

Predictors of Accommodation Among Families Affected by Fear-Based Disorders

Lillian Reuman¹ · Jonathan S. Abramowitz¹

Published online: 13 April 2017

© Springer Science+Business Media New York 2017

Abstract Symptom accommodation—behaviors that family members engage in either to prevent or alleviate a loved one’s anxiety—is ubiquitous in families with relatives affected by fear-based disorders (FBDs), yet little research has examined the extent to which certain psychological factors predict symptom accommodation. The current study examined several potential predictors (e.g., empathic concern) among co-residing relatives of individuals diagnosed with FBDs. Participants ($n = 53$) completed a series of clinical interviews and self report measures. Results indicated that accommodation occurred to similar degrees across relatives with various relationships to the individual with a FBD, as well as across different FBDs. Further, the predictors jointly explained a significant amount of variance in accommodation; although, no single construct emerged as a unique predictor. Empathic concern and expressed emotion emerged as marginally significant predictors of symptom accommodation. Conclusions, limitations, and future directions are discussed.

Keywords Anxiety · Accommodation · Family · Parent · Couple

Introduction

Anxiety is a fundamentally adaptive reaction to the perception of threat, yet chronic fear and anxiety can lead to

deleterious outcomes including extreme psychological distress and impairment in important areas of functioning. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), anxiety disorders are characterized by excessive fear and related behavioral disturbances [1]. Until recently, obsessive–compulsive disorder (OCD) was classified as an anxiety disorder; however, it is now categorized as the flagship disorder among the newly formed “obsessive–compulsive and related disorders” chapter in the DSM-5. Anxiety disorders and OCD alike entail recurrent catastrophic thoughts, the experience of fear, avoidance behaviors, and safety-seeking behaviors that function to alleviate fear and anxiety. Based upon the overlap in symptom presentation and function [2], in the current study, “fear-based disorders” (FBDs) refer to anxiety disorders and OCD. That is, from the perspective of the individual, these problems all involve the experience of fear or anxiety as triggered by a particular cue (or cues), and the use of anxiety-reduction strategies (e.g., avoidance, compulsive rituals) to try to reduce anxiety or control/remove the fear provoking stimulus. Although such anxiety-reduction strategies might temporarily relieve distress, they maintain the problem in the long run by preventing the natural extinction of the unnecessary fear and anxiety [3]. Individuals with FBDs experience significant functional impairment, increased burden, and decreased quality of life relative to the general population [4, 5]. Furthermore, FBDs exact high personal and economic (direct and indirect) costs (e.g., lost productivity [6]).

Although typically conceptualized and treated from the individual’s perspective, FBDs occur in an interpersonal context, such as within families. Specifically, as the individual attempts to structure his or her environment to minimize distress and exposure to fear cues, s/he often pulls other family members (willingly or not) into “helping” with

✉ Lillian Reuman
reuman@unc.edu

¹ Department of Psychology and Neuroscience, University of North Carolina at Chapel Hill, Davie Hall, CB #3270, Chapel Hill, NC 27599, USA

avoidance and other anxiety-reduction behaviors and routines (e.g., providing ongoing reassurance, accompanying the individual outside of the home). This anxiety-reduction behavior on behalf of the family member is termed *symptom accommodation* and may result from the family member's desire to reduce his or her own distress and to show care and concern for their loved one with a FBD. Not recognizing the cognitive-behavioral function or maintenance of such accommodation, family members often act to immediately relieve their loved one's anxiety, even if it means going out of their way and sacrificing the family routine. Although accommodation, as with other forms of avoidance and safety-seeking behaviors, relieves fear in the short term, it perpetuates the cycle of anxiety by preventing the disconfirmation of exaggerated beliefs and predictions of feared outcomes [7]. This accommodation often becomes burdensome to the family member(s) and greatly impairs family relationships and functioning. For example, research with individuals with OCD shows that symptom severity is associated with greater caregiver burden and family distress [8, 9], which affects various domains including physical and emotional intimacy and family functioning [10]. Arguments and hostility over the seeming illogic of a person's fears (e.g., contamination, being alone) may exacerbate relationship distress, leading to aggravated anxiety and poorer treatment outcome [11]. Conversely, decreases in symptom accommodation are associated with better treatment outcome [12, 13]. Thus, it is essential to consider the interpersonal context when conceptualizing FBDs and developing and implementing empirically-based interventions.

Clinical observations suggest that accommodation is ubiquitous in families affected by FBDs, yet to date, the empirical research has focused primarily on OCD samples. Calvocoressi et al. [14, 15] developed a scale to assess family accommodation and accompanying distress in OCD and found that 88% of family members reported accommodating their partner's or child's OCD symptoms. An adult OCD sample indicated that 100% of partners accommodated their loved ones' compulsive and avoidance behaviors [16], and accommodation was associated not only with greater symptom severity and impairment, but also with decreased relationship functioning (i.e., satisfaction). Findings from studies with pediatric OCD samples mirror those from adult samples: family accommodation is positively associated with the child's functional impairment, and increased accommodation is associated with externalizing and internalizing behavior problems in children [17].

A study of accommodation in a sample of children with different anxiety disorders found that accommodation among parents was highly prevalent [18]. Over 97% of parents endorsed accommodation behaviors, and over 70% reported resulting distress from accommodating their

children's anxiety. The majority reported negative consequences (e.g., child became angry or abusive) of *not* accommodating their child's anxious behaviors. Furthermore, accommodation is positively associated with parental distress [8] and with anxiety and depression in relatives of adults with OCD [19].

Although the literature to date has established an association between accommodation and increased severity and caregiver burden in OCD, little research has examined *predictors* of accommodation behavior across FBDs. Understanding predictors of accommodation is important as it could help clinicians to anticipate and address this maladaptive phenomenon. Given the conceptual overlaps across the FBDs as discussed above [2, 20], there is good reason to assume that accommodation and its predictors are transdiagnostic processes. Accordingly, with the aim of extending the literature on accommodation as a transdiagnostic maintenance process, the present study sought to elucidate conceptually relevant psychological factors within co-residing relatives (caregiver-variables) that predict accommodation of a loved one's FBD symptoms.

