Affect balance for remitted and non-remitted patients

	Total sample (CBT and pharmacotherapy combined)					
	Remitters (n = 38)			Non-remitters (n = 28)		
	Mean	*SD*	95% CI	Mean	*SD* 95% CI	
Affect Balance – pre	.35	.15	.30–.40	.35	.18	.28–.42
– post	.74	.16	.69–.79	.41	.18	.34–.48
Positive affect – pre	21.50	10.21	19.5–26.2	23.75	13.65	18.5–29.0
– post	45.50	13.24	41.1–49.9	27.11	14.60	21.4–32.8
Negative affect – pre	42.00	13.51	37.6–46.4	41.39	12.51	36.5–46.2
– post	16.00	11.31	12.3–19.7	35.39	11.99	30.7–40.0
	CBT Patients Only					
	Remitters (n = 22)			Non-remitters (n = 23)		
	Mean	*SD*	95% CI	Mean	*SD*	95% CI
Affect Balance – pre	.38	.15	.31–.44	.34	.19	.27–.42
– post	.71	.16	.64–.78	.39	.18	.31–.46
Positive affect – pre	24.68	10.38	20.1–29.3	22.96	14.83	16.5–29.4
– post	44.18	14.34	37.8–50.4	26.04	15.13	19.5–34.6
Negative affect – pre	40.23	10.85	35.4–45.1	43.04	13.05	37.4–48.7
– post	18.09	11.86	12.8–23.4	37.35	11.94	32.2–42.5
	Pharmacotherapy Patients Only					
	Remitters (n = 16)			Non-remitters (n = 5)		
	Mean	*SD*	95% CI	Mean	*SD*	95% CI
Affect Balance – pre	.32	.14	.24–.39	.42	.10	.30–.54
– post	.79	.15	.71–.87	.53	.14	.36–.71
Positive affect – pre	20.38	9.75	15.2–25.6	27.40	5.32	20.8–34.0
– post	47.31	11.77	41.0–53.4	32.00	12.00	17.1–46.9
Negative affect – pre	44.44	16.58	35.6–53.3	33.80	5.630	26.8–40.8
– post	13.13	10.16	7.7–18.5	26.40	7.92	16.6–36.2

point of .375 to a SOM of .70 that closely approximated the normal dialogue set-point of .719 (95% CI = .63 – .76).

Optimal remitters (n = 15) also began at a similar pre-treatment SOM of .34 that did not differ significantly from the failed coping dialogue set-point of .375 (95% CI = .26 – .42), but (in contrast to average remitters) progressed to a post-treatment SOM of .81 that closely approximated the optimal dialogue set-point of .813 (95% CI = .72 – .89) (See Table 3).

Cognitive therapy versus pharmacotherapy remitters were compared using one way repeated measures ANOVAS (pretreatment to post-treatment) for changes in affect balance SOM, positive affect alone, and negative affect alone. No group differences between cognitive- and pharmacotherapy were found for affect balance SOM or positive and negative affect alone. A highly significant change over time was found for affect balance SOM (F = 142.20, df = 1,36, p = .0001) positive affect (F = 92.33, df = 1,36, p = .0001), and negative affect (F = 103.57, df = 1,36, p = .0001). A significant Group × Time interaction was found only for affect balance SOM (F = 4.56, df = 1,36, p = .04), with the pharmacotherapy remitters having lower pretreatment SOMs and higher post-treatment SOMs than cognitive therapy remitters.

Discussion

The current study supported the balanced SOM model (Schwartz, 1997) and offers increased precision in assessing cognitive and affective changes during treatment. Consistent with the BSOM model, positive and negative affects of patients with major depression were balanced at pretreatment in the failed coping dialogue (obtained SOM = .35; theoretical = .375) and unremitted patients remained within this SOM category at post-treatment. Remitted cognitive therapy patients progressed to a normal dialogue (obtained SOM = .71; theoretical = .719) and remitted pharmacotherapy patients progressed to an optimal dialogue (obtained SOM = .79; theoretical = .813). Based on a priori defined clinical criteria, average remitters progressed to the predicted normal dialogue set-point (obtained SOM = .70; theoretical = .719) and optimal remitters progressed to the predicted optimal dialogue set-point (obtained SOM = .81; theoretical = .813).

