

Assessing Parents' Treatment Fidelity: A Survey of Practitioners in Home Settings

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Lindsay M. Fallon, PhD, BCBA-D¹, Sadie C. Cathcart, MEd¹,
and Lisa M. Hagermoser Sanetti, PhD, BCBA-D²

Abstract

Children with autism spectrum disorder (ASD) and other developmental disabilities may benefit from home-based interventions to promote positive, prosocial behavior. Frequently, a practitioner (e.g., behavior analyst) provides training and support to parents to achieve behavior change. When this occurs, progress-monitoring data pertaining to both treatment fidelity and child outcomes are important to deciding if supports delivered are effective. Yet, little is known about treatment fidelity assessment in this setting. In the current study, behavior analysts working across the United States in homes ($n = 314$) were surveyed. Results indicate that nearly all participants reported having received some or extensive training on the importance of treatment fidelity. Most respondents also indicated that treatment fidelity is assessed in at least 30% of sessions in homes when working with parents, primarily by means of direct observation versus indirect methods. Implications for future consultation research and the practice are provided.

Keywords

treatment fidelity, parents, home settings

Youth with autism spectrum disorder (ASD) and other developmental disabilities may receive behavioral interventions to promote increased displays of positive, productive behavior across settings (e.g., home, school, and community; National Autism Center, 2009). This support may start with early intervention (Waters, Amerine Dickens, Thurston, Lu, & Smith, 2018) and target improving communication skills (Waddington, van der Meer, Carnett, & Sigafos, 2017), problem behavior (Strand & Eldevik, 2018), and independence with activities of daily living (Sawyer, Crosland, Miltenberger, & Rone, 2015). Behavioral interventions impact youth with ASD by modifying the environment, specifically the behavior of the stakeholders who interact with the child. When stakeholders implement behavioral interventions with adequate *treatment fidelity*, child behavior change often occurs more efficiently and effectively (Gresham, Gansle, Noell, Cohen, & Rosenblum, 1993). Therefore, attention to an interventionists' treatment fidelity is critical when providing behavioral support to children with ASD (Wheeler, Baggett, Fox, & Blevins, 2006).

between intervention implementation and behavior change (Gresham, 1989). Treatment fidelity is theorized to be a multidimensional construct (Dane & Schneider, 1998). As such, data collection may target dimensions such as adherence (i.e., "Which steps of a treatment were delivered?"), dosage (i.e., "How much of a treatment was provided?"), and quality (i.e., "How well were treatment protocols implemented?"; see Dane & Schneider, 1998; Jones, Clarke, & Power, 2008). Data collection methods include direct observation of the interventionist (Noell et al., 2005) or accounting for treatment fidelity in an indirect manner. There are several options for indirect treatment fidelity assessment, including (a) interviewing the interventionist about implementation (e.g., via a structured interview; Wilkinson, 2006), (b) training the interventionist to self-report treatment fidelity data immediately after delivering the treatment (e.g., completing a fidelity checklist; Bramlett, Murphy, Johnson, Wallingsford, & Hall, 2002),

Treatment Fidelity

Treatment fidelity refers to the degree to which an intervention is implemented as intended (Moncher & Prinz, 1991). It is the specification of the independent variable. Therefore, it critical in determining a functional relation

¹University of Massachusetts Boston, USA

²University of Connecticut, Storrs, USA

Corresponding Author:

Lindsay M. Fallon, Department of Counseling and School Psychology,
College of Education and Human Development, University of
Massachusetts Boston, 100 William T. Morrissey Boulevard, Boston,
MA 02125-3393, USA.
Email: lindsay.fallon@umb.edu

or (c) collecting permanent products of implementation from the intervention environment (e.g., reviewing completion of a child's self-monitoring form; Sanetti, Chafouleas, Fallon, & Jaffery, 2014).

Direct observation data may take longer to gather as this method requires planning and coordination as to when and how to observe the interventionist (Noell & Gansle, 2014). Yet, researchers have also indicated that direct observation may be preferable to data collected via indirect assessment. This is because without adequate training, data from indirect assessment may not always result in accurate estimates of implementation (Fallon, Sanetti, Chafouleas, Faggella-Luby, & Briesch, 2018; McLeod, Southam-Gerow, & Weisz, 2009; Sanetti & Kratochwill, 2009). For instance, individuals who are not adequately trained may not be able to accurately recall or report implementation when interviewed or asked to self-report these data (Noell et al., 2005). Practitioners should consider available time and resources as well as the technical adequacy of available treatment fidelity assessment tools when determining how treatment fidelity data will be collected.

