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Predictors of CBT Outcome in Older Adults with GAD

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Abstract

The current study is a secondary analysis of data from a randomized controlled trial of CBT for late-life GAD (Stanley et al., 2014) which provided an opportunity to examine predictors of outcome among those who received CBT. Participants were 150 older adults who were randomized to receive 10 sessions of CBT. Completer analyses found that homework completion, number of sessions attended, lower worry severity, lower depression severity, and recruitment site predicted 6-month worry outcome on the PSWQ-A, whereas homework completion, credibility of the therapy, lower anxiety severity, and site predicted better 6-month anxiety outcome on the STAI-T. In intent-to-treat multivariate analyses, however, only initial worry and anxiety severity, site, and number of sessions completed predicted treatment outcome. These results are largely consistent with predictors of outcome in younger adults and suggest that lower initial symptom severity and variables consistent with greater engagement in treatment predict outcome.

Keywords

generalized anxiety disorder; cognitive behavioral therapy; predictors of outcome; older adults

1. Introduction

Cognitive behavioral therapy (CBT) for generalized anxiety disorder (GAD), which typically includes relaxation, breathing, sleep hygiene techniques, cognitive restructuring,

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and problem solving, is effective for adults, with moderate to large effect sizes (Cuijpers et al., 2014; Hanrahan, Field, Jones, & Davey, 2013). Older adults with GAD represent an underserved population in that symptoms of anxiety are often unrecognized by providers and patients themselves (APA, 2005) and older adults are less likely to access and utilize psychotherapy (Karel, Gatz, & Smyer, 2012). Unfortunately, even when older adults do seek psychotherapy for GAD, treatment may be less effective than in younger or middle-aged adults (Covin, Ouimet, Seeds, & Dozois, 2008). Nevertheless, CBT for GAD remains the treatment modality with the most research support in older adults (Goncalves & Byrne, 2012; Wolitzky-Taylor, Castriotta, Lenze, Stanley, & Craske, 2010).

Understanding factors that predict treatment outcome in psychotherapy may help improve the effectiveness of treatment and tailor treatments to specific patient groups. There is extensive research regarding predictors of psychotherapy outcome in general, including working alliance (Martin, Garske, & Davis, 2000) and length of treatment (Anderson & Lambert, 2001). In CBT for anxiety specifically, predictors of outcome include initial severity of symptoms (Kampman, Keijsers, Hoogduin, & Hendriks, 2007), interpersonal difficulties (Borkovec, Newman, Pincus, & Lytle, 2002), patient expectancies of positive outcome from treatment and treatment credibility (Price & Anderson, 2012), homework completion (Schmidt & Woolaway-Bickel, 2000), and therapist fidelity and competence in delivering the treatment protocol (Kazantzis, 2003; Kuyken & Tsivrikos, 2009).

Lower treatment effect sizes in older adults as compared to younger adults suggest that patient variables may play an important role in how one responds to treatment, although little research has examined predictors of outcome in older adults. Older adults differ from younger adults in that they are less likely to perceive the need for mental health services (Karlin, Duffy, & Gleaves, 2008) and may be less psychologically minded (e.g., Burgmer & Heuft, 2004), potentially indicating less positive expectancies for psychotherapy. Cognitive limitations in some older adults may produce difficulty in understanding or completing therapy tasks such as cognitive restructuring. Two prior studies have found that cognitive/executive functioning difficulties are associated with poorer response to CBT among older adults (Caudle et al., 2007; Mohlman, 2013). Less research has examined other potential factors that may predict outcome, but one study indicated that greater GAD severity, completion of more homework, and presence of a comorbid psychiatric diagnosis were associated with better CBT outcome among older adults (Wetherell et al., 2005).

