

Dabblers, Bedazzlers, or Total Makeovers: Clinician Modification to a CBT Approach

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Abstract

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Clinician modification to evidence-based practices (EBP) has largely been discouraged; however, emerging views highlight the possibility for modification to improve EBP fit and sustainability. Very little is known about factors that predict modification. This study examined the prevalence, types, reasons for, and predictors of clinician modification to a comprehensive cognitive-behavioral therapy (CBT) approach. Results indicated that modification was common and reasons were most often attributed to client needs or clinician preference or style. Clinician confidence in their ability to deliver the intervention and their intent to modify predicted the number of modifications performed.

Keywords: modification, adaptation, community mental health

Introduction

Over the past decade, there have been increased efforts to implement and sustain evidence-based practices (EBPs) in community mental health settings. However, outcomes for youth in community settings who receive EBPs have been mixed, with some studies finding strong effects for EBPs (Swenson, Schaeffer, Henggeler, Faldowski, & Mayhew, 2010; Weisz et al., 2012) while others have found no difference between EBPs and usual care (Southam-Gerow et al., 2010). The quality of treatment implementation, including treatment fidelity, has been indicated as a reason for mixed client outcomes despite use of EBPs (Mihalic, 2004; Forgatch, Patterson, & DeGarmo, 2006). Treatment fidelity, defined as “the degree to which an intervention was implemented as it was prescribed in the original protocol” (Proctor et al., 2011, p. 69), has been positively associated with treatment outcomes (Barber, Crits-Christoph, & Luborsky, 1996; Schoenwald, Carter, Chapman, & Sheidow, 2008; see Webb, DeRubeis, & Barber, 2010 for an exception). However, an examination of long-term EBP use across numerous studies found that fewer than half of clinicians achieve fidelity following training, and many report making modifications to EBPs during delivery (Wiltsey-Stirman et al., 2012).

Historically, modification of EBPs has largely been discouraged due to concerns of compromising treatment fidelity and, in turn, lessening the potential benefit for clients (Elliot & Mihalic, 2004). However, emerging views highlight the potential for modification to improve EBP fit and effectiveness for clients and EBP sustainability within organizations (Aarons et al., 2012; Chambers, Glasgow, Stange, 2012). Moreover, some modifications have led to increased EBP acceptability and client retention

(Kumpfer, Alvarado, Smith, & Bellamy, 2002). Given that different types of modification may impact treatment fidelity in different ways, fidelity-consistent and inconsistent modifications have been conceptually distinguished from one another (Wiltsey-Stirman, Gutner, Crits-Christoph, Edmunds, Evans, & Beidas, 2015). Fidelity-consistent modifications are those that do not alter core treatment elements to the degree of reducing adherence or treatment differentiation, while fidelity-inconsistent modifications are those that interfere with the delivery of core elements or treatment differentiation. These advances in the conceptualization of modifications provide a more nuanced perspective on the fidelity-modification debate, and underscore the need for additional research on modification that attends to the nature and process by which modifications are made.

Descriptive studies have examined the prevalence of and reasons for modification (Aarons, Miller, Green, Perrott, & Bradway, 2012; Hill, Maucione, & Hood, 2007; Holliday, Audrey, Moore, Parry-Langdon, & Campbell, 2009). These studies vary in methodological rigor, from descriptions of an organization's experience adopting an EBP to in-depth interviews and objective observations of EBP implementation and adaptation. Studies confirm that modifications to EBPs are common in community mental health settings (Wiltsey-Stirman et al., 2013b; Palinkas et al., 2013; Cook, Dinnen, Thompson, Simiola, & Schnurr, 2014 Park, Chorpita, Regan, Weisz, & Research Network on Youth Mental Health, 2015). In descriptive studies of modification, clinicians report performing modifications when EBPs do not fit their clients or themselves (Wiltsey-Stirman et al., 2013b); however, the extent to which EBP fit predicts modification is unknown. In the substance abuse literature, teachers' confidence in their ability to teach substance abuse curricula predicted whether they modified the curricula (Hill et al., 2007), suggesting

confidence in delivering mental health treatments may also influence clinician modification of EBPs.

