

Ethnicity moderates outcome in family focused treatment for pediatric obsessive compulsive disorder

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ABSTRACT

Objective: This study examined predictors and moderators of treatment outcome in a randomized controlled trial (RCT) comparing two active interventions for pediatric obsessive compulsive disorder that differed with respect to the focus and format of family intervention. We had a particular interest in the role of race/ethnicity in shaping outcomes given our relatively diverse sample composition and the limited prior work in this area.

Method: A total of 62 youths (Mean age = 12.71 years; 57 % male; 34 % non-white) were assigned to either a standard cognitive behavioral therapy (CBT) family intervention (ST) or to a tailored intervention designed for cases of OCD complicated by poor family functioning (Enhanced Family Therapy; ET). Treatment in both arms involved 12 sessions of exposure therapy; the family interventions differed. Predictor and moderator variables were chosen based on the extant literature.

Results: Minority status did not predict outcome, suggesting that overall, white and non-white youth had comparable treatment response. Race/ethnicity did, however, moderate response with non-white youth faring better in the ET arm of the study. In particular, minority youth in ET had, on average, post-treatment CYBOCS scores consistent with clinical remission whereas their ST counterparts were left with symptoms considered moderately severe. There were no predictors of treatment outcome.

Conclusions: Minority status predicts poorer response to standard CBT across disorders, suggesting the need for possible treatment adaptations. The present findings highlight one avenue for matching patients to treatments that might optimize outcomes and underscore the value of family involvement in OCD treatment.

Pediatric obsessive compulsive disorder (OCD) is debilitating condition that is associated with substantial cross domain impairment (Piacentini & Langley, 2004) and heightened risk for poor long-term outcomes (Stewart et al., 2004). Once thought relatively rare, it is recognized now as a common and frequently chronic condition in children and adolescents (American Psychiatric Association, 2013). Both cognitive behavior therapy (CBT) and selective serotonin reuptake inhibitors (SSRIs) have strong empirical support for improving symptoms of OCD and related impairment, producing average treatment effect sizes of 1.21 and 0.5 respectively (measured in Hedge's *g*; McGuire et al., 2015). Current practice guidelines specify CBT as the frontline intervention for mild to moderate cases of pediatric OCD given its favorable risk-benefit ratio and the preference expressed by most youth and families (Freeman et al., 2018; Geller & March, 2012; Lewin,

McGuire, Murphy, & Storch, 2014); combined treatment is the recommendation for more severe cases. Despite this encouraging landscape, a challenge for both researchers and clinicians is that many youth fail to respond to treatment, even when they receive state-of-the-art care under ideal circumstances. Remission is difficult to achieve, and rates of partial response range from 28 to 60% (Franklin et al., 2011; Freeman et al., 2014, 2018; March, 2004; Piacentini et al., 2011) across pediatric OCD treatment trials; this variability reflects both methodological differences among trials as well as the heterogeneity of clinical presentation. Given that no one treatment will work for everyone, efforts to understand which treatments work best for which subsets of youth remain crucial for the field (Bloch et al., 2014; Kazdin, 2014).

Research on predictors and moderators of treatment outcome for

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youth with OCD aims to address these questions, and it provides a necessary first step toward matching patients to treatments. As defined elsewhere, predictors and moderators are pre-treatment (i.e., baseline) features unrelated to treatment condition (Kraemer, Wilson, Fairburn, & Agras, 2002). Predictor variables influence outcome for all youth regardless of which treatment they receive, providing broad guidance about who is likely to benefit (or not) from treatment; they address the issue of which variables influence the strength of the treatment effect. Moderators are baseline characteristics that interact with treatment condition. They address the issue of which child is likely to benefit from one treatment versus another based on characteristics present at baseline. Moderator analyses are valuable both for optimizing outcomes (by linking youth with the treatments most likely to work for them) and for conserving resources (by avoiding treatments that are unlikely to work or that are, in some cases, contraindicated). They are also the foundation of empirically-guided efforts to sequence interventions or develop treatment algorithms.

