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A randomized controlled trial of a brief family intervention to reduce accommodation in obsessive-compulsive disorder

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BOSTON UNIVERSITY
GRADUATE SCHOOL OF ARTS AND SCIENCES

Dissertation

**A RANDOMIZED CONTROLLED TRIAL OF A BRIEF FAMILY INTERVENTION
TO REDUCE ACCOMMODATION IN OBSESSIVE-COMPULSIVE DISORDER**

by

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To Matt, who has been with me every step of the way.

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(Order No.)

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ABSTRACT

Obsessive-compulsive disorder (OCD) is associated with substantial impairment across a number of life domains. Recently increased interest has been focused on the bi-directional relationship between OCD and family processes, particularly a subset of family reactions to OCD symptoms that are termed “accommodation.” Accommodation consists of any changes in family members’ behavior aimed at preventing or reducing the patient’s rituals or their distress related to OCD symptoms. For example, family members may provide patients with supplies they need to ritualize (e.g., extra soap), or may engage in rituals themselves (e.g., excessive washing). Previous research has indicated high levels of accommodation are associated with more severe OCD symptoms and functional impairment on the part of patients, and may interfere with the first line psychosocial treatment for OCD, a form of cognitive behavior therapy (CBT) consisting of exposure (to cues provoking obsessions) and ritual prevention (ERP). Thus, the aims of this

research project were to develop and test a brief intervention focused on reducing accommodation in the family members of adult OCD patients with the aim of facilitating the implementation of ERP.

Eighteen patient and family member dyads participated in the study. All patients received a course of standard individual ERP for OCD. Family members were randomized to either the intervention group or a control group that did not receive any intervention. The goals of the two-session intervention were to identify current accommodation behaviors and provide alternative ways of responding to OCD symptoms. Patients and family members were assessed at baseline and regularly throughout the 25-week study. Results revealed that the intervention successfully reduced accommodation with a large effect size. Patients whose family members received the intervention showed greater levels of symptom reduction than patients whose family members had not. Hierarchical regression analyses revealed that change in family accommodation from baseline accounted for a significant amount of variance in later OCD symptoms. These results suggest that this intervention successfully enhanced the outcomes of standard CBT including ERP for adults with OCD. The findings support further exploration of this intervention in larger samples and in other diagnostic groups where accommodation is likely to occur.

Table of Contents

List of Tables.....	xi
List of Figures.....	xii
List of Abbreviations.....	xiii
Introduction.....	1
Obsessive-compulsive disorder and the family.....	3
OCD and accommodation.....	4
Relationship between accommodation and symptoms.....	6
Effect of accommodation on treatment outcome.....	7
Effect of accommodation on family members and family responses.....	9
Range and efficacy of family-inclusive treatments in OCD.....	11
Potential benefit of an adjunctive intervention.....	14
Study Aims.....	14
Hypotheses.....	15
Methods.....	16
Participants.....	16
Patients' treatment.....	18
Intervention.....	18
Measures.....	19
Power and analytic plan.....	24
Results.....	26
Discussion.....	34

Summary of major findings.....	34
Acceptability of the intervention.....	34
Impact of the intervention on family accommodation.....	35
Impact of the intervention on patients' OCD symptoms.....	36
Effect of change in accommodation on OCD symptoms.....	37
Impact of the intervention on family processes and distress.....	38
Strengths and limitations of the intervention.....	40
Study limitations and directions for future research.....	42
Summary.....	43
Tables.....	45
Figures.....	56
Appendix.....	58
Appendix A. Intervention handout.....	58
Appendix B. Family Accommodation Scale.....	59
Appendix C. Feedback Form.....	66
References.....	70
Vita.....	87

List of Tables

Table 1. Demographic characteristics of patients.....	45
Table 2. Demographic characteristics of family members.....	46
Table 3. Patient assessment schedule.....	47
Table 4. Family member assessment schedule.....	48
Table 5. Comparisons of baseline symptom severity across patients.....	49
Table 6. Comparisons of baseline functioning across family members.....	50
Table 7. Family members' ratings of the usefulness of the study intervention.....	51
Table 8. Means, standard deviations, and effect sizes of accommodation levels between BFI and control group family members.....	52
Table 9. Means, standard deviations, and effect sizes of OCD symptom levels between BFI and control group patients.....	53
Table 10. Hierarchical multiple regression predicting patients' OCD symptoms at week 8.....	54
Table 11. Means and standard deviations of changes in family members' secondary outcomes across groups.....	55

List of Figures

Figure 1. Recruitment flow of patients into the study.....56

Figure 2. Mediation model of condition, change in accommodation, and
OCD symptoms.....57

List of Abbreviations

BAI	Beck Anxiety Inventory
BDI-II	Beck Depression Inventory, second edition
BFI	Brief family intervention
CARD	Center for Anxiety and Related Disorders at Boston University
CBT	Cognitive-behavioral therapy
CY-BOCS	Children's Yale-Brown Obsessive Compulsive Scale
<i>d</i>	Cohen's <i>d</i>
DTS	Distress Tolerance Scale
EE	Expressed emotion
ERP	Exposure and ritual prevention
FAD	Family Assessment Device
FAD-GF	Family Assessment Device - General Functioning subscale
FAS	Family Accommodation Scale
FIT	Family-inclusive treatment
IPT	Interpersonal psychotherapy
MGH	Massachusetts General Hospital
<i>n</i>	Sub-set of study sample
<i>N</i>	Total study sample
OCD	Obsessive-compulsive disorder
PRS	Patient Rejection Scale
<i>r</i>	Pearson's correlation
<i>t</i>	T statistic
Y-BOCS	Yale-Brown Obsessive Compulsive Scale, first edition
Y-BOCS-II	Yale-Brown Obsessive Compulsive Scale, second edition

Introduction

It is well understood across a variety of mental disorders that psychopathology and intimate relationships are linked in important ways (Whisman & Baucom, 2012; Whisman, 2007; Whitton et al., 2007). Environmental stress, including stress arising from relationship conflict, is linked to increased levels of mental health problems in patients (O’Leary, Christian, & Mendell, 1994). Additionally, the experience of living with a person with a mental disorder is itself stressful to family members, resulting in increased burden and subsequent relationship distress (Benazon & Coyne, 2000; Zaider, Heimberg, & Iida, 2010). Furthermore, families may respond to patients’ symptoms in ways that are more or less adaptive in terms of reducing the long-term likelihood of future symptoms (Butzlaff & Hooley, 1998). The evident relationships among these factors suggests a compelling opportunity for enhancing our existing evidence-based treatments by addressing the interpersonal contexts within which patients function. Targeting these cycles of influence has the potential to enhance treatment outcomes for patients and functioning for families.

To date a number of attempts have been made to address the role of the family in the treatment of adult psychopathology. Substantial efforts have been made to incorporate family members into treatment for patients with psychotic disorders (Addington, Collins, McCleery, & Addington, 2005), with significant positive impact on patients’ risk of relapse and rehospitalization, increased medication adherence, and lower levels of burden and stress in family members (Pilling et al., 2002). Family-based care is now considered

an evidence-based treatment for reducing relapse in psychosis (Kreyenbuhl, Buchanan, Dickerson, & Dixon, 2010).

Beyond their use in the psychotic disorders, family- or couple-based treatment approaches have also been used in adult emotional disorders. Early research in this area was conducted among patients with agoraphobia (Mathews, Teasdale, Munby, Johnston, & Shaw, 1977). The tendency for these patients to become extremely dependent upon family members had long been noted, leading researchers to investigate the effect of including spouses as “co-therapists.” One such study found that outcomes for those patients whose spouses were included in the treatment were superior to the outcomes of patients who completed treatment alone (Barlow, O’Brien, & Last, 1984), and that this effect was greater in those couples who were experiencing conflict surrounding the patient’s agoraphobia. Later studies showed that the enhanced outcomes for patients whose spouses participated in the treatment relative to those whose spouses did not were maintained many years post-treatment (Cerny, Barlow, & Craske, 1987; Munby & Johnston, 1980). More recently, couples-based approaches for the treatment of depression have been evaluated and shown efficacy (Barbato & D’Avanzo, 2008; Leff et al., 2000), and studies in bipolar disorder have found that the addition of family treatment to standard medication treatment results in significantly reduced relapse episodes, as well as enhancing medication adherence and family communication (Miklowitz, George, Richards, Simoneau, & Suddath, 2003).

Though the above examples are grounded largely in a behavioral or cognitive-behavioral perspective, other approaches have also addressed patients’ significant

relationships. Interpersonal psychotherapy (IPT) is a theoretical framework that explicitly targets patients' current social environment, focusing on the role of relationship dysfunction in maintaining symptoms (Klerman, Weissman, & Rounsaville, 1984). The link between social functioning and symptoms is explicitly outlined for the patient, and treatment focuses exclusively on improving the patient's present social relations rather than on the psychopathology directly. IPT has demonstrated efficacy across the depressive disorders (de Mello, Mari, Bacaltchuk, Verdelli, & Neugebauer, 2005), and also in bulimia nervosa (Fairburn CG, Jones R, Peveler RC, & et al, 1991), indicating that in the case of certain disorders, attention to relationship factors alone can result in significant improvement in individual symptoms. Despite these encouraging results and others from the IPT and family treatment literature, treatments that devote attention to patients' interpersonal environment remain a relatively underutilized approach in adults with emotional disorders.

Obsessive-compulsive disorder and the family

Obsessive-compulsive disorder (OCD) is defined by the experience of repetitive, intrusive, anxiety-provoking thoughts or images (obsessions) and/or the performance of overt or mental rituals for the purpose of relieving anxiety (compulsions) (American Psychiatric Association, 2013). Symptoms may wax and wane over time, but impairment is generally life-long without treatment (Pinto, Mancebo, Eisen, Pagano, & Rasmussen, 2006; Skoog & Skoog, 1999). Patients with OCD experience substantial emotional distress in addition to impairment across many life domains (Olatunji, Cisler, & Tolin, 2007). Interpersonal relationships, particularly within families, have been found to be

especially negatively affected in OCD (Albert et al., 2010; Lebowitz, Panza, Su, & Bloch, 2012; Storch et al., 2007). Recent research makes it clear that the impact of OCD symptoms extends beyond the individual patient, and also that family reactions may in turn affect the course of the disorder (Caporino et al., 2012; Van Noppen & Steketee, 2009).

OCD and accommodation

OCD symptoms often center on activities of daily living such as eating, bathing, or being in public. Because of the nature of the symptoms, the disorder can be especially disruptive to patients' functioning and therefore the family's functioning. Patients with OCD report significantly decreased levels of family functioning compared to patients with panic disorder or social phobia (Lochner et al., 2003), and moderate to severe levels of burden have been found in relatives of patients with OCD (Magliano, Tosini, Guarneri, Marasco, & Catapano, 1996). Family members are also easily drawn into behaviors such as rituals or avoidance via "accommodation," a term that includes any changes in family members' behavior aimed at preventing or reducing the patient's distress related to their OCD symptoms (Calvocoressi et al., 1995) or to decrease the time spent ritualizing. Examples of accommodation by family members include engaging in rituals (e.g., checking or cleaning excessively), providing necessary supplies for rituals (e.g., extra soap), or giving verbal reassurance related to OCD concerns (e.g., telling a patient with disturbing mental images of harming loved ones, "You're not a dangerous person – I'm certain you'd never hurt anyone!"). Rates of accommodation are quite high, with reports from relatives of both child and adult patients ranging from 62-100% of the sample

(Renshaw, Steketee, & Chambless, 2005). In a sample of 110 family members of adult patients who were being admitted to a residential OCD treatment program, 97% percent endorsed engaging in accommodation (Stewart et al., 2008). In over half of those cases (59%), accommodation was occurring at least daily.

