HHS Public Access

Author manuscript

J Clin Child Adolesc Psychol. Author manuscript; available in PMC 2021 November 01.

Published in final edited form as:

J Clin Child Adolesc Psychol. 2020 ; 49(6): 752–760. doi:10.1080/15374416.2019.1614002.

Measuring Family Accommodation of Childhood Anxiety: Confirmatory Factor Analysis, Validity, and Reliability of the Family Accommodation Scale – Anxiety

Eli R. Lebowitz, PhD[1], **Carla E. Marin, PhD**[1], **Wendy K. Silverman, PhD**[1]

[1]Yale Child Study Center, 230 S Frontage Rd., New Haven, CT 06520

Abstract

Objective: Research on family accommodation is burgeoning, implicating it in the development, maintenance, and treatment of childhood anxiety. Additional data are needed to guide theory development and clinical application in this area. The factors underlying family accommodation measures have never been confirmed, nor have any test-retest data been reported. The study's objectives were to provide confirmatory data of the factorial structure and the first test-retest reliability data on the most widely used measure of family accommodation of child anxiety, the Family Accommodation Scale – Anxiety (FASA), and the child-rated FASA-CR.

Method: Participants were 331 children (51% female; mean age = 10.44 yrs, *SD* = 2.95; 84.6% White) and their parent, presenting consecutively to an anxiety disorders program. Exploratory factor analysis (EFA) was conducted first on a random sampling of 105 child-parent dyads; factors were confirmed with confirmatory factor analysis (CFA) in the remaining independent sample of 226 dyads. Test-retest reliability (mean retest-interval = 10 days) was examined for FASA and FASA-CR. Convergent validity was examined in relation to child anxiety symptoms, and parenting stress. Divergent validity was examined in relation to child depression symptoms.

Results: EFA and CFA supported a two-factor model of family accommodation, representing Participation in child-anxiety-driven behaviors, and child-anxiety-related Modification of family routines and schedules. Test-retest reliability was satisfactory for parents and adolescents; less so for children aged 6 to 12 years.

Conclusions: Family accommodation is a key construct in childhood anxiety, with two underlying factors that can be validly and reliably assessed using FASA and FASA-CR.

Keywords

anxiety disorders; family accommodation; child and adolescent; parent; factorial structure

Six years have elapsed since the first systematic study of family accommodation of childhood anxiety disorders (Lebowitz et al., 2013). In that time, interest in the phenomenon of parents changing their behaviors to avoid or alleviate child anxiety-related distress, has burgeoned (for recent reviews see: Kagan, Frank, & Kendall, 2017; Lebowitz, Panza, & Bloch, 2016; Norman, Silverman, & Lebowitz, 2015; Storch et al., 2015) and novel and

eli.lebowitz@yale.edu.

highly promising interventions have been developed targeting accommodation in child anxiety treatment (Lebowitz, Marin, Martino, Shimshoni, & Silverman, 2019).

Over 90% of mothers accommodate anxious children, and more accommodation is associated with more severe anxiety and poorer treatment outcomes (Benito et al., 2015; Kerns, Pincus, McLaughlin, & Comer, 2017; Lebowitz, 2017; Lebowitz, Scharfstein, & Jones, 2015; Lebowitz et al., 2013; Norman et al., 2015; Reuman & Abramowitz, 2017; Settipani & Kendall, 2017; Storch et al., 2015; Thompson-Hollands, Kerns, Pincus, & Comer, 2014). Improvement following child anxiety treatment is also associated with reduced accommodation (Kagan, Peterman, Carper, & Kendall, 2016).

Theory development of family accommodation requires incrementing knowledge about the construct, its internal validity, and its underlying factors. We thus report exploratory and confirmatory factor analyses (EFA/CFA) on the Family Accommodation Scale – Anxiety (FASA), and its accompanying child-rated version (FASA-CR) (Lebowitz et al., 2015; Lebowitz et al., 2013), the first, most widely used measures. EFA identifies theoretically meaningful dimensions within a construct; CFA tests whether hypothesized models provide optimal data fit. Together, the EFA and CFA data we report provide critical information on the measures' internal validity and factorial structure. Previous data support the measures' internal consistency (Cronbach alphas ranging from .82 - .90 for FASA; .85 for FASA-CR), convergence with child anxiety measures (e.g., r = .45, $p < .001$), and divergence with child depression measures (e.g., r = .17, $p = .56$) (Kagan et al., 2016; La Buissonniere-Ariza et al., 2018; Lebowitz et al., 2015; Lebowitz et al., 2013; Norman et al., 2015; Schleider, Lebowitz, & Silverman, 2017).

Two family accommodation measures for childhood anxiety have been developed since the FASA and FASA-CR. The Family Accommodation Checklist and Interference Scale (FACLIS) (Thompson-Hollands et al., 2014) which added an interference index, and the Pediatric Accommodation Scale (PAS) (Benito et al., 2015) which was designed as a clinician-administered instrument. Both have satisfactory internal consistency and convergent and divergent validity. Data on their factorial structure and retest reliability have not yet been reported.

