

A Multi-informant Approach to Assessing Fear of Positive Evaluation in Socially Anxious Adolescents

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Abstract Fears of positive evaluation form important components of social anxiety. Researchers developed the Fear of Positive Evaluation Scale (FPES) to assess these fears. The FPES reliably and validly assesses fears of positive evaluation in undergraduates and adult social anxiety patients. However, it remains unclear if the FPES reliably and validly assesses these fears in clinic-referred adolescents. Further, implementing the FPES in clinical assessments of adolescents likely requires a multi-informant approach. Indeed, long lines of work indicate low cross-informant correspondence in reports of anxiety and anxiety-related constructs, and support the combined use of multiple informants' reports (e.g., parents and adolescents). We examined the FPES in a clinic-referred sample of adolescents aged 14–17 years ($M = 15.11$; 20 females; 59.5 % African American). Thirty-seven parent-adolescent pairs completed the FPES, as well as reports of adolescent social anxiety, safety-seeking behaviors, and depressive symptoms. Both parent and adolescent reports on the FPES evidenced adequate levels of internal consistency. Further, when taking both parent and adolescent reports into consideration, the FPES significantly and positively related to measures of social anxiety and safety-seeking behaviors, over and above other widely used measures of adolescent social anxiety and depressive symptoms. The findings indicate that a multi-informant administration of the FPES

yields internally consistent and valid estimates of fears of positive evaluation in a clinical sample of adolescents. These findings have important implications for properly assessing and treating social anxiety concerns in adolescents.

Keywords Social anxiety · Assessment · Adolescence · Fear of positive evaluation · Social anxiety disorder

Introduction

Social anxiety disorder (SAD) is one of the most common psychiatric conditions diagnosed in the United States (Kessler et al. 2005). Social anxiety disorder is typically characterized by intense and excessive fear of social situations, avoidance of social situations, and behavioral inhibition (Bögels et al. 2010). These fears usually present themselves in a variety of domains including work, school, and personal spheres, and often lead to significant quality of life impairments (Beidel et al. 2010). Most classical cognitive models of SAD posit that intense fears of social situations arise, in part, from a fear of being perceived negatively by others (Clark and Wells 1995; Rapee and Heimberg 1997). This thought pattern, labeled fear of negative evaluation (FNE), involves thinking that people with whom one interacts within social situations may evaluate him/her in a negative light. This distorted belief is thought to underlie much of the fear and avoidance that characterize social anxiety concerns.

Recent work has identified the fear of positive evaluation (FPE) as an additional important cognitive element of SAD (Heimberg et al. 2010; Weeks et al. 2008a, b). This cognitive construct involves a fear of being evaluated publicly in a positive light. Those experiencing this fear feel a sense of concern that those with whom they are

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coming into contact will evaluate them publically in a positive manner. Cognitive behavioral models posit that this fear of positive evaluation may be related to a fear of coming into direct social comparison with others since the evaluation is not only positive, but also public. Thus, this public display and the social competition that may arise (i.e., from others observing the evaluation) may bring additional attention to the person being evaluated. In addition, positive social evaluations may engender a fear that the person is being “set up” for possible future negative social evaluation (Heimberg et al. 2010; Wallace and Alden 1997). This updated model posits that if one is evaluated in a positive light, people will hold higher expectations of him/her in the future. Those suffering from social anxiety fear they will be incapable of meeting those heightened expectations and will thus disappoint those who had initially evaluated them positively. Thus, although the appraisal is positive, for those experiencing social anxiety, the positive evaluation leads to negative consequences in the future (Wallace and Alden 1997).

While FPE has often been compared to FNE, FPE appears to represent a distinct construct that uniquely predicts social anxiety and intense fears of social situations (Fergus et al. 2009; Weeks et al. 2008a). The utility of research on FPE is that it highlights that social anxiety may manifest as the result of fears of many types of evaluations, not just from prototypical fears of negative evaluation. Importantly, current cognitive behavioral models focus predominately on negative evaluation and associated fears (Clark and Wells 1995; Rapee and Heimberg 1997). Consequently, existing evidence-based treatments for SAD focus solely on FNE, and thus may be missing potential avenues toward reducing symptoms and improving functioning through techniques that target FPE (Weeks et al. 2008a; Weeks and Howell, in press). Thus, research on measurement of FPE has a number of important implications not only for improving our basic understanding of SAD but also for improving the efficacy of SAD interventions.

To assess FPE, Weeks and colleagues developed the Fear of Positive Evaluation Scale (FPES), a self-report measure designed to assess this construct in adult populations (Weeks et al. 2008a). The scale consists of 10 items that systematically address fears of being evaluated positively (e.g., “I feel uneasy when I receive praise from authority figures”). A number of studies have evaluated the psychometric properties of the FPES among nonclinical undergraduate samples (Weeks et al. 2008a, b) and adult clinical samples of SAD patients (Fergus et al. 2009; Weeks et al. 2012). The FPES evidences adequate internal consistency (all α s > 0.80) across both nonclinical undergraduate and clinical SAD samples. The FPES evidences good convergent validity in relating to other social anxiety measures, as well as discriminant validity with measures of depressive

and generalized anxiety disorder symptoms (Weeks et al. 2008a, b; 2012; Fergus et al. 2009). In addition, the FPES appears to be sensitive to changes resulting from SAD treatment and thus shows promise as a measure of SAD treatment response (Fergus et al. 2009; Weeks et al. 2012).