To our knowledge, only one study has examined predictors of mental health clinician modification to EBPs (Wiltsey-Stirman et al., 2015). Results showed that being trained to competence and increased clinician willingness to adopt an appealing EBP predicted more fidelity-inconsistent modifications, while increased openness to EBP use predicted more fidelity-consistent modifications. More studies that examine predictors of modification are needed.

Given the emphasis on multi-level influences on EBP implementation in implementation frameworks and conceptual models (Aarons, Hurlburt & Horwitz, 2011; Kitson, Harvey & McCormack, 1998), both individual and organizational factors should be considered. Numerous individual and organizational factors have emerged as potential contributors to clinician behavior. In the broader health services literature, intention has consistently been identified as an antecedent to clinical behavior among health professionals. However, intentions have been understudied among mental health professionals (Godin, Bélanger-Gravel, Eccles, & Grimshaw, 2008). At the organizational level, EBP implementation climate, defined as “the extent to which organizational members perceive that innovation use is expected, supported, and rewarded” has been identified as a key determinant to implementation effectiveness (Weiner, Belden, Bergmire, & Johnston, 2011, p. 1), but its role specifically for modification has not been examined.

The goal of the current study was to explore clinician modification to a Cognitive Behavior Therapy (CBT) approach. We examined the type and frequency of

modifications made, the proportion of clients with whom clinicians modified the treatment, and reasons for treatment modification. We also examined individual clinician- and organization-level predictors of the number of modifications performed. We hypothesized that increased intervention fit, increased confidence in ability to deliver the intervention in complex clinical situations, lower intention to modify and a more positive EBP implementation climate would predict a lower number of modifications performed. Post-hoc analyses were conducted to determine whether the relations between predictors and the number of modification were consistent when only including fidelity-inconsistent modifications.

Method

Procedure

CBT+ Training and Consultation

Participants were part of the CBT+ Initiative (pronounced “CBT Plus”), a three-day training in how to apply CBT to the most common presenting problems among children and adolescents (anxiety, depression, behavior problems, and trauma-related anxiety). CBT+ was informed by the work of Weisz and Chorpita (Chorpita, Daleiden, & Weisz, 2005; Weisz et al., 2012). CBT+ training was available to clinicians and supervisors in community mental health agencies serving children and families as part of the Washington State evidence-based treatment (EBT) training initiative. Training included a focus on the common practice elements (e.g., psychoeducation, cognitive restructuring, exposure) that comprise CBT for the presenting problems (Chorpita et al., 2009) and core CBT techniques (e.g., agenda setting, homework assignment) (see Dorsey, Berliner, Lyon, Pullmann & Murray, 2016). Training was followed by six

months of expert-led, twice monthly consultation focusing on CBT+ implementation with clinicians' current caseload. Trainees completed questionnaires as part of a program evaluation immediately following training (post-training) and at the completion of consultation, six months post-training (post-consultation). No incentive payments were provided, but trainees were required to complete the questionnaires to receive a certificate of completion. The University of Washington IRB determined CBT+ evaluation activities were exempt from review.

Participants

Participants were 140 clinicians employed at 34 community mental health agencies throughout Washington State who participated in the Washington State CBT+ Initiative. All participants completed the post-training assessment and 99 clinicians completed the post-consultation assessment. Nineteen clinicians (14%) were lost at post-consultation due to leaving their organization and were no longer eligible for participation in the CBT+ Initiative. Twenty-two (16%) were lost due to unknown reasons. Participants were predominantly female (84%), Master's-level clinicians (97%) who had been working in their respective agencies between 0-5 years (92%) and in their late twenties and thirties (66%; see Table 1). Comparisons between participants who did and did not complete the post-consultation assessment revealed that those who completed the post-consultation assessment had worked at their organization longer ($M = 2.6$, $SD = 4.7$) than those who did not ($M = 1.2$, $SD = .97$), $t(114) = -2.84$, $p < .01$.

