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Universidad Complutense de Madrid
Madrid, España

Available in: http://www.redalyc.org/articulo.oa?id=17223158019

The Spanish Journal of Psychology,
ISSN (Printed Version): 1138-7416
psyjour@sis.ucm.es
Universidad Complutense de Madrid
España

www.redalyc.org
Non-Profit Academic Project, developed under the Open Acces Initiative
Perceived Control and Anxiety in Portuguese Children

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The central role of perceived control in the development of anxiety disorders is proposed by several theoretical models. The main objective of the present study was to examine the relation between perceived control and anxiety in Portuguese school-age children. To accomplish this objective we developed the Portuguese short form of the Anxiety Control Questionnaire for Children (ACQ-C, Weems, 2005; Pereira & Barros, 2010), whose psychometric studies are presented. The sample comprised 238 children, aged 8 to 15 years, from the general population attending Portuguese schools. Children completed measures of perceived control (ACQ-C) and their anxiety (Screen for Child Anxiety Related Emotional Disorders – Revised, SCARED-R). The psychometric studies indicate good psychometric characteristics of the Portuguese ACQ-C short form, in particular a high internal consistency (α = .85) and an adequate temporal stability (r = .60, p = .002). Results show a significant negative association between perceived control and anxiety symptomatology, providing partial support for models that assign a central role to control beliefs in explaining the development of anxiety disorders. These results also suggest the importance of considering the perception of control as a prime target for preventive actions and intervention aimed at reducing anxiety in school aged children.

Keywords: control beliefs, anxiety, school age children.

Diferentes modelos teóricos sugieren un papel central de la percepción de control en el desarrollo de trastornos de ansiedad. El objetivo principal del presente estudio fue examinar la relación entre la percepción de control y la ansiedad en niños portugueses en edad escolar. Para lograr este objetivo desarrollamos una versión portuguesa del Cuestionario de Control de la Ansiedad para Niños – forma abreviada (ACQ-C, Weems, 2005; Pereira & Barros, 2010), cuyos estudios psicométricos se presentan. El estudio se realizó con una muestra de 283 niños de la población general que asisten a escuelas primarias, con edades comprendidas entre los 8 y los 15 años. Los niños completaron colectivamente la forma abreviada del Cuestionario de Control de la Ansiedad para Niños (ACQ-C) y la versión revisada del Cuestionario de Evaluación de Trastornos Emocionales Relacionados con la Ansiedad en Niños (SCARED-R). Los estudios psicométricos indican buenas características psicométricas de la versión portuguesa de ACQ-C, en particular una alta consistencia interna (α = .85) y una adecuada estabilidad temporal (r = .60, p = .002). Los resultados muestran una asociación negativa significativa entre la percepción de control y la sintomatología de la ansiedad, proporcionando apoyo parcial a los modelos que asignan un papel central a la percepción de control en la explicación del desarrollo de los trastornos de ansiedad. Estos resultados también sugieren la importancia de considerar la percepción de control como un objetivo prioritario para las acciones preventivas y de intervención dirigidas a reducir la ansiedad en los niños en edad escolar.

Palabras clave: creencias de control, ansiedad, niños en edad escolar.

This study was supported by a grant awarded to the first author by Fundação para a Ciência e Tecnologia (SFRH / BPD / 63960 / 2009). The authors thank Professor Carl Weems from the University of New Orleans, for all his encouragement and support. Additionally, they would like to thank, all the schools, families and children for participating in this study and making it possible.

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Perceived control over aversive or threatening events is considered an important risk or protective factor for anxiety disorders (Muris, 2007). Recent models (Barlow, 2002; Chorpita, 2001; Chorpita & Barlow, 1998) suggest that the perception of control over anxiety relevant events is central to explain the development of anxiety problems. In particular, that the decrease in the immediate sense of control is associated with the immediate expression of anxiety (Sanderson, Rapee, & Barlow, 1989). According to these models, the belief that events and reactions associated with anxiety are not controllable is what makes anxiety a problem for individuals with anxiety disorders (Weems, Silverman, Rapee, & Pina, 2003).

