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# Homework Adherence in Cognitive-Behavioral Therapy for Adolescent Depression

## Abstract

Homework is a defining component of cognitive-behavioral therapy (CBT), however, few studies have examined homework adherence in youth CBT. Homework adherence was coded from audiotapes of school-based CBT for 50 depressed adolescents and evaluated as a predictor of proximal and distal treatment outcomes. Six therapist behaviors hypothesized to promote homework adherence were also coded from audiotapes of early sessions and examined in relation to subsequent homework adherence. Results showed no significant associations between client homework adherence and outcomes. Results also revealed several therapist behaviors to be associated with homework adherence in the context of planned moderator analyses. Adolescents considered at risk for non-adherence tended to show better adherence when therapists provided strong rationale for homework tasks, spent more time assigning homework in Session 1, and elicited client reactions and troubleshoot obstacles in Session 2. Methodological and clinical implications are discussed.

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HOMEWORK ADHERENCE IN COGNITIVE-BEHAVIORAL THERAPY FOR  
ADOLESCENT DEPRESSION

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A Dissertation  
Presented to  
the Faculty of Social Sciences  
University of Denver

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In Partial Fulfillment  
of the Requirements for the Degree  
Doctor of Philosophy

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by  
Nathaniel J. Jungbluth  
August, 2012  
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FOR ADOLESCENT DEPRESSION  
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Degree Date: August, 2012

## ABSTRACT

Homework is a defining component of cognitive-behavioral therapy (CBT), however, few studies have examined homework adherence in youth CBT. Homework adherence was coded from audiotapes of school-based CBT for 50 depressed adolescents and evaluated as a predictor of proximal and distal treatment outcomes. Six therapist behaviors hypothesized to promote homework adherence were also coded from audiotapes of early sessions and examined in relation to subsequent homework adherence. Results showed no significant associations between client homework adherence and outcomes. Results also revealed several therapist behaviors to be associated with homework adherence in the context of planned moderator analyses. Adolescents considered at risk for non-adherence tended to show better adherence when therapists provided strong rationale for homework tasks, spent more time assigning homework in Session 1, and elicited client reactions and troubleshoot obstacles in Session 2. Methodological and clinical implications are discussed.

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## Homework Adherence in Cognitive-Behavioral Therapy for Adolescent Depression

Cognitive-Behavioral Therapy (CBT) interventions have been shown to be efficacious for a wide variety of youth disorders, including adolescent depression (Kazdin & Weisz, 2003). However, surprisingly little is known about how these interventions achieve their effects at the procedural level (Shirk, Jungbluth, & Karver, in press). In fact, many of the activities prescribed within CBT protocols are predicated on unproven assumptions about the active ingredients of treatment (e.g., Kazdin, 2009).

### *The Role of Homework in Youth Psychotherapy*

The assignment of between-session tasks, or homework, is considered to be a central feature of CBT (Kazantzis, Whittington, & Dattilio, 2010). Homework is believed to help clients build and generalize new skills, and it facilitates the collection of information for in-session use. Given the time-limited nature of many CBT interventions, clients' engagement in between-session therapeutic activities is thought to be particularly important for achieving and maintaining successful outcomes. Consistent with this assumption, a growing body of correlational and experimental research supports homework as an active ingredient in CBT for adults (see Kazantzis et al., 2010, for a meta-analysis); however, very little attention has been given to the role of homework in youth

treatment. Only four published empirical studies could be located that examine homework-outcome associations in youth psychotherapy.

The earliest of the four studies, conducted by Kazdin, Bass, Siegel, and Thomas (1989), experimentally manipulated homework within a trial of CBT for youths with anti-social behavior problems (total  $n$  for this manipulation was 75). Outcomes were better for youths who were assigned to engage in formal skills practice between sessions compared to youths who were not. In contrast, Hughes and Kendall (2007) examined the role of homework in CBT for 138 anxious children and found null results. In this correlational study, the children's adherence to homework tasks did not predict better treatment outcomes; if anything, the non-significant associations between homework adherence and symptom measures ( $r$ 's = .11 and .18) trended in the opposite direction.

The two remaining youth homework studies were conducted in trials of group CBT for adolescent depression, and these studies also used correlational designs. The first of these, by Clarke and colleagues (1992), failed to find a significant association between homework adherence and outcomes within a sample of 37 adolescents. However, the non-significant correlation between homework adherence and depressive symptom change in this study was in the expected direction (Pearson  $r = -.16$ ). The second study to examine homework adherence in CBT for adolescent depression was conducted by Gaynor, Lawrence and Nelson-Gray (2006). Correlations between homework adherence and various outcome measures were larger ( $r$ 's ranging from  $-.22$  to  $-.48$ ), but

these analyses were grossly underpowered, as the data were drawn from a sample of just eight participants.

It is possible these mixed findings regarding homework adherence and outcomes in youth treatment studies resulted in part from the aggregation of homework adherence across phases of treatment into a single score. Such aggregation may have eliminated important variability in adherence. Further, the use of distal outcomes (i.e., overall treatment improvement) may have obscured or diminished observable relationships. Results from two studies in the adult literature support this possibility and highlight the potential value of examining homework adherence in relation to proximal outcomes. First, Addis and Jacobson (2000) found that homework adherence in early and middle phases of treatment predicted symptom improvement during those same phases. Similarly, Fennell and Teasdale (1987) reported evidence that client reactions to homework assignments in very early sessions of CBT for depression were associated with substantial early symptom reductions.

Thus, in addition to using a single, aggregate measure of homework adherence to predict overall treatment outcomes, the current study examined whether aggregating homework adherence in smaller chunks and relating them to more proximal outcomes would allow for improved prediction.

Another reason for mixed findings in past studies may be related to suboptimal measurement of homework adherence. Most previous studies of homework adherence in youth treatment used therapist ratings, and in some studies (e.g., Clarke et al., 1992, Gaynor et al., 2006) ratings were made on a 3-



point scale (incomplete, partially complete, complete). With just three rating options, this scale may not have captured important variability in adherence. Also, therapist raters may not be ideal in that their ratings could be biased by extraneous knowledge about the client (e.g., symptom improvement). The current study used a more sensitive, 7-point rating scale, and ratings were made by observers who listened to therapy audiotapes and had no prior knowledge about the clients they were rating.

#### *The case for increasing homework adherence*

Despite substantial evidence for youth CBT's efficacy overall, there remains considerable unexplained variability in CBT outcomes across individuals (e.g., Curry et al., 2006), across trials (De Los Reyes & Kazdin, 2009), and across settings (e.g., Klein, Jacobs, & Reinecke, 2007). Variability in homework adherence has been cited as one "uncontrolled variable" (Primakoff et al., 1986, p.433) that could help explain such variation in treatment outcomes. Although the effects of homework have yet to be clearly established in the context of youth treatment, promising effects in adult CBT studies suggest that efforts to increase homework adherence could result in strengthened youth interventions. Importantly, results from the two prior studies of homework in CBT for adolescent depression showed that adolescents complete only about half of assigned homework tasks (Clarke et al., 1992, Gaynor et al., 2006). This less-than-optimal rate of homework adherence indicates homework may be a diluted component with plenty of room for improvement.

The need to identify, enhance, and prioritize potentially active ingredients of CBT, such as homework, is particularly pressing in the treatment of adolescent depression, where recent studies have found weaker effects for CBT than previously assumed. For example, in the large, multi-site Treatment for Adolescent Depression Study (TADS, 2004) the rate of adolescents who did not respond to treatment was nearly 57 percent. In addition, CBT protocols such as the one used in TADS have been noted to contain a rather large number of procedures (Simons, Marti, Rhode, Lewis, Curry, & March, under review); such complexity in a short-term therapy may pit quantity of procedures against quality, and also presents serious challenges to efficient dissemination. Thus, identifying and prioritizing those procedures that demonstrate a relationship with outcomes (and pruning those that do not) remains a critical task for treatment researchers.

*Therapist behaviors for increasing homework adherence*

A small number of studies in the adult treatment literature have begun to examine therapist behaviors thought to be associated with increased homework adherence. The first study (Worthington, 1986) found evidence that therapists' exploration of client attitudes regarding homework assignments was associated with greater homework adherence among 61 adults treated with unspecified interventions at a "Midlife Counseling" clinic. Three subsequent studies by different research teams have examined therapist homework-related behaviors as predictors of treatment outcomes (though not adherence) within cognitive therapy (CT) for adults.

Detweiler-Bedell and Whisman (2005) coded therapist behaviors in a sample of 24 adults treated for depression and identified two behaviors associated with improved client outcomes. First, setting concrete goals for homework tasks (which the authors defined as specifying “the amount, frequency, or time to be spent on homework”) was associated with better outcomes at post-treatment and at a two-year follow-up. Second, clients who were less involved early in treatment evidenced significantly better outcomes when therapists engaged them in a discussion of barriers to completing homework tasks.

Studies by Ryum, Stiles, Svartberg, and McCullough (2010) and Shaw and colleagues (1999) examined therapist competence measures as predictors of adult CT outcomes (sample sizes were  $N = 25$  and  $N = 36$ , respectively). In both studies competence was assessed observationally and included ratings of therapists’ homework-related behavior. Results from both studies supported a link between general homework-related competence and treatment outcomes, but the role of individual therapist behaviors, and their association with clients’ actual adherence to homework, were not evaluated.

A study by Bryant, Simons and Thase (1999) addresses this gap. The authors investigated whether four homework-related behaviors, coded separately, predicted greater homework adherence in cognitive therapy for 26 adults with major depression. The four behaviors, originally prescribed by Beck, Rush, Shaw, and Emery (1979), included: 1.) providing clear and specific task instructions and custom-tailoring homework tasks to client problems when

possible; 2.) providing a rationale for the assignment, stressing the importance and the goals of the task; 3.) eliciting patient reactions and possible obstacles to completion of the homework, trouble-shooting when necessary; and 4.) reviewing assignments from the previous session, summarizing progress made or conclusions drawn from the exercise. Results strongly supported the fourth behavior, reviewing previous assignments, and the third behavior, eliciting reactions and troubleshooting obstacles. Therapists' general skill at cognitive therapy was also associated with greater client adherence to homework, and client adherence to homework predicted overall treatment outcome.

Bryant and colleagues also examined a range of demographic and clinical patient variables as predictors of homework adherence, including age, years of education, depression severity, number of previous depressive episodes, and a measure of learned resourcefulness. Only the number of previous episodes significantly predicted homework adherence, such that more episodes were associated with poorer adherence. It was noteworthy that neither pre-treatment depression severity, nor depression severity at the time of homework assignments, was significantly associated with homework adherence. In fact, the non-significant associations between depressive symptom measures and homework adherence were not in the expected direction ( $r$ 's = .30, .24, and .17); if anything, more severe current depression was associated with even greater adherence in this sample. These results differed slightly from the near-zero correlation coefficients found between depressive severity and homework adherence in earlier studies by Burns and Nolen-Hoeksema (1991, 1992).

Bryant and colleagues concluded that, “Because therapist skill predicted compliance far better than measured patient variables, when facing patient noncompliance to homework in clinical settings, therapists should first self-examine their adherence to standard CT operating procedures,” such as the four prescribed homework-related behaviors above (Bryant et al., 1999, p. 397).

### *The current study*

The current study examined the role of client homework adherence in relation to outcomes, and the role of therapist behaviors in relation to client homework adherence within an individually provided, school-based, 12-week CBT intervention for depressed adolescents. This study evaluated therapist homework-related behaviors using a larger sample than nearly all previous studies, and it is also the first study to examine such behaviors in the context of youth treatment.

Overall homework adherence was examined as a predictor of overall treatment outcomes. In addition, homework adherence was broken into smaller units and used to predict temporally and conceptually proximal outcomes. Specifically, early-treatment homework adherence (Sessions 1 through 4) was used to predict early-treatment symptom improvement, and mid-treatment homework adherence (Sessions 5 through 8) was used to predict mid-treatment symptom improvement. Also, adherence to cognitive homework tasks, which took place in the first five weeks of treatment, was used to predict change in cognitive distortions between pre-treatment and week five.

The current study also examined the four behaviors prescribed by Beck and colleagues (1979; see above) as predictors of homework adherence. It was expected that the third behavior, eliciting patient reactions and possible obstacles to homework adherence and trouble-shooting when necessary, would be particularly important in the current study because of the developmental importance of respecting adolescents' autonomy (Meeks & Bernet, 2001). Research has indicated that therapists who emphasize a collaborative approach to therapy form better working alliances with adolescents in family-based treatment (Diamond, Liddle, Hogue, & Dakof, 1999); thus, by eliciting client reactions and feedback regarding homework, the therapist may be taking a more collaborative approach to the homework process, allowing adolescent clients to feel more ownership over it.

