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Do Parent Preferences for Child Conduct Problem Interventions Impact Parenting Outcomes? A Pilot Study in Community Children's Mental Health Settings

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Abstract

A pilot doubly randomized preference trial was conducted to investigate the impact of providing parents preferences on parenting outcomes. Families with children having conduct problems were randomly assigned to a choice group in which they received their preferred treatment among the four intervention options or a no-choice group in which they were randomized assigned to one of the four options. Results of mixed-effects models showed that parents in the choice group who selected Parent Management Training Oregon Model (PMT-O) had better parenting outcomes over time compared to parents in the choice group who selected child therapy. It highlights the importance of incorporating parent preferences in the delivery of evidence-based treatments.

INTRODUCTION

Conduct and oppositional behavior is the single largest presenting problem at children's mental health clinics and brings significant risks for later substance use and delinquency (Briggs-Gowan, Horwitz, Schwab-Stone, Leventhal, & Leaf, 2000; SAMHSA, 2005). It is well documented that evidence-based parenting programs improve parenting which leads to a reduction in child conduct and oppositional behavior problems and prevention of youth substance use (Forgatch & DeGarmo, 1999; Forgatch & Gewirtz, 2017). However, it is not unusual for a large proportion of participants to drop out of a parenting program without completing the treatment (Kazdin, 1990). Many parents in high-risk families (e.g., low

socioeconomic status) who can potentially benefit the most from parent training show limited treatment attendance and poor outcomes (Dumas & Wahler, 1983; Kazdin, 1990). Most evidence-based parenting interventions for conduct problems deliver the same intervention to all families despite large individual variations in parents' preferences for treatment (Cunningham et al., 2008). In typical community mental health clinics settings, children and families are rarely involved in the decision-making process with their preferences and needs unheard (Gondek et al., 2017). A mismatch between preferred and actual treatment was found to be related to demoralization, low attendance rates and poor therapeutic relationships (Iacoviello et al., 2007; Kwan, Dimidjian, & Rizvi, 2010).

There has been a growing recognition of the benefits to parents of being involved in selecting their children's mental health services (Cunningham et al., 2008; Hoagwood, 2005). The National Institutes of Health (NIH) and the American Psychological Association (APA) have recommended that patients' choice be maximized in the clinical decision-making process (APA, 2006; NIH, 2008, 2015). Considering patients' choice also aligns with patient-centered care which is defined by Institute of Medicine (2001) as "a partnership among practitioners, patients, and their families (when appropriate) to ensure that decisions respect patients' wants, needs, and preferences" (p. 7). Street, Elwyn, and Epstein (2012) suggested that incorporating clients' preferences may enhance clients' autonomy, control, efficacy, satisfaction and therapeutic alliance, which may lead to outcome improvement. Involving parents in the selection of children's mental health treatment ensures that services reflect parents' values and may help reduce logistical barriers (e.g., transportation, cost and time conflicts; Vick & Scott, 1998). Parents may be likely to participate and benefit from their preferred service format; indeed, studies have indicated that clients who receive their preferred treatment are more likely to attend the treatment and have greater satisfaction and motivation (He, Gewirtz, Lee, Morrell, & August, 2016; Swift & Callahan, 2009). Socio-demographic risks (e.g., poverty, low parental education, single parent status) are associated with increased risk for children's mental health problems, low utilization of mental health services and poor treatment outcomes (Lipman & Boyle, 2008). It thus may be especially important to examine whether providing choices impact treatment outcomes for high-risk families who face multiple stressors in accessing and participating in mental health services (e.g., lack of transportation and child care; Kazdin, 1990). However, no randomized controlled trial has ever examined whether providing parents with treatment choices affects treatment outcomes in community mental health settings.

To address this gap, the current study investigates the effect of parents' intervention preferences on parental locus of control and observed parenting outcomes in a diverse community sample. We focused on parenting-related outcomes for the current study because improved parenting is the proximal outcome for parent training for child conduct problems and it serves as the mechanisms of change for child behavioral improvements (Forgatch & DeGarmo, 1999; Forgatch, Patterson, Degarmo, & Beldavs, 2009). Specifically, the social interaction learning theory posits that effective parenting practice is an important protective factor to reduce child behavioral problems and the risk for child substance use and delinquent behaviors (Forgatch et al., 2009). Improvement in observed parenting practices has been found to mediate the effect of parent management training on child behavioral outcomes (DeGarmo, Eddy, Reid, & Fetrow, 2009; DeGarmo, Forgatch, & Patterson, 2004).

The Interventions of the Current Study

The interventions in the present study included three modalities of Parent Management Training-Oregon Model/PMTO and child therapy (Service-as-Usual, SAU) as a comparison group. Grounded in social interaction learning theory, PMTO is a well-investigated evidence-based parent training program that teaches parents to monitor and respond to children's behaviors through behavior modification strategies (Forgatch, Patterson, & Gewirtz, 2013). Detailed information about PMTO can be found in Forgatch and Gewirtz (2017). Randomized controlled trials have demonstrated its efficacy and effectiveness in reducing child conduct problems, substance use, and internalizing problems, and increasing child social competence and school adjustment through improving parenting practices (Patterson, Forgatch, & DeGarmo, 2010). In addition to its robust theoretical foundation and empirical evidence, we selected PMTO because it has multiple delivery modalities including individual in-person (home and clinic-based) and group formats. PMTO is available statewide in Michigan, where this study was conducted.

