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The role of readiness to change in response to treatment of adolescent depression

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Abstract

The effect of readiness to change on treatment outcome was examined among 332 adolescents (45.6% male, 73.8% Caucasian), aged 12 through 17 ($M = 14.6$, $SD = 1.5$), with Major Depressive Disorder participating in the Treatment for Adolescents with Depression Study (TADS). TADS was a randomized clinical trial comparing the effectiveness of Fluoxetine, Cognitive Behavioral Therapy, their combination, and a pill placebo. An abbreviated Stages of Change Questionnaire was used to obtain four readiness to change scores: Precontemplation, Contemplation, Action and Maintenance. The association between each readiness score and depression severity across 12 weeks of acute treatment for depression, as measured by the Children's Depression Rating Scale-Revised, was examined. Although treatment response was not moderated by any of the readiness scores, baseline Action scores predicted outcome: higher Action scores were associated with better outcome

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regardless of treatment modality. Furthermore, treatment effects were mediated by change in Action scores during the first six weeks of treatment, with increases in Action scores related to greater improvement in depression. Assessing readiness to change may have implications for tailoring treatments for depressed adolescents.

Keywords

adolescent; depression; stages of change; treatment

A recent literature review suggests that treatment for adolescent depression achieve response rates of approximately 60% (Weisz, McCarty & Valeri, 2006). Given an expected 40% treatment non-response rate, it would be useful to identify (1) factors that influence treatment response regardless of treatment modality (non-specific predictors), (2) factors associated with differential response to treatments (moderators), and (3) post-randomization factors that help explain outcome (mediators). Identification of the characteristics associated with treatment response will help determine for whom a given treatment works best.

The effect of readiness to change on treatment outcome in depressed adolescents has not yet been examined. Readiness for purposeful change was conceptualized by DiClemente and Prochaska (1982) as a four-stage process consisting of Precontemplation, Contemplation, Action and Maintenance, as measured by the Stages of Change Questionnaire (SOCQ). Individuals in the Precontemplation stage are unaware of problems and are not choosing to change themselves, while individuals in the Contemplation stage are aware of a distressing life situation and are questioning whether their problems can be resolved. Individuals in the Action stage have begun problem solving and are attempting to modify the problem behavior, while individuals in the Maintenance stage are seeking to consolidate previous gains.

The rationale for the current study was based on the idea that treatments may be most effective when they “fit” the individual with respect to readiness to change. For example, psychotherapy, as compared to pharmacotherapy, may place more demands on the client to actively engage in treatment. Cognitive Behavioral Therapy (CBT) requires clients to collaborate with the therapist, learn new skills, and execute homework assignments to practice these skills in their daily lives. Therefore, adolescents presenting for treatment with high readiness to change scores (particularly those who are Action-oriented) may be most able to engage in and benefit from these active treatment components. Conversely, readiness to change may not influence the outcome of pharmacotherapy (assuming a parent is monitoring medication compliance).

To assess the predictive utility of the stages of change (SOC) construct in treating a sample of depressed adolescents, the aims of this study were: (1) to evaluate the psychometric properties of an abbreviated version of the SOCQ; (2) to assess the convergent/divergent validity of the SOCQ with previously identified predictors and moderators of treatment for depressed adolescents (e.g., hopelessness, socioeconomic status); and (3) to examine each stage of change as a predictor, moderator and mediator of treatment. Specifically, because the majority of SOC research has identified the Precontemplation stage as a salient predictor of treatment dropout (e.g., May et al., 2007) whereas the Action stage has been identified as a predictor of treatment retention and response (e.g., Prochaska & Norcross, 2001), we hypothesized high scores in the Action stage of change would predict response, in general, but particularly for those adolescents enrolled in CBT. Finally, we predicted that decreases in Precontemplation scores and increases in Contemplation, Action and Maintenance scores over the first six weeks of treatment would be associated with greater decreases in depression by the end of acute treatment.