A fifth behavior, therapist praise for adolescents' prior adherence, was also examined in the current study as a predictor of subsequent adherence. This predictor emerges from a basic behavioral conceptualization of homework adherence, which emphasizes the utility of contingencies such as praise in shaping client behavior. Inclusion of praise represents an advance over prior studies, which have placed greater emphasis on antecedent therapist behaviors than on consequent behaviors. A sixth and final behavior, the amount of time spent assigning the homework, was also recorded. The six homework-relevant behaviors examined in this study will henceforth be referred to as "adherence-enhancing behaviors" for convenience.

The current study also sought to extend prior research by taking a “personalized process” approach (Jungbluth & Shirk, 2010) to the examination of adherence-enhancing behaviors. Personalized process studies do not assume the uniformity of process effects across patients; rather, personalized process studies recognize client or contextual factors expected to moderate the impact of therapeutic processes. In the current study, it was hypothesized that four of the adherence-enhancing behaviors (specifying the task, providing rationale, eliciting reactions and troubleshooting obstacles, and amount of time spent assigning) would be most predictive of future homework adherence for adolescents who were initially less likely to be adherent. In other words, adolescents who were considered likely to skip or not fully complete the homework assignments were expected to benefit most from higher levels of these therapist behaviors.

Prior research with the current sample has found that adolescents with higher levels of initial resistance (as coded from the early minutes of the first session) were less adherent to homework (Jungbluth & Shirk, 2009). Thus, adolescents with higher levels of initial resistance at the start of Session 1 were expected to benefit more from the four adherence-enhancing behaviors above than adolescents with low initial resistance. Statistically speaking, initial resistance was expected to moderate the association between these three adherence-enhancing behaviors in Session 1 and adherence to the first homework assignment (due in Session 2). This hypothesis is consistent with findings from Detweiller-Bedell and Whisman (2005), summarized above, which indicated that discussing barriers to homework completion was associated with

significantly better treatment outcomes, but only for clients who were initially less engaged in treatment.

Research has also shown that clients' non-adherence to homework in later sessions is to some degree predicted by non-adherence in previous sessions (Addis & Jacobson, 2000). Thus, adolescents who have shown poor adherence to a previous homework task are likely at greater risk for future non-adherence, and might benefit most from additional therapist use of the four adherence-enhancing behaviors above. Specifically, more therapist effort with regard to specifying the task, providing strong rationale, and troubleshooting obstacles, as well as the sheer amount of time devoted to assigning the task, may be especially relevant for adolescents who have failed to complete a previous assignment. These same therapist behaviors may not be as critical for adolescents who have already demonstrated strong adherence to prior homework. Thus, it was expected that adolescents' level of adherence to the first homework assignment would moderate the predictive association between these four adherence-enhancing behaviors in Session 2 and clients' adherence to the second homework assignment (due in Session 3).

In contrast, certain adherence-enhancing behaviors might be particularly important when working with clients who have been adherent to prior homework tasks. Specifically, therapists' extensiveness when reviewing clients' prior assignments and level of praise for client adherence to prior homework tasks represent behaviors that are inherently more relevant for clients who have shown at least partial adherence to prior homework tasks. These two behaviors would



have little meaning if used with clients who had failed to complete any aspect of the previous homework assignment. Therefore, therapist variation in these two adherence-enhancing behaviors (measured in Session 2) was expected to predict subsequent homework adherence (at Session 3) for clients with some degree of prior adherence.

Coding and analysis of therapist adherence-enhancing behaviors were constrained to the first two sessions of treatment because modeling interactions in later sessions (when therapist behavior may interact with or depend upon factors from all prior sessions) was prohibitively complex. Thus, the current study investigated the following seven hypotheses in the context of CBT for adolescent depression:

*Homework adherence and treatment outcomes.* (1) Greater homework adherence will predict greater reductions in depressive symptoms from pre- to post-treatment as well as treatment response. (2) Greater early-treatment (Sessions 2 - 4) homework adherence will predict greater early symptom reduction (from pre-treatment to Session 4), and greater mid-treatment (Sessions 5 - 8) homework adherence will predict greater mid-treatment symptom reduction (from Sessions 4 - 8). (3) Greater adherence to cognitive homework assignments (Sessions 2 - 5) will predict greater reductions in cognitive distortions (from pre-treatment to Session 5).

*Session 1 therapist behaviors predicting homework adherence in Session 2.* (4) Four therapist behaviors (specifying the task, providing rationale, eliciting reactions/troubleshooting, and number of seconds spent assigning) during

Session 1 will interact with initial resistance to predict homework adherence at Session 2. It is expected that the four adherence-enhancing behaviors will positively predict homework adherence, with stronger effects for initially more resistant adolescents.

*Session 2 therapist behaviors predicting clients' homework adherence at Session 3, considering prior adherence.* (5) Four therapist behaviors (specifying the task, providing rationale, eliciting reactions/troubleshooting, and number of seconds spent assigning) during Session 2 will interact with clients' level of adherence to the prior homework task to predict adherence to homework for Session 3. Specifically, greater therapist use of these behaviors will predict more strongly for those clients who did not fully complete the prior homework task than for those clients who did. (6) More extensive review of partially or fully complete homework tasks in Session 2 will predict greater homework adherence for Session 3. (7) More praise for partially or fully complete homework tasks in Session 2 will predict greater homework adherence for Session 3.

*Client characteristics.* In addition to therapist behaviors, we also examined the influence of client characteristics on homework adherence. Although prior research had not found strong support for client characteristics as predictors of homework adherence, we tested client demographic (i.e. age, gender, race/ethnicity), clinical (i.e. initial depression severity), and context variables (i.e. life stress, parent-adolescent conflict) as predictors of homework adherence.

## Method

### *Participants*

The data were obtained from an open clinical trial of CBT for depressed adolescents (Shirk, Kaplinski & Gudmundsen, 2009). Current study participants were 50 referred adolescents (33 females), between ages 14 and 18 ( $M = 15.9$ ), who met diagnostic criteria for Major Depressive Disorder (37), Dysthymic Disorder (10), or Depressive Disorder, Not Otherwise Specified (3), as assessed with the Computerized Diagnostic Interview Scale for Children (C-DISC; Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000). Exclusionary criteria were: diagnoses of co-morbid Psychotic Disorder, Bipolar Disorder, Autism Spectrum Disorder, or Mental Retardation; concurrent therapy; or medication for depressive or mood lability symptoms.

Sixty-six percent of the sample met criteria for a comorbid disorder including generalized anxiety disorder (42%), conduct disorder (34%), social phobia (22%), and attention deficit hyperactivity disorder (12%). Twenty-eight percent of the treatment sample met criteria for three or more disorders. Forty percent reported a lifetime history of attempted suicide and 60 percent reported prior trauma and associated experience of fear, hopelessness or horror consistent with DSM-IV-TR Criterion A for post-traumatic stress disorder.

By self-report, 54 percent of the sample identified as ethnic minority, including 11 African American/Black, 11 Hispanic/Latino, two Native American, two Biracial, and two Other, with some adolescents endorsing multiple categories. Fifty adolescents started treatment, but there was a 24 percent attrition rate prior to treatment completion (defined as attending at least eight sessions), with two clients dropping out after the first session, and seven dropping out after the second session. The attrition rate, although larger than in some efficacy trials (e.g. Brent et al., 1997; Rossello & Bernal, 1999), is well below the 40-60 percent dropout rate seen in typical community clinical practice (Armbruster & Kazdin, 1994; Weisz & Weiss, 1993). Of the 12 adolescents who dropped out prior to treatment completion, seven completed post-treatment measures and interviews. Of those who remained in treatment until Session 8, all completed post-treatment interviews. Available sample size varied across primary analyses from 48 to 35 due to attrition, mechanical tape failure, therapist failure to record a session, and, in a small number of cases, insufficient detail on the audiotape for coding of homework adherence, as discussed in greater detail below.

### *Procedure*

High school site coordinators identified and referred potential participants for inclusion in the study. Project coordinators (master's level graduate clinicians) then administered a diagnostic interview (C-DISC), and participants completed self-report measures assessing depressive symptoms (Beck Depression Inventory (BDI); Beck, Ward, Mendelson, Mock, & Erbaugh, 1961),

life stress, parent-adolescent conflict, and demographic information at the pre-treatment interview. The BDI was re-administered at Sessions 4 and 8, and the BDI and C-DISC were again administered at the post-treatment interview, which took place upon completion of treatment. Participating adolescents received free treatment and monetary compensation (\$50) for completion of the research questionnaires.

*Treatment.* A twelve-session, manualized cognitive-behavioral treatment, adapted for adolescents and evaluated by Rossello and Bernal (1999), was delivered by eight therapists. The protocol was modified slightly by elaborating specific components and including additional examples in the manual, and by adding a complementary workbook for adolescent patients. As in the original protocol, the treatment consisted of three components: a thought module focused on identification of automatic thoughts and cognitive restructuring, an action module focused on coping strategies and behavior activation, and an interpersonal module focused on social support and problem-solving. Therapy was administered weekly in one-on-one sessions. A review of 25 percent of audiotapes selected randomly indicated high therapist fidelity to the treatment manual, with 83 percent of components delivered (Shirk, Gudmundsen, Crisp Kaplinski, & McMakin, 2008).

The post-treatment response rate in the current CBT trial was 64 percent, which is comparable to results obtained in efficacy trials. Symptom reduction, as measured with the BDI, was also similar to prior efficacy trials and exceeded results from a prior study using the same manual (Shirk, Kaplinski, &

Gudmundsen, 2009). As in previous CBT trials, significant variability in outcomes was observed.

*Therapists.* All eight therapists who delivered the treatment had doctoral degrees in clinical psychology. Therapists attended a day-long workshop and conducted a practice case under clinical supervision. Therapists received an hour and a half of weekly, group supervision by a licensed psychologist with extensive experience in CBT.

*Homework.* Homework assignments were clearly described in the manual for each session, and time was allocated in every session for assigning new homework and reviewing the previous session's homework. Clients also received workbooks and handouts on which to record weekly assignments. Homework assignments from the thought module of treatment (due in Sessions 2 through 5) included monitoring and recording daily mood, events, negative automatic thoughts, and eventually generating challenges or "counters" to depressive thinking. Homework assignments from the action module (due in Sessions 6 through 8) included practicing relaxation skills and engaging in pleasant activities and mastery activities. Specific guidelines for how to assign homework were not included in the manual.

### *Measures*

*Demographic information.* Demographic information including age, gender, and race/ethnicity was obtained at pre-treatment interviews.

*Computerized Diagnostic Interview Scale for Children 4.0 (C-DISC).* The C-DISC (Shaffer et al., 2000) is a highly structured diagnostic interview designed

to assess most of the commonly occurring mental disorders of children and adolescents. The mood, anxiety, and disruptive behavior modules of the C-DISC were administered to adolescents by a trained master's level clinician. The C-DISC demonstrates good reliability and criterion validity for identifying psychiatric disorders among youth (Shaffer et al., 2000). The C-DISC was used to screen adolescents for inclusion and exclusion disorders at pre-treatment, as a measure of co-occurring symptoms, and as a measure of treatment response (post-treatment depression diagnosis).

*Response to Treatment.* Response to treatment is defined as no longer meeting criteria for any depressive diagnosis, as assessed by the C-DISC at the post-treatment interview. Treatment response was coded as "1" and non-response as "0".

*Beck Depression Inventory (BDI).* The BDI (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) is a 21-item self-report measure of depression, which includes items assessing a wide range of depressive symptoms. The BDI is the most widely used dimensional measure of depression with adults and demonstrates good psychometric properties (Beck, Steer, & Garbin, 1988). A significant body of research supports the use of the BDI with adolescents (see, e.g. Roberts, Lewinsohn, & Seeley, 1991). The measure was collected at pre-treatment, post-treatment, and after Sessions 4 and 8. Residualized change scores on this measure were created by saving the residuals from regressions of later scores (e.g. post-treatment BDI total) onto earlier scores (e.g. pre-treatment BDI total). In this way, three residualized depressive symptom change scores

were generated for use as overall, early-treatment, and mid-treatment measures of depressive symptom change, using the following time spans: pre- to post-treatment, pre-treatment to Session 4, and Session 4 to Session 8, respectively.