Family members report a variety of reasons for engaging in accommodation. Some family members report that their accommodation is purely practical, aimed at reducing time-consuming rituals (Calvocoressi et al., 1999). Some patients explicitly request accommodation, and may become angry or even aggressive if family members refuse. Externalizing behavior on the part of patients, such as frequently being disobedient, mean, or aggressive, has been significantly associated with family accommodation (Caporino et al., 2012). Families may also be motivated to reduce the patient's distress in the presence of triggering stimuli – or perhaps to reduce their own distress in the face of the patient's distress. Multiple studies involving both adult and child patients have found a relationship between family accommodation and relatives' own anxiety symptoms (Albert et al., 2010; Calvocoressi et al., 1995, 1999; Caporino et al., 2012; Flessner et al., 2011). It may be that giving family members skills to tolerate the distress of watching their loved one experience anxiety (e.g., during exposures) would in turn allow them to limit their accommodation behaviors.

Family members who accommodate may also fail to attend to the long-term consequences of engaging in these behaviors, especially when they have high levels of empathy for the patient's distress. Neither parental empathy nor the tendency to consider the long-term consequences of current behavior independently predicts accommodation

in pediatric OCD; however, their interaction does (Caporino et al., 2012). Among parents who are highly present-oriented, highly empathic parents accommodate more than parents who are low in empathy; however among parents who are more future-oriented, highly empathic parents accommodate less than parents with low empathy, presumably because they are better able to consider the deleterious long-term consequences of their behaviors.

Relationship between accommodation and symptoms

Accommodation is often “successful” in the short term, in the sense of relieving the patient’s distress and perhaps facilitating the rapid completion of compulsive behavior. However, these family responses prevent the patient from confronting his/her obsessional thoughts and the anxiety that they provoke. This continued emotional avoidance ultimately maintains the patient’s obsessions and creates an escalating loop between the accommodation behaviors and the OCD symptoms. Furthermore, accommodation reduces the natural consequences of OCD behavior (e.g., interference with pleasurable or more highly valued activities, or the failure to complete other necessary tasks due to the time spent on rituals), potentially reducing patients’ motivation for change. Accommodation may keep patients stuck in the cycle of their OCD symptoms while also artificially keeping them “afloat” in other areas of their lives. Indeed, research has consistently identified a (cross-sectional) relationship between higher levels of accommodation and increased symptoms and functional impairment in both pediatric and adult patients (Amir, Freshman, & Foa, 2000; Calvocoressi et al., 1999; Peris et al., 2008; Stewart et al., 2008; Storch, Larson, Muroff, et al., 2010). In a study of 57 children with

OCD and their parents, parental accommodation was found to partially mediate the relationship between symptom severity and functional impairment (Storch et al., 2007). A separate study using structural equation analysis in a group of 61 children and their parents found that parental accommodation fully mediated the relationship between OCD symptoms and OCD-specific impairment (Caporino et al., 2012).

Effect of accommodation on treatment outcome

Accommodation is not only associated with poorer functioning and increased psychopathology in patients, but there is growing evidence that it interferes with exposure and ritual prevention (ERP) treatment, the gold standard intervention for OCD. Amir, Freshman, and Foa (2000) found that pre-treatment levels of “functioning modification” by family members had a significant effect on treatment outcome in patients ($r = .50$), even after accounting for patients’ baseline symptom severity. Although this study did not assess change in accommodation over the course of treatment, the results suggest that accommodation that is not addressed in treatment may blunt the effect of ERP, regardless of the patient’s initial impairment. More recent studies have also confirmed that higher levels of accommodation are associated with poor treatment outcomes. One such study compared adult patients who were considered “treatment refractory” (defined as having experienced <25% reduction in scores on the Yale-Brown Obsessive-Compulsive Scale (Y-BOCS; Goodman et al., 1989) despite several adequate treatment trials, including multiple trials of pharmacotherapy and at least 20 hours of ERP) to patients who were considered “treatment responders” (Ferrão et al., 2006). Rates of accommodation in the treatment refractory group, as measured by the

Family Accommodation Scale (FAS; Calvocoressi et al., 1999), were over 3 times higher than in the responders group. Most family members in the responders group (76.9%) reported no or limited accommodation, compared with only 14.3% of family members in the refractory group.

In one of the only existing studies examining the longitudinal effect of change in accommodation over treatment on outcomes, Merlo and colleagues (2009) studied 54 children who completed outpatient treatment and their parents. At least one parent attended every treatment session, and the protocol included specific attention to reducing parent accommodation. Symptom severity and accommodation, measured by the Children's Yale-Brown Obsessive Compulsive Scale (CY-BOCS; Scahill et al., 1997) and the FAS, respectively, were assessed at pre- and post-treatment. Parents reported significantly reduced accommodation at post-treatment, and post-treatment accommodation levels were significantly associated with children's symptom severity and impairment. In a regression analysis the authors found that, after accounting for pre-treatment symptom severity, the amount of change in accommodation from pre- to post-treatment significantly predicted post-treatment clinician-rated severity scores (less accommodation – greater symptom reduction) (Merlo et al., 2009).

Piacentini et al. (2011) used hierarchical linear modeling (HLM) to examine the relationship between changes in accommodation and changes in OCD symptoms in a sample of 71 children and their parents. The lagged time-varying covariate analysis indicated that for each 1-point decrease in FAS scores at a given time point, the patient's CY-BOCS score would decrease by an average of .27 points at the following time point.

This finding represents the only evidence of changes in accommodation temporally preceding changes in OCD symptoms in a pediatric sample. The result is extremely important to our understanding of the relationships among accommodation, symptom severity, and treatment response. Prior to the findings of Piacentini et al. (2011), it was unclear whether reductions in accommodation over the course of successful treatment were themselves contributing to patients' symptom reductions or were merely a tangential effect of patients' improvement, as earlier studies had only measured accommodation at pre- and post-treatment. These findings clearly demonstrate that, at least in pediatric patients, decreasing accommodation is directly contributing to reductions in symptom severity rather than following them. No such temporal analysis has yet been conducted with adult patients.

Effect of accommodation on family members and family responses

In addition to the effects on patients, family members are also negatively affected by accommodation behaviors. Increased levels of accommodation are related to significant amounts of family dysfunction; for example, greater accommodation is related to higher levels of depression and anxiety in family members, and to poorer general family functioning (Albert et al., 2010; Amir et al., 2000; Calvocoressi et al., 1999; Ramos-Cerqueira, Torres, Torresan, Negreiros, & Vitorino, 2008; Storch et al., 2009). Some researchers have suggested that families of OCD patients might be classified along a continuum from "over-accommodating" to "harshly antagonistic" (Livingston-Van Noppen, Rasmussen, Eisen, & McCartney, 1990; Van Noppen, Rasmussen, Eisen, & McCartney, 1991). Chambless and Steketee (1999) studied a mixed sample of both

patients with OCD or agoraphobia and reported that 40% of the patients' relatives were high in criticism on the Camberwell Family Interview (Vaughn & Leff, 1976), a measure of expressed emotion, and 33% were further rated as high in hostility. While family hostility alone was a consistent predictor of negative treatment outcomes in that study, including higher dropout rates and fewer treatment gains, non-hostile criticism was related to better outcomes on a behavioral avoidance test. It has been suggested that more critical spouses (or other family members) might be less tolerant of dependence and therefore engage in less symptom accommodation (Peter & Hand, 1988).

Renshaw and colleagues (J. G. Beck, 2010; Renshaw et al., 2005) have recently modified Van Noppen and colleagues' original model, suggesting that interpersonal processes in OCD are part of a transactional model that includes both accommodating behaviors and an independent dimension of hostile or antagonistic behaviors. High levels of either behavior (or both in combination) are seen as detrimental to patients and family members. There is existing evidence to support this model; as noted previously, high levels of accommodation have been associated with a wide range of poor functioning and outcomes for patients and family members. Regarding antagonistic behaviors, pre-treatment ratings family members' criticism and anger predict worse treatment outcome and higher likelihood of relapse (Renshaw, Chambless, & Steketee, 2006; Steketee, 1993).

Although the family members of patients with OCD are clearly struggling, there is evidence that change is possible and even desired by these relatives. In a study of 36 relatives of adult OCD patients, 80% of relatives who engaged in accommodation said

that they believed the patient's OCD behaviors to be entirely unreasonable, and 66% said that they did not think that their accommodations improved patient symptoms (Calvocoressi et al., 1999). There exists a great potential to modify these family behaviors by giving relatives the appropriate tools to respond to the OCD symptoms. In fact, in a separate survey of 98 family members of adult patients with OCD, 57% said they needed help in understanding OCD and how to respond to requests for accommodation, indicating a clear need and desire for interventions that provide support and information to family members (Shafran, Ralph, & Tallis, 1995). An intervention that involved relatives in treatment would thus benefit both patients and families by providing families with the information and skills needed to support patients without inadvertently exacerbating their symptoms.

Range and efficacy of family-inclusive treatments in OCD

Many approaches to “family-inclusive treatments” (FITs) for OCD have been implemented in research studies. Because children present unique developmental challenges in treatment, including relatively poorer insight and motivation, most FITs have been focused on this population (e.g., Freeman et al., 2008; Piacentini et al., 2011). Parents are incorporated into treatment as a way to bolster adherence to treatment procedures and to extinguish maladaptive cycles of parental accommodation and overprotection. Within these treatments, parents' efforts to reduce accommodation are sometimes framed as an exposure for the parents themselves, as they learn to tolerate the distress of not “rescuing” their child from experiencing high anxiety (Freeman & Garcia, 2008).

Despite the preponderance of FITs aimed at pediatric patients, given the previously noted evidence that OCD in adults is also associated with considerable family dysfunction and problematic levels of accommodation, several researchers have tested FITs for adult patients (e.g., Boeding et al., 2013; Grunes, Neziroglu, & McKay, 2001; Van Noppen, Steketee, McCorkle, & Pato, 1997). While the pediatric protocols almost exclusively include parents as the family member participants, FITs for adults may include spouses, siblings, or even adult children of the patients.

Along with variations in the age of the target population, FITs have varied considerably in their format, intensity, and content. Some of the treatments have been delivered to individual families (e.g., Freeman et al., 2008), some to groups of families (e.g., Van Noppen et al., 1997), and some in a hybrid group-and-individual format (e.g., Grunes et al., 2001). The individual family format allows for more personalized attention from clinician to family, while the group format allows families to draw support from and challenge one another. Regarding the intensity of the treatments, FITs have ranged from minimal family participation, such as a single session or portion of a session (e.g., Bolton & Perrin, 2008) up to the maximum possible amount, a fully family-based treatment (e.g., Storch et al., 2011). Finally, the content of the interventions has varied. Some have been limited to provision of psychoeducation or support (e.g., Chambless & Steketee, 1999), while others have included targeted attention to family behaviors or processes; for example, several protocols have included a specific focus on reducing family accommodation or on training family members as “exposure coaches” (e.g., Barrett, Healy-Farrell, & March, 2004).