The literature on predictors of outcome in CBT for OCD continues to grow, spurred largely by secondary analyses of randomized controlled trials (Ginsburg, Kingery, Drake, & Grados, 2008; March, 2004; Peris et al., 2012; Peris, Yadegar, Asarnow, & Piacentini, 2013). On the whole, these studies identify a consistent set of patient and family-level variables associated with poor treatment, including CBT, response; they include higher levels of baseline symptom severity and impairment, greater comorbidity, and older patient age. Similarly, these studies consistently find that youth with a family history of OCD and those in homes with higher levels of symptom accommodation and dysfunction fare worse in CBT (Peris, Rozenman, Sugar, McCracken, & Piacentini, 2017; Garcia et al., 2010; Ginsburg et al., 2008; Turner, O’Gorman, Nair, & O’Kearney, 2018). Features such as gender, length of illness, and symptom profile appear generally unrelated to outcome in youth, but females seem to have better treatment response than males to CBT in adults (Raffin, Fachel, Ferrao, de Souza, & Cordioli, 2009). Notably, few studies have examined the role of ethnicity, although in the broader literature, non-white youth with a range of disorders fare more poorly in CBT compared to their white counterparts (Cummings, Ji, Allen, Lally, & Druss, 2017; Cummings, Ji, Lally, & Druss, 2019; Ginsburg et al., 2011).

By contrast, research on moderators is relatively sparse (McGuire et al., 2015; Turner et al., 2018). Partly, this is due to the fact that moderator analyses, by definition, require either a comparison of two treatments or a treatment group and control group, with the former design more likely to provide information about intervention personalization. Although there are now numerous pediatric OCD clinical trials, the majority compare CBT to inactive treatment (e.g., wait list, pill placebo) and relatively few have examined the relative efficacy of two active treatments. However, head-to-head comparisons of active evidence-based interventions remain necessary for personalizing treatment to youth individual and contextual characteristics. Using data from the Pediatric OCD Treatment Study (March, 2004), which compared CBT to sertraline to combined treatment and pill placebo, Garcia and colleagues (2010) found that, in the presence of family history of OCD, there were no significant differences in outcome between youth in the four treatment conditions. However, youth receiving CBT monotherapy had a six-and-a-half time smaller treatment response if they had a family history of OCD than those without a family history. Interestingly, when combined treatment was administered, a family history of OCD still attenuated response, but to a lesser degree (2.5-fold). Using the same sample of POTS youth, March et al. (2007) reported that the presence of comorbid tics moderated outcome for sertraline but not CBT. Additional support for the moderating role of these two features (family history of OCD and presence of comorbid tics) was found in a recent meta-analysis of predictors and moderators in pediatric OCD (Turner et al., 2018). While instructive, findings from this body of work must be interpreted in light of the small number of studies, relatively small sample sizes, and corresponding concerns about statistical power.

In this study, we examine predictors and moderators of outcome in the context of a brief, personalized intervention for families of youth with OCD. The treatment was developed in response to a robust body of literature documenting links between poor family functioning and treatment outcome (Garcia et al., 2010; Merlo, Lehmkuhl, Geffken, & Storch, 2009; Peris et al., 2012); it was designed to be an adjunctive module for cases of OCD complicated by poor family functioning (e.g., high conflict, blame, poor cohesion). The goal of this adjunctive treatment is to teach problem solving and distress tolerance skills that enable family members to manage the conflicts that come up around OCD and to adhere to key tasks (exposure therapy, disengaging from symptom accommodation) more effectively. In a recent RCT, families were recruited based on a set of baseline indicators of problematic family functioning, previously shown to attenuate CBT response, and given 12 sessions of individual child exposure-based CBT. Half of them were randomized to standard evidence-based treatment (ST), which involved an additional half an hour of weekly family check-ins, systematic psychoeducation and support. The other half were assigned to standard evidence-based treatment plus six hour-long sessions of tailored family therapy focused on emotion regulation skills training, collaborative problem solving, and behavioral parent training. Results suggested an advantage for the tailored intervention in terms of both response (68 % enhanced family intervention versus 40 % ST,) and remission (58 % enhanced treatment versus 27 % ST) and in terms of improved family outcomes (REMOVED FOR BLIND REVIEW).

Here, our interest is in better understanding factors that may influence who fares best in this personalized family-focused treatment compared to standard evidence-based treatment. Based on a review of the literature which included individual treatment trials, review articles, and meta-analyses, we identified patient and family level of variables that were previously indicated as predictors and/or moderators of response (Ginsburg et al., 2008; McGuire et al., 2015; Raffin et al., 2009). These included demographic (age, gender), baseline clinical (OCD severity, OCD-related impairment, family accommodation, parental psychopathology), and family (conflict, cohesion, accommodation) variables.

