Measuring evaluation fears in adolescence: Psychometric validation of the Portuguese versions of the Fear of Positive Evaluation Scale and the Specific Fear of Negative Evaluation Scale

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Funding source: This work was funded by a research scholarship by Fundação para a Ciência e Tecnologia, Portugal and the European Social Fund (SFRH / BPD / 72299 / 2010).

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Abstract

Modified measures of Fear of Negative Evaluation and Fear of Positive Evaluation were examined among Portuguese adolescents. These measures demonstrated replicable factor structure, internal consistency, and positive relationships with social anxiety and avoidance. Gender differences were found. Implications for evaluation and intervention are discussed.

Keywords

Fear of negative evaluation, fear of positive evaluation, adolescence, assessment, social anxiety

The fear of evaluation in social events refers to the subjective perception of being under the scrutiny of others and fearing the result of their critique. The fear of negative evaluation is commonly associated with psychopathology, particularly with social anxiety disorder (Carleton, Collimore, McCabe, & Antony, 2011). Cognitive-behavioral models of social anxiety propose that this fear may be a risk factor for social anxiety, arising from the desire to convey a particular impression to others but believing oneself to be unable to do so (Heimberg, Brozovich & Rapee, 2010). Thus fearing and believing oneself to be the recipient of undesirable evaluation by others, the individual faces social events with high levels of emotional arousal, and strives to avoid these situations or else remain unnoticed in them, by adopting various safety behaviors (McManus, Sacadura, & Clark, 2008).

The construct of fear of negative evaluation has been assessed using the *Fear of Negative Evaluation* scale (Watson & Friend, 1969). Scores obtained by clinical samples on the brief version of the FNE scale (Leary, 1983) have indicated adequate levels of reliability and validity (Collins, Westra, Dozois, & Stewart, 2005), but the results for its reverse-scored items show that responses to these items relate poorly to measures of social anxiety, are relatively insensitive to treatment effects, and are confounded by level of education (Rodebaugh et al., 2011; Weeks et al., 2005). For this reason, two straightforward versions were proposed, a 12-item version in which the four reverse-scored items were reworded to become straightforward (Carleton, McCreary, Norton, & Asmundson, 2006), and an 8-item version, including only the straightforwardly worded items from the original 12-item set (Rodebaugh et al., 2004). Comparison of the psychometric characteristics of the results for these two versions of the instrument supports the utility of the 8-item version (Carleton et al., 2011). Nevertheless, it may be the case that some of these items address a more general, rather than specific, fear of evaluation, and are, consequently in need of adjustment.

The construct of fear of positive evaluation has been proposed more recently by Weeks and colleagues (Weeks, Heimberg, & Rodebaugh, 2008; Weeks, Jakatdar, & Heimberg, 2010). Working from a psycho-evolutionary model of social anxiety, the authors argue that fear of positive evaluation may derive from the preoccupation with creating a too-good impression, which may be interpreted by dominant members of the social group as a threat to the existing social hierarchy, leading the socially anxious individual into conflict with dominant others. Fear of positive evaluation may thus be highly correlated with fear of negative evaluation, but nevertheless be activated differently or in different individuals with social anxiety, as fear of negative evaluation may unfold from the concern of creating an impression of oneself as unworthy of social approval. Both fears question the position of the individual within the social group to which he or she wishes to belong, and so socially anxious individuals may exhibit fear of both types of evaluation.

The *Fear of Positive Evaluation Scale* (FPES) was developed to measure fear of positive evaluation, and the results of several studies have found that scores obtained on the FPES have demonstrated adequate internal consistency and convergent and discriminant validity in undergraduate (Weeks, Heimberg, Rodebaugh, & Norton, 2008; Weeks et al., 2010) and clinical (Weeks, Heimberg, Rodebaugh, Goldin, & Gross, 2012) samples. Studies on the validity of this construct have produced results indicating that fear of positive evaluation contributed unique variance to the prediction of social anxiety, beyond the variance contributed by fear of negative evaluation (Weeks, Heimberg, & Rodebaugh, 2008; Weeks, Heimberg, Rodebaugh, et al., 2008; Weeks et al., 2010). Moreover, fear of positive evaluation (but not fear of negative evaluation) was associated with the discomfort felt when receiving positive feedback and with the perceived (in)accuracy of this feedback (Weeks, Heimberg, Rodebaugh, et al., 2008).

The proposition that fears of both negative and positive evaluation underlie social anxiety has important implications for understanding social anxiety and for interventions with people who suffer with it, particularly in adolescence, a developmental period during which there is an increased risk for developing social anxiety (Kashdan & Herbert, 2001); it is only if we are able to measure constructs related to (and probably predisposing to) social anxiety that we may better understand the etiology and characteristics of social anxiey itself.

Neverthless, measures for evaluating these constructs that may predispose a person to social anxiety are scarce in Portugal. There are a few instruments assessing the emotional, behavioral and cognitive experiences of social anxiety, namely the *Social Anxiety and Avoidance Scale for Adolescents* (Cunha, Pinto-Gouveia, & Salvador, 2008), the *Social Anxiety Scale for Adolescents* (Cunha, Gouveia, Alegre, & Salvador, 2004), the *Social Phobia and Anxiety Inventory – Brief Report* (Vieira, Salvador, Matos, García-López, & Beidel, 2013), or the *Social Toughts and Beliefs Scale* (Vagos, Pereira, & Beidel, 2010). They focus on the symptoms of social anxiety, such as the intensity of emotional arousal and avoidance of social events, or the thoughts activated in response to such events, but disregard the specific perception of being evaluated by others;fears of negative and positive evaluation may better help to explain how and why these symptoms of social anxiety are activated to begin with. Additionally, the experience of fearing evaluation from others has been little studied with adolescents One of the few examples would be the recent work by Lipton, Augenstein, Weeks, and De Los Reyes (2013), who sought to examine the association between fear of positive evaluation and social anxiety in a clinic-refered sample of adolescents, and found that this fear accounted for significant variance in social anxiety and subtle avoidance, beyond that explained by sociodemographic variables or depressive symptoms.