Methods

This study utilized a sub-sample of teens from the Treatment for Adolescents with Depression Study (TADS). TADS was the first randomized control study comparing CBT, Fluoxetine (FLX), the combination of CBT and FLX (COMB), and pill placebo (PBO) in a depressed adolescent sample. The study aims, rationale, and design have been elaborated in previous publications (TADS Team, 2003). TADS was a multi-site comparative outcome study with 439 participants, aged 12 through 17 years, whose primary diagnosis was Major Depressive Disorder as per the DSM-IV (American Psychiatric Association, 1994).

The sample for the current report is comprised of 332 TADS participants who: (1) completed a SOC assessment at baseline ($n = 408$) and (2) did not exit their randomized treatment arm before completing the 12-week acute treatment stage ($n = 351$). These inclusion criteria resulted in a fairly equal distribution of teens across treatment arms (Table 1). There were no significant differences between omitted cases and the analysis sample on key demographic and clinical measures at baseline except that the proportion of males to females in the omitted cases was higher than in the analysis sample (see Table 2 for demographics).

Depression assessments occurred at baseline, week 6 and week 12 and were conducted by an Independent Evaluator (IE) blind to treatment assignment using the Children's Depression Rating Scale-Revised (CDRS-R, Poznanski & Mokros, 1996), a 17-item measure that evaluates depression severity. The IE provided scores based on interviews with the adolescent and parent; higher scores indicate greater severity of depression. The CDRS-R has demonstrated good internal consistency (coefficient alpha = .85), interrater ($r = .92$) and test-retest ($r = .78$) reliability. The CDRS-R summary score serves as the primary outcome measure.

To assess readiness to change, an 18-item version (Bellis, 1994) of the SOCQ was employed, with modified wording for an adolescent sample. This self-report measure uses a 4-point Likert scale and is comprised of subscales that correspond to the four stages of change: Precontemplation, Contemplation, Action, and Maintenance. The SOCQ has demonstrated adequate internal consistency with adults (coefficient alphas: .75 to .87). Four separate readiness scores were derived by summing subscale items obtained at baseline and week 6 of treatment.

The Beck Hopelessness Scale (Beck & Steer, 1993) assesses negative attitudes regarding the future via a True/False self-report measure with total scores ranging from 0 to 20; higher scores are indicative of greater hopelessness. This scale has demonstrated high internal consistency (coefficient alphas: .82 to .93).

Pre-randomization treatment expectancy ratings were obtained from the adolescent and parent. For each active treatment, the informant rated expectation of improvement on a 7-point scale with response options ranging from "very much worse" to "very much improved." Expectancy ratings for the adolescents' subsequent assigned treatment arm were used in analyses; medication expectations were used for teens receiving either FLX or PBO.

Socioeconomic status was derived from the annual family income reported on the Child and Adolescent Services Assessment (Burns et al., 1992) and was dichotomized: 1 = \$0 to \$74,999 and 2 = \$75,000 to > \$99,999. Age was measured in years at baseline and referral source was dichotomized as either self- (parent or adolescent responded to an advertisement) or other- (primary caregiver, school, or clinic) referred.

Adolescents were randomly assigned to one of the following treatments: CBT, FLX, COMB or PBO. In the double-blind FLX and PBO conditions adolescents met with their pharmacotherapist for 20-30 minutes, six times over 12 weeks. Adolescents were started on

10 mg/day which was increased to 40 mg by week 8 if necessary. Adolescents in the CBT condition met with their therapist for 50-60 minutes up to 15 times over 12 weeks. CBT was manual-based and incorporated elements from past efficacy trials (Brent & Poling, 1997; Lewinsohn, Clarke, Hops, & Andrews, 1990). Adolescents in the COMB condition received both FLX and CBT.

