

Reliability and validity of the Peer Relation Questionnaire in a sample of Greek school children and adolescents

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Abstract

Bullying among children and adolescents can have detrimental effects on their physical and mental health. The first step in the identification of bullying is the detection of relevant signs and behaviours, with the use of appropriate instruments. The widely used Peer Relation Questionnaire (PRQ) has been developed to measure bullying behaviour in children and adolescents. The aim of this study was to translate and validate this instrument in the Greek language in a school sample of children and adolescents. A sample of 193 students (mean age \pm SD 11.44 \pm 1.26 years, girls 49.7%), was recruited from elementary and junior high schools of the public and private sector, in the capital of Athens, Greece. Along with the Peer Relation Questionnaire, the Stress in Children questionnaire and a structured inquiry regarding satisfaction from various aspects of life were used to assess the criterion validity of the Peer Relation Questionnaire. Results revealed good psychometric properties of the questionnaire in the Greek language. The principal component analysis resulted in two subscales that demonstrated an adequate internal consistency and a significant correlation with stress and satisfaction parameters, suggesting satisfying criterion validity. Meaningful associations between demographic characteristics and the subscales were also found. The Greek version of the Peer Relation Questionnaire-short form can be used as a valid tool to measure bullying behaviour in children and adolescents.

Introduction

Bullying is a major social phenomenon affecting not only children and adolescents, but adults as well (Rettew and Pawlowski, 2016). Although no scientific or legal definition exists, it is considered as an ongoing and deliberate misuse of power through repeated verbal, physical and/or social behaviour, that intends to cause physical, social and/or psychological harm (Olweus *et al.*, 1994). Victimization, aggressive behaviour and violence constitute the core elements of bullying (Smith *et al.*, 2016).

Bullying can be perceived as a chronic stressor; data from a study conducted in Sweden in 2010, in a sample of

392 students of the 8th and 9th grades showed that 'being bullied' was associated with higher perceived stress levels in both males and females (Van Ryzin and Roseth, 2018). Verbal bullying, one of the most common forms of bullying, is a high-risk factor for stress, as it represents a latent manipulation aiming to exclude victims from their social networks (Osika *et al.*, 2007). Bullying can affect children's mental and physical health (Paris *et al.*, 2017; Sulkoski *et al.*, 2018; Wandera *et al.*, 2017). From the mental health point of view, bullying has been linked to various disorders such as anxiety, psychosis, suicidality, and self-harm, which can appear during childhood and adolescence or emerge later in adulthood (Arseneault *et*

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al., 2010; 2006; Wolke *et al.*, 2013; Dieter *et al.*, 2013). The level of psychological trauma caused by bullying has been compared to that caused by abandonment or other severe types of maltreatment. Via peer bullying and victimisation, children may become less able or less inclined to relate to school and classmates (Kitagara *et al.*, 2014).

The first step in the identification of bullying is the detection of relevant signs and behaviours, which can be achieved with the use of appropriate instruments. One of these instruments is the Peer Relation Questionnaire (PRQ) that has been developed by Rigby and Slee (Rigby and Slee, 1993) with an aim to detect bullying behaviour in children and adolescents. The purpose of this study was to validate the PRQ in Greek school children and adolescents. The main hypothesis was that PRQ will correlate with the Stress in Children (SiC) questionnaire and a structured inquiry regarding several aspects of life satisfaction.

Materials, Methodologies and Techniques

Translation procedure

After receiving the authors' permission, the PRQ instrument was translated backward-forward, according to the World Health Organization's guidelines for the adaptation of instruments. A pre-test of the translated questionnaire was then held to identify the presence of unclear expressions. The seven participants of the pre-test were representative of the target population regarding age.

Participants and Procedure

The study was conducted in the capital of Athens in Greece, between February and July 2019. The questionnaire was distributed to various elementary and junior high schools of the private and public sector. Eligible students were children and adolescents aged 8 to 14 years, able to write and read in the Greek language, who provided a written, signed consent form by a parent or legal guardian. Participation was voluntarily, anonymous and no remuneration was provided.

Measures

Demographic data: Participants were asked about their basic demographic characteristics which included sex, age and presence of siblings.

Peer Relation Questionnaire for children (PRQ): The Peer Relation Questionnaire (short form) is a self-report measure of bullying. It consists of 12 items and three subscales (tendency to bully others, tendency to be victimized by others and tendency to act in a pro-social or cooperative manner). Respondents report the frequency in which they experience each statement. Answers are scored in a 4-point Likert scale. Higher scores indicate greater frequency of each behaviour measured (Rigby and Slee, 1993).

Stress in Children Questionnaire (SiC): The Stress in Children questionnaire consists of 21 items examining the stress encountered by children in various aspects of their life. It was designed by Osika (Osika *et al.*, 2007) and has been used in children aged between 9 and 12 years. Questions are rated on a Likert scale with four possible answers. Higher scores indicate higher levels of stress.