This paper presents the process of translating and adapting a modified form for the *Brief Fear of Negative Evaluation – Straightforward* scale (Rodebaugh et al., 2004), as well

as translating the original *Fear of Positive Evaluation Scale* (Weeks, Heimberg, & Rodebaugh, 2008) into Portuguese, and evaluating the psychometric properties of the results for these instruments obtained with an adolescent school-based Portuguese sample. Fear of negative and of positive evaluation have not been previously studied using adolescent samples, even if social fears (and its associated correlates) have been found to increase from childhood to adolescence (Westenberg, Drewes, Goedhart, Siebelink, & Treffers, 2004). Adolescence, however, is a relatively long developmental period. During this period, changing developmental trajectories for social anxiety have been found (Levpuscek, 2004; Miers, Blote, de Rooij, Bokhorst, & Westenberg, 2013), in addition to evidence for changing response patterns for social anxiety and avoidance, possibly because one's perspective on different fear stimuli varies with socio-cognitive maturation (Westenberg et al., 2004). Therefore, it seems important to explore the response patterns of persons from different age groups than those previously studied. Conclusions found based on the predominantly undergraduate student samples used previously to examine the psychometric characteristics of the results of the instruments under consideration (*e.g.* Rodebaugh et al., 2004; Weeks, Heimberg, & Rodebaugh, 2008) may be more directly generalizable to an age-group that immediately precedes the age-groups of those samples. For this reason, the present work focused on such an immediately antecedent age group; namely mid-adolescents 15 to 18 years old (Jackson & Goossens, 2006).

Consequently, we address the following hypotheses based on a sample of Portuguese adolescents: (a) similarly to what was found by Weeks, Heimberg and Rodebaugh (2008), a two-factor measurement model will provide a good fit for the data, with one factor representing fear of negative evaluation and another factor representing fear of positive evaluation; (b) this measurement model will be invariant across distinct adolescent (male and female) samples, and (c) across gender; (d) no gender differences will be found for fear of

negative evaluation (Rodebaugh et al., 2011) or for fear of positive evaluation (Weeks, Heimberg, & Rodebaugh, 2008); (e) scores obtained from the translated/ modified measures of fear of negative evaluation and fear of positive evaluation will be approximately normally distributed (Rodebaugh et al., 2011; Weeks, Heimberg, & Rodebaugh, 2008) and (f) will produce very good internal consistency values (Rodebaugh et al., 2004; Weeks, Heimberg, & Rodebaugh, 2008); and, finally, (g) significant correlation and regression results will be found between measures of fear of negative and fear of positive evaluation and social anxiety (Weeks, Heimberg, & Rodebaugh, 2008) and avoidance (Lipton et al., 2013).

Materials and methods

Participants

Participants in the present research were 881 students from seven Portuguese public secondary schools (Table 1). Their ages varied between 15 and 18 years (M = 16.43; SD = 0.94). The majority of the sample was female (n = 556; 63.1%). Socioeconomic status was determined based on parents' profession and considering the Portuguese classification of professions and standard incomes (Instituto do Emprego e Formação Profissional, 1994). Examples of professions in the high socioeconomic status groups are judges, higher education teachers, or M.D.s; for the medium socioeconomic status group, examples include nurses, psychologists, or school teachers; for the low socioeconomic group examples are farmers, cleaning staff, or undifferentiated workers. Female and male students were uniformly distributed by socioeconomic status ($\chi^2_{(2)}$ = 4.93; p = .085) but not by school year ($\chi^2_{(3)}$ = 7.67; p = .022). Girls were predominant in the 12th grade, and boys were more prevalent in the 10th and 11th grades. The mean ages of boys (M = 16.35; SD = 0.95) and girls (M = 16.48; SD = 0.95) were not significantly different ($t_{(879)}$ = -1.94; p = .053).

To perform replication analyses on the factor structure of both instruments, this sample was randomly split into two sub-samples. Sub-samples 1 and 2 are presented in Table

1. Students in the two sub-samples were uniformly distributed by sex ($\chi^2_{(1)} = 0.363$; $p = .547$), school year ($\chi^2_{(3)} = 0.404$; $p = .817$) and socioeconomic status ($\chi^2_{(2)} = 0.992$; $p = .609$). The mean agse of students in samples 1 ($M = 16.48$, $SD = 0.94$) and 2 ($M = 16.39$, $SD = 0.94$) were not significantly different ($t_{(879)} = -1.33$; $p = .184$).

Due to differences in time availability at the participating schools, only 49.3% ($n = 434$; see Table 1) of the total sample had the opportunity to complete the measures of social anxiety and avoidance in addition to the measures of fear of negative and fear of positive evaluation. The majority of this third sub-sample who completed all study measures was also female ($n = 289$; 66.6%). Comparing students who only filled out the Brief Fear of Negative Evaluation Scale and the Fear of Positive Evaluation Scale with students who also filled out the measure of social anxiety and avoidance, we found that they were not similarly distributed by sex ($\chi^2_{(1)} = 4.45$, $p = .035$; more boys than girls did not fill out the measure of social anxiety and avoidance), school year ($\chi^2_{(2)} = 14.89$, $p = .001$; more 11th graders did not fill out the measure of social anxiety and avoidance), or socioeconomic status ($\chi^2_{(2)} = 9.65$, $p = .008$; more students who came from the low and high socioeconomic groups than from the medium socioeconomic status did not fill out the measure of social anxiety and avoidance). Those who did fill out the measure of social anxiety and avoidance ($M = 16.50$ $SD = 0.98$) were significantly older than those who did not ($M = 16.37$, $SD = 0.89$; $t_{(879)} = -2.08$, $p = .038$).