Our team recently published results of a randomized controlled trial of CBT for late-life GAD in older adults (Stanley et al., 2014), which provides an opportunity to examine predictors of outcome among those who received CBT. In this study, CBT delivered by both expert, PhD-level providers (PLP) and non-expert, bachelor-level providers (BLP) led to significant improvements in GAD severity, anxiety, depression, insomnia, and mental health quality of life at post-treatment relative to usual care, with no differences in outcomes between the PLP and BLP conditions. In the current paper we conduct secondary analyses of these data to examine predictors of CBT outcome among the subset of participants receiving CBT. We collapsed PLP and BLP conditions into a single CBT condition. Given prior research, we expected that initial anxiety and depression severity, therapist adherence/competence, therapy credibility, number of sessions of CBT completed, and homework

completion would predict outcome. Candidate predictors also included social support as a potential measure of interpersonal difficulties, and problem solving confidence, as CBT is a problem-focused therapy. Finally, we examined demographic characteristics including age, race/ethnicity, education, and medication status. Cognitive status was not examined as we only used a 6-item cognitive screener and excluded patients with cognitive difficulties, producing a restricted range of cognitive functioning.

2. Method

2.1 Participants

Detailed information about study design and recruitment is reported in Stanley et al. (2014). Patients ages 60 and older were recruited from primary care clinics at the Michael E. DeBakey Veterans Affairs Medical Center (MEDVAMC) and Baylor College of Medicine (BCM). Potential participants were identified in collaboration with primary care physicians (PCP) through the electronic medical record (EMR) and by self-referral through educational brochures placed in waiting and examination rooms. Patients with a documented EMR diagnosis of GAD or Anxiety NOS, as well as those for whom anxiety symptoms were noted on the problem list, or for whom anti-anxiety or antidepressant medication had been prescribed were identified for recruitment. With PCP approval, identified patients received a letter of invitation from the PCP and the senior author (MS) to participate in the study. Interested patients called for an appointment.

After obtaining informed consent, all patients completed a diagnostic evaluation including a brief cognitive screener (Callahan, Unverzagt, Hui, Perkins, & Hendrie, 2002) and the Structured Clinical Interview for DSM-IV Disorders (SCID; First, Spitzer, Miriam, & Williams, 1997). Interrater agreement for diagnosis was adequate (Stanley et al., 2014).

Inclusion criteria required a principal or co-principal DSM-IV diagnosis of GAD. All coexistent anxiety, affective, and somatization disorder diagnoses were allowed, as well as all coexistent medical conditions. Patients were allowed to continue psychotropic medications provided the dosing was stable over the prior month. Exclusion criteria included active suicidal intent, current psychosis or bipolar disorder, substance abuse within the past month, and cognitive impairment according to a 6-item screener (Callahan et al., 2002). A total of 223 participants were enrolled in the larger treatment outcome study; however, the current study examines only the 150 patients randomized to CBT. Of this group, 111 (74%) completed the 6-month outcome assessment. Completers did not differ from non-completers on any demographic or clinical characteristics.

2.2 Measures

2.2.1. Outcomes

Penn State Worry Questionnaire (PSWQ-A): Self-report worry severity was measured with the PSWQ-A, an 8-item inventory derived from the original 16-item PSWQ (Meyer, Metzger, & Borkovec, 1990). The PSWQ-A is useful for identifying GAD in older primary care patients (Webb et al., 2008), is capable of demonstrating change following treatment

(Stanley et al., 2009; Shrestha et al., in press), and is advantageous for older adults because of its brevity and simplicity (Hopko, et al 2003).

Spielberger State-Trait Anxiety Inventory, trait subscale: (STAI-T; Spielberger, Gorsuch, & Lushene, 1970). Self-report anxiety severity was assessed with the STAI-T, a 20-item measure of general anxiety, used commonly in studies of older adults (Therrien & Hunsley, 2012).

2.2.2. Potential Predictors of CBT Outcome

Sociodemographic characteristics: Sociodemographic variables including age, gender, race/ethnicity, education, income, marital status, and employment status were obtained via self-report.

Structured Clinical Interview for DSM-IV Disorders (SCID; First et al., 1997):

Comorbid diagnoses for inclusion/exclusion criteria were assessed with the SCID. For this study, we examined total number of mental health diagnoses.

