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Development of a Measure of the Experience of Being Bullied in Youth

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The Personal Experiences Checklist (PECK) was developed to provide a multidimensional assessment of a young person's personal experience of being bullied that covered the full range of bullying behaviors, including covert relational forms of bullying and cyber bullying. A sample of 647 school children were used to develop the scale, and a 2nd sample of 218 children completed the PECK and a battery of measures of bullying (including peer nomination), anxiety, depression, and self-esteem, to provide validity evidence. Test–retest reliability was assessed in a further sample of 78 students. Four factors emerged from a principal axis factoring consistent with the domains of relational-verbal bullying, cyber bullying, physical bullying, and bullying based on culture and were confirmed with confirmatory factor analysis. The data also supported a higher order bullying factor with direct effects on these 4 factors. All PECK scales showed good to excellent internal consistency (Cronbach's α range = .78–.91) and adequate test–retest reliability (range r = .61–.86). Most, but not all, expected relations were found with alternative methods of assessing bullying and measures of psychopathology. Taken together, the PECK provides a promising comprehensive and behaviorally focused dimensional measure of bullying.

Keywords: bullying, peer victimization, assessment, scale development

A significant proportion of children are involved in bullying across their school years. Children who are bullied report a range of problems, including anxiety and depression (Nansel, Overpeck, Pilla, Ruan, Simons-Morton, & Scheidt, 2001), low self-esteem (Egan & Perry, 1998), reduced academic performance (Juvonen, Nishina, & Graham, 2000), and school absenteeism (Eisenberg, Neumark-Sztainer, & Perry, 2003). Bullying may also be a significant stressor associated with suicidal behavior (Klomek, Marrocco, Kleinman, Schonfeld, & Gould, 2007). The last 10 years have seen an increase in research into school-based bullying, which has led to significant improvements in our understanding of who is involved in bullying and why some children might be more likely to be bullied, relative to their peers. However, a serious limitation in much of the research into bullying is the use of different assessment methods across studies and the lack of standardized assessment instruments. These limitations at best make it difficult to compare across studies and at worst may mean that studies have tapped into different underlying constructs and samples. Development of a measure that includes a wide range of bullying behaviors may help to bring consistency to this field of research.

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Bullying is commonly defined as a specific type of aggressive behavior that involves intent to cause harm, occurs repeatedly, and involves a power imbalance (Olweus, 1999). This definition remains the subject of some debate, particularly in regard to whether these characteristics require assessment by an objective outsider or can instead rely on the perception of the victim (Smith, 2004). In line with current literature, measures of bullying need to encompass the three broad domains of behaviors that constitute bullying: direct physical bullying, direct verbal bullying, and indirect bullying in which the person or group of persons doing the bullying is not necessarily identified (Smith, 2004). This latter form of bullying is often a form of social manipulation and includes the more recently recognized phenomenon of cyber bullying (e.g., Jerome & Segal, 2003).

An important approach to the assessment of bullying has been the use of peer and teacher nominations that might reduce the influence of personal bias. However, disadvantages of the use of peer and teacher nominations include the significant time demands, the potential risk of stigmatization, and the finding that bullying is often not reported to teachers (Borg, 1998; Hunt, 2007) or is often unobserved by teachers (Pellegrini & Bartini, 2000; Schäfer, Werner, & Crick, 2002). Consistent with this view, Beran and Stewart (2008) found that the convergence between teachers' and middle-school students' self-reports of bullying was low to moderate. Similarly, peers may not always notice all of the subtle forms and occasions of victimization.

When peer and self-report measures have been compared in the same sample of children, the concordance rates have typically been low to moderate, particularly in younger children (Ladd & Kochenderfer-Ladd, 2002). Monks, Smith, and Swettenham (2003) found that the 4- to 6-year-old children in their study tended to give more victim nominations to those children they liked the most. It is likely that the low concordance between peer and self-reports reflect a different perspective of the experience of

bullying and, hence, the two methods may be tapping different constructs. For instance, Schäfer et al. (2002) compared self- and peer reports in a sample of children and concluded that peer nominations likely rated children's experience relative to peers, whereas self-report reflects a child's subjective experience of victimization. It is argued here that a victim's personal perspective of being bullied will be an especially important source of information for school counselors or clinicians working with these children and for assessing the impact the experience may have on a child.

A number of self-report assessments are based on the perspective proposed by Olweus (1993), in which bullying is defined as a specific type of aggressive behavior that is unprovoked, involves intent to cause harm, occurs repeatedly, and involves a physical or psychological power imbalance. These assessments, such as the Olweus Bully/Victim Questionnaire (OBVQ, Olweus, 1996) or the Peer Relations Questionnaire (Rigby, 1998), use a direct question approach in which bullying is first defined and children are then asked how often they have been bullied. These questionnaires also include questions about some specific forms of bullying, such as being teased or being called names. Solberg and Olweus (2003) provided recommended cut-points to determine significant levels of bullying with the OBVQ, but these cut-points are based on single questions, and there is no evidence to support the use of a composite score from items within either of these measures. It is likely that the degree to which a child may be bullied lies on a continuum rather than being an all-or-nothing experience. Hence, it might not always be appropriate to categorize children as victims of bullying or not. Although measures such as the above could be scored to reflect a continuum, they are not typically used this way, and the small numbers of items would provide continua with restricted range. Therefore, there is a need for measures that not only tap into student's experiences but also allow for assessment of the extent to which a student experiences bullying relative to his or her peers. Furthermore the use of single-item questions, although useful for screening, does not provide information about the extent and impact of bullying and does not provide the detail found with multi-item measures.