Measures

The ***Brief Fear of Negative Evaluation Scale – Straightforward items only (BFNE-S; Rodebaugh et al., 2004)*** includes only the eight originally straightforwardly-worded items from Leary's (1983) Brief Fear of Negative Evaluation scale. The respondent is asked to rate each item on a five-point Likert-type scale, ranging from 1 (*not at all like me*) to 5 (*very much like me*), and the items' scores are added to yield a final total score. The recommended use of only the eight straightforward items of the BFNE comes from previous works using

confirmatory factor analysis and IRT analysis with a combined clinical and student sample (Rodebaugh et al., 2004) and exploratory factor analysis with a clinical sample (Weeks et al., 2005). Results from both works suggested that responses to the straightforward items of the BFNE load onto a single factor, that BFNE-S scores are only moderately associated with the scores of the reverse-scored items of the original BFNE, and that BFNE-S scores are more sensitive than the reverse-scored items to varying levels of the target construct (*i.e.,* fear of negative evaluation).

The psychometric characteristics of scores from the BFNE-S have been well ascertained. For example, responses to the BFNE-S items have demonstrated strong internal consistency ($\alpha \geq .89$ with community samples, Pitarch, 2010; Rodebaugh et al., 2004; $\alpha = .92$ for clinical samples, Weeks et al., 2005), and BFNE-S scores have demonstrated strong convergent validity in relation to measures of social anxiety (Pitarch, 2010; Rodebaugh et al., 2004; Weeks et al., 2005), discrimant validity in relation to measures of anxiety sensitivity and depression, and sensitivity to cognitive-behavioral group treatment effects (Weeks et al., 2005). Significantly different scores on the BFNE-S have also been reported for individuals with or without a diagnosis of social anxiety disorder (Pitarch, 2010; Weeks et al., 2005).

Nevertheless, a careful look at some of the BFNE-S items raises questions about their face validity. Items 1, 5, 6 and 7 refer to a general fear of being evaluated, rather than a specific fear of being negatively evaluated. Considering that the goal of this work was to prepare measures to evaluate and explicitly analyze the associations between fears of negative and positive evaluation and social anxiety and avoidance, the development of a version of the instrument with greater specificity to fear of *negative* evaluation was deemed necessary. The rewording of the items in question to make them specific to fear of negative evaluation is presented in Table 2.

The ***Fear of Positive Evaluation (FPES, Weeks, Heimberg, & Rodebaugh, 2008)*** consists of 10 items. Two reverse-scored items are included intending to potentially detect response biases but are not included in the FPES total score. The original (English) version of the FPES employed a 10-point Likert-type rating scale, ranging from 0 (*not at all true*) to 9 (*very true*). However, for the purposes of the present study, FPES items were administered with the same scale as the BFNE-S, i.e., ranging from 1 (*not at all like me*) to 5 (*very much like me*). Results of confirmatory factor analysis with data from undergraduate students demonstrated that values for the eight straightforward FPES items load onto a single factor (Weeks, Heimberg, & Rodebaugh, 2008). Responses to FPES items have also demonstrated good internal consistency (α = .85 in a clinical sample, Weeks et al., 2012; and α = .80 in an undergraduate sample, Weeks, Heimberg, & Rodebaugh, 2008), and FPES scores have demonstrated strong convergent validity in relation to measures of social anxiety and fear of negative evaluation and discriminant validity in relation to generalized anxiety, worry, depression, and quality of life (Weeks et al., 2012; Weeks, Heimberg, & Rodebaugh, 2008).

Translation Procedures for the specific form of the BFNE-S and the FPES.

All 8 straightforward BFNE-S items (including the 4 modified items; see above and Table 2) and all 8 straightforward FPES items were adapted to the Portuguese language, by means of forward and backward translation (Hambleton, Merenda, & Spielberger, 2005): the items were translated from English to Portuguese by a Portuguese researcher unrelated to this work, who had lived in England for five years. This version of the items was then subjected to *thinking aloud analysis* by a class of 23 11th graders, male and female, who were asked to verbalize any doubts or ambiguities they might find with the items and instructions, and to suggest adjustments if they so desire. This is a common procedure used to investigate test usability, in as much as it allows verbalizations of the cognitive processes of encoding and interpreting written language (Ericson & Simon, 1993), which seemed highly important given

that the instruments had not been considered in an adolescents' perspective before. After this analysis, suggested alterations were made. Subsequently, the Portuguese version was back-translated to English by a professor from an independent school of languages who was not familiar with the original versions of the instruments. The original and back-translated versions of the items were considered equivalent.

The ***Social Anxiety and Avoidance Scale for Adolescents (SAASA, Cunha et al., 2008)*** was used to investigate the associations between fears of negative and positive evaluation and social anxiety and avoidance. It consists of 34 items that are each rated twice to form two separate subscales, one for social anxiety and one for avoidance of social events typical of adolescence. Based on the results of exploratory and confirmatory factor analyses with a sample of adolescents 12 to 18 years old (Cunha et al., 2008), and with an older adolescent sample 16 to 18 years old (Vagos, Pereira, & Cunha, 2013), it has been proposed that each subscale is comprised of six dimensions: interaction with the opposite sex, assertive interaction, observation by others, interaction in new social situations, performance in formal social situations, and drinking and eating in public. Results from previous works with this instrument demonstrate that responses to SAASA items demonstrate good-to-excellent internal consistency (α = .91 for the anxiety subscale and α = .87 for the avoidance subscale), and that SAASA scores demonstrated good 5-week test-retest reliability (r = .74, p < .01, for the anxiety subscale; and r = .71, p < .01, for the avoidance subscale), as well as convergent validity in relation to other social anxiety measures (Cunha et al., 2008; Vagos et al., 2013) and discriminant validity in relation to measures of generalized anxiety and depression (Cunha et al., 2008). A measurement model has been proposed specifically for adolescents aged 16 to 18 years old, and this being the case with the present sample, it was used for the present work (Vagos et al., 2013). Excellent internal consistency values were found for the responses to anxiety (α = .94) and avoidance (α = .91) subscales in the present sample.