Patient Health Questionnaire-8 (PHQ-8): Depressive symptoms were assessed with the PHQ-8, an 8-item version of the PHQ-9 (Kroenke, Spitzer, & Williams, 2001) that omits the item assessing suicide. Psychometric properties of the PHQ-9 are strong among older adults, and the 2 versions of the scale are highly correlated (Razykov, Ziegelstein, Whooley, & Thombs, 2012).

Baseline Social support: Social support was measured using the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988). The MSPSS is a 12-item measure with good psychometric properties in older adults (Stanley, Beck, & Zebb, 1998).

Baseline Problem Solving Confidence: The Problem Solving Inventory, Confidence scale (PSI-C; Heppner & Petersen, 1982) assessed patients' confidence in their ability to solve their own problems. Each of the 11 items is rated on a 6-point Likert scale. The PSI-C has good reliability and validity (Heppner, Witty, & Dixon, 2004).

Psychotropic medication use: Self-report questions about type and frequency of medications used over the prior 3 months (Wells, Miranda, Bruce, Alegria, & Wallerstein, 2004) assessed psychotropic medication use, including antidepressant (selective serotonin reuptake inhibitor, nonselective serotonin reuptake inhibitor, tricyclic antidepressant, or other) and anti-anxiety (benzodiazepine, buspirone, or other) medications. For this study, we included as a variable whether the patient reported taking any psychiatric medications.

Number of CBT sessions: We examined total number of CBT sessions completed out of 10 potential sessions.

Patient Expectancies/Credibility of Therapy: The Expectancy Rating Scale (ERS) is a 4-item questionnaire composed of items taken from Borkovec and Nau's (1972) outcome expectancies questionnaire. All items are rated on a 10-point Likert scale, except the

question “how much improvement do you expect to result from treatment?” which is rated on a 0% to 100% scale. Three items are summed to create a Credibility subscale, measuring the degree to which the patient believes in the rationale of treatment, and 1 item composes the Expectancy subscale, measuring the degree to which the patient expects to improve from the treatment. The original questionnaire has high internal consistency (.89 for the Credibility subscale in the current sample), test-retest reliability, and validity (Deville & Borkovec, 2000). This questionnaire has been used extensively with older adults (e.g., Wetherell et al., 2005).

Adherence/Competence of Therapist: Sessions were audiotaped, and a random 20% were rated by 2 independent treatment-integrity raters, who coauthored the original treatment manual that was the basis for the CBT (Stanley, Diefenbach, & Hopko, 2004). Adherence to the treatment manual and competence in delivering the treatment were rated separately, each on a scale from 0 (no adherence/competence) to 8 (optimal adherence/competence).

Homework completion: At each session, the therapist noted the number of homework worksheets completed by each patient. To account for differences in length of treatment, we created an “average homework completion” variable composed of the total number of worksheets completed divided by the number of treatment sessions completed. This method has been used in other studies (Mausbach, Moore, Roesch, Cardenas, & Patterson, 2010).

2.3. Procedure

2.3.1. Data collection—Master's-level independent evaluators (IEs) administered baseline and post-treatment measures. All measures were administered at baseline; only the PSWQ, STAI, and PHQ-9 were administered at 6 months. All assessments were administered via telephone, and IEs were unaware of treatment assignment and not involved in any other way with the project.

2.3.2. Intervention—Detailed description of the intervention is presented in Stanley et al., (2014). The intervention was delivered by PhD level providers (PLP) and Bachelor's level providers (BLP), both of whom received appropriate training and supervision (Kraus-Schuman et al, under review). Patients were randomly assigned to treatment condition (PLP, BLP, or usual care) within each subsample (VA vs. Baylor). The current study examines predictors of outcomes only among those who received CBT. CBT was delivered over 6 months and included two phases. During the first 3 months, patients received up to 10 skills-based sessions. Core skills included education, awareness training, motivational interviewing, deep breathing, and coping self-statements. Providers recommended elective skill sessions (behavioral activation, exposure, sleep management, problem solving, progressive muscle relaxation, thought stopping, and cognitive restructuring) based on an algorithm. During the second 3 months, patients were called weekly for 4 weeks and then biweekly for 8 weeks to review skills and provide support for continued practice and skill use.

