Published in final edited form as:

J Consult Clin Psychol. 2010 April ; 78(2): 236–248. doi:10.1037/a0018223.

Therapy Processes and Outcomes of Psychological Interventions For Women Diagnosed with Gynecological Cancers: A Test of the Generic Process Model of Psychotherapy

Manne Sharon, Ph.D.,

Fox Chase Cancer Center

Winkel Gary, Ph.D.,

City University of New York- Graduate Center

Zaider Talia, Ph.D.,

Memorial Sloan Kettering Cancer Center

Rubin Stephen, M.D.,

University of Pennsylvania Health Systems

Hernandez Enrique, M.D., and

Temple University School of Medicine

Bergman Cynthia, M.D.

Fox Chase Cancer Center

Abstract

Introduction—There has been little attention paid to the role of non-specific therapy processes in the efficacy of psychological interventions for individuals diagnosed with cancer.

Objective—The goal of the current study was to examine the three constructs from the Generic Model of Psychotherapy (GMP): therapeutic alliance, therapeutic realizations, and therapeutic openness/involvement in the treatment outcome of women with gynecological cancers attending either a seven-session supportive counseling (SC) or a coping and communication skills intervention (CCI).

Method—Two hundred and three women completed measures of alliance, realizations, and openness after intervention sessions 2, 3 and 6 as well as measures of depressive symptoms after these sessions and three months after the pre-intervention assessment (post-treatment).

Results—Consistent with GMP, in early sessions, therapeutic bond predicted openness in terms of positive affect experienced during sessions and both aspects of openness (positive and negative affect) in turn predicted more therapeutic realizations. Therapeutic realizations predicted perceptions of greater session progress and greater therapeutic bond predicted more therapeutic realizations.

When early session GMP variables were used to predict later GMP processes and outcomes and post-treatment outcomes, early therapeutic bond predicted later session therapeutic realizations directly

Correspondence concerning this article should be addressed to Sharon Manne, Ph.D., Fox Chase Cancer Center, 510 Township Line Road, First Floor, Cheltenham, PA 19012; Sharon.Manne@fccc.edu..

Publisher's Disclaimer: The following manuscript is the final accepted manuscript. It has not been subjected to the final copyediting, fact-checking, and proofreading required for formal publication. It is not the definitive, publisher-authenticated version. The American Psychological Association and its Council of Editors disclaim any responsibility or liabilities for errors or omissions of this manuscript version, any version derived from this manuscript by NIH, or other third parties. The published version is available at www.apa.org/pubs/journals/ccp

and indirectly via emotional arousal, emotional arousal predicted session progress, session progress predicted lower post-session depressive symptoms, and depressive symptoms as rated after session six predicted depressive symptoms three months post-treatment. However, a number of additional associations between GMP processes were found.

Conclusions—Results suggest that therapy processes played a role in predicting both short- and long-term treatment outcomes.

Keywords

Psychotherapy processes; psychological intervention; gynecological cancers

Although a number of psychological interventions for individuals diagnosed with cancer have been shown to be efficacious (e.g., Helgeson, Cohen, Schulz, & Yasko, 1999; Penedo et al., 2004; Trask, Paterson, Griffith, Riba, & Schwartz, 2003), reasons why these treatments are effective have not been studied extensively. Achieving a better understanding of why psychological interventions for cancer patients are beneficial is important for both clinical and theoretical reasons. Clinically, the identification of active and inactive therapeutic ingredients may improve treatment efficacy enhancing effective ingredients and eliminating inactive and/or harmful ingredients of treatments (Kazdin, 2007; Kazdin & Nock, 2003). From a theoretical perspective, the identification of treatment mechanisms can also inform theoretical underpinnings of psychological treatments and thereby provide refinements to underlying theory (Kazdin, 2007).

Several studies have begun the search for mechanisms of psychological interventions targeted to individuals with cancer by evaluating coping strategies, such as stress management skill, which are targeted by the specific treatment (e.g., Antoni et al., 2006; Helgeson et al., 1999). This approach examines unique mechanisms for specific therapeutic interventions. There has been little attention paid to the role of non-specific therapy processes in the efficacy of psychological interventions for individuals diagnosed with cancer—that is, the universal active ingredients that contribute to the outcomes across therapeutic approaches. The Generic Model of Psychotherapy (GMP) provides a conceptual framework for studying these non-specific therapy processes (see Kolden, 1996; Orlinsky, 1994; Orlinsky & Howard, 1987). GMP proposes six main change process constructs: therapeutic contract, therapeutic interventions, temporal patterns, therapeutic alliance, therapeutic realizations, and therapeutic openness/involvement. The GMP posits relations among these processes as well as between each process and therapy outcomes. For the present study, we focus on three of GMP processes—alliance, realizations, and openness/involvement. Therapeutic alliance is comprised of the quality of the emotional bond between patient and therapist, the level of collaboration between the patient and therapist in setting therapeutic goals, and the level of agreement between patient and therapist on the ways of achieving therapeutic goals (Bordin, 1979; Horvath & Symonds, 1991; Orlinsky, 1994). Therapeutic realizations are the perceived in-session benefits of therapy which can include insights connecting one's past with current events, the unburdening of one's concerns, enhanced morale, and mastery experiences (Kolden et al., 2000; Elliott, 1985; Kolden, 1991). Therapeutic openness/involvement involves the capacity to experience and process emotions in the therapy session and receive therapist feedback (Greenberg & Pascual-Leone, 1995; Greenberg, 1995); (Greenberg & Pascual-Leone, 1997; Orlinsky & Howard, 1987; Pos, Greenberg, Goldman, & Korman, 2003).

In addition to therapy processes, the GMP postulates that the outcomes of therapy are short- and long-term with short-term outcomes evolving over therapy sessions and long-term outcomes occurring after treatment has been completed (Orlinsky & Howard, 1987). Short-term or “micro-outcomes” include evaluations of progress attained during each session as well as post-session mood. Long-term outcomes include behavioral and mood changes that are

experienced after therapy has been completed. According to the GMP, therapeutic alliance and realizations lead to better short-term outcomes such as greater changes in perceptions of progress over sessions which then lead to longer-term, macro-outcomes (i.e., longitudinal changes in depressive symptoms post-therapy termination) while therapeutic openness/involvement is not associated with outcome (Orlinsky & Howard, 1987; Robert Elliott & Wexler, 1994). A basic schema depicting the GMP model is shown in Figure 1.

Empirical work has linked each of these processes to treatment outcomes. Therapeutic bond, particularly bond that is rated by the patient in early therapy sessions, is the most studied non-specific therapy process and has been consistently but modestly associated with positive post-session psychological outcomes across many types of therapy (e.g., Beckner, Vella, Howard, & Mohr, 2007; Constantino, Castonguay, & Schut, 2002; Klein et al., 2003; Martin, Garske, & Davis, 2000). The role of therapeutic realizations has been less studied; however, several studies have suggested that greater therapeutic realization predicts better short-term therapy outcomes such as greater perceived progress in subsequent sessions (Kolden, 1991, 1996; Kolden et al., 2000; 2006) and greater post-session well-being (Kolden et al., 2000). Therapeutic openness/involvement has been assessed in a number of ways including the level of emotional arousal during therapy sessions (Rosner, 1996; Warwar, 2003); level of emotional arousal and the depth of emotional processing (Greenberg & Pascual-Leone, 1995, 1997; Missirlian, Toukmanian, Warwar, & Greenberg, 2005; Toukmanian, 1990); and the ability to express oneself in an organized and spontaneous way ("self-relatedness" (Orlinsky & Howard, 1987). Although not hypothesized by the GMP, the level of emotional arousal and the depth of emotional processing during early and mid-point therapy sessions has been shown to predict depressive symptoms at therapy termination (Missirlian et al., 2005).