Overall, the FPES appears to reliably and validly assess adult manifestations of FPE. Yet, we know of no published study examining whether the FPES reliably and validly assesses adolescent expressions of FPE. There are a few reasons to believe that a measure assessing FPE would usefully contribute to understanding expressions of social anxiety in adolescents. First, epidemiological studies reveal that the median age of onset for SAD is during adolescence (i.e., 13 years; Kessler et al. 2005), and SAD has one of the highest lifetime prevalence rates of all psychiatric disorders (Kessler et al. 2012). Therefore, adolescence may be a critical period in the development of social anxiety and thus in efforts placed on prevention of the condition. Second, measures originally developed for use with adults to evaluate constructs relevant to social anxiety (e.g., safety and avoidance behaviors) appear to evidence sound psychometric properties when administered to adolescents, and with no modifications in item content or scaling (Thomas et al. 2012). Therefore, the FPES might usefully assess FPE in adolescents and perhaps with little-to-no modifications in content, thus buttressing future efforts in prospective longitudinal research on FPE.

Importantly, adult psychopathology assessments generally rely heavily on self-report (e.g., Achenbach et al. 2005). In contrast, a core component of best practices in clinical assessments of adolescents involves collecting reports from multiple informants (e.g., Hunsley and Mash 2007). In assessments of adolescent social anxiety, these multi-informant assessments typically consist of reports taken from adolescents and their parents (e.g., Grills and Ollendick 2002; Silverman and Ollendick 2005). Thus, at minimum, a proper assessment of adolescent FPE ought to consist of both self- and parent-report instruments, preferably with item content and scaling held constant across forms (see also De Los Reyes 2011). In this way, differences between reports can be meaningfully interpreted and not attributed solely to methodological differences between measures (for a review, see De Los Reyes et al. 2013b). This is an important consideration within multi-informant assessments of adolescent social anxiety, as parents and adolescents provide reports that often evidence low correspondence with each other (e.g., Choudhury et al. 2003; De Los Reyes et al. 2012; DiBartolo et al. 1998). In fact, these discrepancies may represent meaningful differences in the kinds of symptoms about which parents and adolescents report. Parents may be reporting about symptoms expressed in home settings whereas adolescents may report about home-based symptoms but also school-based symptoms

(e.g., Comer and Kendall 2004; De Los Reyes et al. 2013b). Therefore, a multi-informant approach may be especially relevant for adolescent FPE assessments in general, and use of the FPES in adolescent assessments in particular. This is because items on the FPES assess situations that involve coming into contact with and receiving praise from authority figures, which may be more common in a school environment. In addition, directions on how to complete the FPES instruct informants to focus on individuals that the adolescent does “not know very well” in order to control for familiarity bias. Given this, assessments of FPE would be quite likely to focus on expressions of the construct outside the home setting. Thus, the utility of assessing FPE using both parent and adolescent reports is that these two informants may observe and report about adolescent FPE in fundamentally different ways. Consequently, a multi-informant approach may improve understanding of the links between adolescent FPE and adolescent social anxiety symptoms, relative to use of informants’ reports in isolation of one another (see also Kraemer et al. 2003).

Purpose and Hypotheses

The purpose of this study was to advance the literature on assessment of adolescent FPE. Specifically, we examined the psychometric qualities of the FPES in a sample of adolescents referred for a clinical evaluation for social anxiety. We administered parallel versions of the FPES to adolescents and parents. In doing so, we evaluated the joint use of these reports in relation to adolescent expressions of social anxiety and commonly co-occurring behaviors, namely safety-seeking behaviors. We expected to find acceptable levels of internal consistency in both parent and adolescent FPES reports. We also expected to observe low correspondence between reports, consistent with prior work on multi-informant assessment of adolescent social anxiety (e.g., Choudhury et al. 2003; De Los Reyes et al. 2012; DiBartolo et al. 1998). Further, we expected parent and adolescent FPES reports to uniquely relate to widely used measures of adolescent social anxiety and safety-seeking behaviors, over and above other widely used measures of adolescent social anxiety and depressive symptoms, as well as adolescent age and gender, which commonly relate to expressions of adolescent social anxiety (Alfano and Beidel 2011).

Method

Participants

Participants were 37 parent–adolescent dyads who completed the measures described below as part of a larger

study assessing adolescent social anxiety (De Los Reyes et al. 2012). Families contacted the laboratory in response to an advertisement for a study offering a no-cost social anxiety clinical screening evaluation to “shy” adolescents and their families. We informed families participating in the study that at the conclusion of the study they would receive feedback on their adolescents’ social anxiety as well as referrals to locations in the community that offered diagnostic testing and/or treatment for social anxiety. Previous work indicates that this clinic-referred sample can be differentiated from age- and gender-matched community control adolescents on social anxiety symptom level, psychophysiology, and associated features of social anxiety (i.e., safety-seeking behaviors; De Los Reyes et al. 2012; Thomas et al. 2012).