Once data are collected, review of results might indicate several possible scenarios. One is that implementation is low and/or inconsistent, but child behavioral outcomes show improvement. In that case, it may be worth considering if providing support to the implementer will improve child outcomes even more or if high rates of fidelity are not necessary to reach behavior change goals. Another possibility is that, despite thorough and consistent implementation, an intervention failed to effectuate sufficient behavior change, which may justify a change in treatment. Yet, insufficient behavior change without consistent intervention implementation may instead warrant treatment fidelity promotion (Collier-Meek, Sanetti, & Boyle, 2016). In a paper on treatment fidelity promotion strategies, Sanetti and Collier-Meek (2015) described providing interventionists with (a) comprehensive behavioral skills training (i.e., intervention modeling, practice, and feedback; Fallon, Kurtz, & Mueller, 2018), (b) implementation planning (Sanetti, Kratochwill, & Long, 2013), (c) intervention choice (Dart, Cook, Collins, Gresham, & Chenier, 2012), (d) training to self-monitor implementation (Simonsen, MacSuga, Fallon, & Sugai, 2013), and (e) performance feedback about intervention implementation (Fallon, Collier-Meek, Maggin, Sanetti, & Johnson, 2015). These strategies promote implementation of treatment fidelity proactively before an intervention is delivered or may be offered when data indicate treatment fidelity is declining to promote intervention efforts.

Treatment Fidelity in Schools

In schools, educators are often expected to implement behavior analytic techniques, working with practitioners

(such as a board-certified behavior analyst [BCBA] or school psychologist) to learn and implement individualized behavioral interventions (Gresham, 1989). Treatment fidelity data are subsequently needed to determine whether an intervention is effective. Cochrane and Laux (2008) surveyed 806 school psychologists to gather information about treatment fidelity, specifically (a) the extent to which it is measured, (b) how it is measured, and (c) perceptions of importance. The majority of respondents (97.6%) agreed that treatment fidelity data are critical to decision making in schools, but few (11.3%) reported collecting these data consistently when consulting with an educator to implement an intervention. When data were collected, indirect assessment techniques were most commonly reported. Respondents cited common barriers to consistent treatment fidelity assessment, which included a lack of (a) time, (b) administrator/systems support, and (c) teacher knowledge and acceptability of such assessment. Recently, 132 school psychologists responded to a 10-year follow-up survey and indicated that assessment of treatment fidelity continues to be critical to service delivery, but very few (7%) responded that it is always assessed in their work (Cochrane, Sanetti, & Minster, 2019). Cochrane and colleagues (2008, 2019) describe practice in school settings, but there is far less research investigating how and how often treatment fidelity data are collected in home contexts, particularly by practicing behavior analysts.

Treatment fidelity in home settings. Research investigating treatment fidelity data in home settings has primarily focused on the relationship between increases in treatment fidelity and child outcomes. A study by Arkoosh and colleagues (2007) described a retrospective analysis of treatment fidelity for a home-based, parent-implemented behavioral intervention over time. Parent implementation was videotaped and later coded for treatment fidelity. Analyses indicated that higher levels of parents' treatment fidelity during the longitudinal study led to more positive treatment outcomes and a decrease in disruptive behaviors among child participants. Furthermore, in a study of parents' implementation of a multicomponent behavioral intervention in homes of children with ASD, researchers assessed parents' treatment fidelity daily via permanent product (specifically audio recordings of the parent reviewing the child's visual schedule) and found children were less disruptive and more compliant with directions when parents' levels of treatment fidelity were high (Fallon, Collier-Meek, Sanetti, Feinberg, & Kratochwill, 2016).

The relationship between treatment fidelity and treatment outcomes in home settings extends to the medical literature. For instance, Moore and Symons (2009) examined parent ($n = 220$) implementation of behavioral interventions and adherence to medical treatment recommendations for children with ASD. In the study, parents indicated via

self-report the extent to which they adhered to interventions and recommendations, and if/when they adapted professional recommendations to better suit their or their children's needs. Researchers determined that adherence was higher for treatments that were designed to integrate into daily routines as compared with those requiring significant deviance from routines established prior to the implementation of a treatment. Essentially, parent-implemented adherence has been found to be higher in the context of treatment regimens in which day-to-day disruption is minimized.

Much of the research devoted to home-based behavioral interventions thus far has been oriented toward the development of effective interventions. In these studies, several of them include data pertaining to parents' implementation of interventions (Subramaniam et al., 2017). Yet, fewer studies have addressed treatment adherence, particularly for parents (Nock & Ferriter, 2005), as the subject of a primary research question. Although parents may be capable of effective administration of interventions with adequate training and guidance (Garbacz, Brown, Spee, Polo, & Budd, 2014), they often have less experience than practitioners (e.g., BCBA) in terms of foundation in both behavioral theory and technique. Therefore, collecting treatment fidelity data in a home-based setting is of paramount importance in monitoring parental adherence to a treatment or intervention (Schoenwald, Henggeler, Brondino, & Rowland, 2000) and encouraging accountability in the absence of a trained professional. The data can also inform the practitioner about which parts of an intervention are most effective and when parents might need the support of a treatment fidelity promotion strategy to bolster implementation. Furthermore, measuring parental treatment fidelity may also indicate to practitioners working in homes what is practical and feasible versus what is not when developing future parent-mediated interventions. As little is known about treatment fidelity assessment with parents in the home setting, the purpose of this study was to explore how and to what extent home-based consultants assess and support parents' treatment fidelity.