A recent meta-analysis examined the overall effect of FITs on OCD symptoms and on functioning. Results indicated that the effects on both outcomes were large (symptoms pooled $d = 1.68$, $SE = 0.14$; functioning pooled $d = 0.98$, $SE = 0.14$) (Thompson-Hollands, Edson, Tompson, & Comer, in press). Several moderators of these effects, including group versus individual format and the age of patients, were examined. It was found that individual family formats resulted in significantly improved functioning outcomes relative to group formats. There were no differences across age groups (adults versus children) in either symptom or functioning outcomes, indicating that these treatments are equally efficacious for both children and adults. As noted above, families are incorporated into treatment much more commonly with pediatric patients, both in empirical studies and in general outpatient practice; however, the finding that there was not a significant difference in the impact of such treatments between child and adult patients supported the further utilization of this approach in adult populations.

Thompson-Hollands and colleagues (in press) also examined the potential moderating effect of the extent of family involvement in the FIT, as well as the inclusion of particular elements within the treatment. Interestingly, although the overall extent of family involvement in treatment (coded on a 1-5 scale) did not significantly moderate the effect of FIT on symptoms or functioning, the inclusion within treatment of specific attention to reducing family accommodation behaviors did significantly moderate functioning outcomes, with those treatments that included the accommodation focus outperforming those that did not. This suggests that the sheer amount of family involvement in treatment is not as important as identifying the most beneficial *targets* of

that treatment. Quality may trump quantity when it comes to including family members, at least in terms of bolstering patient outcomes.

Potential benefit of an adjunctive intervention

The issue of the length of family interventions, and determining how much time is sufficient in order to achieve a meaningful result, is an important one. As mentioned previously, fully family-based treatments for OCD exist and have demonstrated efficacy (Boeding et al., 2013; Van Noppen et al., 1997). Nevertheless, these treatments are resource-heavy to administer, particularly in the case of adult patients where individual treatment is by far the norm. In order to implement FITs, clinics would need to significantly alter their procedures, and clinicians without any experience in delivering a family-based treatment would need additional training and supervision. In addition to the increased burden on clinics, this format of treatment will not be practical for all families. For the majority of adult OCD patients, the relative of choice to participate in family-based treatment will likely be a spouse. However, childcare arrangements or work schedules may mean that having both partners present for 18 or 22 weeks of treatment is simply unfeasible (and, based on the previously cited meta-analysis, potentially unnecessary). A brief, adjunctive family intervention, focused narrowly on an area of family behavior where modification is likely to make a substantial impact on the pathology, would therefore be of great value.

Study aims

The primary aim of the present study was to develop and test a brief family intervention (BFI) specifically targeted at reducing accommodation among the relatives

of adult OCD patients. The secondary aim of the study was to determine whether having a family member participate in the BFI resulted in improved outcomes for patients relative to patients whose family members did not receive the intervention.

Although the range of previously tested FITs is broad, as of this writing we are unaware of any previously developed intervention that is similar in brevity (2 sessions) and focus. The BFI was designed specifically for the present study based upon previous work on accommodation in family members (Freeman et al., 2008; Merlo et al., 2009). It was initially pilot-tested with three separate family members before being used for the present study. The BFI is intended to serve as an adjunct to individually-based outpatient CBT and was tailored to compliment such treatment; for example, family members are presented with standard CBT-based psychoeducation regarding the function of OCD symptoms and the rationale for exposure-based treatment. The BFI is not intended to act as a standalone treatment for OCD, therefore only patients who were currently entering CBT treatment were enrolled in the study.

Hypotheses

It was hypothesized that family members in the BFI condition would show significantly lower levels of accommodation relative to family members in the control group, particularly at earlier time points (i.e., weeks 4 and 8).

It was hypothesized that patients whose family members received the BFI would experience a greater reduction in OCD symptoms relative to patients whose family members had not. It was further hypothesized that the effect of family members'

participation in the BFI on patients' Y-BOCS scores would be mediated by changes in the magnitude of family accommodation.

Finally, it was hypothesized that there would be no relationship between family members' baseline hostility/rejection toward patients and their level of accommodation, in accordance with Renshaw et al.'s (2010) theory of separate dimensions for these two responses. It was further hypothesized that family members in the BFI group would improve over the course of the study on secondary (non-accommodation) measures compared to family members in the control condition.

Methods

Participants

Patients were recruited from the incoming patient pools at Boston University's Center for Anxiety and Related Disorders (CARD) and the OCD and Related Disorders Program at Massachusetts General Hospital (MGH). The institutional review boards at both sites approved all study procedures. Recruitment flow of participants into the study can be seen in Figure 1. Patients were contacted via phone prior to their first therapy session; the study was described to them and a brief screening was completed to assess initial eligibility. Patients were given the opportunity to discuss participation with their family member, and if both individuals agreed to take part in the study the baseline visit was scheduled. Of the patients who were screened for participation in the study, only 19% did not have an eligible family member to participate with them, and a further 4% did not wish to tell their family members about the OCD. Overall, patients and family

members were recruited into the study at a rate of 36% of those who were initially phone screened.

The final study sample consisted of 36 adult individuals (18 patient and family member dyads). Seven patients were recruited from CARD and 11 were recruited from MGH. All participants were consented into the study within two weeks of the patient's first treatment session at their respective clinic. In order to take part in the study, OCD needed to be the primary focus of the patient's treatment. Patients were excluded from the study if they were experiencing current suicidal or homicidal ideation, or if they had met criteria for substance abuse or dependence (excluding nicotine) in the past year. The mean age of patients was 35.44 (SD = 8.18) and 33% ($n = 6$) were male. The majority of patients had completed a college degree or higher ($n = 12, 67%$), and most were married ($n = 11, 61%$). The mean number of comorbid diagnoses across the sample was 1.56 (SD = 1.15). Eleven patients (61%) were taking medication for their OCD at baseline. The mean duration of OCD symptoms in years was 16.78 (SD = 11.16) at baseline.

Family members, including parents, siblings, spouses/significant others, or other adult relatives of the patient, were required to be living with the patient full-time in order to participate in the study, and they could not be experiencing significant OCD symptoms themselves. If multiple members of a patient's family met these inclusion and exclusion criteria, the patient was asked to select one family member with whom they had the most interactions or to whom they felt closest. A total of 13 (72%) of the family members were spouses or significant others of the patient; 4 (22%) were parents of the patient, and 1 (6%) was a sibling of the patient. The mean age of family members was 41.72 (SD =

12.11), and 56% ($n = 10$) were male. Most family members had completed a college degree or higher ($n = 12$, 67%), and a large majority were married ($n = 14$, 78%). Two family members (12%) were taking medication for depression or anxiety at baseline. The average length of time that family members had lived with the patient at baseline was 11.86 years ($SD = 9.53$).

Nearly all participants across the sample were Caucasian ($n = 34$, 94%), two participants were Hispanic (6%), and two were Asian (6%). Median household income was \$90,000-\$99,000. Patient and family characteristics can be seen in Tables 1 and 2.

Patients' treatment

Patients received treatment as usual at the two clinics consisting of weekly outpatient ERP by highly experienced clinicians. No constraints were placed on the patients' individual treatment, although number of sessions and any involvement of family members in the individual treatment (either in person or via telephone contact with the therapist) were tracked at each assessment point.

Intervention

The brief family intervention (BFI) consisted of two hour-long sessions. The first session was held at baseline (within two weeks of the patient beginning treatment), and the second session was held two weeks later. Only the individual family member attended the BFI; patients were not present. This decision was made in order to create an environment in which family members felt comfortable disclosing frustrations or other negative emotions they might be experiencing towards the patient or OCD more generally.

All BFI sessions were conducted by Johanna Thompson-Hollands, M.A. The BFI began with psychoeducation regarding the model of OCD and the rationale for ERP. The clinician then introduced the concept of accommodation and discussed the ways that the family member was currently accommodating the patient's OCD symptoms and avoidance. The clinician explained that accommodation serves the same function as compulsions (a short-term reduction or avoidance of distress), and thus these behaviors needed to be eliminated in order to support the patient's work in treatment. The clinician then problem-solved with the family member about how to implement these behavioral changes; they discussed how to present this change to the patient and role-played how to respond to the patient's possible reactions. The clinician also provided handouts summarizing the information presented and suggesting alternatives to verbal reassurance for OCD concerns (e.g., "I can see this is really hard for you," or "I just want to support all of your hard work in treatment" – see Appendix A). The second session generally consisted of further troubleshooting and responding to any questions the family members had about the approach.

Measures

All participants were assessed at baseline and weeks 4, 8, 16, and 25. Although the original intent was for the final assessment point to serve as a 1-month follow-up after the end of treatment, in practice all but one patient (94%) continued in treatment up to the study endpoint; therefore, the week 25 assessment is considered the post-treatment assessment. Tables 3 and 4 show the assessment schedule for the study. The following measures were administered to patients:

The Anxiety Disorders Interview Schedule for DSM-IV: Lifetime version (ADIS-IV-L; DiNardo, Brown, & Barlow, 1994). The ADIS is a semi-structured diagnostic clinical interview focusing on current and lifetime DSM-IV diagnoses of anxiety disorders and their accompanying mood states, somatoform disorders, and substance and alcohol use. The measure has demonstrated excellent to acceptable inter-rater reliability for the anxiety and mood disorders (Brown, DiNardo, Lehman, & Campbell, 2001). Patients recruited through CARD were administered the full ADIS as part of their intake and this diagnostic information was carried over for the purposes of this study. An abbreviated version of the ADIS, focusing only on current symptomatology (Brown, DiNardo, & Barlow, 1994), was administered at baseline to patients who were recruited through MGH.

Yale-Brown Obsessive-Compulsive Scale-II (Y-BOCS-II; Storch, Rasmussen, et al., 2010). The Y-BOCS-II is a 10-item clinician-rated scale assessing current obsessive and compulsive symptoms. The scale has shown strong test-retest and interrater reliability ($ICC \geq .85$), internal consistency ($\alpha = .89$), and validity. The upper limit of scores on the Y-BOCS-II is 50.

Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988). The BAI is a widely used 21-item self-rated scale to assess a subject's current level of anxiety symptoms. The internal consistency of the scale is high, and test-retest reliability is acceptable.

Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II is a well-established 21-item self-rated scale to assess a subject's current level of

depression symptoms. The internal validity of the scale and its test-retest reliability in clinical samples are both acceptable (Beck, Steer, Ball, & Ranieri, 1996).

Family members completed the BAI and the BDI-II, described above. In addition they completed the following measures:

Family Accommodation Scale for Obsessive-Compulsive Disorder (FAS; Calvocoressi et al., 1999; see Appendix B). The FAS is a clinician-rated questionnaire designed to elicit information about the types of accommodation behaviors that family members of people with OCD engage in and the level of interference experienced because of this accommodation. The first section of the FAS consists of inquiries about specific OCD symptoms of which the family member is aware; the second section of the scale consists of 12 items assessing various accommodation behaviors. If a relative endorses a particular accommodation behavior, further inquiries are made to determine the level of accommodation (from mild to extreme). The FAS has demonstrated strong internal consistency ($\alpha = .82$) and excellent inter-rater reliability (ICCs across items = .75-.99), as well as good discriminate and convergent validity (Calvocoressi et al., 1999).

