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Adaptation of the Participant Role Scale (PRS) in a Spanish Youth Sample: Measurement Invariance Across Gender and Relationship With Sociometric Status

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Abstract

In recent years, bullying research has transitioned from investigating the characteristics of the bully–victim dyad to examining bullying as a group-level process, in which the majority of children play some kind of role. This study used a shortened adaptation of the Participant Role Scale (PRS) to identify these roles in a representative sample of 2,050 Spanish children aged 8 to 13 years. Confirmatory factor analysis revealed three different roles, indicating that the adapted scale remains a reliable way to distinguish the Bully, Defender, and Outsider roles. In addition, measurement invariance of the adapted scale was examined to analyze possible gender differences among the roles. Peer status was assessed separately by gender through two

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sociometric procedures: the nominations-based method and the ratings-based method. Across genders, children in the Bully role were more often rated as rejected, whereas Defenders were more popular. Results suggest that although the PRS can reveal several different peer roles in the bullying process, a more clear distinction between bullying roles (i.e., Bully, Assistant, and Reinforcer) could better inform strategies for bullying interventions.

Keywords
bullying, participant roles, gender, measurement invariance, sociometric status

Bullying as a Group Process

School bullying has been defined as a subtype of youth aggressive behavior, in which a student or a group of students repeatedly attack, humiliate, and/or exclude a relatively powerless student (Olweus, 1999; Salmivalli, 2010). Research indicates that between 10% and 30% of children and youth are involved in bullying, although prevalence rates vary significantly as a function of how bullying behaviors are measured (Nansel et al., 2001; Solberg & Olweus, 2003). Moreover, bullying is not an isolated problem unique to specific cultures but is prevalent worldwide, as evidenced by a large international research base (Cook, Williams, Guerra, Kim, & Sadek, 2010; Eslea et al., 2004). Bullying is of particular concern due to its damaging psychosocial consequences. Bullying has been consistently associated with increases in both internalizing problems (e.g., depressive symptoms, social anxiety, lower self-worth, and increased risk of suicide) and externalizing problems (e.g., aggression, truancy, and delinquency; Guerra, Williams, & Sadek, 2011; Hawker & Boulton, 2000; Nansel et al., 2001; Salmivalli & Isaacs, 2005).

Researchers initially studied bullying behavior from an individual perspective, focusing separately on characteristics of the bully, the victim, or both. However, in the previous two decades, bullying has been increasingly viewed as a group process, in which aggressive behavior emerges out of a peer group dynamic consisting of more than just a bully and a victim (Salmivalli, 2010; Salmivalli, Lagerspetz, Björkqvist, Österman, & Kaukiainen, 1996). Peers can play an important role in this group process through instigating, maintaining, or intervening with bullying behavior (Craig & Pepler, 1995; Hawkins, Pepler, & Craig, 2001; Salmivalli, 2010; Salmivalli et al., 1996).

Within this framework, it is important to note that bullying constitutes a serious risk not only for the psychosocial and academic adjustment of bullies

and victims, but also for peers. Apart from impacts on bullies and victims, there is evidence that peers who merely witness bullying can be negatively influenced (Nishina & Juvonen, 2005; Rivers, Poteat, Noret, & Ashurst, 2009). For example, witnessing student harassment at school can increase students' feelings of anxiety or school disengagement (Nishina & Juvonen, 2005; Rigby & Slee, 1993). Furthermore, Rivers et al. (2009) found that compared with perpetrators, bystanders were at elevated risk for nonclinical outcomes (e.g., interpersonal sensitivity), and compared with victims, were more likely to have elevated levels of substance abuse.

As peers are typically present during bullying incidents, research has also examined how bystanders behave during these episodes, as well as how bystander reactions might either contribute to or mitigate bullying behavior (Hawkins et al., 2001; O'Connell, Pepler, & Craig, 1999; Salmivalli et al., 1996). Distinguishing participant roles, such as the bystander, in bullying situations has important implications for intervention. An understanding of the peer group process in the context of bullying will allow investigators to design school-based interventions that can harness potentially positive peer processes. For example, interventions could focus on teaching youth to intervene (e.g., telling a teacher or another adult) or provide peer support for the victim (Frey, Hirschstein, Edstrom, & Snell, 2010; Sutton & Smith, 1999). Indeed, with some exceptions (cf. Farrington & Ttofi, 2009), researchers have generally found that promoting defending behavior among children not only discourages bullying behavior but also decreases the negative effects of victimization (Kärnä, Voeten, Poskiparta, & Salmivalli, 2010). In addition, a recent meta-analysis has demonstrated the importance of promoting the bystander intervention in school-based bullying prevention programs by explicitly targeting bystander attitudes and behaviors (Polanin, Espelage, & Pigott, 2012). Hence, detecting the roles that children might have in a bullying situation can be seen as an important step in preventing or reducing school bullying.

Development and Validation of the Participant Role Scale (PRS)

Salmivalli et al. (1996) were the first to develop a peer-nomination procedure, the PRS, to identify the different participant roles in the bullying process. These authors tested the PRS in a sample of 573 Finish children aged 12 to 13 years. Items on the PRS included 50 behavioral descriptions on a 3-point scale (*never, sometimes*, and *often*) to evaluate how well each child in their class (including themselves) fits potential roles in the bullying process.

Six roles were found: Bullies, who initiate and lead bullying situations; Assistants of bullies, who join the ringleader bullies; Reinforcers of bullies, who provide positive feedback to bullies; Outsiders, who withdraw from bullying situations; Defenders of the victim, who provide comfort and support to the victims; and Victims, who were identified through endorsement of one item: "gets bullied." Satisfactory internal reliabilities for each of the six roles were reported (greater than .80 for each role). Peer-estimated scores were standardized by class, and each child was identified with a particular participant role if their score on that role was both higher than the class mean and individually higher on that scale than on their scores for any of the other roles. A child was identified as a Victim if 30% or more of their classmates nominated them as a victim. Using these methods, Salmivalli et al. classified 87% of the pupils. The most frequent roles were Outsider (23.7%), Reinforcer (19.5%), and Defender (17.3%), followed by the roles of Victim (11.7%), Bully (8.2%), and Assistant (6.8%).

