

QCA

Aggressive Behavior Questionnaire: Two validation studies

Raquel Raimundo
Alexandra Marques Pinto
FPCE University of Lisbon, Portugal

Introduction (1)

- Aggressiveness between peers is a **significant problem in schools** all over the world (Marsh, et al., 2001).
- The results from longitudinal studies have proved that **aggressiveness** in childhood and adolescence is the **best behavioral predictor of further psychological adjustment difficulties** (e.g. Bierman, et al., 1993; Crick, 1996; Ladd & Profilet, 1996; Parker & Asher, 1987) and, isolated, is the factor that most contribute to peer rejection (e.g. Dodge & Coie, 1987; Zakriski, et al., 1997).

Introduction (2)

- The evaluation of aggressiveness in children and adolescents can be done by using different **sources**: the teacher (questionnaire), external observer (direct or indirect observation), peers (peers nomination by questionnaire or open interview) and the subject himself (self report questionnaire) (e.g.: Atlas & Pepler, 1998; Bierman, et al., 1993; Crick, 1996).
- All sources have their methodological **strengths** and **weaknesses** (Ladd & Profilet, 1996). The fastest way to evaluate aggressiveness is by using self report questionnaires (e.g.: Guerin & Hennessy, 2002; Olweus, 1997; Whitney & Smith, 1993). However this methodology has some associated problems such as social desirability (Fonseca, et al, 1994; Pellegrini & Bartini, 2000).
- The **better way** to collect data and evaluate aggressiveness seems to be by using **hetero-reports methodologies** (Bierman, et al., 1993; Coie & Dodge, 1998).

Introduction (3)

- The majority of the investigations are based on only one source of measure (Bierman, et al, 1993), although literature advises to **use more than one source** in order to get **better results** (Bierman, et al., 1993; Coie & Dodge, 1998).
- The **inexistence of portuguese scales** that could evaluate only aggressive behaviors in the school context led us to elaborate the QCA. The other scales evaluate more general behaviors, such as antisocial behavior, in more than one context (Fonseca, et al, 1994; 1995; 1999), or evaluate only one specific kind of proactive aggression, such as *bullying* (Carvalhosa, et al., 2001; Pereira, 2002).

The Scale: QCA

- The QCA (Questionnaire of Aggressive Behaviors) is aimed to evaluate children and adolescents aggressive behaviors. The scale has **6 items** which evaluate **peers** and **teachers** perceptions regarding pupils **aggressiveness frequency**, in the school context.
- More specifically, QCA is a **hetero-report scale** aimed to evaluate peers and teachers perceptions of aggressiveness of pupils from the **4th until the 9th grades**.

Methodology (1)

- The QCA was **originally constructed** based on "The Teacher Rating Instrument" from Dodge and Coie (1987), on semi-structured interviews made by Skinner and colleagues (1991) and on literature about types of aggressiveness. The items were structured, modified and, some of them, grouped by means of their similarity concerning the type of aggression.
- The QCA items **include direct forms of aggressiveness**, such as physical, against objects and reactive aggression **and indirect forms of aggressiveness**, such as verbal, relational and proactive (*bullying*) aggression. One example of item is: "Hits, punches, kicks, bites or pushes colleagues".
- The responses evaluate the frequency of aggressiveness in a **5 points Likert scale** (1=never and 5=almost always).

Methodology (2)

- The QCA **first** collective **application** was carried out in early 2004, in 5 classes, from the 5th until the 9th grades with a **validation purpose**. Its items were then analysed and selected, as well as its final format (Raimundo, 2005).
- After data analysis some modifications were carried out in order to make the questionnaire more understandable by children and adolescents.
- The second application of the QCA (**first study**) was carried out between March and June (2004) in order to **evaluate** the **psychometric characteristics** of the scale and to **evaluate peers** and **teachers perception of aggressiveness** regarding pupils, as well as to analyse the relation between perceived aggressiveness and the peer conflict stressor and the relation between perceived aggressiveness and coping strategies used to deal with peer conflict stressor (Raimundo, 2005; Raimundo & Pinto, 2007).