Purpose of Study

When parents implement interventions in the home, treatment fidelity data are needed to inform decisions about progress and effectiveness. Further research is needed to advance scholarship and practice in the area of assessment of parents' treatment fidelity. The aim of the current study was to collect data to inform practitioner training and practice regarding treatment fidelity measurement with parent-mediated behavioral interventions. This was accomplished with a systematic replication of the survey study conducted by Cochrane and Laux (2008) and disseminated to practitioners (specifically BCBA) working in homes. Cochrane and Laux (2008) investigated school psychologists'

treatment fidelity data collection processes, whereas the current study was conducted to determine those of BCBA working with parents outside of schools. The specific research questions we addressed included,

Research Question 1: How are BCBA trained to collect treatment fidelity data and do BCBA perceive this training to be sufficient?

Research Question 2: How and how often are treatment fidelity data collected in home settings when parents implement interventions?

Research Question 3: What treatment fidelity promotion strategies do BCBA use to support parents' implementation in home settings?

Furthermore, we predicted level of BCBA training in the significance and measurement of treatment fidelity in behavioral intervention would be positively associated with (a) practitioners' attitudes toward the importance of treatment fidelity, (b) the extent to which a practitioner plans ahead when incorporating treatment fidelity in an intervention, and (c) the level with which a practitioner feels prepared to measure treatment fidelity in home-based settings with parents who implement behavioral interventions.

Method

Participants

Participants in this study included practicing BCBA working in homes to support children requiring behavioral intervention. BCBA were recruited to participate in the study due to their work in home settings with children with ASD and other developmental disabilities, as well as their advanced graduate-level training in the science and practice of behavior change. All master's level (BCBA) and doctoral level (BCBA-D) certificants registered on the national Certificant Registry of the Behavior Analysis Certification Board (BACB) were sent a recruitment email to participate. The recruitment email was sent to 8,460 potential BCBA participants who indicated (during registration with the BACB) that they worked primarily with children as clients to engage in behavior analysis. During registration, the BACB does not request details about registrant work settings. Therefore, it should be noted that not all BCBA contacted engaged in home-based practice, and therefore only a subset of those contacted were eligible to participate in the study given the survey topic. Also, not all BCBA contacted support children with ASD, yet the majority (89%) of BCBA work with youth with ASD and developmental disabilities, specifically children receiving early intervention services or other special education supports (Normand & Kohn, 2013).

Table 1. Study Respondent Demographics ($n = 314$).

| Variable | % | n |
|--|------|-----|
| Gender ($n = 297$) | | |
| Female | 84.5 | 251 |
| Male | 15.5 | 46 |
| Highest degree held ($n = 313$) | | |
| Doctoral degree | 8.3 | 26 |
| Master's or specialist degree | 91.7 | 287 |
| Years of professional experience ($n = 313$) | | |
| <1 | 6.1 | 19 |
| 1-5 | 46.3 | 145 |
| 6-10 | 26.5 | 83 |
| 11-25 | 18.5 | 58 |
| >25 | 2.6 | 8 |
| Current employment setting ($n = 314$) ^a | | |
| Behavioral/mental health agency | 59.6 | 187 |
| Self-employed | 34.7 | 109 |
| Public school district | 24.8 | 78 |
| Charter, private, or parochial school | 18.2 | 57 |
| Hospital or outpatient setting | 2.2 | 7 |
| Other | 11.5 | 36 |
| Ages of individuals served ($n = 313$) ^a | | |
| Birth-3 years | 54.3 | 170 |
| Preschool (3-5 years) | 88.2 | 276 |
| Elementary (5-10 years) | 92.0 | 288 |
| Secondary (11-18 years) | 78.0 | 244 |
| Adults | 34.2 | 107 |
| Region ($n = 261$) | | |
| Northeast | 36.0 | 94 |
| Southeast | 26.1 | 68 |
| West | 19.2 | 50 |
| Midwest | 13.8 | 36 |
| Southwest | 5.0 | 13 |
| Training in treatment fidelity assessment and intervention ($n = 243$) | | |
| Extensive training | 46.1 | 112 |
| Some training | 51.0 | 124 |
| None or very minimal training | 2.9 | 7 |
| Modality of training ($n = 244$) | | |
| Graduate course(s) | 82.4 | 201 |
| On the job training | 60.7 | 148 |
| Workshop, in-service, or webinar | 40.6 | 99 |
| Self-study (e.g., journal, textbook, web resources) | 36.9 | 90 |

^aDenotes questions for which respondents were asked to "Check all that apply."

