Behavioral Activation Therapy for Depressed Cancer Patients: Factors Associated with Treatment Outcome and Attrition

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In recent years there has been increased focus on evaluating the efficacy of psychosocial interventions for cancer patients. Among the several limitations inherent to these programs of research, few studies have targeted patients with well-diagnosed clinical depression and little is known about factors that best predict treatment outcome and attrition in this population. Using a heterogeneous sample of cancer patients, this study was designed to explore the relations of treatment outcome and attrition with selected demographic (age, education, marital status, gender), psychosocial (pretreatment depression and anxiety, number of co-existent disorders, social support) and medical variables (health and functional status, cancer type, and length of cancer diagnosis). Results indicated that positive treatment outcome was associated with fewer coexistent anxiety disorders at pre-treatment and involvement in a marital relationship. Attrition was more likely to occur among cancer patients presenting with higher pre-treatment depression severity and those who were less educated. Implications of these findings and study limitations are discussed.

Psychological interventions for cancer patients have included educational methods, supportive therapy, cognitive-behavioral therapy, relaxation training, problem-solving and social skills training, biofeedback, and hypnosis (Andersen, 1992; Baum & Andersen, 2001; Carlson & Butz, 2004; Evans et al., 2005). In studies assessing the efficacy of these interventions, there is substantial support that they effectively reduce symptoms of depression, anxiety, and pain (Antoni et al., 2001; Carlson & Butz, 2004; Goodwin et al., 2001; Hopko et al., in press; Moorey, Greer, Bliss, & Law, 1998; Trijsburg, van Knippenberg, & Rijpma, 1992). Conversely, there are a few studies in which psychosocial interventions have seemingly had minimal impact in reducing psychological distress (e.g., Cunningham et al., 1998; Edelman, Bell, & Kidman, 1999), and in a fairly recent review of the literature, it was concluded that although no intervention can be "highly recommended" for reducing depression in cancer patients, there is most empirical support for group therapy, education, structured counseling, cognitive-behavioral therapy, communication skills training, and self-esteem building approaches (Newell, Sanson-Fisher, & Savolainen, 2002). Among the several limitations inherent to psychosocial treatment outcome research with cancer patients, very few studies have targeted patients with well-diagnosed clinical depression and little is known about the factors that most predict treatment outcome and attrition in this population. The present study addresses precisely these issues.

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In treatment outcome research focused on individuals with clinical depression, several factors have been associated with a negative (or limited) treatment response, including increased severity and chronicity of depression, earlier age of onset, family history of depression, presence of a personality disorder (but see Mulder, Joyce, & Luty, 2003), co-existent Axis I disorders, presence of psychotic symptoms, perceived social stigma, increased cognitive and/or social dysfunction, high levels of self-criticism, marital problems or being unmarried, decreased treatment expectations, and double depression (Duggan, Sham, Minne, Lee, & Murray, 1998; Earle, Smith, Harris & Longino, 1998; Enns, Cox & Pidlubny, 2001; Jarrett, 1995; Kung & Elkin, 2000; Mynors-Wallis & Gath, 1997; Robinson & Spiker, 1985; Sirey et al., 2001; Sotsky et al., 1991; Viinamaki et al., 2006). A recent study utilizing functional magnetic resonance imaging also revealed potential treatment outcome differences as a function of organic processes. Specifically, patients whose reactivity to emotional stimuli was low in the subgenual cingulate cortex and high in the amygdala demonstrated more attenuation of depressive symptoms following cognitive-behavioral therapy (Siegle, Carter, & Thase, 2006).

Pertaining to treatment attrition, variables associated with an increased likelihood of prematurely terminating psychotherapy include lower socioeconomic status, reduced income and lower educational level, ethnic or racial minority

status, and younger age (Grilo et al., 1998; Rabin, Kaslow, & Rehm, 1985; Roffman, Klepsch, Wertz, Simpson, & Stephens, 1993; Self, Oates, Pinnock-Hamilton & Leach, 2005; Stratterfield, 1998). Patients presenting with co-existent psychiatric diagnoses also tend to exhibit higher attrition rates (Arnow et al., 2007; Frank et al., 2000; Issakidis & Andrews, 2004). More specific to treatment process, treatment expectations may impact attrition, with negative attitude towards treatment and a discontinuity between patients' personal beliefs and proposed treatment rationale increasing attrition rates (Rabin et al, 1985). Arnow et al. (2007) also reported that lower therapeutic alliance scores predicted earlier attrition in treatment. Finally, patients enrolled in cognitive-behavioral group therapy also appear more likely to discontinue treatment if they have higher pre-treatment hopelessness scores and are more pessimistic about symptom control (Westra, Dozois & Boardman, 2002).