Methodology (3)

- 1st study:
 - 443 children and adolescents (218 boys and 225 girls) and 22 teachers (22 classes), from 5 public schools
 - Age: 9-17 years old (M=12.86; SD=1.63)
 - 5th until 9th grades
 - SES (Graffar Scale): M=3.13; SD=1.31 (5 levels; 1=low SES and 5=high SES)
 - Each pupil and teacher nominated the three more and three less aggressive pupils in class. From the 22 classes, 87 pupils were nominated as being the more aggressive and 97 pupils as being the less aggressive in the class. After the nomination, peers and teachers evaluate the degree of aggressiveness of those pupils.

Methodology (4)

- The third application of the QCA (**second study**) was carried out between December (2006) and June (2007) in order:
 - to **confirm** the **good psychometric characteristics** of the scale that have emerged from the first study;
 - to **evaluate** the **efficacy** of a **social and emotional learning program** focused in several competencies aimed to help children to transite properly from the 4th to the 5th grade.
- The QCA was used as an evaluation instrument of pupils aggressiveness, by the **teachers, before** the program started and **after** the program has finished.

Methodology (5)

- 2nd study:
 - 157 children (81 boys and 76 girls), from 5 public schools
 - Age: 8-15 years old (M=9.48; SD=.93)
 - 4th grade only
 - SES (Graffar Scale): M=3.17; SD=1.38 (5 levels; 1=low SES and 5=high SES)
 - Each pupil was evaluated by his/her teacher regarding their frequency of aggressiveness.

Results (1)

Table I: QCA Descriptive Statistics (First Study)

Items	Reports	Min.-Max.	Mean	Standard Deviation
1	Peers	1-5	2.50	1.14
	Teachers	1-4	1.57	.91
2	Peers	1-5	3.47	1.10
	Teachers	1-5	2.22	1.33
3	Peers	1-5	2.02	1.11
	Teachers	1-5	1.69	1.07
4	Peers	1-5	2.21	1.11
	Teachers	1-4	1.61	.87
5	Peers	1-5	3.62	1.28
	Teachers	1-5	2.25	1.32
6	Peers	1-5	2.92	1.38
	Teachers	1-5	1.96	1.18

Results (2)

Table II: QCA Descriptive Statistics (Second Study)

Items	Evaluation Moment	Groups	Min.-Max.	Mean	Standard Deviation
1	Pre-Test	Intervention	1-5	1.80	.998
		Control	1-5	1.94	1.074
1	Post-Test	Intervention	1-4	1.72	.946
		Control	1-5	2.02	1.244
2	Pre-Test	Intervention	1-5	1.98	1.012
		Control	1-5	2.23	1.113
2	Post-Test	Intervention	1-4	1.89	.969
		Control	1-5	2.33	1.115
3	Pre-Test	Intervention	1-5	1.59	.917
		Control	1-5	2.06	1.092
3	Post-Test	Intervention	1-4	1.5	.820
		Control	1-5	2.02	1.213
4	Pre-Test	Intervention	1-3	1.48	.781
		Control	1-5	1.58	.997
4	Post-Test	Intervention	1-4	1.34	.757
		Control	1-5	1.38	.844
5	Pre-Test	Intervention	1-5	2.30	1.315
		Control	1-5	2.37	1.121
5	Post-Test	Intervention	1-5	2.23	1.240
		Control	1-5	2.46	1.179
6	Pre-Test	Intervention	1-5	1.93	1.142
		Control	1-5	2.19	1.138
6	Post-Test	Intervention	1-4	1.74	1.052
		Control	1-5	2.17	1.184

Results (3)

■ There were **moderate levels** of perceived **aggressiveness** frequency, below the mean point, in both studies.

■ Scale Reliability

Table III: Scale Reliability

	1 st Study			2 nd Study				
	α Cronbach	Item-Scale Correlation			α Cronbach	Item-Scale Correlation		Test-Retest
		Min	Max			Min	Max	
Peers	.96	.86	.67	Pre-Test	.95	.83	.96	r = .92 (p < .001)
Teachers	.90	.97	.93	Post-Test	.95	.81	.95	

■ The correlation found between peers and teachers reports was .87 (p < .001).

Results (4)

■ Scale Validity

■ Procedures of **content (facial) validity** were used in the initial phase of the QCA construction.

■ Construct validity (factorial):

■ **1st Study: Single factor**, which explain **75.25%** of total variance. The items correlate with the scale single factor, between .69 and .96.