Another potential problem in asking directly about bullying is that the term does not translate easily into different cultures, and bullying itself may mean different things to different people (Smith, Cowie, Olafsson, & Liefooghe, 2002). For example, adults have been shown to overidentify scenarios involving physical aggression as bullying (Hazler, Miller, Carney, & Green, 2001). Children's conceptions of bullying have also been found to vary across different countries or genders (Boulton, Bucci, & Hawker, 1999; Schäfer et al., 2002), and younger children may not be able to make the distinction between bullying and fighting between peers of equal strength (Smith et al., 2002). Sawyer, Bradshaw, and O'Brennan (2008) compared the use of a single-item direct bully question to behavior-based questions in a very large sample of school students and concluded that the behavior-based measure was a more sensitive measure of bullying, particularly for younger, African American girls. These authors argued that younger children may not be able to apply the definition of bullying consistently, whereas African American girls might be more sensitive than other girls, or boys in general, to the stigma of being a victim of bullying. The direct question approach may emphasize the social construct of bullying and influence children to respond in a socially desirable way (Austin & Joseph, 1996).

Given the problems described above with asking young people to reflect about their general experience of bullying, there is a need for assessment that taps into more clearly operationalized features. A number of measures have been developed to assess specific behaviors rather than using general definitions of bullying. The Social Experience Questionnaire (SEQ, Crick & Grotpeter, 1996) is an eight-item scale that assesses the frequency of specific instances of relational or overt victimization. Austin and Joseph (1996) have developed the Bully Behavior Scale and the Peer Victimization Scales, two 6-item questionnaires that are embedded within the Self-Perception Profile for Children (SPPC, Harter, 1985). The items cover specific behaviors, such as being called horrible names, being hit and pushed, or being laughed at by other children, but also include items naming bullying and teasing directly. The Reynolds Bully Victimization Scale contains a 23-item subscale that assesses overt direct aggression and overt relational aggression (Reynolds, 2003). Although the brevity of these questionnaires makes them useful under particular circumstances (such as epidemiological surveys), the limited breadth may not encompass the wider range of bullying behaviors that do not specifically harm peer relationships or harm physical well-being. Furthermore, these scales do not assess some of the more recent forms of victimization such as cyber bullying.

In response to these issues, the Personal Experiences Checklist (PECK) was developed as a self-report measure of the experience of bullying that could be administered to children aged 8 years and older. The measure was designed to provide a dimensional instrument that contains items describing specific behaviors that encompass the range of bullying experiences. In particular, the PECK includes items that cover a variety of forms of relational bullying (e.g., turning friends against their peers, or saying mean things behind their back) and technology-based bullying (e.g., through short message service (SMS) or text message, e-mail, websites, or chat rooms) that have not been included in existing measures. As the focus of the new measure is the personal experience of being bullied, a range of aggressive behaviors by peers are assessed in terms of frequency of occurrence and ability to cause subjective distress. The aim was to develop a comprehensive measure of bullying that was behaviorally operationalized to reduce interpretation bias.

Study 1: Scale Development and Factor Structure

Participants

Two samples from Australian schools were used in the questionnaire development and analysis of factor structure (see Figure 1). For the questionnaire development phase, 647 (301 male, 46.5%; 346 female, 53.5%) children and adolescents aged between 8 years and 15 years ($M = 12.38$, $SD = 1.69$) from nine schools (66% secondary school level) were recruited in 2004. The participants provided student and parental consent and completed the first version of the PECK. This sample comprised 20% of the total student sample initially approached to participate in the study. The students self-identified their ethnicity, with the most common groups being Anglo-Saxon (83.5%), East Asian (9.3%), West Asian (2.7%) and Middle Eastern (1.5%).

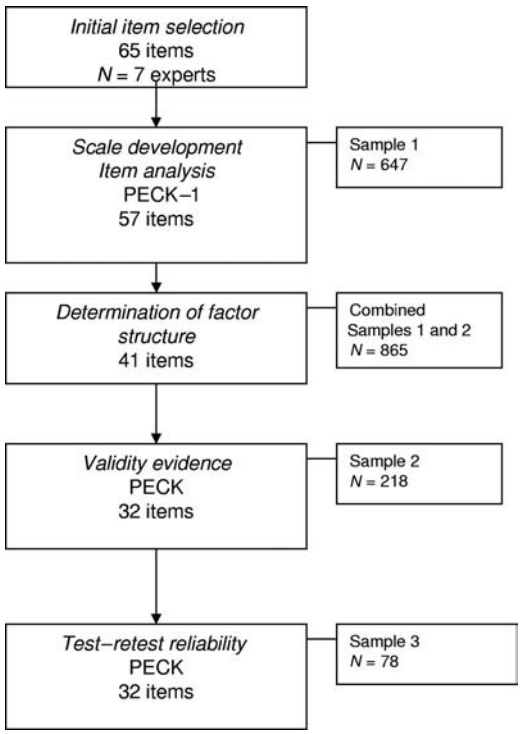

Figure 1. Stages and samples used in each stage of the development of the measure. PECK = Personal Experiences Checklist.

In 2006, an independent second sample of 218 (131 male, 60.1%; 87 female, 39.9%) children and adolescents was recruited. These children were recruited from five schools (44% secondary school level) and were aged between 9 years and 16 years (M = 11.8, SD = 1.64). The participants provided student and parental consent to complete the PECK, as well as a number of other self-report questionnaires. The students self-identified their ethnicity, with the most common groups being Anglo-Saxon (67%), East Asian (11.5%), Mediterranean (6.0%) and Middle Eastern (5.5%). This sample comprised 23% of the total student sample initially approached to participate in the study.

Initial Item Selection

Sixty-five items of specific bullying behaviors were written by the authors, based on the bullying literature and the responses to open-ended questions regarding bullying experiences that were gathered in previous surveys (Hunt, 2007). Items were generated to ensure coverage of the range of bullying behaviors, including physical threat or harm, verbal abuse (including racial and sexual abuse), relational bullying, damage to property, and cyber bullying. This initial version was sent to seven experts in Australia who were identified from the bullying research literature. They commented on the themes, wording, and structure of these items and suggested changes, including additional items, deletion of redundant items, and some rewording. The resulting items were tested on several Grade 4 students (aged 9 years) to assess comprehension; no changes were made on this basis. The Phase 1 version of the questionnaire (PECK–1) comprised 57 items in random order.