Doubly Randomized Preference Trials

Three types of randomized controlled trials/RCTs have been used in preference studies: traditional RCTs (Kwan et al., 2010), partially randomized preference trials (PRPT; Brewin & Bradley, 1989) and doubly randomized preference trials (DRPT; Long, Little, & Lin, 2008; Marcus, Stuart, Wang, Shadish, & Steiner, 2012), also known as parallel hybrid study designs (Abikoff, 2001). In a traditional RCT, participants are asked their preferences before they are randomized to a specific treatment either they choose or not. Traditional RCTs fail to consider that participants may drop-out if they have strong preferences, leaving those who have weak or no preference in the study. In a PRPT, participants with strong preferences are offered their treatment of choice, while others are randomized; however, if participants strongly favor one treatment option, few individuals will be randomized.

Doubly randomized preference trials (DRPT; Long et al., 2008; Marcus et al., 2012), also known as parallel hybrid study designs (Abikoff, 2001) randomize participants to choice or no-choice conditions. Those randomly assigned to the no-choice condition are again randomized to one of several intervention options; those randomized to the choice condition may choose their preferred intervention among the options. Compared with a traditional RCT and PRPT, the two-stage design of the DRPT increases external validity by controlling for setting, participants, and cohort effects. DRPTs also enable researchers to examine whether providing choices to patients improves outcomes (He et al., 2016; Walter, Turner, Macaskill, McCaffery, & Irwig, 2012).

Preferences and Treatment Outcomes

Research on whether giving patients their choice of therapy results in improved treatment outcomes has shown mixed results. Some studies found that giving patient preference directly improved clinical outcomes (Clark et al., 2008; Lindhiem, Bennett, Tretacosta, & McLearn, 2014; Marcus et al., 2012; McCaffery et al., 2011; Swift & Callahan, 2009); various studies reported null findings (Chilvers et al., 2001; King et al., 2005; Kwan et al., 2010; Yancy et al., 2015); one study even found a negative association between giving preferences and treatment outcomes (Burke et al., 2008).

In a meta-analysis of 26 studies that consisted of 2,356 participants, Swift and Callahan (2009) found that clients who were matched to their preferred treatment had a 58% chance of showing a greater improvement in a variety of outcomes (e.g., depression, panic attack, weight loss) than those clients who were not matched to their preferred treatment. Psychotherapy and pharmacotherapy were often listed as two treatment options for participants to choose across 23 studies for treating a variety of mental health problems (e.g., depression, substance abuse, and phobia). Three studies offered only psychotherapy options (e.g., cognitive behavioral therapy vs. psychodynamic therapy, individual therapy vs. group therapy) for treating psychological problems. For example, Rokke, Tomhave, and Jovic (1999) studied 40 depressed older adults and did not find any difference in outcomes between individuals who were offered a treatment choice (behavioral therapy vs. cognitive therapy) and those who were not. Sterling, Gottheil, Glassman, Weinstein, and Serota (1997) did not find a preference effect among cocaine-dependent patients seeking treatment who were offered treatment options (individual vs. group therapy). A recent meta-analysis of 34 studies suggested a modest preference effect (Lindhiem et al., 2014). They found that clients who chose a treatment or received their preferred treatment for treating depression, anxiety, schizophrenia, and other psychological problems had higher treatment satisfaction, higher completion rates, and better clinical outcome than clients who did not participate in choosing their treatment or did not receive their preferred treatment.

In contrast, in a study by King et al. (2005) who reviewed 32 randomized controlled patient preference studies including both the PRPT design and DRPT designs, they concluded that differences in outcome between choice condition and no-choice condition were small and inconsistent in direction, which provided little evidence to support the benefits of offering choices to patients. However, most of these studies targeted medical conditions (e.g., coronary disease, lung cancer); just five studies focused on mental health (anxiety and depression).

Two studies have found that treatment format moderated the relationship between treatment choice and outcomes (Clark et al., 2008; Chilvers et al., 2001). Clark and colleagues (2008) found an interaction effect between choice and treatment modality such that a preference effect on treatment outcomes (i.e., psychological functioning) was more salient if participants (older women with heart disease) chose the group behavioral intervention format over the self-directed format. This moderating effect needs to be further tested for psychosocial treatment outcomes within a family context.

Inconsistent findings may be due to different research designs, clinical problems (medical vs psychological) and treatment (pharmacotherapy vs. psychotherapy) and little attention to moderating or mediating factors. Treatment choices offered in mental health studies are often limited to psychotherapy or pharmacotherapy, and clinical populations are mostly adults. No study has evaluated the impact of providing choices on parenting outcomes of a family-based psychosocial intervention program targeting child conduct problems. Parent training programs and child therapy are two common interventions for treating child conduct problems in community mental health clinics. The current study contributes to the understanding of providing psychosocial intervention choices to treat children's behavioral problems.

Purpose of the Current Study

The current pilot study aims to understand the relationship between choice and treatment outcomes, and to examine whether the treatment modality moderates that relationship. We examined two aspects of parenting: (a) parental locus of control, which reflects the degree to which parents feel confident about their influence or control of their child's behaviors (Dumka, Gonzales, Wheeler, & Millsap, 2010; Jones & Prinz, 2005), and (b) observed parenting practices, which are key to change in child outcomes (DeGarmo et al., 2004).

The following two *aims* were examined:

Aim 1: Determine whether providing treatment choices to parents impacts parenting outcomes. Because of the mixed findings in the literature, no hypothesis was proposed.

Aim 2: Explore whether intervention modality has a differential impact on the relationship between assignment to the choice condition and parenting outcomes (moderation effect). We hypothesized that parents randomized to the choice condition who selected Parent Management Training Oregon Model (PMTO) would show greater improvements in parenting outcomes compared to those who selected Service-As-Usual (SAU; child therapy) in the choice condition.