The available literature on interpersonal processes and on FBDs suggests a number of factors that might predict symptom accommodation. Relatives (i.e., partners and parents) may accommodate symptoms of FBDs to avoid or reduce their own distress about their loved one's struggle with FBDs. Indeed, findings from studies of parental accommodation among families of children with FBDs suggest that parental anxiety is predictive of accommodation behaviors [18]. Amir et al. [19] found that levels of anxiety and depression in relatives was related to behaviors associated with accommodation (e.g., critical comments to patients, degree of modification of routine activities). Relatives with elevated trait anxiety and depressive symptoms (collectively referred to as "general psychological distress") may engage in accommodation to quell their own distress related to a loved one's suffering. Accordingly, one's level of trait anxiety might predict the extent to which they accommodate a loved one's FBS symptoms.

Anxiety sensitivity (AS) [21] refers to the fear of anxiety-related bodily sensations based on the belief that such sensations are dangerous (e.g., "when my heart beats rapidly, I fear I am having a heart attack"). Research suggests that AS is elevated across the FBDs [22] and plays a role in the development and maintenance of these problems (e.g., panic attacks [23]). Previous studies have examined the relationship of relatives' and patients' AS. For example, paternal anxiety sensitivity was positively related to anxiety disorders in offspring, [24], and parent AS predicted child AS [25]. Drake and Kearney [26] posited that parents provide feedback that enhances child anxiety and avoidance [27] or inadvertently model anxiety-based reactions for their children. More recently, Francis [28]

revealed that parent reports of their child's anxiety symptoms were significantly related to parental AS and child's self reported AS, suggesting that AS is related to parent's *perceptions* of their child's anxiety. These findings lead to the hypothesis that a close relative's AS predicts greater accommodation of a loved one's FBD symptoms.

A relative's response to symptoms of FBDs may also depend on the degree to which s/he controls his or her *own* emotions. As such, another possible predictor of caretaker accommodation behavior is emotion regulation (ER), which refers to the effective management of one's own emotional responses (i.e., lack of emotional awareness, nonacceptance of emotional responses, impulse control difficulties). Research suggests that relatives' own beliefs about the importance of controlling emotions affect the ways in which they interact with other family members [29]. Difficulties in ER could impact a relative's ability to inhibit accommodation behaviors as they may experience difficulties controlling impulsive emotions. Although ER has not been examined in relation to accommodation, findings from studies relating to psychopathology, parenting, and the family context lead to the hypothesis that ER would be related to maladaptive behaviors, such as accommodation.

Experiential avoidance (EA) refers to an individual's attempts to suppress unwanted internal experiences (i.e., emotions, thoughts) and deliberate efforts to escape from such experiences [30]. EA is strongly correlated with measures of general psychopathology [31] and anxiety [32]. EA may serve as a short-term self-protective strategy to prevent unwanted distress and manage emotional expression. Although not previously examined in the context of family accommodation, EA may relate to the caregiver's experience of burden and distress evoked by a relative's FBD symptoms, and thus predict greater accommodation.

Another possible predictor is expressed emotion (EE), a construct that relates to how much hostility (i.e., dislike and rejection of the patient), emotional over-involvement (i.e., overprotective attitude), and criticism (e.g., critical remarks) one family member exhibits when describing another family member with psychopathology. Families of patients with FBDs show high levels of criticism, over-involvement, and hostility [33, 34]. Specifically, components of over-involvement, which include intrusion (unsolicited advice), excessive self-sacrifice, and exaggerated personal emotional response, are of interest in relation to symptom accommodation. Relatives may self-sacrifice (i.e., alter the family routine and put their loved ones' needs first) to demonstrate care and concern. Results from a recent longitudinal study found that families of patients who did not remit over the course of a year reported higher levels of accommodation and EE at baseline compared to those who remitted [35]. This finding supports the hypothesis that

high EE (i.e., over-involvement) would be associated with greater accommodation of FBD symptoms.

Empathy refers to the capacity for taking another person's perspective and sharing a congruent emotional reaction [36]. Relatives with higher levels of trait empathy may have a strong emotional reaction to their partner or child's anxious experiences. Higher levels of empathy may also contribute to "helping-behaviors" due to increased levels of concern. Ironically, empathy might lead relatives to accommodate to demonstrate care or concern. Indeed, Caporino et al. [37] found evidence that parents who were highly empathic, and less likely to consider the future consequences of accommodation, accommodated more than parents who scored low on measures of empathy.

Although a few studies have examined the relationship between a family member's clinical characteristics (e.g., anxiety, depression) and his or her accommodation of a loved one's FBD symptoms, no studies have examined the previously discussed constructs in combination as predictors of accommodation across the various FBDs. Moreover, almost all previous research has focused on accommodation behaviors by either parents *or* spouses, and no work has directly examined whether the patterns of predictors of accommodation differ between types of relatives. Accordingly, the present study was designed to build on the existing literature by exploring a more comprehensive group of conceptually relevant constructs as predictors of accommodation among various relatives (i.e., parents and partners) of individuals with various FBDs. We hypothesized that accommodation levels would not differ significantly across the FBDs and across different relationships (i.e., parents vs. partners). We also hypothesized that the aforementioned constructs would significantly predict accommodation behavior; yet we did not have specific hypotheses regarding which constructs might emerge as uniquely predictive.