A sample size calculator was used to determine the sample size needed for the study (set at a 95% confidence level and ± 5.5 confidence interval, with a population of 8,460 possible BCBA participants; <http://www.raosoft.com/samplesize>). The calculation indicated that 307 participants were necessary to obtain results that reflected the target population. Of those contacted, 314 (3.7%) persons self-selected to participate. Respondents were predominately female (84.5%)

professionals with a master's or specialist degree (91.7%), aligning with national trends of the BACB registry (see Table 1; Nosik & Grow, 2015). Approximately half of participants had more than 5 years of professional experience, and many respondents were employed by a behavioral or mental health agency (62.5%) or school district (26.0%). Participants were distributed across regions of the United States (e.g., Northeast = 36.0%, Southeast = 26.1%, West = 19.2%). About one third of participants were self-employed (36.5%). Respondents worked with clients of various ages but were required to work with children in home settings to participate in the survey. The rationale for limiting participation eligibility to practitioners providing home-based care to children was to assess BCBA practices in assessing parents' treatment fidelity.

Instrument

Researchers adapted a questionnaire developed by Cochrane and Laux (2008; contact original authors for survey instrument) to create the survey used in the current study. The purpose of the adapted survey was to assess the experiences of BCBAs working with parents implementing behavioral interventions in clients' home. The complete survey consisted of 13 questions. The first six questions were demographic items, targeting (a) gender, (b) highest degree held, (c) number of years working in home settings, (d) ages of individuals served, (e) type of setting of current employment (e.g., school, agency), and (f) state of current employment.

Next, participants selected one of three answer choices for an item inquiring how much training they had received on the importance of treatment fidelity in intervention design and how to measure it: *extensive training*, *some training*, or *none or very minimal training*. As a follow-up, participants were asked to identify all places in which the training had been provided; graduate course(s), workshop/in-service/webinar, on the job training (e.g., learned from colleague, supervisor), self-study (e.g., journal, textbook, web resources), or other (specify). Participants then responded to a set of items pertaining to if, how, and how often they collect treatment fidelity data when working in home settings. The first item in this section requested that participants identify for approximately what percent of sessions (i.e., one-to-one consultation) in the past year treatment fidelity had been measured for interventions implemented by parents or guardians in the child's home. Participants indicated that when they collected treatment fidelity data for interventions implemented by parents, how often direct observation, self-report, interview, and permanent product were used. For these items, participants could select between 0% and 100% (in increments of 10%), or not applicable.

Participants were asked to indicate which of the following empirically supported treatment fidelity promotion

strategies (Sanetti & Collier-Meek, 2015) they had implemented to promote high levels of parent treatment fidelity in home-based settings: (a) *behavioral skills training* (i.e., providing comprehensive intervention training including explicit intervention instructions, opportunities for rehearsal, and feedback), (b) *intervention choice* (i.e., allowing the parent to make choices about intervention implementation), (c) *implementation planning* (i.e., proactively discussing logistics and anticipated barriers to intervention implementation), (d) *modeling* (i.e., demonstrating the intervention for the parent), (e) *performance feedback* (i.e., providing verbal and/or graphic feedback about intervention implementation), (f) *performance feedback with negative reinforcement* (i.e., informing parents that consultation meeting might be skipped if implementation meets a predetermined criterion), (g) *role play* (i.e., offering structured intervention practice to the parent), (h) *self-monitoring* (i.e., having the parent monitor his or her own implementation of an intervention), (i) *test drive interventions* (i.e., allowing the parent to briefly try parts or a whole intervention). Participants were given the option to select all that applied.

Finally, participants were asked the extent to which they agreed with the following statements, "Treatment fidelity is a key component of intervention success," "I plan how I will assess and monitor treatment fidelity when developing home-based interventions and programming," and "I have received sufficient training on how to assess and monitor treatment fidelity of home-based interventions and programming." Respondents could indicate *strongly disagree*, *disagree*, *agree*, or *strongly agree*.

Cochrane and Laux's (2008) instrument was adapted for use in this study in the following ways: (a) all references to "treatment integrity" were changed to "treatment fidelity" because although there is some inconsistency in what is considered appropriate terminology, treatment fidelity has been argued to be a more dimensional construct (Borrelli, 2011; Hildebrand et al., 2012), (b) all references to "school psychologists" were changed to "home-based behavioral consultants," (b) all references to "teachers" were changed to "parents," and (c) options for answering demographic items were expanded to include employment settings such as agencies, hospitals, inpatient, or other clinical settings. In addition, response choices for items related to treatment fidelity data collection were changed from indicating which assessment methods are typically used to what percentage of time each assessment method is typically used. Permanent product was added as a response choice in the current survey to reflect advances in research in treatment fidelity assessment (Noell & Gansle, 2014). Items about perceptions of treatment fidelity in practice were included in both the original and current replication. However, items requesting that participants indicate where training occurred and which treatment fidelity promotion strategies were used in

practice were added to the survey and did not appear in the original Cochrane and Laux (2008) survey.