Satisfaction: A structured inquiry was developed by the research team to assess the students' level of school and self-satisfaction. Children reported the frequency they felt satisfied by answering on a 4-point Likert scale, from 1 = never to 4 = very often.

Statistical analysis

Descriptive analyses were performed to calculate means, frequencies, and standard deviations (SD). The Kaiser-Meyer-Olkin (KMO) statistic and Bartlett's Sphericity Test were used to examine sample's adequacy. Principal component analysis (PCA) was performed to identify items' factors. The appropriate number of factors was identified using the Scree-plot, since the study sample was not large enough to support the Kaiser criterion. The orthogonal varimax rotation was used for loadings of each item on derived factors to be maximized. Criterion-related validity was assessed by Pearson's rho correlations with SiC and satisfaction measure. Cronbach's alpha values were calculated to assess internal consistency of the identified factors. The PRQ's subscales scores were assessed for meaningful associations with the other measurements of the study. The level of significance p value was 0.05. The SPSS statistical software version 22.0 for Windows was used for all statistical analyses (SPSS Inc., Chicago, IL).

Results

The main characteristics of the study's sample are presented in Table 1.

Most participants were male (50.3%), with a mean age of 11.44 years, and had at least one sibling. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis (KMO = 0.835) and all KMO measures for individual items were >0.603 , which is above the acceptable limit of 0.5. Bartlett's test of sphericity $\chi^2 = 770.00$, $p < 0.001$, indicated that correlations between items were large enough to perform Principal Component Analysis (PCA). The results of the PCA of the 12 items with orthogonal rotation (varimax) are presented in Table 2.

Table 1. Sociodemographic and other characteristics of the study sample (N = 193).

Boys N (%)	97 (50.3)
Girls N (%)	96 (49.7)
Age in years, mean (SD)	11.44 (1.26)
Siblings, N (%)	118 (61.1)
Stress score, mean (SD)	2.05 (0.39)
Satisfaction score, mean (SD)	32.50 (5.14)

Table 2. Rotated factor loadings of the principal components analysis (PCA) for 12 items of PRQ (N=193).

Item	“Bully/Victim Subscale”	“Social Subscale”
I get called names by others	0.518	
I get picked on by others	0.561	
I am part of a group that goes round teasing others	0.790	
I like to make others scared of me	0.830	
I enjoy upsetting wimps	0.412	
I like to get into a fight with someone I can easily beat	0.826	
Others make fun of me	0.659	
I get hit and pushed around by others	0.701	
I like to make friends		0.538
I like to help people are being harassed		0.801
I share things with others		0.778
I enjoy helping others		0.743
Eigenvalues	4.39	1.75
% of Variance	36.55	14.57
Cronbach’s alpha	0.740	0.727

PRQ: Peer Relation Questionnaire

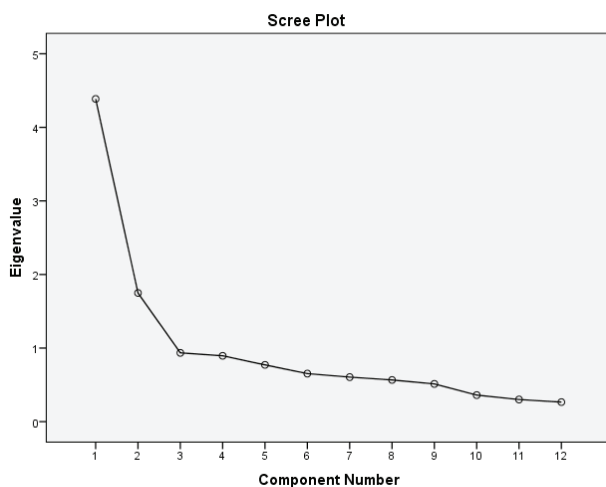


Figure 1. Scree-plot of factors’ Eigenvalues regarding the PRQ.

Two components had eigenvalues greater than Kaiser’s criterion of 1. The average of communalities was 0.51, which is below the Kaiser’s criterion of 0.6 to be accurate. The Scree-plot (Figure 1) supported the choice for the selection of two components according to the inspection of inflexion points, which explained 51.12% of the variance.

The clusters of items, according to factor loadings (>0.3), within the two components were interpreted as following: “Bully/Victim Subscale” (BVS), “Social

Table 3. Descriptive characteristics of the two subscales of the PRQ.

	Items	Range	Mean	SD	Minimum	Maximum
Bully/Victim Subscale	8	16.00	11.82	2.91	8.00	24.00
Social Subscale	4	8.00	13.26	2.06	8.00	16.00

PRQ: Peer Relation Questionnaire

Table 4. Correlations (Pearson’s rho) between PRQ subscales.

	“Bully/victim subscale”	“Social Subscale”
“Bully/victim subscale”	1	
“Social subscale”	-0.34*	1

PRQ: Peer Relation Questionnaire

*Correlation is significant at the 0.05 level (2-tailed)

Subscale” (SS). Table 3 presents the mean scores of each subscale along with the theoretical and observed values of the range.