Interestingly, none of the three recent meta-analyses that examined predictors or moderators of pediatric OCD response to CBT (McGuire et al., 2015; Turner et al., 2018; Wu, Lang, & Zhang, 2016), nor any of the studies included in these meta-analyses, examined ethnic/racial minority status as a predictor or moderator. This is perhaps not surprising, as the vast majority of published OCD efficacy studies have very small proportions of ethnic minority participants (Wetterneck et al., 2012; Williams, Powers, Yun, & Foa, 2010), a finding that reflects broader limitations of the field (Polo et al., 2018). It is nonetheless concerning given the rapid growth of this segment of the youth population (Camarota, 2012) and practice parameters that stress the need for interventions with demonstrated efficacy for non-white youth (Pina, Polo, & Huey, 2019; Pumariega et al., 2013).

Although work in pediatric OCD has yet to emerge, existing evidence suggests that ethnic minority youth exhibit much lower remission rates than their Caucasian counterparts in CBT (as well as in pharmacotherapy and combined CBT + pharmacotherapy) for non-OCD anxiety (Ginsburg et al., 2011). Notably, recent findings in the area of pediatric internalizing disorders have found that implementing evidence-based treatment in real-world settings improves treatment response in minority youth (Weersing, Jeffreys, Do, Schwartz, & Bolano, 2017), and that the strength of the association between some family constructs (e.g., acceptance, criticism, psychological control) and anxiety-related symptoms may be attenuated in minority families (Gonzalez & Weersing, 2014; Halgunseth, Ispa, & Rudy, 2006; Hill, Bush, & Roosa, 2003). Thus, a major goal of the current study was to explicitly examine the potential role of youth racial/ethnic minority status on treatment response and remission, given that one of the interventions tested in the present study specifically targeted family variables thought to interfere with treatment. Based on findings from