Materials and Methods

Participants

To be eligible for the study, participants had to be living with a relative with a diagnosed FBD for at least 1 year. Although 67 individuals responded to our recruitment efforts, eleven were excluded given that their relative's FBD was not diagnosed by a mental health professional, and three were not living with their relative full-time. Accordingly, our final sample included 53 relatives. Twenty-six participants were parents (23 mothers; 43.4%), and 27 were partners [all married, and 15 (28.3%) were wives] of the FBD sufferer. Participant age ranged from 23 to 73 ($M = 45.54$, $SD = 11.45$), the majority (79.2%; $n = 42$) was married, and on average, participants had resided with

their relative for 12.99 years ($SD=10.21$). The sample was predominately female ($n=38$; 71.7%) and White ($n=48$; 90.6%). Participants were well educated; over 42% had a masters or graduate-level degree (i.e., Ph.D., M.D., J.D.). The majority (54.7%) of participants reported a combined family income less than \$99,000.

Fifteen (28.3%) participants self-reported a clinical diagnosis (i.e., depression), and 36 (67.9%) had received treatment for or education about FBDs. Education included a broad range of activities, ranging from reading a self-help book to receiving a formal education in the context of a social work degree. Treatment ranged from attending a child/partner's therapy session to receiving a formal series of cognitive-behaviorally based sessions.

Given the transdiagnostic nature of accommodation and its effects, we examined its predictors across FBDs. We did not, however, interview participants' relatives to confirm their diagnoses. Rather, we relied on the participants' report of such diagnoses through a series of questions (see "Procedure"). Participants documented that their relatives had the following diagnoses: 26 (49.1%) had GAD, 9 (17%) had OCD, 3 (5.7%) had social anxiety disorder, and 15 (28.3%) had multiple FBD diagnoses (i.e., separation anxiety disorder and a specific phobia). 11 (20.8%) relatives also had a comorbid non-FBD diagnosis (i.e., ADHD, depression). The majority of relatives ($n=51$; 96.2%) had received (past or current) at least one type of treatment for their FBD during their lifetime.

Procedure

The UNC Institutional Review Board approved all study measures and procedures. Participants were recruited through flyers posted in the local community and listserv announcements within disorder-specific newsletters and websites. Interested individuals ($n=67$) were screened via telephone to assess eligibility criteria. After providing verbal consent to participate, participants answered a series of questions designed to determine (as best as possible) whether their relative met criteria for an FBD diagnosis (i.e., "When was your relative diagnosed with a FBD?" and "What type of medical professional diagnosed your relative with an FBD?"). Next, participants provided information about any treatment/medication their relative received for their FBD. They also answered questions regarding their own treatment history for psychological disorders and indicated the extent of formal education (e.g., took a class, read a book, formal therapy) they had received about FBDs. Lastly, participants completed the Family Accommodation Scale-Anxiety [38] to assess accommodation behaviors. Upon finishing the phone interview, participants completed an online battery of measures (described below) using a secure link via the Qualtrics survey platform. On average,

participants spent 30.59 min ($SD=18.16$) completing the measures. Upon completing the survey, participants were debriefed.

Measures

The *Family Accommodation Scale-Anxiety* (FAS-A) [38] is a 9-item interview measure designed to assess the degree to which family members accommodate a patient's FBD symptoms. Items (e.g., "Have you modified your leisure activities because of your [relative's] anxiety?") are rated on a five-point Likert Scale from 0 (*never*) to 4 (*daily*). The FAS-A showed good internal consistency ($\alpha=.86$) in the current sample.

The 21-item *Depression Anxiety Stress Scales* (DASS-21) [39] is a self-report measure designed to assess severity of depression, anxiety, and stress over the past week. Participants rate seven items (e.g., "I felt that life was meaningless") of each subscale on a four-point Likert scale ranging from 0 (*never*) to 3 (*most of the time*). The DASS-Depression subscale was used to measure depressive symptoms in the current sample and exhibited good internal consistency ($\alpha=.91$).

The *State-Trait Anxiety Inventory* (STAI) [40] is a 40-item inventory that measures state and trait anxiety. It is often used as a measure of caregiver distress. Sample items measuring state and trait anxiety include "I feel at ease" and "I am a steady person," respectively. Respondents answer items on a four-point Likert scale from 1 (*not at all*) to 4 (*very much so*). Higher scores indicate higher levels of anxiety. The STAI-Trait and STAI-State subscales exhibited excellent internal consistency ($\alpha=.93$ and $.95$, respectively) in the current sample.

The *Anxiety Sensitivity Index-3* (ASI-3) [41] is an 18-item version of the original ASI [42] that measures beliefs about the feared consequences of symptoms associated with anxious arousal (e.g., "It scares me when I become short of breath"). Respondents indicate their agreement with each item from 0 (*very little*) to 4 (*very much*), with total scores ranging from 0 to 72. The ASI-3 contains three empirically established subscales relating to fears of social concerns, fears of physical symptoms, and fears of cognitive dyscontrol. The measure exhibits excellent psychometric properties (reliability and validity). In the current sample, internal consistency estimates for the total and subscale scores ranged from acceptable to good (α 's = .73 – .85).

The *Difficulties in Emotion Regulation Scale* (DERS) [43] is a 36-item measure designed to assess multiple aspects (i.e., lack of emotional clarity) of emotional dysregulation. Sample items include, "When I'm upset, I acknowledge my emotions" and "When I'm upset, I lose control over my behaviors." Items are rated on a five-point

Likert scale ranging from 1 (*almost never*) to 5 (*almost always*). The measure exhibits high internal consistency, good test–retest reliability, and adequate construct and predictive validity, and the current sample was no exception ($\alpha = .94$).

The *Acceptance and Action Questionnaire* (AAQ-II) [44] is a seven-item measure of experiential avoidance and psychological inflexibility. Items on the AAQ assess unwillingness to experience certain private events (e.g., “I’m afraid of my feelings”), the desire to control the form/frequency of private events, and the inability to take action in the face of negative private events. Participants respond to items using a 7-point Likert scale ranging from 1 (*never true*) to 7 (*always*). The psychometric properties (i.e., sound factor structure and good reliability) of this scale have been well-established in clinical and non-clinical samples. Internal consistency for the current sample was good ($\alpha = .91$).