In a second study, Salmivalli, Lappalainen, and Lagerspetz (1998) investigated the stability of the participant roles over a 2-year period on 189 eighth-grade students in Finland, a subsample of the previous PRS study conducted 2 years earlier (Salmivalli et al., 1996). Here, they used a shorter version of the PRS, consisting of only 22 items plus the single victim-nomination item. Exploratory factor analysis (EFA) of these items (minus the victim-nomination item) demonstrated the existence of three different factors: one Pro-bullying factor (with the items for Bully, Assistant, and Reinforcer clustering together), and two additional factors for the Defender and Outsider items. Although scores on the Bully, Assistant, and Reinforcer scales were highly correlated and were grouped into one factor, these scales were used independently for further analysis, as the authors hypothesized that the scales represented three distinct factors rather than one underlying construct. The authors used the same procedures outlined by Salmivalli et al. (1996) to identify the children with the different participant roles. The Victim role was again identified from scores on the item "gets bullied." Internal reliabilities of the four scales ranged from .84 to .94. The results showed moderate consistency for the stability of participant roles over time. Some gender-related findings emerged as the occurrence of bullying showed more stability among boys than among girls, whereas girls, but not boys, showed a tendency to defend victims. Interestingly, a change in social environment (e.g., change of classroom) was associated with decreased role stability.

Since these initial Finnish studies, the participant role approach has been utilized and validated in several countries, such as the United Kingdom (Sutton & Smith, 1999), the Netherlands (Goossens, Olthof, & Dekker, 2006), Italy (Menesini & Gini, 2000), Germany (Schäfer & Korn, 2004), and

more recently in the United States (Crapanzano, Frick, Childs, & Terranova, 2011). In the United Kingdom, Sutton and Smith (1999) examined a shorter, 21-item version of the original PRS, administered in interview format, with 193 children aged 7 to 10 years. These authors included the victimization item in the factor analysis instead of removing it as Salmivalli et al. (1998) had done. EFA revealed four different factors: Pro-bullying, Defender, Outsider, and Victim factors. These four roles accounted for the 63.7% of the variance in bullying behavior. Internal consistency ranged from .55 to .88, suggesting moderate to good internal reliability, although there was lower reliability for the Outsider scale compared with results in the Finnish samples reported above.

In 2006, Goossens and colleagues created a 32-item adaptation of the PRS called the New Participant-Role Scale, which contained four additionally victimization items. This version of the PRS demonstrated the stability of five scales (Bully, Assistant, Defender, Outsider, and Victim) in a longitudinal study with 242 Dutch children aged 9 to 11 years. Children were asked to nominate peers for each of the 32 items, and could nominate as many peers as they liked (without nominating themselves). Although the EFA initially showed only four scales (with the Bully, Assistant, and Reinforcer items loading on the same factor), a confirmatory factor analysis (CFA) demonstrated the validity of Goossens et al.'s hypothesized five-factor model, which the authors considered an acceptable fit to the data based on standard fit indices.[1] The five scales accounted for the 72.3% of the variance in bullying outcomes, and satisfactory internal reliabilities for each of the five roles were reported (from .84 to .96).

In the United States, Crapanzano et al. (2011) used a modified version of Sutton and Smith's (1999) PRS in a sample of 284 school children between the ages of 9 and 14. Only the items for the Bully, Assistant, Reinforcer, and Defender scales were included and tested in a CFA with two factors. The first factor, General Bullying, grouped the Bullying, Assisting, and Reinforcing items; the second factor, named Defending, included the Defender items. The authors did not provide information related to the percentage of variance explained in bullying outcomes by the two factors. The reliability of the scales was good (.91 for both scales).

Gender Differences on the PRS

Apart from testing the factor structure of the PRS, these studies have also examined gender differences in bullying role distribution. Salmivalli et al. (1996) and Salmivalli et al. (1998) have found more girls than boys in the roles of Defender and Outsider, and more boys than girls in the roles of Bully,

Assistant, and Reinforcer. Although the higher prevalence of girls in the Defender role is a consistent finding across the PRS literature (e.g., Crapanzano et al., 2011; Gini, Albiero, Benelli, & Altoè, 2008; Goossens et al., 2006; Pöyhönen, Juvonen, & Salmivalli, 2010; Sutton & Smith, 1999), the prevalence of boys in the Bully and Follower (Assistant and Reinforcer) roles has not always been replicated (Goossens et al., 2006; Sutton & Smith, 1999).

In addition, these prior PRS studies have not examined an important aspect of scale measurement that has recently become a prerequisite for conducting cross-group comparisons (Byrne, 2012): the establishment of measurement invariance (MI). When comparisons between groups are made (e.g., by gender), it is typically assumed that the measurement instrument and the underlying psychological construct behave similarly and have the same significance across the groups being compared (Byrne, 2008, 2012). However, this assumption must be tested from a psychometric perspective. Therefore, at this juncture it is crucial to examine the MI of the assessment tool so that findings based on group comparisons can be further validated (Byrne, 2008; Rusticus, Hubley, & Zumbo, 2008). It is inappropriate to make comparisons by gender with respect to the PRS if, for example, girls and boys interpret the content of the items differently or if the various PRS roles do not behave in the same manner across gender. If MI does not hold, girls and boys could be responding differently to the PRS and consequently, factor means could not reasonably be compared. Hence, testing MI is an important step before examining gender differences in the participant roles.

Sociometric Status and the PRS

Sociometric status and its relationship with participant roles is another variation across studies that have followed the PRS approach, in an effort to better characterize participant roles. In fact, this method was included in the very first PRS study (Salmivalli et al., 1996). When sociometric status has been examined, it has been generally found that Bullies are rejected or controversial, Victims are rejected, and Defenders are the most popular (Goossens et al., 2006; Salmivalli et al., 1996). Such findings have been demonstrated using either the nominations-based method (Coie, Dodge, & Coppotelli, 1982) or the ratings-based method (Maassen, Akkermans, & Van der Linden, 1996) to obtain the sociometric status (Goossens et al., 2006). These findings corroborate the results of previous studies from the literature on aggression and prosocial behavior (Coie, Dodge, & Kupersmidt, 1990; Lagerspetz, Björkqvist, Berts, & King, 1982; Perry, Kusel, & Perry, 1988). In general, prosocial behavior (demonstrated by Defenders) has been associated with popularity, whereas aggressive behavior (demonstrated by Bullies), whether

proactive or reactive, has been associated with rejected peer status. The unpopularity of Victims across the literature could be seen both as a cause and a result of continuous bullying (Boulton & Smith, 1994; Pellegrini & Long, 2002). The link between defending behavior and peer popularity has also been found in other studies (Pöyhönen et al., 2010; Warden & Mackinnon, 2003), although the direction of the relationship remains unclear. It is not certain whether the defending behavior leads to increased popularity, or if one's popular peer status lends itself to defending others (Salmivalli, 2010). Nevertheless, Defenders may need to be popular to challenge Bullies, otherwise Defenders could risk their own safety or status within the group (Juvonen & Galván, 2008; Pöyhönen et al., 2010). At this time, further research is needed on associations between PRS and sociometric status, to help clarify these relationships.