Results

Exploratory Factor Analysis (EFA)

An EFA was conducted using principal axis factoring with an oblique rotation on the 18 SOCQ items. Using the Scree and Kaiser methods, the EFA produced a meaningful, four-factor solution that accounted for 56.5% of the variance (Table 3). The particular items that conceptually comprise each subscale loaded highest on their relevant factor. Cross-validation of the EFA on random halves of the sample suggested adequate stability of item loading, with the exception of observed instability in the Contemplation items. Despite this, the coefficient alpha for each factor was satisfactory or greater (Table 3). Thus, total scores for each of the subscales (Precontemplation, Contemplation, Action, and Maintenance) were used in subsequent analyses.

Baseline Analyses: Treatment Differences on SOCQ, Convergent/Divergent Validity

General Linear Models did not reveal any significant between treatment differences on depression severity or SOCQ subscale scores at baseline (Table 1). Of the previously identified predictors and moderators of treatment response, the following were significantly associated with SOCQ scores. Higher Action scores were related to lower depression severity, lower hopelessness, and self (rather than other) referral (Table 4). Adolescent ratings of treatment expectancy were positively correlated with Contemplation and Action scores and negatively correlated with Precontemplation scores. Age was positively correlated with Contemplation, Action and Maintenance scores and negatively correlated with Precontemplation scores.

Predictor and Exploratory Moderator Analyses

Previous findings in the acute treatment stage analysis (TADS Team, 2004) demonstrated the following order of treatment effects with regard to improvement in depression severity scores at week 12: COMB = FLX > CBT = PBO. To test whether the four baseline SOCQ subscale scores predicted or moderated these treatment effects, we applied the conceptual framework and methodological recommendations provided by Kraemer, Wilson, Fairburn, and Agras (2002). A pretreatment variable associated with outcome regardless of the intervention (main effect only) is considered a non-specific predictor whereas a moderator differentially affects treatment outcome (interaction with treatment). Given the limited power to detect a treatment-by-SOCQ score interaction in the current sample, the moderator analysis was exploratory in nature.

We conducted four separate random coefficients regression models (RRM), one for each SOCQ subscale, to evaluate their predictive or moderating effects (see Table 5). The analytic model was the same as in the primary efficacy analysis (TADS Team, 2004) except the baseline SOCQ score and its interactions with treatment and time were added. The RRM indicated only the Action factor was significantly related to outcome; none of the interaction terms reflecting moderation were significant. A significant main effect of the Action subscale indicated that baseline Action score was a non-specific predictor of positive treatment outcome.

Mediation Analysis

To determine whether change in SOCQ subscale scores, during the initial six weeks of treatment, influenced treatment response across the 12-week treatment, we applied the Kraemer et al. (2002) three-step process. To be classified as mediator, the following criteria had to be met: (Step 1) treatment predicts change in depression severity scores across the 12 weeks; (Step 2) treatment predicts change in the SOCQ subscale scores across the initial six weeks; and (Step 3) the predictive effect of treatment on change of depression severity previously demonstrated in Step 1 is reduced when controlling for change in the mediator. According to the Kraemer et al. (2002) recommendations, there must be a significant main effect and/or interaction with treatment for that subscale to meet criteria as a mediator of treatment effects.

The first step in the mediation analysis replicated the published primary efficacy findings (TADS Team, 2004) in this sub-sample of the TADS teens ($N = 332$ versus $N = 439$). A linear RRM was conducted to examine whether treatment predicted change in depression severity (CDRS-R total scores) across the 12-week acute treatment period. Because the treatment-by-time effect was significant ($p < .0001$), we conducted *a posteriori* paired comparisons of the slope and week 12 CDRS-R scores (significance set at $p < 0.05$ per contrast). The paired comparisons of CDRS-R slopes over the 12 weeks of treatment identified COMB as the superior treatment modality when compared to each of the single treatment modalities. Neither FLX nor CBT were significantly more effective than PBO in terms of their slope. However, the week 12 comparisons suggested COMB = FLX and both outperformed CBT and PBO.