Adolescents in the sample had a mean age of 15.11 years ($SD = 1.07$) and included 17 male and 20 female participants. Parents identified the families’ race/ethnicity as Black or African American (59.5 %), White, Caucasian, American, or European (32.4 %), Asian American (5.4 %), American Indian (2.7 %), Hispanic and/or Latina/o (2.7 %) or Other (5.4 %). Previous work has found the FPES to be factorially invariant across the 4 major ethnic groups in the United States (Norton and Weeks 2009). One family identified themselves as “Indian” and one identified as “Biracial.” The make-up of the family race/ethnicities total over 100 % because families were given the option of selecting more than one racial/ethnic group, resulting in overlap amongst the groups. Parents reported that over one-third of the families (37.8 %) had a weekly household income of \$500 or less; 32.4 % reported earning \$901 or more per week with the remaining families falling in between the two ranges.

Measures

FPE

We assessed adolescent FPE using the FPES described previously. The FPES is a 10-item self-report measure that uses a 10-point Likert type scale. Ratings on the FPES range from 0 (not at all true) to 9 (very true). In this sample, we administered parallel versions of the FPES to adolescents and parents. Adolescents responded to the items with regard to themselves; parents completed an adapted version of the FPES with the same items administered to adolescents but with minor wording modifications to fit the parent’s perspective (i.e., items phrased as “my child” instead of “I”). A complete list of FPES items can be found in the original report of its psychometric properties (i.e., Weeks et al. 2008a).

We excluded three items from the FPES. First, item 3 (“I try to choose clothes that will give people little

impression of what I am like”) assesses the adolescent’s choice of clothes in the context of FPE. This item seemed inappropriate for assessing FPE among adolescents. Specifically, research indicates that parents and adolescents often have very different impressions about the age at which adolescents should have the autonomy to make decisions about clothing (Feldman and Quatman 1988). An additional consideration is that age of onset of autonomy in clothing decisions might vary by ethnic groups. Indeed, certain ethnic groups, such as Asian Americans show later ages of autonomy for making decisions such as choosing one’s clothes, relative to Caucasian groups (Feldman and Quatman 1988; Greenfield et al. 2003). Thus, in light of the heterogeneous nature of our sample in both age range and racial/ethnic background, we felt that including item 3 would introduce measurement error or unnecessary variance in our estimates of adolescent FPE, and we excluded item 3 in our FPES total score calculations. Further, in line with prior work, the two reverse-worded items (items 5 [“If I have something to say that I think a group will find interesting, I typically say it”] and 10 [“I often feel underappreciated, and wish people would comment more on my positive qualities,”] which are included to account for response biases) were not included in the total score (Marsh 1996; Weeks et al. 2008a). Thus, we computed a FPES total score for both adolescent self-report and parent report using the remaining items (i.e., 1, 2, 4, 6, 7, 8, and 9; see Weeks et al. 2008a).

Safety-Seeking Behaviors

To assess adolescent safety-seeking behaviors, we used the Subtle Avoidance Frequency Examination (SAFE; Cuming et al. 2009). The SAFE was originally developed for adults as a 32-item scale assessing safety-seeking behaviors that may be used to minimize distress experienced within social situations. The SAFE instructs adolescents to rate each item on a scale of 1 (Never) to 5 (Always) regarding how often they would engage in certain behaviors when in social situations. As with the FPES, for parent reports of their adolescents on the SAFE, item phrasing was changed to “my child” instead of “I”. The SAFE possesses adequate internal consistency and convergent validity in both clinical and nonclinical adult samples (Cuming et al. 2009), as well as clinical and nonclinical adolescent samples (Thomas et al. 2012). In our sample, we observed high levels of internal consistency in both adolescent self-reports and parent reports about adolescents (Table 1).

Social Anxiety

We assessed adolescent social anxiety symptoms using two scales. For both scales, we modified item phrasing from the

self-report to fit the parent perspective about their adolescent (i.e., “my child” instead of “I”). First, we administered the Multidimensional Anxiety Scale for Children (MASC; March et al. 1997). The MASC is a 39-item scale designed to assess various domains of anxiety including physical symptoms, harm avoidance, social anxiety, and separation anxiety. We specifically examined the Social Anxiety subscale of the MASC (MASC-SA). All subscales of the MASC evidence high internal consistency and construct validity (March et al. 1997; Silverman and Ollendick 2005). In previous research, parallel parent and adolescent versions of the MASC have evidenced acceptable levels of internal consistency and validity, as well as identical factor structures (Baldwin and Dadds 2007; De Los Reyes et al. 2012). We observed acceptable levels of internal consistency for the adolescent self-report as well as the parent report (Table 1).