Table 4 presents the correlations between the two subscales.

The two subscales are negatively correlated to each other, indicating that children who tend to receive bullying or bully others, are more likely to have less social behaviour. Table 5 presents meaningful associations between the PRQ subscales and study variables.

Table 5. Association between PRQ subscales and other study measurements.

Characteristics	“Bully/victim subscale” Mean (SD)	“Social subscale” Mean (SD)	Characteristics	“Bully/victim subscale”	“Social subscale”
Sex			Age		
Boys	14.64 (5.41)	12.47 (2.68)	Pearson’s rho	0.21*	-0.18*
Girls	14.94 (5.90)	12.01 (2.52)	p-value	< 0.01	< 0.01
Statistics	t = - 0.36	t = 1.23			
p-value	0.71	0.22	Stress score		
Siblings			Pearson’s rho	0.28**	-0.21**
No	15.50 (6.13)	11.77 (2.59)	p-value	<0.01	<0.01
Yes	14.34 (5.30)	12.54 (2.58)			
Statistics	t = 1.34	t = -2.00	Satisfaction		
p-value	0.18	0.04*	Pearson’s rho	-0.20**	0.16*
			p-value	0.01	0.05

PRQ: Peer Relation Questionnaire

*Correlation is significant at the 0.05 level (2-tailed)

**Correlation is significant at the 0.01 level (2-tailed)

Significant associations with the subscales can be summarized as follows: i) children and adolescents with siblings demonstrated higher score in the social subscale of the PRQ, ii) age was positively correlated to the bully/victim subscale and negatively correlated to the social subscale of the PRQ, iii) higher stress of children and adolescents was significantly correlated to bully/victim behaviour and negatively correlated to social behaviour, and iv) higher satisfaction was negatively correlated to bully/victim behaviour.

Discussion

The current study was the first attempt to validate the PRQ in a sample of Greek school children and adolescents. The scale has been widely used as a measure of bullying behaviour mainly in cross-sectional studies. However, the fact that the PRQ has not been translated and validated in other languages apart from the original (English), restricts comparisons with other countries. In this study, the PCA resulted in two subscales (bully/victim subscale, social subscale) unifying two of the three subscales described in the original study of the instrument. A plausible explanation could be the fact that children and adolescents who tend to bully others seem to be subjected to bullying themselves, making it difficult to differentiate bullies and victims of bullying (Cho, 2017).

As the study’s results have shown, children and adolescents with siblings demonstrated higher scores in the social subscale of the PRQ, thus, having siblings was a protective factor with respect to being victimized. Furthermore, age was positively correlated to the bully/victim subscale, while the opposite correlation was found regarding the social subscale of the PRQ. Particularly, younger respondents (7-8 years of age) experienced more general aggression and mobbing than

older participants. This could be explained by the fact that as age progresses, children and adolescents engage in other forms of communication and are introduced in cyber-bullying (Vlachou *et al.*, 2011; Monks *et al.*, 2006). The initial hypothesis of the study that stress would be correlated with bully/victim behaviour was verified. This could be attributed to the fact that being either a bully or a victim constitutes a stressful condition. The negative correlation of stress with the social behaviour subscale may be explained by the fact that having a strong social network and bonds help individuals build better coping strategies (Münzer *et al.*, 2017). In addition, a large cross-sectional study of 43,667 children and adolescents aged 11 to 15 years, from 9 European countries, found that any form of social support was related to less violent behaviour among school students (Mischel *et al.*, 2020; Holt *et al.*, 2007; Mishna *et al.*, 2016). Numerous studies have revealed a significant interaction between bully/victim groups and peer social support (Alcantara *et al.*, 2017); adolescents with access to social support systems are less victimized and have higher levels of self-perception (Aldridge *et al.*, 2019). Perception of low social support from peers, school and family can increase the risk for relational, verbal and physical victimization (Lin *et al.*, 2020; Chen *et al.*, 2018; Estevez *et al.*, 2019).

This study has some limitations. The generalization of the results cannot be verified, as the sample was not representative of other districts of Greece with different sociocultural backgrounds. Given the young age of participants, a test-retest procedure was not feasible, which might have affected reliability. Despite these restrictions, the adequacy of the sample size and the good criterion validity allow the use of the questionnaire in future studies in Greek elementary and high school populations. Future research should focus on other age groups as well.

In conclusion, the Greek version of the PRQ-short form demonstrated good psychometric properties and it can be safely used as a bullying measure in future studies of children and adolescents.

Key Points

- Bullying is a major social phenomenon in schools.
- Bullying can cause physical and psychological harm in children and adolescents.
- The Peer Relation Questionnaire (PRQ) is a widely used self-report measure of bullying.
- Validation of the PRQ was performed in a Greek sample of school children and adolescents.
- The Greek version of the PRQ-short form demonstrated good psychometric properties and satisfying internal consistency.

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