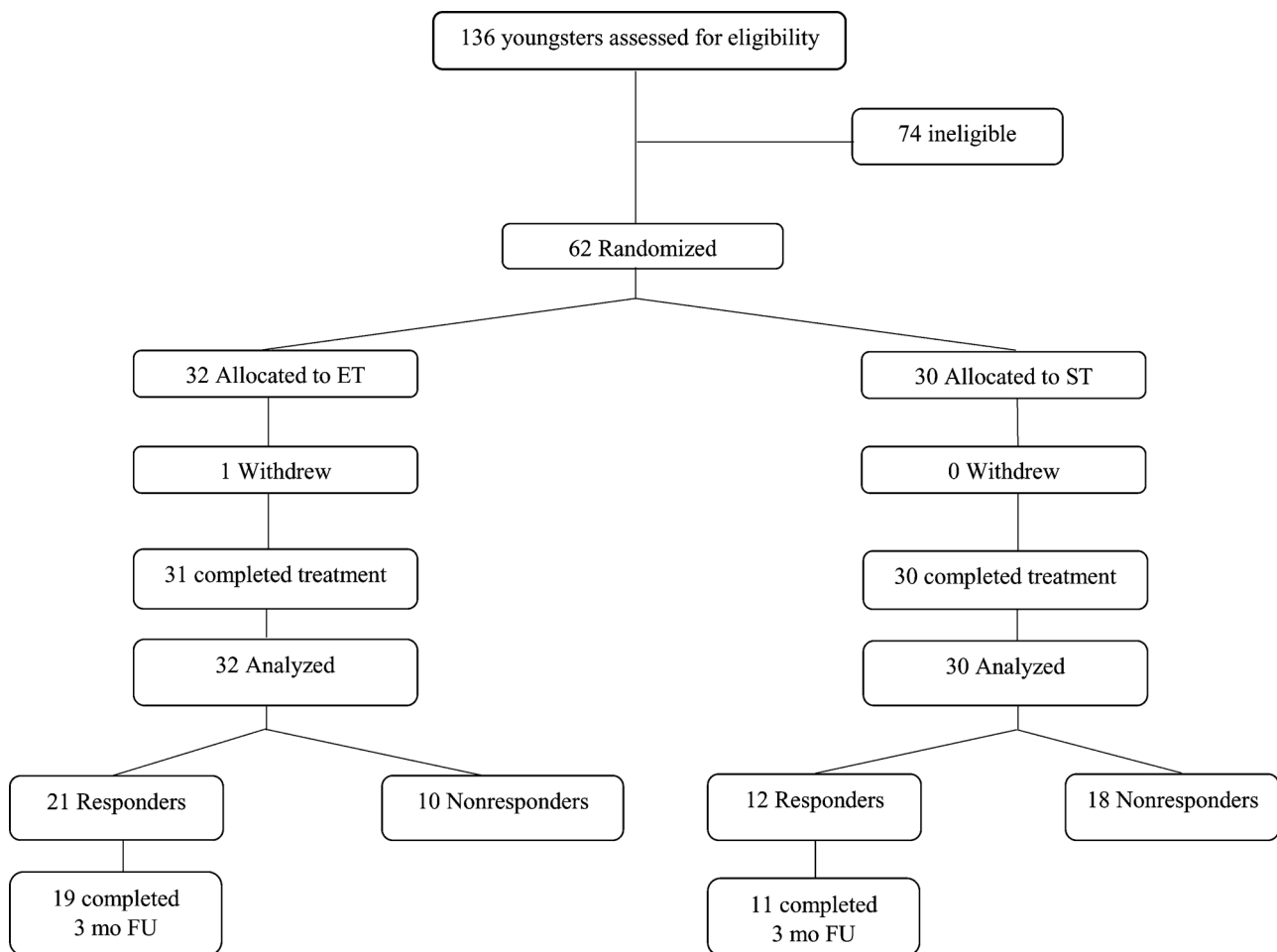


Fig. 1. Consort Diagram. Study enrollment and retention. Note: ET = Enhanced Family Treatment, ST = Standard Treatment, FU = Follow-up.

non-OCD anxiety, we hypothesized that ethnicity would moderate outcome such that non-white youth would fare better in the enhanced family intervention relative to standard CBT treatment given its particular family components. Based on the extant literature, we expected that baseline accommodation and symptom severity would predict, but not moderate outcome.

1. Method

1.1. Study design

The study was approved by the university institutional review board and registered on clinicaltrials.gov (NCT01409642). A total of 62 youth were assigned to either the enhanced family treatment or ST in a 1:1 ratio using a computerized block-randomization algorithm. These youth were diverse with respect to race/ethnicity (35 % non-white), particularly relative to previous clinical trials, where ethnic minority youth comprise 10 % or less of the sample (e.g., POTS, 2004; Freeman et al., 2014; Storch et al., 2007). All youth received 12 sessions of individual exposure-based CBT and the same amount of family intervention time (~1 h per week for 12 weeks). However, the content and structure of the family intervention differed, with enhanced treatment families meeting every other week for an additional hour of joint therapy and ST families participating in 30-minute meetings at the end of each child session. In ST, this time was devoted to systematic psychoeducation, a review of the session, homework, and time for questions. In the enhanced therapy arm, the sessions focused on teaching distress tolerance skills, collaborative family problem solving around

OCD, and a stepwise approach to disengaging from accommodation which involved developing joint parent and child hierarchies for each step of the process. Thus, the total amount of family time in each treatment was the same, but involved different content. Independent evaluators (IEs) blind to study condition completed clinical assessments. Study therapists were masters and doctoral level clinicians (n = 9) who self-reported four different ethnicities: four Caucasian therapists saw 29 % of cases, two Asian therapists saw 13 % of cases, two Asian/biracial therapists saw 53 % of cases, and one therapist identifying as “other” saw 5% of cases.

1.2. Participants

Youth ages 8–17 years (n = 62) and their families were recruited via referrals from a pediatric OCD specialty clinic in an academic medical center and from the community. As the target treatment was tailored to the needs of cases of OCD complicated by poor family functioning, eligibility was determined based on both diagnostic and family criteria: (a) a primary DSM-IV-TR (American Psychiatric Association, 2013) diagnosis of OCD; (b) a score of 15 or higher on the Children’s Yale-Brown Obsessive Compulsive Scale (CY-BOCS); (c) at least two indicators of poor family functioning on measures previously shown to predict diminished response to CBT for OCD (Peris et al., 2017). Elevations on these measures were determined using previously established cut-points on measures of conflict, blame, and cohesion; (d) no prior history of receiving CBT for OCD; (e) a parent who could speak sufficient English to participate in family therapy; (f) no comorbid psychiatric illness for which study participation was contraindicated

(e.g., schizophrenia, substance dependence); other co-primary (e.g., anxiety, MDD) and secondary diagnoses were permitted. Youth on a stable dose of psychotropic medication were included provided they were comfortable refraining from changes during the course of the trial. The final sample self-identified as relatively diverse: 66 % Caucasian; 13 % Latino; 7% Asian; 3% African American; 7% bi-racial; 4% other non-white.