METHOD

Research Design

Figure 1 provides a consort diagram indicating the flow of families to groups and the retention in each modality over time. A brief description of the study will be provided in this article; however, more detailed information about the study design can be found in He et al. (2016). Following the DRPT design, clinic referred families who met study inclusion criteria and consented to participate were randomized to the no-choice condition or the choice condition. Parents randomized to the no-choice condition were further randomized into one of the four treatment formats: (a) individual family home-based PMTO, (b) individual, clinic-based PMTO, (c) multi-family group PMTO, or (d) SAU (typically child psychotherapy). Parents randomized to the choice condition were provided their preferred treatment format from the four options above. Most of the families who either preferred or were randomized to SAU received services immediately; for those families assigned to PMTO, the average wait time was 3.2 months if no PMTO was available. The average wait time across PMTO modalities was similar.

Procedures

This pilot project was implemented in three mental health clinics in Oakland County and the city of Detroit in the state of Michigan from 2011 to 2014 using a convenience sampling strategy. Families with children ages four to 12 years, who presented to three community mental health clinics for conduct and oppositional behavior problems, were informed of the opportunity to participate in an intervention study by the clinic intake staff as well as through recruitment flyers. Families were excluded from the study if children had a pervasive developmental disability, had previously received treatment for behavior problems,

if parents had psychosis or did not have custody of the target child, or if they were unwilling to be randomized. A research coordinator contacted those who agreed to participate, informing families that their participation in the study was voluntary. The research coordinator also described the study, including the purpose, timeline, assessment, and expected benefits and risks of participation. Parents who were randomized into the choice group were provided a description of each treatment modality and invited to select their preferred treatment. For example, PMTO was introduced as “a parenting program that is very good at helping parents to be their children’s best teachers—to support them to help improve children’s behavior.” All procedures were approved by the Institutional Review Boards of the State of Michigan’s Department of Community Health, and the University of Minnesota. Among parents who consented and children who assented to participate, assessment technicians administered assessments in families’ homes (videotaped parent-child interaction tasks) and via mailed surveys at baseline (T1), post-intervention (T2), and at six months post-intervention (T3). Families were compensated for each assessment. Baseline assessments were completed before the randomization assignment.

The Interventions

PMTO includes five main components: skill encouragement, limit setting, monitoring, problem-solving and positive involvement in children’s lives (e.g., warmth and positive affect in the parent-child relationship). Individual sessions are 60 minutes once weekly, lasting for three to nine months; group sessions are 90 minutes, once weekly, with six to 10 families, lasting 14 sessions. Each session includes a review of last week’s homework, introduction, and practice of new skills and the provision of new homework. In the current study, therapists providing PMTO modalities were certified in PMTO and received weekly supervision. Families assigned to, or selecting SAU were treated by therapists trained in modalities other than PMTO (usually non-directive child psychotherapy). Each session lasted for 45 to 60 minutes. All therapists were providers at the clinics, licensed as psychologists, social workers or marriage and family therapists). Mean number of PMTO sessions and SAU sessions across the entire sample was 6.95 and 13.91 respectively.

Participants

In total 134 families participated in the study (approximately 70% of the 191 families initially referred by the clinics), but five families were found to have previously received clinic services and therefore were excluded from analyses, leaving a final sample of 129 families. All data were collected from one parent in a household. Parents were 21 to 63 years old ($M = 32.78$, $SD = 8.00$); 61.5% were African American, 1.0% were Hispanic, 29.7% were White American, 1.0% were Native American, 5.8% were multiracial, and 1.0% were other races. Household yearly income ranged from zero to \$130,000 per year with a median of \$12,662; three-quarters of parents reported annual household incomes below \$20,000. Approximately one-third (36.5%) of parents reported no college education and 50% parents had some college education; 13.5% parents had a bachelor or Master’s degrees. Only 15.4% of children were reported to be living with two biological or adoptive parents, 48.7% of children lived with only single parents, and 15.4% children lived with one parent and that parent’s partner. Children’s average age was 7.59 years, with 65.1% boys and 34.9% girls.

At the end of treatment (T2) 71.3% ($n = 92$) of families remained in the study, and 6 months later (i.e. T3), 64.3% ($n = 83$) were retained. No statistical differences in demographics were found for parents who remained in the study and parents who dropped out the study. The retention rate of families in treatment was quite low (He et al., 2016): just 34.1% completed treatment.

Measures

Demographics—Parents reported their gender, age, education, ethnicity and annual household income. They also provided their children's gender, ethnicity, age, and living arrangement (e.g., living with two biological parents).

The Brief Symptom Inventory-18—Parents were asked to report their psychological symptoms using BSI-18. The Brief Symptom Inventory–18 (BSI-18; Derogatis & Savitz, 2000) is an 18-item well-validated self-report measure of anxiety, depression, and somatization (each is a separate scale) that occurred over the past week. A global severity index of overall psychological distress ($\alpha = .93$) was calculated by summing the three 5-point scales from 0 to 4 (0 = *not at all* to 4 = *extremely*). The total score for the global severity index ranged from 0 to 72 ($M = 16.98$, $SD = 14.61$). Higher scores on the BSI-18 scales suggest a greater severity of symptoms.

Parental Locus of Control Scale—Parental Locus of Control Scale (PLOC; Campis, Lyman, & Prentice-Dunn, 1986) is a 47-item questionnaire assessing parental sense of control or competence as it relates to the parenting role and parent-child interactions. This measure consists of five subscales, including parental efficacy, parent responsibility, child control of parent life, parent belief in fate/chance, and parent control of child's behavior. Campis et al. (1986) reported evidence for good internal consistency, construct validity, and discriminant validity. Items were rated on a 5-point Likert-style scale, ranging from *Strongly Disagree* to *Strongly Agree*. The mean of the total score of five subscales was used in the data analyses for the current study and showed good internal reliability ($\alpha = .85$ at T1, .80 at T2 and .85 at T3). The mean score for the PLOC at T1 ranged from 70 to 182 ($M = 119.33$, $SD = 20.16$). The mean score for the PLOC at T2 ranged from 73 to 169 ($M = 114.86$, $SD = 18.88$). The mean score for the PLOC at T3 ranged from 58 to 165 ($M = 113.94$, $SD = 18.76$). Higher scores on the scale indicate that parents feel less able to control their child's behavior.