The triple vulnerability model of Barlow (2000) proposes low perception of control as an important vulnerability factor for the development of negative affective states, including anxiety and depression. This model, which integrates data from different studies (e.g., Chorpita, Brown, & Barlow, 1998), identifies how some family and environmental factors contribute to the emergence of certain cognitive styles and beliefs related to control. The influence of these contexts occurs since the first months of a child’s life (Chorpita et al., 1998). The child’s sense of control is promoted through the ability of the child to influence parental behavior. That is, when parents provide frequent opportunities for children to experience control over their environment, by responding to their child’s requests for reinforcement in a consistent and predictable manner. On the other hand, parents who allow their children to explore the world around them, also promote a proper sense of control, as the child can develop the skills needed to cope with various environmental events, both expected and unexpected. Thus, a sense of control is promoted by positive parenting styles characterized by a greater sensitivity to the needs of children, adequate responsiveness and, simultaneously, by levels of parental control that allow for the development of autonomy in children (McLeod, Wood, & Weisz, 2007, Muris & Merckelbach, 1998; Siqueland, Kendall, & Steinberg, 1996; VanBrakel, Muris, Bögel, & Thomassen, 2006).

Stressful life events children experience during development are another precursor of their sense of control. The early experiences with uncontrollable events are conceptualized as an important path for the development of negative emotions. Some animal laboratory studies, reviewed by Barlow (2000), suggest that certain stress-inducing experiences related to unforeseen and uncontrollable life events can lead to more or less permanent changes in brain function, particularly in the neurobiological processes associated with anxiety states.

Thus, the triple vulnerability model (Barlow, 2000) assigns a central role to the development of control beliefs in the promotion of a general psychological vulnerability for anxiety disorders. According to this model, it is the synergy between psychological vulnerability, biological vulnerability and negative life events that enhances the probability of the emergence and development of anxiety disorders.

Chorpita (2001) sought to explain how a cognitive style, characterized by a tendency to perceive and process life events as uncontrollable, contributes to the development of high levels of anxiety. According to this author, the lack of perceived control leads, at a biological level, to a greater activation of the Behavioral Inhibition System. This system has the function of alerting the individual to the possibility of danger. The activation of this system would result in greater caution, vigilance and information processing related to a threat, thereby increasing avoidant behavior. All these cognitive and behavioral factors are recognized as important in the etiology and maintenance of anxiety disorders.

The role of perceived control over anxiety relevant events has been investigated. Some empirical studies with adults (Rapee, Craske, Brown, & Barlow, 1996) and with children and adolescents (Weems et al., 2003) reveal a significant negative association between perceived control and symptoms of anxiety. These studies suggest that individuals believing that it is not possible to control and modify anxiety related events, as well as, the associated negative emotions and physical reactions, are more likely to develop clinically significant anxiety problems.

Thus, the assessment of control beliefs is important for a better understanding of the pathogenesis of anxiety. Other variables related to control (e.g., locus of control) have demonstrated significant associations with anxiety (Nunn, 1988), but control that is related to threat and with reactions to threat is, as such, a more specific risk factor and one that is particularly important for the understanding of pathological anxiety.

The main objective of this research was to examine the association between perceived control related to threat and anxiety symptoms in school-age children. It is expected that the perception of control is negatively associated with symptoms of anxiety and that the perception of control is an important variable to discriminate between two groups: namely, children with high levels of anxiety and children with low levels of anxiety.

To achieve the main objective of this study, we developed the Portuguese version of the short-form of the Anxiety Control Questionnaire (C-Anxiety Control Questionnaire, ACQ-C, Weems, 2005). Other objectives of this research were the study of the factorial structure of the Portuguese version of the ACQ-C and the examination of its psychometric characteristics. Weems et al. (2003) developed the ACQ-C to assess control beliefs in childhood. This questionnaire is a modified version of the Anxiety Control Questionnaire from Rapee et al. (1996), directed at the adult population. Questions were developed to assess the perceived lack of control over anxiety relevant events.
The study of the factorial structure of the instrument from Rapee et al. (1996) shows two main factors: perceived control over environmental events (e.g., situations or events that cause fear or anxiety to the individual) and perceived control over emotions and physical reactions associated with anxiety (e.g., hyperventilation, negative emotional experiences). The short form of the questionnaire (Weems, 2005), with 10 items, was developed to assess the control beliefs of children in clinical or research settings, where time constraints are pertinent.