Scale Development

Items on the PECK–1 were rated by students in the first sample (N = 647) on two scales: a frequency scale on which items were rated for how often the event happened on a 5-point scale (*never*, *rarely*, *sometimes*, *once a week*, *most days*) and a 5-point severity scale on which items were rated for how bad it made the participant feel (*not at all*, *a little bad*, *bad*, *really bad*, *terrible*). The frequency of endorsement of each item and the severity ratings were inspected. Items with both low frequency (endorsed by less than 10% of the sample) and low severity (60% or more of those who endorsed the item said it was not bad at all) were removed. This resulted in the removal of one item.

Correlations between frequency ratings for the remaining 56 items were calculated. Item pairs with a correlation of .4 and over were inspected for semantic redundancy by three independent judges (one psychology graduate, two psychology academics). Seven pairs of items were judged to be semantically similar by at least two of the judges, and the item in the pair that had the lower frequency of endorsement was removed.

The sample was divided into quartiles, and the difference between item frequency scores for the upper and lower quartiles was examined for each item. For all items, there was a significant difference between the upper and lower quartiles. An analysis of item-total correlations was conducted on the remaining 49 items. Nunnally (1967) recommended that items with an item-total correlation of less than .4 be removed; 20 items had item-total correlations less than .4, but eight of these were retained because they related specifically to cyber bullying, and four were retained because they related to bullying based on culture. These two domains were thought to be theoretically and practically important in the assessment of bullying. The remaining eight items were deleted because they were thought to have no unique clinical relevance, resulting in 41 items.

Determination of Factor Structure (Exploratory Factor Analysis)

To determine the factor structure of the PECK, both exploratory and confirmatory factor analyses were conducted on the combined school samples (Sample 1, N = 647; Sample 2, N = 218). This combined sample (N = 865) was randomly split into two parts. The data from the first sample (n = 433, 50.3% female, 49.7% male; age M = 12.2 years, SD = 1.7 years) was analyzed with Predictive Analytics Software 17.0, to conduct unweighted least-squares principal factor analyses. Oblique rotation (direct oblimin) was used because the factors were assumed to be related to each other rather than independent. Delta was set to 0. To determine the number of factors to specify prior to running the analysis, both parallel analysis and Velicer's minimum average partial (MAP) test were performed, according to the procedures described by O'Connor (2000).

The parallel analysis specified that three factors should be extracted, whereas the MAP test specified four factors. Given these conflicting results, a four-factor model was chosen based on better interpretability, with the cultural and cyber bullying items separated into two factors. Nine items had moderate pattern coefficients (>.30) across more than one factor, or their pattern coefficients did not make conceptual sense and were removed in order to improve factor simplicity.

A final principal factor analysis (using oblique rotation) was carried out with the remaining 32 items. On the basis of the rotated pattern matrix, the four factors could be described as (a) relational or verbal bullying, (b) cyber bullying, (c) physical bullying with harm to self or property, and (d) bullying based on culture (see Table 1 for pattern and structure coefficients). Eigenvalues ranged from 14.57 to 1.31, and the four factors accounted for 61.93% of the variance (45.54%, 7.09%, 5.21%, and 4.09%, with the explained variance dropping to less than 3.00% for each of the remaining components). The correlations between factors ranged from .41 to .55.

Determination of Factor Structure (Confirmatory Factor Analysis [CFA])

To determine the reliability of the four-factor solution, a CFA was conducted with Amos 17.0 with the second sample ($n = 432$; 49.8% girls, 50.2% boys; age $M = 12.4$ years, $SD = 1.7$). Analysis of univariate skewness and kurtosis indicated significant departures from normality, suggesting that the data were multivariate nonnormal. Therefore, a bootstrap procedure was used with maximum likelihood (ML) estimation in line with the recommendations of Yung and Bentler (1996). An independence model, in which all items are assumed to be uncorrelated, served as the baseline model. A one-factor model in which it is assumed that all items load on the same factor was also assessed. Last, both a three-factor model and a four-factor model were assessed, given a lack of a clear advantage of a three-factor model or four-factor model from the parallel analysis and MAP tests. Both these models were oblique, allowing for the factors to be intercorrelated. Table 2 includes the mean standardized estimates across bootstraps that emerged from the CFA (200 bootstraps were obtained, with none unusable), and the structure coefficients. Table 3 presents the fit indices associated with each model tested, specifically the model chi square, the comparative fit index (Bentler, 1990), and the root-mean-square error of approximation (Browne & Cudeck, 1993). The four-factor model appeared to fit the data better than the one- or three-factor model, although not all goodness-of-fit indices fell above/below the recommended criteria for a reasonable model. The normed

Table 1
EFA Pattern and Structure Coefficients of the 32-Item PECK (Direct Oblimin)