Family Interaction Task—Parents and children participated in videotaped Family Interaction Tasks (FITs) that consisted of seven independent tasks lasting 45 minutes in total. Tasks included playing three games (i.e., guessing games, Tangoes, Labyrinth), two 5-minute problem-solving tasks in which parents and child attempted to resolve current conflicts (Prinz, Foster, Kent, & O'Leary, 1979), a 5-minute safety issues task in which parents were asked to pick a safety issue and talk to the child about it and a 5-minute monitoring task (Dishion, Nelson, & Kavanagh, 2003; Dishion & Patterson, 2006) during which the child was asked to talk with parents about a time in the last month when they spent time with friends without adult supervision. Parent-child interactions were scored by two independent coders using Coder Impressions, a global rating system for coders to

provide impressions about parenting skills (e.g., monitoring children well, reinforcing success, prompting appropriate behavior; Forgatch, Knutson, & Mayne, 1992). Coding categories were consistent with the five core components of PMTO, including skill encouragement, limit setting, monitoring, problem-solving and positive involvement. The mean of the total score was used in the analyses. The average score for the FITs at T1 ranged from 1.07 to 2.90 ($M = 2.14$, $SD = 0.37$). The mean score for the FITs at T2 ranged from 1.14 to 3.51 ($M = 2.30$, $SD = 0.50$). The mean score for the FITs at T3 ranged from 0.5 to 3.08 ($M = 2.21$, $SD = 0.54$). Higher scores for the FITs indicate better parenting practices. FITs have been used with young children in previous studies (Forgatch & DeGarmo, 1999; Gewirtz, DeGarmo, & Zamir, 2017). Coder ratings of these tasks have strong reliability (e.g., Cronbach alphas ranging from .74–.92 and interrater reliabilities in the 70% range) and validity in measuring parenting practices that predict child and parent adjustment outcomes in both the short- and long-term (Forgatch et al., 2009; Gewirtz, DeGarmo, Lee, Morrell, & August, 2015; Gewirtz, DeGarmo, & Zamir, 2017).

Data Analysis

An intent-to-treat approach was used that included all randomized participants regardless of their intervention attendance or dropout status. Restricted maximum likelihood method, which enables analyzing the full, incomplete dataset by using the data of each available case to compute maximum likelihood estimates (Kenward & Roger, 1997), was used to address missing values. Similar to the method used in Yancy et al. (2015), linear mixed-effects modeling was performed to examine whether changes in parenting outcomes differed based on choice status and intervention modality using Stata 14.0 (Stata Corp, College Station, Texas, 2015). Specifically, two-level random coefficient models were conducted, where multiple waves of assessments (T1, T2, and T3) were nested within individuals. Examination of normality of the parental locus of control and observed parenting measures at all three-time points showed that the variables were normally distributed.

To test the effect of parents' choices on parenting outcomes (Aim 1), choice, time, and the two-way interaction between the variable choice and time were included in each mixed model. Random intercepts and random slopes were also calculated in the models. To explore the moderation effects of intervention modalities on the relationship between parent choice and parenting outcomes (Aim 2), a three-way interaction among the variables modality, time, and choice was added to the mixed models. Because parental psychological symptoms often are negatively associated with parenting behaviors (Caughy, Huang, & Lima, 2009), the BSI-18 global severity index (i.e., parental psychological symptoms) was included in all mixed models as a control variable. Given the small cell sizes, three PMTO modalities were combined into one PMTO group and compared to SAU. Alpha for all tests was set at $p < .05$ (two-tailed).

RESULTS

Effects of Choice vs. No-choice on Parenting Outcomes

Results for the longitudinal mixed models are presented in Table 1. No significant interaction of time and choice was found in predicting changes in parental locus of control

and observed parenting behaviors over time. The effect size for parental locus of control and observed parenting behaviors was small (.32 and .03 respectively). There was a significant main effect of time on parental locus of control, such that all participants showed a greater sense of parenting control over time.

Moderating Effect of Intervention Modality

Raw mean scores and standardized deviations of parental locus of control and observed parenting behaviors for each modality and choice group are presented in Table 2. Results from the longitudinal mixed models are presented in Table 3. There was a significant three-way interaction among the modality, time, and choice variables in predicting changes in parental locus of control and observed parenting behaviors over time. The interaction effects are depicted in Figure 2 and Figure 3. The predicted mean values for the observed parenting outcome showed that parents who chose PMTO, compared to those who chose SAU, in the choice condition, showed improvement over time, while parents randomized to SAU, compared to those randomized to PMTO, in the no-choice condition, showed improvement over time. For parenting locus of control, parents in the choice condition who chose PMTO, compared to those who chose SAU, showed greater improvement over time, while both PMTO and SAU in the no-choice condition showed improvement in parental control over time.

DISCUSSION

The current study is the first study to use a DRPT to investigate the longitudinal benefits of providing choices to families for improving the outcomes of a family-based psychosocial intervention program. The null finding for the effect of choice on parenting outcomes over time is consistent with some studies (Chilvers et al., 2001; King et al., 2005; Yancy et al., 2015) and contradicts the results of other studies (Marcus et al., 2012; McCaffery et al., 2011; Clark et al., 2008). Accommodating client preferences may have a different impact on treatment outcomes due to differences in research designs, measurement (e.g., observation vs. self-report questionnaire), target clinical symptoms, and patients' demographics across studies (King et al., 2005; Street et al., 2012). Furthermore, the relationship between the effects of providing a choice and improved outcomes is complex and may include specific moderators (Clark et al., 2008; Street et al., 2012).