As mentioned previously, the GMP also postulates associations *between* therapeutic processes (Orlinsky & Howard, 1987). The model predicts that greater early therapeutic bond increases the likelihood that the patient will be emotionally open and involved which in turn sets the stage for subsequent therapeutic realizations (Kolden, 1988, 1996). The model also posits a reciprocal influence of greater emotional openness/involvement with greater ease in forging a closer bond over the course of treatment. There has been empirical support for some aspects of this model. (Kolden, 1991) found that therapeutic bond and therapeutic openness/involvement contributed significantly to greater therapeutic realizations. Kolden and colleagues (2006) used structural equation modeling to evaluate the role of bond, realizations, and involvement/openness as rated after the second therapy session in predicting short-term therapy outcomes assessed after the fourth session. They expanded the model to predict that session progress predicted higher emotional involvement in later sessions. Their results indicated that perceptions of early treatment progress predicted greater emotional openness/involvement in subsequent sessions and that greater emotional openness/involvement predicted a stronger bond with the therapist. They also found that early therapeutic bond fostered greater therapeutic realizations and higher ratings of session progress and lower ratings of post-session distress. Taken together, these findings suggest that the GMP construct function early in therapy to predict short-term therapy outcomes. With the exception of therapeutic bond, there is less evidence regarding whether these therapy process variables predict session outcomes later in the course of therapy or predict post-treatment outcomes.

The only published studies to date regarding the role of therapy processes in treatment outcomes among individuals diagnosed with cancer were conducted by Anderson and colleagues (Anderson, Watson, & Davidson, 2008) who found that perceptions of greater group cohesion (therapeutic bond) mediated the effects of a group intervention on psychological distress among women diagnosed with early stage breast cancer. McCormack and colleagues (2008) interviewed individuals diagnosed with metastatic cancer who participated in either cognitive-behavior therapy or relaxation therapy and noted in qualitative analyses that participants felt

it was helpful to talk to a caring professional openly about their problems who was not a family member.

The primary goal of the current study was to examine the role of therapeutic alliance, therapeutic realizations, and therapeutic openness/involvement in treatment outcome of women with gynecological cancers attending either a seven-session supportive *individual* counseling (SC) or a coping and communication skills *individual counseling* intervention (CCI). The present study is a secondary analysis of data collected as part of a randomized clinical trial evaluating the efficacy of these two interventions versus Usual Care in reducing depressive symptoms among women diagnosed with gynecological cancers (Manne et al., 2007; Manne et al., 2008). This secondary analysis had two aims. The first aim was to evaluate the GMP by assessing the relationship among therapeutic alliance, therapeutic openness/involvement (emotional arousal), therapeutic realizations, and the associations between these three processes and two short-term treatment outcomes, session progress and post-session mood. Based on predictions from the GMP as well as Kolden and colleagues' work (2006), we hypothesized that higher levels of therapeutic bond in an early session would predict higher levels of therapeutic openness/involvement and therapeutic realizations in a subsequent treatment session and that therapeutic openness/involvement would partially mediate the association between therapeutic bond and therapeutic realizations. We hypothesized that session progress would mediate the association between therapeutic realizations and post-session depressive symptoms. The proposed model is illustrated in Figure 1. To address this aim, we evaluated associations between two early sessions, sessions 2 and 3, and the association between an early session (session 2) with a later session (session 6). We selected two early sessions because the associations between GMP constructs in early therapy sessions may differ from the associations between GMP constructs in later therapy sessions. Previous work has focused on early sessions (Kolden et al., 2006).

The second aim was to evaluate the role of therapy process and post-session outcomes in predicting post-treatment outcomes. Based on GMP, we predicted that better short-term outcomes (e.g., higher session progress, lower BDI scores at the last session) would predict better post-treatment outcomes. We also hypothesized that the associations between therapeutic bond and post-treatment outcomes would be partially mediated by better post-session outcomes. To extend the previous research on the GMP (e.g., Kolden et al., 2006; Kolden et al 2001), we will evaluate later session measures of process as well as early session process in order to determine whether associations reported in early sessions are still present for later sessions.

As noted previously, the present study is a secondary analysis of data collected as part of a randomized clinical trial comparing supportive counseling (SC) with a coping and communication enhancing intervention (CCI) and Usual Care (UC) (Manne et al., 2007). Results *of the parent study* indicated that both CCI and SC had a beneficial effect on depressive symptoms with significant effects noted at the six and nine month follow-up time points. However, there was no significant difference between the interventions' effects: both reduced depressive symptoms and prevented an increase in depressive symptoms over time that were noted among women in the UC group. SC evidenced stronger effects on depressive symptoms than CCI and UC among women with temporal changes in physician-rated functional status and among women who began the intervention with higher levels of positive emotional expressiveness. Contrary to predictions, there was no impact of either CCI or SC on cancer-specific distress. The present study utilizes data collected from women participating in the two treatment conditions, SC and CCI. Because we were evaluating a universal change process rather than a modality-specific change process, analyses were conducted on data from the study conditions combined.

Method

Participants and Procedures

As noted previously, this is a secondary analysis of data collected as part of a randomized clinical trial evaluating the efficacy of a Coping and Communication-Enhancing Intervention (CCI) versus a Supportive Counseling Intervention (SC) and Usual Care (UC) (Manne et al., 2007;2008). Procedures are described in greater detail in Manne and colleagues (2007). Participants were recruited from ten hospitals in the northeastern US. Study inclusion criteria were: diagnosed with primary gynecological cancer (ovarian, endometrial, cervical, vulvar, fallopian tube, or uterine cancer; was receiving chemotherapy or radiation or was less than three months post-surgery; age 18 years or older; undergoing active medical treatment; a Karnofsky Performance Status of 80 or above or an Eastern Cooperative Oncology Group (ECOG) (Zubrod et al., 1960) score of 0 or 1 (reflecting the ability to carry out activities of daily living); lived within a two-hour commuting distance from the recruitment center; no current or previous neurological disorder; English speaking, and; no hearing impairment. Study participants from the larger study ($N = 353$) were assigned randomly to CCI, SC, or UC. Randomization was stratified by baseline Beck Depression Inventory (BDI) score (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). The CONSORT study schema is contained in Manne and colleagues (2007).

CCI and SC both consisted of six hour-long *individual* sessions and one telephone booster session that took place one week after the sixth session. CCI session content focused on enhancing coping and support-solicitation skills, evaluating and altering life priorities, and identifying and dealing with emotional reactions to cancer. Sessions contained didactic content, in session skill practice, and home practice assignments. Techniques were drawn from cognitive-behavioral interventions (e.g., cognitive restructuring, training in coping skills, behavioral tasks for home assignments). Other content was educational in nature (educational material regarding the impact of gynecological cancer on sexual functioning) or focused on identification and understanding of emotional needs and feelings about cancer. Treatment components included those commonly used in this treatment modality (Novalis, Rojcewicz, & Peele, 1993; Pinksner & Rosenthal, 1992). The goal of supportive counseling was to enhance adaptation by encouraging emotional expression, supporting existing coping behaviors, and enhancing self-esteem and autonomy. Supportive psychotherapy was conversational in style and used supportive techniques such as reflection, empathy, encouragement, reassurance, validation, clarification, and exploration. The therapist was active but non-directive and non-interpretive. CCI skills were not presented in SC. Participants were encouraged to discuss reactions to their cancer rather than other topics. The CCI and SC manuals are available from the study's first author (SLM). All participants received medical treatment as usual in their respective medical settings. Treatment fidelity was carefully monitored and fidelity was excellent. Details are contained in Manne et al. (2007).

