Abstract

The goal of this research was to develop and psychometrically evaluate the Portuguese version of the Revised Peer Experience Questionnaire, which assesses aggression, victimization and prosocial behavior. Victimization and aggression among adolescents in school settings is a growing problem, not yet fully understood or properly evaluated, particularly in Portugal. A sample of 1320 adolescents was recruited (52.7% female), with ages varying from 10 to 18 years old, attending middle and high school. Confirmatory factor analysis confirms the measurement model of the instrument's bully and victim versions, as evaluating overt, relational and reputational aggression/ victimization and providing/ receiving prosocial behavior, respectively. This measurement model was invariant across schooling and gender, showed adequate internal consistency indicators, and presented evidence for construct validity in relation to other variables. Descriptive analyses indicate that boys are more aggressive in overt and relational forms and victimized through overt aggression, whereas girls are more aggressive and victimized relationally. More than any form of aggression or victimization, boys and girls revealed higher values for engaging in and receiving prosocial behavior. These results suggest that this instrument is a reliable, valid, and structurally sound measure of aggression, victimization and prosocial behavior in this Portuguese school-based community sample. Hence, its use may assist researchers gain a better understanding of adolescent aggression and victimization.

Victimization and aggression among adolescents in school settings is not a recent issue; it is, however, a growing problem that is not yet fully understood or properly evaluated (Costa, Pereira, Simões, & Farenzena, 2011). Though most of these violent acts are frequently categorized as bullying (*i.e.*, frequently repeated, ill-intended, and malicious behavior towards those who have difficulties defending themselves; Olweus, 2011), some of them to not qualify as such, because they do not fit into stables acts of interpersonal violence perpetuated via physical, verbal, social, and even sexual acts. These random acts of violence are common occurrences in the daily lives of adolescents (Currie, Hurrelmann, Settertobulte, Smith, & Todd, 2000), and Portuguese adolescents are no exception.

In a Health Behavior in School-Aged Children (HBSC) study cited by Carvalhosa (2010) ranking, Portuguese adolescents came as the forth nationality who most practices aggressive acts. This ranking shows that approximately 36% Portuguese adolescents aged 11 to 15 years old testify having been victims of aggressive acts, and about 22% report having been aggressors towards others. Aggressive behaviors can assume different forms (i.e., methods by which the harm is delivered), including overt, relational and reputational (Prinstein & Cillessen, 2003). Overt aggression refers to physically and verbally aggressive behavior (De Los Reyes & Prinstein, 2004). Relational aggression refers to harming others by appealing to the relationship as a weapon (Marsee et al., 2011; Putallaz et al., 2007). Reputational aggression refers to damaging others' social standing by manipulating group acceptance (Galen & Underwood, 1997, cited by Archer & Coyne, 2005). In Portugal, random acts of violence tend to be purely physical aggression, consisting mostly of school yard fights (Carvalhosa, 2010).

Perpetrators and victims of aggressive acts are subjected to a wide range of negative outcomes, such as criminal involvement (Olweus, 2011), decreased mental health (Takizawa, Maughan, & Arseneault, 2014), or increased suicidal ideation (Heilbron & Prinstein, 2010).

Similar findings have been presented for Portuguese adolescents, being that the most aggressive boys and girls perceived a lower reassurance of personal value by others and decreased chances of providing support to others. Aggressiveness in girls was associated with decreased social inclusion, while for boys it was associated with diminished perception of a reliable bond and attachment to others (Neto, Grave, Caldeira, Morgado, & Vagos, 2013).

Regardless of the complexity of this construct and the potential consequences it may hold for adolescents, Portugal faces a notorious lack of standardized evaluation instruments to assess agression and victimization in the context where it most frequently occurs, i.e., the school. The exceptions are, to our knowledge, the *Peer Conflict Scale* (PCS; North-American version by Marsee & Frick, 2010; Portuguese version by Vagos, Rijo, Santos, & Marsee, 2014) and the *Revised Olweus Bully/victim Questionnaire* (Olweus 1989, Portuguese version by Pereira, 2008). Though its having been psychometrically evaluated in both detained and community samples of adolescents (Marsee et al., 2011; Vagos et al., 2014), the *Peer Conflict Scale* assesses only the perpetuation of aggressive acts as reported by the aggressor, thus disregarding the evaluation of the experience of being victim. In turn, the *Revised Olweus Bully/Victim Questionnaire* (Olweus, 1989) assesses the occurrence / non-occurrence of bully/victim problems, thus not allowing a valid quantification of aggression; likewise, it has not been subjected to though psychometric evaluation. Therefore, it remains necessary to adequately prepare and validate instruments for the Portuguese youth population that allow evaluating aggression and victimization, in a quantitative and simultaneous manner.

The Revised Peer Experience Questionnaire (RPEQ; De Los Reyes & Prinstein, 2004; Prinstein, Boergers, & Vernberg, 2001) may fulfill these needs because it accesses the experiences of perpetuating aggressive acts towards others, of being the victim of such aggressive acts, in addition to also evaluating the providing and receiving prosocial behavior. The most recent version of this instrument (De Los Reyes & Prinstein, 2004) considers three

forms of aggressive acts, either considered in the perspective of the aggressor who practices them or of the victim who receives them: overt, relational and reputational. It has been psychometrically evaluated using a sample of 209 tenth graders, which served to propose coincident four scale measurement models for the bully version of the instrument in the one hand (*i.e.*, overt, relational and reputational aggression and providing prosocial behavior) and the victim version of the instrument in the other (*i.e.*, overt, relational and reputational victimization and receiving prosocial behavior). Though the investigation of the psychometric properties of the RPEQ having been limited to this small and age-restricted sample, it has been vastly applied and has served as a solid foundation to the study of aggression and victimization, along with prosocial behavior. Namely, the RPEQ has been used with participants ranging from 11 years and attending the 6th grade (*e.g.*, Dempsey, Sulkowski, Nicholos, & Storch, 2009) to participants attending the 12th grade (*e.g.*, Prinstein et al., 2001), and for comparisons between boys and girls (*e.g.*, Prinstein, et al., 2001), even if the adequacy of its measurement model has not been validated to such a wide age-range, nor have gender invariance analysis been conducted.