Measures

Post-Training Measures

Demographics. Demographic information (e.g., sex, age) and background information including organization, role in current organization, and years of experience were collected from all participants.

Intent to Modify. Clinician's general intent to modify the CBT approach was measured immediately post-training. Due to a lack of measures for prospective intent to modify, this measure was developed for the purpose of this study. The measure consists of 9 items rated on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Three items assess general intent to modify (e.g., "I'll probably need to make some adaptations to CBT+ to make it fit the needs or situations of my clients") and the remaining six items ask about specific kinds of modifications clinicians may make (e.g., "I might have to add some other interventions to CBT+ to make it more effective"). Cronbach's alpha in the current sample was .87.

Implementation Climate. The Implementation Climate Scale, administered immediately post-training, is an 18-item measure of the degree to which an organization's climate is supportive of EBP implementation (Ehrhart, Aarons, and Farahnak, 2014). It assesses six constructs including focus on EBPs, educational support for EBPs, recognition for EBP use, rewards for EBP use, selection of staff for EBPs, and selection of staff for openness. Items are rated on a 5-point Likert scale ranging from 0 (*not at all*) to 4 (*very great extent*). Higher scores represent a more supportive implementation climate. Cronbach's alpha was .90 in the current sample, consistent with previous studies using this scale (Ehrhart et al., 2014).

Intervention Fit. The extent to which CBT+ fits with a clinician's current practices was assessed immediately post-training using a 6-item self-report measure developed for

CBT+. The measure is rated on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Clinicians rate the extent to which they agree with items such as “using CBT+ fits well with the way I like to work” and “CBT+ is aligned with my clinical judgment.” Cronbach’s alpha in the current sample was .87.

Confidence. Clinicians’ confidence in their ability to appropriately deliver the intervention in complex clinical situations was measured immediately post-training using a 4-item self-report scale developed for CBT+. Clinicians were asked to rate their confidence regarding specific skills (e.g., “figuring out which CBT+ treatment model to apply to complex cases with comorbidity”), on a Likert scale from 0 (*not at all*) to 4 (*very great extent*). Cronbach’s alpha in the current sample was .80.

Post-Consultation Measures

Modification. The 7-item Modification Scale, administered at post-consultation, measures the specific types of modifications performed to an intervention and the rationale for making each modification. The scale was adapted for self-report use with a comprehensive CBT approach from a modification coding system (Wiltsey-Stirman, Miller, Toder, & Calloway, 2013a). Clinicians report the proportion of clients with whom they made each of seven modifications (e.g., removed core treatment components, loosened the session structure), ranging from 0 (*no clients*) to 4 (*all clients*). This scale was then dichotomized into whether the clinician performed the modification (responses 1 - 4) or not (response 0) and scores were summed to yield a total number of modifications performed by each clinician. For post-hoc analyses, the total number of fidelity-inconsistent modifications was summed using dichotomized scores. Fidelity-consistent and inconsistent modifications were conceptually differentiated with guidance

from previous research (Wiltsey-Stirman et al., 2015) and are listed in Table 2.

Cronbach's alpha for the modifications performed was .83 using the ordinal scale in this sample.

Reasons for modifying. For each modification endorsed (i.e., selecting a score of 1 or greater), clinicians were asked to select all reasons that influenced their decision to perform the modification (i.e., "client characteristics or needs", "clinical preference or style", "organizational-level needs or constraints", and "other reasons"). When clinicians endorsed "client characteristics or needs" or "other" reasons for modifying, they were prompted to provide a brief qualitative explanation.

Analytic Plan

Descriptive statistics were computed to examine the clinician intent to modify post-training, proportion of clinicians endorsing each type of modification, the proportion of clients for which each modification was performed, and the proportion of clinicians endorsing each reason for modification.

Organizational-level scores for implementation climate were calculated by aggregating clinician responses for each organization (Ehrhart et al., 2014). Average within group correlation ($r_{wg(j)}$) statistics (James, Demaree, & Wolf, 1993) were calculated to determine agreement and revealed agreement within organizations was above the suggested .60 (Bliese, 2000). Missing data for predictor and criterion variables were minimal (<10%). Mean scores were calculated for each variable with at least 80% of items completed, one case was excluded due to excessive missing data (>20%). All predictors were grand-mean centered to facilitate interpretation of the intercept.