Of the 246 participants assigned to an intervention condition, 126 were assigned to CCI and 120 were assigned to SC. 203 of the 246 participants (82.5%) assigned to an intervention condition attended Session 1. These 203 women comprised the sample for this study. *Sample characteristics are shown in Table 1.*

In terms of session attendance and post-session surveys, 195 women attended Session 2 (79.3%), 179 women attended Session 3 (72.6%), 172 attended Session 4 (69.9%), 168 attended Session 5 (68.3%), and 166 women attended Session 6 (67.4%). One hundred ninety eight patients (including women who dropped from therapy) completed the three month follow-up survey (80.5%). More details regarding the study acceptance rate, comparisons between study refusers and participants, and study flow are contained in Manne and colleagues (2007).

Post-session surveys were administered after the six in-person sessions. Additional study surveys were administered at four time points: pre-intervention (baseline), three, six, and nine months post-baseline. The baseline, post-session 2, post-session 3, post-session 6, and three month post-baseline assessments were used in the current analyses. Participants were paid \$25 for each baseline, three, six, and nine month surveys returned and participants assigned to the intervention arms were paid \$25 for each session attended to cover travel and parking expenses.

Recruitment began in August 2000 and ended in December 2005. Follow-ups were completed in August 2006.

Measures

Post-session Outcome Measures: Depressive symptoms were assessed using the BDI (Beck et al., 1961). The BDI is a 21-item scale which has been widely used in studies incorporating cognitive-behavioral interventions (scale range, 0-63). Clinical cutoffs are described below. The BDI was given after each of the six in-person sessions. Cronbach's alphas were .88 for session 2, .87 for session 3, and .87 for session 6.

Session Progress was assessed using 4 items evaluating the participant's perception of progress made in the session (sample item, "How much progress do you feel you made in dealing with your problems in this session?" (1 = a great deal of progress", 6 = "In some ways my problems seem to have gotten worse this session.")). The session outcome measure was given after each of the in-person sessions. Cronbach's alphas were .71 for session 2, .75 for session 3, and .82 for session 6.

Therapy process measures: Therapeutic alliance was assessed using the Working Alliance Inventory (WAI) (Horvath & Greenberg, 1989) which is a 36-item self-report questionnaire comprising 3 subscales of 12 items each with respondents rating their level of agreement to statements using a 7-point Likert-like scale. The subscales assess the goals of therapy, the tasks of therapy, and the bond that develops between the clinician and patient. The WAI is the most widely used assessment for measuring the therapeutic alliance (Fenton, Cecero, Nich, Frankforter, & Carroll, 2001), has well established reliability and validity (Hanson, 2002) and (Horvath & Greenberg, 1989). In the current study the WAI was administered after the second session. Cronbach's alpha for the WAI – Bond scale was .78, for the WAI-Task was .86, and for the WAI-Goal was .84.

Therapeutic Realizations were assessed using the Therapeutic Realization scale of the Therapy Session Report (Kolden et al., 2000). Therapeutic realizations has eleven items and three subscales, Unburdening (3 items) (sample item, "A chance to let go and get things off my chest"), Mastery/Insight (4 items) (sample item, "More ability to feel my feelings, to know what I really want") and Encouragement (3 items) (sample item, "Confidence to try to do things differently"). For purposes of this study the total score was used. This measure was given immediately after each session. Internal consistencies for the therapeutic realization scale was excellent with Cronbach's alphas across the sessions 2, 3 and 6 ranged from .91 to .95.

Therapeutic Openness/Involvement was evaluated using the emotional arousal scale of the Therapy Session Report (Kolden, 1993). The scale consists of 30 feelings that the participant might experience during the session (sample item, "hurt"). For purposes of this study, two subscales were formed: Positive affect (11 items) and Negative affect (19 items). Items were rated on a Likert scale from 0 to 4 (0 = "no" to 4 = "a lot"). Both measures were administered immediately after each session and participants were asked to rate how they felt during the session. Internal consistencies for the affect scales for sessions 2, 3, and 6 were excellent with Cronbach's alphas ranging from .83 (Negative Affect, Session 2) to .90 (Negative Affect, session 6).

Treatment Outcome Measure: Depressive symptoms were assessed using the BDI (Beck et al., 1961). The BDI is a 21-item scale which has been widely used in studies incorporating cognitive-behavioral intervention (scale range, 0-63). The BDI was administered at baseline and three months. The following cutoff scores have been used for the BDI: No or minimal depression is less than 10; mild to moderate depression is 10 to 18; moderate to severe depression is 19 to 29; and severe depression is 30 to 63 (Beck, Steer, & Garbin, 1988). Cronbach's alpha was .86 at baseline and .84 at the three month follow-up.

Overview of the Analytic Strategy: Prior to undertaking the formal analyses described below, a graphical inspection of the data indicated the presence of one outlying observation (one patient was more than 4 standard deviations above the mean on the within session and first post-treatment depressive symptom measures). The data for this person were removed from further consideration. Next, the data were examined to determine the normality of the distributions for the variables to be employed and there was no evidence to suggest any significant departures from normality.

A structural equation approach with manifest variables was used to analyze the path model shown in Figure 1. Note that the model in Figure 1 does not incorporate selected aspects of the longitudinal model (for example, the association between session 2 WAI-Bond and session 3 therapeutic realizations). The analyses employed LISREL v. 8.7. Because of a small amount of missing data, the full information maximum likelihood (FIML) method was used and the analyses were conducted using the variance/covariance matrix of the observed variables. For the missing data case, LISREL reports the FIML Chi-Square and its associated degrees of freedom as well as the point estimate for the root mean square error of approximation (RMSEA). To determine the fit of the model to the observed data, we used the Chi-Square statistic, the RMSEA, and the corresponding test of close fit. A 90% confidence limit (CI) as well as a significance test of close fit for the latter measure are provided. Indicators of good fit are indexed by a non-significant Chi-Square (although this measure has the undesirable property of being dependent on the sample size), a RMSEA less than .08 (Browne & Cudeck, 1993), and a non-significant finding for the RMSEA's test of close fit.

The statistical analyses employed in this study estimate missing data and therefore retain as many cases in the analyses as possible. For the early sessions model (Session 2 to Session 3), 6.9% of the sample's values were missing. For the later session model (Session 2 to Session 6 to post-treatment) 11.7% of the sample's values were missing.

Results

Descriptive characteristics

Descriptive data for depressive symptoms and therapy process measures are in Table 2. at the baseline assessment, 31.5% of women (n = 64) had BDI scores indicating no or minimal depression and 43.3% (n= 88) had scores indicating mild to moderate depressive symptoms. Among the women who exceeded the clinical cutoff score (> 19), 44 had moderate to severe depressive symptoms and 7 had severe depressive symptoms, which translated to 25% of the sample meeting the clinical cutoff. At the three month follow-up, 57% (n= 90) had BDI scores indicating no or minimal depression and 28.4% (n= 45) had scores indicating mild to moderate depressive symptoms. Among the women who exceeded the clinical cutoff score (> 19), 20 had moderate to severe symptoms and two had severe symptoms, which translated to 14% of the sample meeting the clinical cutoff at the three month follow-up. An examination of Table 1 indicates that utilization of counseling (individual, group) rates were low (17.2%) but use of psychotropic medications (mostly anxiolytics and anti-depressant medications) was relatively high.