An earlier EFA of FASA found a two-factor correlated model accounted for 62.2% of variance, corresponding to Participation in child anxiety-driven behaviors, and Modification of family routines (Lebowitz et al., 2013) Similar two-factor structures have been reported in EFAs of family accommodation in obsessive-compulsive disorder (Albert et al., 2010; Flessner et al., 2011; Gomes et al., 2015; Mahapatra, Gupta, Patnaik, Pattanaik, & Khandelwal, 2017) and tic disorders (Storch et al., 2017). Patterns of associations with the Participation and Modification factors have varied across variables and informants however, underscoring the gap left by the absence of confirmatory factor analyses (Flessner et al., 2011; Mahapatra et al., 2017; Norman et al., 2015; Peris, Benazon, Langley, Roblek, & Piacentini, 2008). Another research gap is the absence of any family accommodation test-retest reliability data. This gap is particularly problematic to advance emergent longitudinal research, and to understand treatment-change over time (Kagan et al., 2016).

Our goals were therefore to examine the factorial structure and test-retest reliability of FASA and FASA-CR in a clinic-referred sample of anxious children. We hypothesized the two-factor structure identified in the earlier EFA would optimally fit the data. Consistent with previous research (Lebowitz, Storch, MacLeod, & Leckman, 2014; Lebowitz et al., 2013) we hypothesized that in the current and independent sample total and subscale scores would significantly and positively correlate with child anxiety (convergent) and not with child depressive symptoms (divergent), although one study has reported significant associations between FASA scores and a measure of child depression (La Buissonniere-Ariza et al., 2018). We further extend past research by examining convergence of FASA/FASA-CR with maternal parenting stress. Parenting stress was selected from the available data because parents report that providing accommodation causes them distress (Lebowitz et al., 2015; Lebowitz et al., 2013). Lastly, we hypothesized that the FASA and FASA-CR would demonstrate satisfactory test-retest reliability.

Method

Participants

Participants were 331 children (51% girls) ages 6 to 17 years (M = 10.44 years; SD = 2.95) and their parent (98% mothers) referred to an anxiety disorders specialty research clinic. Two hundred eighty children (84.6%) were White, 13 (3.9%) were African-American, 7 (2.1%) were Asian, 25 (7.6%) were multiracial, and 6 (1.8%) did not report child race. Thirty-one children (9.4%) were Hispanic/Latino. One hundred ninety-five parents (58.9%) reported annual household incomes of at least $100,000; 83 (25.1%) reported incomes between $41,000 and $90,999; 23 (6.9%) reported incomes less than $41,000; and 30 (9.1%) families did not report income. Two hundred seventy-seven (83.7%) parents were married or in a domestic partnership; 18 (5.4%) were single or never married; 30 (9.1%) were divorced; 3 (0.9%) were widowed; and 3 (0.9%) did not report marital status.

Children were included if they met DSM-5 criteria for a primary anxiety disorder diagnosis. Exclusionary criteria included severe non-anxiety psychopathology (e.g., schizophrenia, active suicidal ideation) or developmental disabilities (e.g., autism spectrum disorder, intellectual disability). The most common primary anxiety disorder diagnoses were generalized anxiety disorder (34.1%), social phobia (30.2%), separation anxiety disorder (19.6%), and specific phobia (10.0%). Eighty-two percent of the sample had comorbid diagnoses, including 11% who met criteria for depression.

Measures

Anxiety Disorders Interview Schedule– Child and Parent Version – IV (ADIS-C/P-IV).—The ADIS-C/P (Albano & Silverman, 1996; Silverman & Albano, 1996) is a semi-structured diagnostic interview schedule that has yielded good to excellent reliability estimates for child anxiety diagnoses (Silverman & Nelles, 1988), and excellent test-retest reliability (Silverman, Saavedra, & Pina, 2001). The ADIS-C/P was administered by doctoral level clinicians and graduate students trained using direct observation and supervised administration. Diagnoses were finalized during case presentations by expert group consensus.

Family Accommodation Scale - Anxiety (FASA; Lebowitz et al., 2013).—FASA consists of 13 items. The first 9 items assess the frequency of accommodations and are summed for the total accommodation score. Four additional items assess parental distress associated with accommodation (1 item), and children's short-term responses to not being accommodated (3 items). Items are rated on a 5-point scale of 0 to 4 ('*Never'* to '*Daily'*). Total 9-item family accommodation scores range from 0 to 36, with higher scores indicating more accommodation. Internal consistency for the 9-item total accommodation score in the current sample was α=.87.

Family Accommodation Scale for Anxiety – Child Report (FASA-CR; Lebowitz et al., 2015).—FASA-CR consists of 16 items. The first 13 items parallel the FASA and as with FASA, the first 9 items are summed for the total score which ranges from 0 to 36. Three supplemental items query children's beliefs about the accommodation. Internal consistency for the 9-item total score in the current sample was α=.79.