Second, we administered the Social Phobia and Anxiety Inventory for Children (SPAIC, Beidel et al. 1995; 2000). The SPAIC is a 26-item measure designed to assess social anxiety symptoms in children and adolescents. The items inquire about situations that may potentially produce anxiety (e.g., performing in a play, eating in the school cafeteria). The measure also assesses cognitive and physical aspects of social anxiety in conjunction with avoidance behaviors. Informants provide reports using a 3-point scale (i.e., never or hardly ever, sometimes, most of the time or always). Among the 26 items, nine items include “sub-items” that instruct the informant to report on the

Table 1 Means (M), standard deviations (SD), and internal consistencies (α) of survey measures of adolescent social anxiety, safety-seeking behaviors, depressive symptoms, and fears of positive evaluation

Variable	M	SD	α
FPES			
Adolescent self-report	29.30	11.82	0.69
Parent report about adolescent	35.16	14.44	0.83
SAFE			
Adolescent self-report	77.30	17.10	0.87
Parent report about adolescent	79.08	18.66	0.91
MASC-SA			
Adolescent self-report	14.76	5.87	0.86
Parent report about adolescent	17.73	4.96	0.80
SPAIC			
Adolescent self-report	21.38	10.45	0.94
Parent report about adolescent	26.75	10.46	0.95
BDI-II			
Adolescent self-report	11.81	9.43	0.90

FPES Fear of Positive Evaluation Scale, *SAFE* Subtle Avoidance Frequency Examination, *MASC-SA* Social Anxiety Subscale of the Multidimensional Anxiety Scale for Children, *SPAIC* Social Phobia and Anxiety Inventory for Children, *BDI-II* Beck Depression Inventory-II

adolescent's distress based on different interaction partners (i.e., “boys and girls I know” vs. “boys and girls I don't know” vs. “adults”). For these nine items, scores on these sub-items are averaged to form a composite score for each item. The scores for each of the 26 items are then summed. Total scores range from 26 to 78, with higher scores indicating greater social anxiety. In our sample, we observed high levels of internal consistency for the adolescent self-report version of the SPAIC (Table 1).

The parent version of the SPAIC (i.e., SPAIC-P) significantly relates with the adolescent SPAIC, and both reports evidence very good internal consistency (De Los Reyes et al. 2010, 2011; Beidel et al. 2000; Higa et al. 2006). For the SPAIC-P, due to a computer software error, we did not record responses to 2 items (i.e., items 22 and 23). Thus, we created a mean score for the SPAIC-P for each parent participant, based on their scores for the other 24 items. We then used this mean value to impute the two missing items for each parent's report. We observed high internal consistency when using these two items with the other 24 items (Table 1). Importantly, we also observed high internal consistency estimates without the mean-imputed items included in the score (i.e., 24 items scored without mean imputation, $\alpha = 0.94$).

Depressive Symptoms

We measured adolescent depressive symptoms using a modified version of the self-report Beck Depression Inventory–II (BDI-II; Dozois et al. 1998). This is a 21-item measure that assesses depressive symptoms in both adolescent and adult populations. In order to address confidentiality precautions, we did not administer item 9, which inquires about suicidal thoughts. Thus, our total score was calculated based on 20 items. We observed high estimates of internal consistency (Table 1).

Demographics

Parents completed a parent, adolescent, and family demographics form.

Procedure

All procedures were conducted following approval by the Institutional Review Board at a large, Mid-Atlantic university. In order to participate in the study, families had to meet certain eligibility requirements. The requirements were as follows: (a) speak English, (b) understand the consenting and interview process, and (c) have an adolescent currently living in the home whom the parent did not report as having a history of learning or developmental disabilities. Additionally, to address the present study's aims we focused on the 37

families who provided complete data on all constructs previously discussed.

Participants for the study were recruited using a range of techniques including advertisements posted online (e.g., Craigslist, laboratory website) and in newspapers in local areas. We also recruited through the offices of local pediatricians, mental health professionals, and other health care providers. Following an initial telephone screen for eligibility, we scheduled families to come into the laboratory for an in-person assessment where both the parent and adolescent had to be present. Upon arrival to the laboratory, parents provided consent for participation in the study and the adolescents provided assent. Following the consent and assent process, we led participants into a room where they completed assessments independently. Participants completed these surveys on computers using IBM SPSS Data Collection survey administration software.

Data-Analytic Plan

Initially, we conducted preliminary analyses to determine if our data met basic assumptions of parametric statistical tests (i.e., skewness and kurtosis; see Tabachnick and Fidell 2001). We also computed bivariate correlations between parallel measures across informants. Tests of our main hypotheses involved examining multiple informants' reports of FPE, social anxiety, and safety-seeking behaviors (i.e., adolescents' reports about themselves, parents' reports about their adolescents). Thus, we could not assume that our measures would be independent observations of these constructs. Although reports from multiple informants often disagree with each other, they typically still exhibit significant and positive correlations with each other (De Los Reyes and Kazdin 2005). Given this, our data violated key assumptions that underlie general linear modeling (GLM, see Table 2 for correlations). Thus, we tested our hypotheses using generalized estimated equations (GEE), an extension of the GLM that allows for correlated observations of dependent or independent variables (e.g., De Los Reyes et al. 2013a; Hanley et al. 2003).