Despite the small sample size, a moderating effect was found as predicted in Aim 2 – parents in the choice condition who selected PMTO treatment modalities showed greater improvements in observed parenting behaviors and reported increased parental locus of control over three-time points than parents in the choice condition who selected SAU. There was a steady improvement in observed parenting practices and parental locus of control for the choice group who selected PMTO over time, while the choice group who selected SAU had a decrease in observed parenting behaviors and parental locus of control over time. This moderating effect of treatment modality was consistent with previous studies (Clark et al., 2008; Chilvers et al., 2001). Parents' treatment preferences may reflect their perceptions of the presenting clinical problems, their motivations, and goals (Street et al., 2012), and likely are related to their beliefs about the cause of their child's problems (Kazdin & Wassell,

1998). Studies have indicated that mothers who believed they were responsible for their child's problems were more likely to have better therapeutic outcomes compared with mothers who ascribed the child's problems as internal to the child (Morrissey-Kane & Prinz, 1999; Watson, 1986). Parents who chose PMTO might perceive a stronger need to improve parenting, demonstrate more commitment to participate in their child's treatment and stronger motivation for change than those who chose child therapy. Additionally, their ability to choose the location and format of intervention may have decreased logistical barriers such as transportation and psychological barriers such as comfort with a group program. Because PMTO has shown effectiveness in improving parenting practices and parental locus of control (Forgatch & DeGarmo, 1999; Gewirtz, DeGarmo, & Zamir, 2016), parents who take responsibility for changing their parenting behaviors to help their child are likely to improve their parental efficacy and parenting practices after attending PMTO.

Surprisingly, parents in the no-choice group who were assigned to SAU showed higher rates of improvement in observed parenting behaviors than those in the no-choice group who were randomized to PMTO. Those findings are different from previous research as more evidence is available to support the effectiveness of PMTO than SAU in improving parenting practices (Dumka et al., 2010; Forgatch & DeGarmo, 1999; Jones & Prinz, 2005). One possible explanation is that the lack of treatment engagement among the PMTO modalities in the no-choice condition leads to poor parenting outcomes. Participants receiving the PMTO modalities in the no-choice group dropped out more than those receiving the PMTO in the choice group (He et al., 2016). Participants randomized to SAU completed more sessions than those randomized to PMTO modalities (7 vs. 0–4). Bringing a child to clinic requires much less effort on the part of parents than going to the clinic themselves (and finding childcare during that time) and engaging in the work necessary for behavior change. Thus it is possible that for the SAU parents, simply bringing their child to the clinic helped them to feel more competent as parents (i.e., that they were doing something to improve their child's behavior problems), and a 'solid dose' of child therapy may be helpful to reduce child conduct problems which improves parenting practices.

The moderating effect of treatment modality was found for both parental locus of control and observed parenting behaviors. It suggests that parents who chose PMTO showed improved confidence in their ability to control their child's behaviors as well as improvements in their observed parenting practices. Conceptually, parental locus of control can be considered an antecedent, an outcome, a mediator, or a transactional factor for parenting effectiveness (Jones & Prinz, 2005). The current study examined parental locus of control as an outcome based on previous literature (Dumka et al., 2010; Jones & Prinz, 2005). However, parental locus of control can be considered as a specific domain of personal control (Jones & Prinz, 2005). Choosing PMTO is associated with improvement in parental locus of control, which to some degree supports the theoretical framework that clients' preferences may enhance clients' sense of control.

The current study suggests that the relationship between parent preference and parenting treatment outcomes is complex and may include specific moderators. While providing PMTO, clinicians need to understand parents' cognitions and perceptions and check if PMTO matches with their values and goals to facilitate best treatment outcomes. It is

plausible that those cognitions, motivations, and perceptions behind their choices serve as moderators for the relationship between providing choices and treatment outcomes. For example, providing parents PMTO while they may strongly prefer child therapy may not lead to optimal outcomes. Decision aids (e.g., providing knowledge about how effective parenting can reduce child conduct problems) provided by clinics may help clients navigate these important choices (DuBenske, Gustafson, Shaw, & Cleary, 2010). Those conversations may strengthen the therapeutic alliance by helping parents collaborate with a therapist on therapeutic goals, creating a bond at the early phase of therapy.

LIMITATIONS AND FUTURE DIRECTIONS

The current pilot study was limited by the small sample size given double randomization and the multiple cells/treatment options, and the moderate attrition rate at T2 and T3. Because of the small sample size, only two treatments, PMTO vs. SAU, were included in the moderation analyses. PMTO showed more effectiveness in improving parenting outcomes than child therapy in the choice condition, but the analyses did not test whether different modalities of PMTO moderated the relationship between preference and treatment outcomes. Although three PMTO modalities are considered to have equivalent effects on parenting outcomes in the current study, to further understand the role of treatment modality, future studies should compare different modalities of one evidence-based intervention (e.g., PMTO) to eliminate the possible confounding effect of therapy effectiveness.

One should use caution in interpreting the moderation results because of the non-randomized nature of modalities in the choice condition. With a larger sample, methods such as propensity score matching would be appropriate for estimating the choice effect for each intervention modality (Marcus et al., 2012). As the study was conducted in community settings, the longer waiting time for receiving PMTO may affect parents' treatment choices. Furthermore, the largely very low income, single parent sample limits the generalizability of the findings to other populations. Also, parents' cognitions (e.g., perceived need to improve parenting) and treatment effectiveness need to be examined as moderators in future studies. Despite these limitations, the current study provides a unique opportunity to explore the potential benefits of providing choices for family-based treatment outcomes among high-risk populations. This study highlights the importance of considering parents as collaborators in the provision of family-based treatments for children's mental health problems in community mental health settings.