The *Family Attitude Scale* (FAS) [45] is a 30-item self-report instrument designed to measure EE. Sample items include “I wish he were not here” and “I lose my temper with him.” Items are rated on a 5-point Likert scale from 0 (*never*) to 4 (*every day*). It is a reliable and valid measure of relationship stress and expressed anger that can be completed by any informant. Internal consistency for the current sample was excellent ($\alpha = .97$).

The *Interpersonal Reactivity Index* (IRI) [36] is a measure of dispositional empathy that contains four subscales. The current study focused on two seven-item scales: the perspective taking (PT) scale, which reflects the cognitive component of empathy and measures one’s tendency to adopt the psychological viewpoint of others (“I sometimes try to understand my friends better by imagining how things look from their perspective”) and the empathic concern (EC) scale, which reflects the affective component of empathy and assesses the tendency to experience feelings of compassion for others (“I often have tender, concerned feelings for people less fortunate than me”). Participants respond to items using a 5-point Likert scale ranging from 1 (*does not describe me very well*) to 5 (*describes me very well*). The IRI showed good internal consistency ($\alpha = .80$) in the current sample.

Data Analytic Strategy

Data analyses in SPSS proceeded as follows: First, mean scores on all measures were examined, independent-samples t-tests were conducted to examine possible differences between relatives (i.e., parent vs. partner), and one-way ANOVAs were conducted to examine possible differences across FBD diagnoses. Additionally, an independent samples equivalence test was conducted using the Weber–Popova Independent Samples Equivalence Procedure [46] to

demonstrate equivalence (rather than lack of an effect; i.e., statistical support for the null hypothesis) in levels of accommodation between relatives. Second, zero-order correlations among the identified predictors of accommodation were performed to inspect for possible multicollinearity (i.e., r^2 s > .80). Zero-order correlations were also computed between the FAS-A and the hypothesized predictors of accommodation. Third, a multiple linear regression was performed to examine the extent to which the aforementioned constructs predicted accommodation across FBDs. All variables were entered simultaneously into the regression model, as there was no theoretical basis to support the use of hierarchical regression. Regression diagnostics (i.e., variance inflation factor and tolerance) were examined to ensure that multicollinearity was within acceptable levels.

Results

Descriptive Statistics

Table 1 displays the means, standard deviations, ranges, skewness, and kurtosis for all study variables. Given that the DASS-Depression (DASS-D) scores were positively skewed and leptokurtic, DASS-D scores were log-transformed, and the log-transformed scores were used in subsequent analyses. As can be seen in Table 1, participants endorsed mild levels of depression (DASS-D) and trait anxiety (STAI-Trait). Mean scores and standard deviations on the FAS-A were comparable to the standardization sample [38]. Mean scores on the ASI-3, AAQ-II, and DERS were

Table 1 Means and standard deviations on study measures

Measure	<i>M</i>	<i>SD</i>	Range	Skew	Kurtosis
FAS-A	17.94	8.39	4–36	.21	–.72
FAS-A modification	10.94	4.59	2–20	.06	–.50
FAS-A participation	6.90	4.38	1–16	.41	–.79
STAI-Trait (average)	1.70	0.58	1–3	.71	–.60
DASS-21-Depression	5.40	6.08	0–42	2.68	8.39
ASI-3	11.56	8.01	0–44	1.36	3.72
FAS	39.18	20.72	1–94	.70	.14
AAQ-II	16.94	7.57	7–47	1.51	3.66
DERS	71.55	20.43	41–121	.92	.03
IRI	65.50	11.78	28–90	–.22	.86
IRI-PT	19.88	3.83	11–28	–.07	–.44
IRI-EC	22.34	4.05	11–28	–.95	.80

FAS-A Family Accommodation Scale-Anxiety, STAI State Trait Anxiety Inventory, DASS-21 Depression Anxiety Stress Scales-21, ASI-3 Anxiety Sensitivity Index-3, FAS Family Attitude Scale, AAQ-II Acceptance and Action Questionnaire-II, DERS Difficulties with Emotion Regulation Scale, IRI Interpersonal Reactivity Index (PT Perspective Taking, EC Empathic Concern)

comparable to community norms [43, 44, 47]. Levels of expressed emotion (FAS) in the current sample were comparable to community norms and lower than average levels reported by relatives of individuals with psychotic disorders or conduct disorders [48].

All participants endorsed engaging in accommodation behaviors to some degree over the past month. Results from a one-way ANOVA with FAS-A as the dependent variable and relationship to the relative as the independent variable revealed that there was no significant difference between partners ($M=15.85$; $SD=8.49$) and parents ($M=20.12$; $SD=7.87$) of individuals with FBDs in how frequently they accommodate, $F(1,51)=3.59$, ns , $MS_E=67.09$, $\eta^2=0.07$. Further, results from the Weber–Popova Independent Samples Equivalence Procedure demonstrated equivalence in levels of accommodation between the two groups of relatives (partners vs. parents), $t(51)=1.89$, $\Delta=.30$, $p_{eq}=.53$ (two-tailed). Results from a one-way ANOVA with FAS-A as the dependent variable and relative's FBD diagnosis as the independent variable revealed no significant difference in levels of accommodation based on FBD diagnosis, $F(3,49)=1.03$, ns , $MS_E=70.31$, $\eta^2=0.06$ (and the homoscedasticity assumption was met). Using a nonsignificant ANOVA result ($p=.39$) as an indicator of group equivalence [49] indicated that accommodation was equivalent across the FBDs.

Correlational Analyses

Table 2 displays two-tailed, zero-order bivariate (Pearson) correlations among all study measures. To control for multiple correlations with the FAS-A, the dependent variable, a Bonferroni corrected critical $\alpha=.007$ (.05/7) was used. Correlations ranged in magnitude from $-.01$ to $.83$. Scores on the FAS-A were most strongly associated with those on the DASS-D, FAS, and IRI-EC scales. Given their

strong association with other study measures, the AAQ-II and STAI-Trait posed a threat to multicollinearity and were removed from subsequent analyses given that they provide redundant information. Levels of accommodation (measured by the FAS-A) were neither associated with relative age, nor time living together (all p 's $>.10$).