In terms of WAI Bond, Task, and Goal scores, scores were high (the maximum score is 84). Average scores are similar to those reported by the scale's authors (Horvath & Greenberg, 1986) ($M_{\text{Bond}} = 69.6$, $M_{\text{Task}} = 68.6$, $M_{\text{Goal}} = 67.3$). Because basic descriptive information for the therapeutic realization and session progress measures was not available, comparisons with other studies cannot be made. Examining the means and ranges (possible range 0-44) for TR suggests that the average level was high for all three sessions (2, 3, and 6), with between 37% (session 2) and 53% (session 6) of participants reporting realizations in the upper quartile for this measure (> 33). Examining the means and ranges (possible range = 4-25, with the lowest score indicating the most progress) indicate that the average levels were relatively high (9.8, 8.7, 7.8, respectively) with progress ratings improving across sessions. Between 12.6% (session 3) and 41.1% (session 6) of participants rated progress in the upper quartile for this measure (< 6.25) across the three sessions. Because the PA and NA scales were formed for this study, comparisons with previous work cannot be made. Examination of the descriptive statistics indicates that levels of PA were relatively high (scale range = 0-44) and levels of NA were relatively low (scale range = 0-76).

Table 2 contains descriptive statistics on variables included in the models, and Tables 3 and 4 contain the correlations among the variables examined in this study.

The Early Therapy Sessions – Sessions 2 and 3

Using the path model in Figure 1 as a guide, the initial analysis indicated that the model did not represent a reasonable fit to the data (Chi-Square (28) = 75.92; $p < 0.001$; RMSEA = 0.094; CI = 0.07, 0.12; $p = 0.003$). Contrary to the proposed GMP model, the path from session progress at Session 3 was a non-significant predictor of Session 3 depressive symptoms. In addition, WAI-Task at Session 2 did not predict either type of emotional arousal positive or negative affect at Session 3. It was, however, a significant predictor of Session 3 therapeutic realizations. WAI-Goals did not predict either positive or negative affect during Session 3 nor did it predict Session 3 therapeutic realizations.

When the hypothesized structural model is not a good fit to the data but not highly misspecified which is the case with the present model, it is possible to make use of the Modification Indices (MIs) that are provided in LISREL. These indices can be used in an exploratory model with improved fit to the data. For a given fixed parameter in the model, the MI can be used to determine the change in the model's Chi-Square associated with freeing the fixed parameter. Model modification is an iterative process of adding or deleting parameters until a statistically and substantively appropriate model results. It is essential to note that modifications should be guided by substantive considerations rather than a purely statistical criterion improvement in model fit. In the present case, the search for additional changes in the model was conducted with strict attention to the theoretical conceptualization of the GMP. Because the use of MIs to respecify the model involves a post-hoc examination of the data, the tests of significance (the critical ratios for the parameter estimates) should be viewed more as a guide to effect size rather than a formal statistical test. The respecified model can be confirmed only using another sample.

With this as background, the removal of these non-significant paths noted above resulted in a slight improvement in model fit (Chi-Square (38) = 85.91; $p < 0.001$; RMSEA = 0.081; CI = 0.06, 0.10; $p = 0.02$). However, the RMSEA continued to suggest problems with the hypothesized model. Inspection of the MIs suggested a path from Session 2 therapeutic realizations to Session 3 positive affect. The addition of this path resulted in a slight improvement in model fit (Chi-Square (37) = 78.83; $p < 0.001$; RMSEA = 0.077; CI = 0.05, 0.10; $p = 0.03$) but the fit remained unsatisfactory. Although not part of the hypothesized model of Figure 1, the MIs suggested a direct path from Session 3 positive affect to Session 3 session progress. After these two paths were added, there was an improvement in model fit (Chi-Square

(36) = 73.44; $p < 0.001$; RMSEA = 0.074; CI = 0.049, 0.098; $p = 0.06$). The MIs further suggested a path from Session 2 depressive symptoms to Session 3 negative affect. Freeing this path resulted in a further improvement in model fit (Chi-Square (36) = 72.31; $p < 0.001$; RMSEA = 0.072; CI = 0.048, 0.097; $p = 0.064$). However, with the addition of this path, the connection between Session 2 WAI-Bond and Session 3 negative affect was no longer significant. Throughout the process of modifying the model in Figure 1, there was an indication that the path from Session 2 negative affect predicting Session 3 therapeutic realizations should be freed. When this path was freed, there was a considerable improvement in model fit (Chi-Square (35) = 58.09; $p = 0.008$; RMSEA = 0.059; CI = 0.030, 0.085; $p = 0.28$).

The results after making this final modification are shown in Figure 2. There is some support for predicted associations in the GMP model shown in Figure 1. First, therapeutic bond as rated after session 2 predicted greater positive affect as rated after session 3. Second, WAI-Task directly predicted therapeutic realizations after session 3. Third, higher negative affect as rated after session 3, higher positive affect as rated after session 3, and higher positive affect as rated after session 2 (indirectly) were associated with greater therapeutic realizations. Fourth, greater therapeutic realizations as rated after session 3 predicted greater session 3 progress.

However, there were a number of GMP model predictions that were not significant in the final model. First, WAI-Goal did not predict either emotional arousal or therapeutic realizations. Second, WAI-Task did not predict emotional arousal. Third, none of the subscales of the WAI predicted negative affect. Fourth, post-session 2 and 3 progress did not predict post-session 3 depressive symptoms.

There were also three additional associations that are not predicted by the original GMP. First, greater emotional arousal (positive and negative affect) had direct associations with session 3 progress. Second, depressive symptoms as rated after session 2 predicted negative affect as rated after session 3. Third, therapeutic realizations as rated after session 3 predicted positive affect reported during session 3.

Later Therapy Sessions and Post-Treatment Depressive Symptoms - Sessions 2, 6, and Depressive Symptoms at 3 Months Post-treatment

Again using the GMP model in Figure 1 as a guide, the initial analysis indicated a fair fit to the data (Chi-Square (48) = 98.45; $p < 0.001$; RMSEA = 0.073; CI = 0.053, 0.094; $p = 0.034$). An inspection of the MIs suggested that the path from Session 2 depressive symptoms to post-treatment depressive symptoms should be freed. This change resulted in an improvement in model fit (Chi-Square (47) = 81.76; $p = 0.0013$; RMSEA = 0.062; CI = 0.038, 0.083; $p = 0.19$). Removal of the non-significant parameters resulted in a slight decrement in model fit (Chi-Square (49) = 87.89; $p = 0.00054$; RMSEA = 0.064; CI = 0.042, 0.085; $p = 0.14$). Further inspection of the MIs suggested that the path from Session 2 therapeutic realizations to Session 6 positive affect be freed. This change improved model fit (Chi-Square (48) = 80.47; $p = 0.0023$; RMSEA = 0.059; CI = 0.035, 0.081; $p = 0.24$). The MIs next indicated that the path from Session 2 negative affect predicting post-treatment depressive symptoms might be freed. Once again, although the SEM yielded a significant Chi-Square (47) = 76.40, $p = 0.004$, the model indicated a reasonable fit based on the RMSEA (0.057; CI = 0.032, 0.079; $p = 0.30$).

The results after making this final modification are shown in Figure 3. There is support for many of the predicted associations in the GMP model shown in Figure 1. First, therapeutic bond as rated after session 2 predicted greater positive affect as rated after session 6. Second, greater positive affect as rated after session 2 predicted higher therapeutic realizations after session 6. Third, higher therapeutic realizations after session 6 predicted greater session progress after session 6. Fourth, greater session progress after session 6 predicted lower depressive symptoms after session 6. Finally, greater depressive symptoms after session 6

predicted higher post-treatment depressive symptoms. Overall, many links between alliance, emotional arousal, therapeutic realizations, session progress, short-term outcomes, and long-term outcomes hypothesized by the GMP model were present.

However, there were a number of GMP predictions that were not significant in the final model. First, neither WAI-Tasks nor Goals predicted any aspect of emotional arousal nor did any of the WAI subscales predict therapeutic realizations. Second, therapeutic alliance did not directly predict post-treatment depressive symptoms.