The Present Study

Primarily, this study aims to investigate the validity of an adapted, shortened version of the PRS designed by Sutton and Smith (1999) on a representative sample of Spanish children through EFA and CFA methods. We were especially interested in testing this particular PRS adaptation by Sutton and Smith as this version was more suitable for the age of participants in our study sample. As previously stated, the PRS has been extended and used by various researchers from different countries and in samples ranging from age 7 to 14 years. Studies have used various procedures (e.g., rating, individual interviews, nomination, etc.) and PRS formats (e.g., the original 50 items, reduced numbers of items, one item for victimization or five items for victimization, etc.). Whereas the Defender and Outsider roles seem to consistently form two separate dimensions, the Bullying, Reinforcing, and Assisting dimensions have been highly correlated and have not always formed separate factors (Crapanzano et al., 2011; Goossens et al., 2006; Salmivalli et al., 1998; Sutton & Smith, 1999). Thus, it is important to further examine the validity of distinguishing among these various roles. Moreover, it is important to note that, to our knowledge, the PRS has not yet been adapted for and validated in a Spanish population.

In addition, as previous PRS studies have found varying prevalence rates for participant roles by gender without testing MI of the PRS across genders, additional investigations of gender differences in participant roles using MI are necessary. As such, our second study aim is to test MI of the PRS across gender in the framework of multiple-group CFA. Finally, the third study aim is to examine the relationship between children's roles and their sociometric status, as prior research has shown varying associations between participant roles and sociometric status.

From a cognitive-ecological perspective (Guerra & Huesmann, 2004), roles that children play during bullying situations, as well as aggressive and prosocial behavior in general, can be determined by individual and environmental characteristics. In that sense, we perceive the participant roles as dynamic, complex, and changing phenomena, much like the bullying process itself. Consistent with this viewpoint, we consider the roles that children play in bullying situations as dimensional, that is, as continuous variables along which children's typical behavior is measured, instead of as dichotomous or categorical variables. Therefore, in this study each child will obtain a score in every resultant participant role, rather than being classified in a single role (e.g., depending on both the class mean and his or her scores on the other roles). These role scores are then used in further data analysis to test MI across gender of the PRS, as well as to establish relationships with other study variables.

Method

Participants

Participants were 2,050 children aged 8 to 13 years (M = 9.80; SD = 1.24) recruited from 27 primary schools in the five different areas of the Region of Madrid, in Spain. The overall sample was designed to represent all students in Grades 3 through 6 in both public and private schools. The gender distribution was 50.80% girls (1,041) and 49.20% boys (1,009). The breakdown of students by grade was as follows: 22.9% (471) of students in Grade 3, 25.1% (514) in Grade 4, 26.6% (545) in Grade 5, and 25.4% (520) in Grade 6. The sample consisted of 17 public (58.2%) and 10 private schools (42.8%).

Measures

Children's role in bullying situations. This peer-nomination instrument is based on Sutton and Smith's (1999) adaptation of the original PRS (Salmivalli et al., 1996). It consists of 20 items, and it seeks to identify and characterize the different roles that classmates play in bullying situations. Children are asked to nominate classmates that best fit in each 1 of the 20 different descriptors. Children can nominate any number of students for each of the items, including themselves.

The four-item Bully Scale describes active, initiative-taking, leader-like bullying behavior (e.g., *starts bullying*). The two items on the Assistant Scale also describe bullying behavior, but represent those who follow the bully as opposed to those who instigate the bullying (*helps the bully, maybe by catching or holding the victim*). On the Reinforcer Scale, the four items describe

tendencies to act in ways that reinforce the bullying behavior, like laughing, coming to see what is happening, and being present, thus providing an "audience" for the bully, inciting the bully (e.g., *laughs at people being bullied*). On the Defender Scale, the five items describe supportive behavior and efforts to make others stop bullying (e.g., *tells some adult about the bullying*). The four items on the Outsider Scale describe those who remain outside the bullying situations (e.g., *isn't usually there, stays away*). The Victim Scale contains one item (*gets bullied*). To obtain each child's score on every item, the number of times that each student is nominated by their peers in each of the 20 situations was counted, and then divided by the total number of nominations issued within the same class for the specific item.

Sociometric status. Following the procedures outlined by Coie et al. (1982), we asked participants to name the classmates who they liked the most and the least. We did not limit the number of elections to three as some researches have recommended (e.g., Gifford-Smith & Brownell, 2003). Sociometric status was calculated following the bidimensional methodology described by Coie et al., and the participants were classified into the five different statuses: popular, rejected, neglected, controversial, and average.

Sociometric ratings. Another widely used method for assessing sociometric status is children's ratings of their peers (Maassen et al., 1996). In this procedure, children are asked to rate each of their peers on a single scale of likeability, anchored on one end by 1, reflecting acceptance (*like him/her very much*) and on the other end by 5, reflecting rejection (*dislike him/her very much*). The mean rating received across respondents is taken to reflect an individual child's level of social acceptance within the group. A higher rating reflects lower or less popular social status among classmates. The distinct advantage of this method from other sociometric methods (e.g., Coie et al., 1982) is that it collects information on every child from all children (Gifford-Smith & Brownell, 2003).

Procedure

Parents were asked to provide written informed consent. The peer-nomination instrument was administered in groups of 18 to 27 students, during regular school hours, under the supervision of a researcher. Participants were free to withdraw from the study at any time and for any reason. Confidentiality was ensured to all participants. The majority of students completed the PRS questionnaire in less than 30 min. After the study, school reports were provided to every participant school.