For GEE modeling, we used an identity link function with an unstructured correlation matrix. We used an unstructured correlation matrix in light of the small number of dependent variables and the fact that we had complete data on all constructs for the 37 families we examined. Specifically, we statistically modeled our dependent variables (i.e., SAFE and SPAIC/SPAIC-P scores) as nested, repeated-measures (within dyadic subjects) dependent variables. For each GEE, we statistically modeled the dependent variable as a function of four sets of factors, and we compared nominal factors (i.e., adolescent gender and informant) in descending order. First, we entered adolescent age and gender, as well as the BDI-II total score (i.e., only the adolescent completed this measure),

Table 2 Correlations among survey measures of adolescent social anxiety, safety-seeking behaviors, depressive symptoms, and fears of positive evaluation

Variable	1	2	3	4	5	6	7	8	9
1. FPES, adolescent self-report		−0.07	0.54**	0	0.15	−0.01	0.37*	−0.02	0.37*
2. FPES, parent report about adolescent			−0.10	0.42**	0.08	0.27	−0.03	0.49**	−0.07
3. SAFE, adolescent self-report				0.08	0.52**	0.04	0.48**	0	0.47**
4. SAFE, parent report about adolescent					0.21	0.33*	0.15	0.41*	0.42**
5. MASC-SA, adolescent self-report						0.27	0.77**	0.25	0.64**
6. MASC-SA, parent report about adolescent							0.22	0.73**	0.03
7. SPAIC, adolescent self-report								0.27	0.64**
8. SPAIC, parent report about adolescent									0.22
9. BDI-II, adolescent self-report									

FPES Fear of Positive Evaluation Scale, SAFE Subtle Avoidance Frequency Examination, MASC-SA Social Anxiety Subscale of the Multi-dimensional Anxiety Scale for Children, SPAIC Social Phobia and Anxiety Inventory for Children, BDI-II Beck Depression Inventory-II

* $p < 0.05$; ** $p < 0.01$

as between-subjects covariates. Second, we entered one within-subjects “informant” factor accounting for both parent and adolescent reports on the dependent variable. Third, we entered as independent variables two continuous covariates modeled within-informant, similar to the dependent variable: (a) MASC-SA subscale scores from parent and adolescent and (b) FPES total scores from parent and adolescent. Fourth, we entered an interaction term between the within-subjects informant factor and the FPES total scores. We mean-centered all continuous independent variables before performing analyses. To provide estimates of the magnitudes of relations observed in our GEE analyses, we calculated pseudo- R^2 using Wald χ^2 estimates reported for each analysis. A description of the procedure underlying these calculations can be found elsewhere (De Los Reyes et al. 2013a).

As can be seen, in many respects our GEE analyses function as a hybrid analysis that combines elements of repeated-measures analysis of variance and multiple regression modeling procedures commonly observed in GLM analyses. What distinguishes GEE from these GLM procedures is that GEE allowed us to (a) model in each of our two analyses the variance accounted for by both parent and adolescent completing the dependent variables (i.e., SAFE or SPAIC/SPAIC-P) and two of our independent variables (i.e., FPES and MASC-SA) and (b) account for the non-independence inherent in our repeated-measures administrations of the SAFE, SPAIC/SPAIC-P, FPES, and MASC-SA.

Results

Preliminary Analyses

Frequency distributions for all variables were examined to detect deviations from normality. We detected no deviations

from normality on any variables representing the measures reported in Table 1, based on recommendations of Tabachnick and Fidell (2001). We report in Table 1 means and standard deviations for all study measures.

Internal Consistency of FPES Reports

We calculated internal consistency estimates for both the adolescent self-report version and the parent version of the FPES. Adolescent FPES reports exhibited levels of internal consistency approaching standard levels of acceptability (i.e., $\alpha \geq 0.70$; Nunnally and Bernstein 1994). Further, parent FPES reports exhibited adequate levels of internal consistency (Table 1).

Parent–Adolescent (Dis)agreement on FPES Reports

We predicted that there would be low correspondence between parent and adolescent FPES reports. Parent FPES reports exhibited a non-significant and low correlation with adolescent FPES reports, $r = -0.07$; $p = 0.67$. Further, although the mean of the parent FPES reports was higher than the mean adolescent FPES reports (See Table 1), a paired samples t test yielded a non-significant difference between the means, $t = 1.84$; $p = 0.07$.

Adolescent Age and Gender in Relation to FPES Reports

We did not observe any significant relations between adolescent gender and parent or adolescent FPES reports, $t = 0.94$, $p = 0.35$; and $t = -0.14$, $p = 0.89$, respectively. Similarly, we observed no significant relations between adolescent age and parent and adolescent FPES reports, $r = -0.18$, $p = 0.27$; and $r = 0.19$, $p = 0.25$, respectively.

Convergent Validity of FPES Reports

To assess convergent validity of the FPES, we computed bivariate correlations among the FPES and measures of social anxiety, depressive symptoms, and safety-seeking behaviors (Table 2). We observed significant positive correlations among our study variables and the FPES scores, although significant effects were exclusively within-informant. For the adolescent FPES reports, we observed greater FPES scores relating to greater SAFE and SPAIC scores. We also observed greater FPES scores relating to greater BDI-II scores.