Regression Analyses

A simultaneous linear regression analysis was conducted with the aforementioned predictors (except for the AAQ-II and STAI-Trait scores) and FAS-A as the dependent variable. Indices of multicollinearity were acceptable for all predictors (all tolerance values $\geq.57$ and all VIF ≤ 1.76), suggesting a lack of redundancy in model predictors. Simultaneous linear regression statistics for the model are presented in Table 3. The overall regression model was significant and accounted for approximately 24% of variance in FAS-A scores, $F(5,44)=2.76$, $p=.03$, $f^2=0.31$. No single measure emerged as a significant unique predictor.

Discussion

Accommodation is a conceptually relevant maintenance factor and treatment-interfering behavior performed by loved ones of those with FBDs [38]. Little is known about the extent to which relative's characteristics (e.g., empathy) predict the frequency, intensity, and duration of accommodation behaviors. The present study sought to elucidate predictors of accommodation among individuals with relatives diagnosed with a FBD. This was the first study of accommodation to conceptualize this phenomenon as a transdiagnostic interpersonal maintenance process and to include a sample of both parents and partners—two groups

Table 2 Zero-order correlations among study measures

		1	2	3	4	5	6	7	8
1	FAS-A	–							
2	STAI-Trait	.33	–						
3	DASS-Depression	.41*	.73*	–					
4	ASI-3	.21	.36	.18	–				
5	FAS	.38*	.47*	.52*	.23	–			
6	AAQ-II	.32	.83*	.65*	.50*	.47*	–		
7	DERS	.30	.78*	.57*	.41*	.47*	.83*	–	
8	IRI	.28	.39*	.37	-.01	.17	.38*	.33	–
9	IRI-EC	.38	.25	.31	-.01	.23	.17	.19	.72*

FAS-A Family Accommodation Scale-Anxiety, STAI State Trait Anxiety Inventory, DASS-21 Depression Anxiety Stress Scales-21, ASI-3 Anxiety Sensitivity Index-3, FAS Family Attitude Scale, AAQ-II Acceptance and Action Questionnaire-II, DERS Difficulties with Emotion Regulation Scale, IRI Interpersonal Reactivity Index (EC Empathic Concern)

* $p \leq .007$ (Bonferroni corrected)

Table 3 Simultaneous Linear Regression Predicting Accommodation (FAS-A)

	<i>B</i>	<i>SE_B</i>	β	<i>t</i>	<i>p</i>	<i>spr</i> ²
FAS	.09	.06	.22	1.44	.16	.04
IRI-EC	.50	.28	.25	1.76	.09	.05
DASS-21 - Depression	.82	1.29	.10	.64	.53	<.01
DERS	.03	.07	.08	.48	.63	<.01
ASI-3	.07	.16	.06	.42	.68	<.01

FAS Family Attitude Scale, IRI-EC Interpersonal Reactivity Index-Empathic Concern Subscale, DASS-21 Depression Anxiety Stress Scales-21, DERS Difficulties in Emotion Regulation Scale, ASI-3 Anxiety Sensitivity Index-3, *spr*² squared semipartial correlation

of individuals that play unique yet prominent roles in their loved ones' FBD.

In support of our first hypothesis that family accommodation would occur at comparable levels across all FBDs and relatives, there were no differences in the degree of symptom accommodation across relatives of those with different FBDs. Although clinical observations suggest that some aspects of the form or topography (i.e., the *presentation*) of accommodation differs between parents and partners—a parent might accommodate based on the belief that “I must ensure that my child is always safe and happy,” while a partner might accommodate in order to demonstrate compassion and commitment for their loved one—study findings suggest no differences in the frequency with which these different types of relatives engage in accommodation behavior.

The second hypothesis, that our conceptually derived group of constructs would predict family accommodation, was partially supported. The overall model predicting symptom accommodation was statistically significant and accounted for almost a quarter of the variability in accommodation frequency. Although no single construct emerged as a statistically significant unique predictor of accommodation, both empathy and expressed emotion showed trends toward significance and thus deserve further study. It is possible that certain subcomponents of expressed emotion (i.e., over involvement) are more strongly related to accommodation than are other subcomponents (i.e., hostility). Symptom accommodation is typically viewed as an overt behavior; therefore, a behavioral subcomponent of expressed emotion (i.e., over involvement) may better explain accommodation than an attitudinal subcomponent of expressed emotion (i.e., hostility). Given that it was not possible to separate the components of expressed emotion using the current measure, endorsement of hostility may have suppressed any potential effects of over involvement. With regards to empathy, and given that a portion of the sample endorsed having been educated about FBDs, relatives with higher levels of empathy may have a stronger or more sensitive emotional reaction to their loved one's FBD symptoms that might contribute toward the urge to

accommodate. Additionally, empathy levels may not have a *direct* effect on accommodation; rather, they may be mediated by a relative's ability to consider future consequences of accommodation [37].

On average, participants endorsed low levels of depressive symptoms, and there was little variability in depression severity. As such, it is not surprising that depression did not emerge as a significant predictor of accommodation in the current sample. Our findings regarding depression did not replicate the findings of Amir et al. [19] which suggested that depression among family members was related to feelings of rejection toward the relative, perceived consequences of not accommodating, and perceived distress of not accommodating. Feelings of rejection were not measured in the study; however, expressed emotion encompasses hostility towards the relative, which was not significantly related to self-reported scores of depression in the current sample. We also did not measure distress or perceived consequences that result from not accommodating, and are therefore unable to conclude whether depression is related to accommodation in dyads where the perceived consequences of accommodation (and potential accompanying distress) are greater.