Multidimensional Anxiety Scale for Children-2nd Edition (MASC-2; March, 2013)—The MASC2 consists of 50 items that assess children's anxiety symptoms from children's and parent's perspective. Each item is rated from 0 to 3 ('Never' to 'Often') and scores range from 0 to 150, with higher scores indicating more anxiety. Internal consistency, reliability and validity have been established (March, 2013). Internal consistency in the current sample was α=.94 and α=.89 for child and parent report, respectively.

Parenting Stress Index-Short Form (PSI-SF; Abidin, 1995).—The PSI consists of 36 items that assess parenting stress, completed by the parent. Items are scored on a 5-point scale and are summed for a total score ranging from 36 to 180, with higher scores indicating less parenting stress. Internal consistency, reliability and validity have been established (e.g., Haskett, Aher, Ward, & Allaire, 2006). Internal consistency in the current sample was α=.91.

Children's Depression Inventory (CDI; Kovacs, 1992).—The CDI is a 27-item questionnaire that assesses children's depressive symptoms, completed by the child. Items are scored from 0 to 2 and summed for a total score. Internal consistency, test-retest reliability and validity have been established (Carey, Faulstich, Gresham, Ruggiero, & Enyart, 1987; Smucker, Craighead, Craighead, & Green, 1986). Internal consistency in the current sample was α=.89.

Procedure

The study was approved by the university's institutional review board. Parents and children provided written informed consent/assent to all study procedures including re-assessment of accommodation to examine test-retest reliability. Subsequently, the ADIS-C/P-IV and questionnaires were administered, as part of a broader assessment battery during a single visit. Trained research assistants helped younger children and those with reading difficulties in completing questionnaires. Test-retest procedures were introduced as other study data collection efforts were underway, thus the test-retest sample is smaller than the total sample. There were no significant differences on any demographic or study variables between child-

parent dyads who completed the test-retest procedures and those who did not. Trained research assistants collected test-retest reliability data by telephone using a 7 to 14-day retest interval, a typical interval consistent with recommendations for evaluating stability of outcome measures (e.g., Deyo, Diehr, & Patrick, 1991).

Data Analysis

EFA and CFA.—A random sample of 105 child-parent dyads was drawn from the total sample, leaving an independent sample of 226 dyads for CFA. There were no significant differences on demographic or study variables between the EFA and CFA samples (see Table 1). The best-fitting solution was determined by examining scree plot, Eigen values, and factor loadings. CFAs were run using Mplus Version 7.44 (Muthén & Muthén, 1998–2012). Fit indices were examined to evaluate model fit [e.g., chi square test of model fit, Root Mean Square Error Approximation (RMSEA) and p close, Comparative Fit Index (CFI), and Standardized Root Mean Square Residual (SRMR); Hu & Bentler 1995(Kline, 2011)]. Good fit was indicated by the following values: non-significant chi-square; RMSEA < .08 with p close > .05; CFI > .95; and SRMR < .05. Although chi-square tests of model fit are reported, greater emphasis is placed on other fit indices given chi-square's sensitivity to reject the null hypothesis in samples > 100. (Hu & Bentler, 1995).

Convergent validity was assessed by examining associations between FASA/FASA-CR scores and child anxiety and parenting stress. Divergent validity was assessed by examining whether FASA/FASA-CR scores were significantly more strongly correlated with child anxiety scores than with child depression scores. We examined whether associations with test-retest reliability was examined through associations between FASA (n=118) and FASA-CR (n = 88) total scores at time 1 and time 2, with an average test-retest interval of 9.81 (*SD* = 3.08) days for FASA and 10.42 (*SD* = 3.19) days for FASA-CR.

Results

Preliminary Analyses

Non-model and model-based outlier analyses were undertaken; no outliers were found. Analyses used a maximum likelihood estimator with robust standard errors to account for normality violations. Missing data were minimal (< 5%) and accommodated using full information maximum likelihood (Enders, 2010). Missing data bias was assessed by computing a dummy variable reflecting the presence or absence of missing data for each variable. This dummy variable was correlated with all study variables in the model. No meaningful bias was observed. FASA and FASA-CR scores did not differ significantly between males and females.

EFA Analyses

Three solutions, using principal axis factor with Promax rotation, were evaluated. Results suggested a two-factor solution for FASA and FASA-CR. The two factors explained 61.04% of total variance in FASA and 51.37% of total variance in FASA-CR.

CFA Analyses

We tested two models: 1) a correlated two-factor model where items 1–5 loaded on Participation and items 6–9 loaded on Modification, based on past EFA findings (Lebowitz et al., 2013); and 2) a correlated two-factor model where items 1–4 loaded on Participation and items 5–9 loaded on Modification, based on the present study's EFA findings.

FASA.—Indices of model fit indicated poor fit for Model 1 (chi square = 84.99, $p < .001$; RMSEA = .10, p-close < .001; CFI = .91; SRMR = .05). Indices of model fit indicated good fit for Model 2 (chi square = 58.50, $p < .001$; RMSEA = .07, p-close > .05; CFI = .95; SRMR = .04). All standardized factor loadings ranged from .57 to .81 (see Table 3).