Procedures

Upon receipt of the recruitment email, BCBA's were prompted to click on a link in the body of the email. Participants were then routed to an introduction to the survey on SurveyMonkey.com and gave consent to participate. Participants then confirmed their eligibility to participate by indicating they work with parents to implement interventions in home settings. Once participants confirmed this, they were directed to the survey items. Survey completion required approximately 10 min of participants' time. To ensure anonymity, participants were assigned a unique identifying number, and no identifying information (e.g., name, address, email, place of employment) was collected. Respondents could choose to skip any item and to discontinue participation in the survey at any point. The survey was open to participants online for 8 weeks.

Results

Most participants ($n = 243$) indicated that they had receiving some training (51.0%) or extensive training (46.1%) related to the importance of treatment fidelity in intervention design and how to measure it. Survey results illustrated a 10% increase in the median estimate for the amount of time in which treatment fidelity data are measured with parents in homes corresponding with each level of training, such that participants without any training reported measuring parents' treatment fidelity less frequently than those with some degree of training, who measured treatment fidelity less frequently than those with extensive training (Median = 10%, 20%, and 30%, respectively; see Figure 1). Most participants ($n = 244$) indicated this training was primarily offered in graduate course(s) (82.4%) and in on-the-job training (60.7%), but some indicated they had received training in a workshop, in-service training, or webinar (40.6%) or had engaged in self-study (36.9%; see Table 1). Many respondents ($n = 242$) found their training to be adequate as the majority either agreed (46.3%) or strongly agreed (31.4%) with the statement, "I have received sufficient training on how to assess and monitor treatment fidelity of home-based interventions and programming" (see Table 2). Most participants ($n = 241$) also responded agree (21.2%) or strongly agree (78.4%) with the statement, "Treatment fidelity is a key component of intervention success." Furthermore, most participants ($n = 241$) responded agree (55.2%) or strongly agree (37.8%) with the item, "I plan how I will assess and monitor treatment fidelity when developing home-based interventions and programming." Correlation