Data Analytic Plan

The software packages used for data analysis and processing were IBM SPSS Statistics 19.0 and Mplus 5.2 (Muthén & Muthén, 2007). Analyses were organized around the study aims. First, EFA and CFA were used to examine the primary study aim, which was to test the PRS among a Spanish youth sample. For these analyses, the total sample was randomly divided into two equal subsamples (Subsamples A and B). Subsample A was used for the EFA and Subsample B was used for the CFA. Several fit indices are available to determine the goodness-of-fit for factor analytic models. The first index is the chi-square test. This test compares the covariance matrix of the model with the covariance matrix of the sample. However, the chi-square test is sensitive to the number of variables in the model and to the sample size. To avoid these problems, evaluation of goodness-of-fit to the sample data was determined on the basis of multiple criteria: the comparative fit index (CFI), the Tucker–Lewis index (TLI), and the root mean square error of approximation (RMSEA). A CFI and a TLI above .95 indicate a good model fit, although any value ≥.90 tends to be considered acceptable (Hu & Bentler, 1995). A RMSEA of less than or equal to .08 also indicates a good fit (Browne & Cudeck, 1993).

For the study second aim, which was to explore gender differences on the PRS, we conducted successive multi-group CFAs to study MI of the PRS adaptation across gender in the Subsample B, the same sample used for the previous CFA. MI is frequently tested by multi-group comparisons using structural equation modeling (SEM) within the framework of a CFA model. In this approach, a hierarchical set of steps are followed when testing MI, typically starting with the determination of a well-fitting multi-group baseline model and continuing with the establishment of successive equivalence constraints in the model parameters across groups (Byrne, 2008, 2012). The baseline model is called the configural model, which is the first and least restrictive model specified, and is important because it represents the baseline model against which all subsequent specified models are compared (Byrne, 2008, 2012). The configural model is established by specifying and testing the CFA model for each group, which in this case refers to testing each gender, separately. Once the theoretical model has been validated in both groups, configural invariance is then examined, requiring that the pattern of fixed and freely estimated model parameters is equivalent across groups; however, other than the referent item that is used to establish the scale of each latent variable, no equality constraints are imposed on the model parameters between groups (Byrne, 2008, 2012). Configural invariance is tested by assessing the model fit. When configural

invariance is met (i.e., when the model fits the data), the suggestion is that the general factor structure is at least similar, though not necessarily equivalent, across groups (Byrne, 2008). The next step is to impose equality constraints on the factor loadings across groups to test the metric or weak invariance. If the model fit with the constrained parameters is significantly and practically poorer than the baseline or configural model, then metric invariance is not supported (Byrne, 2012). When metric invariance is met, the suggestion is that the same metric is being used and that the participants interpret and respond to the measure in a similar manner (Byrne, 2008). The final step is to impose constraints on the item intercepts and factor loadings to test strong or scalar invariance across groups. The confirmation of the invariance of the intercepts permits comparison of the latent means in both groups (Byrne, 2012).

The analyzed models are nested, in that the imposed constraints are progressively added. The fit of nested models can be assessed by comparing the respective chi-square fit statistics or goodness-of-fit indices between the model with additional constraints and the less restricted model (Cheung & Rensvold, 2002). Both criteria have been extensively used in the literature. However, when they are used in conjunction they are often in disagreement, leading to contradictory conclusions (Rusticus et al., 2008). Given the limitations of the $\Delta\chi^2$ regarding its sensitivity to sample size, Cheung and Rensvold (2002) have proposed a more practical criterion, the ΔCFI, to determine whether nested models are practically equivalent. In this study, when ΔCFI is greater than .01 between two nested models, the more constrained model is rejected, as the additional constraints have produced a practically poorer fit. However, if the change in CFI is less than or equal to .01, it is considered that all specified equal constraints are tenable, and therefore we can proceed to the next step in the analysis of MI.

Finally, we used analysis of variance and bivariate correlations for the third study aim, which was to examine the associations between PRS roles and sociometric status.

Results

EFA

We conducted two EFAs, first with the full PRS 20-item solution and then with a 19-item PRS version (without the victimization item, which is consistent with other studies; Salmivalli et al., 1998), with Subsample A (n = 1,046), using the Mplus maximum likelihood estimator (ML) and the oblique rotation GEOMIN.

PRS 20-item solution. Table 1 shows the factor loadings of the rotated 20-item PRS solution for each of the items with respect to the three-factor solution with eigenvalues greater than 1. Eigenvalues associated with these factors were 7.45, 2.54, and 2.03, respectively, for a total of 62.73% explained variance. Although the chi-square ($df = 133$) = 834.29 was significant ($p < .0001$), the CFI (.946) and TLI (.923) were ≥.90, indicating adequate fit, and the RMSEA value was .071, 90% confidence interval (CI) = [.067, .076], which is less than the .08 criterion for acceptable fit.

The first-factor solution revealed one large bullying factor, which did not distinguish between active bullying, bullying reinforcement, or victimization roles. This factor was labeled the Bully-Victim role, and included the Bully, the Reinforcer, and the Assistant items, as well as the single Victim item. The second factor contained the five items related to the Defender role, while the third factor included the four Outsiders items. Correlations among the three factors were all negative and relatively small, with the correlation between the Bully-Victim and the Outsider roles ($r = -.199$) being greater than the correlations between the Bully-Victim and the Defender roles ($r = -.107$), and the Defender and the Outsider Roles ($r = -.074$).

PRS 19-item solution. We were concerned about the loading of the unique victim item in the general bullying factor, as it did not allow us to differentiate between perpetrators and victims. As such, we conducted another EFA with 19 items, eliminating the victim item (see also Table 1). Previous studies have also dropped this item from factor analysis (Salmivalli et al., 1998). The three-factor solution (for eigenvalues greater than 1) was similar to the previous model, except for the Bully-Victim factor that did not include the Victim item. This model explained a total of 64.89% of the variance, a higher percentage than the model with the victimization item. The eigenvalues associated with these factors were as follows: 7.34 for the Bully scale, 2.54 for the Defender scale, and 2.00 for the Outsider scale. The fit indices were as follows: $\chi^2(df = 117) = 679.55$; $p < .0001$; CFI = .956, TLI = .935, and RMSEA = .068 90% CI = [.063, .073], indicating a good fit. The correlations among the three roles were again negative and relatively small, with the correlation between the Bully and the Outsider roles ($r = -.204$) higher than the correlations between the Bully and the Defender roles ($r = -.072$), and the Defender and the Outsider roles ($r = -.042$).

CFA

Three CFAs were conducted to test goodness-of-fit in Subsample B (n = 1,004). We tested the four-factor model proposed by Sutton and Smith

Table 1. Factor Loadings of Geomin Rotated for the 20-Item and the 19-Item Solutions (n = 1,046).