In the current sample, and in line with previous research [50], decreased emotion regulation was associated with relatives' increased endorsement of psychopathology (i.e., anxiety) and psychological inflexibility. Yet, emotion regulation was not associated with symptom accommodation. However, lack of emotional clarity (“I have difficulty making sense out of my feelings”), a subcomponent of emotion regulation, was indeed associated with symptom accommodation. Overall, emotion regulation did not emerge as a unique predictor of symptom accommodation, but future research should examine the effect of various subcomponents of emotion regulation may play a role in symptom accommodation.

On average, relatives endorsed mild levels of anxiety sensitivity, and anxiety sensitivity did not uniquely predict symptom accommodation. This finding was neither in line with the study hypotheses, nor with previous research suggesting a familial pattern of anxiety sensitivity [24].

Interestingly, follow-up exploratory analyses with data from only the parents of FBD individuals revealed that anxiety sensitivity was significantly correlated with family accommodation (this association was not present among partners, and the difference in average levels of anxiety sensitivity between parents and partners was not statistically significant). Although a post-hoc finding, this result suggests that anxiety sensitivity may play a unique role in parents' accommodation and deserves further study.

A number of limitations of the present study (beyond its cross-sectional design) deserve mention. First, all data were collected via self-report methods, and such method invariance might artificially inflate associations among variables. Second, data were collected online, outside of a controlled laboratory environment. Although, the battery of questionnaires included attention checks (i.e., "Please select Frequently True for this question") that all participants passed, it is possible that external distractions were present throughout survey completion. Third, the study lacked relatives' report of their own FBD symptoms. As such, there was no opportunity to corroborate diagnoses, and there was no gauge of symptom severity and functional impairment (which has been shown to vary systematically with levels of accommodation [51]). Future studies may consider the explicit confirmation of diagnostic status using structured clinical interviews; however, this method only generalizes to cases in which a relative is cooperative. Indeed, accommodation can be a challenge to measure in isolation. Family members who have been living together for many years may no longer recognize their behaviors as explicit accommodation. Rather, such behaviors (i.e., avoiding parks where dogs may be present) may be recognized as habit and not as a modification to the family routine.

This study focused on psychological predictors of accommodation. Yet, various logistical factors likely also play a role. For some families, accommodation may be a more convenient, timely solution rather than allowing a child to complete extensive rituals and or engaging in arguments over the senselessness of rituals. A lack of knowledge about FBDs and their treatment may also lead family members to accommodate. Family members may believe that they are helping their relative by relieving short-term distress, yet they are unaware that their actions are functionally identical to rituals. Future studies should account for these variables (i.e., hours worked per week, number of children in the household). Lastly, characteristics of the sample may limit the generalizability. For example, the fact that the sample was generally well-educated might have affected the results, as individuals may have had easy access to professionals and to information about FBDs. Additionally, the sample may have been subject to a self-selection bias in which individuals who were most distressed by or involved with their loved one's FBD may have

been more inclined to respond to advertisements about the study and dedicate time for participation than individuals who are not bothered by or involved in their loved one's FBD. This self-selection bias may result in a sample that reported higher distress levels than the general population of individuals living with a relative with a FBD. Further, the analyses included a full regression model (sans variables exhibiting substantial multicollinearity). A follow-up study, with a cautious approach to the inclusion of variables in a regression model (e.g., a sequential hierarchical model or a trimmed model), may be warranted to examine other relationships (i.e., suppression effects) more extensively.

Although all self-report measures were well-established instruments that exhibited adequate psychometric properties, the nuanced measurement of symptom accommodation may be enhanced by the development of an in-vivo assessment tool. Akin to the FMSS to measure expressed emotion during conversation, observational behavioral coding systems used to assess relationship functioning [52] or emotional over-involvement [53], and behavioral approach tasks (BATs) used to assess avoidance in relation to contamination concerns, a hybrid laboratory paradigm to examine accommodation may enhance understanding of this construct by providing an actual sample of the behavior. Such methods allow for the direct observation of the construct in question, as well as the simultaneous measure of relevant physical correlates (i.e., heart rate, acoustic properties) during an act of accommodation and related constructs (i.e., distress, burden) pre- and post-accommodation. For example, an in-vivo measure might prompt a parent or partner to describe a recent instance of accommodation while coding the content of their description, the tone of their speech, their heart rate, and their self-reported levels of expressed emotion toward their relative. Alternatively, an in-vivo measure might entail presenting an anxious individual with a novel idiographic or standardized stimulus and observing how the parent or partner behaviorally responds to the situation.

To the extent that the current study findings have implications for clinical practice, the results can be used to develop tailored family interventions for relatives living with a loved one with a FBD. Removing accommodation from a parent or partner's repertoire may help relatives to enhance their self efficacy, regain responsibility, and recognize that feared consequences likely don't materialize. Furthermore, high levels of expressed emotion among relatives can extend or exacerbate the course of psychiatric illness (e.g., depression and schizophrenia [54, 55]), and higher levels of empathy could contribute to maladaptive, albeit well-intentioned, behaviors. Interventions for accommodation should incorporate treatment modules to specifically address empathy and expressed emotion. For example, treatment could include psychoeducation about the role of

expressed emotion in their relative's FBD symptomatology, communication skills training to replace hostile comments with kinder phrases, and practice providing adequate positive reinforcement (rather than criticism) to a relative's exposure behaviors. Preliminary studies suggest that trainings designed to decrease levels of expressed emotion in parents [56] and caregivers [57] can improve outcomes for the family member with a psychiatric diagnosis.

Summary

In the first study to examine psychological predictors of symptom accommodation *across* relationships and diagnoses, relatives (i.e., parents and parents) of individuals with various fear-based disorders (e.g., OCD) completed a series of clinical interviews and self-report measures. There were no significant differences in frequency of accommodation across relatives (i.e., parents, partners). Further, accommodation occurred to similar degrees across different fear-based disorders. With regard to psychological predictors, empathic concern and expressed emotion emerged as marginally significant predictors of symptom accommodation.