*Cognitive Distortion.* Cognitive distortion was measured using the Children's Negative Cognitive Error Questionnaire (CNCEQ; Leitenberg, Yost, & Carroll-Wilson, 1986). The CNCEQ is a 24-item scale measuring cognitive distortions or errors in children and adolescents, and was administered at pre-treatment and Session 5. A residualized change score was generated for analyses, in the same manner as with the BDI. Prior research with this measure has shown strong internal consistency, with Cronbach's alphas ranging from .84 to .94 (Kingery et al., 2009, Leitenberg, Yost, & Carroll-Wilson, 1986; Robins & Hinkley, 1989), as well as good convergent and discriminant validity (Kingery et al., 2009) in adolescent samples. Internal consistency in the present study was high (Cronbach's alpha = .93).

*Homework Adherence.* Homework adherence was coded from audiotapes of Sessions 2 through 8, in random order, on a seven-point scale (0="no effort" to 6="did more than was asked or exceptional effort"). Homework adherence was not coded beyond Session 8 for several reasons. First, attendance at Session 8 was considered treatment completion in the current trial, and attrition after Session 8 significantly reduced available audiotape data. Second, on average, virtually all BDI change from pre- to post-treatment had already occurred by Session 8. Finally, the homework assignments reviewed in Sessions 2 through 8 were more standardized than later assignments,



corresponded with the cognitive and behavioral modules of treatment, and were temporally adjacent to relevant outcome measures (BDI at Sessions 4 & 8, CNCEQ at Session 5).

Reliability of homework adherence coding, based on double coding of 20 percent of sessions ( $n = 58$ ), was strong, with a two-way random effects intraclass correlation ( $ICC$ ) of .82. Homework adherence ratings were summed across groups of sessions to create four homework adherence scores: Overall homework adherence (Sessions 2 through 8); Early-treatment homework adherence (Sessions 2 through 4); Mid-treatment homework adherence (Sessions 5 through 8); and Cognitive homework adherence (Sessions 2 through 5). Homework adherence was also examined at the session level (i.e., not aggregated) for Sessions 2 and 3.

Of the 289 existing sessions we set out to code, 255 were given homework adherence ratings. The remaining thirty-four sessions (11.8 percent) could not be coded for one of several reasons: 1) mechanical audiotape error, 2) therapist forgot to record the session, or 3) there was insufficient information on the audiotape to determine a rating. Agreement across coders regarding insufficient information was good (91.9% agreement,  $kappa = .66$ ). When constructing the four aggregate homework adherence scores (above), missing session scores were replaced with participants' average homework adherence rating so that the aggregate (sum) scores would not be artificially reduced by missing values.

*Adherence-Enhancing Behaviors.* Behaviors thought to promote homework adherence were measured using the Therapist Homework Adherence Behavior Scale (THABS), an adaptation of the measure used by Bryant and colleagues (1999) to assess therapist homework-related behaviors in cognitive therapy for depressed adults. The scale includes six items: 1.) specification of the task, 2.) provision of rationale, 3.) elicitation of client reactions and troubleshooting difficulties, 4.) review of previous homework assignment, 5.) praise for homework adherence, and 6.) total time spent assigning the task. The first five items were rated on a scale from zero (not done) to four (very well done) and anchored to enhance reliability. The sixth item was scored as simply the number of seconds devoted to assigning homework. Two-way random effects intraclass correlations (*ICCs*), based on double coding of 21 percent of available sessions ( $n = 19$ ), ranged from .27 to .84 (mean  $ICC = .67$ ; See Table 1 for item *ICCs* and descriptions). Four Session 1 tapes could not be coded because of mechanical failure of the tape ( $n = 2$ ) and therapists forgetting to tape the session ( $n = 2$ ). One Session 2 tape could not be coded because a therapist forgot to tape the session.

*Initial Resistance.* Initial resistance was assessed during Session 1 using six items adapted from the observational Vanderbilt Negative Indicators Scale (Suh, Strupp, & O'Malley, 1986). Observers used audiotapes to code a 15-minute segment for each client, beginning five minutes into Session 1. This early segment was chosen to begin after introductions and initial scheduling concerns were addressed but before the therapist had time to build much rapport, to better

capture the client's contribution to process. Client demeanor was rated using five items covering five dimensions: hostile, frustrated, impatient, intellectualizing, and defensive. A sixth item was used to rate client negative reactions to the therapist. All items were rated on a 5-point scale ranging from 1 (*not at all*) to 5 (*a great deal*) and were totaled. Internal consistency for the scale was good (Cronbach's alpha = .89) and a one-way mixed random *ICC* (using 25% of scores) demonstrated good interrater reliability (*ICC* = .88). Four Session 1 tapes could not be coded for initial resistance, for reasons listed above. Initial resistance, adherence-enhancing behaviors, and homework adherence were coded by separate sets of coders to avoid bias.

*Life Stress.* Life stress was measured on the Life Events Questionnaire (LEQ; Newcomb, Huba, & Bentler, 1981). The LEQ provides an index of exposure to stressful life events. Both frequency and perceived stressfulness of events are recorded. In this study, several items were added to the scale in order to assess events that are likely to be especially stressful to adolescents (e.g., contracting a sexually transmitted disease). The final scale included 25 items. Adolescents reported occurrence and stressfulness of events for the past year. Stress was computed by multiplying number of events by the average level of perceived stress for endorsed items.

*Parent-Adolescent Conflict.* Parent-adolescent conflict was measured on the Conflict Behavior Questionnaire (CBQ; Robin & Foster, 1989). The CBQ is a 20-item parent and adolescent report designed to assess conflict and negative communication patterns between adolescents and parents/caregivers. The

adolescent report was used in this study. The CBQ has demonstrated high reliability, internal consistency, and treatment sensitivity (Robin & Foster, 1989). The CBQ provides a total conflict score for each parent. Scores were averaged to create a combined conflict score. If there was only one caregiver, the single score was used.

## Results

Means and standard deviations for all measures are presented in Table 2. Outliers were identified for three of the Session 1 THABS items (specifying task: 3 outliers; providing rationale: 5 outliers; time spent assigning: 2 outliers), two of the homework adherence variables (Session 2 adherence: 5 outliers; Session 3 adherence: 6 outliers), and the life stress measure (LEQ: 1 outlier). Outliers were adjusted by bringing them in to 1.5 times the interquartile range beyond the first or third quartile to prevent undue influence. Skewness and kurtosis were within acceptable ranges for all variables. Examination of Mahalanobis distance for all interaction model variables revealed no multivariate outliers.

Missing data were predominantly the result of attrition, though a relatively small amount of data were missing due to other reasons (see above for details). Adolescents with missing data on at least one of the study variables differed from adolescents with no missing data in that they attended fewer sessions ( $t = 4.33$ ,  $df = 24.91$ ,  $p < .001$ ). Specifically, adolescents with no missing data attended an average of 11.5 sessions ( $SD = 1.0$ ) compared to 7.3 sessions for adolescents with some missing data ( $SD = 4.7$ ). Adolescents with full data also received higher aggregate homework adherence scores than adolescents with missing data ( $t = 3.994$ ,  $df = 35.33$ ,  $p < .001$ ), with means of 26.0 ( $SD = 6.7$ ) and 15.9 ( $SD = 10.2$ ), respectively. This difference on homework adherence score

appears to be an artifact of attrition, as missing and full data participants do not significantly differ when compared on their *average* homework adherence scores (which does not penalize them for early attrition;  $t = 1.325$ ,  $df = 46$ ,  $p > .19$ ). No other differences on study variables were observed. Importantly, the number of sessions attended was not a significant predictor of outcomes in this sample (Spearman  $r$ 's with BDI change and treatment response were  $= -.22$  and  $.21$ , respectively,  $p$ 's  $> .15$ ).

*Client characteristics.* We tested client demographic (i.e. age, gender, race/ethnicity), clinical (i.e. initial depression severity), and context variables (i.e. life stress, parent-adolescent conflict) as predictors of homework adherence. None were significant (absolute value of  $r$ 's  $< .17$ ,  $p$ 's  $> .27$ ).

*Initial resistance.* As expected, initial resistance predicted overall homework adherence ( $r = -.46$ ,  $p = .002$ ); thus, initial resistance was included as a predictor in all analyses of therapist behaviors in relation to homework adherence. However, because initial resistance was not associated with treatment outcomes (absolute value of  $r$ 's  $< .16$ ,  $p$ 's  $> .32$ ), it was not included in analyses of homework adherence-outcome relations.

*Therapist effects.* Several analyses were conducted to evaluate the possible influence of therapist effects on key dependent variables. Five separate univariate Analysis of Variance (ANOVA) models were run with therapists as the independent grouping factor and BDI change, treatment response, overall homework adherence, Session 2 homework adherence, and Session 3

homework adherence as dependent variables. Results showed no significant therapist effects on these variables ( $p$ 's > .4).

*Homework adherence and treatment outcomes.* Pearson and Spearman correlation coefficients were calculated in order to test the first three hypotheses, namely that (1) greater overall homework adherence would predict greater overall reductions in depressive symptoms as well as treatment response, (2) greater early-treatment homework adherence would predict greater early symptom reduction, and greater mid-treatment homework adherence would predict greater mid-treatment symptom reduction, and (3) greater adherence to cognitive homework assignments would predict greater reductions in cognitive distortions. Results (presented in Table 3) revealed no significant associations between homework adherence and outcomes.

Overall homework adherence exhibited near-zero correlation coefficients with overall BDI change and treatment response ( $r$ 's = -.02 and .08, respectively). Three of the strongest associations between homework adherence and subsequent change were actually in the opposite direction from what would be expected (i.e., greater early, cognitive, and mid-treatment homework adherence were non-significantly associated with *less* mid-treatment BDI change,  $r$ 's = .17, .17, and .20, respectively, *n.s.*). Among the thirteen homework-outcome correlations we examined, the largest association in a favorable direction (i.e., higher adherence predicting better outcome) was observed between early homework adherence and treatment response (Spearman  $r = .18$ , *n.s.*). The homework-outcome associations remained non-significant even when controlling

for number of sessions attended using multiple regressions ( $p$ 's  $>.31$ ) and when homework adherence scores were averaged rather than summed to remove the confound of attrition ( $p$ 's  $>.15$ ). Controlling for pre-treatment factors previously reported to predict overall treatment outcomes (i.e., life stress, pre-treatment severity, trauma history; see Shirk et al., 2009) also did not change the size or significance of homework adherence effects.

Two prior studies with depressed adults have found homework-outcome effects to be stronger among patients with greater initial symptom severity (Neimeyer & Feixas, 1990, Persons, Burns & Perloff, 1988); therefore, initial severity was also examined as a moderator in the current study using two regression analyses. First, using multiple regression, post-treatment BDI score was entered as the dependent variable and pre-treatment BDI, overall homework adherence, and their interaction term (BDI x homework adherence) were entered as predictors. Pre-treatment BDI predicted post-treatment BDI ( $\beta = .43$ ,  $p = .007$ ), but none of the other predictors were significant ( $\beta$ 's for the overall homework adherence and interaction terms were  $-.05$  and  $-.06$ , respectively, *n.s.*). Second, using binary logistic regression, the same predictors were entered but with treatment response as the dependent variable. Pre-treatment BDI score significantly predicted treatment response ( $\beta = -.16$ ,  $p = .012$ ), but no other predictor terms reached significance ( $p$ 's  $>.58$ ).

*Session 1 therapist behaviors predicting homework adherence in Session 2.* (4) To test the fourth hypothesis, each of the four therapist behaviors (specifying the task, providing rationale, eliciting reactions/troubleshooting, and



number of seconds spent assigning) were entered into separate multiple regressions. In each regression, the therapist behavior was entered along with initial resistance and the interaction term (therapist behavior centered x initial resistance centered) as predictors of homework adherence at Session 2.

Results of these regressions are described below and in Table 4.

In the first regression model, which examined task specification in Session 1, none of the predictors attained significance.

In the second regression, which examined provision of rationale in Session 1, results showed a trend-level main effect for providing rationale ( $\beta = .24, p = .10$ ) and a significant effect for the interaction term ( $\beta = .30, p < .05$ ). As illustrated in Figure 1, and consistent with our hypothesis, provision of rationale in Session 1 predicted Session 2 adherence more strongly for adolescents who were initially more resistant. (In Figures 1 and 2, initial resistance was dichotomized into high and low for the purposes of illustration.)