	20-Item Solution			19-Item Solution		
Item	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3
1. Starts	**.879**	−.045	.046	**.873**	−.056	.026
2. Gets others to join	**.854**	.046	.007	**.854**	.041	.008
3. Always thinks news	**.851**	−.068	.099	**.843**	.089	.072
4. Leads a gang	**.814**	.000	.026	**.814**	.011	.020
5. Is usually there	**.755**	.050	−.003	**.753**	.052	−.006
6. Laughs at people	**.842**	−.026	.067	**.838**	−.043	.051
7. Encourages	**.819**	.035	−.032	**.820**	.039	−.031
8. Gets others to watch	**.732**	.096	−.098	**.736**	.114	−.083
9. Helps	**.777**	.057	−.049	**.779**	.064	−.043
10. Joins if started	.862	−.009	−.019	**.862**	−.008	−.026
11. Tells some adult	−.047	**.638**	.135	−.029	**.616**	.226
12. Tries to make others	.020	**.773**	.031	.046	**.767**	.155
13. Tries to cheer up	−.069	**.739**	.023	−.042	**.712**	.144
14. Gets others to help	.107	**.521**	−.081	.124	**.536**	−.003
15. Sticks up	.104	**.531**	−.163	.120	**.511**	−.089
16. Isn't usually there	.005	.189	**.753**	.009	.174	**.773**
17. Pretends no to notice	−.005	.156	**.809**	−.005	.019	**.789**
18. Doesn't do anything	.217	−.005	**.372**	.212	−.059	**.356**
19. Doesn't even know	−.005	−.007	**.597**	−.013	−.137	**.573**
20. Gets bullied	**.363**	−.065	.108	—	—	—

Note: Factor loadings > .300 are shown in bold font.

(1999), with the Bully, Defender, Outsider, and Victim factors, and then the 2 three-factor models obtained in the previous EFAs with Subsample A, with and without the victimization item. We wanted to test whether the Sutton and Smith model, which is theoretically-based and includes the victimization item as an independent factor, would fit the data better than the 2 three-factor models we obtained through the EFAs in Subsample A.

The Sutton and Smith's (1999) four-factor model did not meet the relevant criteria for goodness-of-fit[2]: $\chi^2(df = 165) = 708.91$; $p < .0001$; CFI = .896, TLI = .881, and RMSEA = .056, 90% CI = [.052, .060]. However, the three-factor model, tested both with and without the victimization item, fit the data reasonably well. Fit indices for the 20-item three-factor model were as follows: $\chi^2(df = 167) = 491.02$; $p < .0001$; CFI = .934, TLI = .923, and RMSEA = .044,

Table 2. Configural, Metric, and Scalar Measurement Invariance for 20-Item Model Adaptation: Goodness-of-Fit Statistics.

Model	χ^2	*df*	CFI	TLI	RMSEA	RMSEA 90% CI	BIC	AIC
Gender								
Boys (*n* = 504)	406.7	167	.928	.917	.054	[.047, .061]	71,373.6	71,099.1
Girls (*n* = 500)	307.3	167	.942	.933	.041	[.034, .048]	60,914.8	60,636.7
Multiple group								
Configural invariance	714.0	334	.934	.924	.048	[.043, .053]	132,379.2	131,735.8
Metric invariance	895.8	352	.904	.895	.056	[.052, .061]	132,816.1	132,261.1
Scalar invariance	1,110.7	370	.870	.865	.064	[.059, .068]	133,048.6	132,591.2

Note. CFI = comparative fit index; TLI = Tucker−Lewis index; RMSEA = root mean square error of approximation; CI = confidence interval; BIC = Bayesian information criteria; AIC = Akaike information criterion.

90% CI = [.039, .048]. Correlations between the Bully-Victim and the Outsider and the Defender factors were $r = -.131$ and $r = -.074$, respectively. The correlation between the Defender and the Outsider factors was $r = .105$. Fit indices for the 19-item model were $\chi^2(df = 149) = 418.59$; $p < .0001$; CFI = .941, TLI = .931, and RMSEA = .043, 90% CI = [.038, .048]. Based on standards for fit statistics, this model showed a slightly better fit, although the models could not be directly compared due to their non-nested structures. Correlations among factors in the 19-item model were equal to those for the 20-item model, with the exception of the Bully and the Outsider factor correlation, which was $r = -.132$.

Reliability of the Scales

To calculate the reliability of the scales, we used data from the total sample. Internal consistency for the Bully-Victim role (11 items) was .94. Removing the Victim item changed this estimate to .95. Internal consistency for the Defender scale (5 items) was .76, and .68 for the Outsider scale (4 items).

MI by Gender and Latent Mean Differences

Next, we assessed MI by gender for the 2 three-factor models, with 20 and 19 items, with results presented in Tables 2 and 3 for the 20-item and 19-item

Table 3. Configural, Metric, and Scalar Measurement Invariance for 19-Item Model Adaptation: Goodness-of-Fit Statistics.

Model	χ^2	*df*	CFI	TLI	RMSEA	RMSEA 90% CI	BIC	AIC
Gender								
Boys (n = 504)	351.1	149	.938	.927	.052	[.045, .060]	64,937.9	64,676.2
Girls (n = 500)	280.4	149	.945	.935	.042	[.034, .050]	55,766.3	55,496.6
Multiple group								
Configural invariance	631.9	298	.940	.930	.048	[.043, .053]	120,765.4	120,141.6
Metric invariance	809.4	315	.910	.901	.057	[.052, .061]	121,227.8	120,697.3
Scalar invariance	995.7	332	.880	.875	.064	[.059, .068]	121,423.8	120,986.6

Note. CFI = comparative fit index; TLI = Tucker−Lewis index; RMSEA = root mean square error of approximation; CI = confidence interval; BIC = Bayesian information criteria; AIC = Akaike information criterion.