A final objective of this study was to analyze the effect of age and sex on the perception of control. Previous studies have not examined the role of these variables in control beliefs. Nevertheless, the assumption of a developmental perspective is important to better understand the role of cognitive factors in the development of anxiety disorders during the various stages of development.

Method

Participants

Participants were 283 children, aged from 8 to 15 years, with a mean age of 10 years (SD = 1.39). The sample comprised 57% of girls, with 77% of children coming from intact nuclear families. The sample was evenly distributed by different socio-economic levels (35% low SES, 39% medium SES and 26% medium-high and high SES). Children attended the 3rd, 4th, 5th or 6th grade in six public, private and cooperative schools and lived, mostly in semi-urban and urban areas.

Instruments

Short Form of the Anxiety Control Questionnaire – children (ACQ-C, Weems, 2005)

ACQ-C is a self-report questionnaire with 10 items assessing control beliefs over external and internal anxiety stimuli. Children were asked to rank their agreement with each item on a rating scale from 0 (none), 1 (a little), 2 (some), 3 (a lot) or 4 (very very much). An overall score of control beliefs is obtained through the sum of the answers to the 10 items. The questionnaire items were extracted from a longer form with 30 items (Weems et al., 2003). This short form was developed and based on correlations of the individual items with the total score. The 10 items with higher correlations with the total score were selected as being the most representative of the scale.

The study of the short form of the ACQ-C (Weems, 2005) was conducted with a sample of 145 children, aged 6 to 17 years. Overall, the results of this study show good psychometric properties of the scale (internal consistency, convergent validity and test-retest reliability), similar to the ACQ-C complete scale. Results show a high internal consistency (α = .85), higher for the sample of older children aged from 12 to 17 years (α = .89), than for the sample of younger children aged from 6 to 11 years (α = .80). The test-retest stability coefficient for the period of one year is also reasonable, r = .58.


SCARED-R is a self-report questionnaire with 69 items evaluating different dimensions of anxiety disorders in children: separation anxiety disorder, generalized anxiety disorder, panic disorder, social phobia, school phobia, specific phobia, obsessive-compulsive disorder and acute or posttraumatic stress disorder. Children have to rate how frequently they experience each symptom on a 3-point scale: ever or almost never), 1 (sometimes), 2 (often). Scores for each of the dimensions of anxiety and an overall score are obtained. The Portuguese version (Pereira & Barros, 2010) of the questionnaire shows high levels of internal consistency (α = .91) for the overall score.

Procedure

The translation of the Anxiety Control Questionnaire for the Portuguese language was carried out in three phases. Initially, three psychologists with clinical experience with children independently translated the original questionnaire to Portuguese. The comparison of these three versions supported its equivalency and only minor adjustments were needed for the final version. Next, a back translation to English was performed by an English-speaking psychologist. The verification of the equivalence of the content of the retroversion with the original version was done by the author of the scale. Finally, the Portuguese version of ACQ-C was applied to 10 children to test the clarity of the vocabulary used.

The procedure for collecting data for the main study was preceded by applications for authorization and collaboration. At first, permission was sought from the General Direction for Innovation and Curriculum Development, after which the collaboration of the school boards and teachers was requested. Schools were selected based on two criteria: geographic proximity to Lisbon and speed of response to the requests for cooperation previously made to several groups of schools. Thus, this is a non-probabilistic convenience sample. Parents received a letter asking for informed consent, and 85% of parents allowed their children to participate.

The instruments were administered collectively in the classroom, in the presence of the first author. The administration of the questionnaires lasted for a maximum of 45 minutes.

To analyze the temporal stability of the instrument, a sub-group (n = 25) of the sample completed the questionnaire again, four to six weeks later.
Statistical analyses

Descriptive and inferential statistics were used. Various statistical tests were conducted depending on the research objectives, the characteristics of the variables and the evaluation of assumptions. A p-value of less than .05 was considered to indicate statistically significant results.

The validation studies of the Portuguese version of ACQ-C included several steps. First, the factorial structure of the instrument was analyzed through a principal component analysis. Reliability of the Portuguese version of ACQ-C was estimated calculating Cronbach’s alpha and the inter-item correlation coefficient. Finally, the temporal stability of the global score of the instrument was evaluated using Pearson correlations.

In order to examine the age and sex effect on the global score of ACQ-C, an analysis of variance with two factors was computed.