Procedure

This study was approved by the national committee for evaluation of ethics and procedures of studies conducted in school settings. Afterwards, authorization was sought and given by the participating schools and by the parents of participants under 18 years of age. Sampling followed a convenience and then random procedure: seven schools from the north of Portugal were selected for geographical convenience reasons pertaining to data collection, but were also selected based on their position in the national ranking of schools, which is based on students' academic achievement (two schools presented below average results, three schools offered within average results and two schools obtained above average results); participating classes in each school were randomly selected. One member of the research team went to each school and classroom to request the voluntary participation of the students, to whom the confidentiality of the data was guaranteed. No student refused to participate; furthermore, although some parents may not have provided informed consent for their children to participate in the present study, no details on this were available to the authors, as the schools preferred not to give such information to the research team, in order to protect the identity of students and their families. Participants completing only the BFNE-S and the FPES took between 5 to 10 minutes to complete the task, whereas participants who also completed the SAASA took between 20 to 25 minutes to complete the task.

Statistical analyses

A total of fifteen students presented missing values in addition to random answers (*e.g.* diagonally answering); no student had only missing values. Missing values for the BFNE-S and the FPES were found for 1 to 2 items and missing values for the SAASA were found for 1 to 44 items. Of a total of 924 students evaluated, this represented only 1.67% of the sample. Therefore, a listwise deletion approach was applied to missing data, and these cases were not considered in any analysis or the participants section.

Data analysis was conducted using Mplus (v6.2; Muthén & Muthén, 2010) and SPSS (v15.0). Mplus was firstly used for single confirmatory and exploratory factor analysis, in order to define the measurement model underlying the instruments under evaluation. Secondly, Mplus was used to test for factorial invariance across gender, meaning that the measurement model would be invariant and have the same meaning to boys and girls, so that valid comparisons between groups on the latent variables could be made. A forward approach to testing for factorial invariance was applied, following the guidelines provided by Dimitrov (2010): configural, then metric and then scalar invariance were examined. At least partial scalar invariance is required if groups are to be compared on mean levels of latent constructs. Configural invariance indicates that the same basic factor structure is stable across groups; metric invariance determines that the item loadings on each factor are also identical across groups; and finally scalar invariance adds to this the imposition of equality of the variables' intercepts, again, across groups.

For evaluating model fit for exploratory and confirmatory factor analysis, a 2-index criterion was considered (Hu & Bentler, 1999), which combines a value of *Standardized Root Mean Square Residual* (SRMS) ≤ .08 with either a value of *Comparative Fit Index* (CFI) or *Tucker-Lewis Index* (TLI) ≥ .95, or a value of *Root Mean Square Error of Approximation* (RMSEA) ≤ .06. For performing and comparing the exploratory factor solutions, the guidelines given by Fabrigar, Wegener, MacCallum and Strahan (1999) were followed: an oblimin rotation was applied and fit indices were compared across different solutions; the selected solution denoted no better fit in comparison with the its antecedent (*e.g.*, overlap in the RMSEA value interval). Items were included if they had $\lambda \geq .32$ on only one factor and concomitant loadings on all other factors < .32. Items either not matching these criteria or presenting $\lambda < .32$ for all factors were dropped. Total scores for each factor were computed by the sum of items with $\lambda \geq .32$ in each factor; cross-loadings ≤ .32 were omitted.

For the replication of the exploratory factor analysis with a culturally and developmentally different sample from the ones previously used to study both instruments, internal (*i.e.*, comparison of two sub-samples) and external (*i.e.*, comparison of the complete present sample with the sample of Weeks, Heimberg, & Rodebaugh, 2008) replicability procedures were conducted. According to Osborne and Fitzpatrick (2012), structural replicability shows that the same items represent the same constructs across samples, whereas factor loading replicability indicates that the loadings for the same items are of roughly equivalent magnitude across samples. In this last case, the squared difference of loadings for the same item in different samples should not exceed .04. Furthermore, to verify if the measurement model resulting from this exploratory factor analysis was not dependent on the characteristics of the study sub-samples, configural, metric and scalar invariance across sub-samples 1 and 2 were also examined

SPSS was used for descriptive and internal consistency analysis (cut-off value of .70; Nunnally, 1978), as well as correlation and regression analyses on the measures of fears of evaluation, social anxiety and social avoidance.

Results

Factor structure analysis

Given that the two-factor structure of the combined pool of the 16 straightforwardly-worded items of the BFNE-S and the FPES had been previously ascertained (Weeks, Heimberg, & Rodebaugh, 2008) we began by performing a confirmatory factor analysis on this measurement model, using the total sample (N = 881). The fit indices for this two-factor solution did not satisfy the two-index criteria (*CFI* = .94, *TLI* = .93, *RMSEA* = .071, *SRMR* = .039). Given that an exploratory approach to the data is justified to identify latent constructs underlying measured variables (Fabrigar et al., 1999), and given that the current sample had specific characteristics (namely culture and age) that may have made it prone to different

interpretation of the items, an exploratory factor analysis with direct oblimim rotation was employed, using a two-sample approach (n = 440 for sub-sample 1 and n = 441 for sub-sample 2); solutions for one to three factors were examined. Data were normally distributed (multivariate kurtosis = 1.23, no items with univariate skewness ≥2 or univariate kurtosis ≥ 7; for mean and standard deviation values see Table 1), and consequently the *Maximum Likelihood* estimation method was used when performing the exploratory factor analysis (Fabrigar et al., 1999).

Results for the exploratory factor analysis (EFA) on sub-sample 1 (n = 440) indicated that a three-factor solution was the only acceptable solution (CFI = .97, TLI = .96, RMSEA = .057, SRMR = .024). Item 4 from the BFNE-S (*I am afraid that others will find fault in me*) was nevertheless problematic, presenting $\lambda \geq 1$ and concomitant negative residual variance. A second EFA was thus conducted excluding this item, and results for a two-factor solution were deemed acceptable (see Table 3 for fit indices and Table 4 for factor loadings).

Using the same item pool for sample 2 (n = 441), results point to the same two-factor solution using either EFA or CFA (see Table 3 for fit indices and Table 4 for factor loadings), demonstrating the internal structural replicability of this fear of negative evaluation and fear of positive evaluation measurement model. Internal factor loading reliability was also demonstrated for all seven items included in the measure of fear of negative evaluation and all but one item assessing fear of positive evaluation (Table 4).