1.3. Procedures

Following an initial telephone screen, families who appeared to be eligible were invited to the clinic to complete informed consent/assent and the baseline evaluation. The evaluation was comprised of diagnostic and symptom severity interviews administered by IEs along with a standardized battery of self-report measures. Following the baseline assessment, eligible cases were randomly assigned to either the target family therapy or to ST (see Fig. 1 for original study consort).

Baseline demographic and clinical characteristics tested as predictors/moderators

1.4. Demographic variables

Age at baseline, in years and month, was examined as a continuous variable.

Gender was recorded at baseline as a dichotomous (male/female) variable, with males serving as the reference group in the analyses below.

Race/Ethnicity. Youth racial/ethnic minority status was recorded at baseline as provided by the consenting parent. Based on the U.S. Census Standards for Race and Ethnicity, any identification as racial (i.e., Black or African American, Asian, American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander) and/or ethnic (i.e., Hispanic or Latino) minority was coded as minority, with Latino the most common designation.

Given the small cell sizes, we followed the convention of prior studies (Arch & Ayers, 2013; Asarnow, Emslie, Clarke, Wagner, Spirito et al., 2009; Curry, Rohde, Simons, Silva, Vitiello, Kratochvil, et al., 2006) to treat minority status as a dichotomous (yes/no) variable, with Caucasian youth serving as the reference group.

While youth were not block-randomized on minority status, there were not group differences in proportion of minority youth randomized to the two treatment arms ($\chi^2(1) = .008, p = .93$).

1.5. Baseline OCD severity and impairment

Children's Yale-Brown Obsessive Compulsive Scale (CY-BOCS; Scahill et al., 1997) is a clinician-rated interview consisting of 10 items rated on a 5-point Likert scale. The total severity score was used to assess severity of symptomatology. The CY-BOCS possesses adequate internal consistency and convergent and discriminant validity (Storch et al., 2004). The present sample yielded inter-rater reliability ICC = .98 and Cronbach's $\alpha = .63$ for the total score at baseline.

Child Obsessive Compulsive Impact Scale-Revised (COIS-R; Piacentini, Peris, Bergman, Chang, & Jaffer, 2007) is designed to assess OCD-specific functional impairment. It is comprised of 33 items on a 4-point Likert scale, and possesses acceptable psychometric properties. Cronbach's $\alpha = .88$ for mother and .91 for father at baseline. The COIS-R from primary reporter (i.e., either mother or father when both reports were available) was used as a predictor.

1.6. Parental psychopathology and family functioning

Family Accommodation Scale (FAS; Calvocoressi et al., 1999) is a 13-item interview with well-established psychometric properties that was administered by IEs to parents to assess the degree of family accommodation over the preceding month. It measures both behavioral

involvement in symptoms (e.g., participation in rituals) and the level of family distress associated with this involvement. Baseline Cronbach's $\alpha = .84$.

Brief Symptom Inventory (BSI; Derogatis, 1993) is a widely used and psychometrically sound measure of parental psychopathology. The global severity index (BSI-GSI) was used as a measure of parental psychopathology, with subscale score converted into gender-corrected t-scores. The BSI from the primary reporter (i.e., either mother or father) at baseline was used as a predictor.

Family Environment Scale (FES; Moos & Moos, 1994) cohesion and conflict scales were used to determine eligibility based on prior work indicating that high conflict and poor cohesion (independently and together) predict poor outcome. To examine their roles as predictors, mean FES subscale scores for mother and father reports were averaged into an index as with prior investigations (Peris et al., 2017) whenever available for each conflict and cohesion subscales.

1.7. Outcome of interest

Consistent with the original RCT, treatment response was assessed with one binary and one continuous variable.

Clinical Global Impression –Improvement Scale (CGI-I) is an IE-rated measure of overall improvement from baseline. Scores range from 1 (very much improved) to 7 (very much worse), with youth rated as 1 or 2 (much improved) considered treatment responders. It was used as the primary binary measure of treatment outcome, in keeping with the approach of the parent RCT. As the CY-BOCS is typically tested as a primary outcome in pediatric OCD clinical trials (Murphy et al., 2017; Storch et al., 2016), in this study, we tested OCD severity with the CY-BOCS as a repeated-measures (i.e., time-varying) outcome.