The current study intends to investigate the psychometric properties of the Portuguese version of the Revised Peer Experience Questionnaire, namely regarding its internal structure, internal consistency, and validity in relation to other variables. We expect to find that the same four factor structure will represent a good fit for the data of the bully and the victim version of the instrument separately (De Los Reyes & Prinstein, 2004). Fruthermore, we intended to ascertain if this measurment models would be invariant across diverse school-based age groups. Patterns of victimization and agression are changeable throughout adolescence (Bettencourt, Farrell, Liu, & Sullivan, 2013), and so it is important to make an instrument available that validly assesses the same constructs throughout this life period.

Concerning validity in relation to other variables, we considered two approaches. First, we investigated associations found between results from the RPEQ and those of other measures would be in line with what is propsoed in the literature. Specifically, we expected aggression measures to be associated with other aggression measures, namely those taken from the *Peer Conflict Scale* and the *Youth Psychopathy Inventory*. We also perceived quality of attachment to friends and parents as evaluated by the *Inventory for Parent and Peer Attachment* would be positively associated with providing and receiving prosocial behavior (Mikulincer & Shaver, 2015), and negatively associated with victimization (Kokkinos, 2013; Nikiforou, Georgiou, & Stavrinides, 2013). Secondly, we ascertained if scores of the RPEQ would be invariant across gender and, if so, if gender-comparisons were in line with previous literature, thus allowing inferences on the RPEQ evaluating the same constructs. Considering between-gender comparisons, we expected boys to report higher levels of overt aggression and victimization than girls, whereas girls would report higher levels of relational aggression and victimization than boys (Putallaz et al., 2007). Furthermore, considering that reputational and relational are both indirect forms of aggression/victimization, we expect that girls would also report higher levels of this form of aggression/ victimization. Finally, and based on the findings presented by Malecki and Elliot (1999), we also expect that girls, when compared to boys, would report providing and receiving more prosocial behavior. As for within-gender comparisons, we expected that both boys and girls would report greater levels of acting and receiving prosocial behavior when compared to acting aggressively (Kelly, 2007). Moreover, and based on the within-gender findings presented by Vagos, et al. (2014), we expected that boys and girls would report a higher practice of the overt forms of aggression and victimization, when compared to the relational and reputational forms of such behaviors.

Method

Participants

A total of 1320 children and adolescents filled in the RPEQ (see Table 1) throughout a six month period (cf. Procedure section). Their age varied between 10 and 18 years old (M = 13.97, SD = 2.64; eight participants – 0.6% - did not provide information on their age), with the lowest percentage of participants being 14 years old (5.7%) and the highest percentage being 16 years old (16.1%). Boys had a mean age of 14.09 (SD = 2.64) whereas girls had a mean age of 13.86 (SD = 2.65); this age difference was not statistically significant ($t(1309) = 1.62$, $p = .11$). Family' socio-economic status was determined based on the reported parents' professions[1], placing the vast minority of the sample in the high SES group (see Table 1).

[Insert Table 1]

Participants were similarly distributed by schooling (*i.e.*, school grade participants were currently attending), considering middle school grades (*i.e.*, 5th, 6th, 7th and 8th grade; 57.9%) versus high school grades (*i.e.*, 9th, 10th, 11th and 12th grade; 40.8%; see Table 1). Middle schoolers had a mean age of 12.21 (SD = 1.97) whereas high schoolers had a mean age of 16.40 (SD = 1.12); this age difference was statistically significant ($t(1295) = -44.57$ $p < .001$). Most of the students had never been retained in the same school year (n= 913; 69.2%) whereas the remaining 29.5% (n=389) of the participants had been retained from one to five times before, the majority of which (n = 183; 47%) had been retained only once and minority of which had been retained five times before (n = 2; 0.5%)[2]; a total of 18 participants (1.4%) did not provide information of their school retention history. The majority of the sample had also never been subjected to a disciplinary measure (e.g., warning; cleaning of school areas; leaving the classroom; suspension and school transfer) due to inappropriate behavior (n =

[1]Socioeconomic status was assigned according on parents' profession, and taking into account the Portuguese profession classification. Examples of professions in the high socioeconomic status groups are judges, higher education professors, or M.D.s; in the medium socioeconomic status group are included nurses, psychologists, or school teachers; in the low socioeconomic group are included farmers, cleaning staff, or undifferentiated workers.

[2] These results are concurrent with data from the Portuguese public school system which states that only 41.5% of the students reach High School without a single retention (CNE, 2015).

810; 61.4%; 264 students – 20% - did not provide information on whether they had been subjected to a disciplinary measure).

Boys and girls were similarly distributed by schooling ($\chi^2(1) = 0.15$, $p = .70$). They were not equally distributed by number of school holdbacks ($\chi^2(1) = 18.30$, $p < .001$) or by having been subjected to disciplinary measures ($\chi^2(1) = 29.68$, $p < .001$). Boys were more prevalent than girls in the group of students without history of school retentions and of students having been subjected to disciplinary measures.

Of those participants, 678 (51.36% of the total sample) also filled in the PCS (see Table 1 - subsample 1), with an age range of 10 to 16 years old (M = 11.69, DP = 1.41). The majority of this subsample has again never been retained in the same school year before (n = 585, 86.3%) nor had it been subjected to disciplinary measures (n = 493, 72.7%). Another subsample of 393 participants (29.77% of the total sample, see Table 1 – subsample 2) filled in the *Youth Psychopathy Inventory* and the *Inventory of Parent and Peer Attachment* (cf. Instruments section). Their age range was 15 to 18 years old (M = 16.59, DP = 0.96) and they also mostly did not have a history of grade retention (n = 309, 78.6%) or disciplinary measures (n = 315, 80.2%).

Instruments

Revised Peer Experience Questionnaire (RPEQ).

The most current version of the RPEQ as is used in the present work results from revising and adding to previous measures. Its earlier version focused on assessing the overt form of aggression and victimization. Its scores were found to correlate significantly with peer and parent reported victimization and to be stable throughout a six-month interval (correlation values between .48 to .52; Vernberg, Jacobs, & Hershberger, 1999). Five items were after added to the instrument items addressing the relational form of aggression and victimization to the instrument. Evidence for a two-factor structure (i.e., overt and relational

aggression/ victimization) via exploratory factor analyses was found for this nine-item version of the instrument. Scores on this version of the instrument were found to be significantly and moderately correlated with perceived social acceptance, loneliness, and depressive symptoms, in addition to presenting very good internal consistency values (from .76 to .80; Prinstein et al., 2001).