Pearson correlations were computed to examine the relation between perceived control and anxiety symptomatology. A binary logistic regression analysis was conducted to examine the association between perceived control and anxiety status, controlling for two potential confounding variables, sex and age. Anxiety status consisted of two groups: children with low levels of anxiety (children below the 25th percentile on SCARED-R) and children with high levels of anxiety (children above the 85th percentile on SCARED-R). The top-15% cut-off was adopted because it is considered useful for discriminating between children with and without anxiety disorders (Simon & Bögels, 2009).

All analyses were performed using SPSS 17.0 (Statistic Package for the Social Sciences).

Results

Factor structure and psychometric properties of the short form of the Portuguese Anxiety Control Questionnaire for Children

Principal component analysis

A component analysis was performed on the 10 items. Selection of the number of factors was made on the basis of the examination of a Scree Plot and the Guttman-Kaiser rule, retaining components with eigenvalues greater than 1.00.

Principal component analysis yielded one factor that accounted for 40% of the variance. These results are similar to those found for the full version of ACQ-C (Weems et al., 2003), with one factor solution explaining 37% of the total variance.

Factor loadings for the individual items are presented in Table 1. All items presented a factorial loading greater than .40, a value considered by Comrey and Lee (cit. by Tabachnick & Fidell, 1989) as acceptable.

Reliability

Internal consistency and temporal stability analyses were computed to examine the reliability of ACQ-C, considering the total value of the scale. Cronbach’s alpha for the total sample was .83, a value similar to the one of the original ACQ-C (Taylor et al., 2006) and the inter-item mean correlation was .32. Both values suggest a good internal consistency.

The analyses of Cronbach’s alpha for different sets of items also suggest that, with the exception of item 2, where the alpha values maintain, the elimination of each decreases Cronbach’s alpha. The corrected total item correlation coefficients were always higher than .30.

Table 1  

<table>
<thead>
<tr>
<th>Number and Item Description</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I can take charge and control my feelings</td>
<td>.61</td>
</tr>
<tr>
<td>2. When I am scared or nervous, I am able to stop myself from breathing too hard</td>
<td>.42</td>
</tr>
<tr>
<td>3. I am able to change how much nervousness or fear I feel</td>
<td>.66</td>
</tr>
<tr>
<td>4. I can make myself feel good again when bad things happen to me</td>
<td>.64</td>
</tr>
<tr>
<td>5. I can usually calm myself down when I want to</td>
<td>.69</td>
</tr>
<tr>
<td>6. I know how to deal with feeling scared or anxious so I do not care if I become scared</td>
<td>.57</td>
</tr>
<tr>
<td>7. I can usually deal with hard problems</td>
<td>.70</td>
</tr>
<tr>
<td>8. When I am anxious or nervous, I can still think about things other than my feelings of anxiety.</td>
<td>.61</td>
</tr>
<tr>
<td>9. I can handle scary things I did not expect or think would happen as good as I can handle scary things that I expected or thought would happen</td>
<td>.69</td>
</tr>
<tr>
<td>10. I am good at taking care of things that go wrong</td>
<td>.64</td>
</tr>
<tr>
<td>Eigen value</td>
<td>3.9</td>
</tr>
<tr>
<td>% total variance</td>
<td>39.4</td>
</tr>
</tbody>
</table>
Tets-retest reliability was calculated on a subset of participants (n = 25) who completed a second rating 4 to 6 weeks after the initial administration. Correlation analyses indicate an adequate temporal stability (r = .60, p = .002).

ACQ-C short form values in function of sex and age

Mean values and standard deviations of the global ACQ-C are presented in Table 2.

Univariate analysis of variance (see Table 3) shows that sex, but not age, has a significant effect on the global score of ACQ-C. These results remain the same whether we include the interaction between age and sex in the model, or not. Boys reported a higher perceived control over anxiety related events than girls.

Control beliefs and anxiety

Results from correlation analyses indicate a significant negative association between perceived control and anxiety (r = -.38, p < .001).

The results from the final model of the binary logistic regression are presented in Table 4.

Results show that, after adjusting for the effects of age and sex, perceived control is an important variable that discriminates two groups of children, namely, children with low anxiety and children with high anxiety.