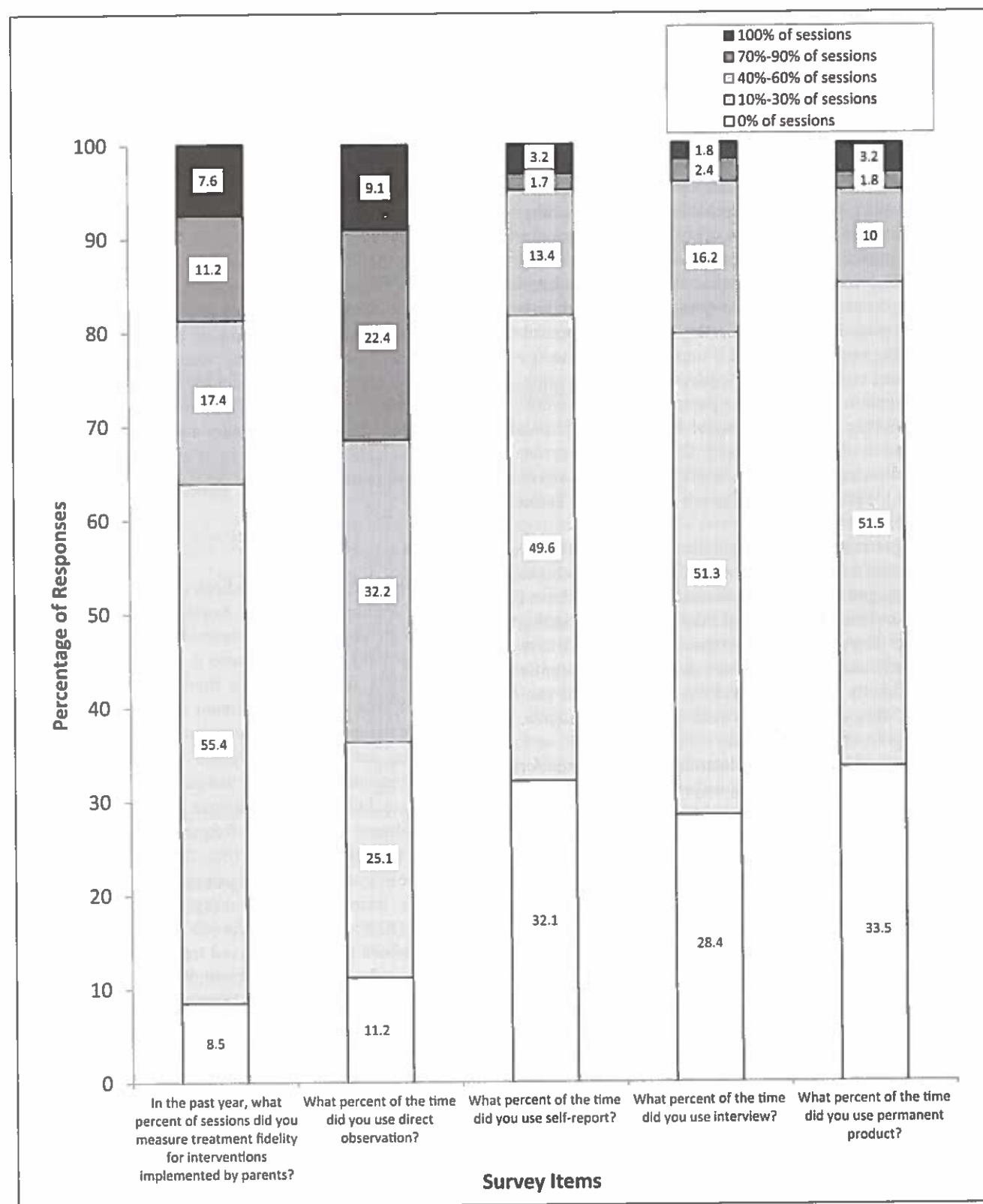


Figure 1. Percentage of responses by survey item.

analyses were conducted to determine the relationship between (a) BCBA-reported level of training and

perception of treatment fidelity importance, (b) level of training and consistency in planning for in-home

Table 2. Respondent Perceptions of Treatment Fidelity in Practice.

| Item/choice | % | <i>n</i> |
|--|------|----------|
| "Treatment fidelity is a key component of intervention success." | | |
| Strongly agree | 78.4 | 189 |
| Agree | 21.6 | 51 |
| Disagree | 0.0 | 0 |
| Strongly disagree | 0.4 | 1 |
| "I plan how I will assess and monitor treatment fidelity when developing home-based interventions and programming." | | |
| Strongly agree | 37.8 | 91 |
| Agree | 55.2 | 133 |
| Disagree | 7.1 | 17 |
| Strongly disagree | 0 | 0 |
| "I have received sufficient training on how to assess and monitor treatment fidelity of home-based interventions and programming." | | |
| Strongly agree | 31.4 | 76 |
| Agree | 46.3 | 112 |
| Disagree | 20.1 | 50 |
| Strongly disagree | 1.7 | 4 |

treatment fidelity measurement, and (c) level of training and perceived sufficiency of training. All correlations calculated were found to be positive and statistically significant. Relationships between variables are illustrated within a zero-order correlation table (see Table 3).

Figure 1 depicts participants' ($n = 233$) responses to items pertaining to if, how, and how often treatment fidelity data are collected when working in home settings. The majority of respondents (55.4%) indicated treatment fidelity was measured during 30% or fewer sessions with parents who were implementing behavioral interventions. Only 7.6% of respondents indicated that treatment fidelity was measured during each session with parents. Participant responses varied regarding how often direct observation is used to measure treatment fidelity. Some indicated that they did not use direct observation at all (11.2%), but 25.1% of participants indicated direct observation is used about 10%–30% of the time, 32.2% of participants indicated it is used in 40%–60% of the time, and 22.4% of participants indicated it is used in 70%–90% of the time. Approximately 9.1% of respondents indicated that, when treatment fidelity was assessed, direct observation was used 100% of the time. Many respondents indicated not using self-report (32.1%) or using it 10%–30% of the time (49.6%). This pattern of responses was similar for interview and permanent product. Many respondents indicated not using interview (28.4%) or using it 10%–30% of the time (51.3%). Likewise, respondents indicated not using permanent product (33.5%) or using it 10%–30% of the time (51.5%).

Almost all participants ($n = 233$) indicated their implementation of one or more empirically supported treatment

fidelity promotion strategies in practice at least once in their practice. Many indicated they had used a behavioral skills training package (87.1%), or individual components of behavioral skills training such as intervention modeling (94.0%), role play (49.1%), and performance feedback (81.0%). The majority of participants also indicated they had used implementation planning (72.8%) and had provided parents with intervention choice (71.1%) in home-based practice. Fewer respondents indicated having provided parents with the opportunity to self-monitor (39.2%), test drive interventions (31.5%), or receive performance feedback with negative reinforcement (6.0%).

Discussion

Treatment fidelity data are needed to make decisions about if and how well interventions are working to reach behavior change goals set for youth with ASD and other developmental disabilities. Yet, little is known about if, how, and how often treatment fidelity assessment occurs with parents in the home setting, as well as if BCBAs working in homes perceive these data to be important. The objective of the current study was to determine how treatment fidelity is measured among those providing home-based behavioral interventions to children with ASD, and the frequency of treatment fidelity data collection in the context of home-based support.