Another nine items were latter added, resulting in a 14 item-instrument referred to by De Los Reyes and Prinstein (2004), all presented in one bully and one victim form. This version of the instrument is the focus of the current work and assess direct and indirect (*i.e.*, relational and reputational) forms of aggression and victimization as well as the youths' practice and receiving of prosocial behavior. A four-factor measurement model was found for the scores taken from either the bully or the victim versions of the instrument, via exploratory factor analyses. Scores on each of the four measures in each version also achieved very good internal consistency indicators (α between .68 and .83 for the bully version and between .78 and .84 for the victim version of the instrument; De Los Reyes & Prinstein, 2004).

The bully version of the instrument evaluates the practice of aggressive behavior towards peers (*i.e.*, Bully version), with participants rating how often they engaged in an aggressive or prosocial behavior toward others in the past year using a 5-point rating scale from 1 (never) to 5 (a few times a week). This version of the instrument also assesses overt (*i.e.*, "*I threatened to hurt or beat up another teen*"), relational (*i.e.*, "*I left another teen out of what I was doing*") and reputational (*i.e.*, "*I tried to damage another teen's social reputation by spreading rumors about them*") forms of aggression, as well as the practice of prosocial behavior towards others (*i.e.*, "*I helped another teen when they were having a problem*"). In turn, the victim version of the instrument assesses participants' peer victimization experiences. (i.e., victim version), where participants rate how often an aggressive or prosocial behavior was directed towards them in the past year using a 5-point rating scale

from 1 (never) to 5 (a few times a week). This version of the RPEQ assesses overt (*i.e.*, "*A kid threatened to hurt or beat me up*"), relational (*i.e.*, "*A kid left me out of what they were doing*") and reputational (*i.e.*, "*A teen tried to damage my social reputation by spreading rumors about me*") forms of victimization, as well as receiving prosocial behavior (*i.e.*, "*Another teen helped me when I was having a problem*").

Twenty-eight items of the original RPEQ (*i.e.*, 14 for the bully version and 14 for the victim version of the instrument) were translated and adapted into the Portuguese language following a translation and back-translation process (Hambleton, Merenda, & Spielberger, 2005). An experienced researcher in the adaptation of evaluation instruments translated the original items into Portuguese, and the Portuguese items were back-translated into English by a Portuguese researcher, unrelated to this study, who is fluent in both Portuguese and English. The original and back-translated versions were considered equivalents by an English Portuguese teacher. As an example, the original overt aggression item "A teen chased me like he or she was really trying to hurt me." was back translated into "One teenager chased me as if he/she really wanted to hurt me."

Peer Conflict Scale (PCS).

The PCS consists of 40 items organized into four categories of aggressive behavior as reported by perpetrators, namely reactive relational, reactive overt, proactive relational and proactive overt aggression. The instruments' four-factor measurement model was originally validated across community and detained samples; concurrent validity evidence in relation to other variables, namely arrest history, callous-unemotional traits and self-reported delinquency, was also found (Marsee et al., 2011).

The Portuguese version of the instrument was psychometrically evaluated using a community sample of adolescents (Vagos et al., 2014). The originally proposed four-factor measurement model (Marsee et al., 2011) was found to be an acceptable fit for the data taken

from this Portuguese adolescent sample, and to be partially invariant across gender, thus allowing for credible between-gender comparisons. Such comparisons contributed to gather evidence on the validity of the PCS as measuring aggressive behavior, is as much as gender differences were in line with previous findings in the literature regarding male and female aggression. The scores on the four measures of this instrument as applied to Portuguese adolescents also achieved good internal consistency values, both for its validation study (Cronbach alphas ranging from .87 to .91; Vagos et al., 2014) and when applied to the current sample ($\alpha = .93$ for reactive relational aggression, $\alpha = .96$ for reactive overt aggression, $\alpha = .95$ for proactive relational aggression, and $\alpha = .96$ for proactive overt aggression).

Youth Psychopathic Traits Inventory (YPI).

The YPI consists of 50 items that were designed to assess the interpersonal (grandiose-manipulative), affective (callous-unemotional) and lifestyle (impulsive-irresponsible) dimensions of psychopathy in community samples. The items are answered using a four-point Likert scale, ranging from 1 (does not apply at all) to 4 (applies very well). The works of Andershed and colleagues (2001, 2002, 2007) have found support for this three-factor structure via exploratory and confirmatory factor analysis, and have shown that results on the YPI are internally consistent, useful for differentiating subgroups of adolescents presenting antisocial and behavioral problems, and positively associated with a clinician rated measure of psychopathy (correlation values between .31 and 51).

Though these three personality dimensions are, in turn, organized into ten subscales addressing diverse characteristics of psychopathy (see Andershed et al., 2002), only the higher-order dimensions were considered in the current work, given that only those were thoroughly validated within Portuguese community samples. This three-factor model as applied to a Portuguese community sample was found to be a good fit for the data, via exploratory factor analyses; only the grandiose/ manipulative and the callous-unemotional dimensions however

achieved acceptable internal consistency values (Simões, Gonçalves, & Lopes, 2010). The same three higher-order dimensions were found to be an adequate fit for the data taken from a combined sample of detained and community adolescents. In addition, scores in all dimensions achieved acceptable internal consistency values, showed convergent validity in relation to measures of aggression, external shame and paranoia (correlation values between .31 and 51), and were able to discriminate between detained and community participants (Ribeiro da Silva, Motta, & Rijo, in press). Using the current sample, all three measures also achieved very good internal consistency indicators: α = .93 for grandiose-manipulative, α = .83 for callous-unemotional, and α = .85 for impulsive-irresponsible.

Inventory of Parent and Peer Attachment (IPPA).

The IPPA assesses adolescents' perceptions of both positive and negative affective/cognitive dimensions inherent to relationships with parents and close friends. Specifically, it assesses the extent to which three figures serve as sources of psychological security, namely the mother, the father, and peers (Armsden, 1986). Each attachment measure is composed of 25 items answered using a 5-point Likert scale ranging from "*never or almost never*" to "*always or almost always*" and recommended as a one-factor measure, though each intended to evaluate several concepts associated with attachment, namely trust, communication, and alienation. The scores on the three measures of this instrument achieved good internal consistency values (α ranging from .87 to .92), and were associated with family functioning, self-concept and other personality variables, namely self-esteem, life-satisfaction and affective status, in addition to the self-reported use of more problem-solving strategies in comparison with emotion-managing efforts in stressful situations (Armsden, 1986).