models, respectively. The goodness-of-fit indices obtained for both groups were satisfactory across each model. Likewise, the configural models in which no equality constraints were imposed showed a good fit to the data, with slightly better results for the 19-item model. Next, metric invariance for the two groups in both models was tested. The difference in the ΔCFI between the configural and the metric models exceeded .01, both for the 20-item and 19-item models, indicating that the hypothesis of metric invariance was untenable. Modification indices and expected parameter change values (EPC) from Mplus indicated that for metric invariance in both models, Items 14 "Gets others to help" and 15 "Sticks up for the victim" from the Defender factor, and Item 18 "Doesn't do anything or takes sides" from the Outsider factor cross-loaded on the Pro-bullying factor for boys but not for girls. In addition, the loadings of Items 12 "Tries to make others stop bullying" and 11 "Tells some adult about the bullying" on the Defender factor were much higher for girls than for boys. Loadings for Item 9 "Helps the bully, maybe by catching or holding the victim" on the Pro-bullying factor were also higher among girls. Moreover, the loadings of Items 18 "Doesn't do anything or takes sides" and 15 "Sticks up for the victim" on the Outsider factor were lower for girls than for boys. As we did not have an a priori theory of PRS gender differences to support relaxing invariance constraints for boys versus girls, and because model misfit appeared to be spread throughout both the

20- and 19-item models, we did not pursue a test of partial invariance and concluded that metric invariance was untenable in this sample.[3] Therefore, the hypothesis of scalar invariance, wherein the item intercepts and factor loadings were constrained to be equal across gender, was also untenable for both models. Nevertheless, as can be seen in Tables 2 and 3, scalar MI was tested for both models. These results support configural but not metric and scalar invariance in the 20- and 19-item models by gender. Thus, the general factor structure of the PRS (with 20 or 19 items) is similar, but not necessarily equivalent, across gender.

Latent mean differences across gender for both models were then estimated by fixing the latent mean values to zero for boys. For comparisons between groups in the latent means, statistical significance was based on the *z* statistic. The comparison of latent means revealed statistically significant differences. On average, girls scored .731 units below boys in the Bully-Victim role (−.731; $p < .001$), for the 20-item model, and .738 units below boys in the Bully role (−.738; $p < .001$) for the 19-item model. However, these gender differences must be considered with caution as both the hypotheses of metric and of scalar invariances were not met.

Associations With Sociometric Status

Sociometric nominations. To analyze the relationship between sociometric status and bullying roles on the PRS, an analysis of variance was conducted with sociometric status as the independent factor with five levels (popular, rejected, controversial, neglected, average). As the factor structure of the PRS appeared to be different for boys and girls in this study sample, the analyses were run separately by gender. The Brown−Forsythe statistic was used as the assumption of homogeneity of variances was not met. Posteriori contrasts (Games–Howell) were also carried out to examine possible differences between levels of sociometric status for each participant role, and for boys and girls separately. As shown in Table 4, for the Bully-Victim scale, rejected boys and girls obtained significantly higher scores. For the Defender role, popular and controversial children scored significantly higher across both genders. For the Outsider scale, the rejected boys and girls both received the highest scores. Controversial boys also obtained significantly higher scores on the Bully-Victim scale, whereas neglected and rejected girls scored significantly lower on the Outsider scale.

When we removed the victim item from the Bully-Victim scales, Games−Howell post hoc contrasts showed that rejected boys and girls were still the ones who obtained the highest scores on the Bully scale, $B\text{-}F(4,418.14) = 39.22$; $p < .001$ for boys; $B\text{-}F(252.30) = 4.88$; $p < .05$ for girls. However,

both rejected boys and girls scored significantly higher than the other sociometric status groups on the victimization item, whereas only neglected boys obtained the lowest scores, *B-F*(4,592.97) = 41.83; $p < .001$ for boys; *B-F*(352.29) = 8.20; $p < .001$ for girls.

Sociometric ratings. Zero-order correlations were used to examine the relationship between sociometric ratings and bullying roles on the PRS separately by gender. Bully-Victim scores were positively correlated with rating scores; this correlation was slightly higher for boys ($r = .441$, $p < .001$) than for girls ($r = .244$, $p < .001$), whereas Defenders scores were negatively correlated with rating scores ($r = -.158$, $p < .001$ for boys; $r = -.247$, $p < .001$ for girls). These results show that children with higher scores on the Bully-Victim scale are more disliked by their peers, for both genders. Conversely, those children who score higher on the Defender scale are much more liked by their peers, particularly among girls. For boys the correlation between Outsider scores and sociometric ratings was significant but close to zero ($r = .072$, $p < .001$), whereas for girls this was non-significant ($r = .037$). When we considered the victim item separately, Victim ($r = .382$, $p < .001$ for boys; $r = .254$, $p < .001$ for girls) and Bully ($r = 409$, $p < .001$ for boys and $r = .222$, $p < .001$ for girls) scores were positively correlated with rating scores, indicating that these youth, especially girls, were more disliked by their peers.

Discussion

The first aim of this study was to examine the validity and the reliability of Sutton and Smith's (1999) shortened adaptation of the PRS on a representative sample of Spanish children between ages 8 and 13 years. Moreover, we wanted to confirm the four-factor model obtained by Sutton and Smith, which differentiates Bully, Defender, Outsider, and Victim roles. Our findings partially corroborate this classification. We first found through an EFA and a CFA that a three-factor solution revealed Bully-Victim, Defender, and Outsider roles. This solution did not allow us to distinguish between Bullies and Followers (Assistants and Reinforcers), or between Bullies and Victims. However, this three-model factor was very useful as the Defender and the Outsider scales emerged as clearly distinct both from one other and from the other roles. In addition, the internal reliability of the subscales was good. Sutton and Smith were the only researchers to our knowledge who found a four-factor PRS model that included a unique victimization item. Salmivalli et al. (1998) dropped the victim item before running their EFA, and found three factors (Bully-Assistant-Reinforcer, Defender, and Outsider). Goossens et al. (2006) found five factors with a CFA (although they initially found four

Table 4. Participant Roles and Sociometric Status (Nomination Procedure) by Gender.