Obsessive-Compulsive Inventory – Revised (OCI-R; Foa et al., 2002). The OCI-R is an 18-item self-report questionnaire assessing the presence and distress associated with obsessive-compulsive symptoms. Subjects rate the extent to which they are bothered by each symptom on a 0-4 scale. The OCI-R assesses dimensions of washing, checking, ordering, obsessing, hoarding, and neutralizing. The OCI-R has good internal consistency in both OCD ($\alpha = .83$) and other anxiety disorder samples ($\alpha = .88$) (Abramowitz &

Deacon, 2006). The recommended screening cutoff for the OCI-R is a total score of 14; this score correctly classifies 64.1% of patients with OCD (Abramowitz & Deacon, 2006). Any family members scoring higher than 14 on the OCI-R were further assessed via clinical interview to ensure that they were not experiencing a clinical level of OCD symptoms.

Five Minute Speech Sample (FMSS; Magaña et al., 1986). The FMSS is a brief measure of the relative's Expressed Emotion (EE) toward the patient. Family members are given the prompt, "Tell me what kind of a person [the patient] is and how you get along together," and their responses are audio-recorded and then coded by trained raters. Responses are coded as high or low in expressed emotion. Past studies have indicated high inter-rater reliability (Asarnow, Tompson, Hamilton, Goldstein, & Guthrie, 1994), and levels of EE have been found to distinguish between mothers with OCD and mothers without a psychological disorder (Challacombe & Salkovskis, 2009). In the current study, ratings of high/low EE on the FMSS were also complimented by ratings on a 5-point scale used in a previous study (Nugter, Dingemans, Van der Does, Linszen, & Gersons, 1997). In this coding scheme, a rating of 5 is assigned to those tapes which meet the criteria for high EE, a rating of 4 to those which are borderline high EE, and ratings of 1-3 further subdivide low EE tapes. The use of this expanded scale provides more power to detect differences in EE among relatives.

Family Assessment Device (FAD; Epstein, Baldwin, & Bishop, 1983). The FAD is a 53-item self-rated scale assessing family functioning across seven domains: problem solving, communication, roles, affective responsiveness, affective involvement, behavior

control, and general functioning. Items are rated from 1-4, with higher scores representing worse functioning (some items are reverse-scored). Scores are calculated by summing all items within a particular subscale and dividing by the number of items in that subscale, resulting in subscale scores ranging from 1 to 4. Subscale scores of 2 or higher are indicative of poor functioning in that area (Miller, Ryan, Keitner, Bishop, & Epstein, 2000). The reliability of the FAD has been shown to be good ($\alpha = .72 - .92$), with the highest reliabilities reported for the general functioning (GF) subscale ($\alpha = .83-.86$) (Kabacoff, Miller, Bishop, Epstein, & Keitner, 1990). The GF subscale has been used alone as a brief measure of family functioning and has shown excellent psychometric properties (Byles, Byrne, Boyle, & Offord, 1988).

Patient Rejection Scale (PRS; Kriesman, Simmens, & Joy, 1979). The PRS consists of 11 statements reflecting attitudes of rejection or criticism that family members may have towards former or current mental patients. The self-rated scale was developed to focus on the hostility and critical comments elements of expressed emotion scales. Family members of patients rate each statement from 1 (never) to 3 (often), and total scores can range from 11-33. The scale has high test-retest reliability ($r = .72$) and internal consistency ($r = .78$) (Kriesman et al., 1979).

Distress Tolerance Scale (DTS; Simons & Gaher, 2005). The DTS consists of 15 items assessing the subject's ability to tolerate emotional distress. The self-rated scale has been found to have good convergent and discriminate validity, as well as good test-retest reliability over 6 months (Simons & Gaher, 2005).

Feedback Form (see Appendix C). This form was developed for use in the current study and consists of two portions, one completed after each session of the BFI. The questions relate to the acceptability and usefulness of the BFI and the family member's confidence in being able to implement the skills.

The Y-BOCS and FAS were rated by a doctoral-level psychologist with expertise in OCD who was blind to treatment condition. The FMSS was coded by a trained rater who was also blind to treatment condition. Self-report measures were completed by participants in person or through a secure online website. Patients received \$20 for each completed assessment point, plus an additional \$20 if they were administered the ADULT-ADIS as part of the study. Family members received \$30 for each completed assessment point.

Power and analytic plan

The sample size for the present study (18 patient and family member dyads) was calculated based upon the study by Merlo et al. (2009), which demonstrated a robust effect size of $f=0.453$ for the effect of change in accommodation on change in symptoms in a pediatric OCD sample. That intervention specifically targeted family accommodation behavior, and the investigators found that decreases in accommodation predicted treatment outcome even after controlling for pretreatment OCD severity. Power analyses conducted for the present study indicate that in order to perform mixed model repeated measures ANOVA tests at 80% power ($\alpha = .05$) with a large expected effect size, a

sample size of 18 patient-family member dyads is appropriate (Erdfelder, Faul, & Buchner, 1996).

In order to test the hypothesis that participation in the BFI would be associated with a significant difference in the level of family accommodation compared to the no-intervention condition, a mixed model repeated measures ANOVA test (2 groups x 5 timepoints) was conducted to assess for the effects of condition, time, and their interaction on FAS scores. It was expected that there would be significant group differences in family accommodation early in patient treatment (e.g., at 4 and 8 weeks), as the BFI is delivered within the first 2 weeks of the patient's treatment. Effect sizes were also calculated as a further estimate of the impact of the intervention on family member behaviors.

In order to test the hypothesis that family members' participation in the BFI will be associated with greater improvement in patients' OCD symptoms, a mixed model repeated measures ANOVA test was conducted to assess for the effects of condition, time, and their interaction on patients' Y-BOCS scores. Calculation of effect sizes for the two patient groups was performed in order to determine the impact of family members participating or not participating in the BFI on patients' symptoms.

In order to test the hypothesis that patients' OCD symptoms would be predicted by earlier changes in levels of family accommodation, a multiple regression analysis was conducted in order to evaluate the incremental predictive value of change in accommodation scores on patients' later Y-BOCS scores. Furthermore, tests of mediation were conducted using a series of regressions investigating the relationships

among treatment condition (BFI versus control), change in accommodation level at 4 weeks (week 4 FAS – baseline FAS), and week 8 Y-BOCS scores.

In order to test the hypothesis that there would be no relationship between family members' baseline levels of hostility/rejection and accommodation, correlational analyses of PRS and FAS scores were conducted at baseline. In order to test the hypothesis that family members in the BFI group would improve over the course of treatment on measures of depression, anxiety, patient rejection, and overall family functioning compared to family members in the control condition, t-tests were conducted to assess any differences in the amount of change in family member outcome measures between the two groups.

A very small amount of data was missing across assessment points; for each measure, a total of 0-4 observations were missing across all participants in the study (0-2 missing observations for clinician-rated measures). Given the preliminary nature of the present study and the small sample size, the decision was made to keep the missing data as “missing” and use available data for analyses, resulting in slightly different *ns* per analysis.

Results

Baseline severity of the sample

Baseline severity across patient variables for both groups can be seen in Table 5. OCD symptom severity was high across the patient sample, with an average total Y-BOCS-II score of 30.34 (SD = 5.83). Scores in this range are considered “severe” (e.g., Ruscio, Stein, Chiu, & Kessler, 2010). On item #13 of the Y-BOCS-II, which assess

overall severity of the patient's disorder and their level of functioning, patients were rated an average of 3.11 (SD = .98). This corresponds to a rating of "Moderate symptoms, functions with effort." Mean scores on the BAI (M = 19.78, SD = 9.38) and BDI-II (M = 18.67, SD = 10.91) across the sample were moderate and consistent with previous reports in outpatient populations (Abramowitz & Deacon, 2006; Grunes et al., 2001). There were no significant differences between patient groups on any baseline symptom measures.

Baseline severity across family members in both groups can be seen in Table 6. Family members exhibited low levels of psychopathology and endorsed good to moderate levels of family functioning at baseline. The average accommodation score was 12.61 (SD = 8.35), which is virtually identical to the scores reported in the initial validation of this scale (Calvocoressi et al., 1999). There was a large range of accommodation levels reported at baseline, with scores falling between 2 and 32 on the FAS. As expected due to the inclusion/exclusion criteria for the study, family members endorsed low levels of OCD symptoms at baseline (M = 6.28, SD = 4.56). Average rates of anxiety (M = 6.44, SD = 9.42) and depression (M = 11.78, SD = 9.59) were also low. Scores on the DTS (M = 3.87, SD = .75) were comparable to those reported in college student samples (Simons & Gaher, 2005). Regarding measures of family functioning, overall functioning was in the healthy range (M = 1.85, SD = .52), and attitudes of patient rejection were low (M = 16.72, SD = 2.59), comparable to findings in other samples of family members of OCD patients (Amir et al., 2000). Half of the sample was rated as high in EE at baseline. There were no significant differences between groups on any baseline symptom or family functioning measures.

Patient treatment

Patients completed an average of 17.79 sessions (SD = 4.54) over the 25-week study. The two patient groups did not differ in the number of sessions they completed (BFI = 16.83 (SD = 3.19), control = 18.5 (SD = 5.45), $t(12) = .66, ns$). Half of all patients in the study ($n = 9$) changed their dose of psychiatric medications at least one time over the course of the study; the number of patients who underwent a medication change was not significantly different across the two groups (BFI = 3, control = 6, $\chi^2(1) = 2.00, ns$).

Only one family member reported attending a treatment session with the patient; the family member reported that the session was solely focused on discussing more intensive treatment options for the patient, as she was experiencing severe functional difficulties. The patient subsequently completed approximately 5 days of treatment in an inpatient hospital unit (the unit was not specific to OCD concerns). This family was in the control group. No other family members in either the control or the BFI groups reported attending a therapy session with the patient or speaking with the patient's therapist by phone.

Family member responses to the study intervention

Family members who received the BFI completed forced-choice and open-ended questions regarding their satisfaction with various components of the intervention and their beliefs about their ability to implement the changes discussed. Participants' responses are summarized in Table 7. Family members expressed that the information in the BFI was very clearly presented and useful to them. They indicated that they found practicing or discussing ways to respond to OCD behavior to be highly useful and that

they were very interested in changing the way they interact with the patient. They expressed moderate-to-high confidence in their ability to change their own behavior according to what was discussed in the BFI. Their overall satisfaction with the intervention was very high.

In response to the open-ended questions regarding what family members would have liked to spend more or less time discussing, few patients had specific requests for elements to remove or add to the intervention. One family member expressed that he would like more in-depth information about OCD, such as the history of the disorder and the current state of research. Another family member expressed that she would have liked more guidance about how to communicate more broadly with the patient about “the challenges he presents,” beyond issues of accommodation.

Finally, family members were asked whether, in addition to the one-on-one sessions with the clinician, they would have liked to also have one or more sessions including themselves, the clinician, and the patient. Responses to this question were mixed, with 5 (56%) family members indicating that they would have liked to have a session with the patient. When asked to explain their answer, one relative who indicated that she would have liked to have a session with the patient present explained “I think it would make it easier to understand the relationship with a 3-way session. Also, more might come out.” Another family member wrote “[I would like to do a session together] so he knows how pervasive the OCD is within our family.” A third relative noted “I still want to make sure that [the patient] is telling JTH/the doctor EVERYTHING that she goes through.” Those family members who indicated that they would not want to

participate in a session with the patient present uniformly expressed that they were more able to be open and direct about their feelings without the patient in the room. One family member wrote “I feel more inhibited talking about my family member with OCD when she’s present – although I can imagine there could be some good reasons for having all 3 of us in the room together.”