Variable	Factor 1	Factor 2	Factor 3	Factor 4	h^2
Eigenvalue	14.57	2.27	1.67	1.31	
Factor 1: Relational-verbal bullying					
Other kids say mean things behind my back	**.82 (.81)**	.02 (−.43)	.01 (−.44)	−.01 (.35)	.66
Other kids try to turn my friends against me	**.82 (.77)**	−.03 (−.42)	.10 (−.36)	−.03 (.30)	.59
Other kids tell people not to hang around with me	**.74 (.80)**	−.08 (−.50)	.03 (−.47)	−.02 (.35)	.64
Other kids tease me about things that aren't true	**.74 (.76)**	.05 (−.40)	.04 (−.45)	.06 (.38)	.58
Other kids ignore me on purpose	**.68 (.75)**	−.07 (−.47)	.05 (−.42)	.13 (.44)	.59
Other kids call me names because I can't do something	**.55 (.74)**	−.07 (−.51)	−.25 (−.61)	.05 (.42)	.61
Other kids make rude gestures at me	**.51 (.70)**	−.08 (−.49)	.23 (−.57)	.05 (.40)	.54
Other kids tell people to make fun of me	**.50 (.73)**	−.06 (−.51)	.26 (−.62)	.12 (.47)	.61
Other kids call me names because I'm a bit different	**.50 (.68)**	.05 (−.41)	.17 (−.53)	.24 (.52)	.53
Other kids make fun of my friends	**.45 (.60)**	−.14 (−.45)	−.14 (−.45)	−.01 (.31)	.39
Other kids make death stares at me	**.44 (.63)**	−.28 (−.56)	.08 (−.46)	−.01 (.34)	.47
Factor 2: Cyber bullying					
Other kids say nasty things to me by SMS	−.12 (.39)	**−.86 (−.83)**	.04 (−.42)	.04 ((.36)	.70
Other kids threaten me over the phone	.04 (.48)	**−.83 (−.87)**	.03 (−.47)	.12 (.45)	.77
Other kids send me nasty e-mails	.14 (.53)	**−.81 (−.84)**	.06 (−.40)	−.05 (.32)	.72
Other kids harass me over the phone	−.05 (.49)	**−.80 (−.87)**	.00 (−.47)	.22 (.53)	.79
Other kids say nasty things about me on websites	−.01 (.48)	**−.80 (−.84)**	.00 (−.44)	.11 (.43)	.72
Other kids send me computer viruses on purpose	−.01 (.47)	**−.77 (−.82)**	.06 (−.46)	.05 (.39)	.67
Other kids say nasty things about me on an instant messenger or chat room	.19 (.49)	**−.65 (−.70)**	.05 (−.36)	−.06 (.26)	.51
Other kids make prank calls to me	.12 (.46)	**−.65 (−.70)**	.15 (−.44)	−.22 (.16)	.53
Factor 3: Physical bullying					
Other kids hit me	−.06 (.43)	.04 (−.38)	**.89 (−.85)**	.03 (.37)	.73
Other kids punch me	−.13 (.36)	−.03 (−.39)	**.88 (−.81)**	−.02 (.32)	.67
Other kids kick me	.02 (.49)	.00 (−.43)	**.82 (−.84)**	.02 (.39)	.71
Other kids shove me	.11 (.46)	.03 (−.37)	**.71 (−.73)**	−.05 (.29)	.54
Other kids trip me over	.02 (.48)	−.13 (−.49)	**.70 (−.77)**	.00 (.36)	.61
Other kids tell people to hit me	.13 (.54)	−.11 (−.50)	**.57 (−.74)**	.09 (.44)	.59
Other kids say they'll hurt me if I don't do things for them	.25 (.58)	.05 (−.41)	**.53 (−.71)**	.16 (.47)	.57
Other kids wreck my things	.25 (.61)	−.10 (−.51)	**.43 (−.68)**	.15 (.49)	.57
Other kids play practical jokes on me	.25 (.59)	−.12 (−.50)	**.41 (−.65)**	.10 (.44)	.52
Factor 4: Bullying based on culture					
Other kids make fun of my language	−.01 (.39)	−.03 (−.38)	.04 (−.41)	**.83 (.85)**	.73
Other kids make fun of my culture	−.01 (.42)	−.06 (−.41)	.11 (−.46)	**.75 (.82)**	.69
Other kids tease me about my voice	.29 (.54)	.00 (−.39)	.03 (−.39)	**.59 (.71)**	.57
Other kids won't talk to me because of where I'm from	.05 (.52)	−.38 (−.65)	.03 (−.49)	**.56 (.75)**	.71

Note. Structure coefficients are in parentheses. Coefficients in bold load on factor. h^2 = communality coefficient; PECK = Personal Experiences Checklist; EFA = exploratory factor analysis; SMS = short message service.