2.4. Data Analytic Strategy

Dependent variables were 6-month worry severity (PSWQ-A) and anxiety (STAI-T). For each of the two outcome variables, each candidate predictor variable was examined in a separate multiple linear regression model with the baseline equivalent of the outcome variable of interest as a covariate. For each of the two outcomes, independent variables individually associated with the outcome with a $p < 0.25$ were then simultaneously included in a multiple linear-regression model (Bendel & Afifi, 1977). Initial analyses included all observations and used intent-to-treat (ITT) methods with multiple imputation procedures (Proc MI and Proc MIANALYZE, SAS Version 9.3) to address missing data. Analyses were then repeated using data only from those who completed the 6-month assessment.

3. Results

Table 1 reports patients' baseline demographic and clinical characteristics. Internal consistency reliability was acceptable to good for all measures (Stanley et al., 2014).

3.1. Predictors of outcomes

3.1.1. Six month PSWQ-A—Results of simple linear regression analyses with PSWQ-A as the dependent variable revealed that, for ITT analyses, greater number of sessions completed ($p = .048$), lower initial PSWQ-A severity ($p < .001$), lower depression symptom severity ($p = .02$), and site (with Baylor patients improving more; $p < .001$) each individually predicted lower 6-month PSWQ-A scores, controlling for baseline PSWQ-A (Table 2). A multiple linear regression with all significant predictors ($p < 0.25$) indicated that initial PSWQ-A severity ($p < .001$) and site ($p = .01$) remained significant when all predictors were included in the same model. For completer analyses, completion of more homework was an additional univariate predictor ($p = .03$) of better treatment outcome, but multivariate results were the same as for ITT analyses.

3.1.2. Six month STAI-T—Results of simple linear regression analyses with STAI-T as the dependent variable revealed that, for ITT analyses, more homework completion ($p = .011$), lower initial STAI-T severity ($p < .001$), site ($p = .002$; with Baylor patients improving more), and greater credibility of the therapy ($p = .04$) each individually predicted lower 6-month STAI-T scores, controlling for baseline STAI-T (Table 3). Number of sessions completed was not a significant predictor ($p = .065$), but was included in multivariate analyses because the p -value was less than $p = .25$. A multiple linear regression with all significant predictors ($p < 0.25$) indicated that initial STAI-T severity ($p < .001$), site ($p = .030$), and number of sessions completed ($p = .017$) remained significant when all predictors were included in the same model. For completer analyses, homework completion ($p = .013$) and credibility of the therapy ($p = .049$) were additional predictors that remained significant in multivariate analyses.

4. Discussion

This study indicated that, for completer analyses, homework completion, number of sessions completed, lower worry severity, lower depression severity, and recruitment site predicted

better 6-month worry outcome on the PSWQ-A, whereas homework completion, credibility of the therapy, lower anxiety severity, and site predicted better 6-month anxiety outcome on the STAI-T. In ITT multivariate analyses, however only initial worry and anxiety severity, site, and number of sessions completed predicted treatment outcome.

Variables such as homework completion, credibility, and sessions attendance represent a constellation of attitudes and behaviors consistent with greater engagement in treatment, and thus potentially greater benefit from treatment. Additionally, less severe baseline worry and anxiety was associated with better outcome, suggesting that the brief, 10-session CBT used here may be more effective for mild/moderate GAD. These results are largely consistent with the literature on predictors of outcome in younger adults, as credibility of the therapy, number of sessions, homework completion, and initial severity of GAD and depression symptoms have predicted CBT outcome in prior adult studies (e.g., Anderson & Lambert, 2001; Kampman et al., 2007; Schmidt & Woolaway-Bickel, 2000). However, one study of CBT outcome in older adults (Wetherell et al., 2005) found that greater initial severity of GAD symptoms was associated with better outcome, potentially because patients with more severe GAD have more “room for improvement.” This contrasts with the current study’s findings and may be due to differences in the primary outcome measures used in Wetherell et al. (2005) and Stanley et al. (2014). Additionally, this discrepancy may reflect confounding between severity and site, in that patients drawn from the VA had more severe symptoms on average and improved less than patients recruited from Baylor. Future research should examine in more detail the relationship between severity and outcome in CBT for GAD.