There were also four additional associations that are not predicted by the original GMP. The majority involved emotional arousal. First, greater negative affect experienced during session 2 had a direct association with post-treatment depressive symptoms. Second, greater negative affect experienced during session 6 predicted both depressive symptoms as rated after session 6 as well as post-treatment depressive symptoms. Third, positive affect as rated after session 6 predicted greater session progress as rated after session 6. Finally, therapeutic realizations as rated after session 2 predicted greater positive affect as experienced after session 6.

Discussion

Understanding the contribution of universal therapy process factors to therapy outcomes is an important goal. However, other than therapeutic alliance and emotional processing during sessions, relatively little empirical attention has been paid to this topic in the general psychotherapy literature. Moreover, almost no empirical attention has been paid to the role of therapeutic processes and treatment outcomes for individuals diagnosed with cancer who participate in psychological intervention studies. We evaluated one way of conceptualizing how what happens in therapy sessions facilitates therapy outcomes using ratings from early and late sessions and short- and long-term outcomes and by using longitudinal structural equation modeling. In general, we found relatively consistent support for some of the tenets of the GMP. When early sessions were examined, therapeutic bond predicted positive emotional arousal during sessions and both aspects of emotional arousal (positive and negative affect) in turn predicted more therapeutic realizations. Therapeutic realizations predicted perceptions of greater session progress and greater therapeutic bond predicted more in-session therapeutic realizations. When early session variables were used to predict later GMP processes and outcomes as well as post-treatment outcomes, early therapeutic bond predicted later session therapeutic realizations indirectly via positive emotional arousal which is consistent with the GMP. Positive emotional arousal predicted improved session progress and improved session progress directly predicted lower post-session depressive symptoms which, in turn, predicted fewer depressive symptoms three months post-treatment. Across both the early sessions and early- to-later session models we examined, therapeutic bond created an environment for the participant to feel safe to express affect, particularly positive affect, and expressions of affect lead to more insight, feelings of mastery, and unburdening of concerns during sessions. These realizations lead to short-term psychological outcomes in terms of perceived session progress. Shorter-term mood outcomes lead to longer-term mood outcomes. In this way, therapy processes played a role in predicting long-term treatment outcomes.

However, there were a number of departures from the GMP as well as interesting additional results that enrich our understanding of universal therapy processes. One difference regarded the importance of therapeutic alliance. In the conceptualization of the GMP (Orlinsky & Howard, 1987) and the limited previous investigations of this model (Kolden, 1996), a broad role for therapeutic alliance has been hypothesized. Therapeutic alliance is proposed to have a direct effect on therapeutic realizations as well as on emotional arousal/openness and, in other studies of this construct, a direct association of early alliance with later treatment outcomes has been shown (Beckner et al., 2007; Klein et al., 2003; Watson & Geller, 2005). Our results

suggested that the role for therapeutic alliance was more limited with one aspect of alliance, therapeutic goals, not associated with outcomes and another aspect of alliance, therapeutic task, associated only with greater realizations during the next therapy session when sessions 2 and 3 were examined. Only therapeutic bond remained as a predictor in the long-term outcomes model and it did not have a direct impact on post-session outcomes. There are at least two possible explanations for these findings. First, many other studies of treatment alliance do not take into account other universal change processes. Because we included other processes in the analyses, the effects of alliance may have been attenuated. A second explanation involves the conceptualization of therapeutic alliance in the GMP. Kolden and colleagues (1996a, 1996b) propose slightly different processes than those included in the Working Alliance Inventory and places greater emphasis on the attachment functions of the therapy relationship. It is possible that the respect, warmth, and acceptance within the therapeutic relationship are the most important functions and this is the reason why we found that therapeutic bond was the only aspect of alliance that predicted affect in later sessions.

A second key difference between the GMP and the present study's findings is the separation of the effects of positive and negative affect. As can be seen in Figures 2 and 3, negative affect and post-session depressive symptoms were closely related in both earlier and later sessions. Although there were links between negative affect and later therapeutic realizations when sessions 2 and 3 were considered and there were links between negative affect and session progress rated after Session 6, for the most part, negative affect was not associated with therapeutic alliance and realizations. If one looks closely at the two models, it can be seen that positive affect, therapeutic bond, and therapeutic realizations formed one set of associations while negative affect and depressive symptoms formed another set of associations. Although negative and positive affect predicted session progress, in all other ways the effects of negative and positive affect were largely separate. The separation of positive and negative affectivity and their correlates has been proposed in previous research. Indeed, Zautra and colleagues (Zautra et al., 2003) have developed a two-factor model which proposes differential effects for positive and negative characteristics. This model is based on studies showing that there may be separate positive and negative domains of affect, personal characteristics, and social interactions (Bradburn, 1969; Davidson, 1992; Watson, Nixon, Wilson, & Capage, 1999). Research has consistently supported the two-factor model for positive and negative affect, their predictors, and their effects (e.g., Smith & Zautra, 2008). Our results suggest that positive and negative affect, their predictors, and their effects may be separate when psychotherapy processes are examined, at least when for these two treatment approaches for women diagnosed with gynecological cancers are considered.

A second explanation for the different role we found for therapeutic openness and involvement regards the way we assessed this construct. Previous tests of the GMP have defined therapeutic openness/involvement in a slightly different way and used a different measure of the construct. For example, therapeutic openness and involvement has been defined as the capacity to be expressive and receptive during the therapeutic interaction (Kolden, 1996; Orlinsky & Howard, 1987) and greater openness has been characterized as being non-defensive, being mindful of one's thoughts, feelings, and behaviors as they occur during the session and being able to accept feedback from one's therapist. Kolden (1996b) and Kolden and Howard (1992) have assessed this construct using five items assessing one's ease in finding things to talk about with one's therapist, being spontaneous, logical, being organized in one's expression of feelings, and feeling satisfied with one's behavior during the session. We viewed experienced affect during the therapy session as an indicator of greater attunement to the emotional experience and greater involvement in the therapy session. It is possible that this difference in conceptualization and measurement of this construct accounted for the differences in our results.

A third key departure between the GMP and the present study's findings was the strong association we found between early depressive symptoms as rated after Session 2, depressive symptoms as rated after Session 6, and depressive symptoms six months later. The GMP proposes that short-term outcomes predict long-term outcomes. However, in our model early depressive symptoms were highly predictive of post-treatment outcomes suggesting that, when depressive symptoms are evaluated, early session mood predicts long-term mood. Although the GMP does not specifically focus on the role of depressive mood in the long-term outcomes of therapy, our results point to the importance of considering this variable.

It is interesting to note that there were a number of reciprocal relationships between affect and therapeutic realizations. For example, depressive symptoms as rated after session 2 predicted negative affect as rated after session 3 (and negative affect during session 3 predicted depressive symptoms after session 3), therapeutic realizations as rated after session 3 predicted positive affect reported during session 3 (and positive affect during session 3 predicted therapeutic realizations during session 3), and therapeutic realizations as rated after session 2 predicted greater positive affect as experienced after session 6. These findings are not surprising as conceptualizations of the GMP support the existence of reciprocal associations between GMP variables (Orlinsky & Howard, 1987). However, reciprocal relations in the original GMP model regard associations between therapeutic bond and therapeutic realizations and session progress. Reciprocal associations between therapeutic realizations and therapeutic openness/involvement are not proposed in the GMP. Our findings suggest that future studies may benefit from assessing reciprocal associations between therapy processes and outcomes.