CONCLUSION

This study was conducted with families who face multiple stressors and socio-demographic risks (e.g., poverty, low parental education, single parent status) and often show low engagement and poor treatment outcomes in community mental health settings. The results provided empirical support for the benefits of empowering family participation in the decision-making process of family-based psychosocial interventions, especially for underrepresented children and families. These results set the stage for future studies regarding the role of patient involvement in community settings.

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References

- Abikoff H. Tailored psychosocial treatments for ADHD: The search for a good fit. *Journal of Clinical Child Psychology*. 2001; 30:122–125. [PubMed: 11294070]
- American Psychological Association Presidential Task Force on Evidence-Based Practice. Evidence-based practice in psychology. *American Psychologist*. 2006; 61:271–285. [PubMed: 16719673]
- Brewin CR, Bradley C. Patient preferences and randomised clinical trials. *BMJ: British Medical Journal*. 1989; 299:313. [PubMed: 2504416]
- Briggs-Gowan MJ, Horwitz SM, Schwab-Stone ME, Leventhal JM, Leaf PJ. Mental health in pediatric settings: distribution of disorders and factors related to service use. *Journal of the American Academy of Child & Adolescent Psychiatry*. 2000; 39:841–849. [PubMed: 10892225]
- Burke LE, Warziski M, Styn MA, Music E, Hudson AG, Sereika SM. A randomized clinical trial of a standard versus vegetarian diet for weight loss: the impact of treatment preference. *International Journal of Obesity*. 2008; 32:166–176. [PubMed: 17700579]
- Campis LK, Lyman RD, Prentice-Dunn S. The parental locus of control scale: Development and validation. *Journal of Clinical Child Psychology*. 1986; 15:260–267.
- Caughy MOB, Huang KY, Lima J. Patterns of conflict interaction in mother–toddler dyads: Differences between depressed and non-depressed mothers. *Journal of Child and Family Studies*. 2009; 18:10–20. [PubMed: 23449962]
- Chilvers C, Dewey M, Fielding K, Gretton V, Miller P, Palmer B, Harrison G. Antidepressant drugs and generic counselling for treatment of major depression in primary care: randomized trial with patient preference arms. *Bmj*. 2001; 322:772. [PubMed: 11282864]
- Clark NM, Janz NK, Dodge JA, Mosca L, Lin X, Long Q, Liang J. The effect of patient choice of intervention on health outcomes. *Contemporary Clinical Trials*. 2008; 29:679–686. [PubMed: 18515187]
- Cunningham CE, Deal K, Rimas H, Buchanan DH, Gold M, Sdao-Jarvie K, Boyle M. Modeling the information preferences of parents of children with mental health problems: A discrete choice conjoint experiment. *Journal of Abnormal Child Psychology*. 2008; 36:1123–1138. [PubMed: 18481167]
- DeGarmo DS, Eddy JM, Reid JB, Fetrow RA. Evaluating mediators of the impact of the Linking the Interests of Families and Teachers (LIFT) multimodal preventive intervention on substance use initiation and growth across adolescence. *Prevention Science*. 2009; 10:208–220. [PubMed: 19238545]
- DeGarmo DS, Patterson GR, Forgatch MS. How do outcomes in a specified parent training intervention maintain or wane over time? *Prevention Science*. 2004; 5:73–89. [PubMed: 15134313]
- Derogatis LR, Spitz RL. The SCL-90-R and Brief Symptom Inventory (BSI) in primary care. In: Maruish ME, editor *Handbook of psychological assessment in primary care settings*. Mahwah, NJ: Erlbaum; 2000. 297–334.
- Dishion TJ, Patterson GR. The development and ecology of antisocial behavior in children and adolescents. In: Cicchetti D, Cohen DJ, editors *Developmental Psychopathology Vol. 3: Risk, Disorder, and Adaptation*. 2. New York: Wiley; 2006. 503–541.
- Dishion TJ, Nelson SE, Kavanagh K. The family check-up with high-risk young adolescents: Preventing early-onset substance use by parent monitoring. *Behavior Therapy*. 2003; 34:553–571.
- DuBenske LL, Gustafson DH, Shaw BR, Cleary JF. Web-based cancer communication and decision making systems: Connecting patients, caregivers, and clinicians for improved health outcomes. *Medical Decision Making*. 2010; 30:732–744. [PubMed: 21041539]