Recruitment site also predicted outcome, in that patients recruited from Baylor clinics improved more than patients recruited from the VA. This may be attributed to significant differences in the populations recruited from these two sites, as VA patients were significantly more likely to be male, lower SES, of minority ethnicity, and to have greater initial GAD and depression severity (Barrera et al., 2014). Future research should examine modifications of brief CBT for economically disadvantaged groups.

Therapist adherence and competence in delivering the treatment was not associated with treatment outcome, in contrast to prior studies with younger adults (Kazantzis, 2003; Kuyken & Tsivrikos, 2009). However, this may be due to restricted range, as all ten providers in the current study had mean adherence and competence ratings of at least 6 on an 8-point scale and received regular supervision from late-life CBT experts (Stanley et al., 2014). Similarly, demographic variables, social support, problem-solving confidence, total number of mental health diagnoses, and medication status were not significant predictors of outcome, suggesting that symptom severity and full engagement in treatment are stronger predictors of outcome than other patient characteristics.

4.1. Clinical Implications

Overall, these results are very similar to predictors of outcome in younger adults. Although older adults who receive CBT for GAD improve less than younger adults, the factors that predict improvement are similar. This indicates that, as when treating younger adults, therapists should pay significant attention to conveying the therapy rationale credibly and

strongly encourage homework completion and session attendance. Given that severity of worry and anxiety is associated with outcome, providers treating patients with very severe symptoms may consider extending the course of treatment beyond 10 sessions.

4.2. Future Directions

Given that greater severity was associated with poorer outcome, future research should examine modifications or augmentations necessary to achieve more significant symptom reduction among patients with very severe GAD. Given that patients recruited from VA, who were on average more economically disadvantaged, achieved less symptom reduction than patients from Baylor clinics, future research should examine potential treatment modifications that may address GAD symptoms in this group.

4.3 Conclusions

Symptom severity and full engagement in treatment predicted treatment outcome in older adults receiving CBT for GAD.

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HIGHLIGHTS

- We examined predictors of outcome in older adults receiving CBT for GAD
- Lower initial symptom severity predicted better outcome
- Variables representing engagement in treatment predicted better outcome

Table 1

Baseline Sociodemographic and Clinical Characteristics of CBT patients

Demographics	Total (n = 150)
Age, <i>mean (SD)</i>	66.79 (6.38)
Education, <i>mean (SD)</i>	15.46 (3.11)
Women, <i>n (%)</i>	75 (50.00)
Race, (%)	
White	120 (80.00)
Black	24 (16.00)
Asian	3 (2.00)
American Indian/Alaskan Native	1 (0.67)
Multirace	2 (1.33)
Hispanic/Latino, <i>n (%)</i>	16 (10.67)
Marital Status, <i>n (%)</i>	
Married or Cohabiting	79 (52.67)
Widowed	18 (12.00)
Separated/Divorced	45 (30.00)
Never Married	8 (5.33)
Income, <i>n (%)</i>	
<10k	17 (11.72)
10k–20k	15 (10.34)
20k–30k	24 (16.55)
30k–40k	21 (14.48)
40k–50k	18 (12.41)
50k–60k	15 (10.34)
>60k	35 (24.14)
Employment Status, <i>n (%)</i>	
Employed full- or part-time	58 (38.67)
Homemaker	5 (3.33)
Retired	73 (48.67)
Unemployed	14 (9.33)
Clinical Characteristics	
Assessment scores, <i>mean (SD)</i>	
PSWQ-A	24.47 (7.95)
STAI-T	46.89 (10.20)
PHQ-8	9.80 (5.54)
MSPSS Total	5.28 (1.20)
Presence of coexistent diagnosis, <i>n (%)</i>	
Any anxiety, <i>n (%)</i>	59 (39.33)
Any depression, <i>n (%)</i>	54 (36.00)
Medications	

Demographics	Total (n = 150)
Any psychotropic medications, <i>n (%)</i>	104 (69.33)
Number of Psychotropic medications, <i>M(SD)</i>	0.96 (0.80)