There were several limitations of the study. As noted above, our measures of therapeutic alliance and therapeutic openness/involvement differed from those used in previous tests of the GMP and may have accounted for some of the differences in our findings. Second, our sample was comprised primarily of Caucasian women. Unfortunately, the proportion of minority participants was too small to permit an independent evaluation of possible therapy process differences based on minority status. Third, as was noted in the previous publication of the outcomes of these two therapies (Manne et al., 2007), we had a relatively high rate of study refusal (58%). Participants were significantly younger and more likely to be married than study refusers. These differences may have biased the results of this study. Third, we could not evaluate differences in the GMP model between CCI and SC as the sample size in each subgroup was too small to allow these analyses. Although the GMP proposes universal processes across therapy approaches, future research may benefit from evaluating therapy approaches separately when two treatments are compared in the same study. Fourth, although our attendance rates in therapy sessions were similar to those reported in some brief therapies (e.g., Gonzalez, Schmitz, & DeLaune, 2006; Whittal, Robichaud, Thordarson, & McLean, 2008), it is possible that the associations between GMP processes and treatment outcomes differed among the 37 women who did not complete all of the sessions. For example, therapeutic bond and emotional arousal in sessions may not lead to therapeutic realizations among a subgroup of patients and these patients may be more likely to drop from therapy. Future research may benefit from evaluating therapy processes among therapy drop-outs. Finally, all of our data is self-reported information. While self-report is a valid way of capturing intrapersonal experiences, recent work has used observational methods of rating experiential processes such as emotional responses during therapy (Missirlian et al., 2005). Finally, the procedures used for finding the best-fitting model are data driven and thus susceptible to capitalization on chance (McCallum, Roznowski, & Necowitz, 1992). For this reason, replication with another sample of cancer patients, and even more importantly, individuals undergoing different types of psychotherapy, should be undertaken.

Despite these limitations, this study illustrates that universal change processes predict post-treatment outcomes for these two psychological interventions for women diagnosed with

gynecological cancers. The findings have implications for the general psychotherapy process literature. First, our findings suggest a more limited contribution for therapeutic alliance to other session processes such as realizations and emotional involvement, patients' sense of session progress, as well as to intermediate or post-treatment depressive symptoms. Although this may be due to the fact that we assessed many other processes in addition to alliance and did not use a more comprehensive assessment of bond, our findings are not consistent with many previous psychotherapy studies and suggest that the role of alliance may not be as strong as hypothesized. Second, our results indicate that therapeutic realizations foster subsequent positive affect and that positive affect cultivates therapeutic realizations. Both realizations and positive affect facilitate patients' sense of progress and ultimately lower depressive symptoms. Therefore a focus on helping patients unburden their concerns, garner insight, feel reassured and encouraged about the future, and gain a sense of self-efficacy in both supportive and cognitive-behavioral treatments is important. Third, our results highlight the relative independence of positive and negative emotions experienced during therapy sessions and the cyclical nature of negative affective processes during and after sessions. Process factors such as alliance and realizations did not impact negative affect and negative affect had a strong role in predicting subsequent depressive symptoms. The cyclical nature of negative affect and depressive symptoms was independent of the "positive" therapy processes. These findings suggest that greater attention to negative affect experienced during sessions and its possible predictors is important. Both targeting therapeutic interventions specifically towards negative affect experienced during sessions and understanding in-session experiences and content associated with negative affect so that it can be addressed more effectively during sessions may prove to be an important way of bolstering treatment efficacy. Finally, it is clear from our findings that monitoring post-session depressive symptoms as a measure of how well the therapy is progressing is important as it is a strong predictor of long-term outcome.

Our findings also have implications for the literature on psychological interventions for patients with cancer. First, the results extend the work conducted with non-ill individuals with psychological problems to the cancer population and indicate that universal change processes also operate in therapies provided to cancer patients. Second, if our findings are replicated, therapeutic interventions targeted to women diagnosed with gynecological cancers may benefit from focusing not only on the expression and causes of negative affect but also on fostering greater therapeutic bond and reinforcing the expression of positive affect during therapy sessions. Our findings suggest that positive affect and the accompanying processes of therapeutic realizations and bond appear to be protective for women experiencing depressive symptoms and negative affect as a result of the diagnosis and treatment for this illness.

Future research studies may benefit from evaluating universal change processes in other psychological treatments for patients diagnosed with gynecological cancers as well as other forms of cancer and whether our findings generalize to other therapeutic approaches such as supportive-expressive treatments, should be investigated in future research.

Acknowledgments

This work was supported by grants CA85066 and CA006927 from the National Cancer Institute awarded to Sharon Manne and grant P30 CA006927 to Fox Chase Cancer Center. We would like to acknowledge Sandra Feite, the study's project manager, the therapists who conducted interventions, Dr. Jeff Kendall from Christiana Care Health Systems, and the oncologists who referred patients to this study. Dr. Louis Castonguay assisted with measure selection and assessment procedures. Maryann Krayger provided technical assistance.

References

- Anderson T, Watson M, Davidson R. The use of cognitive behavioural therapy techniques for anxiety and depression in hospice patients: a feasibility study. *Palliative Medicine* 2008;22(7):814–821. [PubMed: 18755828]
- Antoni MH, Lechner SC, Kazi A, Wimberly SR, Sifre T, Urcuyo KR, et al. How stress management improves quality of life after treatment for breast cancer. *Journal of Consulting and Clinical Psychology* 2006;76(6):1143–1152. [PubMed: 17154743]
- Beck AT, Steer R, Garbin M. Psychometric properties of the Beck Depression Inventory: Twenty- five years of evaluation. *Clinical Psychology Review* 1988;8:77–100.
- Beck A, Ward C, Mendelson N, Mock J, Erbaugh J. An inventory for measuring depression. *Archives of General Psychology* 1961;4:53–63.
- Beckner V, Vella L, Howard I, Mohr DC. Alliance in two telephone-administered treatments: relationship with depression and health outcomes. *Journal of Consulting and Clinical Psychology* 2007;75(3):508–512. [PubMed: 17563167]
- Bordin ES. The generality of the psychoanalytic concept of the working alliance. *Psychotherapy: Theory, Research, and Practice* 1979;16:252–260.
- Bradburn, N. The structure of psychological well-being. Aldine; Chicago: 1969.
- Constantino, MJ.; Castonguay, LG.; Schut, AJ. Counseling based on process research: Applying what we know. In: Tryon, GS., editor. *The working alliance: A flagship for the “scientist-practitioner” model in psychotherapy*. Boston Allyn & Bacon; 2002. p. 81–131.
- Davidson RJ. Emotion and affective style: Hemispheric substrates. *Psychological Science* 1992;3:39–43.
- Elliott R. Significant events and the analysis of immediate therapeutic impacts. *Psychotherapy* 1985;22:620–630. (citation).
- Elliott R, Wexler MM. Measuring the impact of sessions in process--experiential therapy of depression: The session impacts scale. *Journal of Consulting Psychology* 1994;41(2):166–174.
- Fenton LR, Cecero JJ, Nich C, Frankforter TL, Carroll KM. Perspective is everything: the predictive validity of six working alliance instruments. *Journal of Psychotherapy Practice and Research* 2001;10(4):262–268. [PubMed: 11696653]
- Gonzalez VM, Schmitz JM, DeLaune KA. The role of homework in cognitive-behavioral therapy for cocaine dependence. *Journal of Consulting and Clinical Psychology* 2006;74(3):633–637. [PubMed: 16822120]
- Greenberg, L.; Pascual-Leone, J. A dialectical constructivist approach to experiential change. In: Neimeyer, R.; Mahoney, M., editors. *Constructivism in psychotherapy*. American Psychological Association; Washington, D.C.: 1995. p. 169–191.
- Greenberg, L.; Pascual-Leone, J. *Emotion in the creation of personal meaning*. Wiley; Chichester, United Kingdom: 1997.
- Greenberg MA. Cognitive processing of traumas: The role of intrusive thoughts and reappraisals. *Journal of Applied Social Psychology* 1995;25:1262–1296.
- Hanson WE. Reliability generalization of working inventory scale scores. *Educational and Psychological measurement* 2002;62(4):659–673.
- Helgeson SS, Cohen S, Schulz R, Yasko J. Education and peer discussion group interventions and adjustment to breast cancer. *Archives of General Psychiatry* 1999;56:340–347. [PubMed: 10197829]
- Horvath AO, Greenberg LS. Development and validation of the working alliance inventory. *Journal of Counseling Psychology* 1989;36(2):223–233.
- Horvath AO, Symonds BD. Relation between working alliance and outcome in psychotherapy: A meta-analysis. *Journal of Counseling Psychology* 1991;38:139–149.
- Kazdin A. Mediators and mechanisms of change in psychotherapy. *Annual Review in Clinical Psychology* 2007;3:1–27.
- Kazdin A, Nock MK. Delineating mechanisms of change in child and adolescent therapy: Methodological issues and research recommendations. *Journal of Child Psychology and Psychiatry* 2003;44:1116–1129. [PubMed: 14626454]