Changes in accommodation

Results of Mauchly’s test of sphericity indicated that the assumption of sphericity was violated (Mauchly’s $W = .272, p = .044$), hence the Greenhouse-Geisser correction was used for all within-subjects tests in this analysis (Field, 2009). There was a significant main effect of time on accommodation, $F(2.34, 60) = 7.98, p = .001$. Contrasts revealed that accommodation scores at baseline were significantly higher than accommodation scores at each other time point (week 4: $F(1, 15) = 8.82, p = .010$; week 8: $F(1, 15) = 9.39, p = .008$; week 16: $F(1, 15) = 13.96, p = .002$; week 25: $F(1, 15) = 11.02, p = .005$).

There was no significant main effect of condition on accommodation $F(1, 15) = 1.91, ns$, however there was a significant interaction effect of time by condition on accommodation, $F(2.34, 60) = 4.32, p = .017$. Contrasts revealed that family members in the BFI condition experienced significantly greater reductions in accommodation from baseline than control family members at week 4 ($F(1, 15) = 9.34, p = .008$), week 8 ($F(1, 15) = 10.38, p = .006$), and nearly at week 16 ($F(1, 15) = 4.33, p = .055$). The contrast for the interaction effect was not significant when comparing baseline accommodation versus accommodation at week 25 ($F(1, 15) = 2.84, p = .113$).

Effect sizes were calculated to evaluate the effect of participation in the intervention on accommodation levels. The between-groups effect was found to be very large at weeks 4 and 8 ($d = 1.12$ and 1.05 , respectively), medium-to-large at week 16 ($d = .69$), and medium at week 25 ($d = .53$). FAS score means, standard deviations, and effect sizes between groups can be seen in Table 8.

Changes in OCD symptoms

There was a significant main effect of time on OCD symptoms, $F(4, 52) = 24.49$, $p > .001$. Contrasts revealed that OCD scores were significantly higher at baseline than at all subsequent time points, with the exception of the week 4 time point which was only nearly significant (week 4: $F(1, 13) = 4.48$, $p = .054$; week 8: $F(1, 13) = 22.33$, $p > .001$; week 16: $F(1, 13) = 51.71$, $p > .001$; week 25: $F(1, 13) = 60.65$, $p > .001$). There was no significant main effect of condition on OCD symptoms, $F(1, 13) = 2.69$, *ns*. There was likewise no significant interaction effect of time by condition, $F(1, 52) = 1.67$, *ns*.

Because missing data had resulted in several patients not being included in the overall mixed model ANOVA (only 15 out of 18 patients were included), independent one-tailed *t*-tests were conducted for each post-baseline time point. Significant differences between groups were found at week 8 ($t(15) = 2.62$, $p = .010$), week 16 ($t(14) = 2.47$, $p = .014$), and week 25 ($t(14) = 1.86$, $p = .042$). There was no significant difference between groups at week 4 ($t(16) = .96$, $p = .18$).

Between groups effect sizes were calculated to evaluate the effect of group on patients' symptom levels. The between-groups effect was found to be medium at week 4 ($d = .45$), very large at weeks 8 and 16 ($d = 1.27$ and 1.24 , respectively), and large at

week 25 ($d = .93$). Y-BOCS-II score means, standard deviations, and effect sizes between groups can be seen in Table 9.

Impact of accommodation change on patient symptoms

A hierarchical multiple regression analysis was conducted to evaluate the incremental predictive value of change in family accommodation scores on patients' later Y-BOCS-II scores; the results of this analysis are summarized in Table 10. Specifically, in a regression predicting week 8 Y-BOCS-II scores, baseline Y-BOCS-II scores were entered in step 1. This resulted in a significant model, indicating that baseline Y-BOCS-II scores significantly predicted week 8 Y-BOCS-II scores. In step 2, baseline scores on the BAI and BDI were entered to account for patients' general anxiety and distress. This did not result in a significant enhancement of the model, indicating that including these variables did not improve the prediction of OCD symptoms at week 8. In the third and final step of the regression, change in family accommodation from baseline to week 4 was entered. This step resulted in significant improvement to the model, indicating that change in family accommodation at week 4 significantly improved prediction of patients' OCD symptoms at week 8. The final model was significant $F(4, 12) = 7.42, p = .003$. Change in accommodation at week 4 accounted for 19% of the variance in OCD symptoms at week 8 (R^2 change = 18.8), above and beyond baseline OCD symptoms and general anxiety and distress.

A series of regression analyses were conducted to assess for mediation. The mediation model can be seen in Figure 2. First, family members' change in accommodation at week 4 was regressed onto condition (BFI versus control); this model

was significant, $F(1, 16) = 8.35, p = .011$. Second, patients' Y-BOCS-II scores at week 8 were regressed onto condition; this model was also significant, $F(1, 15) = 6.84, p = .019$. Third, patients' Y-BOCS-II scores at week 8 were regressed onto family members' change in accommodation at week 4; this model was only marginally significant, $F(1, 15) = 4.53, p = .050$. Finally, patients' Y-BOCS-II scores at week 8 were regressed onto both change in accommodation and condition. This model was significant, $F(2, 14) = 3.82, p = .048$, but the path from the mediator (change in accommodation at week 4) to the dependent variable (Y-BOCS-II scores at week 8) was no longer significant, indicating no mediation.

Secondary family member variables

Pearson correlations were conducted to assess the relationship between family members' baseline PRS scores and their baseline accommodation scores. The correlation between the two was not significant, $r = -.03, ns$. A series of one-tailed t -tests were conducted to compare levels of change from baseline to week 25 (week 16 for EE) between the BFI and control family members; results are shown in Table 11. There were no significant differences in levels of change between the two groups in distress tolerance, general family functioning, or EE. The difference in levels of change in patient rejection/hostility as measured by the PRS was significant ($t(15) = 2.22, p = .022$), with the control group slightly increasing in their ratings of rejection/hostility from baseline and the BFI group decreasing.

Discussion

Summary of major findings

The results of this study provide preliminary support for the feasibility, acceptability, and efficacy of a brief, adjunctive intervention to reduce symptom accommodation among the family members of adult patients with OCD. All family members who were randomized to the BFI condition completed the intervention. Family members expressed high levels of satisfaction with the intervention; they reported finding the information and skills presented to be useful, and they reported moderate-to-high confidence in their ability to implement new responses to the patients' OCD symptoms. Finally, the intervention evidenced efficacy with regard to reducing accommodation in family members and also in impacting patients' improvement in OCD symptoms during individual treatment.

Acceptability of the intervention

As noted above, family members were in general highly satisfied with the BFI content and presentation. Slightly more than half of family members indicated that they would have also liked to have one or more session with the patient present. They reported that this might have facilitated discussion regarding the OCD and allowed for more direct communication about its impact. However, those family members who did not wish to have a session with the patient present reported that they appreciated the ability to be honest about their feelings about the patient and OCD to the clinician. Although the majority of FITs have included the patient and family member simultaneously in sessions, this is not true for all approaches (e.g., Martin & Thienemann, 2005). In the

present study the rationale for meeting with family members alone was to allow them space to freely discuss their concerns and frustrations, and clearly at least some family members felt that they would have been less able to do this with the patient present. It is possible that in certain situations (for example, where there is significant relationship discord beyond what is attributable to OCD) a more fully family-based treatment may be clinically appropriate (e.g., Boeding et al., 2013). Nonetheless, the responses of family members in the present study speak to the potential value of maintaining a portion of “one-on-one” time for the family member and the clinician.

Impact of the intervention on family accommodation

We hypothesized that family members in the intervention condition would have significantly lower accommodation than family members in the control condition following the intervention, particularly early in the patients’ treatment (i.e., at 4 and 8 weeks). The results showed a significant effect of time on accommodation, indicating that across both groups accommodation decreased over the course of the study. There was also a significant interaction of time and condition, indicating that the BFI group’s accommodation decreased significantly more quickly than the control group. Contrasts showed that this difference was significant specifically at weeks 4 and 8, and nearly so at week 16. Between-groups effect sizes revealed that the impact of the intervention on accommodation was quite large, particularly so earlier in treatment. The effect remained at a medium level even at week 25. By the end of the study, family members’ average accommodation scores in the control group remained at 78% of their baseline levels, while those in the BFI group had dropped to 37% of baseline; the small sample size likely

accounts for the lack of statistical significance at this final time point, despite the relatively large group differences in accommodation. Overall, these results represent an impressive effect of the BFI on this important interpersonal variable.

Impact of the intervention on patients' OCD symptoms

We hypothesized that family members' participation in the BFI would have an effect on patients' OCD symptoms. Although the mixed-model ANOVA analysis indicated only a significant main effect of time (showing that across both groups symptoms decreased over the course of the study), further analysis revealed significant differences across groups. Specifically, *t*-tests comparing mean OCD symptom levels across groups at the various time points showed that patients whose family members had participated in the BFI had significantly lower OCD symptom at weeks 8 and 16, and nearly significantly lower symptoms at week 25. Between group effect sizes revealed that the differences in OCD scores at all time points post-baseline were medium to very large. Previous studies have considered total Y-BOCS scores of <20 to be mild, while scores of 20-29 are considered moderate and scores of 30+ are severe (Ruscio et al., 2010). This framework can also be applied to scores from the Y-BOCS-II, as the second edition of the scale has simply extended the upper range of possible scores, but has left the bottom range (scores 0-40) virtually unchanged (Storch, Larson, Price, et al., 2010). Using this standard, patients in the BFI group had Y-BOCS-II scores in the mild range at the final assessment point, while the control group's Y-BOCS-II scores were moderate.

The results for OCD symptom outcomes in this study are particularly compelling given that all patients in the study were receiving ERP, the "gold standard" intervention

for OCD (Kobak, Greist, Jefferson, Katzelnick, & Henk, 1998), at two high-quality centers which specialize in such treatment. For a relatively brief, tailored, adjunctive intervention with family members to have such a powerful effect on the treatment outcomes of patients speaks to the importance of accommodation in the maintenance of OCD pathology.

Effect of change in accommodation on OCD symptoms

In addition to predicting that patients in the BFI group would experience greater decreases in OCD symptoms than patients in the control group, we further hypothesized that patients' OCD symptoms would be predicted by earlier changes in family accommodation. This hypothesis was supported by a regression analysis in which patients' week 8 Y-BOCS-II scores were significantly predicted by family members' change in accommodation from baseline to week 4, above and beyond the patients' baseline Y-BOCS-II scores and general anxiety and depression. Change in accommodation at week 4 was found to account for 19% of the variance in OCD symptom levels at week 8.

A model examining the potential mediating role of changes in family accommodation in the association between condition and patient's OCD symptoms at week 8 was not significant. While this was unexpected and somewhat counter to the findings of the hierarchical regression described above, it is possible that the lack of significant association was due to the small sample size as we were somewhat underpowered to conduct a full mediational analysis. Alternatively, it may be that the effect of reduced family accommodation on later OCD symptom levels is itself mediated

by other variables that were not captured in the present study; for example, greater opportunities for exposure in patients' daily lives.