Table 2
CFA Pattern and Structure Coefficients of the 32-Item PECK

Variable	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1: Relational-verbal bullying				
Other kids say mean things behind my back	.76 (.76)	0 (.53)	0 (.64)	0 (.56)
Other kids try to turn my friends against me	.72 (.72)	0 (.50)	0 (.60)	0 (.53)
Other kids tell people not to hang around with me	.74 (.74)	0 (.51)	0 (.62)	0 (.54)
Other kids tease me about things that aren't true	.75 (.76)	0 (.53)	0 (.63)	0 (.56)
Other kids ignore me on purpose	.68 (.68)	0 (.47)	0 (.56)	0 (.50)
Other kids call me names because I can't do something	.65 (.65)	0 (.45)	0 (.54)	0 (.48)
Other kids make rude gestures at me	.66 (.66)	0 (.46)	0 (.55)	0 (.49)
Other kids tell people to make fun of me	.81 (.80)	0 (.56)	0 (.67)	0 (.59)
Other kids call me names because I'm a bit different	.58 (.58)	0 (.41)	0 (.49)	0 (.43)
Other kids make fun of my friends	.55 (.56)	0 (.39)	0 (.47)	0 (.41)
Other kids make death stares at me	.65 (.66)	0 (.46)	0 (.55)	0 (.48)
Factor 2: Cyber bullying				
Other kids say nasty things to me by SMS	0 (.52)	.75 (.75)	0 (.53)	0 (.55)
Other kids threaten me over the phone	0 (.61)	.88 (.87)	0 (.61)	0 (.64)
Other kids send me nasty e-mails	0 (.49)	.71 (.71)	0 (.50)	0 (.53)
Other kids harass me over the phone	0 (.61)	.89 (.88)	0 (.62)	0 (.65)
Other kids say nasty things about me on websites	0 (.58)	.83 (.83)	0 (.58)	0 (.61)
Other kids send me computer viruses on purpose	0 (.52)	.67 (.76)	0 (.53)	0 (.56)
Other kids say nasty things about me on an instant messenger or chat room	0 (.40)	.57 (.58)	0 (.41)	0 (.43)
Other kids make prank calls to me	0 (.46)	.66 (.66)	0 (.46)	0 (.49)
Factor 3: Physical bullying				
Other kids hit me	0 (.61)	0 (.51)	.72 (.73)	0 (.51)
Other kids punch me	0 (.61)	0 (.51)	.73 (.73)	0 (.51)
Other kids kick me	0 (.69)	0 (.58)	.83 (.83)	0 (.58)
Other kids shove me	0 (.58)	0 (.49)	.69 (.70)	0 (.49)
Other kids trip me over	0 (.65)	0 (.55)	.78 (.78)	0 (.54)
Other kids tell people to hit me	0 (.65)	0 (.54)	.77 (.77)	0 (.54)
Other kids say they'll hurt me if I don't do things for them	0 (.58)	0 (.49)	.70 (.70)	0 (.49)
Other kids wreck my things	0 (.58)	0 (.48)	.69 (.69)	0 (.48)
Other kids play practical jokes on me	0 (.51)	0 (.43)	.62 (.62)	0 (.43)
Factor 4: Bullying based on culture				
Other kids make fun of my language	0 (.49)	0 (.49)	0 (.47)	.66 (.67)
Other kids make fun of my culture	0 (.47)	0 (.47)	0 (.45)	.64 (.64)
Other kids tease me about my voice	0 (.42)	0 (.42)	0 (.40)	.56 (.57)
Other kids won't talk to me because of where I'm from	0 (.60)	0 (.60)	0 (.40)	.82 (.81)

Note. Mean standardized coefficients that emerged across bootstraps are presented; structure coefficients are presented in parentheses. CFA = confirmatory factor analysis; PECK = Personal Experiences Checklist; SMS = short message service.

chi-square value of 3.20 was within an acceptable range (Bollen, 1989), and the RMSEA was within the range of a reasonable error of approximation (Browne & Cudeck, 1993). However, the comparative fit index (CFI) of .88 fell just below the recommend criterion of .90 for a reasonable model fit (Hu & Bentler, 1999). The correlations among the factors from the CFA ranged from .70 to .83.

Table 3
Goodness of Fit Indices From Confirmatory Factor Analysis

Model	χ^2	*df*	CFI	RMSEA
Independence	8,959.298	496		
One factor	2,624.609	464	.745	.104 [.100, .108]
Three factor	1,646.361	462	.860	.077 [.073, .081]
Four factor	1,465.539	458	.881	.071 [.067, .076]

Note. The 90% confidence intervals are in brackets. CFI = comparative fit index; *df* = degree of freedom; RMSEA = root-mean-square error of approximation index.

Scale Item Characteristics

Four scales of the PECK were created based on the pattern coefficients described in Table 1, by use of the mean score of items within each subscale. Scale characteristics were assessed with the total sample (N = 865). The scores on the cyber bullying scale were normally distributed; however, on the verbal-relational bullying, physical bullying, and bullying based on culture scales, most participants reported low to moderate levels of bullying resulting in moderate positive skew. The internal consistency of each scale as measured by Cronbach's alpha was .91 for verbal-relational bullying, .90 for cyber bullying, .91 for physical bullying, and .78 for bullying based on culture. All item-total correlations were over .40 within each of the scales.

A total PECK score was also created by summing all 32 items. This total scale was justified on the basis of moderate to high correlations between the four factors. Furthermore, a CFA model that specified one higher order factor with direct effects on the four lower order factors showed a satisfactory fit to the data, χ^2(460, N = 432) = 1,486.23, CFI = .88, RMSEA = 0.07 (.07–.08). The mean standardized regression weights for the four lower order

factors, estimated across bootstraps, were .90 for relational-verbal bullying, .79 for cyber bullying, .90 for physical bullying, and .83 for bullying based on culture. The PECK total score distribution showed no significant skew but did show significant positive kurtosis. All item-total correlations were over 0.50.

Study 2: Validity Evidence Based on the Relation of the PECK to Other Variables

The relation of the PECK scales to a number of existing variables was assessed in the second sample of school children (n = 218). This sample has been described in the Participants section of this article. In terms of evidence to support the PECK as a measure of the experience of being bullied, we predicted that the PECK scales would significantly discriminate and show moderate to large effects between young people who had identified themselves as targets of bullying and those who were not on an established self-report bullying measure (the OBQV). Specifically we predicted large effects for the association between the PECK verbal-relational bullying scale and the OBQV global bullying, verbal bullying, being excluded, and having rumors spread items. Similarly we expected large effects for the association between the PECK physical bullying scale and the OBQV physical bullying item. As evidence to support the PECK's ability to identify young people who were recognized as victims of bullying by their peers, we expected that the PECK would also significantly discriminate and show moderate to large effects between victims and nonvictims who had been identified by peer nomination. Specifically we predicted large effects for associations between the PECK relational-verbal scales and the verbal and relational bullying peer nomination items and between the PECK physical bullying scale and the physical bullying peer nomination item.

We also expected that all PECK scales would show moderate correlations with variables that have been identified as correlates of being bullied in the literature, including a positive relation with anxiety and depressive symptoms (e.g., Hawker & Boulton, 2000) and a negative relation with self-perceived social competence (e.g., Hodges & Perry, 1999). Similarly, we expected moderate positive relations with negative thoughts, particularly physical and social threat and personal failure. We expected a low but significant positive correlation with thoughts of hostility, given that a large proportion of children who are bullied also engage in bullying others (Graham, Bellmore, & Mize, 2006).