FASA-CR.—Indices of model fit indicated relatively poor fit for Model 1 (chi square = 51.49, $p < .01$; RMSEA = .07, p-close > .05; CFI = .92; SRMR = .06). Indices of model fit indicated good fit for Model 2 (chi square = 35.83, $p > .05$; RMSEA = .04 p-close = .66; CFI = .97; SRMR = .05). We also tested the three-factor solution in Table 2, but the solution did not converge even after increasing the number of iterations. In Model 2, all standardized factor loadings ranged from 0.49 to 0.70 range (see Table 3).

Given the significant inverse correlation between child age and FASA/FASA-CR scores (see Table 4), multiple indicators/multiple causes (MIMIC) models (Jöreskog & Goldberger, 1975) were conducted to examine whether the FASA factor indicators varied by child age. Child age was included as a continuous variable in both models. Inclusion of child age did not adversely affect model fit for either FASA or FASA/CR. For the FASA, results showed a significant direct effect of child age on Participation (path coefficient = −;.06, S. E. = .02, $p < .01$) and Modification (path coefficient = −;.05, S. E. = .02, $p < .05$). That is, for every one unit increase in child age, scores on Participation and Modification decreased by .06 and .05 units, respectively. For the FASA-CR, results showed a significant direct effect of child age on Participation (path coefficient = −;.04, S. E. = .02, $p < .05$), but not Modification (path coefficient = −;.01, S. E. = .02, $p = .74$), showing that the indicators of family accommodation are not invariant across child age groups.

Convergent and Divergent Validity

The two-factor structure of the FASA and FASA-CR was confirmed by CFA analyses, with only one adjustment made to the composition of the corresponding subscales, as noted. Guided by these results, the Participation and Modification subscale scores were recomputed to examine convergent and divergent validity. Table 4 presents bivariate correlations between study variables.

FASA.—FASA total scores were significantly and positively correlated with parent rated but not child rated MASC-2 total scores. FASA Participation and Modification subscales also were significantly and positively correlated with parent rated but not child rated MASC-2 total scores. FASA total scores were significantly and negatively correlated with the PSI-SF. FASA score was not significantly correlated with child CDI scores.

FASA-CR.—FASA-CR total scores were significantly and positively correlated with child rated and parent rated MASC-2 total scores. Participation and Modification also were significantly and positively correlated with child rated and parent rated MASC-2. FASA-CR total score was not significantly correlated with the PSI-SF. FASA-CR scores were modestly correlated with child rated CDI scores, but the correlation between FASA-CR and CDI was significantly smaller than the correlations between FASA-CR and either child-rated or parent-rated MASC-2 (Fisher's z=2.05, p<.05; Fisher's z=2.3, p<.05, respectively), supporting the divergent validity of FASA-CR.

Test-Retest Reliability

The significant correlations between Time 1 and Time 2 for the FASA total score (r = .79, p < .001) and subscales (Participation: r = .69, p<.001; Modification r = .76, p<.001) indicated FASA has good test-retest reliability. For the FASA-CR correlations between Time 1 and Time 2 were significant but lower (Total: r = .52, p < .001; Participation: r = .40, p<.001; Modification: r = .53, p<.001). We therefore re-examined FASA-CR retest reliability to determine whether estimates were different for children (aged 6 to 12 years) and adolescents (> 12 years). FASA-CR total score test-retest reliability in children (n = 65) was r = .46, p < .001 (Participation: r = .33, p<.01; Modification: r = .54, p<.001). FASA-CR total score test-retest reliability in adolescents (n = 22) was r = .66, p < .001 (Participation: r = .65, p<.001; Modification: r = .49, p<.001).

Discussion

This is the largest study of family accommodation of childhood anxiety to date and provides important evidence for the psychometric properties of the measures most widely used to assess it. CFA indicated FASA and FASA-CR comprise two distinct but correlated factors: Modification and Participation, supporting previous research using EFA. In contrast to previous research, item 5 (*avoiding doing things, going places or being with people because of child anxiety*) loaded on the Modification rather than Participation factor for both FASA and FASA-CR (Lebowitz et al., 2013). This is not surprising however as Lebowitz et al. noted that item 5 loaded on both factors, and the item addresses modified routines (e.g., *avoiding going places*). Otherwise, the current results are consistent with the previously described factorial structure with an independent sample, supporting past work using these factors and affirming their continued clinical and research use.

Also notable is the similar pattern of results that emerged for both the FASA and FASA-CR. Research has recently begun to examine child perspectives on family accommodation (Lebowitz et al., 2015; Schleider et al., 2017). Understanding children's ability to identify parental accommodation is likely important for interventions that aim to reduce family accommodation as part of the treatment strategy. Likewise, parental reports of their own family accommodation may be subject to inaccuracies and/or bias. For example, parents may not perceive the role of anxiety in shaping some of their children's responses, leading to underestimation of family accommodation. Conversely, parents may change their behavior to preempt child distress even when the child does not request or require the accommodation, leading parents to overestimate family accommodation levels. Integrating

multi-informant perspectives can advance the study of these questions, and the parallel factorial structures of the FASA and FASA-CR can facilitate such integration.