- Dumas JE, Wahler RG. Predictors of treatment outcome in parent training; Mother insularity and socioeconomic disadvantage. *Behavioral Assessment*. 1983; 5:301–313.
- Dumka LE, Gonzales NA, Wheeler LA, Millsap RE. Parenting self-efficacy and parenting practices over time in Mexican American families. *Journal of Family Psychology*. 2010; 24:522. [PubMed: 20954762]
- Forgatch MS, DeGarmo DS. Parenting through change: An effective prevention program for single mothers. *Journal of Consulting and Clinical Psychology*. 1999; 67:711–724. [PubMed: 10535238]
- Forgatch MS, Gewirtz AH. The Evolution of the Oregon Model of Parent Management Training (PMTO): An Intervention for Antisocial Behavior in Children and Adolescents. In: Weisz J, Kazdin A, editors *Evidence-Based Psychotherapies for Children and Adolescents*. 3. NY: Guilford; 2017.
- Forgatch MS, Knutson N, Mayne T. Coder impressions of ODS lab tasks. Unpublished instrument, Oregon Social Learning Center. 1992
- Forgatch MS, Patterson GR, Degarmo DS, Beldavs ZG. Testing the Oregon delinquency model with 9-year follow-up of the Oregon Divorce Study. *Development and Psychopathology*. 2009; 21:637–660. [PubMed: 19338702]
- Forgatch MS, Patterson GR, Gewirtz AH. Looking forward: The promise of widespread implementation of parent training programs. *Perspectives on Psychological Science*. 2013; 8:682–694. [PubMed: 24443650]
- Gewirtz AH, DeGarmo DS, Lee S, Morrell N, August G. Two-year outcomes of the Early Risers prevention trial with formerly homeless families residing in supportive housing. *Journal of Family Psychology*. 2015; 29:242. [PubMed: 25844493]
- Gewirtz AH, DeGarmo DS, Zamir O. Effects of a military parenting program on parental distress and suicidal ideation: After Deployment Adaptive Parenting Tools. *Suicide and Life-threatening Behavior*. 2016; 46:S23–S31. [PubMed: 27094107]
- Gewirtz AH, DeGarmo DS, Zamir O. After Deployment, Adaptive Parenting Tools: 1-Year Outcomes of an Evidence-Based Parenting Program for Military Families Following Deployment. *Prevention Science*. 2017; 1–11. [PubMed: 27699620]
- Gondek D, Edbrooke-Childs J, Velikonja T, Chapman L, Saunders F, Hayes D, Wolpert M. Facilitators and Barriers to Person-centred Care in Child and Young People Mental Health Services: A Systematic Review. *Clinical Psychology & Psychotherapy*. 2017; 24:870–886. [PubMed: 27910173]
- He Y, Gewirtz A, Lee S, Morrell N, August G. A randomized preference trial to inform personalization of a parent training program implemented in community mental health clinics. *Translational Behavioral Medicine*. 2016; 6:1–8. [PubMed: 27012248]
- Hoagwood KE. Family-based services in children's mental health: a research review and synthesis. *Journal of Child Psychology and Psychiatry*. 2005; 46:690–713. [PubMed: 15972066]
- Iacoviello BM, McCarthy KS, Barrett MS, Rynn M, Gallop R, Barber JP. Treatment preferences affect the therapeutic alliance: implications for randomized controlled trials. *Journal of Consulting and Clinical Psychology*. 2007; 75:194. [PubMed: 17295580]
- Institute of Medicine. *Envisioning the national health care quality report*. Washington, DC: National Academies Press; 2001. Retrieved from <https://www.ncbi.nlm.nih.gov/books/NBK223318/>
- Jones TL, Prinz RJ. Potential roles of parental self-efficacy in parent and child adjustment: A review. *Clinical Psychology Review*. 2005; 25:341–363. [PubMed: 15792853]
- Kazdin AE. Premature termination from treatment among children referred for antisocial behavior. *Journal of Child Psychology and Psychiatry*. 1990; 31:415–425. [PubMed: 2318922]
- Kazdin AE, Wassell G. Treatment completion and therapeutic change among children referred for outpatient therapy. *Professional Psychology: Research and Practice*. 1998; 29:332–340.
- Kenward MG, Roger JH. Small sample inference for fixed effects from restricted maximum likelihood. *Biometrics*. 1997:983–997. [PubMed: 9333350]
- King M, Nazareth I, Lampe F, Bower P, Chandler M, Morou M, Lai R. Impact of participant and physician intervention preferences on randomized trials: a systematic review. *Jama*. 2005; 293:1089–1099. [PubMed: 15741531]

- Kwan BM, Dimidjian S, Rizvi SL. Treatment preference, engagement, and clinical improvement in pharmacotherapy versus psychotherapy for depression. *Behaviour Research and Therapy*. 2010; 48:799–804. [PubMed: 20462569]
- Lipman EL, Boyle MH. Linking poverty and mental health: A lifespan view. Ontario, Canada: The Provincial Centre of Excellence for Child and Youth Mental Health at CHEO; 2008. Sep. Retrieved from: http://www.excellenceforchildandadolescent.ca/sites/default/files/resource/policy_poverty.pdf
- Lindhiem O, Bennett CB, Trentacosta CJ, McLearn C. Client preferences affect treatment satisfaction, completion, and clinical outcome: A meta-analysis. *Clinical Psychology Review*. 2014; 34:506–517. [PubMed: 25189522]
- Long Q, Little RJ, Lin X. Causal inference in hybrid intervention trials involving treatment choice. *Journal of the American Statistical Association*. 2008; 103:474–484.
- Marcus SM, Stuart EA, Wang P, Shadish WR, Steiner PM. Estimating the causal effect of randomization versus treatment preference in a Doubly randomized preference trial. *Psychological Methods*. 2012; 17:244. [PubMed: 22563844]
- McCaffery KJ, Turner R, Macaskill P, Walter SD, Chan SF, Irwig L. Determining the Impact of Informed Choice Separating Treatment Effects from the Effects of Choice and Selection in Randomized Trials. *Medical Decision Making*. 2011; 31:229–236. [PubMed: 21041538]
- Morrissey-Kane E, Prinz RJ. Engagement in child and adolescent treatment: The role of parental cognitions and attributions. *Clinical Child and Family Psychology Review*. 1999; 2:183–198. [PubMed: 11227074]
- National Institute of Health. Precision medicine initiative cohort program. 2008. Retrieved from: <http://www.nimh.nih.gov/about/strategic-planning-reports/index.shtml>
- National Institute of Health. Strategic Plan. 2015. Retrieved from: <https://www.nih.gov/precision-medicine-initiative-cohort-program>
- Patterson GR, Forgatch MS, DeGarmo DS. Cascading effects following intervention. *Development and Psychopathology*. 2010; 22:949–970. [PubMed: 20883592]
- Prinz RJ, Foster S, Kent RN, O'Leary KD. Multivariate assessment of conflict in distressed and nondistressed mother-adolescent dyads. *Journal of Applied Behavior Analysis*. 1979; 12:691–700. [PubMed: 541311]
- Reid JB, Patterson GR, Snyder JE. Antisocial behavior in children and adolescents: A developmental analysis and model for intervention. Washington, DC: American Psychological Association; 2002.
- Rokke PD, Tomhave JA, Jovic Z. The role of client choice and target selection in self-management therapy for depression in older adults. *Psychology and Aging*. 1999; 14:155. [PubMed: 10224639]
- SAMHSA. National survey on drug use and health. Bethesda, MD: Office of Applied Studies; 2005. from <http://oas.samhsa.gov/NSDUH/2k4NSDUH/2k4results/2k4results.htm#ch2> [Retrieved March 1, 2006]
- StataCorp. Stata Statistical Software: Release. Vol. 14. College Station, TX: StataCorp LP; 2015.
- Sterling RC, Gotthel E, Glassman SD, Weinstein SP, Serota RD. Patient treatment choice and compliance. *The American Journal on Addictions*. 1997; 6:168–176. [PubMed: 9134079]
- Street RL, Elwyn G, Epstein RM. Patient preferences and healthcare outcomes: an ecological perspective. *Expert Review of Pharmacoeconomics & Outcomes Research*. 2012; 12:167–180. [PubMed: 22458618]
- Swift JK, Callahan JL. The impact of client treatment preferences on outcome: a meta-analysis. *Journal of Clinical Psychology*. 2009; 65:368–381. [PubMed: 19226606]
- Vick S, Scott A. Agency in health care. Examining patients' preferences for attributes of the doctor–patient relationship. *Journal of Health Economics*. 1998; 17:587–605. [PubMed: 10185513]
- Walter SD, Turner RM, Macaskill P, McCaffery KJ, Irwig L. Optimal allocation of participants for the estimation of selection, preference and treatment effects in the two-stage randomized trial design. *Statistics in Medicine*. 2012; 31:1307–1322. [PubMed: 22362374]
- Watson J. Parental attributions of emotional disturbance and their relation to the outcome of therapy: Preliminary findings. *Australian Psychologist*. 1986; 21:271–282.
- Yancy WS, Mayer SB, Coffman CJ, Smith VA, Kolotkin RL, Geiselman PJ, Voils CI. Effect of allowing choice of diet on weight loss: a randomized. 2015