In this study, BCBAs working across the United States with parents in homes were surveyed about if and how often treatment fidelity data are collected. Participants were also asked about where they had received training, the sufficiency of this training, the importance of treatment fidelity to intervention success, and their use of treatment fidelity promotion strategies when working with parents. Results indicate that 99.6% of respondents agreed or strongly agreed that treatment fidelity is a key component to intervention success. Furthermore, 97.1% of participants reported having received either some or extensive training in treatment fidelity and its measurement, and 77.6% agreed or strongly agreed that this training was sufficient. Correlational analyses indicated that BCBAs who received extensive training were more likely to express comfort and preparedness to measure treatment fidelity in home settings. Higher levels of practitioner training were also found to relate to some degree with practitioner commitment to planning for the measurement of treatment fidelity in the context of intervention. Knowledge of treatment fidelity importance and measurement may facilitate interventionist planning. The relatively small, positive correlation between level of training in treatment fidelity measurement and perception of the importance of treatment fidelity may be explained by the fact that 99.6% of participants endorsed treatment fidelity as at least somewhat important to intervention outcomes.

Table 3. BCBA Treatment Fidelity in Practice.

| Variables | Level of TF training | Perception of TF importance | Level of TF planning | Sufficient training in home-based TF |
|--------------------------------------|----------------------|-----------------------------|----------------------|--------------------------------------|
| Level of TF training | — | — | — | — |
| Perception of TF importance | .135* | — | — | — |
| Level of TF planning | .382*** | .371*** | — | — |
| Sufficient training in home-based TF | .497*** | .189** | .465*** | — |

Note. Computed correlation used Kendall method with listwise deletion. BCBA = Board Certified Behavior Analyst; TF = treatment fidelity.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Results indicate that the majority of BCBAs reported that treatment fidelity data are collected in about one third of sessions with parents. The 5th Edition Task List of the BACB indicates that BCBAs should design and use systems for monitoring procedural integrity but does not suggest how or how often monitoring should occur. It is implied that these data are used to make data-based decisions about the effectiveness of the intervention and the need for treatment revision. In the context of the current results, data collected from 30% of sessions may be sufficient for treatment decision making. Yet, in many cases, it may be helpful to collect additional data to reflect intervention implementation accurately (Gresham, Gansle, Noell, & Cohen, 1993). As such, it is important to consider the barriers preventing BCBAs from collecting treatment fidelity data during more than approximately 30% of sessions.

Researchers have surmised that some of the potential obstacles preventing practitioners from consistently collecting treatment fidelity data include limited (a) education surrounding treatment fidelity importance and procedures, (b) access to tools with which to measure treatment fidelity, and (c) training on the available measures (Cochrane et al., 2019; Sanetti & Reed, 2012). Furthermore, we postulate that when there is not an emphasis on treatment fidelity data collection by the institutions that employ BCBAs, behavior analysts may lack consistent reminders of its importance and may be required to develop their own strategies for measuring fidelity when they elect to do so. Another potential constraint limiting the collection of these data in a home setting has to do with resources (e.g., lack of time). Due to competing demands, parents may not have the time to balance the implementation of their child's behavioral treatment intervention with the effort required for treatment fidelity measurement if it requires additional effort (e.g., completing a self-report measure). Time may also represent a barrier for BCBAs when engaging in consultation in the home setting with parents. Although they may provide thorough, appropriate training to parents, it may be difficult to consistently collect treatment fidelity assessment data during a home session, particularly if direct observation is utilized. The specific conditions that facilitate or hinder treatment

fidelity data collection in the home were not addressed in this survey, and further research is needed in this realm. The results of the current study differ from Cochrane and Laux's (2008) findings indicating school psychologist's preference for indirect strategies for measuring treatment fidelity and suggest that indirect assessment methods seem to be underutilized by BCBAs implementing home-based interventions. Nearly one third of respondents indicated that they never use self-report, interview, or permanent product, and nearly half of respondents indicated only using these indirect techniques infrequently (10%–30% of sessions). With proper training on how to accurately report treatment fidelity data (Fallon, Sanetti, et al., 2018), indirect methods may be useful to supplement direct observation between visits to provide practitioners with more data for decision making efficiently.

Respondents also indicated using a variety of approaches (e.g., behavioral skills training, implementation planning, intervention choice, performance feedback) to promote treatment fidelity and ultimately child outcomes. These results stand in contrast to the lack of treatment fidelity data being collected. It is unclear the extent to which data are informing the selection and use of these strategies. Behavior analysts in practice might consider increasing rates of assessment to inform selection and use of treatment fidelity promotion strategies. Furthermore, future research might delineate how often and how successful these techniques are when implemented in practice.