The Portuguese version of the instrument was psychometrically evaluated using a community sample of adolescents (Neves, Soares & Silva, 1993). Using exploratory factor analyses, the authors propose a one-factor measurement model assessing each of the three

attachment measures (*i.e.*, to mother, father, and peers), with all achieving good internal consistency values (α ranging from .92 to .95). Excellent internal consistency indicators were also found for the scores of the sample used in the current work: α = .94 for mother attachment, α = .96 for father attachment, and α = .95 for peer attachment.

Procedure

Prior to data collection, authorization was sought and granted by the national evaluation committee on ethics and procedures to be followed by studies conducted in school settings, the administration board of each school, and parents of participating students. The study was conducted with adolescents from the 5th to the 12th grades in 5 middle/high schools. Schools were contacted close to the end of the school year (i.e., time 1). As such, due to final exams being proximal, they requested that the majority of their high school students would only participate at the begging of the next school year (i.e., about three months later - time 2), whereas the majority of middle school students were allowed to participate at that very time. Only students who received permission from their parents and who provided assent themselves took part in the investigation.

The students were assessed in groups during their head teacher's class period at school. A standardized protocol for giving instructions was provided to the school boards in order to unify methods of data collection in every class. All participants were informed that their answers were confidential and the instruments were posteriorly branded with an identification number for purely organization purposes. The instruments were presented alongside a socio-demographic questionnaire, inquiring about the participants' sex, age, school grade, number of school holdbacks, history of disciplinary measures and parent's profession.

Data analysis was conducted using Mplus (v6.2; Muthén & Muthén, 1998-2010), SPSS (v20.0), and R (3.0.1; R Development Core Team, 2013). Mplus was used for single

(via Confirmatory factor analysis – CFA) and multi-group (*i.e.*, by gender and by schooling) analyses. For evaluating model fit, a 2-index criterion was considered (Hu & Bentler, 1999), which combines a value of Standardized Root Mean Square Residual (SRMR) ≤ .08 with either a value of Comparative Fit Index (CFI) ≥ .95, or a value of Root Mean Square Error of Approximation (RMSEA) ≤ .06. For multi-group analysis, configural, metric and scalar invariance were sequentially tested. Following the guidelines provided by Chen (2007) metric invariance was determined if the ΔCFI ≤ -0.01, in addition to ΔRMSEA ≤ 0.015 or ΔSRMR ≤ 0.03 whereas scalar invariance was achieved if ΔCFI ≤ -0.01, in addition to ΔRMSEA ≤ 0.015 or ΔSRMR ≤ 0.01. SPSS was used for descriptive, correlation and mean comparison analyses. R was used for calculating the ordinal version of the Cronbach Alpha, as a measure of internal consistency; values of .70 or higher were deemed as acceptable (Gadermann, Guhn, Zumbo, & Columbia, 2012).

Results

Confirmatory Factor Analysis

Analysis of responses indicated that the data did not follow normal distribution, either for the bully (Mardia multivariate kurtosis = 409.05, $p < .001$) or for the victim version of the instrument (Mardia multivariate kurtosis = 350.62, $p < .001$; Korkmaz, Goksuluk, Zararsiz, 2014). Consequently, the *Maximum Likelihood Robust* method was used for data analysis. In order to define the measurement model of the RPEQ, two four-factor CFA were performed on the internal structure proposed by De los Reyes and Prinstein (2004) for the bully and the victim versions of the instrument. The fit indicators for both CFA using the complete sample (n = 1339) were always acceptable according the previously mentioned cutoffs (cf. Procedure section; see Table 2).

[Insert Table 2]

Item loadings on the four factor solution for each version of the questionnaire were always significant ($p < .001$) and superior to .529 for the bully version and to .554 for the victim version (see Table 3).

[Insert Table 3]

The internal consistency values for the four constructs proposed for each of the RPEQ's versions, and for the complete sample, were always satisfactory. In particular, for the bully version, $\alpha = .88$ for overt aggression, $\alpha = .75$ for relational aggression, $\alpha = .91$ for reputational aggression, and $\alpha = .87$ for practicing prosocial behavior towards others; for the victim version, $\alpha = .85$ for overt victimization, $\alpha = .76$ for relational victimization, $\alpha = .88$ for reputational victimization, and $\alpha = .83$ for receiving prosocial behavior from others.

Measurement Invariance

Concerning invariance across schooling groups (i.e., middle *Versus* high schoolers) for the bully version of the instrument, configural invariance was ascertained as based on the acceptable fit indicators obtained for each group individually (see Table 2). Loadings for this version of the RPEQ were always superior to .468 for middle schoolers and .453 for high schoolers (see Table 3). Full metric ($\Delta CFI = -0.000$, $\Delta RMSEA = 0.001$, and $\Delta SRMR = 0.005$) and partial scalar ($\Delta CFI = -0.005$, $\Delta RMSEA = 0.002$, and $\Delta SRMR = 0.000$) invariance were also found, after relaxing the intercept of item 14. For the victim version of the instrument, again configural invariance was established based on the acceptable fit indicators obtained for each group individually (see Table 2). Loadings for the items in this version of the RPEQ were always superior to .480 for middle schoolers and .540 for high schoolers (see Table 3). Full metric invariance was besides found ($\Delta CFI = -0.005$, $\Delta RMSEA = 0.002$, and $\Delta SRMR = 0.008$); partial scalar invariance was achieved only after relaxing the intercepts of item 8 and 14 ($\Delta CFI = -0.005$, $\Delta RMSEA = 0.001$, and $\Delta SRMR = -0.001$).