The second step examined whether treatment predicted change in the SOCQ subscale scores. We computed SOCQ subscale change scores (baseline minus week 6 difference scores) as the dependent measure in this step and as the SOCQ measure in the third analysis step. Seventy-nine participants (23.8%) of the sample did not complete their SOCQ assessment at week 6 reducing the mediator analysis sample to 253 adolescents. Additional analyses indicated that baseline CDRS-R and SOCQ scores for these 79 teens were not significantly different from the rest of the sample. The four treatment arms did not differ significantly in the rate of missing week 6 data, $\chi^2_3 = 1.35$, $p = .72$ (Table 1). General Linear Models controlling for site were used to examine treatment differences in SOCQ subscale change scores, one model per each subscale. Change in Action Scores, over the initial six weeks, was the only SOCQ subscale change score to correlate with treatment. *A posteriori* t-tests demonstrated that teens in COMB and CBT had the greatest increase in Action orientation (Table 1).

In the third and final step, we conducted a RRM analysis to examine the predictive effects of treatment on depression severity after controlling for change in the Action scores. We used the RRM described in Step 1 with the Action change score and its interactions. Only the Action subscale was examined since it was the only subscale that met criteria in Step 2. Results indicated that change in Action scores from baseline to week 6 partially mediated treatment. Action change scores and the Action change-by-time interaction were found to be significant ($p < 0.05$) while reducing the effect of the treatment-by-time interaction (Figure 1).

Discussion

To our knowledge, the present study is the first to assess the effect of readiness to change on treatment outcome among depressed adolescents. Thus, our first aim was to evaluate the psychometric properties of the SOCQ with this population; support for its use was confirmed. Second, we aimed to assess convergent/divergent validity of the SOCQ with other baseline variables to identify for whom a given treatment worked best. Our findings suggest that teens who were more Action-oriented at baseline were less severely depressed and expected to improve with treatment. In addition, self-referred and hopeful teens had higher baseline Action scores. Consideration of these variables might aid in tailoring treatments accordingly.

Findings related to our third aim suggest that teens who endorsed a high Action orientation responded best to treatment regardless of the modality. Though we hypothesized adolescents with high Action scores would respond better to CBT than those with low Action scores and that Action scores would not affect response to medication, this test did not reach conventional levels of statistical significance ($p = .11$), although results were in the predicted direction. Post hoc analyses suggest TADS was not adequately powered to detect differential response to treatment as per baseline Action scores. Future studies should examine whether Action scores are related to success in CBT in larger samples. Finally, we examined whether changes in SOCQ scores mediated response to treatment. This prediction was supported with regard to the Action SOC; increases in Action scores by week 6 were related to greater decreases in depression severity. Though this finding does not allow for confirmation of the direction of this relationship, post hoc paired contrasts indicated that the conditions containing psychotherapy (COMB and CBT) produced the greatest increases in Action scores. It may be that CBT therapists addressed readiness to change throughout treatment.

Because adolescents responded best to treatment when they were Action-oriented it may be important to supplement depression interventions, especially for individuals presenting with low Action orientation, with an intervention addressing ambivalence to change. Westra and Dozois (2006) found that adding Motivational Interviewing (MI) to CBT for anxiety increased expectancy and homework compliance and was related to higher response rates when compared to CBT alone. MI has also been an effective supplement to medication interventions targeting medical diseases (Rubak, Sandbaek, Lauritzen, & Christensen, 2005). As a direct test of the effectiveness of adding MI to depression interventions, low Action-oriented, depressed teens could be randomly assigned to treatment with and without MI. Given that homework is a key ingredient for effective CBT (e.g., Rees, McEvoy, & Nathan, 2005), future research should also examine how readiness to change relates to homework compliance in CBT.