1.8. Statistical analyses

Predictors were defined as baseline pre-randomization variables that have a main effect on treatment response regardless of treatment condition. It was decided *a priori* that treatment condition would still need to demonstrate a significant main effect in models, and candidate predictor variables have a significant main effect for the candidate variable to be considered a predictor. Logistic regressions were conducted for the CGI-I outcome, with each proposed predictor entered individually into a model with treatment condition. Any significant univariate predictors would then be entered into a multivariate model to identify the most parsimonious predictor(s), using a backward stepping procedure with $p > .1$ for removal. Mixed models were run for the CY-BOCS outcome, with each proposed predictor entered individually with treatment condition and time. Again, it was decided that for a candidate variable to be considered a significant predictor, it would interact with time (to reflect pre-to-post-treatment change), with the treatment condition x time interaction also retaining significance.

Moderators were defined as baseline pre-randomization variables that differentially predicted outcome by treatment condition. Again, logistic regressions were used for the CGI-I outcome and mixed models for CY-BOCS outcome. Significant moderation would consist of a significant interaction between the candidate variable and treatment group in predicting outcome. For both outcomes, it was decided *a priori* that marginal means would be examined in the case of significant interactions.

2. Results

2.1. Predictors of response

Results for univariate tests of candidate predictors for both response variables are presented in Table 1. No candidate demographic, clinical variables, or family variables were significant predictors of response for either CGI-I or CY-BOCS outcomes. Of importance, the effect of

Table 1
Univariate baseline predictors and moderators of treatment outcome.

Candidate Baseline Variables	Treatment Responder (CGI-I Outcome)		OCD Symptom Reduction (CYBOCS)	
	Predictor <i>p</i> -value	Moderator <i>p</i> -value	Predictor <i>p</i> -value	Moderator <i>p</i> -value
Age	.32	.45	.99	.56
Gender	.76	.22	.97	.86
Minority Status	.90	.21	.51	.02
CYBOCS	.59	.30	*	*
COIS-R	.09	.10	.58	.22
BSI total score	.82	.40	.37	.55
FES - cohesion	.99	.36	.42	.58
FES - conflict	.19	.72	.18	.81
FAS	.88	.54	.15	.46

*Did not assess baseline CYBOCS as predictor/moderator given that CYBOCS change was continuous outcome in these models.

treatment remained significant across models, suggesting that the effects found in the original clinical trial were robust across baseline demographic, clinical, and family variables. To assess whether treatment response was related to therapist status as Caucasian or racial/ethnic minority, chi-square analyses were conducted. They were not significant (chi-square (1) = .28, $p = .60$), and treatment arm and therapist status did not interact to predict treatment response ($B = 1.87$, $SE = 1.24$, $p = .13$). Similarly, recognizing that race/ethnicity may be confounded with other economic and environmental variables, we assessed whether family structure (one- versus two-parent home) was related to outcome. 85 % of youth in the sample were in intact two-parent households; the remainder were either in homes where parents were divorced, a parent had died, or parents had never married. Youth from not intact homes were equally distributed between the two treatment arms (chi-square(1) = 1.41, $p = .24$). There were no differences in treatment response in the sample overall (chi-square(1) = 0.67, $p = .41$) and there was not a significant interaction between household composition and treatment arm in predicting response ($B = .51$, $SE = .91$, $p = .58$).

2.2. Minority status as moderator of response

Results across candidate moderators for both response variables are presented in Table 1. No baseline clinical or family variables were found to significantly moderate treatment outcome; neither did age or gender. In regards to minority status, logistic regressions including treatment condition, minority status, and their interaction did not significantly predict week 12 responder status ($p = .21$). However, a mixed models analysis with CY-BOCS total severity score as outcome revealed a significant treatment condition X time X minority status interaction ($F(2,57.50) = 4.43$, $p = .016$). Follow-up contrasts of estimated marginal means revealed that there were no group differences in post-treatment CY-BOCS severity scores for Caucasian youth (Mean difference = -0.35, $SE = 2.16$, $p = .87$). However, minority youth in the enhanced treatment arm had significantly lower post-treatment CY-BOCS scores (Mean = 10.10, $SE = 2.19$) than minority youth in ST (Mean = 21.70, $SE = 2.19$) at post-treatment (Mean difference = -11.60, $SE = 3.10$, $p < .001$).