Measurement invariance across gender of both the bully and the victim measurement model was also tested (see Table 2). For the bully version, the four-factor model seemed an adequate fit for the data of male and female participants separately, indicating configural invariance (see Table 2). Loadings for the items in the bully version were always superior to .502 for boys and .432 for girls (Table 3). Full metric (ΔCFI = -0.005, ΔRMSEA = 0.001, and ΔSRMR = 0.009) and scalar invariance (ΔCFI = -0.009, ΔRMSEA = 0.003, and ΔSRMR = 0.003) were also found. For the victim version, the four-factor model again seemed an adequate fit for the data of male and female participants separately, indicating configural invariance (see Table 2). Loadings for the items in the victim version were always superior to .574 for boys and .524 for girls (Table 3). Full metric (ΔCFI = -0.005, ΔRMSEA = 0.001, and ΔSRMR = 0.009) and partial scalar invariance (ΔCFI = -0.009, ΔRMSEA = 0.004, and ΔSRMR = 0.000) were also found, after relaxing the intercept of item 11.

Validity evidence based on relation to other variables

Correlational analyses.

Correlation analyses between measures of the RPEQ and the PCS were carried out using subsample 1 (n = 678) and correlation analyses between measures of the RPEQ and the YPI and the IPPA were conducted using subsample 2 (n = 393; cf. Participants section). Positive significant correlation values were found between measures of overt, relational and reputational aggression as taken from the RPEQ and measures of aggression as taken from the PCS and of psychopathic traits as taken from the YPI. The highest correlation values were found concerning the overt aggression measure of the RPEQ. Alternatively, negative significant correlation values were obtained between measures of overt, relational and reputational victimization as taken from the RPEQ and measures of attachment as taken from the IPPA. Finally, scores for practicing and receiving prosocial behavior correlated positively with attachment measures as taken from the IPPA (see Table 4).

[Insert Table 4].

Descriptive Analyses.

The descriptive values for each of the eight scores that can be taken from the RPEQ are presented in Table 4. Only the scores for prosocial behavior, either displayed towards others or received from others, seem to follow a normal distribution.

[Insert Table 5]

Two mixed ANOVAs, with one within-subject factor for aggression or victimization and one between-subject factor as gender, were performed; history of school retentions and of disciplinary measures were entered as covariates, given that boys and girls were not evenly distributed according to these variables.

Regarding the bully version of the instrument, the Greenhouse-Geisser correction was used to account for violations to sphericity in the mixed ANOVA analysis ($\varepsilon = 0.405$, $p < .001$). Relevant to the objective of the current work was the interaction effect between gender and aggression effect, which was significant ($F_{(1,84;3)} = 16.36$; $p \leq .001$; $\eta p^2 = .022$). Pairwise comparisons for levels of aggression between boys and girls indicate that boys present significant higher values of the three types of bully behavior when compared to girls; girls, on the other hand, presented non-significant higher levels of prosocial behavior towards others. When considering within-gender comparisons of levels of aggression and of providing prosocial behavior as reported by boys, it was found that they reported significantly higher levels of prosocial behavior towards others, followed by similar levels of both relational aggression and overt aggression, and, finally, significantly lower levels of reputational aggression. In contrast, within-gender comparisons for the same measures as reported by girls indicated that they reported significantly higher levels of prosocial behavior towards others followed by relational aggression, and, finally, similar levels of overt and reputational aggression (Figure 1.A).

[Insert Figure 1]

As for the victim version, the Greenhouse-Geisser correction was again used to account for violations to sphericity in the mixed ANOVA analysis ($\varepsilon = 0.622$, $p < .001$). Of interest to the goal of the current work was the interaction effect between gender and aggression effect, which were significant ($F_{(2,22;3)} = 8.40$; $p \leq .001$; $\eta p^2 = .011$). Pairwise comparisons for between-gender comparisons on levels of victimization indicate that the difference was only statistically significant for overt victimization, with boys revealing higher values than girls. In turn, within gender-comparisons of levels of victimization and prosocial behavior by others experienced by boys show that they reported higher levels of receiving prosocial behavior, followed by being victim of relational, then overt and then reputational aggression; the difference was only not significant ($p > .05$) for the comparison between overt and reputational victimization. Within-gender comparisons of the victimization experience of girls alternatively shows that they reported higher levels or receiving prosocial behavior, followed by being victim of relational aggression, then reputational aggression and then overt aggression; the difference was only not significant for the comparison between relational and reputational victimization ($p > .05$; Figure.1.B).

Discussion

The present research intended to fill the existing gap in Portuguese psychological evaluation processes, when it comes to instruments available for the evaluation of aggression, victimization and prosocial behavior in adolescence, in a quantitative, simultaneous and relatively fast format. By assessing the behaviors of victims and aggressors and the practicing and receiving of prosocial behavior, the Revised Peer Experience Questionnaire may be an important alternative to the evaluation of aggressive acts in school settings, which Portuguese adolescents are increasingly facing (Costa, Pereira, Simões, & Farenzena, 2011). Not only

will it facilitate the work of the research community, but will also provide a more holistic perspective of the behaviors under study.

The Portuguese version of the Revised Peer Experience Questionnaire was developed and adapted through translations and back-translation procedures. The internal structure of the instrument was subsequently evaluated based on a confirmatory factor analysis procedure. The four-factor model proposed by De Los Reyes and Prinstein (2004) for each version of the instrument (*i.e.,* bully and victim) acceptably fitted the current data, and included measures of overt, relational, and reputational aggression / victimization among peers, in addition to engaging in or receiving prosocial behavior. These results make it possible to conduct multicultural studies based on this instrument, once the same constructs seem to be evident in the measurement models for the RPEQ in north-American and Portuguese school-based samples. These four scales also revealed satisfactory internal consistency values.

This four-factor model was also found to be partially invariant across school-based age groups. This had not been investigated before and may now provide further evidence on the pertinence of using this instrument to access age-based expressions of aggression, victimization and prosociality, in addition to exploring developmental trends associated with these behaviors. This kind of research is already underway, though it usually is based on samples with limited age range and/or uses instruments with dubious psychometric quality (see, for example, Bettencourt et al., 2013 or Guerra, Williams, & Sadek, 2011). Though these and other studies have assuredly led to insightful conclusions regarding the patterns of aggression and victimization through time, their findings and clinical implications may be of increased credibility and usefulness if found using wider age ranges and psychometrically sound assessment instruments, such as the RPEQ.