The current study had several noteworthy limitations. First, an abbreviated form of the SOCQ was employed to reduce assessment burden. Although we found this abbreviated form replicated the theoretical factor structure, instability in the Contemplation subscale was observed and analyses pertaining to this subscale should be interpreted with caution. Second, though this is the fourth study, to our knowledge, to utilize the SOCQ with adolescents, there may be more fitting ways to assess this construct in youth. Third, power to detect a significant interaction between SOCQ scores and treatment was limited and future studies will need to recruit more participants to examine this question. Finally, the direction of the mediation relationship between Action scores and depression severity cannot be determined from the current analyses. Future research including multiple assessments is necessary to demonstrate that an Action-orientation is a mechanism of change in treating depressed adolescents (Stice, Presnell, Gau, & Shaw, 2007).

Readiness to change, in particular the Action subscale, provides useful information for treating depressed adolescents. While the data presented here are exploratory in nature and require further investigation, high scores on the Action subscale appear to be a salient predictor of treatment success. Further, Action scores were identified as a mediator of success for treatments employing CBT. Therefore, information regarding an adolescent's readiness to change may allow the clinician/physician to tailor treatments to maximize the likelihood of success both initially and throughout treatment.

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Figure 1. Mediation Analyses: Effects of Treatment on Depression Severity Controlling for Changes in Action Scores Over Time

Note: Action: Stages of Change Action Subscale *Change Score*; CDRS-R: Children's Depression Rating Scale-Revised. CDRS-R total scores are adjusted for the fixed (treatment, time, treatment-by-time, Action, Action-by-time, Action-by-treatment, Action-by-treatment-by-time, site) and random effects (patient, patient-by-time) included in the random coefficients regression model. The RRM revealed significant time ($F_{1, 243} = 535.64, p < .0001$), Action ($F_{1, 237} = 4.85, p = .029$), treatment-by-time ($F_{3, 243} = 4.92, p = .0025$), and Action-by-time ($F_{1, 244} = 10.54, p = .0013$) effects for the CDRS-R outcome.

Table 1
Treatment Differences on Baseline Depression Severity, SOCQ Subscale Scores and Convergent/Divergent Validity

Domain	Assessment	Total (N = 332)		COMB (N = 86)		FLX (N = 85)		CBT (N = 79)		PBO (N = 82)	
		Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)
Depression	CDRS-R total score	60.08	(10.56)	60.39	(11.72)	59.13	(10.29)	59.28	(8.62)	61.51	(11.24)
Hopelessness	BHS	9.93	(5.53)	9.75	(5.70) _a	9.18	(5.45) _a	9.34	(5.55) _a	11.45	(5.20) _b
Tx Expectancy	Adolescent expectation to assigned treatment			2.07	(1.16) _a	1.46	(0.91) _b	1.47	(0.89) _b	1.46	(0.91) _b
	Parent expectation to Assigned treatment			2.63	(0.53) _a	1.61	(0.72) _b	1.56	(0.86) _b	1.61	(0.72) _b
Stages of Change	Precontemplation	10.02	(2.89)	10.05	(3.03)	10.14	(2.81)	9.69	(2.97)	10.19	(2.77)
	Contemplation	12.04	(2.18)	12.19	(2.28)	12.07	(1.99)	12.28	(2.05)	11.63	(2.37)
	Action	13.79	(2.44)	13.71	(2.52)	14.17	(2.53)	13.63	(2.27)	13.65	(2.43)
	Maintenance	11.10	(2.67)	11.16	(2.11)	10.74	(2.24)	11.41	(1.96)	11.12	(2.03)
	Action Change Score	0.91	(2.96)	1.60	(3.37) _a	0.69	(2.52) _b	1.22	(2.41) _a	0.11	(3.30) _b
	Missing week 6 SOCQ	23.8%		26.75%		22.35%		20.25%		25.61%	

Note. FLX: Fluoxetine; CBT: Cognitive Behavioral Therapy; PBO: Placebo; COMB: Combination of FLX and CBT; CDRS-R: Children's Depression Rating Scale-Revised; SOCQ: Stages of Change Questionnaire; BHS: Beck Hopelessness Scale; Tx: Treatment; Action Change Score: Week 6 Action Score minus Baseline Action Score. Means in the same row that do not share subscripts are significantly different at $p < .05$.