Results of convergent and divergent validity testing for FASA and FASA-CR are encouraging. Both mothers' and children's accommodation ratings, correlated significantly with ratings of child anxiety symptoms. Specifically, FASA-CR scores correlated with child anxiety ratings from both children and parents, and FASA scores correlated with parent-rated child anxiety, but not child-rated child anxiety. These findings further underscore the importance of integrating multi-informant assessment, but additional research is required to determine whether this pattern simply reflects the overall modest associations generally found between child and parent ratings of child anxiety, or a more meaningful difference in how parents and children rate accommodation.

Support for the divergent validity of the scales comes from the significantly stronger correlations between family accommodation and child anxiety ratings, than between family accommodation and child depression. FASA scores did not correlate significantly with child CDI scores. FASA-CR scores were modestly correlated with child CDI scores, but the correlation with child anxiety was significantly stronger. FASA scores, but not FASA-CR, also correlated significantly with maternal parenting stress, providing the first evidence for convergence between FASA and a relevant parent variable. The finding that only parent-rated accommodation correlated significantly with parenting stress may be attributable to shared informant variance. It may also be that those accommodations that contribute most to parenting stress are also most salient to parents, and potentially different from those most salient to the child.

These are also the first test-retest reliability data for an accommodation measure. As is common, reliability was lower for younger children than for adolescents and parents (Cicchetti, 1999; Silverman & Eisen, 1992). FASA-CR provides useful information but including parent report may be particularly important when assessing young children longitudinally. The overall satisfactory reliability is important as research on treatment-related changes emerges (Kagan et al., 2016).

The study has several limitations. The sample was relatively homogenous in race and ethnicity, and socio-economic status was comparatively high, potentially limiting the generalizability of results. Studies using more diverse samples are needed. Parent participants were almost all mothers, as in most past accommodation and child anxiety research (McLeod, Wood, & Weisz, 2007; Wood, McLeod, Sigman, Hwang, & Chu, 2003). Finally, although collecting retest by telephone might impact results, studies show good comparability between retest data collected in person and by phone (e.g., Pinto-Meza et al., 2005).

These limitations notwithstanding, the study provides important new information. Moving from exploratory analysis, and small sample sizes, to confirmatory analyses on sizeable samples is an important milestone in the study of family accommodation.

Acknowledgments

Drs. Lebowitz, Marin, and Silverman have no conflicts of interest to report. Drs. Lebowitz and Silverman's work on this study was supported by grants from the National Institute of Mental Health (K23MH103555 (ERL); R21MH113946 (ERL & WKS)) and the National Center for the Advancement of Translational Science (KL2TR000140 (ERL)).

References

Abidin RR (1995). Parenting stress index: Professional manual, 3rd edition Odessa FL: Psychological Assessment Resources.

Albano AM, & Silverman WK (1996). Anxiety disorders interview schedule for dsm-iv: Child version; clinician manual: Oxford University Press.

Albert U, Bogetto F, Maina G, Saracco P, Brunatto C, & Mataix-Cols D (2010). Family accommodation in obsessive-compulsive disorder: Relation to symptom dimensions, clinical and family characteristics. Psychiatry Research, 179(2), 204–211. [PubMed: 20483467]

Benito KG, Caporino NE, Frank HE, Ramanujam K, Garcia A, Freeman J,…Storch EA (2015). Development of the pediatric accommodation scale: Reliability and validity of clinician- and parent-report measures. Journal of Anxiety Disorders, 29, 14–24. doi: 10.1016/j.janxdis.2014.10.004 [PubMed: 25481401]

Carey MP, Faulstich ME, Gresham FM, Ruggiero L, & Enyart P (1987). Children's depression inventory: Construct and discriminant validity across clinical and nonreferred (control) populations. Journal of Consulting & Clinical Psychology, 55(5), 755–761. [PubMed: 3454787]

Cicchetti DV (1999). Sample size requirements for increasing the precision of reliability estimates: Problems and proposed solutions. Journal of Clinical and Experimental Neuropsychology, 21(4). doi: 10.1076/jcen.21.4.567.886

Deyo RA, Diehr P, & Patrick DL (1991). Reproducibility and responsiveness of health status measures. Statistics and strategies for evaluation. Controlled clinical trials, 12(4 Suppl), 142S–158S. [PubMed: 1663851]

Enders CK (2010). Applied missing data analysis. New York: Guilford Publications.

Flessner CA, Sapyta J, Garcia A, Freeman JB, Franklin ME, Foa E, & March J (2011). Examining the psychometric properties of the family accommodation scale-parent-report (FAS-PR). Journal of Psychopathology and Behavioral Assessment, 33(1), 38–46. doi: DOI 10.1007/s10862-010-9196-3

Gomes JB, Cordioli A, Van Noppen B, Pato M, Wolitzky-Taylor K, Goncalves F, & Heldt E (2015). Family accommodation scale for obsessive-compulsive disorder-interviewer-rated (FAS-IR), brazilian portuguese version: Internal consistency, reliability, and exploratory factor analysis. Comprehensive Psychiatry, 57, 155–159. doi: 10.1016/j.comppsych.2014.11.017 [PubMed: 25496698]