Evidence for validity of the RPEQs' scores based on relations to other variables was also found. The aggression measures of the RPEQ were associated to other measures of

aggression, as taken from the *Peer Conflict Scale*. The association was particularly noticeable for overt aggression, which was to be expected given that this is the most observable and identifiable form of aggression, in comparison to more indirect forms, namely relational and reputational (Archer & Coyne, 2005). The aggression measures of the RPEQ were also associated with the trait measures of the *Youth Psychopathy Inventory*, though the correlation values were lower in magnitude. This was to be anticipated, given the expectable variance between behavioral manifestations and personality based psychopathic traits (Andershed et al., 2002); we were, therefore, analyzing related but not overlapping constructs, which may justify the low magnitude of correlation values found. The victimization measures were, as expected, negatively associated with attachment quality, meaning that the higher the quality of the attachment, the lower the experience of being a victim. A secure relationship with family and friends may serve to protect from becoming a victim, though other variables may play a role in mediating such protective processes, namely normative beliefs about aggression (Burton, Florell, & Wygant, 2015). Lastly, our findings also suggest that those who provide and receive more prosocial behavior also find themselves more securely attached to peers and parents. Prosocial behavior may be an important feature of quality and secure relationships, though, again, other variables have been found to mediate this association, such as empathy (Thompson & Gullone, 2008) and emotional competence (Laible, 2007). These mediating pathways may explain why the magnitude of these correlations was relatively low.

The four factor structure fitted equally well for boys and girls, and the between-group variance was restricted to one item (item 11, reading *I gossiped about another teen so other would not like him/her*). Therefore, comparisons between boys and girls can be informative on whether or not the groups have equal amounts of the latent constructs (Chen, 2007). Between-gender comparisons indicated that boys tend to be more aggressive and victimized in overt forms, similarly to what had been previously found (Prinstein et al., 2001; Putallaz et

al., 2007). Boys usually partner with other boys, more so than with girls (Maccoby, 1998), and so probably suffer from the very forms of aggression they practice. Boys also tended to be significantly more aggressive than girls in relational and reputational forms. These results were similar to those previously found using the north-American version of the RPEQ (Prinstein, et al., 2001), and are in line with previous works with a Portuguese sample indicating that boys were overall more aggressive than girls, regardless of the form or function of aggression (Vagos et al., 2014). It therefore seems that relational aggression is, in fact, no longer a female issue, but should instead be considered as a general and disturbing experience for adolescent boys and girls (Archer & Coyne, 2005).

Girls in our sample revealed greater levels of prosocial behavior, either given or received, in comparison to boys. Adolescent girls tend to value closeness and intimacy in their social relationships, which may be fostered by the prosociality. Prosociality, in turn, may protect those who practice and receive it from becoming aggressors or victims, in the last case possibly due to the aggressor's fear of retaliation or other negative consequence if targeting a prosocial peer (Hodges, Boivin, Vitaro, & Bukowski, 1999; Prinstein et al., 2001). Given this rational, it seems consistent to find that girls are less aggressive and victimized than boys, but more prosocial.

Considering within-gender comparisons, providing and receiving prosocial behavior was the highest behavior reported by both boys and girls. This outcome is similar to previous findings of boys and girls tending to reveal greater levels of acting and receiving prosocial behavior when compared to acting aggressively (Kelly, 2007), and may thus be indicative that the RPEQ is addressing its intended constructs, when evaluating prosociality.

For aggressive behaviors in particular, the results indicate similar patterns for both boys and girls, when considered separately. Both boys and girls presented higher levels of relational aggression, followed by overt aggression and finally reputational aggression. Given

that aggressive acts are increasingly common in schools nowadays (Archer & Coyne, 2005; Costa et al.,2011), it may be the case that adolescents are early on learning to strategically use this behavior, by practicing its relational form, which is more hidden and less punished or recognized by external observers (Archer & Coyne, 2005). As for victimization, the patterns found with the current sample were different for boys and girls. Boys reported higher relational, followed by overt, and finally, reputational victimization, whereas girls scored higher for relational, followed by reputational and finally overt victimization. Putallaz and colleagues (2007) had similarly found that girls are usually more victimized in relational forms. However, contrary to their findings, results from the current study indicate that, like girls, boys are also more victimized in relationally aggressive forms. This may again relate to boys affiliating more with boys (Maccoby, 1998) and therefore suffering from the very types of aggression they practice, particularly the relational and overt forms of aggressive acts.

This work is not without limitations, namely the fact that it is a cross-sectional study with a school-based community sample, using only self-report instruments. First, the current sample was recruited with an about three month interval. Participants recruited in these different times diverged in several sociodemographic characteristics, of which only schooling was considered as potentially impacting the psychometric properties of the RPEQ. Though we have no reason to believe other characteristics would impact on the validity of the responses given to the instrument, it may be important to consider them in future works. A wider and more diverse sample is required to create specific norms for the aggressive behavior of Portuguese adolescents and to further explore the construct validity of the RPEQs' measures in relational to external variables. For the current work, the correlational construct validity analyses relied on subsamples (between 29.77 and 51.36% of the complete sample), which in turn consisted greatly of older participants, particularly for the smaller subsample which filled in the most of the external variables measures). Additionally, given that aggression and

victimization have been put forward as relatively stable over time (Bettencourt et al., 2013; Olweus, 2011), investigating the temporal stability of the RPEQ should be addressed in the future. Finally, the current research focused on replicating the measurement model proposed for north-American samples, making it possible to conduct multi-cultural studies, but alternative measurement models for the Portuguese version of the RPEQ could also be verified, namely by exploratory factor analysis with Portuguese adolescents, or by testing diverse confirmatory models evaluating aggression, victimization and prosociality.

Nevertheless, the goal of this study was fulfilled. Results from this research suggest that the RPEQ is a reliable, valid, and structurally sound measure of aggression, victimization and prosocial behavior in this Portuguese school-based community sample. The use of this measure may assist researchers in gaining a better understanding of adolescent aggression, either performed or received. Aggressive acts in school settings have a widespread impact and so preventing them and promoting healthy school environments where prosocial behaviors are the norm is paramount (World Health Organization, 1999, cit by Carvalhosa, 2010). The RPEQ may be an appropriate way to gather evidence-based information on the change of adolescents subjected to such interventions, in addition to being usable for the screening of social behaviors in adolescents, and allowing for multi-cultural assessment and comparisons of the targeted behaviors.