References

- American Psychiatric Association (2013) Diagnostic and statistical manual of mental disorders, 5th edn. American Psychiatric Publishing, Arlington
- Barlow DH (2000) Unraveling the mysteries of anxiety and its disorders from the perspective of emotion theory. *Am Psychol* 55:1247–1263
- Clark DM (1999) Anxiety disorders: why they persist and how to treat them. *Behav Res Ther* 37:S5–S27
- Eisen JL, Mancebo MA, Pinto A, Coles ME, Pagano ME, Stouffer R et al (2006) Impact of obsessive-compulsive disorder on quality of life. *Compr Psychiatry* 47:270–275
- Storch EA, Wu MS, Small BJ, Crawford EA, Lewin AB, Horng B, Murphy TK (2014) Mediators and moderators of functional impairment in adults with obsessive-compulsive disorder. *Compr Psychiatry* 55:489–496
- DuPont RL, Rice DP, Miller LS, Shiraki SS, Rowland CR, Harwood HJ (1996) Economic costs of anxiety disorders. *Anxiety* 2:167–172
- Salkovskis PM (1996) The cognitive approach to anxiety: threat beliefs, safety-seeking behaviour, and the special case of health anxiety and obsessions. In: Salkovskis PM (ed) *Frontiers of cognitive therapy*. Guilford, New York, pp 48–74
- Storch EA, Lehmkuhl H, Pence SL Jr, Geffken GR, Ricketts E, Storch JF et al (2009) Parental experiences of having a child with obsessive-compulsive disorder: associations with clinical characteristics and caregiver adjustment. *J Child Fam Stud* 18:249–258
- Ramos-Cerqueira ATDA, Torres AR, Torresan RC, Negreiros APM, Vitorino CN (2008) Emotional burden in caregivers of patients with obsessive-compulsive disorder. *Depress Anxiety* 25:1020–1027
- Senaratne R, Van Ameringen M, Mancini C, Patterson B (2010) The burden of anxiety disorders on the family. *J Nerv Ment Dis* 198:876–880
- Van Noppen BL, Rasmussen SA, Eisen J, McCartney L (1991) A multifamily group approach as an adjunct to treatment of obsessive compulsive disorder. In: Pato MT, Zohar J (eds) *Current treatments of obsessive compulsive disorder*. American Psychiatric Press, Washington, DC, pp 115–134
- Merlo LJ, Lehmkuhl HD, Geffken GR, Storch EA (2009) Decreased family accommodation associated with improved therapy outcome in pediatric obsessive-compulsive disorder. *J Consult Clin Psychol* 77:355
- Piacentini J, Bergman RL, Chang S, Langley A, Peris T, Wood JJ et al (2011) Controlled comparison of family cognitive behavioral therapy and psychoeducation/relaxation training for child obsessive-compulsive disorder. *J Am Acad Child Adolesc Psychiatry* 50:1149–1161
- Calvocoressi L, Lewis B, Harris M, Trufan SJ, Goodman WK, McDougle CJ, Price LH (1995) Family accommodation in obsessive-compulsive disorder. *Am J Psychiatry* 152:441–443
- Calvocoressi L, Mazure CM, Kasl SV, Skolnick J, Fisk D, Vegso SJ et al (1999) Family accommodation of obsessive-compulsive symptoms: instrument development and assessment of family behavior. *J Nerv Ment Dis* 187:636–642
- Boeding SE, Paprocki CM, Baucom DH, Abramowitz JS, Wheaton MG, Fabricant LE, Fischer MS (2013) Let me check that for you: symptom accommodation in romantic partners of adults with obsessive-compulsive disorder. *Behav Res Ther* 51:316–322
- Storch EA, Geffken GR, Merlo LJ, Jacob ML, Murphy TK, Goodman WK et al (2007) Family accommodation in pediatric obsessive-compulsive disorder. *J Clin Child Adolesc* 36:207–216
- Lebowitz E, Panza K, Su J, Bloch M (2012) Family accommodation in obsessive-compulsive disorder. *Expert Rev Neurother* 12:229–238
- Amir N, Freshman M, Foa EB (2000) Family distress and involvement in relatives of obsessive-compulsive disorder patients. *J Anxiety Disord* 14:209–217
- Abramowitz JS, Deacon BJ (2005). Obsessive-compulsive disorder: essential phenomenology and overlap with other anxiety disorders. In: *Concepts and controversies in obsessive-compulsive disorder*. Springer, New York, pp 119–149
- Reiss S, McNally RJ (1985) Expectancy model of fear. In: Reiss S, Bootzin RR (eds) *Theoretical issues in behavior therapy*. Academic Press, New York, pp 107–121
- Deacon B, Abramowitz J (2006) Anxiety sensitivity and its dimensions across the anxiety disorders. *J Anxiety Disord* 20:837–857
- McNally RJ (1994) *Panic disorder: a critical analysis*. Guilford Press, New York
- East AJ, Berman ME, Stoppelbein L (2007) Familial association of anxiety sensitivity and psychopathology. *Depress Anxiety* 24:264–267
- Tsao JC, Myers CD, Craske MG, Bursch B, Kim SC, Zeltzer LK (2005) Parent and child anxiety sensitivity: relationship in a non-clinical sample. *J Psychopathol Behav* 27:259–268
- Drake KL, Kearney CA (2008) Child anxiety sensitivity and family environment as mediators of the relationship between parent psychopathology, parent anxiety sensitivity, and child anxiety. *J Psychopathol Behav* 30:79–86
- Dadds MR, Barrett PM, Rapee RM, Ryan S (1996) Family process and child anxiety and aggression: an observational analysis. *J Abnorm Child Psychol* 24:715–734
- Francis SE (2014) The role of parental anxiety sensitivity in parent reports of child anxiety in treatment seeking families. *Clin Child Psychol Psychiatry* 19:111–124