Figure 1.

Consort diagram indicating the flow of families to groups.

Note. One family's modality information in the choice group was missing.

Note: PMTO = Parent Management Training-Oregon Model; SAU = Service as Usual (child therapy); PMTO 1: Individual PMTO at home; PMTO 2: Individual PMTO at clinic; PMTO 3: Group PMTO at clinic; N_{t1} : The number of Time 1; N_{t2} : The number of Time 2; N_{t3} : The number of Time 3.

Figure 2.

Three-way interaction effects of choice condition $\times$ time $\times$ modality on parental locus of control. Note: PMTO = Parent Management Training-Oregon Model, SAU = Service as Usual

Figure 3.

Three-way interaction effects of choice condition $\times$ time $\times$ modality on observed parenting outcomes. Note: PMTO = Parent Management Training-Oregon Model, SAU = Service as Usual

Table 1

Effect of Choice $\times$ Time on Parental Locus of Control and Observed Parenting Practices: Summary of Fixed Effects from Mixed-effects Models

Variable	Parental locus of control Coefficient (SE)	Observed Parenting Coefficient (SE)
<i>Covariates</i>		
Psychological symptoms	.23 (.07) ***	-.00 (.00)
Time	-3.82 (1.28) **	.01 (.05)
Choice	-1.06 (3.29)	-.01 (.07)
Choice $\times$ Time	2.08 (1.75)	.05 (.06)

Notes.

**
p < .01.

p < .001.

Models included parental psychological problems (measured by BSI 18 global severity) as a covariate.

Predicted Means and Standard Deviations of Parental Locus of Control and Observed Parenting Behaviors by Choice and Modality

Table 2

	T1		T2		T3	
	PLOC	Observed Parenting	PLOC	Observed parenting	PLOC	Observed parenting
Choice (PMTO)	120.94 (21.54)	2.23 (.30)	113.88 (20.20)	2.43 (.44)	115.00 (20.87)	2.34 (.44)
Choice (SAU)	112.92 (18.59)	1.88 (.35)	119.70 (13.23)	1.99 (.53)	121.67 (14.07)	1.79 (.51)
No-choice (PMTO)	119.72 (19.45)	2.14 (.38)	116.80 (20.23)	2.20 (.58)	110.50 (18.53)	2.14 (.65)
No-choice (SAU)	121.06 (17.63)	2.08 (.44)	111.33 (14.31)	2.37 (.35)	114.56 (16.71)	2.35 (.32)

Notes. PLOC = Parental locus of control. PMTO = Parent Management Training-Oregon Model, SAU = Service as Usual

Table 3

Effect of Choice $\times$ Time $\times$ Modality on Parental Locus of Control and Observed Parenting Practices:
Summary of Fixed Effects from Mixed-effects Models

Variable	Parental locus of control Coefficient (SE)	Observed Parenting Coefficient (SE)
<i>Covariates</i>		
Psychological symptoms	.25 (.07) ***	-.00 (.00) ⁺
Time	-3.60 (2.49)	.13 (.09)
Choice	-5.41 (6.67)	-.26 (.14) ⁺
Modality (PMTO)	1.11 (5.19)	.03 (.11)
Time $\times$ Modality (PMTO)	-.19 (2.85)	-.16 (.10)
Choice $\times$ Time	7.99 (3.51) *	-.20 (.13)
Choice $\times$ Modality (PMTO)	6.42 (7.65)	.32 (.16) *
Choice $\times$ Time $\times$ Modality (PMTO)	-8.20 (4.03) *	.33 (.14) *

Notes.

⁺ p < .10,

* p < .05,

*** p < .001.

Models included parental psychological problems (measured by BSI 18 global severity) as a covariate. PMTO = Parent Management Training-Oregon Model, SAU = Service as Usual