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Table 1:

Socio-demographic characteristics of the total sample and subsamples

	Gender		Schooling		Socioeconomic status		
	Male	Female	Middle	High	Low	Medium	High
Total sample	625 (47.3)	692 (52.4)	764 (57.9)	539 (40.8)	612 (46.4)	574 (43.5)	7 (0.7)
Subsample 1	304 (44.8)	373 (55.0)	641 (94.5)	37 (5.5)	386 (56.9)	280 (41.3)	3 (0.4)
Subsample 2	173 (44.0)	220 (56.00)	0	393 (100)	109 (27.7)	280 (71.2)	4 (1.0)

Note. Information is presented as n (%); discrepancies in n are due to missing values. As expected, the sample collected at time 1 was significantly younger than the sample collected at time 2 ($t(1310) = -30.76$, $p < .001$; M = 12.85, SD = 2.33 for time 1 and M = 16.59, SD = .96 for time 2) and participants recruited at different time periods were not evenly distributed by schooling ($\chi 2(1) = 797.63$, $p < .001$; 393), with the majority of participants recruited at time 1 being middle schoolers (n = 764, 82.4%) and of participants recruited at time 2 being high schoolers (n = 393). Participants recruited at different time periods were evenly distributed by gender ($\chi 2(1) = 2.63$, $p = .10$) but not by socioeconomic status ($\chi 2(2) = 103.47$, $p < .001$), history of school retention ($\chi 2(1) = 19.43$, $p < .001$), or history of being subjected to disciplinary measures ($\chi 2(1) = 5.17$, $p = .023$). Significantly more participants recruited at time 1 than statistically expected came from a low socioeconomic status (n = 503, 54.3%) and had a history of school retention (n = 604, 65.2%) and of being subjected to disciplinary measures (N = 170, 18.3%). In turn, significantly more participants recruited at time 2 than statistically expected came from a medium socioeconomic status (n = 280, 71.2%) and had no history of school retention (n = 309, 78.6%) or of being subjected to disciplinary measures (N = 315, 80.2%).

Table 2

Confirmatory factor analysis on the four-factor measurement model for the Portuguese version of the RPEQ

	X^2	*Df*	RMSEA (95% CI)	SRMR	CFI
Bully Version					
Four factor model	185.18	71	0.035 (0.029; 0.041)	0.031	0.973
Four factor model for boys	110.55	71	0.030 (0.018; 0.040)	0.032	0.983
Four factor model for girls	171.93	71	0.045 (0.037; 0.054)	0.038	0.937
Gender unconstraint model	284.64	142	0.039 (0.032; 0.046)	0.036	0.964
Gender loading constraint	313.64	152	0.040 (0.034; 0.046)	0.045	0.959
Gender intercept constraint	359.14	162	0.043 (0.037; 0.049)	0.048	0.950
Four factor model for middle schoolers	109.20	71	0.027 (0.016; 0.0.36)	0.030	0.985
Four factor model for middle schoolers	133.98	71	0.041 (0.030; 0.051)	0.043	0.960
School unconstraint model	243.31	142	0.033 (0.026; 0.040)	0.036	0.976
School loading constraint	254.77	152	0.032 (0.025; 0.039)	0.041	0.976
School partial intercept constraint	284.83	161	0.034 (0.028; 0.041)	0.042	0.971
Victim version					
Four factor model	217.08	71	0.039 (0.034; 0.046)	0.034	0.965
Four factor model for boys	124.51	71	0.035 (0.024; 0.045)	0.039	0.975
Four factor model for girls	152.06	71	0.041 (0.032; 0.050)	0.035	0.961
Gender unconstraint model	277.42	142	0.038 (0.031; 0.045)	0.037	0.968
Gender loading constraint	308.11	152	0.039 (0.033; 0.0.46)	0.046	0.963
Gender partial intercept constraint	352.96	161	0.043 (0.037; 0.049)	0.046	0.954
Four factor model for middle schoolers	104.32	71	0.025 (0.014; 0.035)	0.032	0.986
Four factor model for high schoolers	181.63	71	0.054 (0.044; 0.063)	0.048	0.938
School unconstraint model	284.72	142	0.039 (0.033; 0.046)	0.039	0.966
School loading constraint	315.98	152	0.041 (0.034; 0.047)	0.047	0.961
School partial intercept constraint	347.87	160	0.042 (0.036; 0.049)	0.046	0.956

Note. RPEQ: Revised Peer Experience Questionnaire; RMSEA = root-mean-square error of approximation; SRMR = standardized root mean square residual; CI for RMSEA = confidence interval for RMSEA; CFI = comparative fit index. All chi-square values were significant at $p < .001$

Table 3

Item loading on the four factor model, for the aggressor and victim versions of the Portuguese RPEQ

	Bully Version					Victim Version				
	Complete sample	Gender		Schooling		Complete sample	Gender		Schooling	
		Male	Female	Middle	High		Male	Female	Middle	High
Overt aggression / victimization										
2. I chased a teen (…).	.688	.654	.642	.729	.620	.691	.708	.650	.724	.649
10. I threatened (…).	.807	.797	.797	.867	.724	.765	.726	.809	.776	.748
13. I hit, kicked, or pushed (…).	.755	.781	.591	.764	.767	.699	.737	.658	.758	.638
Relational aggression / victimization										
1. I left another teen out (…).	.529	.502	.502	.577	.453	.638	.578	.689	.633	.649
6. I did not invite a teen (…).	.537	.606	.432	.468	.641	.554	.589	.524	.480	.659
7. I left another teen out (…).	.734	.769	.635	.741	.721	.749	.746	.742	.750	.738
Reputational aggression / victimization										
4. I tried to damage another teens' social reputation (…)	.669	.732	.471	.645	.695	.725	.742	.711	.649	.806
9. I gossiped (…).	.833	.879	.697	.847	.825	.802	.816	.796	.811	.790
11. I said mean things (…)	.856	.884	.825	.884	.821	.804	.828	.818	.820	.834
Prosocial behavior										
3. I helped another teen (…).	.722	.688	.746	.727	.711	.647	.601	.692	.657	.622

5. I was nice and friendly (…).	.713	.727	.698	.712	.703	.631	.574	.679	.685	.540
8. I stuck-up for a teen (…).	.763	.737	.791	.773.	.745	.686	.647	.715	.704	.671
12. I helped a teen (…).	.720	.710	.724	739	.686	.688	.699	.673	.701	.662
14. I spent time with a teen (…)	.659	.650	.663	.669	.668	.678	.714	.650	.674	.694

Note. Factor loadings are standardized regression weights. All loadings are significant at $p < .001$. Small versions of the items are presented.