To verify that this two-factor measurement model comprised of 15 items was not dependable on the characteristics of the study sub-samples (*e.g.* gender distribution by school year or socioeconomic level; see Table 1), we tested for configural and measurement invariance. Results for fit indexes for these analyses indicated a very good fit for the model for each group (Table 3), pointing to configural invariance of the measurement model. In addition, constraining the loadings to be equal across groups did not worsen the fit of the

model (M1- M0: $\Delta\chi 2$= 3.92, Δdf = 13, p > .995; ΔCFI = .00); neither did constraining both loadings and intercepts to be equal across groups (M2- M1: $\Delta\chi 2$= 5.03, Δdf = 13, p > .20; ΔCFI = .00; Table 3). These results demonstrated strong measurement invariance, indicating that the items of the measures conveyed the same meaning to, and were responded to in the same way, by different respondents in sub-samples 1 and 2. The correlation between fear of negative and fear of positive evaluation scores were .72, $p < .001$ and .68, $p < .001$ for sub-sample 1 and sub-sample 2, respectively. The lowest loading value for both sub-samples was found for item 8 of the BFNE-S (λ = .77 for sub-sample 1 and λ = .81 for sub-sample 2) and for item 2 of the FPES (λ = .72 for sub-sample 1 and λ = .66 for sub-sample 2). The highest loading value for both samples was found for item 7 of the BFNE-S (λ = .96 for sub-sample 1 and λ = 1.02 for sub-sample 2) and for item 6 for the FPES (λ = .91 for sub-sample 1 and λ = .88 for sub-sample 2).

The same 15-item pool was analyzed for the complete sample (N = 881), to evaluate external replicability for the FPES (external replicability for the BFNE-S measure was not possible given the difference in its constitution derived from the EFA solution in the present sample). Results from EFA and CFA demonstrated the suitability of the two-factor solution (Table 3) and the external structural replicability reliability of the results of the FPES only. External factor loading replicability was not demonstrated for fear of positive evaluation items 3, 6 and 7 (Table 4). Given that these items nevertheless presented acceptable loading values in both sub-samples, and that the total score for the FPES is obtained by the sum of the values given by each participant to the items, regardless of the loadings of each item, these different statistical weights were not considered when computing or analyzing the FPES total score. The correlation between the BFNE-S and the FPES for the complete sample was .478, $p < .001$. The lowest loading values found through CFA for the complete sample were .79 for

item 8 of the BFNE-S and .69 for item 2 of the FPES; the highest loadings were achieved for item 7 of the BFNE-S (λ = .99) and item 6 of the FPES (λ = .89).

Multi-group gender comparisons

To verify if the 15 item two-factor measurement model was invariant across gender, and therefore whether valid conclusions could be made regarding comparable levels of the latent variable between these groups, we tested for configural and measurement invariance, using male (n = 325) and female (n = 325) participants taken from the complete sample (*N* = 881). Results for the fit indexes indicated a very good fit for the model for each group (Table 3), indicating configural invariance of the measurement model. Results upon constraining the loadings to be equal across groups did not significantly worsen the fit of the model (M1- M0: $\Delta\chi 2$= 13.32, Δdf = 13, p > .20; ΔCFI = .00); however, results for constraining the intercepts to be equal across groups did (M2- M1: $\Delta\chi 2$= 66.12, Δdf = 13, p = .001; ΔCFI = -.01). It was necessary to free the intercepts of items 1, 3, 6 of the BFNE-S and items 4 and 5 of the FPES one at a time to achieve a non-significant worsening of the fit of the model (M2P- M1: $\Delta\chi 2$= 11.42, Δdf = 8, p > .10; ΔCFI = .00; Table 3), thus establishing strong but partial measurement invariance. The correlation between the fear of negative and fear of positive evaluation measures were .69, $p < .001$, and .68, $p < .001$, for male and female participants, respectively. The lowest loading value for male and female samples was found for item 8 of the BFNE-S (λ = .78 for male and female samples) and for item 2 of the FPES (λ = .73 for the male sample and λ = .64 for the female sample). The highest loading value for both male and female samples was found for item 7 of the BFNE-S (λ = .92 for the male sample and λ = .98 for the female sample) and for item 6 for the FPES (λ = .93 for the male sample and λ = .88 for the female sample).

Structured means analysis (Dimitrov, 2006) was applied to compare latent mean scores for boys and girls taken from the complete sample (*N* = 881). The male group was

taken as the reference group, and the mean difference in comparison to the female group was .286, $p < .001$, *Cohen d* = 0.42 for fear of negative evaluation and .433, $p < .001$, *Cohen d* = 0.72 for fear of positive evaluation. Girls therefore obtained higher latent mean scores then boys for both types of fear, with medium effect size for fear of negative evaluation and close to large effect size for fear of positive evaluation.

Relations to measure of social anxiety and avoidance

Preliminary analyses were conducted to identify variables that needed to be controlled for when investigating the relation of fear of negative evaluation and fear of positive evaluation with social anxiety and social avoidance. Regarding socio-demographic variables, scores for fear of negative evaluation correlated with age ($r = -.15$, $p < .001$), and students in different grades presented different levels of this fear ($F_{(2,880)} = 5.52$, $p = .004$), as did students of varying socioeconomic status ($F_{(2,880)} = 5.04$, $p = .007$). Scores for fear of positive evaluation correlated with age ($r = -.13$, $p < .001$), and students in different grades presented different levels of this fear ($F_{(2,880)} = 3.09$, $p = .046$). Therefore, the following correlational and regression analyses controlled for the possible confounding effects of these socio-demographic variables, and were performed using sub-sample 3 ($n = 434$), consisting of participants who completed the BFNE-S, the FPES and the SAASA.

As expected, significant partial correlations were found between scores on fear of negative evaluation and social anxiety ($r = .47$, $p < .001$) and avoidance ($r = .39$, $p < .001$). Scores on fear of positive evaluation were also significantly associated with social anxiety ($r = .43$, $p < .001$) and avoidance ($r = .40$, $p < .001$).