In the third regression, which examined elicitation of client reactions to homework and troubleshooting of obstacles in Session 1, results showed a trend-level main effect for initial resistance ( $\beta = -.32, p = .06$ ). No other significant effects emerged.

In the fourth regression, which examined the number of seconds spent assigning the homework task in Session 1, results showed significant main effects for number of seconds spent assigning homework ( $\beta = .35, p < .02$ ) and initial resistance ( $\beta = -.37, p < .02$ ). In addition, a marginally significant effect emerged for the interaction term ( $\beta = .27, p < .07$ ). As illustrated in Figure 2, and

consistent with our hypothesis, the positive predictive association between time spent assigning in Session 1 and adherence in Session 2 appeared stronger for adolescents who were initially more resistant.

*Session 2 therapist behaviors predicting clients' homework adherence at Session 3, considering prior adherence.* (5) The fifth hypothesis examined whether the same four adherence-enhancing behaviors, this time measured in Session 2, would interact with clients' level of prior homework adherence to predict adherence at Session 3. Each of the four therapist behaviors were entered into separate multiple regressions along with Session 2 homework adherence, initial resistance, and the interaction term (therapist behavior centered x Session 2 homework adherence centered). The dependent variable was homework adherence at Session 3. Results of these multiple regressions are described below and in Table 5.

In the first multiple regression, which examined task specification in Session 2, none of the predictors attained significance.

In the second multiple regression, which examined provision of rationale in Session 2, results showed significant main effects for Session 2 homework adherence ( $\beta = .44, p = .008$ ) and initial resistance ( $\beta = -.45, p < .02$ ). The interaction term was also significant ( $\beta = -.45, p < .02$ ). Consistent with our hypothesis, and as illustrated in Figure 3, provision of rationale in Session 2 predicted homework adherence at Session 3 most strongly for those adolescents who had shown poorer adherence to the previous homework task. (In Figures 3 and 4, Session 2 homework adherence was dichotomized into high and low

groups for the purposes of illustration. High adherence reflected scores of “5” or higher, and low adherence reflected scores lower than “5” on the homework adherence scale.)

In the third multiple regression, which examined elicitation of client reactions and troubleshooting of obstacles in Session 2, results showed a significant main effect for Session 2 homework adherence ( $\beta = .47, p = .005$ ). The interaction term was also significant ( $\beta = -.37, p < .03$ ). Consistent with our hypothesis, and as illustrated in Figure 4, eliciting client reactions and troubleshooting obstacles to adherence in Session 2 was positively associated with homework adherence in Session 3 for adolescents who had shown poorer prior adherence. Unexpectedly, there appeared to be a negative association between this Session 2 therapist behavior and homework adherence in Session 3 for those adolescents who had been most adherent to the previous homework task.

In the fourth multiple regression, which examined time spent assigning homework during Session 2, results showed a trend-level main effect for Session 2 homework adherence ( $\beta = .36, p < .07$ ). No other significant effects were found.

(6) The sixth hypothesis, that more extensive review of homework in Session 2 would predict adherence to homework at Session 3, could not be examined because this THABS item did not achieve sufficient reliability ( $ICC = .27$ ).

(7) The seventh hypothesis, that praise for prior adherence in Session 2 would predict adherence to homework at Session 3, was evaluated using multiple regression. Data from the 28 participants who had completed at least some of the first homework assignment were included. Praise, Session 2 homework adherence, and initial resistance were all entered as predictors of Session 3 homework adherence. Results showed significant main effects for Session 2 homework adherence ( $\beta = .63, p = .002$ ) and initial resistance ( $\beta = -.47, p = .007$ ). The praise term was not significant, and although the beta suggests the possibility of a negative effect ( $\beta = -.30, p = .12$ ), with an  $n$  of 28 this beta is not reliably different from zero.

Because of limited power and model complexity, it was not feasible to enter all adherence-enhancing behaviors into a single regression to determine the unique contributions of each. However, Pearson correlation coefficients were calculated to examine the association among the six therapist behaviors, as well as the two other predictor variables (initial resistance and Session 2 homework adherence). These associations are presented in Table 6. Although several of the therapist behaviors were significantly correlated with one another, no correlation exceeded .52 and most associations were very small and non-significant; thus, the therapist behavior coding system appears to have captured relatively discrete, non-overlapping constructs. Also, for the most part therapist behaviors were not associated with initial resistance or homework adherence at Session 2, and initial resistance and homework adherence at Session 2 were only associated with one another at a trend level ( $r = -.26, p < .10$ ). Thus,

simultaneous predictors entered in the regression analyses above showed acceptably low inter-correlations.

## Discussion

The current study sought to extend the sparse empirical literature on the role of homework in youth CBT and to examine therapist behaviors thought to bolster clients' adherence to homework tasks. Despite several methodological advances over prior studies of youth homework adherence (e.g., use of proximal outcomes, improved measurement of adherence) and a variety of analytical strategies, current results offer no evidence to support a link between client adherence to homework and better treatment outcomes. Current findings also replicate evidence from the adult literature suggesting that homework adherence is not merely a function of client demographic, clinical or contextual factors. Instead, results showed several therapist behaviors were predictive of subsequent homework adherence, particularly when client initial resistance and early non-adherence were considered. By examining therapist homework-related behaviors in the context of initial resistance and early non-adherence, promising strategies for increasing adherence among adolescents most at risk for poor adherence were identified. These strategies include spending more time assigning homework, providing a strong rationale for homework tasks, and eliciting client reactions and trouble-shooting potential obstacles to adherence.

The lack of association between homework adherence and treatment outcomes in this study was surprising for several reasons. First, homework is

central to the CBT model of change, and homework assignments are pervasive among evidence-based treatments for youth disorders. Second, a growing body of empirical studies supports homework as an active change mechanism in adult CBT (Kazantzis et al., 2010). Third, we “stacked the deck” by allowing homework adherence to be the sole process predictor, leaving out other process variables such as in-session involvement and therapeutic alliance. Fourth, analyses were conducted within a CBT trial that produced substantial symptom change, but that also contained sufficient variability in outcomes (and in homework adherence) to identify an effect if one were present.

When viewed in context of the prior studies on homework adherence in youth CBT, current results suggest client adherence to homework tasks may not be responsible for much, if any, treatment change, particularly in the treatment of adolescent depression where two studies with reasonable samples sizes have now failed to identify an adherence effect. Pending replication with an experimental design, several implications deserve consideration. First, CBT for adolescent depression may be effective without formal out-of-session practice. Second, given that adherence to core CBT tasks throughout the client’s week (e.g., monitoring and challenging cognitions, pleasant event scheduling) did not predict improvement, perhaps our model of change in CBT is inaccurate and other mechanisms are responsible for change. Third, if adherence to standard CBT homework tasks is not predicting change, perhaps it would be worthwhile to develop and test alternative homework exercises.

However, before concluding that standard CBT homework tasks and the current model of change need revision, it is important to point out several aspects of the current study that could have influenced the lack of homework-outcome associations. First, when adolescents failed to complete the homework (e.g., daily mood, event, and thought monitoring), the current protocol mandated that therapists complete the homework together within the session, if possible. Thus, all adolescents should have been exposed to some level of homework activities, even if these tasks were not completed independently. Even so, there were some homework assignments (e.g., engaging in mastery activities) that could not be completed within the session. Furthermore, if the CBT model of change is accurate, it is puzzling that adolescents who practiced activities such as challenging cognitions on a daily basis did not achieve better outcomes than those who did not.

Also, it is important to point out what the current adherence measure did not capture. Although more sensitive than some previous measures, this coding system did not assess changes in thinking and behavior that were not directly involved in a particular week's homework assignment. As a result, an adolescent who reflected on CBT concepts extensively outside of sessions, but who did not adhere to specific homework tasks, would not have received high adherence scores. Also, because adherence ratings were yoked to the specific assignment for each session, ratings did not capture whether CBT skills from previous or future assignments were being practiced.



For example, adherence scores in later sessions did not evaluate whether adolescents continued to challenge negative cognitions after the focus of treatment had shifted from cognitive to behavioral strategies. Similarly, although behavioral activation strategies were formally assigned as homework during Sessions 6 and 7, therapists often discussed the link between behavior and mood during earlier sessions. Many teens were encouraged to recognize and harness those activities that appeared to help their mood as early as Session 2, though this encouragement was informal. Thus, although provocative, current results cannot entirely rule out between-session client application of CBT skills as a mechanism of change.

Although the link between homework adherence and outcome was not supported in the current trial, findings did support several *a priori* predictions regarding therapist behaviors thought to promote homework adherence. Specifically, it was hypothesized that four therapist behaviors (specifying the task, providing rationale, eliciting reactions/troubleshooting obstacles, and amount of time spent assigning) would predict subsequent adherence, with the greatest effects for adolescents who were at risk for poor homework adherence. Adolescents were determined to be at risk for poor adherence if they demonstrated higher levels of initial resistance in Session 1 (which predicts overall poor adherence), and if they demonstrated poor adherence on the first homework task, due in Session 2. Consistent with *a priori* predictions, three therapist behaviors interacted with the risk variables to predict subsequent adherence, though one of these interactions was only significant at a trend level.

First, the amount of time therapists devoted to assigning homework in Session 1 predicted adherence in Session 2, and this effect appeared stronger (at a trend level) for adolescents who were initially more resistant. This finding suggests therapists may be able to promote greater adherence to homework tasks by setting aside more time in sessions for assigning them. Associations between therapist behavior variables suggest that therapists who spent more time assigning homework were also doing a better job specifying the task and providing stronger rationale for it.

It is important to note that this same assigning time variable, when measured in Session 2, did not significantly predict adherence in Session 3. Perhaps this was because the first and second assignments were so similar to one another that additional time spent discussing the second assignment did not provide much added value. Had the assignment for Session 3 been substantially different from the previous assignment, perhaps more time spent assigning it in Session 2 would have been associated with greater subsequent adherence.

Second, therapist provision of rationale in Sessions 1 and 2 was associated with greater homework adherence at Sessions 2 and 3, specifically for adolescents who were at greater risk for non-adherence. In other words, adolescents with higher levels of initial resistance and lower levels of initial adherence were more likely to adhere to subsequent homework when therapists provided a stronger rationale for it. On the other hand, for adolescents who were initially less resistant and for those who were more adherent to the first homework assignment, strength of rationale for the assignment was not

associated with subsequent adherence. Findings are consistent with the notion that highly engaged and initially adherent adolescents may not need much convincing or support in order to complete future homework.

This finding that providing rationale for homework may play a role in client adherence is consistent with Beck and colleagues' original CT guidelines (1979), but previous studies with adults have failed to find an association between providing rationale and adherence. This could be because other studies examined only main effects for this behavior and did not consider the potential moderating influence of variables that signal risk for non-adherence. It could also be a function of age; perhaps adults are more willing than adolescents to attempt a homework assignment prescribed by a professional when the rationale for that assignment has not been made clear.

Third, when adolescents did not show strong adherence to the first homework assignment (due in Session 2), therapist efforts to elicit client reactions to homework and troubleshoot obstacles to adherence appeared to predict better adherence to the next assignment. Good examples of troubleshooting obstacles include coming up with strategies to ensure clients remember to complete the homework (e.g., "When is a good time to fill this out...how about before bed?") and bring it back to therapy (e.g., "Where would be a good place to keep this so you won't forget it?"). This finding converges with results from three previous studies indicating the positive effect of eliciting reactions and troubleshooting (Bryant et al., 1999, Detweiler-Bedell & Whisman, 2005, & Worthington, 1986).

Surprisingly, for adolescents who were highly adherent to the first homework task, therapist use of this behavior appeared to be associated, if anything, with *less* adherence to subsequent homework. Perhaps when therapists devoted energy to eliciting reactions and discussing obstacles with previously adherent adolescents, it was because there were more difficult obstacles to address than merely remembering to fill out the sheet (e.g., going out of town on vacation). In other words, it is possible that this therapist behavior had a slightly different meaning in the context of previously adherent versus previously non-adherent clients.

The same therapist behavior, when measured in the first session, did not predict adherence in Session 2, even when initial resistance was considered as a moderator. Perhaps this is because it is easier to identify and address problematic client reactions and obstacles *after* the first assignment has been attempted rather than beforehand. Adolescents and therapists may be less effective at predicting obstacles than they are at addressing them after the fact.