Jöreskog KG, & Goldberger AS (1975). Estimation of a model with multiple indicators and multiple causes of a single latent variable. Journal of the American Statistical Association, 70(351a), 631–639. doi: 10.1080/01621459.1975.10482485

Kagan ER, Frank HE, & Kendall PC (2017). Accommodation in youth with OCD and anxiety . Clinical Psychology : Science and Practice, 24(1), 78–98. doi: doi:10.1111/cpsp.12186

Kagan ER, Peterman JS, Carper MM, & Kendall PC (2016). Accommodation and treatment of anxious youth. Depression and Anxiety. doi: 10.1002/da.22520

Kerns CE, Pincus DB, McLaughlin KA, & Comer JS (2017). Maternal emotion regulation during child distress, child anxiety accommodation, and links between maternal and child anxiety. Journal of Anxiety Disorders, 50, 52–59. doi: 10.1016/j.janxdis.2017.05.002 [PubMed: 28577415]

Kline RB (2011). Convergence of structural equation modeling and multilevel modeling In Williams M. a. V., Paul W (Ed.), The sage handbook of innovation in social research methods. CA, USA: SAGE.

Kovacs M (1992). Children's depression inventory: Manual: Multi-Health Systems.

La Buissonniere-Ariza V, Schneider SC, Hojgaard D, Kay BC, Riemann BC, Eken SC,…Storch EA. (2018). Family accommodation of anxiety symptoms in youth undergoing intensive multimodal

treatment for anxiety disorders and obsessive-compulsive disorder: Nature, clinical correlates, and treatment response. Comprehensive Psychiatry, 80, 1–13. [PubMed: 28892781]

Lebowitz ER (2017). Mother and child ratings of child anxiety: Associations with behavioral avoidance and the role of family accommodation. Parenting, 17(2), 124–142. doi: 10.1080/15295192.2017.1304784

Lebowitz ER, Marin C, Martino A, Shimshoni Y, & Silverman WK (2019). Parent-based treatment as efficacious as cognitive behavioral therapy for childhood anxiety: A randomized noninferiority study of supportive parenting for anxious childhood emotions. Journal of the American Academy of Child & Adolescent Psychiatry. doi: 10.1016/j.jaac.2019.02.014

Lebowitz ER, Panza KE, & Bloch MH (2016). Family accommodation in obsessive-compulsive and anxiety disorders: A five-year update. Expert Review of Neurotherapeutics, 16(1), 45–53. doi: 10.1586/14737175.2016.1126181 [PubMed: 26613396]

Lebowitz ER, Scharfstein L, & Jones J (2015). Child-report of family accommodation in pediatric anxiety disorders: Comparison and integration with mother-report. Child Psychiatry and Human Development, 46(4), 501–511. doi: 10.1007/s10578-014-0491-1 [PubMed: 25209390]

Lebowitz ER, Storch EA, MacLeod J, & Leckman JF (2014). Clinical and family correlates of coercive–disruptive behavior in children and adolescents with obsessive–compulsive disorder. Journal of Child and Family Studies, 24(9), 2589–2597. doi: 10.1007/s10826-014-0061-y

Lebowitz ER, Woolston J, Bar-Haim Y, Calvocoressi L, Dauser C, Warnick E,…Leckman JF (2013). Family accommodation in pediatric anxiety disorders. Depression and Anxiety, 30(1), 47–54. doi: 10.1002/da.21998 [PubMed: 22965863]

Mahapatra A, Gupta R, Patnaik KP, Pattanaik RD, & Khandelwal SK (2017). Examining the psychometric properties of the hindi version of family accommodation scale-self-report (FAS-SR). Asian Journal of Psychiatry, 29, 166–171. doi: 10.1016/j.ajp.2017.05.017 [PubMed: 29061421]

March J (2013). Manual for the multidimensional anxiety scale for children-2nd edition (MASC 2). North Tonawanda, NY: Multi-Health Systems.

McLeod BD, Wood JJ, & Weisz JR (2007). Examining the association between parenting and childhood anxiety: A meta-analysis. Clinical Psychology Review, 27(2). doi: 10.1016/j.cpr.2006.09.002

Muthén LK, & Muthén B (1998–2012). Mplus user's guide. Seventh edition Los Angeles, CA: Muthén & Muthén.

Norman KR, Silverman WK, & Lebowitz ER (2015). Family accommodation of child and adolescent anxiety: Mechanisms, assessment, and treatment. Journal of Child and Adolescent Psychiatric Nursing, 28(3), 131–140. doi: 10.1111/jcap.12116 [PubMed: 26238937]

Peris TS, Benazon N, Langley A, Roblek T, & Piacentini J (2008). Parental attitudes, beliefs, and responses to childhood obsessive compulsive disorder: The parental attitudes and behaviors scale. Child & Family Behavior Therapy, .30(3), pp.doi: 10.1080/07317100802275447

Pinto-Meza A, Serrano-Bianco A, Penarrubia MT, Blanco E, Haro JM, Id, & Haro, J. M. O. h. o. o. X. (2005). Assessing depression in primary care with the phq-9: Can it be carried out over the telephone? Journal of General Internal Medicine, .20(8), pp. doi: 10.1111/j.1525-1497.2005.0144.x16050884