Parent FPES reports evidenced within-informant correlation patterns similar to those observed for adolescent FPES reports. Specifically, we observed greater parent FPES scores relating to greater parent SAFE and SPAIC-P scores. Further, we did not observe a significant correlation between parent FPES scores and BDI-II scores, which was expected because the BDI-II was only administered to adolescents.

FPES Reports: Relations with Safety-Seeking Behaviors and Social Anxiety

Adolescent Safety-Seeking Behaviors

We examined unique relations between FPES reports and adolescent safety-seeking behaviors, using the GEE analytic plan described previously (Table 3). We observed non-significant main effects of adolescent age and gender. We also observed non-significant main effects of informant. We observed a significant, positive main effect of the BDI-II, indicating that greater adolescent depressive symptoms related to greater adolescent safety-seeking behaviors. We also observed a significant positive main effect of the MASC-SA, indicating that greater adolescent social anxiety symptoms related to greater adolescent

safety-seeking behaviors. Consistent with our hypotheses, we observed a significant, positive main effect of the FPES, indicating that greater adolescent FPE related to greater adolescent safety-seeking behaviors. Further, we observed a non-significant interaction effect between the FPES and the informant factor, indicating that our main effect of FPES held across parent and adolescent reports on the SAFE (i.e., our dependent variable). Thus, the FPES contributed unique variance in reports of adolescent safety-seeking behaviors, beyond the variance accounted for by adolescent age and gender, as well as widely used measures of adolescent social anxiety and depressive symptoms.

Adolescent Social Anxiety

We examined unique relations between FPES reports and adolescent social anxiety, using the GEE analytic plan described previously (Table 4). We observed non-significant main effects of adolescent age and gender. We observed a significant, negative main effect of informant, indicating that parents reported greater SPAIC scores relative to adolescents. We observed a significant, positive main effect of the BDI-II, indicating that greater adolescent depressive symptoms related to greater adolescent social anxiety symptoms. We also observed a significant, positive main effect of the MASC-SA, indicating that greater scores on the MASC-SA related to greater adolescent social anxiety symptoms measured by the SPAIC/SPAIC-P. Consistent with our hypotheses, we observed a significant, positive main effect of the FPES, indicating that greater adolescent FPE related to greater adolescent social anxiety symptoms as measured by the SPAIC/SPAIC-P. Further, we observed a non-significant interaction effect between the FPES and the informant factor, indicating that our main effect of FPES held across parent and adolescent reports on the SPAIC/SPAIC-P (i.e., our dependent variable). Thus, the FPES contributed unique variance in reports of

Table 3 Generalized estimating equations predicting Subtle Avoidance Frequency Examination (SAFE) scores as a function of adolescent age and gender, informant, Beck Depression Inventory-II

Factor	Wald χ^2	Pseudo-R ² (%)	B (SE)	95 % CI	<i>p</i>
Adolescent age	0.13	0.51	−0.59 (1.64)	[−3.82, 2.63]	0.72
Adolescent gender	0.03	0.12	0.50 (3.00)	[−5.35, 6.34]	0.86
Informant	0.31	1.22	−1.79 (3.20)	[−8.07, 4.49]	0.57
BDI-II	10.19	40.21	0.58 (0.18)	[0.22, 0.94]	<0.01
MASC-SA	5.55	21.90	0.75 (0.32)	[0.12, 1.38]	<0.05
FPES	9.04	35.67	0.49 (0.16)	[0.17, 0.81]	<0.01
Informant × FPES	0.09	0.35	0.07 (0.23)	[−0.39, 0.53]	0.75

(BDI-II), Social Anxiety Subscale of the Multidimensional Anxiety Scale for Children (MASC-SA), Fear of Positive Evaluation Scale (FPES), and the interaction between informant and FPES

B unstandardized beta, *SE* standard error, 95 % CI 95 % Wald confidence interval. Factor contrasts based on comparisons of factors in descending order. The Informant factor (coded in ascending order) was coded Parent and then Adolescent. The Adolescent Gender factor (coded in ascending order) was coded Male and then Female. For statistical tests of main and interaction effects, *p* values and 95 % CIs reported reflect significance tests for the reported unstandardized betas

Table 4 Generalized estimating equations predicting Social Phobia and Anxiety Inventory for Children (SPAIC/SPAIC-P) scores as a function of adolescent age and gender, informant, Beck Depression

Inventory-II (BDI-II), Social Anxiety Subscale of the Multidimensional Anxiety Scale for Children (MASC-SA), Fear of Positive Evaluation Scale (FPES), and the interaction between informant and FPES