Impact of the intervention on family member distress and family functioning

The decrease in patient rejection/hostility experienced by the family members who participated in the BFI may be attributable to the content of the intervention. BFI sessions included psychoeducation about OCD, with particular attention paid to the "cycle" of obsessions and compulsions that patients are caught in. Previous investigations have found that a subset of family members of patients with OCD react in a rigid and punitive style when confronted with compulsive behavior (Van Noppen et al., 1991). Understanding that compulsions reduce patients' anxiety in the short term, yet ultimately reinforce obsessive beliefs in the long term, may have helped family members to understand why patients don't "just stop" performing compulsions. Furthermore, during the intervention family members received information about ERP; the clinician administering the BFI repeatedly framed ERP as very hard work for the patients, which may have increased family members' appreciation for the efforts of their loved one. Finally, throughout the BFI reducing accommodation was framed as a way for family members to support patients in treatment. It has been suggested that the active involvement of relatives in treatment activities can contribute to a feeling of the family as a team, which in turn reduces negative feelings and empowers the group (Glick, Burti, Okonogi, & Sacks, 1994; Waters, Barrett, & March, 2001). Given that patients in the BFI group experienced greater symptom improvement over the course of treatment than those in the control group, it is possible that this difference in symptoms accounted for the

differences between the two family member groups in levels of patient rejection.

However, if greater symptom improvement alone accounts for the greater reductions in patient rejection in the BFI group, it is unclear why patient rejection modestly *increased* in the control families, since those patients also experienced significant symptom improvement over the course of treatment. Thus it appears most likely that some aspect of participating in the BFI contributed to these changes in attitude toward the patients.

Contrary to our hypothesis, other secondary variables measured in the study such as anxiety, depression, distress tolerance, general family functioning, and expressed emotion did not change significantly more in family members randomized to receive the BFI compared to control family members. A previous study of a brief psychoeducational intervention among relatives of patients with schizophrenia showed significant changes in EE from pre to post (Berkowitz, Shavit, & Leff, 1990; Leff, Kuipers, Berkowitz, Eberlein-Vries, & Sturgeon, 1982). However, this protocol selected exclusively for relatives who were high in EE at baseline, whereas the present study included relatives of all EE levels. In addition, the previous protocol was somewhat longer than the present intervention (four sessions versus two) and while largely consisting of psychoeducation about the mental disorder itself, did include some information about the importance of reducing EE. The BFI did not include such information, which may account for why it resulted in significant changes in levels of patient rejection but not in EE specifically.

Regarding the other secondary family variables, it is likely that the highly focused nature of the BFI is responsible for the lack of significant differences in change between the two groups. Although higher levels of accommodation have been found to be

associated with higher levels of the secondary variables measured in the present study (anxiety and depression in family members, poorer family functioning) (Albert et al., 2010; Amir et al., 2000; Calvocoressi et al., 1999), there are likely many other contributors to family members' functioning beyond their responses to the patients' OCD symptoms. Furthermore, there is some evidence that these family member characteristics (e.g., anxiety) may themselves contribute to accommodation levels, rather than the reverse (Caporino et al., 2012); therefore, change in accommodation would not necessarily be expected to alter these other variables.

Strengths and limitations of the study intervention

There are several advantages to implementing a brief, adjunctive intervention for family members of adult patients. The results from this study show that it is possible to achieve impressive effects with only a few sessions, provided those sessions are thoughtfully targeted. Furthermore, asking family members to participate in one or two sessions is much less burdensome than requiring a fully couple- or family-based treatment. During recruitment for the present study, no patient who initially agreed to participate in the study had a family member refuse to take part. While it is impossible to say what refusal rates may have been given a longer intervention, family members did express satisfaction with the length of the BFI and rarely indicated that there were other topics they wished to have included. Finally, the intervention in the present study draws upon clinicians' existing individual CBT skills, rather than requiring them to achieve competency in couple or family therapy. True family therapy is a comprehensive intervention approach with unique treatment targets and therapist demands (Dattilio,

2013; Epstein & Baucom, 2002). While it has an important place in the landscape of empirically supported treatments, the majority of CBT clinicians do not have the expertise to deliver this type of treatment. The BFI that was tested in the present study has the advantages of being highly behaviorally focused in nature and delivered in an individual format. It excellently compliments individual ERP for OCD while not requiring extensive development of new competencies on the part of the clinician.

Nonetheless, there are potential difficulties in widely implementing a family-inclusive treatment, particularly for adult OCD patients. Studies consistently report low marriage rates in treatment-seeking OCD populations (Koran, 2000; Lensi et al., 1996; Steketee, 1993). Although this speaks to the potentially isolating nature of the disorder, studies have also shown that close to one quarter of adult OCD patients still live with their parents (Steketee & Pruyn, 1998). In a separate sample of highly severe adult patients entering residential treatment, 75% reported living with at least one first-degree relative (spouse, parent, sibling, or child) (Stewart et al., 2008), providing other possible avenues for family-inclusive treatment. Notably, 81% of the patients screened for the present study lived with an adult family member who was eligible to participate in the BFI, and the present sample included spouses, siblings, and parents of adult children within the family member participants. Previous work has found no association between levels of accommodation and whether the relative in question is the spouse or parent of the patient (Calvocoressi et al., 1999).

Study limitations and directions for future research

There are several limitations to the present study that offer directions for future research. First, the individual treatment provided to the patients in the study (both ERP and any psychiatric medication) was uncontrolled. Although this clearly diminishes our ability to determine what portion of the observed differences in patients' outcomes across the two groups is attributable to family members' participation in the BFI versus other treatment effects, it remains that all patients received first-line ERP and medication use was approximately equal across groups. Second, the sample size of the present study was small. Although we were adequately powered to assess our main outcomes based on previous research, it is possible that the small number of participants masked potentially significant differences between the two groups. Furthermore, the small sample size prevented us from conducting moderator analyses to examine the possible effect of particular patient or family characteristics, such as the quality or nature (spouse versus parent/sibling) of the relationship. Regarding the issue of relationship quality, past research has indicated that marital satisfaction does not negatively impact response to ERP in OCD (Riggs, Hiss, & Foa, 1992); as noted previously, research in patients with agoraphobia has shown that incorporating spouses may be particularly advantageous in families where there is substantial conflict related to the psychological disorder (Barlow et al., 1984; Cerny et al., 1987). Nonetheless, we were unable to fully explore this question in the present study.

Given the encouraging results of the present study combined with its various limitations, a larger, more well-controlled trial is clearly needed to extend these findings

and explore mechanisms of the effects. In addition to further evaluating the BFI within OCD, it is also possible that this intervention could be productively applied in other emotional disorders such as anxiety and mood disorders, post-traumatic stress disorder, and others. These disorders are known to share many characteristics and may in fact represent variations on a single “general neurotic syndrome” (Brown & Barlow, 2009). A treatment explicitly targeting the core underlying commonalities across these diagnoses, the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (Barlow et al., 2011), has now been developed and shown early promise (Ellard, Fairholme, Boisseau, Farchione, & Barlow, 2010; Farchione et al., 2012). While accommodation across the emotional disorders has only recently begun to be studied (Lebowitz et al., 2013; Thompson-Hollands, Kerns, Pincus, & Comer, in preparation), given our knowledge of the importance of interpersonal relationships in psychopathology it is likely that an intervention targeting the relevant processes could have similar effects in other disorders.

Summary

The results of the present study provide support for the brief family intervention developed here. This novel intervention focuses narrowly on the interpersonal process of accommodation, which has been clearly shown in previous research to be linked to patient functioning and treatment outcomes. Furthermore, the intervention addresses a relative deficit in the OCD treatment literature; that is, a brief, skills-based, adjunctive intervention for family members of adult patients. The findings of this study indicate that such an intervention has the ability to enhance outcomes from an existing evidence-based

protocol, providing an important “booster” effect and potentially expanding the effectiveness of this and related treatments.

Table 1

Demographic characteristics of patients

Characteristic	BFI (<i>n</i> = 9)	Control (<i>n</i> = 9)	Total sample (<i>n</i> = 18)
Mean age (SD)	34.44 (9.42)	36.44 (7.14)	35.44 (8.18)
Male	3	3	6 (33%)
Non-white	0	1	1 (6%)
Hispanic	0	2	2 (12%)
Married	5	6	11 (61%)
College degree or higher	7	5	12 (67%)
Mean number comorbid diagnoses (SD)	1.00 (1.32)	2.11 (.60)	1.56 (1.15)
Currently on medication for OCD	5	6	11 (61%)
Mean duration of OCD symptoms in years (SD)	14.89 (12.00)	18.67 (10.61)	16.78 (11.16)

Note. BFI = Brief Family Intervention; OCD = obsessive-compulsive disorder

Table 2

Demographic characteristics of family members

Characteristic	BFI (<i>n</i> = 9)	Control (<i>n</i> = 9)	Total sample (<i>n</i> = 18)
Mean age (SD)	43.78 (13.22)	39.67 (11.28)	41.72 (12.11)
Male	6	4	10 (56%)
Non-white	0	1	1 (6%)
Hispanic	0	0	0 (0%)
Married	7	7	14 (78%)
College degree or higher	7	5	12 (67%)
Currently on medication for anx/dep	2	0	2 (12%)
Mean yrs cohabitation with patient (SD)	11.33 (9.52)	12.39 (10.09)	11.86 (9.53)
Relationship to patient:			
Spouse/significant other	5	8	13 (72%)
Parent	3	1	4 (22%)
Sibling	1	0	1 (6%)

Note. BFI = Brief Family Intervention; OCD = obsessive-compulsive disorder

Table 3

Patient assessment schedule

Measure	Baseline	Week 4	Week 8	Week 16	Week 25
Y-BOCS-II	X	X	X	X	X
BAI	X	X	X	X	X
BDI-II	X	X	X	X	X
Mini-ADIS-IV ^a	X				

Note. BAI = Beck Anxiety Inventory; BDI-II = Beck Depression Inventory, second edition; Mini-ADIS-IV = Mini Anxiety Disorders Interview Schedule for *DSM-IV*; Y-BOCS-II = Yale-Brown Obsessive Compulsive Scale, second edition.

^aOnly administered to patients recruited through Massachusetts General Hospital

Table 4

Family member assessment schedule

Measure	Baseline	Week 2	Week 4	Week 8	Week 16	Week 25
OCI-R	X					
Feedback Form ^a	X	X				
BAI	X		X	X	X	X
BDI-II	X		X	X	X	X
FAS	X		X	X	X	X
FAD	X				X	X
PRS	X				X	X
DTS	X				X	X
FMSS	X					X

Note. BAI = Beck Anxiety Inventory; BDI-II = Beck Depression Inventory, second edition; BFI = Brief family intervention; DTS = Distress Tolerance Scale; EE = Expressed emotion; FAD = Family Assessment Device; FAS = Family Accommodation Scale; FMSS = Five Minute Speech Sample; OCI-R = Obsessive-Compulsive Inventory Revised; PRS = Patient Rejection Scale.

^aOnly administered to family members randomized to receive the BFI

Table 5

Comparisons of baseline symptom severity across patients

Measure	BFI mean (SD)	Control mean (SD)	
Y-BOCS-II	28.78 (6.08)	31.89 (5.58)	t(16) = 1.13, <i>ns</i>
Y-BOCS-II item #13 ^a	3.22 (.97)	3.00 (1.00)	t(16) = -.48, <i>ns</i>
BAI	16.56 (9.63)	23.00 (9.14)	t(16) = 1.46, <i>ns</i>
BDI-II	15.67 (13.74)	21.67 (8.08)	t(16) = 1.29, <i>ns</i>

Note. BFI = Brief family intervention; Y-BOCS-II = Yale-Brown Obsessive-Compulsive Scale, second edition; BAI = Beck Anxiety Inventory; BDI-II = Beck Depression Inventory, second edition.