Another behavior, specifying the homework task, did not predict subsequent homework adherence in either session. In retrospect, this seems to be a logical consequence of the very clear homework assignments used in the current CBT trial. Each assignment was given as a straightforward one-page worksheet, with clear instructions at the top of the page. Even if therapists failed to explain the homework task in detail, adolescents could easily understand what was expected. Outside of the current CBT trial, when therapists assign homework without the advantage of clear worksheets, specifying homework

tasks in detail might be of greater importance. Providing clients with clear written instructions may be especially useful, both in specifying the homework task and serving as a physical reminder to complete it. Indeed, written reminders have been associated with better CT outcomes for depressed adults (Detweiler-Bedell & Whisman, 2005) and improved patient adherence in medical settings (e.g., Cox, Tisdelle & Culbert, 1988, Stone et al., 2002).

In the examination of these four therapist homework-related behaviors, consideration of context variables such as initial resistance and prior adherence was essential. Contrary to expectations, only one of the four therapist behaviors demonstrated a clear main effect on subsequent adherence. The rest of the predictive effects were only observable in the context of these moderators. What's more, evaluating therapist behaviors in this way allowed us to ask a highly practical question; namely, "How might we improve adherence for those adolescents who are doing less CBT homework?" Using initial resistance and initial non-adherence as indicators of risk for poor overall adherence, the current study identified several behaviors that may be useful in raising between-session participation for adolescents whose participation is less than optimal.

The current study also examined two additional therapist behaviors thought to be useful for improving or maintaining adherence when adolescents were already doing at least some of the homework. The first of these behaviors, depth of homework review, did not achieve adequate inter-rater reliability in the current sample. The low reliability appears to be a function of reduced variability within this protocol, which clearly specified that therapists were to review each

homework assignment in session and draw relevant conclusions from it. The second behavior, praise for prior adherence, was measured with adequate reliability in Session 2 but did not predict greater subsequent adherence. Given that this variable could only be examined for participants who demonstrated some level of adherence to the first homework assignment, the sample size and power for the analysis were substantially reduced. Even so, the non-significant negative predictive effect observed in the current sample does not provide support for using praise as an adherence-enhancing strategy with depressed adolescents. Although a negative causal effect for praise seems improbable, one explanation could be that external reinforcement from therapists undermined the adolescents' intrinsic value for the homework. Rather than thinking, "I am doing this for my health," praise may have led them to think, "I am doing this to make my therapist happy." In fact, therapists sometimes praised adherence in concert with language such as, "Thank you for doing that," which may have cast the activity as a favor to the therapist rather than an intrinsically valuable health-promotion activity.

This study had a number of limitations. First, like many previous studies of homework adherence and therapist homework-related behaviors, the current study had a limited sample size. This constrained our ability to account for nested relationships (e.g., clients within therapists) with multilevel modeling. Given power limitations and the exploratory nature of the study, we made no alpha adjustment for the number of analyses conducted; therefore, replication of current results is essential. Second, associations identified in the current study

are correlational. Future studies should attempt to experimentally manipulate homework and therapist homework-related behaviors to clarify causality. Third, for conceptual and analytic clarity, therapist behaviors were not examined in the current study beyond the second session of treatment. As a result, current findings regarding therapist behaviors may not generalize to middle and later phases of therapy. Finally, although the use of standardized homework assignments in the current protocol offered methodological advantages for many of the questions being examined, it remains unclear what benefit (or detriment) could result from taking a more individually tailored approach to assigning homework tasks.

Future research on the role of between-session CBT skills practice should expand the lens of inquiry beyond narrowly defined task adherence to include a broader assessment of what adolescents are taking away from treatment. In particular, a study that directly asks adolescents to rate their own adherence and to indicate what elements of treatment they are applying outside of sessions seems long overdue. Such an approach could be highly revealing with regard to change mechanisms and skills generalization in CBT. Homework adherence and therapist homework-related behaviors should also be examined in the context of other youth treatments and disorders, especially in treatments for which the active mechanisms of change are better understood (e.g., exposure and response prevention for obsessive-compulsive disorder). Meanwhile, continued research into the active ingredients of CBT for youth disorders, especially

depression, is critical for optimizing treatments and making dissemination efforts efficient and worthwhile.



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Table 1  
*Adherence-Enhancing Behaviors: Item Descriptions and Intraclass Correlation Coefficients (ICCs)*

Item	Description	ICC	Sessions Coded
Specifying Task	Therapist was clear and specific in giving the assignment. Clear expectations were set for what, how, when how often, etc.	.84	1, 2
Providing Rationale	Therapist stressed not only the importance of the assignment, but also the goals it aims to accomplish	.81	1, 2
Eliciting/ Troubleshooting	Therapist elicited reactions to the assignment to get feedback and help foresee and problem-solve possible obstacles or difficulties that might arise when trying to do the assignment	.82	1, 2
Time Spent Assigning	Number of seconds therapist devoted to assigning the task	.73	1, 2
Depth of Review	Therapist reviewed the homework assigned in the preceding session and summarized progress made and conclusions drawn from the exercise	.27	2
Praising Adherence	Therapist praised any efforts the client made to do the assigned homework. (Not coded if teen did not make any efforts)	.56	2

Table 2  
*Means and Standard Deviations for All Measures (After Adjusting Outliers)*

Measure	Timepoint	Mean (SD)
Depressive symptoms (BDI)	Pre-treatment	31.42 (9.73)
Cognitive distortions (CNCEQ)	Pre-treatment	46.32 (20.92)
Life stress (LEQ)	Pre-treatment	29.44 (14.20)
Parent-adolescent conflict (CBQ)	Pre-treatment	10.29 (5.30)
Initial resistance	Session 1	7.54 (1.91)
Specifying task	Session 1	3.21 (.90)
Providing rationale	Session 1	3.18 (.83)
Eliciting reactions/ troubleshooting obstacles	Session 1	2.03 (1.57)
Time spent assigning (seconds)	Session 1	150 (70)
Session 2 homework adherence	Session 2	4.51 (1.01)
Specifying task	Session 2	2.86 (.79)
Providing rationale	Session 2	1.60 (1.66)
Eliciting reactions/ troubleshooting obstacles	Session 2	1.64 (1.40)
Depth of review	Session 2	3.26 (.59)
Praising prior adherence	Session 2	2.00 (1.68)
Time spent assigning (seconds)	Session 2	133 (80)
Session 3 homework adherence	Session 3	4.21 (1.12)
Early-treatment homework adherence	Sessions 2-4	10.45 (4.29)
Cognitive homework adherence	Sessions 2-5	13.22 (5.90)
Mid-treatment homework adherence	Sessions 5-8	13.05 (4.38)
Overall homework adherence	Sessions 2-8	21.38 (9.80)
Depressive symptoms (BDI)	Session 4	20.35 (9.52)
Cognitive distortions (CNCEQ)	Session 5	31.24 (19.36)
Depressive symptoms (BDI)	Session 8	13.05 (10.69)
Depressive symptoms (BDI)	Post-treatment	10.38 (10.80)

Table 3  
*Correlations Between Homework Adherence Variables and Outcomes*

Homework adherence variable	Mean (SD)	Overall BDI change (pre- to post-treatment)	Treatment response	Early BDI change (pre-treatment to Session 4)	Cognitive distortion change (pre-treatment to Session 5)	Mid-treatment BDI change (Session 4 to Session 8)
Overall homework adherence	21.38 (9.80)	-.02	.08 <sup>a</sup>			
Sessions 2-4 (early) homework adherence	10.45 (4.29)	.08	.18 <sup>a</sup>	-.10		.17
Sessions 2-5 (cognitive) homework adherence	13.22 (5.90)	.09	.04 <sup>a</sup>		.08	.17
Sessions 5-8 (mid-treatment) homework adherence	13.05 (4.38)	-.10	.08 <sup>a</sup>			.20

Note. \* $p < .05$ , \*\* $p < .01$

<sup>a</sup> Denotes Spearman correlation coefficients. (All others are Pearson correlation coefficients.)

Table 4  
*Multiple Regression Analyses Predicting Homework Adherence at Session 2  
 from Therapist Adherence-Enhancing Behaviors in Session 1*

Regression	Predictor	<i>B</i> ( <i>SE</i> )	Standardized Beta	Model <i>R</i> <sup>2</sup>
1	Specifying task	.03(.18)	.03	.088
	Initial resistance	-.10(.10)	-.20	
	Specifying task x initial resistance	-.09(.12)	-.14	
2	Providing rationale	.30(.18)	.24	.254*
	Initial resistance	-.11(.07)	-.23	
	Providing rationale x initial resistance	.15(.07)	.30*	
3	Eliciting reactions/ troubleshooting	.07(.10)	.11	.092
	Initial resistance	-.15(.08)	-.32 <sup>†</sup>	
	Eliciting/ troubleshooting x initial resistance	.04(.05)	.11	
4	Number of seconds spent assigning	.005(.002)	.35*	.324**
	Initial resistance	-.17(.07)	-.37*	
	Number of seconds x initial resistance	.001(.001)	.27 <sup>†</sup>	

<sup>†</sup>  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$



Table 5  
*Multiple Regression Analyses Predicting Homework Adherence at Session 3  
 from Therapist Adherence-Enhancing Behaviors in Session 2*

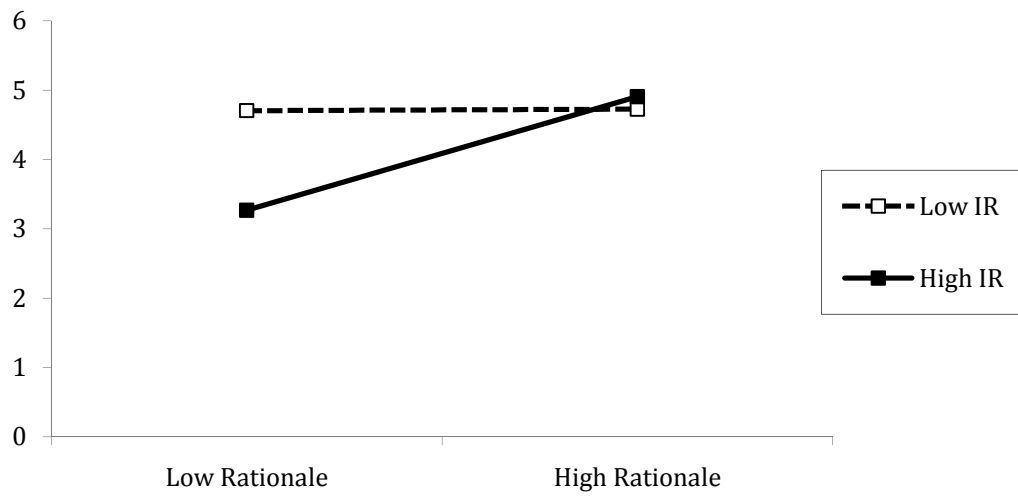
Regression	Predictor	B(SE)	Standardized Beta	Model R <sup>2</sup>
1	Specifying task	.19(.27)	.12	.261 <sup>†</sup>
	Session 2 Homework Adherence	.35(.22)	.31	
	Initial resistance	-.15(.09)	-.26	
	Specifying task x initial resistance	-.24(.33)	-.14	
2	Providing rationale	.05(.10)	.07	.398**
	Session 2 Homework Adherence	.49(.17)	.44**	
	Initial resistance	-.25(.09)	-.45*	
	Providing rationale x initial resistance	-.35(.13)	-.45*	
3	Eliciting reactions/ troubleshooting	-.07(.12)	-.09	.367*
	Session 2 Homework Adherence	.53(.17)	.47**	
	Initial resistance	-.16(.09)	-.27	
	Eliciting/ troubleshooting x initial resistance	-.29(.12)	-.37*	
4	Number of seconds spent assigning	-.002(.002)	-.13	.268 <sup>†</sup>
	Session 2 Homework Adherence	.40(.21)	.36 <sup>†</sup>	
	Initial resistance	-.12(.10)	-.21	
	Number of seconds x initial resistance	-.002(.003)	-.13	
5	Praise for adherence	-.19(.12)	-.30	.424**
	Session 2 Homework Adherence	1.16(.33)	.63**	
	Initial resistance	-.27(.09)	-.47**	