Table 2
Characteristics of the Analysis Sample, TADS Intent-to-Treat (ITT) Sample and Omitted Cases

Analysis	Baseline Characteristic	ITT Sample (N = 439)	Analysis Sample (N = 332)	Omitted Cases (N = 107)
<i>t</i> -tests	Age	14.6 (1.5)	14.6 (1.5)	14.6 (1.5)
	CDRS-R (depression severity)	60.1 (10.4)	60.1 (10.5)	60.1 (9.9)
Chi-Square tests	Gender (males)	45.6% ^a	40.7% ^a	60.7% ^b
	Race/ethnicity: Caucasian	73.8%	75.9%	67.3%
	African American	12.5%	10.2%	19.6%
	Hispanic white and black	8.9%	9.3%	7.4%
	Pacific Islander	0.5%	0.3%	0.9%

Note. CDRS-R: Children's Depression Rating Scale-Revised. Mean (SD). Frequencies in the same row that do not share subscripts are significantly different at $p < .05$.

Table 3
Stages of Change Items and Exploratory Factor Analysis Summary

Item #	Stages of Change Questionnaire Item	Precontemplation	Contemplation	Action	Maintenance
8	Being here is pretty much a waste of time for me because problems don't have to do with me.	.79	.04	-.07	-.10
4	I'm not the one with the problem. It doesn't make much sense for me to be here.	.77	.04	-.06	-.07
13	I may be part of the problem, but I don't really think I am.	.71	.07	.02	.06
9	I guess I have faults, but there's nothing I really need to change.	.60	-.13	-.08	.10
15	All this talk about behavior is boring. Why can't people just forget about their problems?	.46	-.14	-.06	.06
1	I think I might be ready to improve myself.	.04	.77	.13	-.09
3	It might be a good thing and worth it to work on my problems.	-.20	.44	.26	.00
7	I've been thinking that I might want to change something about myself.	-.08	.48	-.14	.25
10	I have a problem and I really think I should work on it.	-.27	.41	-.03	.17
17	I am actively working on my problems.	-.01	-.05	.79	.00
14	Anyone can talk about changing, but I'm really doing something about it.	.08	-.05	.60	.07
2	I am doing something about the problems that have been bothering me.	.09	.39	.46	-.06
11	Even though sometimes I have trouble changing, at least I am working on my problems.	-.09	.00	.46	.16
6	I am finally doing some work on the problems.	-.01	.32	.43	.00
12	I might need help right now for me to keep up the changes I've already made.	-.09	.04	.10	.64
18	After all I have done to try and change my problems, they sometimes come back to bother me.	.01	-.12	.04	.65
16	I'm here to keep my problems from coming back.	-.04	.07	.11	.44

Item #	Stages of Change Questionnaire Item	Precontemplation	Contemplation	Action	Maintenance
5	It worries me that problems I have already changed might come back, so I am here to get help.	-.07	.11	-.05	.47
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	Eigenvalue	5.48	1.02	2.27	1.39
	% Variance Explained	30.47	5.64	12.62	7.74
	Coefficient Alpha	.80	.75	.76	.67

Note. Factor loadings with a weight of $\geq .40$ have been italicized to highlight “fit” with each item’s primary factor.