Four mixed-effects linear regression models were conducted to estimate the bivariate relations between intent to modify, implementation climate, confidence, and intervention fit with the number of modifications clinicians performed (ranging from 0 – 7). A fifth mixed-effects linear regression model was conducted, including all aforementioned predictors in the model to predict the number of modifications performed. Each model included a random intercept for organization to account for nesting of clinicians within different organizations. Analyses were conducted using the *nlme* package in R version 3.3.1 (Pinheiro, Bates, DebRoy, Sarkar, & R Core Team, 2016; R Core Team, 2016).

Post-Hoc Analysis. An additional post-hoc mixed-effects regression model was conducted, including all predictors and the total number of fidelity-inconsistent modifications as the outcome variable.

Results

Descriptives

Clinicians' general intent to modify was examined immediately post-training. On average, 22.2% of clinicians ($n = 22$) reported at least some agreement (score ranging from “agree somewhat” to “strongly agree”), 36.4% reported uncertainty (score of “neither agree nor disagree”), and 41.4% reported at least some disagreement (score ranging from “somewhat disagree” to “strongly disagree”) that they intended to modify the intervention. Ninety-three percent of clinicians ($n = 92$) reported making one or more modifications and 91% ($n = 89$) endorsed making one or more fidelity-inconsistent modifications during the course of treatment. On average, clinicians reported making 3.74 modifications ($SD = 1.96$). Table 2 lists the types of modifications, their relative

frequencies, and the proportion of clients with whom each modification was made when endorsed. The most commonly endorsed modification was loosening the session structure (70%; e.g., not using an agenda to structure the session). Other frequently endorsed modifications include drifting from the intervention (e.g., temporarily discontinuing use due to upset client), integrating the intervention into another approach, and tailoring and tweaking the intervention (e.g., making changes to the terminology). Although endorsed less commonly, 34% of clinicians reported removing a core treatment component from the intervention (e.g., removing exposure for anxiety). The most infrequently endorsed modification was substituting treatment elements. Despite the frequency of modifications, clinicians most commonly made these modifications with fewer than half of their CBT+ clients.

The prevalence of reasons for each modification are listed in Table 3. Across all types of modifications, client characteristics or needs accounted for the highest proportion of reasons given for modification (41.2%), followed closely by a clinician's own preference or style (38.1%), “other” reasons for modifying the intervention (11.3%), and organizational-level needs or constraints (9.4%). Clinicians’ written descriptions for “other” included reasons such as lack of access to parents and time constraints. Interestingly, of those who reported removing a core treatment element, 41% endorsed client characteristics and needs and 26.5% endorsed clinician preference or style as the reason for modification.

Table 4 and 5 present the results of the analyses predicting the total number of different modifications clinicians performed. In bivariate analyses, intent to modify ($b = .67, p < .01$), intervention fit ($b = -.79, p < .01$), and confidence in ability to deliver the

intervention ($b = -1.03, p < .01$) predicted the number of modifications clinicians performed. In the multilevel model including all predictors, two variables significantly predicted number of modifications. For each unit increase in intent to modify (range 1 – 7), there was a .55 increase in the number of modifications clinicians made. For each unit increase in confidence (range 0 – 4), there was a .90 *decrease* in the number of modifications clinicians made. The non-significant relation between intervention fit and number of modifications in the full model, along with the correlation between intervention fit and intent to modify ($r = .56$), suggests common covariance between the variables. The significant bivariate relation observed between fit and number of modifications appears to be driven by the variance that is shared with intent to modify.

Post-hoc Analyses. Results of the post-hoc analysis predicting the total number of fidelity-inconsistent modifications are listed in Table 5. Confidence remained a significant predictor ($b = -.70, p < .01$), while intention to modify became marginally significant ($b = .34, p = .06$) and the strength of the fixed effects reduced with the reduction of modifications comprising the outcome variable.