To investigate if fear of positive evaluation would add to the prediction of scores on social anxiety, above and beyond the contribution of fear of negative evaluation, a hierarchical regression was performed, entering socio-demographic variables in the first

block, fear of negative evaluation scores in the second, and fear of positive evaluation scores in the third.

For the social anxiety subscale, socio-demographic variables were significant predictors (R^2 = 0.052; $F_{(4,413)}$ = 5.61, p < .001, Cohen's f = 0.055) of social anxiety. Scores for fear of negative evaluation were additional significant predictors of social anxiety (R^2 = .264; $R^2\Delta$ = .212; $F\Delta_{(1,408)}$ = 117.33, p < .001, Cohen's f = 0.36). Scores for fear of positive evaluation in turn added significantly to the model (R^2 = .292; $R^2\Delta$ = 0.028; $F\Delta_{(1,408)}$ = 16.10, p < .001; Cohen's f = 0.041; Table 5). For hierarchical steps 2 and 3, socio-demographic variables were no longer significant predictors.

As for the avoidance subscale, socio-demographic variables were again significant predictors (R^2 = 0.031; $F_{(4,413)}$ = 3.26, p = .01; Cohen's f = 0.032). Scores for fear of negative evaluation were additional significant predictors of social avoidance (R^2 = .177 $R^2\Delta$ = 0.146; $F\Delta_{(1,408)}$ = 72.33, p < .001; Cohen's f = 0.22). Scores for fear of positive evaluation were also additional significant predictors of social avoidance (R^2 = .215; $R^2\Delta$ = 0.038; $F\Delta_{(1,407)}$ = 19.77, p < .001; Cohen's f = 0.27; Table 5). For hierarchical steps 2 and 3, only socio-economic status remained a significant predictor (p = .021 and .022 respectively).

Results concerning the anxiety and avoidance dimensions are not presented in detail in the interest of brevity, but were consistent with the results reported for the full subscales.

Discussion

This work set out to adapt and present psychometrically sound measures for fears of negative and positive evaluation. The growing evidence of the presence of a general fear of evaluation underlying social anxiety (Weeks, Heimberg, Rodebaugh, et al., 2008; Weeks et al., 2010), as well as the cumulative evidence of the parallel and biased processing of negative and positive social information in social anxiety (Hirsch & Mathews, 2000; Huppert, Foa, Furr, Filip, & Mathews, 2003), justify investigation of the topic and require that adapted and

valid measurement instruments become available. This is particularly important for adolescent samples, because even if social anxiety has been extensively studied in this developmental life period, fears of evaluation have not been. This is the first work evaluating the psychometric qualities of the scores obtained by instruments evaluating fears of negative and positive evaluation in an adolescent sample, and particularly adolescents in a school setting, who may be given to different interpretations of the relevant items comparing to adults. If this was the case, items might be organized into different meaningful factors than those previously found for undergraduate samples and thus address similar but not overlapping constructs.

Results obtained with this adolescent sample for the adapted Portuguese version of the *Brief Fear of Negative Evaluation Scale - Straightforward* (Rodebaugh et al., 2004) and the Portuguese version of the *Fear of Positive Evaluation Scale* (Weeks, Heimberg, & Rodebaugh, 2008) demonstrated good psychometric qualities. Thus, evidence was obtained confirming our hypothesis that: a two-factor model adequately fit the data from the complete sample, for distinct groups of (male and female) adolescents, as well as for boys and girls separately; scores for indexing fear of negative and fear of positive evaluation approximate normal distribution and demonstrated very good internal consistency values; and scores indexing fear of negative and fear of positive evaluation correlated and acted as predictors of social anxiety and avoidance.

The overall factor structure for the results of the measures under study was best modeled, as expected, by two correlated factors (*i.e.*, fear of negative evaluation and fear of positive evaluation). Results for this two-factor solution show acceptable fit of the model, which additionally cross-validated in two randomly-split sub-samples, confirming the stability and generalizability of the two fear of evaluation measurement model. One item from the fear of negative evaluation scale had to be dropped. This set of items had not been evaluated

previously with adolescents, and this item in particular was possibly interpreted differently by this group, in comparison with the remaining items, given that the word *fault* may have multiple meanings in Portuguese (*e.g.*, failure, shortcomings or mistakes).

Results for factorial invariance proved this measurement model to be invariant across gender and thus adequate for validly comparing boys and girls. We found significant differences in fear of negative evaluation and fear of positive evaluation by sex, with moderate to large effect sizes, which was not in line with our hypothesis that no gender differences would be found (Rodebaugh et al., 2011; Weeks, Heimberg, & Rodebaugh, 2008). Adolescent girls in the current sample obtained higher latent mean scores than boys for both fear of negative and fear of positive evaluation. Concordantly with this findings, previous studies have found that Portuguese adolescent girls report higher levels of fear of negative evaluation as evaluated by the Social Anxiety Scale for Adolescent (Cunha et al., 2004) as did North-American adolescent girls (Inderbitzen-Nolan & Walters, 2000). Together, these findings may express that the gender difference for fear of negative evaluation may lessen with age, as gender differences have been found for adolescent but not for adult samples. As for fear of positive evaluation, no gender differences had been previously found, in adult North-American samples, drawn from either non-clinical (Weeks, Heimberg, & Rodebaugh, 2008; Weeks et al., 2010) or clinical settings (Weeks et al., 2012). Evidence that women present higher levels of fear of positive evaluation had, however, been previously found for adults in a Portuguese non-clinical sample (Pereira, 2011). This particular finding concerning fear of positive evaluation may indicate some cultural specificity, warranting further investigation.

Validity evidence relating to external variables, specifically social anxiety and avoidance, was also obtained, in its general form and also pertaining to specific social contexts. Similar to the findings of Weeks and collaborators (Weeks, Heimberg, &

Rodebaugh, 2008; Weeks, Heimberg, Rodebaugh, et al., 2008), scores on measures of fear of negative evaluation and fear of positive evaluation were highly correlated but independent, accounting for unique variance in the prediction of scores on a measure of social anxiety. Using the present sample, these same fears were good predictors of self-reported avoidant behavior, which had been previously found for clinic-referred adolescents (Lipton et al., 2013). These fears had also been associated with submissive behavior (Weeks, Heimberg, Rodebaugh, et al., 2008; Weeks et al., 2010). It therefore seems that the same cognitive vulnerabilities represented in fears of evaluation may be underlying the emotionally anxious and the avoidant and submissive behavioral facets of social anxiety in adolescents.