Note: PSWQ-A = Penn State Worry Questionnaire-Abbreviated; STAI-t = Trait subscale of the Spielberger State-Trait Anxiety Inventory; PHQ-8 = 8-Item Patient Health Questionnaire; MSPSS = Multidimensional Scale of Perceived Social Support

Table 2

Regressions predicting 6-month PSWQ-A

	Individual regressions					Multiple regression				
	<i>b</i>	SE(<i>b</i>)	<i>F</i> ^a	<i>p</i>	<i>p</i> <0.25	<i>b</i>	SE(<i>b</i>)	<i>F</i>	<i>p</i>	
Baseline PSWQ-A	0.636	0.081	60.840	<.0001	Y	0.553	0.102	29.160	<.0001	
Homework completion	-0.774	0.529	2.161	0.152	Y	-0.458	0.491	0.865	0.356	
Problem solving confidence	0.115	0.084	1.877	0.179	Y	0.119	0.071	2.822	0.097	
Sessions completed	6.361	2.906	4.796	0.048	Y	4.406	2.608	2.856	0.109	
Site (Baylor vs. VA)	3.775	1.058	12.745	0.001	Y	2.788	1.233	5.108	0.028	
Credibility of therapy	-0.106	0.141	0.563	0.462						
Expectancies for therapy	0.280	0.349	0.640	0.430						
Age	-0.023	0.085	0.073	0.785						
Race/ethnicity	-0.486	1.300	0.137	0.710						
Education	-0.026	0.188	0.020	0.888						
Social support	-0.473	0.507	0.865	0.354						
PHQ-9	0.307	0.124	6.150	0.016	Y	0.073	0.140	0.270	0.604	
# of MH diagnoses	0.483	0.692	0.490	0.488						
Any MH medications	0.227	1.315	0.029	0.863						
Therapist adherence	0.547	0.897	0.372	0.544						
Therapist competence	-0.191	0.659	0.084	0.773						

Note: PSWQ-A = Penn State Worry Questionnaire-Abbreviated; STAI-t = Trait subscale of the Spielberger State-Trait Anxiety Inventory; PHQ-9 = 9-Item Patient Health Questionnaire; MH = mental health; race/ethnicity defined as non-Hispanic white vs. other.

Table 3

Regressions predicting 6-month STAI-T

	Individual Regressions				Multiple Regression				
	<i>b</i>	SE(<i>b</i>)	<i>F</i> ^a	<i>p</i>	<i>p</i> < .25	<i>b</i>	SE(<i>b</i>)	<i>F</i>	<i>p</i>
Baseline STAI-T	0.68	0.07	82.08	<.001	Y	0.57	0.09	37.09	<.001
Homework completion	-1.77	0.66	7.13	0.01	Y	-1.04	0.72	2.07	0.16
Problem solving confidence	0.15	0.12	1.66	0.20	Y	0.15	0.11	1.99	0.16
Sessions completed	7.77	3.85	4.08	0.07	Y	6.07	2.48	6.00	0.02
SITE (Baylor vs. VA)	4.57	1.41	10.43	0.00	Y	3.50	1.56	5.06	0.03
Credibility of therapy	-0.38	0.18	4.71	0.04	Y	-0.20	0.17	1.39	0.25
Expectancies for therapy	0.17	0.44	0.14	0.71					
Age	0.04	0.11	0.15	0.70					
Race/ethnicity	0.01	0.25	0.00	0.97					
Education	-0.37	1.72	0.04	0.83					
Social support	-0.22	0.70	0.10	0.76					
PHQ-9	0.10	0.17	0.33	0.57					
# of MH diagnoses	0.28	0.86	0.10	0.75					
Any MH medications	1.89	1.73	1.21	0.28					
Therapist adherence	0.03	1.17	0.00	0.98					
Therapist competence	-0.67	0.86	0.62	0.44					

Note: STAI-T = Trait subscale of the Spielberger State-Trait Anxiety Inventory; PHQ-9 = 9-Item Patient Health Questionnaire; MH = mental health; race/ethnicity defined as non-Hispanic white vs. other.