29. Gottman JM, Katz LF, Hooven C (1997) Meta-emotion. Lawrence Erlbaum, Mahwah
30. Hayes SC, Strosahl K, Wilson KG (1999) Acceptance and commitment therapy: an experiential approach to behavior change. Guilford Press, New York
31. Hayes SC, Strosahl K, Wilson KG, Bissett RT, Pistorello J, Toarmino D et al (2004) Measuring experiential avoidance: a preliminary test of a working model. *Psychol Rec* 54:553–578
32. Roemer L, Salters K, Raffa S, Orsillo SM (2005) Fear and avoidance of internal experiences in GAD: preliminary tests of a conceptual model. *Cognitive Ther Res* 29:71–88
33. Hibbs ED, Hamburger SD, Kruesi MJ, Lenane M (1993) Factors affecting expressed emotion in parents of ill and normal children. *Am J Orthopsychiatry* 63:103–112
34. Shanmugiah A, Varghese M, Khanna S (2002) Expressed emotions in obsessive compulsive disorder. *Indian J Psychiatry* 44:14–18
35. Cherian AV, Pandian D, Bada Math S, Kandavel T, Janardhan Reddy YC (2014) Family accommodation of obsessional symptoms and naturalistic outcome of obsessive-compulsive disorder. *Psychiatry Res* 215:372–378
36. Davis MH (1983) Measuring individual differences in empathy: evidence for a multidimensional approach. *J Pers Soc Psychol* 44:113–126
37. Caporino NE, Morgan J, Beckstead J, Phares V, Murphy TK, Storch EA (2012) A structural equation analysis of family accommodation in pediatric obsessive-compulsive disorder. *J Abnorm Child Psychol* 40:133–143
38. Lebowitz ER, Woolston J, Bar-Haim Y, Calvocoressi L, Dauser C, Warnick E et al (2013) Family accommodation in pediatric anxiety disorders. *Depress Anxiety* 30:47–54
39. Lovibond SH, Lovibond PF (1995) Manual for the Depression Anxiety Stress Scales, 2nd edn. Psychology Foundation, Sydney
40. Spielberger CD, Gorsuch RL, Lushene R, Vagg PR, Jacobs GA (1983) Manual for the State-Trait Anxiety Inventory. Consulting Psychologists Press, Palo Alto
41. Taylor S, Zvolensky MJ, Cox BJ, Deacon B, Heimberg RG, Ledley DR et al (2007) Robust dimensions of anxiety sensitivity: development and initial validation of the Anxiety Sensitivity Index-3. *Psychol Assess* 19:176
42. Reiss S, Peterson RA, Gursky DM, McNally RJ (1986) Anxiety sensitivity, anxiety frequency, and the prediction of fearfulness. *Behav Res Ther* 24:1–8
43. Gratz KL, Roemer E (2004) Multidimensional assessment of emotion regulation and dysregulation: development, factor structure, and initial validation of the Difficulties in Emotion Regulation Scale. *J Psychopathol Behav Assess* 26:41–54
44. Bond FW, Hayes SC, Baer RA, Carpenter KC, Guenole N, Orcutt HK, Waltz T, Zettle RD (2011) Preliminary psychometric properties of the Acceptance and Action Questionnaire–II: a revised measure of psychological flexibility and acceptance. *Behav Ther* 42:676–688
45. Kavanagh DJ, O'Halloran P, Manicavasagar V, Clark D, Piatkowska O, Tennant C, Rosen A (1997) The Family Attitude Scale: reliability and validity of a new scale for measuring the emotional climate of families. *Psychiatry Res* 70:185–195
46. Weber R, Popova L (2012) Testing equivalence in communication research: theory and application. *Commun Methods Measures* 6:190–213
47. Wheaton MG, Deacon BJ, McGrath PB, Berman NC, Abramowitz JS (2012) Dimensions of anxiety sensitivity in the anxiety disorders: evaluation of the ASI-3. *J Anxiety Disord* 26:401–408
48. Kavanagh DJ, Pourmand D, White A, Robertson D, Halford K, Vaughan K (2008) Predictive validity of the Family Attitude Scale in people with psychosis. *Psychiatry Res* 160:356–363
49. Rusticus SA, Lovato CY (2011) Applying tests of equivalence for multiple group comparisons: demonstration of the confidence interval approach. *Pract Assess Res Eval* 16:1–6
50. Helbig-Lang S, Rusch S, Lincoln TM (2015) Emotion regulation difficulties in social anxiety disorder and their specific contributions to anxious responding. *J Clin Psychol* 71:241–249
51. Storch EA, Larson MJ, Muroff J, Caporino N, Geller D, Reid JM et al (2010) Predictors of functional impairment in pediatric obsessive-compulsive disorder. *J Anxiety Disord* 24:275–283
52. Fischer MS, Baucom DH, Kirby JS, Bulik CM (2015) Partner distress in the context of adult anorexia nervosa: the role of patients' perceived negative consequences of AN and partner behaviors. *Int J Eat Disorder* 48:67–71
53. Fredman SJ, Chambless DL, Steketee G (2004) Development and validation of an observational coding system for emotional overinvolvement. *J Fam Psychol* 18:339
54. Butzlaff RL, Hooley JM (1998) Expressed emotion and psychiatric relapse: a meta-analysis. *Arch Gen Psychiatry* 55:547–552
55. Hooley JM, Teasdale JD (1989) Predictors of relapse in unipolar depressives: expressed emotion, marital distress, and perceived criticism. *J Abnorm Psychol* 98:229–235
56. Garcia-Lopez LJ, del Mar Díaz-Castela M, Muela-Martinez JA, Espinosa-Fernandez L (2014) Can parent training for parents with high levels of expressed emotion have a positive effect on their child's social anxiety improvement? *J Anxiety Disord* 28:812–822
57. Kuipers E, Bebbington P, Dunn G, Fowler D, Freeman D, Watson P et al (2006) Influence of carer expressed emotion and affect on relapse in non-affective psychosis. *Br J Psychiatry* 188:173–179