We further explored baseline CY-BOCS total scores by minority status in an attempt to unpack these ethnicity findings (Fig. 2). Minority youth had statistically higher baseline CY-BOCS total severity scores (Mean = 26.81, $SD = 3.19$) than Caucasian youth (Mean = 24.71, $SD = 3.60$; $t = -2.35$, $p = 0.23$), although we note that this two-point difference may not be clinically meaningful. Additionally, the mean baseline CY-BOCS severity score for minority youth was comparable to the enhanced family therapy and ST groups (Mean difference = -0.17,

$SE = 1.54$, $p = .91$).

3. Discussion

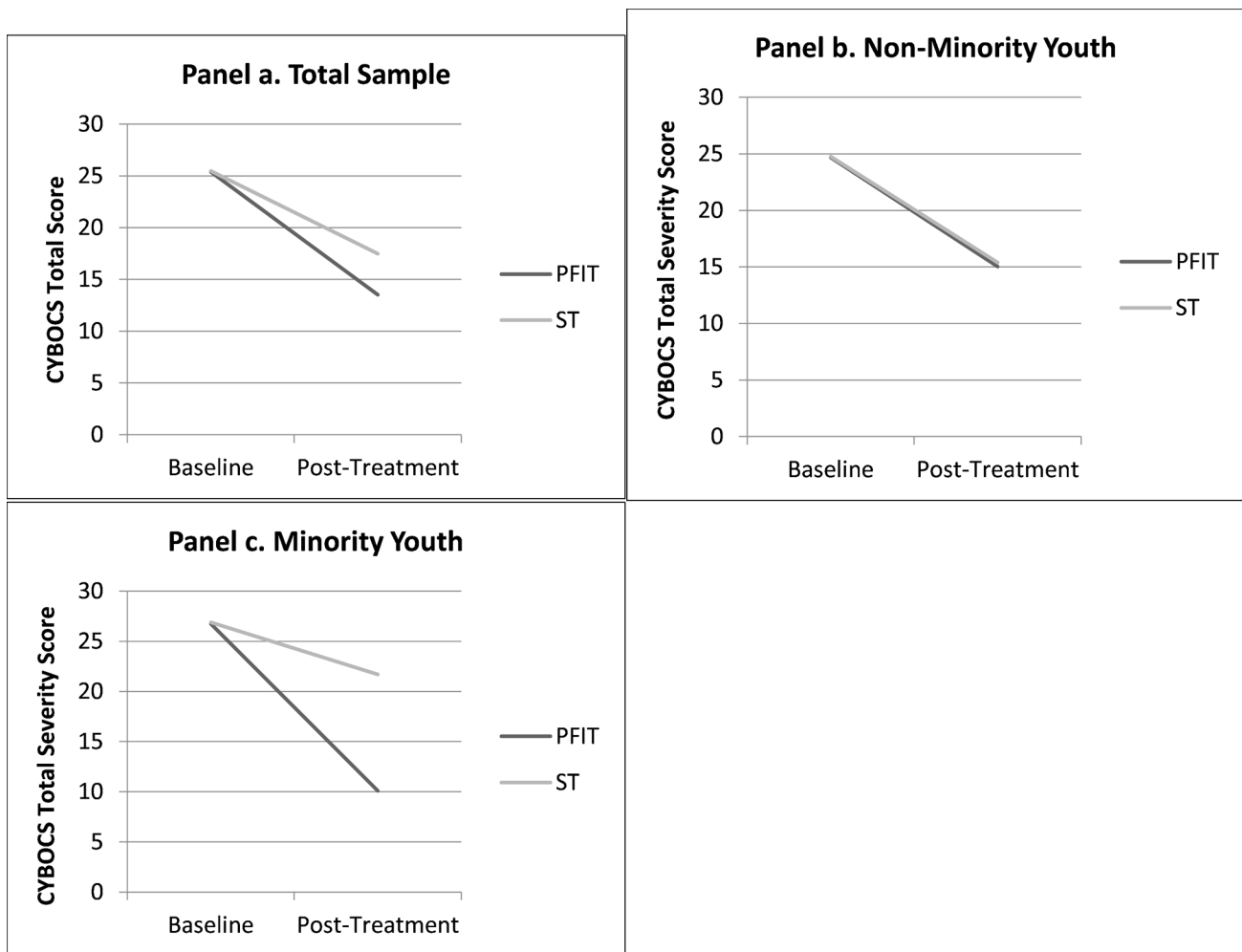
This study examined predictors and moderators of treatment outcome in an RCT that tested a personalized family intervention for complex cases of pediatric OCD. We had a particular interest in the role of race/ethnicity in shaping outcomes given our relatively diverse sample composition and the limited prior work in this area. Consistent with expectations, ethnicity moderated outcome such that non-white youth fared better in a tailored family treatment module compared to their white counterparts. Counter to expectations, there were no significant predictors of treatment response.