Discussion

The results of this study suggest that during EBP implementation, the vast majority of community mental health clinicians make some form of modification. This finding is consistent with most previous studies that have examined clinician modification in community mental health settings (e.g., Palinkas et al., 2013; Wiltsey-Stirman et al., 2013b). Despite the high prevalence of modification in this sample, when clinicians endorsed making modifications, they primarily made them with fewer than half of their clients and more frequently reported fidelity-consistent (i.e., tailoring and

tweaking, 61%) as compared to fidelity-inconsistent modifications (i.e., removing core treatment elements, 34%). Predictors of clinician modification included self-reported intent to modify and clinician confidence in their ability to appropriately deliver the EBP in complex clinical situations, although intent to modify became marginally significant when predicting fidelity-inconsistent modifications. Clinicians most commonly reported client- and clinician-level reasons for performing modifications, while organization-level reasons were rarely endorsed.

Prior to treatment delivery, the majority of clinicians reported either uncertainty or some degree of disagreement about whether they intend to modify the treatment. This suggests that of these clinicians who modified, they may have done so in response to their experience delivering the treatment. However, over one-fifth of clinicians expressed some level of intent to modify the treatment prior to delivery. Clinicians may have anticipated aspects of the treatment that might need to be modified to fit their client, clinical style, or organization. However, it also raises concerns about the degree to which clinicians attempted to maintain fidelity, while cautiously modifying when necessary (Aarons et al., 2012).

The prevalence of each type of modification to comprehensive CBT approach was largely consistent with that of standard treatments (i.e, non-flexible manualized treatment) examining the presence of similar modifications (Wiltsey-Stirman et al., 2013b), with two notable differences. In the current study, the proportion of clinicians reporting the removal of elements was over twice that of previous research (Cook et al., 2014; Wiltsey-Stirman et al., 2013b), which is interesting given that the current study assessed removal of core treatment elements, rather than the removal of *any* elements as

previously examined. Additionally, the current study found that 22% of clinicians substituted elements as compared to 0% in previous research.

Though a few studies have identified clinician and agency leader-reported reasons for modification (Aarons et al., 2012; Palinkas et al., 2013; Lundgren, Amodeo, Cohen, Chassler, Horowitz, 2011), this is the first to quantify the frequency of various reasons for modification, specifically to a comprehensive CBT approach. Consistent with previous research, client and clinician reasons were the most prevalent reasons for modification (Palinkas et al., 2013; Wiltsey-Stirman et al., 2013b). To our knowledge, this is also the first study to examine reasons for performing different *types* of modifications. Contrary to recommendations for making modifications (Aarons et al., 2012; Chambers et al., 2012), over one-quarter of clinicians who reported removing a core treatment element selected clinician preference or style as a reason for this modification. Given the potential impact of removing core treatment elements on client outcomes (Blakely et al., 1987), future research is needed to clarify which core elements are not in line with clinicians' style or preference and why (e.g., lack of comfort with exposure; lack of theoretical alignment with addressing maladaptive cognitions), in order to address this important issue.

Clinicians with lower confidence in their ability to appropriately deliver the intervention in complex clinical situations tended to make more modifications. This suggests that greater focus on delivering common elements CBT in complex clinical situations (e.g., clients with comorbidities, chaotic family circumstances) may be warranted. It has been argued that brief trainings are “necessary but not sufficient” and that ongoing support is important for effective EBP implementation (Edmunds, Beidas &

Kendall, 2013). Technical assistance in the form of supervision and consultation may be an appropriate venue to target confidence. Though all clinicians engaged in consultation, not all clinicians received supervision from a CBT+ trained supervisor within their organization. Supervision is considered important for skillful treatment delivery and it has been suggested that clinician confidence is built during the supervision process (Beidas & Kendall, 2010). Consultation and supervision efforts that include a focus on implementation of treatments in complex clinical situations may help address clinician confidence, and, in turn, their treatment modification.