In an ongoing program of research, our research group demonstrated that behavioral activation may effectively treat depression in cancer patients (Hopko, Bell, Armento, Hunt, and Lejuez, 2005; Hopko et al., in press). Behavioral activation initially was deemed as effective as comprehensive cognitive-behavior therapy in reducing depressive symptoms (Jacobson et al., 1996), and the treatment and its variations subsequently have been effectively used with depressed patients in a community mental health center (Lejuez, Hopko, LePage, Hopko, & McNeil, 2001), an inpatient psychiatric facility (Hopko, Lejuez, LePage, Hopko, & McNeil, 2003), as a supplemental intervention for patients with co-existent Axis I (Hopko, Hopko, & Lejuez, 2004; Jakupcak et al., 2006; Mulick & Naugle, 2004) and Axis II disorders (Hopko, Sanchez, Hopko, Dvir, & Lejuez, 2003), as well as in individual and group therapy formats (Porter, Spates, & Smitham, 2004). In perhaps the most compelling study to date that incorporated a randomized placebo-controlled design, behavioral activation was comparable to antidepressant medication, and both interventions were superior to cognitive therapy in treating depressed patients (Dimidjian et al., 2006).

Although substantial research has examined factors associated with treatment outcome and attrition among depressed patients, this focus has not extended toward cancer patients with diagnosed depression. In the context of providing behavioral activation therapy to a sample of cancer patients diagnosed with clinical depression, this study was designed to explore the relations of treatment outcome and attrition with selected demographic (age, education, marital status, gender), psychosocial (pretreatment depression and anxiety, number of co-existent disorders, social support) and medical variables (health and functional status, cancer type, and length of cancer diagnosis).

METHOD

Participants

Participants included 43 cancer patients with a diagnosis of major depression who were being treated at the University of Tennessee Medical Center's Cancer Institute. Patients were recruited through medical clinic screening, brochures, and oncologist referral. All participants were part of ongoing treatment outcome studies examining the efficacy of behavioral activation treatments for depression (Hopko et al., 2005, in press). If patients expressed interest in being assessed or were referred for study inclusion, they were asked to participate in a pre-treatment diagnostic assessment. This assessment included administration of the Anxiety Disorders Interview Schedule – IV[1] (ADIS-IV; Brown, Di Nardo, & Barlow, 1994), Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960), and other self-report instruments outlined below. Advanced clinical psychology graduate students conducted assessments and were supervised by the principal investigator (DH). Individuals were eligible for studies only if they were greater than 18 years of age, diagnosed with cancer, had a principal (and primary) diagnosis of major depression, and were not psychotic or cognitively impaired.

Of the 43 patients who met these criteria and were included in outcome studies, 32 individuals (74%) completed the entire behavioral activation protocol whereas 11 patients (26%) were lost to attrition. Of these 11 patients, five discontinued participation prior to initiating treatment and six discontinued during the course of psychotherapy (M sessions = 3.2, SD = 1.2). The total sample consisted of 39 females and 4 males, and all patients were Caucasian [mean age = 52.3 years (SD = 10.7)]. Patients had an average education of 13.7 years (SD = 3.1) and 25 were married (58%), with the

[1] Note that the Anxiety Disorders Interview Schedule - IV comprehensively assesses for all anxiety and mood disorders and also includes screens for substance abuse and psychotic disorders.

remainder being divorced (n = 9), single (n = 7), or separated (n = 2). Coexistent diagnoses included GAD (n = 18), social phobia (n = 7), panic disorder (n = 3), PTSD (n = 3), specific phobia (n = 3), and OCD (n = 1). Cancer diagnoses were breast (n = 29), lung (n = 4), stomach (n = 3), colon (n = 3), prostate (n = 2), pancreatic (n = 1), and oral cancer (n = 1), and the average time since diagnosis was 2.3 years (SD = 2.7).

Assessment Measures

The Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960) is a 24-item semi-structured interview designed to measure symptom severity in patients diagnosed with depression. The instrument is the most widely used and accepted outcome measure for the evaluation of depression and has become the standard outcome measure in clinical trials (Kobak & Reynolds, 1999).