Table 4

Correlations between scores on the the Revised Peer Experience Questionnaire and other relevant variables

	Revised Peer Experiences Questionnaire - Bully Version			
	Overt	Relational	Reputational	Prosocial
Peer Conflict Scale				
Proactive overt	.60***	.39***	.41***	N/A
Proactive Relational	.51***	.46***	.49***	N/A
Reactive overt	.59***	.37***	.34***	N/A
Reactive relational	.45***	.45***	.45***	N/A
Youth Psychopathy Inventory				
Grandiose-manipulative	.36***	.34***	.33***	N/A
Callous-unemotional	.31***	.19***	.14**	N/A
Impulsive-irresponsible	.33***	.25***	.22***	N/A

	Revised Peer Experiences Questionnaire - Bully Version			
	Overt	Relational	Reputational	Prosocial
Inventory or Parent and Peer Attachment				
Attachment to mother	-.17***	-.09ns	-.09ns	.18.***/22***
Attachment to father	-.12*	-.15**	-.15**	.22***/.27***
Attachment to peers	-.10ns	-.18***	-.06ns	.31***/.22***

Note: N/A = non-applicable. Results for the Prosocial behavior measure are presented as providing/ receiving prosocial behavior.

*** $p < .001$, ** $p < .01$, * $p < .01$, ns non-significant

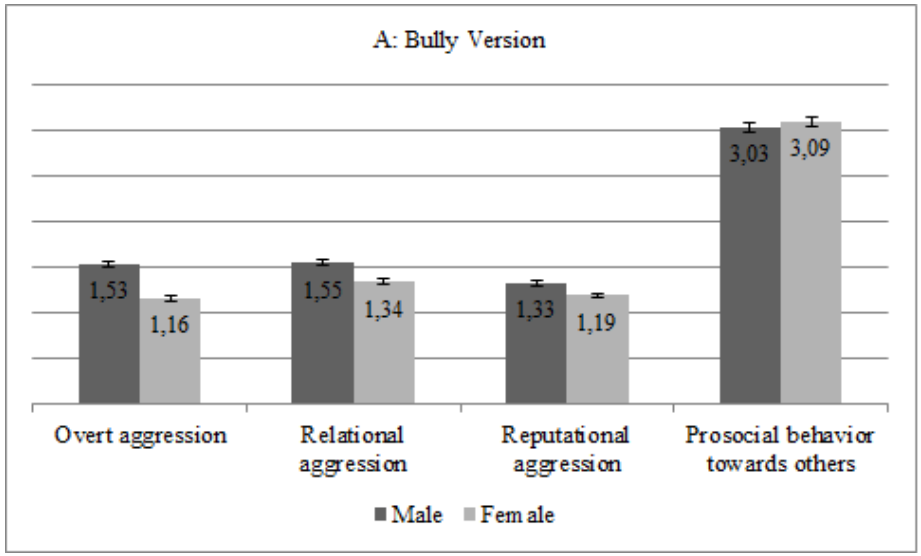
Table 5

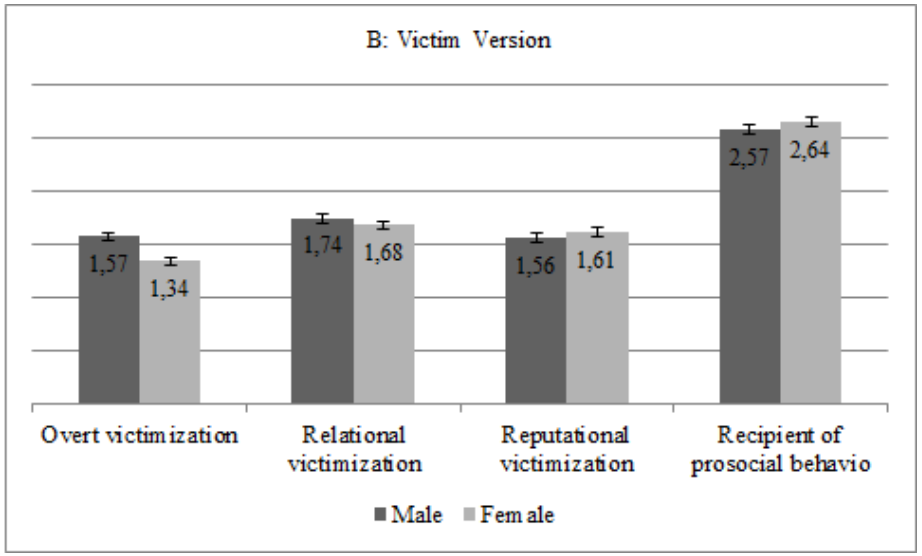
Descriptive measures for measures of the RPEQ, for the complete sample and by gender schooling.

	Bully version					Victim version				
	Complete sample			Gender		Complete sample			Gender	
				Male	Female				Male	Female
	M (SD)	Skewness	Kurtosis	M (SD)	M (SD)	M (SD)	Skewness	Kurtosis	M (SD)	M (SD)
Overt aggression	4.18 (1.98)	2.24	5.74	4.86 (2.32)	3.55 (1.29)	4.52 (2.23)	1.93	3.95	4.94 (2.41)	4.14 (1.98)
Relational aggression	4.45 (1.84)	1.61	3.25	4.85 (2.04)	4.08 (1.55)	5.20 (2.29)	1.28	1.83	5.40 (2.34)	5.02 (2.22)
Reputational aggression	3.86 (1.79)	2.96	10.28	4.21 (2.15)	3.54 (1.32)	5.08 (2.59)	1.55	2.26	5.09 (2.60)	5.07 (2.59)
Prosocial behavior	15.22 (4.65)	0.23	-0.43	14.78 (4.49)	15.63 (4.76)	12.99 (4.47)	0.48	-0.07	12.71 (4.27)	13.27 (4.63)

Note: Standard error for skewness = 0.067; Standard error for kurtosis = 0.135.

Figure 1: Measures of aggression and victimization by gender





Note: Covariates appearing in the model are evaluated at the following values: history of school retentions = 0.23, history of disciplinary measures = 1.73