Gender	Participant Roles	Sociometric Status	*N*	*M*	*SD*	Brown–Forsythe Games–Howell
Boys	Bully-Victim	Popular (1)	322	.01	.76	B-F(4,434.90) = 44.47***
		Rejected (2)	233	1.1	1.58	G-H: 2,3 > 1,4,5
		Controversial (3)	75	1.0	1.30	
		Neglected (4)	95	−.17	.50	
		Normal (5)	284	.15	.72	
		Total	1,009	.36	1.00	
	Defender	Popular (1)	322	.17	1.14	B-F(4,644.45) = 8.29***
		Rejected (2)	233	−.25	.91	G-H: 1,3 > 2,4,5
		Controversial (3)	75	.09	.81	
		Neglected (4)	95	−.16	1.03	
		Normal (5)	284	−.14	.82	
		Total	1,009	−.05	.99	
	Outsider	Popular (1)	322	−.10	.75	B-F(4,630.74) = 5.51***
		Rejected (2)	233	.25	1.11	G-H: 2 > 1,3
		Controversial (3)	75	−.13	.64	
		Neglected (4)	95	.12	1.06	
		Normal (5)	284	.05	1.02	
		Total	1,009	.04	.95	
Girls	Bully-Victim	Popular (1)	348	−.41	.21	B-F(4,263.41) = 6.06***
		Rejected (2)	172	−.20	.89	G-H: 2 > 1,4
		Controversial (3)	38	−.19	.09	
		Neglected (4)	115	−.43	.02	
		Normal (5)	368	−.36	.02	
		Total	1,041	−.35	.01	
	Defender	Popular (1)	348	.30	1.09	B-F(4,323.06) = 18.68***
		Rejected (2)	172	−.24	.74	G-H: 1,3 > 2,4,5; 2,4 < 5;
		Controversial (3)	38	.56	1.05	
		Neglected (4)	115	−.34	.73	
		Normal (5)	368	−.05	1.03	
		Total	1,041	.00	1.01	
	Outsider	Popular (1)	348	−.12	.82	B-F(4,554.88) = 4.07**
		Rejected (2)	172	.21	1.17	G-H: 2 > 1,4
		Controversial (3)	38	−.07	.84	
		Neglected (4)	115	−.16	.76	
		Normal (5)	368	−.04	1.23	
		Total	1,041	.00	1.04	

Note. B-F = Brown–Forsythe statistic; G-H = Games–Howell post hoc contrasts.
**$p < .05$. ***$p < .001$.

factors through an EFA, with the Bully-Assistant-Reinforcer as a unique factor), after they added four more items to the Victim scale.

The fact that in our study only one factor emerged from the Bully-Assistant-Reinforcer-Victim items was somewhat concerning. As previously stated, this group consists of very different roles, and a factor made up of these roles does not allow us to differentiate between Bullies and Followers, or between active or leader-taking bullying and less active, reinforcing behavior. This structure also did not allow us to differentiate Bullies and Victims. On the one hand, this four-in-one factor could restrict future prevention and intervention strategies on bullying as it prohibits us from discriminating and characterizing the different roles. On the other hand, this combined factor could reflect a reality about bullying roles that has been upheld in many prior studies. That is, there are some children who both bully and are bullied by others (e.g., Cook et al., 2010). Furthermore, these results could highlight the fact that participant roles in bullying are as dynamic as the bullying group process itself. Consequently, some children could be playing a specific role in one situation and another role under different circumstances.

Alternatively, the merging of the Bully-Victim factor could be explained by methodological differences across studies. First, there was an isolated item for the Victim scale in the PRS in the original version designed by Salmivalli et al. (1998), which led to a three-factor structure, whereas Goossens et al.'s (2006) adaptation with additional Victim items resulted in a five-factor structure. Second, in our study we used unlimited nominations instead of the rating methodology used by Salmivalli et al. (1996), Salmivalli et al. (1998), and Sutton and Smith (1999), and as a result, we did not obtain a rating of each child for every item. These methodological differences could be underlying the loading of the victim item onto the bullying factor. As such, the dynamic nature of the bullying process and the potential bully-victim role, along with these methodological differences, could contribute to the emergence of the Bully-Victim factor in our sample. In light of the aforementioned limitations of the three-factor model with the Bully-Victim factor, we carried out an additional 19-item EFA and a CFA to test the three-factor model without the victim item, using only the Bully-Assistant-Reinforcer, the Defender, and the Outsider factors. The statistical indices supported the good fit of this model and was slightly better than the three-factor model that included the victim item, making this model more appropriate for the study sample. In the 19-item model, we also found a low correlation ($r = -.074$) between Bully and Defender roles, suggesting that these roles were not meaningfully associated in our sample. Although it is difficult to compare across

studies using the PRS due to the different factor structures that have been used, this finding is similar to that of Goossens et al. and Sutton and Smith, as both studies found small, non-significant negative Bully-Defender intercorrelations (i.e., $r = -.03$, *ns*, for the Goossens et al. and $r = .08$, *ns*, for Sutton & Smith).

The second aim of our study was to examine MI by gender on the PRS, to further validate the measure and subsequently screen for gender differences across participant roles. Previous studies have shown gender differences in the participant roles (Gini et al., 2008; Goossens et al., 2006; Pöyhönen et al., 2010; Salmivalli et al., 1996; Salmivalli et al., 1998). However, these studies have not tested whether the PRS is psychometrically equivalent across gender. Consequently, if mean differences on latent role scores are found without testing MI, we cannot be sure that such results are due to true differences in the latent variable and not a measurement artifact. In our study, the results did not support the MI of both three-factor models (with and without the victimization item), although results indicated that the factor structure of the models was similar across groups, based on configural invariance. That is, the number of factors and their loading patterns were the same for boys and girls, but the factor loadings (metric invariance) and the item intercepts (scalar invariance) were not.

These results are not surprising if we take into account that a critical condition to study invariance of a particular instrument is that its factor structure has been well determined in the previous literature (Brown, 2006), which is not the case for the PRS and its different adaptations. Conversely, this finding could be reflective of the possibility that boys and girls are conceptualizing bullying situations and participant roles differently, as some authors have argued (Espelage, Mebane, & Swearer, 2004). Despite the lack of MI across gender, we examined latent means of participant roles and found that boys obtained significantly higher Bully-Victim scores for both the 20-item and 19-item models. These results are consistent with findings from many other studies (e.g., Goossens et al., 2006; Salmivalli et al., 1996; Salmivalli et al., 1998), but should be interpreted with caution given that gender invariance assumptions were not fully met in the current study.

The third study aim was to examine the relationship between the different sociometric status ratings and the PRS bullying roles. As the MI assumption of the PRS across gender was not met, these analyses were run separately for boys and girls. Using sociometric status obtained through both the nomination (Coie et al., 1982) and rating procedures (Maassen et al., 1996), we found that boys and girls who adopted the Bully-Victim role were more likely to be disliked by their classmates, whereas those in the Defender role were more liked by their peers, across genders. In addition, controversial boys, but

not girls, scored significantly higher in Bully-Victim and Defender roles. When the victim item was dropped from the Bully-Victim scale, the rejected status of the Victims became more clear. In addition, moderate, positive intercorrelations were found both between the scores on the Bully and Victim scales, and the rating scores, showing that those children, especially boys, with higher scores in these roles were also more disliked by their peers.