The Beck Anxiety Inventory (BAI; Beck & Steer, 1993) is a 21-item questionnaire designed specifically to distinguish cognitive and somatic symptoms of anxiety from those of depression. Good psychometric properties have been demonstrated among community, medical, and psychiatric outpatient samples (de Beurs, Wilson, Chambless, Goldstein, & Feske, 1997; Morin et al., 1999; Wetherell & Areán, 1997).

The Medical Outcomes Study Short Form (SF-36; Ware & Sherbourne, 1992) assesses health and functional status across eight subscales: physical functioning, role disability - physical problems, bodily pain, health perceptions, vitality, social functioning, role disability - emotional problems, and mental health. The SF-36 has a stable factor structure and adequate internal and external validity (Dexter, Stump, Tierney, & Wolinsky, 1996; Ware & Sherbourne, 1992), properties that generalize across a sample of patients with laryngeal cancer (Mosconi, Cifani, Crispino, Fossati, & Apolone, 2000).

The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) is a 12-item scale that assesses adequacy of social support from family, friends, and significant others. The instrument has adequate psychometric properties in clinical and non-clinical samples of adults (Stanley, Beck, & Zebb 1998; Zimet et al. 1988).

Behavioral Intervention

Behavioral activation is a therapeutic process that emphasizes structured attempts to increase overt behaviors that bring patients into contact with reinforcing environmental contingencies and corresponding improvements in thoughts, mood, and overall quality of life (Hopko, Lejuez, Ruggiero, & Eifert, 2003). Behavioral activation was the core intervention for all patients participating in both studies (Hopko et al., 2005, in press), though in the more recent outcome study, additional intervention components were included as described below.

Within the behavioral activation model (see Hopko & Lejuez, in press for the comprehensive protocol), initial sessions consisted of assessing the function of depressed behavior, establishment of patient rapport, and introduction of the treatment rationale. Once efforts were made to reduce reinforcement for depressed behavior, a systematic approach for increasing healthy behavior was initiated by increasing the value of reinforcers for such behavior and devaluing reinforcers for depressed behavior.

Within this model, systematically increased healthy activity is a necessary precursor toward the reduction of overt and covert depressed behavior. Patients began by engaging in a weekly self-monitoring exercise to examine already occurring daily activities to provide a baseline measurement and provide some ideas with regard to identifying potential activities to target during treatment. Following this monitoring, emphasis shifted to identifying a person's values and goals within a variety of life areas that included family, social, and intimate relationships, education, employment/career, hobbies/recreation, volunteer work/charity, physical/health issues, and spirituality (Hayes, Strosahl, & Wilson, 1999). Following this exercise, an activity hierarchy was constructed in which 15 activities were rated ranging from "easiest" to "most difficult" to accomplish. Using a master activity log and behavioral checkout to monitor progress, patients progressively moved through the hierarchy, moving from the easier behaviors to the more difficult. For each activity, the therapist and patient collaboratively determined the final goal in terms of the frequency and duration of activity per week. These goals were recorded on the master activity log that was kept in the possession of the therapist. Weekly goals were recorded on a behavioral checkout form that the patient brought to therapy each week. At the start of each session, the behavioral checkout form was discussed, with the following weekly goals established as a function of patient success or difficulty. Treatment involved 9 (1-hour)

sessions that included psychoeducation, presentation of the treatment rationale, activity and goal selection, and behavioral activation. A more comprehensive behavioral activation approach (Hopko et al., in press) was used with approximately half of the sample. While maintaining a 9-session protocol in which behavioral activation was the primary focus of therapy, patients also were exposed to relaxation training, brief cognitive therapy, behavioral exposure, problem solving skills training, and sleep management skills.

Procedure

Following the diagnostic assessment described above, included participants completed 9-weeks of individual behavioral therapy. Advanced graduate students trained by the principal investigator conducted assessments and treatment sessions at the Cancer Institute. The principal investigator supervised all therapy sessions through audiotape review and discussion, and as reported elsewhere (Hopko et al., 2005, in press), therapist competence and treatment adherence were very high.

RESULTS

Treatment Outcome Data

Treatment Response.

For treatment outcome data, the clinical significance of patient change was assessed on an ideographic basis using the reliable change index (RCI; Jacobson & Truax, 1991). Based on reliable change indices calculated for the HRSD, 27 patients (84%) were considered significantly and clinically improved whereas 5 patients were considered non-responders to treatment. Responders and non-responders to treatment were then compared across relevant demographic, medical, and clinical variables. All continuous variables were examined using independent-samples t-tests whereas categorical variables were examined via Chi-square analyses. As presented in Table 1, treatment responders differed from non-responders in that non-responders presented with an increased number of co-existent anxiety disorders at pre-treatment and also were less likely to be married.