Limitations to this work should be put forward, as they may sustain future research into aspects not considered in the current work. Particularly, the current findings are based on a specific age frame (15 to 18 years old) and relied solely on self-report questionnaires, using a cross-sectional design. Even if choosing this age frame was the optimal approach by which to make *a piori* predictions based on prior findings from samples of a immediately following age group (see the introduction section), the need for investigating the psychometric qualities of the results of the instruments under evaluation using samples with a broader ranges of age, as well as socioeconomic and clinical characteristics is paramount. Jointly using self-report measures with parent- and/or clinician- reports of fear of evaluation, social anxiety and avoidance, may further support the validity and relevance of the constructs under examination and the conclusions drawn from the use of these measures in Portuguese samples.

The present work presents preliminary findings in support of the measurement of fears of evaluation in school-based samples of adolescents, a population that had not been evaluated regarding these constructs. Given the normative experience of social anxiety in adolescence (Kashdan & Herbert, 2001), these constructs may represent important etiological or explanatory markers of this problem in this type of sample. Distinguishing between these

types of fears may, consequently, have important theoretical and clinical implications. Theoretically, they may help differentiate between dysfunctional behavioral patterns, which may interfere with adolescents' healthy development (Zarret & Eccles, 2006). Clinically, it may be necessary to review the intervention guidelines for social anxiety that promote the individual's focus on positive evaluation, which may, according to our findings, be another important source of social anxiety.

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Table 1

Socio-demographic characteristics of the complete sample and sub-samples

	Complete Sample			Sub-sample 1			Sub-sample 2			Sub-sample 3		
	Male	Female	Total[a]	Male	Female	Total	Male	Female	Total	Male	Female	Total
	n (%)	*n (%)*	*n (%)*	*n (%)*	*n (%)*	*n (%)*	*n (%)*	*n (%)*	*n (%)*	*n (%)*	*n (%)*	*n (%)*
	325 (36.9)	556 (63.1)	881 (100)	158 (35.9)	282 (64.1)	440 (100)	167 (37.9)	274 (62.1)	441 (100)	145 (37.8)	289 (66.6)	434 (100)
Schooling												
10th grade	127 (39.1)	189 (34.0)	316 (35.9)	61 (38.6)	101 (35.8)	62 (36.8)	66 (39.5)	88 (32.1)	154 (34.9)	62 (42.8)	102 (35.3)	164 (37.8)
11th grade	104 (32.0)	155 (27.9)	259 (29.4)	56 (35.4)	70 (24.8)	126 (28.6)	48 (28.7)	85 (31.0)	133 (30.2)	33 (22.8)	69 (23.9)	102 (23.5)
12th grade	94 (28.9)	212 (38.1)	306 (34.7)	41 (25.9)	111 (39.4)	152 (34.5)	53 (31.7)	101 (36.9)	154 (34.9)	50 (34.5)	118 (40.8)	168 (38.7)
Socioeconomic status												
Low	149 (45.8)	307 (55.2)	456 (51.8)	74 (46.8)	142 (50.4)	216 (49.1)	75 (44.9)	165 (60.2)	240 (54.4)	66 (45.5)	154 (53.3)	220 (50.7)
Medium	117 (36.0)	199 (35.8)	316 (35.9)	51 (32.3)	110 (39.0)	161 (36.6)	66 (39.5)	89 (32.5)	155 (35.1)	55 (37.9)	116 (40.1)	171 (39.4)
High	31 (9.5)	37 (6.7)	68 (7.7)	15 (9.5)	19 (6.7)	34 (7.7)	16 (9.6)	18 (6.6)	34 (7.7)	11 (7.6)	12 (4.2)	23 (5.3)
Missing	28 (8.6)	13 (2.3)	41 (4.7)	18 (11.4)	11 (3.9)	29 (6.6)	10 (6.0)	2 (0.7)	12 (2.7)	13 (9.0)	7 (2.4)	20 (4.6)
BFNE-S												
M; SD	17.30; 6.32	20.17; 6.95	19.04; 6.59	17.64; 6.35	20.17; 6.86	18.81; 6.39	16.98; 6.31	19.92; 6.18	21.78; 6.96	17.93; 6.67	20.22; 6.44	19.46; 6.61
FPES												
M; SD	20.05; 6.54	23.18; 6.73	22.07; 6.97	20.37; 6.62	23.48; 6.92	19.57; 6.78	19.98; 7.26	22.88; 6.54	22.36; 6.97	20.68; 7.04	23.23; 6.78	22.38; 6.97

Note: Sub-samples 1 and 2 resulted from randomly-splitting the complete sample (N = 881): sub-sample 3 refers to students who completed all study measures; BFNE-S = Brief Fear of Negative Evaluation – Straightforward; FPES = Fear of Positive Evaluation Scale

[a] Contrasting with national statistics, a similar proportion of girls and boys are represented in the current sample (national statistics = 54.8% of secondary school students are female and 45.2% are male). Additionally, our sample presents a similar percentage of students attending the 10th grade (national statistics = 35.57%), slightly fewer students attending the 11th grade (national statistics = 32.52%) and slightly more students attending the 12th grade (national statistics = 32.26%). Also, the percentage of boys attending the 10th and 11th grade in our sample is higher than indicated by national statistics, in which girls were found to more frequently attend the 10th, 11th and 12th grades (Direção-Geral de Estatísticas da Educação e Ciência, 2013).