The controversial status of boys who were in the Bully or Defender roles aligns with previous studies' findings on the complex relationship between sociometric status and aggression or bullying (Pellegrini & Long, 2002; Rodkin, 2004). These findings converge with the idea that some children who bully others can alternate intimidation with prosocial behaviors to manipulate peers in ways that result in a more popular peer status (Hawley, 2003). A similar process may occur with Defenders, in that although they may generally display prosocial and cooperative behaviors, they could use aggression in certain situations or against certain people (e.g., bullies or pro-bullying children), and therefore may be rejected by some of their classmates (Cillessen & Mayeux, 2004; Rodkin, 2004). The Victims' sociometric status corroborates the results of other studies showing that victims can have an even lower status within their peer group than Bullies (Perren & Alsaker, 2006; Schwartz, 2000), who may sometimes receive social support from part of the class, given their controversial status.

The finding that the 19-item three-factor model that did not include the victim item was associated with a better model fit than the 20-item three-factor model in both the EFA and CFA as well as for aspects of the MI analyses converges with our sociometric results. Sociometric status, and the peer-nomination procedure in particular, showed that the Bully and Victim roles were differentially related to children's status in their classrooms. Taken together, these findings support our conclusion that the three-factor model without the victimization item is most appropriate for the current sample, and accounts for some of the limitations of the three-factor model with the Bully-Victim factor. In fact, this was the model proposed by Salmivalli et al. (1998). This three-factor model with the victimization item treated separately allows us to discriminate among the different roles, and to consequently adopt a more nuanced view of the bullying process, which has important implications for prevention and intervention strategies. Such strategies could include mobilizing peer pressure to isolate bullies from their social support and to encourage children to stick up for the Victim or report bullying. However, this three-factor model may overlook the Bully-Victim children as well as the dynamic nature of the bullying process.

It is worth noting that our findings are consistent with studies that found a unique factor that accounted for the Bully, Assistant, and Reinforcer scales

(Crapanzano et al., 2011; Goossens et al., 2006; Salmivalli et al., 1998; Sutton & Smith, 1999). Indeed, to our knowledge, all of the PRS inquiries referred to in this study that used a factor analytic method (whether it was exploratory, confirmatory, or both) found this pro-bullying factor. Although direct comparison of our results is difficult because of the variation in the PRS versions among the studies, our results highlight the intercorrelations among the three pro-bullying scales, perhaps suggesting that these scales are in fact representing one underlying factor. Another possible explanation for our results could be related to developmental differences across various ages of the children who completed the PRS scales. It is possible that younger children (as in our sample) are unable to differentiate among the different types of pro-bullying roles, or between the more active and the less active behaviors, and may view these three roles as the same as the "students who harass others" role, independent of who starts, assists, or reinforces bullying. Longitudinal data are best suited for examining these hypothesized differences in children's views of bullying roles across development.

Study findings should be considered in light of several limitations. First, all the measures used were obtained through a peer-nomination procedure; future research should consider the inclusion of other methodologies (e.g., self-reports, observation, focus groups, etc.) and informants (e.g., teacher and principals). Second, as has been previously mentioned, there was only one item that accounted for the Victim role. If additional victimization items were included (as in the Goossens et al., 2006, study), more divergence across the different roles—especially for the Bully-Victim role—may have been found. Nevertheless, we were particularly interested in testing the validity of Sutton and Smith's (1999) PRS adaptation, as it was more suitable to the age of our sample. Third, we used a nomination instead of a rating procedure. Although the nominations were unlimited, we do not obtain as much information as with the rating method, where children have to give a score to each child in their class. The fact that we were working with a large sample, however, makes the use of the rating procedure very difficult, as the children would have had to rate each classmate on every PRS item. Fourth, the cross-sectional nature of this study limited us from examining the stability and evolution of these roles over time, and from testing the developmental hypothesis that the pro-bullying factor could develop into three different subscales as children grow and mature cognitively. Further longitudinal research could account for these limitations and consider the dynamic nature of bullying and, in turn, participant roles over time.

Within the context of these limitations, study findings have several important strengths and implications for understanding bullying in schools. Unlike previous studies that have adopted the PRS approach using an incidental sample, this

study was conducted with a large and representative sample of primary students from third to sixth grade in Spain, which provided sufficient statistical power and a sample that has not been previously studied in the context of the PRS. In addition, to our knowledge, this is the first study that has examined the MI of an adaptation of the PRS across gender. Although we were unable to demonstrate MI across genders, we believe this in an important contribution to the current literature. The inexistence of previous research limits comparisons of our findings, but we hope that this work will motivate tests of MI and potentially partial invariance on the PRS in other countries and contexts.

Although we are interested in valid methods of measuring bullying behavior and using the PRS with diverse youth samples, we believe that the more important outcome of such work is to use findings on the group nature of bullying to inform future intervention efforts. For instance, findings from this study indicate that children in the Defender and Outsider roles may be important targets of intervention. As the Defender role was related to popularity within the peer group, this role may be associated with greater levels of peer group influence, which could be harnessed as a method to reduce school bullying. Researchers have also begun to study Outsider students (e.g., Pöyhönen et al., 2010), whose indifferent behavior could be perceived by other students as implicit support for bullying. Changing the behavior of Outsiders could have additional implications for bullying prevention and intervention. Indeed, the behavior and attitudes of students in the Defender and Outsider roles could play a central role in the protection of at-risk classmates from bullying, a possibility that certainly merits further attention.

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Notes

1. Goossens, Olthof, and Dekker's (2006) fit indices were $\chi^2(df = 340) = 1228.71$; $p < .0001$; comparative fit index (CFI) = .90. Good model fit is based on a CFI of ≥.95, whereas a CFI of ≥.90 is considered acceptable (Hu & Bentler, 1999).
2. As this model has a single indicator (victimization item), the following constraint was imposed (Brown, 2006): $\delta_{20} = \text{VAR}(20)(1 - \rho)$, where δ_{20} is the error variance of the victimization item, VAR(20) is the sample variance of the single indicator, and ρ is the item reliability.

3. Readers can contact the first author for additional information on these confirmatory factor analyses and the associated modification indices.

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