Table 1. Comparison of Treatment Responders and Non-responders across Clinical and Demographic Variables

Variable	Responders (n=27)	Non-responders (n=5)	t or Chi-square	p
Pre-treatment HRSD	20.3 (7.9)	20.2 (8.2)	t= .03	.98
Number of Co-existent Anxiety Disorders	1.7 (0.8)	2.6 (0.9)	t=2.31	<.05
BAI	21.6 (11.4)	18.8 (12.0)	t= .49	.62
MSPSS	38.7 (18.8)	40.8 (23.5)	t= .19	.85
SF-36				
Physical Func.	36.9 (20.6)	30.0 (16.6)	t= .70	.49
Mental Health	41.2 (17.6)	40.8 (24.9)	t= .05	.96
Role-Emotional	10.3 (20.6)	13.3 (18.3)	t= .31	.76
Role Physical	10.6 (23.6)	15.0 (33.5)	t= .36	.72
General Health	35.6 (21.3)	39.0 (20.4)	t= .33	.74
Bodily Pain	38.6 (20.0)	49.4 (25.9)	t=1.05	.30
Vitality	**14.8 (12.0)**	**22.0 (18.2)**	**t=1.13**	**.27**
Social Functioning	26.9 (24.4)	42.5 (28.8)	t=1.27	.21
Age	52.5 (10.0)	51.8 (13.2)	t= .14	.89
Education	13.9 (3.0)	16.8 (2.8)	t=1.91	.06
Married	(n=18/67%)	(n=0/0%)	χ^2=8.3	<.01
Gender	(n=1 male/4%)	(n=1 male/20%)	χ^2=1.8	.30
Length of Cancer Diagnosis	2.0 (2.2)	2.2 (2.8)	t= .11	.91
Cancer Type	(n=18 Breast)	(n= 4 Breast)	χ^2=7.0	.53
	(n= 2 Lung)	(n= 0 Lung)		
	(n= 2 Stomach)	(n= 0 Stomach)		
	(n= 2 Colon)	(n= 0 Colon)		
	(n= 2 Prostate)	(n= 0 Prostate)		
	(n= 1 Pancreatic)	(n= 0 Pancreatic)		
	(n= 0 Oral)	(n= 1 Oral)		

Attrition.

For treatment attrition data, those individuals who completed all 9 sessions of psychotherapy were considered completers (n = 32), whereas those who did not (n = 11) were considered treatment non-completers. As with treatment response data, completers and non-completers were compared across relevant demographic, medical, and clinical variables with continuous variables examined using independent-samples t-tests and categorical variables examined via Chi-square analyses. As presented in Table 2, treatment completers differed from non-completers in that non-completers were more likely to be less educated and to present with increased depression severity at pre-treatment as assessed using the HRSD.

Table 2. Comparison of Completers and Non-completers across Clinical and Demographic Variables

Variable	Completers (n=32)	Non-Completers(n=11)	t or Chi-square	p
Pre-treatment HRSD	20.2 (7.7)	25.7 (6.7)	t=2.26	<.05
Number of Co-existent Anxiety Disorders	1.9 (0.8)	2.1 (0.8)	t= .72	.48
BAI	20.9 (11.3)	22.2 (12.8)	t= .31	.76
MSPSS	38.4 (18.9)	31.3 (19.6)	t= .82	.41
SF-36				
Physical Func.	35.6 (19.7)	37.3 (12.5)	t= .32	.75
Mental Health	41.4 (18.2)	40.4 (16.7)	t= .17	.87
Role-Emotional	10.4 (19.7)	21.2 (30.8)	t=1.31	.19
Role Physical	11.7 (24.6)	9.1 (23.1)	t= .32	.75
General Health	36.4 (20.6)	31.8 (19.4)	t= .67	.51
Bodily Pain	42.0 (22.7)	35.9 (18.9)	t= .88	.39
Vitality	**16.7 (13.5)**	**24.5 (20.7)**	**t=1.43**	**.16**
Social Functioning	30.1 (25.2)	30.7 (21.9)	t= .07	.94
Age	53.0 (10.6)	50.5 (11.2)	t= .68	.50
Education	14.4 (3.0)	11.7 (2.9)	t=2.63	<.05
Married	(n=19/59%)	(n=6/55%)	χ^2=0.1	.79
Gender	(n=2 male/6%)	(n=2 male/18%)	χ^2=1.4	.27
Length of Cancer Diagnosis	2.1 (2.2)	2.8 (3.8)	t= .72	.48
Cancer Type	(n=25 Breast)	(n= 8 Breast)	χ^2=5.8	.76
	(n= 2 Lung)	(n= 2 Lung)		
	(n= 1 Stomach)	(n= 0 Stomach)		
	(n= 1 Colon)	(n= 1 Colon)		
	(n= 2 Prostate)	(n= 0 Prostate)		
	(n= 1 Pancreatic)	(n= 0 Pancreatic)		
	(n= 0 Oral)	(n= 0 Oral)		