Measures

The revised OBQV (Olweus, 1996) contains questions on various aspects of bullying problems, including reported frequency on a global measure of being bullied as well as more specific forms of bullying (Olweus, 1996). The specific forms of bullying assessed for this study were verbal bullying (called mean names, made fun of, teased in hurtful way), being excluded (left out on purpose, excluded, ignored), physical bullying (hit, kicked, pushed shoved around, locked indoors), and having rumors spread (lies or false rumors spread about me made others dislike me). Respondents are first provided with a definition of bullying. Using the response category "*2 or 3 times a month*" (in the past couple of months) as a lower bound cut-point for identifying participants who have been significantly bullied, the OBQV is significantly associated with measures of social disintegration, self-esteem, and depressive tendencies (Solberg & Olweus, 2003).

Peer nomination was assessed according to standard peer assessment procedures (e.g., Coie, Dodge, & Coppotelli, 1982). Students were asked to list up to three "people in your grade who best match the descriptions" for nine items; the three bullying items ("Kids who get hit, kicked, or pushed around a lot," "Kids who get called names, laughed at, or made fun of a lot," and "Kids who get talked about behind their backs, are ignored, or left out of things a lot") were embedded among items that asked about nonbullying attributes (e.g., "kids who are good at sport," "kids who will help you if you are in trouble," "kids you don't like a lot"). The total number of nominations for each of the three bullying items received by each student participating in the study was then calculated and transformed into standardized scores within each grade level.

The Screen for Child Anxiety Related Emotional Disorders (SCARED, Birmaher et al., 1997) is a 38-item questionnaire. Factor analyses have shown a five-factor solution that corresponds with the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*) categories of childhood anxiety disorders. The SCARED has good concurrent validity, with scores related to measures of anxiety and depression in expected ways (Muris, Merckelbach, van Brakel, Mayer, & van Dongen, 1998). The Center for Epidemiological Studies—Depression Scale for Children (CES–DC, Weissman, Orvasschel, & Padian, 1980) is a 20-item questionnaire with moderate test–retest reliability and good internal consistency, and the questionnaire correlates significantly with other measures of childhood depression (Faulstich, Carey, Ruggiero, Enyart, & Gresham, 1986). The SPPC (Harter, 1985) is a 36-item self-report assessment of self-esteem with five specific domains: scholastic competence, social acceptance, athletic competence, physical appearance, and behavioral conduct. The social competence scale was used in the current analyses because it has been shown to identify children whose vulnerability to being bullied is affected by social factors (Egan & Perry, 1998). The SPPC has good internal and test–retest reliability and has satisfactory concurrent validity with child-, parent-, and teacher-reports of psychopathology (Muris, Meesters, & Fijen, 2003). The Children's Automatic Thoughts Scale (CATS, Schniering & Rapee, 2002) is a 40-item scale that assesses negative thoughts. Factor analysis provides a clear four-factor solution reflecting thoughts having to do with social threat, physical threat, loss, and hostility. Internal consistency of the scale is high, and the test–retest reliability over 1 month was adequate. The CATS has been shown to discriminate effectively between clinical and nonclinical samples and between clinically anxious and behaviorally disordered children and adolescents (Schniering & Rapee, 2002).

Results

Students were identified as having experienced a significant level of bullying if they reported having been bullied "*2 or 3 times a month*" or more on the OBVQ, which is the recommended lower bound cutoff point (Solberg & Olweus, 2003). Five items were analyzed in this study: the global bullying measure (20.8% of the sample reporting significant bullying), items assessing verbal bullying (15.7% significant bullying), being excluded from a group or completely ignored (15.3%), physical bullying (9.3%), and having

false rumors spread (11.1%). Independent sample *t* tests indicated that the PECK scales significantly discriminated between the groups based on all five self-report items, with small to moderate correlation coefficients, with the exception of the cyber bullying scale, which showed no relation with the global, being excluded, and physical bullying OBVQ items (see Table 4).

Students whose peer nomination scores were 1 standard deviation above their grade average were categorized as having a significant bullying peer nomination (10.6% of sample for "hit, kicked, pushed around," 10.1% for "called names, laughed at," and 14.3% for "talked about, ignored or left out"). Independent sample *t* tests indicated significant differences in mean PECK scale scores between those students identified on the physical bullying peer nomination item as being bullied and those identified as not being bullied. Similar differences were found on the total and relational-verbal PECK scales for groups of students identified by the verbal and relational peer nomination items (see Table 4). However, comparisons of students identified by the verbal and relational peer nomination items were not significant for the remaining PECK scales.

Further evidence was sought in terms of the bullying based on culture factor's capacity to provide a valid assessment of this domain of bullying. When the sample was split into those students who identified with the predominant Anglo-Saxon ethnicity and those who identified with minority ethnic groups, there was a significant difference on the bullying based on culture scale, $t(216) = -4.68$, $p < .001$. No other PECK scale showed significant differences between these minority and majority ethnic groups.

Pearson correlation coefficients between the PECK scales and the five scales of the SCARED, CES–DC depression, SPPC social competence, and CATS negative automatic thoughts in terms of physical threat, social threat, personal failure, and hostility are reported in Table 5. Overall, the relations between these measures

Table 4
Mean Scores on PECK for Children With and Without Significant Reports of Being Bullied or Peer Nominations