<sup>†</sup>  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$

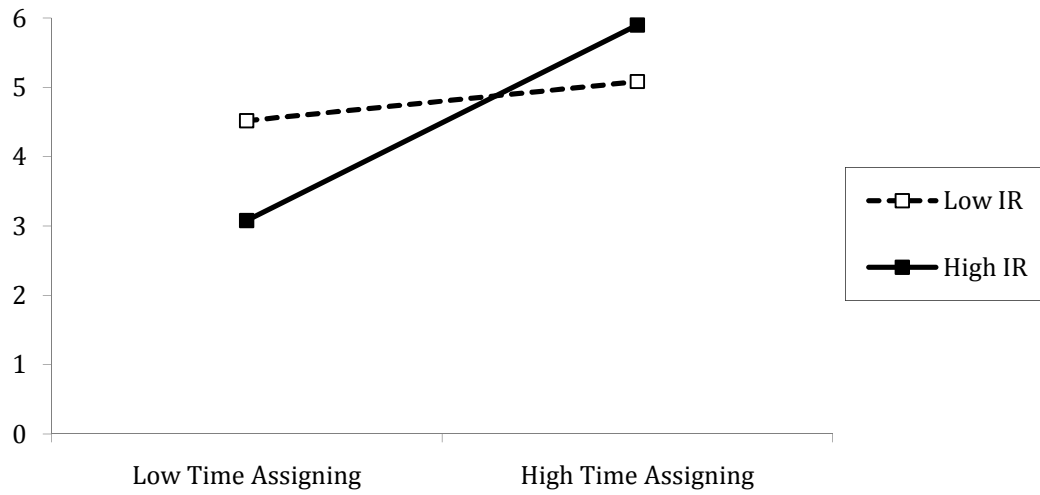
Table 6  
*Correlations Among Session 1 and 2 Predictors of Homework Adherence*

Session	Measure	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1	1. Specifying Task											
	2. Providing Rationale	.04										
	3. Eliciting/ Troubleshooting	.05	.24									
	4. Time Spent Assigning	.42**	.52**	.11								
2	5. Specifying Task	.06	.12	-.08	.27 <sup>†</sup>							
	6. Providing Rationale	.13	.03	.00	-.15	.12						
	7. Eliciting/ Troubleshooting	.00	-.07	.40**	-.01	.08	.11					
	8. Depth of Review	-.17	.07	.43**	-.30 <sup>†</sup>	-.32*	-.08	.05				
	9. Praising Adherence	-.05	.03	.49**	-.13	-.15	-.07	.21	.34*			
	10. Time Spent Assigning	.05	.04	.05	.15	.42**	.38**	.42**	-.18	-.33*		
	11. Initial resistance	.24	-.04	.22	.14	.04	.13	.07	-.15	-.19	.17	
	12. Session 2 Homework Adherence	.06	.25	-.04	.38*	.05	-.34*	-.10	-.09	.14	.03	-.26 <sup>†</sup>

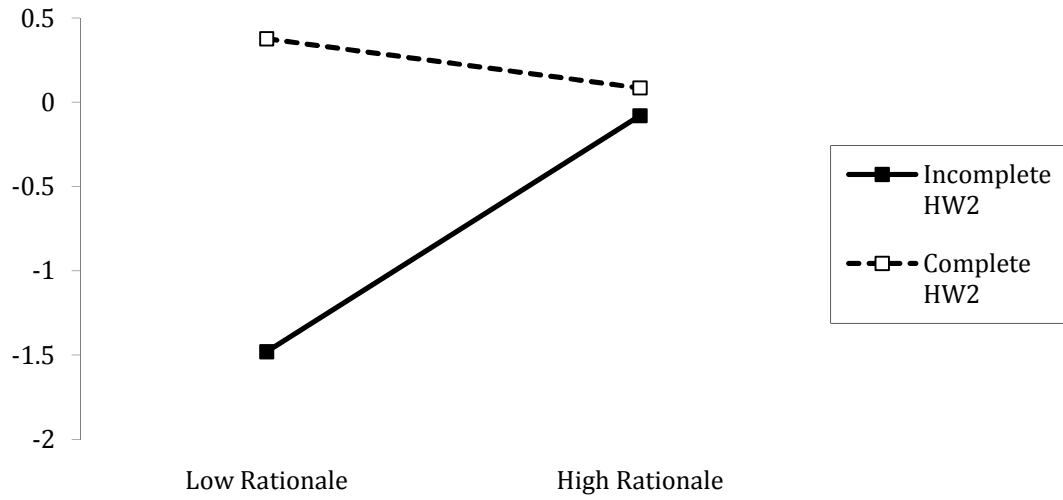
<sup>†</sup>  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$



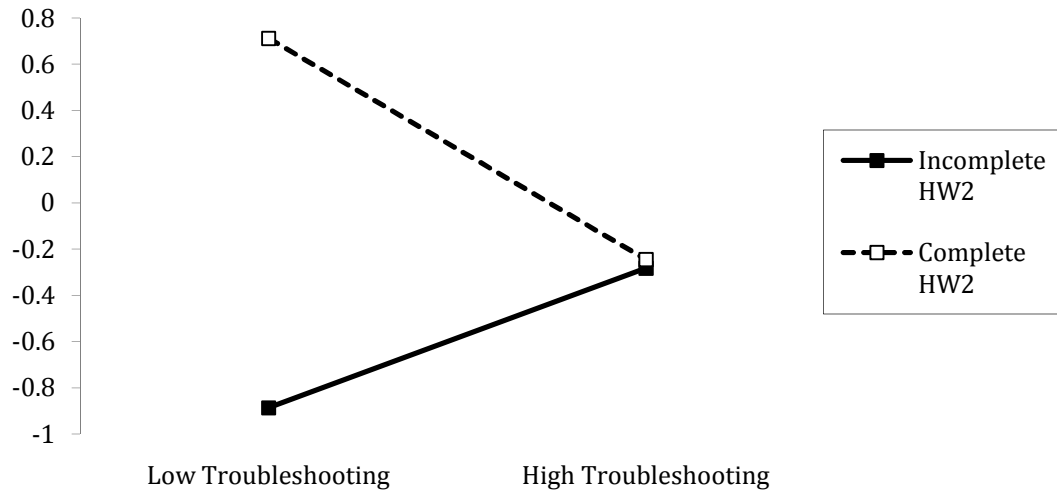
*Figure 1.* The interaction between initial resistance (IR) and provision of rationale in Session 1 to predict homework adherence at Session 2.



*Figure 2.* The interaction between initial resistance (IR) and the amount of time therapist spent assigning homework in Session 1 to predict homework adherence at Session 2.



*Figure 3.* The interaction between Session 2 homework adherence (HW2) and Session 2 providing rationale to predict homework adherence at Session 3, controlling for level of initial resistance.



*Figure 4.* The interaction between Session 2 homework adherence (HW2) and Session 2 eliciting reactions/troubleshooting obstacles to predict homework adherence at Session 3, controlling for level of initial resistance.

## **HOMEWORK ADHERENCE – MANUAL AND CODING ANCHORS BY SESSION**

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Note to committee: I originally developed two homework adherence rating scales. The “Likert Rating Scale” was designed to be a continuous measure of homework adherence, and was anchored in order to foster reliability across coders. The “A/B Rating Scale” was designed to capture very basic details about homework adherence, and was included in this coding system in the event that the Likert Rating Scale could not be reliably coded from audiotapes. The A/B Rating Scale was designed so that scores could be obtained even when homework review was done very cursorily, or for whatever reason very little information could be obtained from the audiotape. Fortunately, audiotapes for this study generally contained very rich detail regarding homework adherence, and so both rating scales attained high reliability. Consequently, scores from the Likert Rating Scale were used for all primary analyses in my dissertation. –NJ

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### **A/B RATING SCALE**

*Circle a letter on the left and a letter-number on the right:*

A – Did not bring in homework → A1 – Didn’t do the homework  
A – Did not bring in homework → A2 – Made some (credible) effort but didn’t bring it in  
B – Brought in homework → B1 – Partially did homework, brought in  
B – Brought in homework → B2 – Most or all of homework done, brought in

- If you’re not sure whether it’s A1 or A2 (because you don’t have enough information) score “A1.5”. The same goes for when you’re stuck between B1 and B2 (because you don’t have enough information).
- When you cannot determine A versus B on the left (e.g. because homework was not reviewed), score “AB”.
- Note: to earn a rating of “B” the homework must be brought to the session (i.e. not just “in teen’s locker”)

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### **LIKERT RATING SCALE:**

*Also rate the degree to which you feel the client performed the target behavior outside of the session, irrespective of whether the homework sheet was brought in:*

(0 = no effort; 1 = at least thought about assignment during the week; 2 = did something minimal; 3 = did about half; 4 = did most of assignment; 5 = did everything that was asked; 6 = did more than was asked or exceptional effort; n/a = insufficient information on tape to determine a rating)

0            1            2            3            4            5            6            n/a

**Note: For this scale, rate based on your gut sense of what was probably performed by the client, even if the homework was not thoroughly discussed on the audiotape. (Giving “.5” ratings when you’re torn between two whole numbers is okay.)**

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START/STOP RULES:

1. Always start coding at the **beginning of the audiotape**, listening for any cues regarding homework adherence. Any information regarding homework adherence, even if it emerges before the actual homework review begins, should be used in determining ratings.
2. Identify the **start of homework review**
  - The start of homework review is when the therapist begins reviewing the previous week's assignment.
    - Examples of therapist statements indicating the start of homework review include "Let's take a look at the homework for this week," or "Did you get a chance to do the homework for this week?" or "Now let's go through the homework assignment together."
    - **NOTE:** If the therapist tries to start homework review but is sidetracked by the teen before homework review can begin, this does not qualify as the start of homework review. The start of homework review is when review of homework actually begins.
  - **RECORD** the homework review start time on the coding sheet (top of page) for reliability purposes.
3. Continue listening for **15 minutes after the start of homework review**.
  - However, if it is not clear whether the homework review has actually begun or taken place, continue listening until you hear more or until the tape ends (e.g. if therapist asks "Did you bring the homework" but does not start reviewing it right away, continue listening indefinitely for the possibility of a later homework review segment).
4. For sessions in which there are **two** homework tasks to be reviewed (i.e. session 6), listen for 15 minutes past the start of the review of the *second* assignment to be reviewed. If the therapist reviews one assignment but not the second, continue listening until you hear the review of the second assignment or until the tape ends.
5. **RECORD** the OVERALL STOP TIME on the coding sheet (top of page). This will be 15 minutes after the homework review start time.
6. **If you feel that valuable information regarding homework adherence was missed by stopping at the 15-minute cut-off, discuss this with Nathaniel. However, you must still provide ratings based on the start/stop rules above.**
7. If homework is not reviewed, continue to listen to the whole session, as cues to homework adherence may emerge, particularly at the end when the therapist assigns homework for the next session.

---

**ADHERENCE / EFFORT vs. COMPETENCE / QUALITY**

- We will focus on **adherence**, rather than client competence or quality of homework completed.
  - If a client incorrectly attempts homework because of misunderstanding the assignment (e.g. tries to generate cognitive counters but what she generates are not really cognitive counters) there will be no penalty. As long as the client believes he/she is adhering to the assignment, we will consider that a valid effort to adhere.



- However, if the client incorrectly attempts homework because of lack of effort (e.g. takes a nap instead of using relaxation techniques, despite knowing what the proper techniques are), the client is not considered fully adherent.
- In the instance where a client does not complete homework because he/she does not understand it, it is still incomplete. **Please note when this is the case.**

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#### ADDITIONAL HOMEWORK ASSIGNMENTS

- If there was an additional homework assignment (i.e. not prescribed by the manual), **circle “yes” on the upper right of the coding form** where it says “Additional Assignment.”
- Describe the extra assignment clearly on the coding sheet as well as the degree to which the teen completed it. (Try to use the same A/B and likert rating systems)
- If the homework does not require bringing anything written to the session (e.g. client was asked to talk to his boss about a raise), do NOT use the A/B rating scale; **ONLY** use the likert rating scale.

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On the following pages, guidelines are given for how to operationalize the ratings for each session, with sample statements from client (“C”) and therapist (“T”). **The sample statements are given merely as examples to guide your thinking; they are NOT exhaustive.**

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## Homework reviewed in Session Two:

A1 – Client didn't do the homework.

*Examples:*

C: "I totally forgot"

C: "I meant to, but I didn't"

A2 – Client made some effort but didn't bring the sheet in.

*Examples:*

C: "I did it every night before bed, but I forgot to bring it"

C: "I did it for the first couple of days, but then I lost it"

B1 – The paper is returned, something has been written on it, but there is some indication the assignment was only partially complete.

*Examples:*

T: "I see you did it for Wednesday and Thursday, did anything happen over the weekend?"

T: "You noted your mood each day, but you didn't write a single event!"

B2 – The paper is returned, something has been written on it, including both mood and events/triggers, and there is no indication the assignment was not complete.

(As long as mood is recorded for most days, and some triggers are noted, the homework can be considered complete.)