Reuman L, & Abramowitz JS (2017). Predictors of accommodation among families affected by fear-based disorders. Child Psychiatry and Human Development. doi: 10.1007/s10578-017-0728-x

Schleider JL, Lebowitz ER, & Silverman WK (2017). Anxiety sensitivity moderates the relation between family accommodation and anxiety symptom severity in clinically anxious children. Child Psychiatry and Human Development. doi: 10.1007/s10578-017-0740-1

Settipani CA, & Kendall PC (2017). The effect of child distress on accommodation of anxiety: Relations with maternal beliefs, empathy, and anxiety. Journal of Clinical Child and Adolescent Psychology, .46(6), pp. doi: 10.1080/15374416.2015.109474126672808

Silverman WK, & Albano AM (1996). Anxiety disorders interview schedule for dsm-iv.: Parent interview schedule (Vol. 1): Oxford University Press.

Silverman WK, & Eisen AR (1992). Age differences in the reliability of parent and child reports of child anxious symptomatology using a structured interview. Journal of the American Academy of Child and Adolescent Psychiatry, 31(1), 117. [PubMed: 1537762]

Silverman WK, & Nelles WB (1988). The anxiety disorders interview schedule for children. Journal of the American Academy of Child & Adolescent Psychiatry, 27(6), 772–778. [PubMed: 3198566]

Silverman WK, Saavedra LM, & Pina AA (2001). Test-retest reliability of anxiety symptoms and diagnoses with the anxiety disorders interview schedule for dsm-iv: Child and parent versions. Journal of the American Academy of Child & Adolescent Psychiatry, 40(8), 937–944. [PubMed: 11501694]

Smucker MR, Craighead WE, Craighead LW, & Green BJ (1986). Normative and reliability data for the children's depression inventory. Journal of Abnormal Child Psychology, 14(1), 25–39. [PubMed: 3950219]

Storch EA, Johnco C, McGuire JF, Wu MS, McBride NM, Lewin AB, & Murphy TK (2017). An initial study of family accommodation in children and adolescents with chronic tic disorders. European Child and Adolescent Psychiatry, 26(1). doi: 10.1007/s00787-016-0879-5

Storch EA, Salloum A, Johnco C, Dane BF, Crawford EA, King MA,…Lewin AB (2015). Phenomenology and clinical correlates of family accommodation in pediatric anxiety disorders. Journal of Anxiety Disorders, 35, 75–81. doi: 10.1016/j.janxdis.2015.09.001 [PubMed: 26398305]

Thompson-Hollands J, Kerns CE, Pincus DB, & Comer JS (2014). Parental accommodation of child anxiety and related symptoms: Range, impact, and correlates. Journal of Anxiety Disorders, 28(8), 765–773. doi: 10.1016/j.janxdis.2014.09.00725261837 [PubMed: 25261837]

Wood JJ, McLeod BD, Sigman M, Hwang WC, & Chu BC (2003). Parenting and childhood anxiety: Theory, empirical findings, and future directions. Journal of Child Psychology and Psychiatry and Allied Disciplines, 44(1), 134–151.

Table 1.

EFA and CFA Sample Characteristics

	EFA sample (n = 105)	CFA sample (n = 226)	χ^2	t	p
Child age [M(SD)]	10.30 (2.90)	10.50 (2.98)		0.56	.58
Child sex (female, %)	53.3	49.1	0.51		.48
Child race (%)					
White	83.8	86.1	4.58		.26
Black	6.7	2.7			
Asian	1.9	2.2			
Multiracial	4.8	9.0			
Non Hispanic/Latino (%)	94.1	88.7	2.37		.12
Marital Status (%)					
Married	84.8	82.9	2.79		.43
Single	4.5	7.6			
Divorced	9.4	8.6			
Widowed	1.3	0			
Household Income (%)					
<$41,000	10.4	6.4	6.54		.48
$41,000 – $99,999	26.1	28.3			
>$100,000	63.6	65.4			
Primary Diagnoses (%)					
GAD	32.4	35.0	5.85		.44
SOP	31.4	29.6			
SAD	19.0	19.9			
SP	9.5	10.2			
Comorbidity (%)	80.0	83.2	0.50		.48
Accommodation*, Anxiety, Depression, and Stress ratings [M(SD)]					
FASA	16.15 (7.98)	16.65 (8.43)		0.51	.61
FASA Participation	9.79 (4.04)	10.06 (4.25)		0.53	.60
FASA Modification	6.39 (4.98)	6.70 (5.04)		0.53	.60
FASA Distress	1.66 (0.93)	1.45 (0.95)		−1.88	.06
FASA Consequences	5.28 (3.17)	5.11 (3.17)		−0.44	.66
FASA-CR	12.57 (6.64)	13.80 (6.94)		1.53	.13
FASA-CR Participation	7.97 (3.75)	8.38 (3.65)		0.93	.35
FASA-CR Modification	4.60 (3.91)	5.50 (4.39)		1.79	.08
FASA-CR Distress	1.16 (1.18)	1.24 (1.20)		0.52	.61
FASA-CR Consequences	12.31 (3.99)	12.48 (4.35)		0.35	.72
MASC 2– P	68.21 (20.12)	68.52 (19.82)		0.13	.90
MASC 2– C	71.79 (24.84)	72.63 (25.28)		0.28	.78
CDI	15.94 (8.68)	17.34 (8.21)		1.37	.17
PSI	132.35 (19.38)	133.92 (21.31)		0.47	.64