OBVQ cut-points	PECK Scale	Significant bullying *M* (*SD*)	Below significant bullying *M* (*SD*)	*t*	*r*
Global	Relational-verbal	1.34 (0.61)	0.59 (0.46)	−8.39***	.55
	Cyber bullying	0.23 (0.26)	0.16 (0.24)	−1.97	.13
	Physical	1.02 (0.66)	0.41 (0.42)	−6.44***	.48
	Culture	0.62 (0.68)	0.23 (0.39)	−4.02***	.33
	Total PECK	28.27 (12.81)	12.37 (8.86)	−8.52***	.57
Verbal	Relational-verbal	1.39 (0.60)	0.62 (0.48)	−8.83***	.52
	Cyber bullying	0.30 (0.31)	0.14 (0.22)	−3.17**	.26
	Physical	0.92 (0.63)	0.48 (0.5)	−4.30***	.32
	Culture	0.65 (0.73)	0.25 (0.40)	−3.51***	.32
	Total PECK	28.59 (12.74)	13.34 (9.89)	−8.54***	.51
Excluded	Relational-verbal	1.44 (0.56)	0.63 (0.50)	−9.09***	.53
	Cyber bullying	0.22 (0.24)	0.17 (0.25)	−1.10	.08
	Physical	1.04 (0.71)	0.46 (0.45)	−4.90***	.41
	Culture	0.70 (0.11)	0.26 (0.43)	−3.20**	.28
	Total PECK	29.45 (11.99)	13.49 (10.13)	−8.65***	.51
Physical	Relational-verbal	1.21 (0.71)	0.72 (0.56)	−4.05***	.27
	Cyber bullying	0.21 (0.24)	0.17 (0.25)	−0.65	.05
	Physical	1.25 (0.75)	0.48 (0.45)	−5.15***	.46
	Culture	0.67 (0.72)	0.28 (0.46)	−2.69*	.25
	Total PECK	28.96 (14.81)	14.77 (10.74)	−4.72***	.38
Rumors	Relational-verbal	1.52 (0.62)	0.66 (0.50)	−8.21***	.50
	Cyber bullying	0.35 (0.32)	0.15 (0.22)	−3.29**	.29
	Physical	0.89 (0.77)	0.52 (0.50)	−2.57*	.24
	Culture	0.76 (0.81)	0.27 (0.41)	−3.21**	.33
	Total PECK	30.59 (13.32)	14.17 (10.36)	−6.33***	.47
Peer nominations: Hit, kicked, or punched	Relational-verbal	1.23 (0.64)	0.73 (0.57)	−3.93***	.26
	Cyber bullying	0.30 (0.30)	0.16 (0.23)	−2.22*	.18
	Physical	1.08 (0.70)	0.51 (0.50)	−3.81**	.32
	Culture	0.71 (0.84)	0.29 (0.44)	−2.35*	.33
	Total PECK	28.48 (14.15)	15.02 (11.04)	−4.41***	.34
Peer nominations: Called names or laughed at	Relational-verbal	1.20 (0.63)	0.73 (0.57)	−3.62***	.24
	Cyber bullying	0.21 (0.22)	0.17 (0.25)	−0.70	.05
	Physical	0.95 (0.76)	0.53 (0.51)	−2.55*	.23
	Culture	0.55 (0.69)	0.31 (0.48)	−1.59	.25
	Total PECK	25.68 (14.87)	15.40 (11.33)	−3.90***	.26
Peer nominations: Talked about, ignored, or left out	Relational-verbal	1.29 (0.76)	0.69 (0.52)	−4.23***	.35
	Cyber bullying	0.25 (0.24)	0.16 (0.24)	−1.95	.13
	Physical	0.81 (0.77)	0.53 (0.50)	−1.95	.18
	Culture	0.52 (0.72)	0.30 (0.46)	−1.62	.15
	Total PECK	25.61 (16.43)	14.91 (10.53)	−3.51**	.31

Note. The significance levels of *r* are the same as that of *t*. PECK = Personal Experiences Checklist; OBVQ = Olweus Bully/Victim Questionnaire; *r* = point-biserial correlation.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 5
Pearson Correlation Coefficients Between the PECK Scales and Other Measures

Measure	Relational-verbal bullying	Cyber bullying	Physical bullying	Bullying based on culture	Total PECK
SCARED					
Somatic/panic	0.48***	0.20**	0.32***	0.26***	0.47***
Separation anxiety	0.47***	0.10	0.28***	0.32***	0.44***
Generalized anxiety	0.38***	0.13	0.25***	0.20**	0.36***
Social phobia	0.24***	0.01	0.23**	0.19**	0.26***
School phobia	0.42***	0.22**	0.28***	0.30***	0.43***
CES–DC depression	0.49***	0.21**	0.32***	0.24***	0.47***
SPPC social competence	−0.32***	−0.15*	−0.24***	−0.19**	−0.33***
CATS					
Physical threat	0.41***	0.23**	0.32***	0.30***	0.44***
Social threat	0.61***	0.31***	0.43***	0.33***	0.61***
Personal failure	0.35***	0.13	0.29***	0.27***	0.37***
Hostility	0.48***	0.20**	0.39***	0.24***	0.50***

Note. PECK = Personal Experiences Checklist; SCARED = Screen for Child Anxiety Related Emotional Disorders; CES–DC = Center for Epidemiological Studies—Depression Scale for Children; SPPC = Self-Perception Profile for Children; CATS = Children's Automatic Thoughts Scale.
* $p < .05$. ** $p < .01$. *** $p < .001$.

of psychopathology and the total and relational-verbal PECK scales were moderate, and their relations to the physical bullying and bullying based on culture scales were small in magnitude. The associations between these measures of psychopathology and the cyber bullying scale were small or not significant.

Study 3: Test–Retest Coefficients

In 2009, a third sample of 78 children and adolescents (42 male, 53.8%) was recruited from three schools (66% secondary school level). The students were aged between 10 years and 13 years (M = 12.00 years, SD = 0.90). The students provided written consent to complete the PECK on two occasions, 2 weeks apart. The students self-identified their ethnicity, with the most common groups being Anglo-Saxon (57.1%), Mediterranean (14.3%), East Asian (12.5%), East European (8.9%), and Middle Eastern (3.6%). This sample comprised 86.6% of the total student sample initially approached to participate in the study. The Pearson product-moment correlations for the PECK scales were r = .75 for relational-verbal bullying, r = .86 for cyber bullying, r = .61 for physical bullying, r = .77 for bullying based on culture, and r = .79 for the total PECK scale.