Across a large and well established body of pediatric OCD treatment trials, two features are consistent. The first is a general reliance on non-active comparison groups to test a target intervention; with limited exception (Freeman et al., 2014; March, 2004; Piacentini et al., 2011), most trials employ waitlist, placebo, or treatment as usual reference arms, a design that limits the ability to meaningfully consider which treatments work best for which subsets of youth. Second, most trials draw on overwhelmingly Caucasian samples, with minority enrollment ranging from 7 to 10% in many trials (Franklin et al., 2011; Freeman et al., 2014; March, 2004). Although the shortcoming is in no way specific to pediatric OCD, it leaves open the question of how well current treatments work for large segments of an increasingly diverse youth population. With this in mind, the present RCT was well positioned to address both of these issues. Drawing on a reasonably diverse sample to compare two active treatments both of which included exposure-based CBT and varied by family intervention format and content, we were able to consider which baseline features were linked to outcomes in general (predictors) and which interacted with treatment condition (moderators).

Minority status did not predict outcome, suggesting that overall, white and non-white youth had comparable treatment response in this study. Race/ethnicity did, however, moderate response with non-white youth faring better in the enhanced family therapy arm of the study. Indeed, minority youth in that treatment condition had, on average, post-treatment CYBOCS scores consistent with clinical remission; by contrast, their performance in the ST arm left most youth in a range of symptoms considered moderately severe. In the broader literature, minority status predicts poor response to standard CBT across a variety of mental health problems (2019, Cummings et al., 2017; Ginsburg et al., 2011), suggesting the need for possible treatment adaptations (Weersing et al., 2017). Simultaneously, several strands of research suggest that family involvement may be a particularly important vehicle for enhancing outcomes for non-white youth in treatment (Campos & Kim, 2017; Pina, Villalta, & Zerr, 2009). This may stem from cultural values that place greater emphasis on the family, and from perspectives that view the self as being interdependent with one another (Campos & Kim, 2017). Such cultural perspectives may position non-white youth to derive greater benefit from treatments that actively involve family members. The enhanced family treatment's emphasis on collaborative family problem solving, tackling disengagement from symptom accommodation together as a team, and practicing distress tolerance skills as a family may align well with the goals and preferences of these families.

Although it was somewhat surprising that neither baseline symptom severity nor family accommodation emerged as significant predictors of response based on the prior literature, we speculate that this may be due to the fact that families were selected based on high levels of distress and dysfunction (thereby decreasing the range at baseline) and enrolled in two comparably active treatments.

The present findings should be interpreted in light of several study limitations. Although the size of the parent RCT is on par with many others in the field, and although we chose our predictors and moderators with care, the present sample is small and replication is needed.



* Data presented for estimated marginal means from mixed models.

Fig. 2. OCD Severity (CYBOCS*) Over Time to Enhanced Family Therapy (ET) and Standard Treatment (ST) for Total Sample and by Minority Status.

*Data presented for estimated marginal means from mixed models.

Second, although a marked improvement upon earlier trials, there remains room for much improvement in ethnic minority representation. Moreover, because ethnic minority youth are a markedly heterogeneous group future studies are needed to look not only at specific racial/ethnic groups but also at varying immigration experiences, acculturation, and sociodemographic characteristics that may influence OCD outcomes within these subgroups. Grouping of non-white youth is likely to mask important differences among minority youth with potential implications for care and should be a focus of future research.

These limitations notwithstanding, the present study marks an important step forward in studying a more diverse group of youth with OCD. It suggests that there may be particular value in adopting a family-based CBT approach for non-white youth who present with OCD complicated by poor family functioning. In addition, it points to pathways for personalization for this subset of youth that may prove fruitful for optimizing outcomes at the individual and family level.

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