^aY-BOCS-II item #13 asks the rater to judge the overall severity of the patient's disorder and their level of functioning

Table 6

Comparisons of baseline functioning across family members

Measure	BFI mean (SD)	Control mean (SD)	
FAS	12.33 (9.57)	12.89 (7.51)	t(16) = -.14, <i>ns</i>
OCI-R	8.11 (4.73)	4.44 (3.78)	t(16) = 1.82, <i>ns</i>
BAI	5.11 (3.26)	7.78 (13.19)	t(16) = -.59, <i>ns</i>
BDI-II	9.78 (8.15)	13.78 (10.95)	t(16) = -.88, <i>ns</i>
DTS	3.83 (.69)	3.91 (.85)	t(16) = -.22, <i>ns</i>
PRS	16.33 (1.73)	17.11 (3.30)	t(16) = -.63, <i>ns</i>
FAD-GF	1.73 (.45)	1.96 (.58)	t(16) = -.95, <i>ns</i>
EE 5-point rating	4.22 (1.09)	4.22 (.83)	t(16) = .00, <i>ns</i>
# High EE (%)	5 (56%)	4 (44%)	$\chi^2 (1) = .22, ns$

Note. BAI = Beck Anxiety Inventory; BDI-II = Beck Depression Inventory, second edition; BFI = Brief family intervention; DTS = Distress Tolerance Scale; EE = Expressed emotion; FAD-GF = Family Assessment Device – General Functioning subscale; FAS = Family Accommodation Scale; PRS = Patient Rejection Scale.

Table 7

Family members' ratings of the usefulness of the study intervention

Element	mean (SD)
Clarity of the information presented	6.44 (.53)
Usefulness of information about OCD	5.86 (1.07)
Usefulness of information about CBT	6.14 (1.07)
Usefulness of practicing or discussing possible responses to OCD behavior	6.29 (.76)
Interest in changing the way you interact with the patient	6.67 (.50)
Confidence in implementing the skills discussed	5.56 (1.13)
Overall satisfaction	6.88 (.35)

Note. All items were rated on a scale of 1 (not confident/interested/useful) to 7 (very confident/interested/useful).

Table 8

Means, standard deviations, and effect sizes of accommodation levels between BFI and control group family members

Time	BFI mean (SD)	Control mean (SD)	<i>d</i>
Baseline	12.33 (9.57)	12.89 (7.51)	
Week 4	5.22 (5.24)	13.00 (8.35)	1.12
Week 8	4.33 (5.87)	13.11 (10.26)	1.05
Week 16	3.75 (4.68)	10.22 (12.37)	.69
Week 25	4.62 (8.12)	10.11 (12.06)	.53

Note. BFI = Brief family intervention.

Table 9

Means, standard deviations, and effect sizes of OCD symptom levels between BFI and control group patients

Time	BFI mean (SD)	Control mean (SD)	<i>d</i>
Baseline	28.78 (6.08)	31.89 (5.58)	
Week 4	26.56 (5.34)	29.56 (7.72)	.45
Week 8	22.11 (4.86)	28.12 (4.58)	1.27
Week 16	16.75 (4.95)	24.25 (7.01)	1.24
Week 25	15.50 (8.12)	22.62 (7.13)	.93

Note. BFI = Brief family intervention.

Table 10

Hierarchical multiple regression predicting patients' OCD symptoms at week 8

Predictor	ΔR^2	β
Step 1	.50**	
Baseline Y-BOCS-II		.74**
Step 2	.02	
Baseline BAI		-.27
Baseline BDI-II		.06
Step 3	.19*	
Δ FAS at week 4		.45*
Total R^2	.71**	

Note. BAI = Beck Anxiety Inventory; BDI-II = Beck Depression Inventory, second edition; FAS = Family Accommodation Scale; Y-BOCS-II = Yale-Brown Obsessive Compulsive Scale, second edition.

* $p < .05$. ** $p < .01$. *** $p < .001$

Table 11

Means and standard deviations of changes in family members' secondary outcomes across groups

Measure	BFI mean (SD)	Control mean (SD)	
BAI	-.62 (1.51)	-.67 (8.67)	t(15) = .01, <i>ns</i>
BDI-II	-3.88 (4.76)	-.78 (13.24)	t(15) = .62, <i>ns</i>
DTS	.25 (.47)	.29 (.73)	t(14) = .14, <i>ns</i>
FAD-GF	.03 (.18)	.08 (.41)	t(15) = .33, <i>ns</i>
PRS	-1.25 (1.49)	.67 (2.00)	t(15) = 2.22, <i>p</i> = .022
EE 5-point scale	-.88 (.99)	-.44 (1.33)	t(15) = .75, <i>ns</i>

Note. BAI = Beck Anxiety Inventory; BDI-II = Beck Depression Inventory, second edition; BFI = Brief family intervention; DTS = Distress Tolerance Scale; EE = Expressed emotion; FAD-GF = Family Assessment Device – General Functioning subscale; PRS = Patient Rejection Scale

Figure 1

Recruitment flow of patients into the study

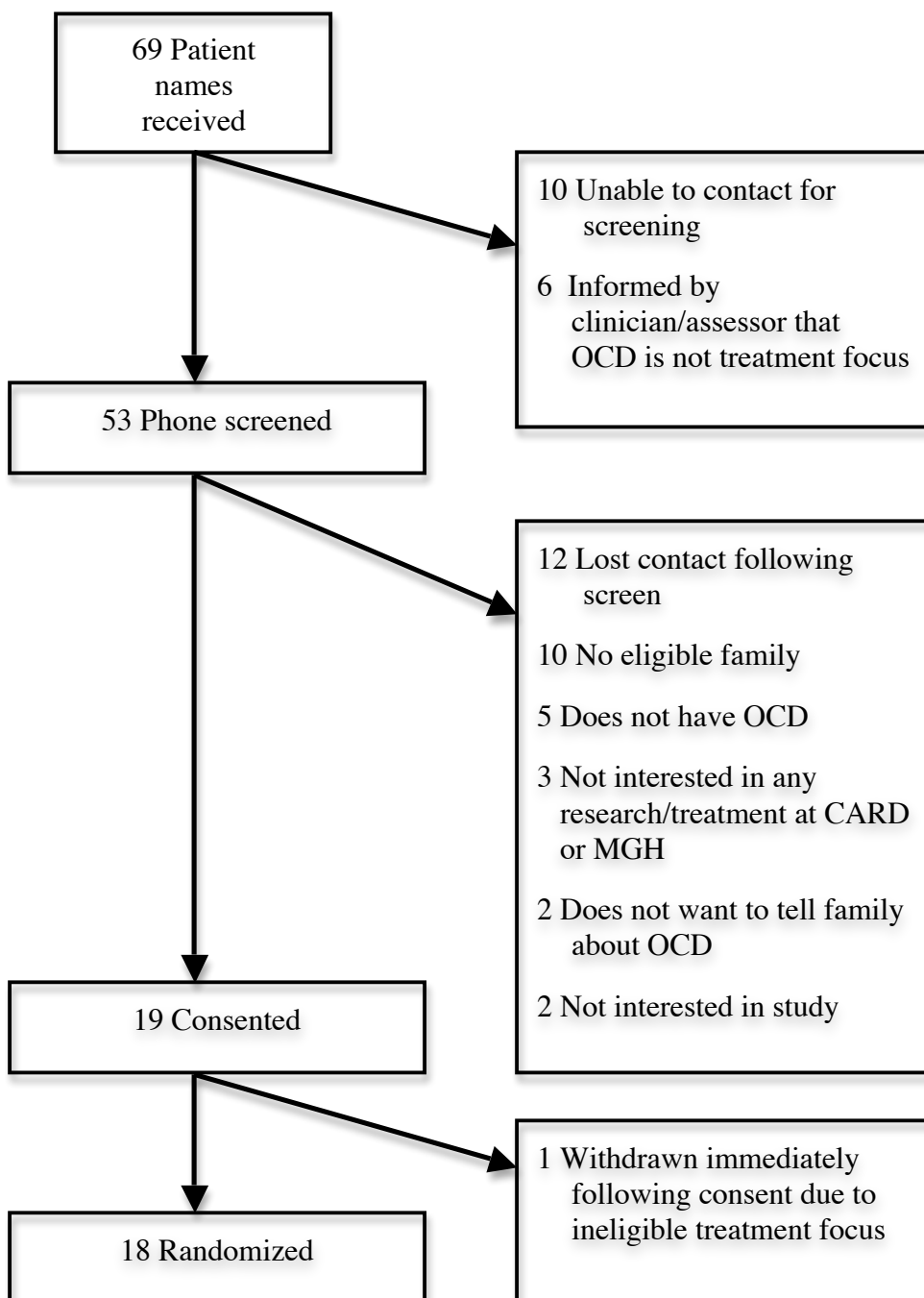
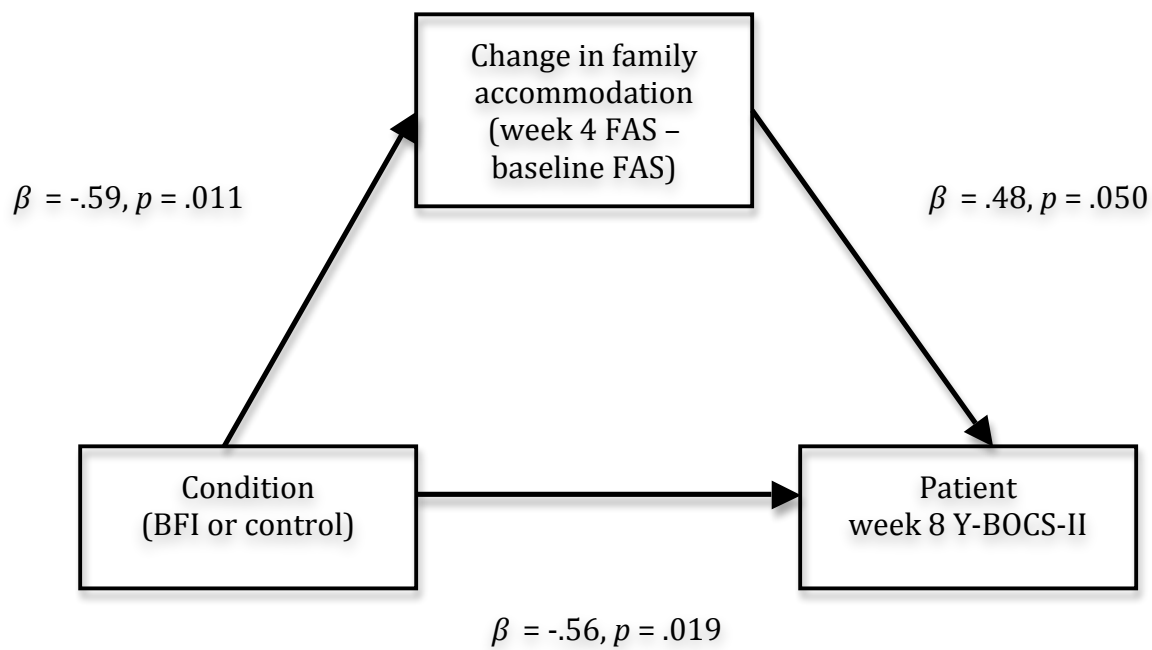


Figure 2

Mediation model of condition, change in accommodation, and OCD symptoms



Appendix A

What Can I Say?