Table 2

Items adapted for the Specific form of the straightforward Brief Fear of Negative Evaluation Scale

Item	Original English version	Specific version in English
1	I worry about what other people will think of me even when I know it doesn't make any difference.	I worry that other people will think badly of me even when I know it doesn't make any difference.
5	When I am talking to someone, I worry about what they may be thinking about me.	When I am talking to someone, I worry about that person thinking badly of me.
6	I am usually worried about what kind of impression I make.	I am usually worried about making a bad impression on others.
7	Sometimes I think I am too concerned with what other people think of me.	Sometimes I think I am too concerned with the possibility of others thinking badly of me.

Note: Items for the currently used version of eight items of the BFNE (Rodebaugh et al., 2004) were ordered 1 to 8, and therefore don't correspond to the item numbers of the twelve item version of the BFNE (Carleton et al., 2006)

Table 3

Fit indexes for single group and multi-group confirmatory factor analysis

	χ2	*df*	*CFI*	*TLI*	*RMSEA (90% CI)*	*SRMR*
Sample One- 15 items						
EFA - Two factor solution	182.75	76	.97	.96	.057 (.046; .067)	0.026
Sample Two – 15 items						
EFA - Two factor solution	180.87	76	.97	.96	.056 (.045; .066)	0.027
CFA - Two factor solution	233.81	89	.96	.95	.061 (.051; .070)	0.041
Measurement invariance across sub-samples						
M0 – subsample 1	233.15	89	.96	.95	.061 (.051; .070)	.040
M0 – subsample 2	233.81	89	.96	.95	.061 (.051; .070)	.041
M0	466.96	178	.96	.95	.061 (.054; .067)	.041
M1	470.88	191	.96	.95	.058 (.051; .064)	.042
M2	475.91	204	.96	.96	.055 8.049; .061)	.042
Complete sample – 15 items						
EFA - Two factor solution	267.77	76	.97	.96	.054 (.047; .061)	0.023
CFA - Two factor solution	353.42	89	.96	.95	.058 (.052; .064)	0.036
Measurement invariance across gender						
M – male participants	214.83	89	.95	.94	.066 (.055; .077)	.046
M0 – female participants	244.52	89	.96	.95	.056 (.048; .065)	.042
M0	459.35	178	.96	.95	.060 (.053; .067)	.044
M1	472.67	191	.96	.95	.058 (.051; .064)	.047
M2	538.79	204	.95	.95	.061 (.055; .067)	.050
M2P	484.09	199	.96	.95	.057 (.051; .064)	.047

Note: $\chi 2$ = Conventional chi-square fit statistics (under maximum likelihood estimation); df = degrees of freedom; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; CI = confidence interval; SRMR = Standardized Root Mean Square Residual; EFA = Exploratory factor analysis; M0 = baseline model (no invariance imposed); M1 = invariant factor loadings; M2 = invariant factor loadings and intercepts; M2P = invariant factor loadings and partially invariant intercepts (free intercept of items 1, 3, 6, 12 and 13); CFA = confirmatory factor analysis. All chi-square are statistically significant ($p < .001$).

Table 4

Standardized item loadings for EFA and CFA, and internal consistency values for fears of negative and of positive evaluation for the complete sample

		Internal replicability – EFA					External replicability - CFA		
		Sub-sample 1		Sub-sample 2		Squared loading	Complete	Weeks , Heinberg &	Squared loading
		F1	F2	F1	F2	difference	sample	Rodebaugh, 2008	difference
F1: Fear of negative evaluation (α = .91)									
1	I worry that other people will think badly of me…	.72	.08	.65	.14	.005	.86	-	-
2	I am frequently afraid that others will notice my shortcomings	.75	.07	.71	.11	.002	.91	-	-
3	I am afraid others will not approve of me	.69	.17	.65	.19	.002	.94	-	-
5	When talking to someone, I worry… (that he thinks badly of me)	.68	.18	.69	.10	.000	.89	-	-
6	I am usually worried about making a bad impression…	.84	-.01	.82	-.05	.000	.91	-	-
7	(…) I am too concerned with (…) others thinking badly of me.	.75	.09	.70	.14	.003	.99	-	-
8	I often worry that I will say or do the wrong things.	.62	.19	.63	.09	.000	.79	-	-
F2: Fear of positive evaluation (α = .87)									
1	I am uncomfortable exhibiting my talents…	.19	.58	.28	.41	.028	.80	.61	.036
2	It would make me anxious to receive a compliment…	.19	.44	.21	.45	.000	.69	.50	.036
3	I try to choose clothes that (don't show what I am like)	.11	.60	.05	.63	.000	.79	.37	.176
4	I feel uneasy when I receive praise…	.09	.65	.05	.69	.072	.85	.72	.016
5	I would gather receive a compliment… (in private)	.06	.61	.02	.34	.006	.82	.57	.062
6	If I was doing something well, I wonder if it (was too well)	.08	.68	.22	.60	.000	.89	.64	.062
7	I generally feel uncomfortable (receiving compliments)	-.05	.79	-.04	.76	.000	.86	.78	.006
8	I don't like to be noticed when I am in public places…	.06	.65	.06	.68	.000	.79	.64	.022

Note: Short versions of the items are presented, and paraphrases are added in brackets; Item 4 for the FNE was omitted to its loading value being superior to 1 and the associated residual variance being negative in the EFA performed for sub-sample 1; EFA = Exploratory factor analysis; CFA = Confirmatory factor analysis.

Table 5

Hierarchical regression analysis for fear of evaluation predicting social anxiety and avoidance

		B	SEB	B
Social anxiety				
Step	Predictor variable			
1	Sex	5.06	1.94	.126**
	Age	-2.86	1.44	-.149*
	Years in school	2.83	1.61	.132ns
	Socioeconomic status	-4.93	1.53	-.158***
2	Negative evaluation	1.34	0.124	.474***
3	Positive evaluation	.595	.148	.222***
Social avoidance				
Step	Predictor variable			
1	Sex	2.68	1.59	.082 ns
	Age	-1.97	1.18	-.127 ns
	Years in school	2.41	1.32	.139 ns
	Socioeconomic status	-2.97	1.26	-.117*
2	Negative evaluation	.902	.106	.394***
3	Positive evaluation	0.563	0.127	.259***

*** $p < .001$; ** $p < .01$; * $p < .05$; ns non-significant