Table 4
Analyses of Convergent/Divergent Validity: Baseline Demographic, Cognitive and Clinical Correlates of Stages of Change (N = 332)

Analysis	Baseline Characteristic	Specifier	Precontemplation <i>M (SD)</i>	Contemplation <i>M (SD)</i>	Action <i>M (SD)</i>	Maintenance <i>M (SD)</i>
<i>t</i> -tests	Subscale Scores		10.02 (2.89)	12.04 (2.18)	13.79 (2.44)	11.10 (2.09)
			<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
	Gender	Male	10.44 (2.91) _a	11.84 (2.37)	13.72 (2.44)	10.66 (2.21) _a
		Female	9.74 (2.85) _b	12.18 (2.04)	13.84 (2.44)	11.41 (1.97) _b
	Referral Source	Self	10.15 (2.93)	12.11 (2.09)	14.00 (2.35) _a	11.15 (2.03)
		Other	9.75 (2.79)	11.89 (2.37)	13.34 (2.58) _b	10.99 (2.24)
	SES (yearly income)	0 = < \$75,000	10.18 (3.02)	11.73 (2.22) _a	13.63 (2.36)	10.96 (2.18)
		1 = ≥ \$75,000	9.81 (2.82)	12.38 (2.06) _b	13.83 (2.54)	11.21 (2.02)
Correlations			<i>r</i>	<i>r</i>	<i>r</i>	<i>r</i>
	CDRS-R baseline		-.06	-.04	-.16*	.07
	CDRS-R week 6		-.02	-.04	-.13*	.08
	CDRS-R week 12		.01	-.06	-.11*	.03
	Hopelessness		-.04	-.10	-.23***	.02
	Adolescent expectation to improve with COMB		-.39***	.46***	.12	.27*
	Adolescent expectation to improve with FLX		-.35*	.34*	.28*	.13
	Adolescent expectation to improve with CBT		-.13	.26*	.44***	.30*
	Age		-.14*	.22***	.12*	.19***

Note. FLX: Fluoxetine; CBT: Cognitive Behavioral Therapy; COMB: Combination of FLX and CBT; Children's Depression Rating Scale-Revised.

* $p < .05$,

** $p < .01$,

 $p < .001$.

Column means that do not share subscripts are significantly different at $p < .05$.

Table 5
Predictors of Depression Severity: Treatment Condition, Stages of Change, and Their Interaction

Model Terms	Precontemplation	Contemplation	Action	Maintenance
Treatment	$F_{3, 310} = 0.75$	$F_{3, 307} = 0.16$	$F_{3, 309} = 0.91$	$F_{3, 309} = 0.23$
Time	$F_{1, 323} = 87.71^{***}$	$F_{1, 322} = 26.06^{***}$	$F_{1, 324} = 31.05^{***}$	$F_{2, 324} = 26.14^{***}$
Treatment*Time	$F_{3, 323} = 3.45^*$	$F_{3, 322} = 0.12$	$F_{3, 324} = 0.40$	$F_{3, 324} = 0.50$
SOCQ	$F_{1, 311} = 1.49$	$F_{1, 306} = 0.10$	$F_{1, 310} = 7.49^{**}$	$F_{1, 311} = 1.33$
SOCQ*Treatment	$F_{3, 311} = 0.54$	$F_{3, 307} = 0.25$	$F_{3, 309} = 0.91$	$F_{1, 324} = 0.38$
SOCQ*Time	$F_{1, 323} = 1.32$	$F_{1, 322} = 0.01$	$F_{1, 324} = 0.21$	$F_{1, 324} = 0.10$
SOCQ*Treatment*Time	$F_{3, 322} = 1.73$	$F_{3, 322} = 0.18$	$F_{3, 324} = 0.26$	$F_{3, 324} = 0.80$

Note. SOCQ: Stages of Change Questionnaire.

* $p < .05$,

** $p < .01$,

*** $p < .001$.

Results from the Linear Random Coefficients Regression Models (RRMs) which included the fixed effects of the baseline SOCQ subscale scores, treatment, natural log of time, and their interactions terms, as well as the random effects of patient and patient-by-time. The outcome measure was Children's Depression Rating Scale-Revised depression severity score across the 12-week acute treatment stage.