These findings are limited in that the sample included only Caucasian males, who do not represent the majority of depressed patients. Future research is needed in samples of women and racial/ethnic minorities to determine the generality of the results. Also, method limitations preclude drawing any conclusions from the superior affect balances of pharmacother-

Table 3. Affect balance for optimal and average remitted patients

	Total sample (CBT and pharmacotherapy combined)					
	Optimal remitters (n = 15)			Average remitters (n = 23)		
	Mean	*SD*	95% CI	Mean	*SD*	95% CI
Affect Balance – pre	.34	.15	.26–.42	.36	.15	.29–.42
– post	.81	.16	.72–.89	.70	.15	.63–.76
Positive affect – pre	22.40	9.90	16.9–27.9	23.17	10.62	18.6–27.8
– post	52.33	12.35	45.5–59.2	41.04	12.05	35.8–46.3
Negative affect – pre	44.07	17.02	34.6–53.5	40.65	10.86	36.0–45.3
– post	12.00	9.78	6.6–17.4	18.61	11.67	13.6–23.7

apy remitters compared to cognitive therapy remitters. These groups were treated in nonrandomized sequential cohorts, were not assessed by raters masked to the treatment received, were not equivalent in pretreatment depression history, and, within the pharmacotherapy group, were given different medications.

Within these limitations, the current findings demonstrate that quantitatively distinct SOMs can be related to levels of clinically significant improvement (cf. Tingey, Lambert, Burlingame, & Hansen, 1996). Specifically, the model offers ratios for psychopathological (< .50), subnormal (.62), normal (.72), optimal (.81) and super-optimal (.88) SOMs that differentiate more precisely between various levels of functioning. Linking these SOM categories to the Global Assessment Scale in addition to depressive symptoms is consistent with Kazdin's (1999) recommendation to extend our methods for evaluating clinical significance of therapy outcomes beyond symptom alleviation to include indices of functioning and coping in everyday life.

The finding that groups designated as average and optimal on clinical criteria achieved theoretically distinct affect balance set-points allows more precise evaluation of different treatments. Optimality has intrigued psychologists in different contexts such as the progressive development towards optimal cognitive functioning in the species (Shepard, 1987) and optimal functioning in high achieving persons (Maslow, 1968). To our knowledge, however, the ability to precisely quantify optimal vs. average functioning has not been previously reported. Ability to quantify the extent to which therapies can foster optimal functioning rather than focusing solely on symptom reduction could build a bridge between traditional clinical research and the burgeoning interest in a ''positive psychology'' of optimism, well-being, courage, creativity, and achievement (Seligman & Csikszentmihalyi, 2000).

Although a finer differentiation of outcomes has advantages, it also challenges researchers to establish pure classifications of outcomes that can differentiate consistently across studies among degrees of improvement. For example, the criterion of improvement in a social phobia study that yielded SOMs of .62 (Bruch et al., 1991) was a score of 4 or less on the Phobic Severity Rating Scale (Watson & Marks, 1971), where 4 is the cutoff point for clinical impairment. Thus, the improved group included both marginally and optimally improved subjects, which can wash out theoretically important differences between levels of positivity in SOM. In contrast, the current study used dual criteria of endstate functioning based on HRSD and GAS scores to differentiate between average and optimally remitted subjects, which is necessary for testing the BSOM model.

In summary, the present findings support the reformulated set-points of the BSOM model and establish quantitative values differentiating optimal and normal balance. Additional studies are needed to investigate the BSOM model set-points for normal controls at various levels of clinical functioning, to evaluate the impact of other types of treatment on cognitive-affective balance, and to explore other methods of cognitive assessment (e.g., thought listing, talking aloud) and content domains (e.g., cognitive balance, optimism balance, self-image balance). Increased specificity in cognitive assessment (Haaga, 1997) has important implications for calibrating psychotherapy outcome measures to real life criteria of functioning (Sechrest, McKnight, & McKnight, 1996), for establishing dose-response relations anchored to these criteria (Howard, Kopta, Krause, & Orlinsky, 1986), and for tracking individual patients' response during the course of treatment relative to empirically established expectations (Lambert, Hansen, & Finch, 2001). The BSOM model offers a framework for scientifically investigating these issues as well as the specific hypothesis that the mind has

internal, self-regulatory mechanisms that follow mathematical laws (Lefebvre, 1990) for maintaining a vital balance – historically considered an important correlate of mental health and physical well-being.

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