■ **2nd Study: Single factor**, which explain **81.33%** of total variance in pre-test and **80.43** in post-test. The items correlate with the scale single factor, between .83 and .96 in pre-test and .82 and .95 in post-test.

Results (5)

- **Empirical Validity** regarding gender: **boys** (peers $M=2.37$, $SD=.71$; teachers $M=2.25$, $SD=.90$) were more frequently nominated as **more aggressive** by their peers ($t=8.339$; $gI=121.931$; $p<.000$) and teachers ($t=5.892$; $gI=124.826$; $p<.000$) than girls ($M=1.41$, $SD=.61$ e $M=1.40$, $SD=.72$, respectively).
- The methodology used in this study allowed us to isolate the pupils considered as the more aggressive from the pupils considered as the less aggressive in each class. Pupils nominated as the more aggressive (peers $M=2.73$, $SD=.41$; teachers $M=2.64$, $dp=.70$) presented significantly higher global aggressiveness values, concerning peers reports ($t=25.093$; $gI=106.664$; $p<.000$) and teachers reports ($t=16.591$; $gI=16.591$; $p<.000$) when compared with pupils nominated as the less aggressive ($M=1.24$, $SD=.25$ e $M=1.11$, $SD=.22$, respectively).

Results (6)

- **Discriminant** Validity was obtained (second study), by comparing the results from the intervention and control groups in the two moments (pre and post test)
- Data analyses were conducted with **Analyses of Variance 2** (Group: intervention vs. control) X 2 (Time: pre-test vs. post-test), with repeated measures in the last factor (class as covariate).
- A **significant interaction effect** was obtained [$F(1, 130)= 4.084$; $p<.045$]; interaction group reduced aggressive behaviors while control group increased.

Results Interpretation

- In our first study, not all the pupils were evaluated by the QCA; only the **three more** and the **three less aggressive** nominated by each peer and teacher. We have to take this into consideration when interpreting the results.
- Factor analyses lead us to conclude that this scale **evaluates** an **unidimensional construct**. The single factor found in the two studies explains, at least, more than 75% of the results variance. Interpretation should be made with reference to global aggressiveness. Conclusions regarding other forms of aggressiveness, such as physical or relational aggressiveness, are ill advised.
- QCA does **not have norms** yet. Descriptive statistics from this study containing means and standard deviations can be used as reference regarding future utilization of the scale.

Strengths of the Scale (1)

- The scale can be filled out by two types of school agents: **peers** and **teachers**, who are considered the **most reliable raters** regarding aggressiveness (Dodge & Coie, 1987).
- The **reduced number of items** of the QCA facilitates peers and teachers **motivation to fill out the questionnaire**, if they have to evaluate all the pupils of their class.
- The QCA was constructed based on a **global vision of aggressiveness** which include the more direct forms of aggressiveness (physical, against objects and reactive), as well as the more indirect forms (verbal, relational and proactive).

Strengths of the Scale (2)

- The studies that led to the QCA construction and validation legitimize its use on psychological investigation and individual or educational intervention. **QCA reliability, construct, empirical and discriminant validation were certified.**
- The QCA can be a **useful instrument** in **psychological evaluation** and **educative intervention** by helping in the design of intervention programs aimed to promote healthy behaviors and reduce inadequate behaviors, such as aggressiveness.
- We **continue** to **implement a social and emotional learning program** focused in several competencies aimed to help children to transite properly from the 4th to the 5th grade. The **QCA** is being used as an **evaluation instrument** of pupils aggressiveness, by the teachers, before the program started, after the program has finished and also 6 months later (*follow-up*).

Limitations and Future Studies

- The scale is better used to **evaluate global aggressiveness**, although includes direct and indirect forms of aggression. The use of other scales should be taken in consideration in situations where is a need to evaluate distinct forms of aggressiveness.
- The QCA was constructed to be used when collective samples are required, such as in the **school context**. For individual psychological evaluation there are other scales that can give more detailed information about individuals.
- **Additional studies** are needed to evaluate other psychometric characteristics of the scale, such as **convergent** and **predictive validity**.
- **Studies** with pupils in **private schools** are also advisable.
- Finally, in future studies should be taken in consideration that, as important as the frequency of the **aggressive acts** is their **intensity**. Some aggressive acts can occur sporadically, but have a huge impact on their victims.

Thank you for your attention!

raquelraimundo@portugalmail.pt