“That sounds like an OCD question.”

“I don’t think it would be helpful for me to do that.”

“I want to support all of your hard work in treatment.”

“I’ve already explained that I don’t want to do _____ anymore. Please don’t ask me again.”

“I can see that you are feeling really anxious/upset/angry.”

“I know this is very hard for you.”

Appendix B

Family Accommodation Scale (FAS)

Instructions for the family member: “You have told me that (name of patient) has the following symptoms (*review endorsed checklist items*). I am now going to ask you about ways in which you may have responded to (name of patient) and his/her symptoms during the past week.”

1. Providing reassurance: “During the past week, when (name of patient) has expressed worries, fears, or doubts related to obsessions or compulsions, have you reassured him/her that s/he doesn’t have to worry, that there are no grounds for his/her concerns, or that the rituals s/he already performed have taken care of his/her concerns? Examples might include telling your relative that s/he is not contaminated, or that s/he has done enough cleaning or checking.”

“During the past week, on how many occasions did you provide reassurance to (name of patient) that was directly related to an obsession or compulsion?” [Do not include instances in which you provided more general reassurance that s/he will overcome his/her symptoms or feel better soon, or reassurance about matters unrelated to OCD.]

N/A = Not applicable. Patient did not experience OCD symptoms this week

0 = None

1 = 1/week

2 = 2-3/week

3 = 4-6/week

4 = Everyday

2. Watching the patient complete rituals: “During the past week, did you deliberately watch (name of patient) complete rituals at his/her request or because you thought s/he would want you to do so?”

“During the past week, how many times did you watch (name of patient) complete rituals?” [Do not include those instances in which you just happened to see him/her performing rituals]

N/A = Not applicable. Patient did not experience OCD symptoms this week

0 = None

1 = 1/week

2 = 2-3/week

3 = 4-6/week

4 = Everyday

3. Waiting for the patient: “During the past week, did you wait for (name of patient) to complete compulsive behaviors, resulting in interference with plans you had made?”

“During the past week, how many times did you wait for (name of patient) because of his/her OCD?”

N/A = Not applicable. Patient did not experience OCD symptoms this week

0 = None

1 = 1/week

2 = 2-3/week

3 = 4-6/week

4 = Everyday

4. Refraining from saying/doing things: “During the past week, were there things that you did not do or say because of (name of patient)’s OCD? For example, family members may stop themselves from entering some areas of the house, refrain from physical contact with a relative with OCD, or avoid conversation topics related to the relative’s obsessions.”

“During the past week, how often did you stop yourself from saying or doing things because of (name of patient)’s OCD?”

N/A = Not applicable. Patient did not experience OCD symptoms this week

0 = None

1 = 1/week

2 = 2-3/week

3 = 4-6/week

4 = Everyday

5. Participating in compulsions: “During the past week, did you engage in (name of patient)’s compulsions or in behaviors which you consider odd or senseless at his/her request, or because you thought (name of patient) would want you to do these things? For example, family members might wash their hands more times than they feel is necessary (or in a ritualized way) or they may check the burners on the stove repeatedly even though they believe the burners are not lit.”

“During the past week, how many times did you directly participate in (name of patient)’s rituals or in behaviors that you consider odd or senseless?”

N/A = Not applicable. Patient did not experience OCD symptoms this week

0 = None

1 = 1/week

2 = 2-3/week

3 = 4-6/week

4 = Everyday

6. Facilitating compulsions: “Were there times in the past week in which your actions made it possible for (name of patient) to complete his/her rituals (without you being directly involved in performing the rituals)? For example, a family member may provide a relative with OCD with things s/he needs to perform rituals or compulsions, such as buying excessive quantities of soap or cleaning products. Other examples include driving

the car back to the house so the relative can check that doors are locked, or creating extra space in the house for the relative's saved items."

"During the past week, how many times did you do something that helped (name of patient) complete rituals?" [Do not include those instances in which you directly participated in rituals as noted in the last question (item 5).]

N/A = Not applicable. Patient did not experience OCD symptoms this week

0 = None

1 = 1/week

2 = 2-3/week

3 = 4-6/week

4 = Everyday

7. Facilitating avoidance: "In the past week, did you get involved in (name of patient)'s efforts to avoid people, places, or things? Or did you do anything that allowed him/her to avoid? For example, family members may make excuses for a relative who says s/he cannot attend a social function because of OCD-related concerns, take a roundabout driving route because the relative wants to avoid a 'contaminated' area, or open a door so the relative does not have to touch a 'contaminated' door handle."

"During the past week, on how many occasions did you do something that helped (name of patient) avoid people, places, or things?" [Do not include instances in which you participated in compulsions or did something that helped your relative to complete compulsions, as noted in the last two questions (items 5 and 6).]

N/A = Not applicable. Patient did not experience OCD symptoms this week

0 = None

1 = 1/week

2 = 2-3/week

3 = 4-6/week

4 = Everyday

8. Tolerating odd behaviors/household disruption: “During the past week, did you put up with odd behaviors on (name of patient)’s part (e.g., repetitive actions such as going in and out of a doorway), or did you put up with unusual conditions in your home because of (name of patient)’s OCD; for example, leaving the home cluttered with old newspapers or ignoring repeated closing and opening of doors?”

“During the past week, to what extent did you tolerate odd behaviors or unusual conditions in your home because of (name of patient)’s OCD?” [This question is specific to behaviors or conditions that you allow to occur. Do not include instances in which you took action to participate in or facilitate compulsions or avoidance noted under the last three questions (items 5-7).]

N/A = Not applicable. Patient did not experience OCD symptoms this week

0 = Not at all.

1 = Mild; tolerated slightly unusual behavior/conditions.

2 = Moderate; tolerated behavior/conditions that are somewhat unusual.

3 = Severe; tolerated very unusual behavior/conditions.

4 = Extreme; tolerated extremely aberrant behavior/conditions.

9. Helping the patient with tasks of daily living or simple decisions: “During the past week, did you help (name of patient) complete simple tasks of daily living or make simple decisions when his/her ability to function was impaired by OCD; for example, helping him/her to get dressed, to bathe, or to decide what to eat?”

“During the past week, on how many occasions did you help (name of patient) with simple tasks or decisions because s/he was impaired by OCD?” [Do not include instances in which doing a task for your relative included doing something that helped him/her to avoid an OCD-related fear (item 7) or in which making a decision for your relative consisted of providing reassurance about an OCD-related concern (item 1).]

N/A = Not applicable. Patient did not experience OCD symptoms this week

0 = None

- 1 = 1/week**
- 2 = 2-3/week**
- 3 = 4-6/week**
- 4 = Everyday**

10. Taking on patient's responsibilities: "Do you take on tasks that are (name of patient)'s responsibility but which s/he cannot adequately perform because of his/her OCD? Examples include paying his/her bills or taking care of his/her children."

"During the past week, to what extent did you take on (name of patient)'s responsibilities due to OCD?" [Do not include doing simple tasks of daily living for your relative, as noted under the last question (item 9).]

- N/A = Not applicable. Patient did not experience OCD symptoms this week**
- 0 = Not at all.**
- 1 = Mild; occasionally handles one of patient's responsibilities, but there has been no substantial change in his/her role.**
- 2 = Moderate; has assumed patient's responsibilities in one area.**
- 3 = Severe; has assumed patient's responsibilities in more than one area.**
- 4 = Extreme; has assumed most or all of patient's responsibilities.**

11. Modifying your personal routine: "Are you currently modifying your leisure time activities, or your work or family responsibilities, because of (name of patient)'s OCD? Examples of modifying one's personal routine might include spending less time socializing or exercising, or changing one's work schedule to spend more time attending to the person with OCD."

"During the past week, to what extent did you modify your personal routine because of (name of patient)'s OCD?"

- N/A = Not applicable. Patient did not experience OCD symptoms this week**
- 0 = Not at all.**
- 1 = Mild; slightly modified routine, but was able to fulfill family and/or work responsibilities and to engage in leisure time activities.**

- 2 = Moderate; definitely modified routine in one area (family, work, or leisure time).**
- 3 = Severe; definitely modified routine in more than one area.**
- 4 = Extreme; unable to attend to work or family responsibilities or to have any leisure time because of relative's OCD.**

12. Modifying the family routine: “Are you currently modifying what you consider an ordinary family routine because of (name of patient)’s OCD? Examples might include modifying the family’s cooking or cleaning practices.”

“During the past week, to what extent did you modify the family routine because of (name of patient)’s OCD? To what degree has your relative’s OCD necessitated changes in family activities or practices?”

N/A = Not applicable. Patient did not experience OCD symptoms this week

0 = Not at all.

1 = Mild; the family routine was slightly modified, but remained substantially unchanged.

2 = Moderate; the family routine was definitely modified in one area.

3 = Severe; the family routine was definitely modified in more than one area.

4 = Extreme; the family routine was disrupted in most or all areas.

Appendix C

Feedback Form (session 1)

Please indicate your answers to the following questions regarding today's session

1. Was the session too long, too short, or just the right amount of time?

1	2	3	4	5	6	7
Too short			Just right			Too long

2. Was the information presented clearly and easy to understand?

1	2	3	4	5	6	7
Not clear			Moderately clear			Very clear

3. Was the information about OCD useful to you?

1	2	3	4	5	6	7
Not useful			Possibly useful			Very useful

4. Was the information about cognitive-behavioral treatment useful to you?

1	2	3	4	5	6	7
Not useful			Possibly useful			Very useful

5. Was practicing or discussing possible responses to OCD behavior useful to you?

1	2	3	4	5	6	7
Not useful			Possibly useful			Very useful

6. How interested are you in changing the way that you interact with your family member who has OCD?

1	2	3	4	5	6	7
Not interested			Possibly interested			Very interested

7. How confident are you that you will be able to implement the skills and/or changes you discussed today?

1	2	3	4	5	6	7
Not confident			Somewhat confident			Very confident

8. What, if anything, would you have liked to spend MORE time discussing:

9. What, if anything, would you have like to spend LESS time discussing:

10. Overall, how satisfied were you with the session today?

1	2	3	4	5	6	7
Not satisfied			Somewhat satisfied			Very satisfied

Feedback Form (session 2)

Please indicate your answers to the following questions regarding today's session

1. Was the session too long, too short, or just the right amount of time?

1	2	3	4	5	6	7
Too short			Just right			Too long

2. Was the information presented clearly and easy to understand?

1	2	3	4	5	6	7
Not clear			Moderately clear			Very clear

3. How interested are you in changing the way that you interact with your family member who has OCD?

1	2	3	4	5	6	7
Not interested			Possibly interested			Very interested

4. How confident are you that you will be able to implement the skills and/or changes you discussed today?

1	2	3	4	5	6	7
Not confident			Somewhat confident			Very confident

5. What, if anything, would you have liked to spend MORE time discussing:

6. What, if anything, would you have like to spend LESS time discussing:

7. In addition to the one-on-one sessions with the clinician, would you have liked to also have one or more sessions including you, the clinician, and the person with OCD?

YES

NO

Please explain your yes/no answer:

8. Overall, how satisfied were you with the session today?

1

2

3

4

5

6

7

Not
satisfied

Somewhat
satisfied

Very
satisfied

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Vita