Implications

Survey results suggest that more research is needed to further understand the (a) extent to which treatment fidelity data are collected in home settings, (b) barriers to treatment fidelity assessment in the home, (c) the relationship between recency of training and treatment fidelity data collection practices, (d) use of data to inform decision making for interventions implemented by parents and family caregivers, (e) extent to which treatment promotion strategies are implemented by BCBAs working in homes, and (f) success of these strategies to promote parent (and ultimately child) outcomes. As there is more research related to exploring

parents' adherence to medical treatment regimens for children in homes, researchers might look to techniques and findings in the medical literature to inform the design of subsequent research. For instance, treatment adherence literature has linked reducing the complexity of a treatment protocol with improved adherence by parents (Moore & Symons, 2009). Considering this finding in the design of future empirical studies might support the growing literature base related to best practice in behavior analysis in home settings. In addition, survey findings highlight the gap between knowledge and practice by BCBAs. In the future, experimental study of treatment fidelity assessment may demonstrate what is feasible in efforts to collect accurate, reliable treatment fidelity data. Researchers might also target developing or refining indirect assessment tools that are manageable to implement and produce data useful for making decisions.

According to the *Professional and Ethical Compliance Code for Behavior Analysts*, to determine the appropriate level and frequency of a behavioral intervention, treatment fidelity data are vital (BACB, 2019). Results from this survey indicate that practitioners incorporate treatment fidelity measures into their provision of home-based supports with parent implementers typically during about one third of sessions. This may be adequate, but additional professional development and training might target providing practitioners with recommendations for how to effectively and efficiently collect and use these data if more data are needed for treatment decisions. Further research should be conducted to explore the utility of treatment fidelity data in the context of progress toward behavioral goals. Guidelines surrounding important decision points related to treatment fidelity data and a child's behavioral progress could be useful for practitioners. That is, context-specific reference points to consider in the process of gauging adequacy in interventionist adherence to treatment protocol are needed. Also, more research is needed to evaluate the impact of treatment fidelity promotion strategies on intervention behaviors and would be useful to continue to build a literature base related to implementation support. Furthermore, training might be provided in the context of graduate coursework (as many respondents indicated learning about treatment fidelity in that manner) and/or through opportunities for professional development in work settings, conferences, or via practitioner journals tasked with disseminating best practice information.

Limitations

There are limitations to this current study that warrant consideration. Researchers elected to recruit BCBAs working in home settings by reaching out to all BCBAs via email. Although this strategy meant that a large number of

practitioners were given the opportunity to participate, only a small subset of those contacted were eligible to do so, as many BCBAs who work with children are employed in a school or other settings. Practitioners providing home-based care were required to self-identify as eligible after having read through participation parameters. The niche nature of BCBAs working in homes was a limiting feature in the recruitment process in and of itself, thus self-selected participants were not required to work specifically with children with ASD or developmental delays to participate. Future research is needed to establish the applicability of these results to BCBAs specifically engaged in practice with these populations. In addition, the treatment fidelity promotion strategies were selected based on a recent paper by Sanetti and Collier-Meek (2015) but did not include an exhaustive list of possible approaches. Subsequent studies might include additional strategies to generate a broader understanding of what practitioners utilize when working with parents. Another potential limitation relates to the challenge posed by the expectation that practitioners accurately estimate the percentage of sessions in which they employed treatment fidelity measures. Similar to the limitations of relying on parent or BCBA self-report in treatment fidelity measurement, it is possible that there are limitations as to how well practitioners recall and estimate how and how often treatment fidelity data are assessed.

Finally, there are limitations certain terms used in the survey. Specifically, the treatment fidelity promotion strategy *performance feedback with negative reinforcement* has been used in the literature (DiGennaro, Martens, & McIntyre, 2005) but implies that parents will find meetings with BCBAs to receive performance feedback aversive and change their implementation behavior to avoid such meetings. It may not be possible to know this without additional information. If researchers wanted to evaluate this practice in future studies, use of the term *performance feedback with a meeting cancellation contingency* (DiGennaro, Martens, & Kleinmann, 2007) may be a better explanation of the practice.

Conclusion

Treatment fidelity data are critical to intervention decision making to benefit youth with ASD and other developmental disabilities. There has been little published describing overall patterns regarding if, how, and how often BCBAs assess treatment fidelity in the home setting, as well as if behavior analysts working in homes perceive the collection of these data to be important. In this study, BCBAs working across the United States with parents were surveyed. Results indicated that BCBAs receive training on the importance of treatment fidelity assessment and collect treatment fidelity data in a subset of sessions with parents. Direct observation is more commonly used than indirect methods, however,

there is a need for more training and research regarding how to feasibly collect treatment fidelity data with parents in home settings and how to use these data to promote successful outcomes for children with ASD and other developmental disabilities.

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ORCID iD

Lindsay M. Fallon  <https://orcid.org/0000-0003-0813-3337>

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