*Examples:*

T: "Great job! This looks fantastic"

T: "This is exactly what I asked for."

**Target Behavior:** Recorded mood (high and low points) and events/triggers daily during the past week. (SEE WORKSHEET ON NEXT PAGE)

Session 1 – Personal Project (DUE IN SESSION 2)

## Mood Monitoring



<b>Day of the week:</b>							
The best	9	9	9	9	9	9	9
Even better	8	8	8	8	8	8	8
Better	7	7	7	7	7	7	7
Better than average	6	6	6	6	6	6	6
Average	5	5	5	5	5	5	5
Worse than average	4	4	4	4	4	4	4
Worse	3	3	3	3	3	3	3
Even worse	2	2	2	2	2	2	2
The worst	1	1	1	1	1	1	1
*Notes about the day and changes in your mood							

*\*Make notes about things that triggered a change in your mood (situations, stress, certain people, illness, sleep) so that you will be able to discuss this in your next session.*

---

## Homework reviewed in Session Three:

A1 – Client didn't do the homework.

*Examples:*

C: "I totally forgot"

C: "I meant to, but I didn't"

T: "Why didn't you do the homework for this week?"

A2 – Client made some effort but didn't bring the sheet in.

*Examples:*

C: "I did it every night before bed, but I forgot to bring it"

C: "I did it for the first couple of days, but then I lost the sheet"

B1 – The paper is returned, something has been written on it, but there is some indication the assignment is only partially complete.

*Examples:*

T: "I see you did it for Wednesday and Thursday, did anything else happen last week?"

B2 – The paper is returned, something has been written on it, there is evidence the client recorded an automatic thought, and there is no indication the assignment was not complete.

(If there is sufficient detail on the tape, give a rating of "3" when the client provides mood ratings and events/triggers on most days, plus **at least two automatic thoughts**. When it is clear from the tape that the client did not do at least this much, give a rating of 2 or less.)

*Examples:*

T: "This is exactly what I asked for, great job."

**Target Behavior:** Recorded moods, events/triggers, and automatic thoughts from the week. (SEE WORKSHEET ON NEXT PAGE)

Session 2 – Personal Project (DUE IN SESSION 3)

## Mood & Thought Monitoring



Continue to monitor your mood this week. When you have high or low points in your mood, write down situations that influenced your mood, what you were thinking, and how you reacted.

Day of the week	Mood (1- 9) 1=the worst, 3=worse, 5=average, 7=better, 9=the best	Situation that influenced mood	Thoughts—What was I saying to myself?	Reaction—What did I do?

---

## Homework reviewed in Session Four:

A1 – Client didn't do the homework.

*Examples:*

C: "I totally forgot"

C: "I meant to, but I didn't"

T: "Why didn't you do the homework for this week?"

A2 – Client made some effort but didn't bring the sheet in.

*Examples:*

C: "I did it every night before bed, but I forgot to bring it"

C: "I did it for the first couple of days, but then I lost it"

B1 – The paper is returned, something has been written on it, but there is some indication the assignment is only partially complete.

*Examples:*

T: "I see you recorded situations, mood, and negative automatic thoughts, but you didn't do any counters or coping thoughts..."

T: "Looks like you only recorded one counter/coping thought. Since you didn't generate any others, how about we work on that right now together?"

B2 – The paper is returned, something has been written on it, there is evidence the client recorded a counter or coping thought, and there is no indication the assignment was not complete.

(If there is sufficient detail on the tape, give a rating of "3" when the client provides situation, mood, NATS, plus a counter or coping thought for **at least two situations**. When it is clear from the tape that the client did not do at least this much, give a rating of 2 or less.)

*Examples:*

T: "This is exactly what I asked for, great job."

**Target Behavior:** Recorded situations and the NATS they evoked, and generated counters or coping thoughts. (SEE WORKSHEET ON NEXT PAGE)

Sessions 3 and 4 – Personal Project (DUE IN SESSIONS 4 & 5)



## Monitoring & Countering NATS

Monitor your negative moods this week. List the situation, your Negative Automatic Thoughts and your Countering Thoughts.

Situation that started the negative thoughts	Mood (1- 9) 1=the worst, 3=worse, 5=average, 7=better, 9=the best	NATS— <i>What negative things was I thinking? What was I saying to myself?</i>	Counter the NATS— <i>What else might I have said to myself in this situation? How can I counter the NATS?</i>	Reaction— <i>What did I do? What happened?</i>

---

## Homework reviewed in Session Five:

A1 – Client didn't do the homework.

Examples:

C: "I totally forgot"

C: "I meant to, but I didn't"

T: "Why didn't you do the homework for this week?"

A2 – Client made some effort but didn't bring the sheet in.

Examples:

C: "I did it every night before bed, but I forgot to bring it"

C: "I did it for the first couple of days, but then I lost it"

B1 – The paper is returned, something has been written on it, but there is some indication the assignment is only partially complete.

Examples:

T: "I see you recorded mood, events and automatic thoughts, but you didn't do any counters or coping thoughts..."

T: "Looks like you only recorded a counter/coping thought for Wednesday. Since you didn't generate any others, how about we work on that right now together?"

B2 – The paper is returned, something has been written on it, there is evidence the client recorded a counter or coping thought, and there is no indication the assignment was not complete.

(If there is sufficient detail on the tape, give a rating of "3" when the client records mood ratings and events/triggers on most days, plus some automatic thoughts and **at least two counters or coping thoughts**. When it is clear from the tape that the client did not do at least this much, give a rating of 2 or less.)

Examples:

T: "This is exactly what I asked for, great job."

**Target Behavior:** Generated counters or coping thoughts in response to automatic thoughts they had during the week. (SEE WORKSHEET ON NEXT PAGE)



Sessions 3 and 4 – Personal Project (DUE IN SESSIONS 4 & 5)



## Monitoring & Countering NATS

*Monitor your negative moods this week. List the situation, your Negative Automatic Thoughts and your Countering Thoughts.*

<b>Situation</b> that started the negative thoughts	<b>Mood (1- 9)</b> 1=the worst, 3=worse, 5=average, 7=better, 9=the best	<b>NATS—</b> <i>What negative things was I thinking? What was I saying to myself?</i>	<b>Counter the NATS—</b> <i>What else might I have said to myself in this situation? How can I counter the NATS?</i>	<b>Reaction—</b> <i>What did I do? What happened?</i>

---

**Homework reviewed in Session Six:** (rate relaxation *AND* cloud homework.)

---

*Relaxation:*

A1 – Client didn't do the homework.

*Examples:*

C: "I totally forgot"

C: "I meant to, but I didn't"

T: "Why didn't you do the homework for this week?"

C: "I couldn't remember how to do it"

A2 – Client made some effort, but didn't bring the sheet in.

*Examples:*

C: "I did it, I just didn't write anything down."

B1 – The paper is returned, something has been written on it but it is clear the client did not fully perform the homework.

*Examples:*

C: "On Thursday I relaxed by taking a long nap, and as you can see from the ratings on my sheet that actually made my mood worse." (*In this example the client was not actually using the assigned techniques, but did write on and bring her sheet.*)

B2 – The client reports having tried the relaxation skills at least once in the past week, and has filled out the homework sheet.

**Target Behavior:** Used relaxation technique(s) during the past week outside of therapy session. (SEE WORKSHEET ON NEXT PAGE)

---

*Clouds:*

A1 – Client did not do the homework.

*Examples:*

C: "I totally forgot"

C: "I meant to, but I didn't"

T: "Why didn't you do the homework for this week?"

A2 – Client made some effort but didn't bring the sheet in.

*Examples:*

C: "I did it, but I forgot to bring it"

B1 – The paper is returned, something has been written on it, but it is clear the client did not fully perform the homework.

*Examples:*

T: "I see you did the first one, what about the rest?"

B2 – The paper is returned and filled out. There is no indication the client did not fully perform the homework.

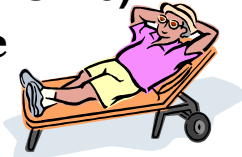
*Examples:*

T: "This is exactly what I asked for, great job."

**Target Behavior:** Client generated coping thoughts for each item. (SEE WORKSHEET ON P. 13)

## Session 5 Personal Project (DUE IN SESSION 6)

### Relaxation Skill Practice



Skills to practice this week:

*On a stressful day, practice using these relaxation skills. Try this a few times this week.*

<b>Relaxation Skills</b> Choose 1-2 relaxation skill	<b>Stress level BEFORE (0-100)</b>	<b>Situation</b> What made you feel stressed?	<b>Result</b> How did using the relaxation skill go?	<b>Stress level AFTER (0-100)</b>

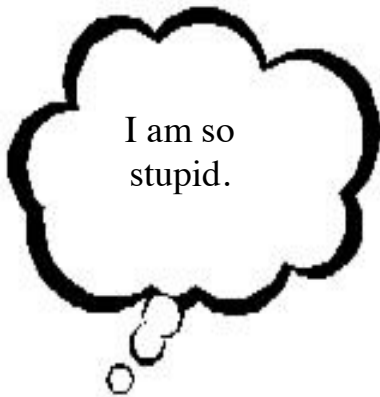
## Session 5 Personal Project (DUE IN SESSION 6)

Please read the situations below. For each situation, on the left there is a possible thought someone your age might have. In the thought bubble on the right, please write another thought someone could have.

1. When you get home from school, your parent is in a bad mood.



2. You have just gotten a math test back. Your grade was much lower than what you usually get in that class.



3. You overhear students your age talking about a party that is being held later that night.



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## Homework reviewed in Session Seven:

A1 – Client did not do the homework.

*Examples:*

C: “I didn’t do it”

C: “I was just too tired”

C: “I didn’t think it would help”

A2 – Client made some effort but didn’t write anything down.

*Examples:*

Client followed through with pleasant activity but did not write anything down.

B1 – Client made some effort and wrote something down, but there was an indication that the assignment was not fully complete.

*Examples:*

T: “I see you engaged in one of the pleasant activities and based on what you wrote it seems to have helped your mood. But I remember your main assignment was to play basketball with your neighbor—what happened with that?”

B2 – Client followed through with the agreed-upon pleasant activity during the past week, and wrote something on the sheet. There was no indication that the client did not fully complete the assignment.

**Target Behavior:** Client increased or initiated a pleasant activity during the past week, as agreed in the contract signed in the previous session, and recorded the effect it had on mood. (SEE WORKSHEET ON NEXT PAGE)

Session 6 – Personal Project (DUE IN SESSION 7)

## Pleasant Activity Personal Contract



I, \_\_\_\_\_ establish the following contract with myself.

**Objective:** During this week, I will do the following pleasant activities:

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Date I achieved my objective: \_\_\_\_\_

**Reward:**

- If I achieve my objective, I will reward myself with:

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Date I gave myself my reward: \_\_\_\_\_

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

*Record the pleasant activities that you tried and how they went.*

<b>Mood BEFORE</b> (1-9)	<b>Activity</b>	<b>Mood AFTER</b> (1- 9)	<b>How did it go?</b> Also, list any negative thoughts you had before, during, or after the pleasant activity.



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## Homework reviewed in Session Eight:

A1 – Client did not do the homework.

*Examples:*

C: “I didn’t do it”

C: “I was just too tired”

C: “I didn’t think it would help”

A2 – Client made some effort but didn’t write anything down.

*Examples:*

Client followed through with pleasant activities and/or mastery activities agreed upon in the last session, but did not write anything down.

B1 – Client made some effort and wrote something down, but there was an indication that the assignment was not fully complete.

*Examples:*

T: “I see you engaged in one of the pleasant activities and based on what you wrote it seems to have helped your mood. But I remember your main assignment was to play basketball with your neighbor—what happened with that?”

B2 – Client followed through with the agreed-upon pleasant activities and/or mastery activities during the past week, and wrote something on the sheet. There was no indication that the client did not fully complete the assignment.

**Target Behavior:** Client increased or initiated a pleasant/mastery activity during the past week, as agreed in the contract signed in the previous session, and recorded the effect it had on mood. (SEE WORKSHEET ON NEXT PAGE)

Session 7 – Personal Project (DUE IN SESSION 8)  
**Mastery Activity Personal Contract**



I, \_\_\_\_\_ establish the following contract with myself.