Factor	Wald χ^2	Pseudo-R ² (%)	B (SE)	95 % CI	<i>p</i>
Adolescent age	0.11	0	0.21 (0.64)	[-1.04, 1.47]	0.74
Adolescent gender	0.38	0.17	1.01 (1.64)	[-2.21, 4.23]	0.54
Informant	20.02	9.34	-5.38 (1.20)	[-7.73, -3.02]	<0.001
BDI-II	4.82	2.25	0.17 (0.08)	[0.02, 0.32]	<0.05
MASC-SA	161.22	75.27	1.20 (0.09)	[1.01, 1.39]	<0.001
FPES	26.99	12.60	0.26 (0.05)	[0.16, 0.36]	<0.001
Informant \times FPES	0.64	0.30	-0.07 (0.09)	[-0.26, 0.11]	0.42

B unstandardized beta, *SE* standard error, 95 % CI 95 % Wald confidence interval. Factor contrasts based on comparisons of factors in descending order. The Informant factor (coded in ascending order) was coded Parent and then Adolescent. The Adolescent Gender factor (coded in ascending order) was coded Male and then Female. For statistical tests of main and interaction effects, *p* values and 95 % CIs reported reflect significance tests for the reported unstandardized betas

adolescent social anxiety as measured by the SPAIC/SPAIC-P, beyond the variance accounted for by adolescent age and gender, as well as other widely used measures of adolescent social anxiety and depressive symptoms.

Discussion

Main Findings

The purpose of this study was to test the psychometric qualities of a multi-informant approach to administering the FPES in clinical assessments of adolescent social anxiety. Specifically, we examined the internal consistency, convergent validity, and correspondence between adolescent self-report and parent-report versions of the FPES, as well as unique relations between FPES reports and reports on widely used measures of adolescent social anxiety.

There were five main findings. First, both parents and adolescents provided internally consistent FPES reports. Second, both parents and adolescents provided FPES reports that yielded support for convergent validity. That is, adolescent FPES reports related positively to one widely used measure of adolescent social anxiety (although see below for extended discussion of this issue), as well as to a widely used measure of safety-seeking behaviors. Similarly, parent FPES reports related positively to measures of adolescent social anxiety and safety-seeking behaviors. Third, we found significant positive relations between adolescent scores on the FPES and depressive symptoms as measured on the BDI-II.

Fourth, we observed convergent validity evidence in support of the FPES that was exclusively within-informant. This within-informant convergent validity evidence likely resulted from the fact that parent and adolescent FPES reports evidenced little-to-no correspondence. This low correspondence

may likely be attributed to parents and adolescents observing behaviors indicative of adolescent FPE in fundamentally different contexts (e.g., home vs. school settings; see also Comer and Kendall 2004; De Los Reyes et al. 2013b). However, studies specifically examining the mechanisms underlying low cross-informant correspondence between parent and adolescent FPES reports await further study.

Fifth, parent and adolescent FPES reports uniquely related to reports of adolescent social anxiety and safety-seeking behaviors. Importantly, we observed these relations above and beyond widely used measures of adolescent social anxiety, as well as adolescent age and gender and measures of adolescent depressive symptoms. In sum, our findings indicate that a multi-informant approach to administering the FPES in clinical assessments of adolescent social anxiety results in internally consistent and valid estimates of adolescent FPE.

Three aspects of our main findings warrant additional commentary. First, although we found strong evidence of the FPES relating to the SPAIC/SPAIC-P, we observed a non-significant relation between the FPES and the MASC-SA. These findings might be explained by differences in item content between the SPAIC and MASC-SA. Specifically, items on the MASC-SA assess social anxiety generally, with little mention of the specific contexts where symptoms may occur (e.g., “I feel shy” and “I have trouble asking other kids to play with me”). In fact, of the nine items on the MASC-SA, only two items provide some indication of the context in which social anxiety may be expressed (e.g., “I worry about getting called on in class,” and “I get nervous if I have to perform in public”). The remaining items provide no contextual information about where these fears may be expressed. In contrast, the majority of the items on the SPAIC assess social anxiety within very specific contexts or social interactions (e.g., “I feel so scared at parties, dances, school or anyplace where there will be more

than two other people that I go home early”). Thus, contextual information included in the SPAIC/SPAIC-P and not the MASC-SA might have resulted in the relatively more robust relations between the FPES and SPAIC/SPAIC-P. As additional evidence in support of this interpretation of our findings, consider that in previous studies of the FPES in three different adult samples, the Social Interaction Anxiety Scale (SIAS, Mattick and Clark 1998) was used to assess the convergent validity of the FPES (Weeks et al. 2008a; Fergus et al. 2009; Weeks et al. 2012). The FPES evidenced robust relations to the SIAS in each of these studies. Similar to the SPAIC, items on the SIAS assess social anxiety within a wide range of very specific situations (e.g., “I find it difficult to mix comfortably with the people I work with”). Overall, data across multiple studies indicate that the FPES may relate best to social anxiety measures with items that contain contextual information germane to social anxiety. Future studies examining the FPES in adolescents should test relations between the FPES and other social anxiety measures that contain contextual information in item content.