- Klein DN, Schwartz JE, Santiago NJ, Vivian D, Vocisano C, Castonguay LG, et al. Therapeutic alliance in depression treatment: controlling for prior change and patient characteristics. *Journal of Consulting and Clinical Psychology* 2003;71(6):997–1006. [PubMed: 14622075]
- Kolden GG. Process and outcome in psychotherapy: An empirical examination of Orlinsky and Howard's generic model of psychotherapy. *Dissertation Abstracts International* 1988;49(1945B)
- Kolden GG. The generic model of psychotherapy: An empirical investigation of patterns of process and outcome relationships. *Psychotherapy Research* 1991;1(1):62–73.
- Kolden, GG. Therapy Session Report-Generic Model, patient version. University of Wisconsin Press; Madison: 1993.
- Kolden GG. Change in early sessions of dynamic therapy: Universal processes and the generic model of psychotherapy. *Journal of Consulting and Clinical Psychology* 1996;64:489–496. [PubMed: 8698941]
- Kolden GG. Effective microprocesses in early sessions of dynamic psychotherapy. *The Journal of Psychotherapy Practice and Research* 1996;5:122–131.
- Kolden GG, Chisholm-Stockard SM, Strauman TJ, Tierney SC, Mullen EA, Schneider KL. Universal session-level change processes in an early session of psychotherapy: Path models. *Journal of Consulting and Clinical Psychology* 2006;74(2):327–336. [PubMed: 16649877]
- Kolden GG, Strauman TJ, Gittleman M, Halverson JL, Heerey E, Schneider KL. The Therapeutic Realizations Scale-Revised (TRS-R): psychometric characteristics and relationship to treatment process and outcome. *Journal of Clinical Psychology* 2000;56(9):1207–1220. [PubMed: 10987692]
- Manne SL, Rubin S, Edelson M, Rosenblum N, Bergman C, Hernandez E, et al. Coping and Communication-enhancing Intervention versus Supportive Counseling for Women Diagnosed with Gynecological Cancers. *Journal of Consulting and Clinical Psychology* 2007;75(4):615–628. [PubMed: 17663615]
- Manne SL, Winkel G, Rubin S, Edelson M, Rosenblum N, Bergman C, Hernandez E, Rocereto T, Carlson J. Mediators of a Coping and Communication-Enhancing Intervention and a Supportive Counseling Intervention on Depressive Symptoms among Women Diagnosed with Gynecological Cancers. *Journal of Consulting and Clinical Psychology* 2008;76(6):1034–1045. [PubMed: 19045971]
- Martin DJ, Garske JP, Davis MK. Relation of the therapeutic alliance with outcome and other variables: A meta-analytic review. *Journal of Consulting and Clinical Psychology* 2000;68(3):438–450. [PubMed: 10883561]
- McCallum R, Roznowski M, Necowitz L. Model specification in covariance structure analyses: The problem of capitalization on chance. *Psychological Bulletin* 1992;111:490–504. [PubMed: 16250105]
- Missirlian TM, Toukmanian SG, Warwar SH, Greenberg LS. Emotional arousal, client perceptual processing, and the Working Alliance in experiential psychotherapy for depression. *Journal of Consulting and Clinical Psychology* 2005;73(5):861–871. [PubMed: 16287386]
- Novalis, P.; Rojewicz, S.; Peele, R. *Clinical Manual of Supportive Therapy*. American Psychiatric Association Press; Washington, DC: 1993.
- Orlinsky, D. Process and outcome in psychotherapy. In: Bergin, A.; Garfield, S., editors. *Handbook of Psychotherapy and Behavior Change*. 4th edition. Wiley and Sons; New York: 1993.
- Orlinsky D, Howard K. A generic model of psychotherapy. *Journal of Integrative and Eclectic psychotherapy* 1987;6:6–27.
- Penedo FJ, Dahn JR, Molton I, Gonzalez JS, Kinsinger D, Roos BA, et al. Cognitive-behavioral stress management improves stress-management skills and quality of life in men recovering from treatment of prostate carcinoma. *Cancer* 2004;100(1):192–200. [PubMed: 14692040]
- Pinksker, H.; Rosenthal, R. *Beth Israel Medical Center Supportive Therapy Treatment Manual*. Social and Behavioral Sciences Documents; Corte Madera, CA: 1992.
- Pos AE, Greenberg L, Goldman RN, Korman LM. Emotional processing during experiential treatment of depression. *Journal of Consulting and Clinical Psychology* 2003;71:1007–1016. [PubMed: 14622076]
- Rosner H. Prostate cancer: An intimate view for patients and wives. *Urologic Nursing* 1996;16:37–44. [PubMed: 8826151]

- Smith B, Zautra A. Vulnerability and resilience in women with arthritis: Test of a two-factor model. *Journal of Consulting and Clinical Psychology* 2008;76:799–810. [PubMed: 18837597]
- Toukmanian, SG. Client-centered and experiential psychotherapy in the nineties. In: Lietaer, JRG.; Van Balen, R., editors. *A schema-based information processing perspective on client change in experiential psychotherapy*. Leuven University Press; Leuven, Belgium: 1990. p. 309-326.
- Trask PC, Paterson AG, Griffith KA, Riba MB, Schwartz JL. Cognitive-behavioral intervention for distress in patients with melanoma: comparison with standard medical care and impact on quality of life. *Cancer* 2003;98(4):854–864. [PubMed: 12910531]
- Warwar, S. Unpublished doctoral dissertation. York, University; 2003. Relating emotional arousal to outcome in the treatment of depression.
- Watson AC, Nixon CL, Wilson A, Capage L. Social interaction skills and theory of mind in young children. *Developmental Psychology* 1999;35(2):386–391. [PubMed: 10082009]
- Watson JC, Geller SM. The relation among the relationship conditions, working alliance, and outcome in both process-experiential and cognitive-behavioral psychotherapy. *Psychotherapy Research* 2005;15(12):25–33.
- Whittal ML, Robichaud M, Thordarson DS, McLean PD. Group and individual treatment of obsessive-compulsive disorder using cognitive therapy and exposure plus response prevention: a 2-year follow-up of two randomized trials. *Journal of Consulting and Clinical Psychology* 2008;76(6):1003–1014. [PubMed: 19045968]
- Zautra AJ. Comment on “stress-vulnerability factors as long-term predictors of disease activity in early rheumatoid arthritis.”. *Journal of Psychosomatic Research* 2003;55(4):303–304. [PubMed: 14507539]
- Zubrod CG, Schneiderman M, Frei E, Brindley C, Gold G, Schnider B. Appraisal of methods for the study of chemotherapy of cancer in man: Comparative therapeutic trial of nitrogen mustard and triethylene thiophosphoramide. *Journal of Chronic Disease* 1960;11:17–33.