DISCUSSION

The purpose of this study was to build on treatment outcome research conducted with depressed cancer patients by elucidating factors associated with treatment outcome and attrition, an area largely neglected in the literature. In general, results were consistent with those found in more traditional depressed patient samples. In particular, increased pathology severity at pre-treatment (i.e., depression severity and increased co-existent anxiety disorders) was relevant to understanding both treatment response and likelihood of attrition. These data support the notion that patients with more severe mental health problems may be more likely to benefit from and complete interventions that utilize a more multimodal therapy approach, one that might include psychotropic medications (American Psychiatric Association, 2000; Keller et al., 2000). The one-dimensional time-limited provision of psychotherapy may simply be inadequate to fully address the needs of many patients presenting with severe symptom patterns, though this possibility requires much more empirical scrutiny before firm conclusions can be drawn.

Also demonstrated in this study, one type of social support (being married) may also be relevant insofar as facilitating positive treatment outcome. It has long been speculated that a stable social support system may protect individuals from developing depression (Lewinsohn, 1974; Monroe, 1983), and conversely, that depression may result in the erosion of one's social support network (Coyne, 1976). Indeed, a substantial database supports both perspectives (Stice, Ragan, & Randall, 2004; Weissman, Markowitz, & Klerman, 2000). In a related line of

research, it also is clear that marital dysfunction can significantly worsen depressive symptoms and that a mutually rewarding marital relationship may enhance well-being and decrease the likelihood of experiencing clinical depression (Davila, 2001). Accordingly, it is logical that individuals in marital relationships may have better treatment outcome as they are presumably receiving spousal support (i.e., have greater resources) in their efforts to overcome depression, and also because they may be less inclined to have more severe forms of depression due to this stable social support. Finally, and also consistent with past research, increased education may enhance cancer patients' abilities to complete a cognitive-behavior therapy protocol. Indeed, research suggests that individuals who are less educated may even be less likely to attend initial assessment interviews to determine their eligibility for cognitive-behavioral therapy (Coles, Turk, Jindra, & Heimberg, 2004). The best explanation to why less educated individuals prematurely discontinue therapy may pertain to specific demands inherent in the therapy process. In particular, with cognitive-behavioral therapy there are expectations that patients will undergo a process of being educated about their mental illness, will listen to and process treatment rationale, will actively participate in a sequential skill-building and learning process, and will complete practice exercises (or homework) as the therapist recommends throughout the course of therapy. Perhaps compounded by attention and concentration deficits symptomatic of depressed (and anxious) patients, it may be that an already pre-existing aversion toward learning (i.e., less education) and the specific demands of the therapy process are unrewarding and perhaps overwhelming, thereby resulting in the avoidance behavior of attrition. In any event, higher attrition rates among the less educated calls for a re-evaluation of whether certain treatment modifications may be necessary to better meet the needs of the less educated.

Although study findings represent an important advancement in understanding treatment outcome and attrition in depressed cancer patients, several limitations are inherent. First and foremost, the sample size was limited, thus precluding the use of more advanced multivariate statistical procedures and increasing the potential for Type II error. Second, the sample was exclusively Caucasian, resulting in the need to investigate the cultural generalizability of findings. Third, a less than comprehensive set of predictor variables was incorporated, particularly pertaining to cancer specific variables such as the stage of cancer at treatment initiation, type of surgical procedures experienced prior to or during psychotherapy, the frequency, duration, and type of adjuvant cancer therapy (chemotherapy, radiation therapy, hormone therapy) prior to and during psychotherapy, and so forth. Indeed, the importance of these variables in relation to treatment outcome and attrition in cancer patients is currently a specific aim of a three year grant-funded randomized control trial that explores the relative efficacy of behavioral activation and problem-solving therapy in depressed breast cancer patients (Hopko et al., 2007). Despite these limitations, results of the current investigation are intriguing, and represent an exploratory description of factors that may impact treatment outcome and attrition in cancer patients with well-diagnosed depression – an area of research that prior to now was largely unexplored.

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