Note. GAD = generalized anxiety disorder; SOP = social phobia; SAD = separation anxiety disorder; SP = specific phobia;

* = Participation and Modification subscale scores were recalculated based on CFA findings; FASA = Family Accommodation Scale – Anxiety; CR = Child Report; MASC-P = Multidimensional Anxiety Scale for Children – Parent; MASC – C = Multidimensional Anxiety Scale for Children – Child; CDI = Children's Depression Inventory; PSI = Parenting Stress Index.

Table 2.

EFA: Factor Loadings and Explained Variance

		Single-Factor	Two-Factor		Three-Factor		
	Item	**Factor 1**	**Factor 1**	**Factor 2**	**Factor 1**	**Factor 2**	**Factor 3**
FASA	1. Providing reassurance	.30	.56		.55		
	2. Providing items	.41	.73		.74		
	3. Participating in behaviors	.44	.77		.76		
	4. Assisting avoidance	.35	.44		.43		.36
	5. Avoiding things or places	.49		.70			.82
	6. Modifying routine	.54		.68		.54	
	7. Doing things instead of child	.35		.40		.38	
	8. Modifying work schedule	.59		.82		.98	
	9. Modifying leisure activities	.66		.92		.70	
	% explained variance	47.93	13.11	47.93	13.11	47.93	0.75
FASA-CR	1. Providing reassurance	.21	.54		.50		
	2. Providing items	.34	.72		.68		
	3. Participating in behaviors	.28	.60		.61		
	4. Assisting avoidance	.32	.44		.40		
	5. Avoiding things or places	.43		.72		.34	.52
	6. Modifying routine	.39		.49		.85	
	7. Doing things instead of child	.34		.43			.82
	8. Modifying work schedule	.26		.46		.47	
	9. Modifying leisure activities	.39		.83		.56	.32
	% explained variance	38.12	13.25	38.12	13.25	38.12	11.41

Note. FASA = Family Accommodation Scale Anxiety; CR = Child Report. Principal axis factoring with Promax rotation.

Table 3.

CFA Standardized Factor Loadings

	FASA		FASA-CR	
	Participation	**Modification**	**Participation**	**Modification**
Item				
10. Providing reassurance	.62		.50	
11. Providing items	.81		.66	
12. Participating in behaviors	.77		.68	
13. Assisting avoidance	.73		.49	
14. Avoiding things or places		.71		.64
15. Modifying routine		.81		.60
16. Doing things instead of child		.57		.70
17. Modifying work schedule		.65		.57
18. Modifying leisure activities		.75		.66
Factor Correlation	.79		.62	

Note. FASA = Family Accommodation Scale; CR = Child Report.

Table 4.

Pearson's Bivariate Correlations Among Study Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Child Age														
2. FASA	−.18**													
3. FASA Participation	−.24***	.89***												
4. FASA Modification	−.10	.92***	.64***											
5. FASA Distress	−.12*	.46***	.40***	.42***										
6. FASA Consequences	−.24***	.53***	.51***	.45***	.41***									
7. FASA-CR	−.09	.30***	.30***	.25***	.15**	.13*								
8. FASA-CR Participation	−.13*	.20***	.30***	.13*	.11*	.06	.84**							
9. FASA-CR Modification	−.04	.33***	.28***	.31**	.13*	.17**	.88***	.48***						
10. FASA-CR Distress	−.05	.08	.07	.07	.10	.17**	.16**	.04	.22***	.				
11. FASA-CR Consequences	−.13*	.15**	.15**	.13*	.18**	.25**	.28***	.25***	.23***	.22***				
12. MASC 2 – P	−.01	.41***	.38***	.36**	.19**	.23***	.26**	.21***	.24***	.05	.16**			
13. MASC 2 – C	.16**	.10	.09	.07	.10	.11*	.25**	.21***	.24***	.19**	.31***	.18**		
14. CDI	−.23***	.05	.03	.06	−.02	−.00	.14*	.05	.20***	.24**	.12*	.14*	.50***	
15. PSI	.06	−.39***	−.29***	−.41***	−.26***	−.44***	−.05	.06	−.14	−.14*	−.17*	−.32***	−.16*	−.18**

Note. Participation and Modification subscale scores were recalculated based on CFA findings; FASA = Family Accommodation Scale – Anxiety; CR = Child Report; MASC 2-P = Multidimensional Anxiety Scale for Children – Parent; MASC 2– C = Multidimensional Anxiety Scale for Children – Child; CDI = Children's Depression Inventory; PSI = Parenting Stress Index.