Discussion

The PECK is a self-report assessment of young people's bullying experiences, designed to include a broad range of bullying behaviors that covered the three key domains of bullying as well as more recently recognized forms such as cyber bullying. The value of the questionnaire is increased by the focus on behaviors rather than potentially differing conceptualizations of bullying. Self-reports may well have a broad ecological validity in that they cover all experiences of bullying rather than focusing on one setting, such as the classroom, or on only overt forms (Ladd & Kochenderfer-Ladd, 2002).

The large number of items maximizes the reliability of the scale scores and allows a continuous measure of the level at which a child is being bullied. A number of procedures were followed to ensure that the scale content matched the relevant domains of bullying behavior. Some items were retained in initial analyses despite low item-total correlations in order to cover important domains of bullying associated with the use of technology or based on culture, which might have contributed to the modest internal consistency of the bullying based on culture scale. However the remaining scales appeared to be internally consistent. The factor pattern matrix and CFA of the final questionnaire supported four factors that were consistent with the domains of relational and verbal bullying, cyber bullying, physical bullying, and bullying based on culture. These domains are important in that they account for separate portions of variance in total bullying scores. On the whole, the CFA structure coefficients showed that the PECK items were more highly correlated with their own factors than with other factors, with the exception, for example, of a small cluster of physical bullying items that loaded highly on the verbal-relational factor. However, given the evidence that young people tend to be bullied across a number of domains, this finding is not unexpected. The data were also consistent with a second-order bullying factor with presumed direct effects on these four lower order factors. It must be noted however, that the sample size for the CFA was somewhat low, and these analyses need to be interpreted with caution. The bullying based on culture scale showed a significant difference between the scores of those students from the predominant Anglo-Saxon group, compared with those students from minority ethnic groups, providing evidence that this scale is tapping into bullying relevant to culture.

Evidence has been presented to support the PECK as a valid assessment of the experience of being bullied, particularly the more established domains of relational, verbal, and physical bullying. As expected, large correlation coefficients were found for related scales within the domains of global, verbal, relational, and physical bullying. The smaller effects found for the cyber bullying and bullying based on culture scales in relation to other bullying assessments might reflect the absence of these domains in earlier measures. It is also of interest that the peer nomination assessments, relative to the self-report OBVQ, had smaller associations with the PECK scales, particularly for the verbal bullying and relational bullying items. This finding may be due to shared

method variance between the two self-report measures but also may be due to students being less aware of these types of bullying being inflicted on their peers than the more overt physical bullying behaviors. The results are consistent with prior findings of low to moderate correlations between different methods of bullying assessment. For example, self-report is likely to tap a unique aspect of the experience of being bullied, whereas peer reports provide a normative perspective. It appears that the PECK, with a focus on specific behaviors, is able to assess the experience of being bullied.

The PECK total and relational-verbal scales showed expected associations with theoretically related variables, with higher levels of bullying on the PECK significantly correlated with higher self-reported anxiety, depression, and negative automatic thoughts. Higher scores on these scales of the PECK were also associated with lower perceived social competence. Although these moderate to strong correlations were expected, it is difficult to exclude the possibility that the PECK is merely a measure of distress or psychopathology in general in the absence of evidence of divergent validity. However, expected nonsignificant correlations with measures of psychopathology might be difficult to obtain. For example, findings that a large proportion of children who are bullied are also bullies themselves (Graham, Bellmore, & Mize, 2006) suggest that significant associations with measures of oppositional behaviors or impulsivity would not be unexpected, as demonstrated by the moderate correlation with the CATS scale of hostility. The PECK physical bullying subscale was only moderately associated with the measures of psychopathology, consistent with the idea that physical bullying may be less psychologically hurtful than relational-verbal bullying.

The cyber bullying and bullying based on culture scales had small, often nonsignificant associations with the measures of psychopathology, and it is relevant that these scales differed from the other PECK scales in other ways. The cyber bullying scale was normally distributed, and its direct effect on a higher order bullying factor was not as large as the other PECK scales. Cyber bullying may therefore be experienced by a broader range of school students, and not all of these students may be significantly distressed by its occurrence. The bullying based on culture subscale demonstrated only acceptable internal consistency and is unlikely to be relevant to all students. Again, it is possible that students in our sample who experienced bullying based on culture may not have the same response in terms of psychopathology as their peers who experience bullying in other domains. However, future research is required before any firm conclusions can be reached about these relations.

There are a number of limitations that require discussion. Although the sample sizes were adequate, the participation rate was low, particularly for the first and second samples in which both student and parent active consent was required. It is possible that the low participation rate may have limited the representativeness of the sample, although the rates of self-reported bullying were consistent with other samples in the literature, with approximately 20% of the sample reporting significant levels of bullying as measured on the Olweus questionnaire. In terms of conceptual limitations, the questionnaire did not assess some of the elements required in current definitions of bullying, such as repetition, intent of aggression, and the power differential. However, it is arguable whether these elements are adequately assessed in any current measures of bullying, including the direct questioning method. Victims of bullying themselves may not be able to assess accurately the intent of an aggressor (Greif & Furlong, 2006). Furthermore, there is little empirical evidence to say that these elements are critical to the definition of bullying.

In conclusion, it appears that the PECK provides a promising assessment of a child's experience of bullying behaviors that will be especially useful when there is a need for a dimensional measure of bullying based on well-operationalized behaviors. The use of this questionnaire overcomes problems associated with direct single-item assessment of bullying, in which different subgroups of children can conceptualize bullying in different ways and may be more or less willing to report having been bullied. As such, the PECK has the potential to inform both theory and practice in bullying research.

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