**Objective:** During this week, I will do the following mastery & pleasant activities:

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Date I achieved my objective: \_\_\_\_\_

**Reward:**

- If I achieve my objective, I will reward myself with:

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Date I gave myself my reward: \_\_\_\_\_

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

*Record the pleasant activities and mastery activities that you tried and how they went.*

<b>Mood BEFORE</b> (1-9)	<b>Activity</b>	<b>Mood AFTER</b> (1-9)	<b>How did it go?</b> Also, list any negative thoughts you had before, during, or after the pleasant activity.



## Therapist Homework Adherence Behavior Scale (THABS)

**Item 1: THERAPIST SPECIFIED THE TASK** - Therapist was clear and specific in giving the assignment. Clear expectations were set for what, how, when, how often, etc.

0	1	2	3	4	Rating: _____
Homework not assigned, or sheet was given with no further instruction	Minimal specificity, e.g. "Rate your mood over the next week"	Therapist explains the task but does not go into detail or provide examples	Therapist explains the task and provides a single example	Therapist thoroughly explains what teen is expected to record and bring back, providing several examples of what teen could record	

- A rating of "4" requires multiple examples (3 or more), or lots of effort at clarifying the task
- A rating of "3.5" is like 2 examples, or one example with extremely thorough explanation
- For session 2 homework: if the therapist describes only one hypothetical event but gives a thorough description of what is expected AND several examples of thoughts the client could record, this would approach the 3.5 to 4 range.

**Item 2: THERAPIST PROVIDED RATIONALE** - Therapist stressed not only the importance of the assignment, but also the goals it aims to accomplish.

0	1	2	3	4	Rating: _____
Therapist does not provide any rationale for the task, e.g. "Do X for next week"	Implied importance (e.g., I need you to do this)	Vague statement that homework is important	Conveys the importance of homework and gives some rationale for the task	Conveys the importance of homework and provides explicit, clear, strong, thorough rationale for the specific task being assigned	

- S1 examples of homework rationale: Find patterns, identify what leads to depressed moods, what associated with better moods, help identify that there are actually positive times during the week. Better understand things you can do to improve mood, develop strategies for dealing with things that lead to depressed mood. To give us examples/things to talk about in therapy next week. So I know how things are going for you/how you're feeling throughout the week/what's going on for you between sessions. A particularly strong rationale, worthy of a 4, might be one that convincingly ties the particular homework assignment to pt's recovery in some way.
- S2 examples of homework rationale: (In addition to the ones from S1 that also apply) help identify how thinking/events lead to depressed mood, help find out how to challenge automatic thoughts, identify thinking/events/behavior that are maintaining your depression/negative mood, give us clues to work with next week, etc.
- Statements about importance/rationale can occur earlier in S1, for example when therapist is describing the treatment model.
- Provision of rationale is the key factor here. Don't worry about "importance" being explicitly said. The idea of "importance" is simply too nebulous/hard to code. Only focus on degree of rationale provided.
- Do not count general CBT session content (e.g. why examining thoughts

are important) as rationale unless it is covered when discussing the homework.

**Item 3: THERAPIST ELICITED REACTIONS/DIFFICULTIES** – Therapist elicited reactions to the assignment to get feedback and help foresee and problem-solve possible obstacles or difficulties that might arise when trying to do the assignments. (Give some credit for therapist collaboratively designing the assignment with pt.)

0	1	2	3	4	Rating: _____
Therapist assigned homework and did not provide teen any opportunity to respond or ask questions	Therapist provides minimal opportunity for client to respond or express agreement (e.g. “Do X this week. Okay?” or “Does that make sense?”)	Therapist provided clear opportunity to react or disagree with assignment (e.g. “How does that sound?”)	Therapist provides opportunity to respond that invites potential obstacles or disagreement (e.g., “Do you think you’ll be able to do that?” or “Do you see any problems with this plan?”) but does not probe too deeply <u>OR</u> does not try to trouble-shoot identified obstacles	Therapist clearly tries to elicit obstacles (e.g., “Can you think of anything that would make/made this tough?” or “When would be a good time for you to do this each day, when you won’t forget?”) and, <u>IF</u> any are uncovered, works to resolve or trouble-shoot them	

- “2.5” might be if therapist doesn’t invite obstacles but discusses solutions to generic ones (e.g. “If you think you might forget to do it, it might help to pick the same time each day, like bedtime, and keep the sheet handy by your bed.”).
- However, if the therapist talks about the time of day (e.g. before bed) that the client should complete the homework but does not seem to be addressing an obstacle (e.g., “Most people do it right before bed or in the evening”) this does not count, and is more relevant for item #1.
- “1” might be therapist asking “does that make sense” because it asks whether task is clear rather than asking for reaction or obstacles, and yet teen still has opportunity to respond with issues.

**Item 4: THERAPIST REVIEWED PREVIOUS HOMEWORK** – Therapist reviewed the homework assigned in the preceding session, and summarized progress made and conclusions drawn from the exercise.

0	1	2	3	4	Rating: _____
No mention is made of homework assigned in last session	Therapist asks if homework was attempted	Homework sheet is looked over by therapist, and therapist makes no or few comments	Therapist explores what teen recorded, provides a vague conclusion or notes a single thing learned from task	Therapist discusses what teen recorded at length, asking questions and noting multiple things learned through the task	<-(If completed)
(same as above)	(same as above)	Therapist asks broad question/s about assigned task (e.g., “What was your mood like	Therapist works on homework task with teen, provides vague conclusion or notes a single thing learned	Therapist completes the homework task in detail with client in session and notes multiple things learned through	<-(If <u>not</u> completed)

		last week?")	from task	the task	
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- To get a score of 4, therapist should actually discuss something about at least 4 days out of the week. If therapist review is consistent with the anchor for 4 (above) but fewer than 4 days are discussed, give a 3.5 or 3.75.
- Patterns, themes or conclusions about what affects moods would qualify as “things learned through the task.” Discrete events (e.g., “You felt sad after your friend called you mean”) do not qualify as “things learned”.
- In addition to discussing something about at least 4 days, a score of “4” requires at least three “things learned”. Two “things learned” would earn a score somewhere between “3.25” and “4,” depending on the quality of the “things learned”.

**Item 5: THERAPIST PRAISED ADHERENCE** - Therapist praised any efforts the client made to do the assigned homework. (Do not code if teen did not make any efforts.)

0	1	2	3	4	Rating: _____
Therapist offers no enthusiasm or praise regarding HW efforts	Therapist sounds excited about HW efforts but offers no praise	Therapist praises HW efforts but without enthusiasm or specificity	Therapist broadly praises HW efforts, with enthusiasm but not specificity	Therapist enthusiastically praises HW efforts, including praise for specific aspects	

<b>Reviewing START time:</b> _____ (seconds)	<b>Estimated Assigning TOTAL time:</b> _____ (seconds)
<b>Estimated Reviewing TOTAL time:</b> _____ (seconds)	<b>First mention of new assignment:</b> _____ (seconds)
<b>Integration of review into overall session:</b> _____ (rate on scale from 0 to 4)	
<b>Total session length:</b> _____	

**Reviewing START and TOTAL time:**

- **START** is when therapist first inquires about the past week’s homework assignment. Record the number of minutes and seconds elapsed since the start of the session.
- **TOTAL** is your estimate of how much time was spent reviewing the assignment. This does not include any interludes when the topic may have wandered away from homework review. (Often therapist will mark the end of homework review with a transition statement like, “What we’ll talk about today is...” or “Now let’s talk about...” Keep your ear out in case therapist returns to/continues homework review.)
  - When the therapist goes into a major tangent away from discussing some aspect of homework, cut that segment out of the TOTAL time.
  - When the therapist spends a good deal of time teaching about automatic thoughts or covering some other didactic material as a distinct tangent from the homework review, cut that segment out of the TOTAL time. However, if the therapist is simply probing about the clients’ thoughts during events from the homework, and/or points out links between thoughts and mood without becoming really tangential, you do NOT need to cut out that time.

**Estimated Assigning TOTAL time:**

- This is your estimate of how much time was spent assigning the homework, or providing information about future homework. This does not include any interludes when the topic may have wandered away from homework review. This DOES include any time spent talking about guidelines for doing homework in general (e.g. early in S1).
- Do not include review of previous assignments in this total time, but if therapist talks about how to do future assignments during the homework review, do count that portion of the homework review toward this total.
- Do not include time spent assigning extra homework assignments in this total (i.e., assignments that are not a standard part of the manual). Please note any extra assignments separately.

#### First mention of new assignment

- This is when the therapist first starts talking about next week's homework assignment.
- If the therapist is only talking about homework in general, this does not count.
- If the therapist first describes the next week's assignment early in the session, record that time.

#### Record time in seconds:

- Convert from minutes to seconds. Multiply minutes by 60 and add remainder seconds.

#### Integration:

- Integration refers to the degree to which information learned from homework review, or the homework review itself, is woven in with the didactic (concept/skill-teaching) part of the session
- Examples of what could earn various ratings:  
 0 = homework is not referred to outside of homework review;  
 1 = therapist makes vague reference to information from the past week's homework outside of homework review;  
 2 = therapist refers to a specific event or events learned about from homework review later in session, but it is not woven well or extensively into new material;  
 3 = therapist incorporates an event/thought/situation/pattern from client's homework into the new material, drawing parallels between the new material and the clients' experience or using the client's experience as examples of the new material;  
 4 = therapist references information from client's homework frequently throughout discussion of new material, drawing parallels and relevant examples from client's experience as learned from homework. Information learned from homework resurfaces throughout the rest of session.  
**USUALLY REVIEW OF THE WEEK (INCIDENTS & EVENTS) WILL BE SYNONYMOUS WITH THE HOMEWORK REVIEW, BECAUSE INCIDENTS/EVENTS WILL BE COVERED IN BOTH. HOWEVER IF SOMETHING COMES UP IN INCIDENTS/EVENTS AND NOT THE HOMEWORK REVIEW, DON'T GIVE AS HIGH A SCORE.**

**Start/Stop Rules:**

- For session 1, listen to the entire session. (The therapist may discuss homework and its importance early in the session when she describes the treatment model.)
- For session 2, listen to the entire session. This way you will hear the review of homework (likely to take place earlier in the session) as well as the assigning of the next week's homework (likely to take place toward the end of the session).

**General Notes:**

- If therapist assigns or reviews an extra (impromptu) homework assignment, give a separate code for any items that are applicable. (i.e. do not incorporate therapist behaviors related to these extra assignments into your ratings related to the official homework assignments—keep them separate.)

**Total Session Length:**

- This is the total length of the audio file, or less if you discover that the session ends before the audio file is complete (i.e., there is blank tape at the end)



## **Initial Hostility Coding Guidelines**

### **Item 1 – Reacted negatively to the therapist’s comments.**

A high rating is merited by unqualified rejection of a therapist’s comments such as “That doesn’t make sense.” However, evidence of disagreeing with a therapist’s remarks or interpretations does not necessarily qualify for a high rating on this item. For example, a client might say “I don’t think it’s exactly like that because…” with the intention of clarifying the therapist’s understanding. The client’s attitude and tone when he/she disagrees with a therapist’s statements is important to consider in rating this item. “Reacting negatively” can also connote becoming angry or refusing to answer the therapist’s questions.

### **Item 2 – Hostile**

Rate evidence that the client behaved in an unfriendly, critical or belligerent manner during the session. This item should receive the highest rating if the client’s general attitude toward the therapist seems antagonistic, and this demeanor is explicitly conveyed by the nature of his/her responses.

### **Item 3 – Frustrated**

This item refers to the client’s frustration in response to a therapist who seemed to not understand what the client was trying to convey or who in some way pursued a topic that the client felt was irrelevant to his/her present concerns. This item reflects dissatisfaction with the way therapy is progressing and is evidenced by client statements of frustration or audible nonverbal behaviors of frustration (e.g. sighing). Difficulty in working something through or frustration with attempts to reach goals outside of therapy is not tapped by this item.

### **Item 4 – Impatient**

The client appeared restless, dissatisfied or irritated with the pace and/or manner in which therapy was progressing.

### **Item 5 – Intellectualizing**

The client used an abstract or intellectual style to avoid acknowledging emotions or objectionable impulses. Client may use semantics to avoid discussing emotion or engage therapist in logistics or unimportant word games or squabbles.

### **Item 6 – Defensiveness**

Evidence of defensive behavior on the client’s part may include:

- Offering justifications of his/her behavior to the therapist.
- Offering a rationalization of counter-evidence to a suggestion by the therapist that the client may have behaved differently in a situation.
- Actively avoiding discussion of personal issues or seeming to withhold information

\*\*Do not code hostility that is directed at a third party (e.g. client’s mom); we are assessing hostility directed toward the therapist.