In theories of behavior and behavior change, behavioral intentions are an important and proximal antecedent to behavior (Perkins et al., 2007). This is the first study to investigate the link between behavioral intentions and modification, finding that intention to modify immediately post-training predicted the number of modifications performed. These empirically supported theories of behavior and behavior change (e.g., Theory of Reasoned Action; Theory of Planned Behavior) identify behavioral intention as the mediator between individual-level (e.g., attitudes, perceived control) and contextual constructs (e.g., organizational characteristics) to behavior (Ajzen & Madden, 1986; Godin, et al., 2008). Moreover, such theories have been used to inform simple and effective methods to modulate intentions (Michie & Lester, 2005). These findings underscore a need for future research that explores intention as a mediator between modifiable constructs (i.e., attitudes, knowledge) and actual modification in order to identify strategies for reducing fidelity-inconsistent modification. One possibility is that intention mediates the relation between intervention fit and modification. The significant bivariate relations between fit and modification intention with actual modification, and

non-significant relation between fit and modification in the full model suggest exploring a mediation model in a longitudinal study design may be warranted.

Interestingly, EBP implementation climate, hypothesized to be predictive of the quality of treatment use (Weiner et al., 2011), did not predict modification. Views on the degree to which EBP modification reflects quality use of treatments vary widely in the modification literature (e.g., Blakely et al., 1987; Chambers et al., 2012), and potentially among community mental health organizations as well. Previous research has shown that program directors held positive views of EBPs while simultaneously viewing modifications as desirable changes to meet client needs (Lundgren et al., 2011). If organizations with a supportive implementation climate for EBPs *also* perceive EBP modification as reflecting quality use of treatments, this may obscure the relation between EBP implementation climate and modification and possibly explain why more supportive EBP implementation climate was not related to fewer modifications.

The current study had several limitations. First, we relied on self-reports of clinician modification, introducing potential recall bias or inability to recognize modifications that occurred. Future research should examine objectively coded modifications. Second, clinicians completed multiple self-report measures, creating the potential for common method variance (i.e., correlated error). Third, the current study examined modifications that are conceptually fidelity-inconsistent. The degree to which the modifications actually correspond to objective scores of fidelity, client outcomes, or EBP sustainability has not been explored. Finally, a subset of participants was lost at follow-up, partially due to turnover within their agency. Although baseline differences

were limited to years at organization, the loss of clinicians may have influenced our results.

Conclusions

The results of this study contribute to growing recognition that treatment modification in community mental health is common, even with a comprehensive approach intended to capture the main child mental health problems. Current findings indicate mostly selective modification within the clinician's caseload and modifications focused on client needs, suggesting tailored rather than indiscriminate modification. However, clinicians also modified due to treatment aspects that did not fit their own style or preference, and at times, these modifications involved removing core elements of the approach, which may pose a significant threat to treatment fidelity. These findings underscore the importance of supervision and consultation, which offer possible venues to increase clinician confidence in appropriately delivering treatments in complex clinical situations. Future research exploring antecedents of modification intention will also guide supervision and consultation efforts to guide cautious modification that seeks to maintain fidelity to core components.

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Table 1 Participant demographics

Variables	Post-Training (N = 140) N (%)	Post-Consultation (N = 99) N (%)
Female	118 (84.3)	85 (85.8)
Educational Background		
Degree from 2-year college	1 (.7)	0 (0)
Degree from 4-year college	2 (1.4)	0 (0)
Masters in Social Work	48 (34.5)	33 (33.7)
Master's degree	87 (62.6)	64 (65.3)
Age		
Under 25	8 (5.9)	5 (5.1)
25-29	42 (30.7)	32 (33.0)
30-39	49 (35.7)	31 (32.0)
40-49	28 (17.5)	17 (17.5)
50 and over	14 (10.2)	12 (12.4)
Years at organization		
0-1	94 (68.6)	63 (64.9)
2-5	32 (23.4)	23 (23.7)
6-9	7 (5.1)	7 (7.2)
10 or more	4 (2.9)	4 (4.1)

Note Years at organization was the only demographic variable that differed between post-training and post-consultation samples