Second, we observed a stronger relation between the FPES and SAFE relative to the relation observed between the FPES and SPAIC/SPAIC-P (cf. Tables 3, 4). These patterns of findings may be attributed to the relations between the SAFE and SPAIC/SPAIC-P and some of our covariates. Specifically, the MASC-SA explained a great deal of variance in the SPAIC/SPAIC-P (Table 4), whereas the MASC-SA explained relatively less variance in the SAFE (Table 3). Thus, we observed a greater amount of unexplained variance in our models for the FPES to explain when the SAFE was the dependent variable, relative to when the SPAIC/SPAIC-P was the dependent variable. At the same time, these patterns of findings also reflect the ability of the FPES to robustly and uniquely relate to adolescent social anxiety measures, even when accounting for substantial overlap among other social anxiety measures and covariates.

Third, we observed significant positive relations between our measures of social anxiety (e.g., FPES, SAFE, and MASC-SA) and depressive symptoms as assessed using the BDI-II (Table 2). This is not surprising given previously reported relations between measures of adolescent social anxiety and BDI-II reports. Specifically, prior work comparing a population of clinic-referred socially anxious adolescents and a community sample found a significant difference on BDI-II scores, with the social anxiety group reporting greater depressive symptoms (De Los Reyes et al. 2012). Prior work has also found significant relations between the MASC-SA and BDI-II in an adolescent population, providing further evidence of the relation between social anxiety and depressive symptoms in this age group (Thomas et al. 2012). We observed the FPES exhibit unique relations with adolescent social anxiety measures whilst also accounting for adolescent depressive symptoms. At the same

time, we only administered depressive symptom measures to adolescents, and thus we encourage future research to incorporate measures of depressive symptoms completed by other informants (e.g., clinicians, parents).

Limitations

Four limitations to the current study should be noted. First, we relied exclusively on parent and adolescent survey reports to assess adolescent FPE and related constructs. We were limited in our assessments of adolescent FPE to an existing survey report that was originally developed to assess adult manifestations of FPE (Weeks et al. 2008a). However, a number of reliable and valid approaches exist for assessing anxiety and anxiety related constructs, including behavioral, psychophysiological, and performance-based measures (e.g., for reviews, see Thomas et al. 2012; Silverman and Ollendick 2005). Therefore, we encourage future work on the identification of methods for assessing adolescent FPE beyond survey reports.

Second, our study did not include a non-clinic control group. Thus, we were unable to examine whether parent and adolescent FPES reports distinguish clinic-referred adolescents from non-referred adolescents. Previous studies indicate that the FPES validly distinguishes socially anxious adult patients from non-anxious controls, and have identified clinical threshold scores based on this work (Weeks et al. 2012). Future work should examine whether thresholds previously identified in adult samples might similarly apply to detecting clinically relevant levels of adolescent FPE using the FPES.

Third, due to a computer software error, two items were not included in the total score for the SPAIC-P. In our study, we reported similarly high levels of internal consistency in versions of the SPAIC-P total scores based on either 26 or 24 items. Nevertheless, we encourage future research on the relations between the parent FPES and the complete version of the SPAIC-P.

Fourth, it will be important for future studies to compare and contrast adolescent FPE with adolescent FNE. Examination of whether findings reported between these constructs in adults (e.g., Weeks et al. 2008a, 2012) replicate in adolescent samples warrants further study.

Research and Theoretical Implications

Our findings have important research and practice implications. First, as mentioned previously, classical therapeutic approaches to treating social anxiety in adults do not incorporate techniques for addressing FPE in therapy (Fergus et al. 2009). To this end, researchers have recently suggested that treatments for adult social anxiety could involve an in vivo exposure component for adults that

specifically targets positive appraisal (Weeks et al. 2008a). Similarly, our findings indicate that parents and adolescents provide internally consistent and valid FPES reports. These findings indicate that perhaps similar efforts may be placed toward developing approaches for treating adolescent FPE within exposure-based social anxiety treatments. These issues merit further study.

Second, a key component of best practices involves taking a multi-informant approach to clinically assessing adolescents (De Los Reyes et al. 2013b; Hunsley and Mash 2007). Our findings indicate that this recommendation holds for assessing cognitive constructs related to adolescent social anxiety, such as FPE. Indeed, adolescents and their parents provided reports of FPE that evidenced low cross-informant correspondence, and yet validly related to measures of adolescent social anxiety and safety-seeking behaviors. We encourage researchers and clinicians to take a multi-informant approach to assessing adolescent FPE concerns, as it appears that parents and adolescents provide fundamentally distinct and yet valid reports of adolescent FPE.

Concluding Comments

In sum, our findings suggest that the FPES can be reliably and validly used to assess a unique cognitive construct of social anxiety in adolescents. With minor modifications in the wording, the parent version of the FPES yielded reliable and valid estimates of adolescent FPE. In addition, our work provides evidence that when examining adolescent symptoms, both adolescent self-report and parent report measures should be considered. When considering both reports, the FPES provided valid information in the prediction of adolescent concerns of FPE relative to measures of adolescent safety seeking behaviors and social anxiety symptoms. These findings have important implications for the assessment of correlates of adolescent social anxiety. Thus, we encourage future work in both clinical and research settings to employ multi-informant assessments of adolescent FPE and assessments of correlates of adolescent social anxiety.

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