Figure 1.
Hypothesized Path Model for Associations between GMP Constructs and Outcomes

Figure 2.
Final model for GMP Constructs during Sessions 2 and 3 Predicting Post-Session BDI

Figure 3.
Final model for GMP Constructs during Sessions 2 and 3 Predicting Post-Treatment BDI

Table 1

Baseline characteristics of the study sample

Variable	Full Sample n = 203				CCI n = 104				SC n = 99			
	M	SD	n	%	M	SD	n	%	M	SD	n	%
Age, years	54.6	11.2			53.8	11.5			55.5	10.9		
Race												
White		182		89.7		93		89.4			89	89.9
Non-white		21		10.4		11		10.6			10	10.1
Marital status												
Single, divorced, widowed		59		29.1		36		34.6			22	22.2
Married		144		70.9		68		65.4			77	77.8
Employment												
Unemployed/on leave		105		51.7		45		43.2			40	40.4
Part-time		34		16.7		18		17.3			16	16.2
Full-time		62		30.5		40		38.5			22	22.2
Missing data		2		1.0		1		1.0			1	1.0
Education level												
Less than college degree		95		46.8		45		43.3			50	50.5
Completed college degree		28		13.8		17		16.3			11	11.1
Post-college		79		38.9		41		39.4			38	38.4
Missing data		1		0.01		1		.1			0	
Cancer site												
Ovarian cancer		161		79.3		82		78.8			79	79.8
Endometrial cancer		10		4.9		7		6.7			3	3.0
Primary peritoneal		13		6.4		6		5.8			7	7.1
Cervical cancer		9		4.4		3		2.9			6	6.1
Vaginal cancer		1		0.5		2		1.9			1	1.0
Uterine cancer		5		2.5		3		2.9			2	2.0
Fallopian tube cancer		2		1.0		1		1.0			1	1.0
Stage at diagnosis												
I		63		31.0		30		28.8			33	33.3

Variable	Full Sample <i>n</i> = 203				CCI <i>n</i> = 104				SC <i>n</i> = 99			
	M	SD	n	%	M	SD	n	%	M	SD	n	%
II			27	13.3			16	15.4			11	11.1
III			93	45.8			49	47.1			44	44.4
IV			20	9.9			9	8.7			11	11.1
Metastatic disease												
Yes			72	35.5			35	33.7			37	37.4
No			124	61.6			67	64.4			57	57.6
Missing			5	3.4			2	2.0			3	3.0
ECOG rating												
0			93	45.8			49	47.1			44	44.4
1			100	54.2			55	52.8			55	55.6
Prior counseling												
Yes			90	44.3			43	41.3			47	47.5
No			91	44.8			51	49.0			40	40.4
Missing			22	10.8			10	9.6			12	12.1
Current counseling												
Yes			35	17.2			15	14.4			20	20.2
No			166	81.8			88	84.6			78	78.8
Missing			2	1.0			1	1.0			1	1.0
Psychotropic medication												
Yes			85	41.9			36	34.6			44	44.4
No			96	47.2			66	63.5			54	54.6
Missing			7	3.5			2	2.0			1	1.0
Baseline self-reported												
physical symptoms			27.8	18.3			27.8	17.7			27.8	19.0
Baseline positive emotional												
expressiveness			17.2	4.1			17.8	4.2			16.5	3.9

Note : ECOG = Eastern Cooperative Oncology Group.

Table 2

Means, Standard deviations, and Coefficient alphas for Study Variables

	M	SD	Coefficient alpha
Therapeutic Alliance			
(post-session 2)			
Bond	71.1	8.6	.78
Task	69.4	10.1	.86
Goal	68.0	10.5	.84
Positive affect			
Session 2	27.7	8.0	.85
Session 3	28.4	7.3	.84
Session 6	30.2	7.5	.84
Negative affect			
Session 2	9.0	9.9	.83
Session 3	9.0	10.1	.90
Session 6	6.3	8.9	.90
Therapeutic realizations			
Session 2	30.0	9.1	.93
Session 3	31.4	8.6	.91
Session 6	33.4	9.4	.95
Session progress			
Session 2	9.8	2.8	.75
Session 3	8.7	2.8	.71
Session 6	7.8	2.9	.82
BDI			
Session 2	10.1	7.5	.88
Session 3	9.7	7.0	.87
Session 6	7.9	6.4	.87
Post-treatment	10.1	6.8	.85

Note: Higher scores on session progress indicate less perceived progress.

Table 3
Intercorrelations of Generic Process Model Variables after Sessions 2 and 3 and Post-treatment

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. WAI-bond-2	-	.65**	.57**	.41**	-.27**	.43**	-.55**	-.22**	.45**	-.30**	.37**	-.53**	-.30**	
2. WAI-task-2		-	.86**	.51**	-.28**	.65**	-.68**	-.12	.50**	-.24**	.65**	-.61**	-.15	
3. WAI-goal-2			-	.47**	-.31**	.61**	-.63**	-.07	.37**	-.26**	.58**	-.53**	-.10	
4. PA-2				-	-.09	.67**	-.62**	-.06	.72**	-.13	.57**	-.55**	-.14	
5. NA 2					-	-.04	.32**	.52**	-.00	.60**	.03	.22**	.51**	
6. TR-2						-	-.70**	.05	.59**	-.07	.79**	-.62**	-.01	
7. SP-2							-	.29**	-.55**	.25**	-.64**	.75**	.30**	
8. BDI-2								-	-.10	.46**	.04	.24**	.86**	
9. PA-3									-	-.11	.65**	-.59**	-.15	
10. NA-3										-	-.02	-.67	.53**	
11. TR-3											-	-.66	.02	
12. SP-3												-	.26**	
13. BDI-3													-	

* Note: $p < .05$

** $p < .01$

WAI= Working Alliance Inventory; PA = Positive affect, NA = Negative affect, TR = Therapeutic Realization, SP = Session Progress, BDI = Beck Depression Inventory; 2 = Session 2; 3 = Session 3.

Table 4
Intercorrelations of Generic Process Model Variables at Sessions 2, 6 and Post-treatment

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. WAI-bond-2	-	.65***	.57**	.41***	-.31***	.43**	-.55**	.25**	.42**	-.31**	.41**	-.48**	-.26**	-.25**
2. WAI-task-2		-	.86**	.52**	-.31**	.65**	-.69**	-.12	.45**	-.26**	.58**	-.53**	-.23**	-.15
3. WAI-goal-2			-	.49**	-.35**	.61**	-.63**	.07	.37**	-.26**	.47**	-.47**	-.13	-.15
4. PA-2				-	-.19**	.68**	-.64**	-.10	.63**	-.14	.50**	-.52**	-.31**	-.13
5. NA 2					-	-.08	.35**	.52**	-.01	.61**	.04	.11	.49**	.45**
6. TR-2						-	-.70**	.05	.56**	-.05	.70**	-.57**	-.12	.04
7. SP-2							-	.29**	-.56**	.23**	-.53**	.65**	.39**	.32**
8. BDI-2								-	-.09	.44**	.09	.10	.71**	.65**
9. PA -6									-	-.15	.68*	-.66**	-.27	-.14
10. NA-6										-	.04	-.11	.56**	.36**
11. TR-6											-	-.66	.06	.03
12. SP-6												-	.35**	.17*
13. BDI-6													-	.72**
14. BDI - 3 mos.														-

*
Note. $p < .05$

**
 $p < .01$

WAI = Working Alliance Inventory; PA = Positive Affect; NA = Negative Affect; BDI = Beck Depression Inventory; TR = Therapeutic Realizations; SP = Session Progress