Table 2 Frequency of each type of modification and proportion of caseload with whom each modification was made

Modification	Frequency (%)	Proportion of Caseload Modified (For Clinicians Endorsing the Modification)			
		Fewer than Half n (%)	Half n (%)	More than Half n (%)	All n (%)
Fidelity-Inconsistent					
Loosening session structure	69 (70)	42 (42.9)	11 (11.2)	10 (10.2)	6 (6.1)
Integrating intervention into another approach	62 (63)	33 (33.7)	13 (13.3)	11 (11.2)	5 (5.1)
Integrating another approach into intervention	55 (56)	27 (27.3)	14 (14.1)	9 (9.1)	5 (5.1)
Drifting from intervention	62 (63)	49 (40.0)	9 (9.2)	2 (2.0)	2 (2.0)
Removing core component	34 (34)	22 (20.0)	4 (4.0)	4 (4.0)	4 (4.0)
Fidelity-Consistent					
Tailoring/Tweaking	61 (62)	30 (30.6)	11 (11.2)	11 (11.2)	9 (9.2)
Not categorized					
Substituting Elements	22 (22)	15 (15.2)	4 (4.0)	3 (3.0)	0 (0.0)

Note Substitution has not been categorized as inherently fidelity-consistent or inconsistent as it depends on the nature of the substitution (Wiltsey-Stirman et al., 2015).

Table 3 Frequency of reasons for modification for each modification type

Modification	Reason for Modification (For Clinicians Endorsing the Modification)			
	Client n (%)	Clinician n (%)	Organization n (%)	Other n (%)
Fidelity-Inconsistent				
Loosening session structure	22 (33.4)	20 (29.4)	14 (20.6)	12 (17.6)
Integrating intervention into another approach	20 (32.3)	31 (50.0)	7 (11.3)	4 (6.5)
Integrating another approach into intervention	18 (33.3)	31 (57.4)	2 (3.7)	3 (5.5)
Drifting from intervention	47 (75.8)	8 (12.9)	3 (4.8)	4 (6.5)
Removing core component	14 (41.2)	9 (26.5)	1 (2.9)	10 (29.4)
Fidelity-Consistent				
Tailoring/Tweaking	21 (35.0)	25 (41.6)	7 (11.7)	7 (11.7)
Not categorized				
Substituting Elements	7 (31.8)	14 (63.6)	0 (0.0)	1 (4.5)

Notes Client represents client characteristics or needs, Clinician represents clinical preference or style, Organization represents organizational-level needs or constraints, and Other represents other reasons; clinicians could select more than one reason per modification; % represents the percent of total reasons for modification accounted for by that reason.

Table 4 Bivariate models predicting number of modifications (N = 98)

Variable	<i>M</i> (SD) (Range)	<i>b</i>	SE	CI (95%)	<i>P</i>
Bivariate Analyses					
Intent to Modify	4.09 (1.01) (2.00 – 6.67)	.68	.19	.30 - 1.06	<.01
Confidence	2.30 (.56) (.50 – 4.00)	-1.04	.34	-1.72 - -.35	<.01
Intervention Fit	5.52 (.80) (3.67 – 7.00)	-.68	.24	-1.17 - -.19	<.01
Implementation Climate	2.21 (.45) (1.20– 3.14)	-.89	.50	-1.91 - .14	.09

Table 5 Multivariate models predicting total number of modifications and total fidelity-inconsistent modifications (N = 98)

Variable	<i>b</i>	SE	CI (95%)	<i>P</i>
All modifications				
Intent to Modify	.56	.22	.11 – 1.01	.01
Confidence	-.90	.34	-1.58 - -.22	.01
Intervention Fit	-.13	.28	-.68 - .43	.64
Implementation Climate	-.36	.47	-1.30 - .59	.45
Fidelity-Inconsistent Modifications				
Intent to Modify	.34	.18	-.01 - .70	.06
Confidence	-.72	.27	-1.26 - -.17	.01
Intervention Fit	-.01	.23	-.46 - .43	.95
Implementation Climate	-.50	.38	-1.28 - .28	.20