Discussion

This study was developed to acquire a better understanding of the cognitive factors associated with anxiety in school-age children. The main objective of this research was to examine the relationship between perceived control over anxiety and anxiety symptoms in children. Results support our main hypothesis by showing a significant negative association between perceived control and anxiety symptoms.

To achieve the main objective of this study, the Portuguese version of the short form of the Anxiety Control Questionnaire for Children (Pereira & Barros, 2010) was developed and its psychometric characteristics were studied. The results suggest that the Portuguese version of the Anxiety Control Questionnaire is an appropriate instrument to assess control beliefs over anxiety relevant events. The factorial analysis of the questionnaire revealed the existence of a single factor similar to what was found for the longer original version (Weems, 2005). A good internal consistency (Cronbach’s alpha and average inter-item correlation) was found, very similar to that which was found in the study of the original instrument (Weems, 2005). Results regarding the temporal stability of the instrument with an interval of 4 to 6 weeks, suggest an adequate test-retest reliability. Theoretically, it was expected that beliefs would not show great fluctuation over the time period considered. From the point of view of the usefulness of questionnaires to evaluate the change of control beliefs in response to clinical intervention, the high temporal stability is an advantage.

Perceived control revealed significant associations with the gender of the children, but not with their age. The findings regarding sex differences show that male children report greater perceived control than female children. This difference may be the result of children’s socialization to gender roles, which guides girls and boys to adopt different roles shaped by their culture and which can lead to differences in the experience and the expression of different emotions. These differences were supported by the results of some empirical studies (e.g., Fischer, Mosquera, Manstead, & Vianen, 2004). Sex differences in the perception of control found in this study are new evidence, but one that
confirms other studies regarding the effect of sex differences in emotion. According to a socio-cultural explanation for these differences, it can be expected that in boy’s education, there will be a greater emphasis on non-expression of negative emotions (anxiety, sadness) which indicates a greater personal vulnerability and therefore the assumption of greater control over these negative emotions.

The absence of the age effect may have to do with the fact that our sample did not have a broad range of ages that would allow for the detection of these differences.

As mentioned above, the results support the hypothesis formulated regarding the main objective of this study. Both the results of the correlational analysis and the results of the binary logistic regression confirm previous studies (Weems et al., 2003, 2007). Children with higher anxiety levels report more frequently that anxiety related events and the internal reactions associated with them are uncontrollable. Thus, these data provide partial support to Barlow’s model which considers perceived control as an important vulnerability factor to anxiety disorders.

These data also have clinical implications, suggesting that the perception of control is an important target in psychotherapeutic intervention with children and adolescents. Some therapeutic strategies can be implemented with the aim of increasing perceived control over external events, such as the promotion of more pro-active coping strategies and problem solving training, while others may increase the perceived control over more internal events and the physical reactions associated with anxiety, such as progressive relaxation training and abdominal breathing.

At the preventive level, it is also important to work with parents so that they can foster an appropriate sense of control in their children, for example, not excessively protecting or restricting them, and providing opportunities for children to deal independently with different events and environmental challenges which are appropriate to their skills and level of development.

Despite the various contributions of this study, it is important to note some of its limitations. The cross-sectional design does not allow for any conclusions regarding the direction of effects. It is possible that the effect is in the opposite direction to that which was hypothesized, i.e., that highly anxious individuals perceive less control over anxiety related events, although there is some experimental evidence that the perception of control has a significant effect on the experience of anxiety. For instance, one study (Sanderson et al., 1989) that experimentally manipulated the perception of control to evaluate its effect on anxiety in adults showed that the provision of illusory control leads to lower levels of anxiety.

Other limitations of this study are the use of a single informant and of self-report methodologies. It is important to gather more empirical evidence that may help to clarify the role of control in the development of anxiety disorders.

One line of research that may help to clarify this issue is the evaluation of the processes that may explain the effects of psychotherapeutic interventions, particularly studies that focus on how the change of control beliefs can lead to a change in anxiety symptoms in children with anxiety disorders.

In conclusion, this work has contributed to the validation of the short form of the Anxiety Control Questionnaire for Children, showing good psychometric properties. This study allowed us to gather evidence which provides partial support to the models proposed by Barlow and Chorpita (Barlow, 2002; Chorpita & Barlow, 1998), which assign a central role to the perception of control over anxiety relevant events in explaining the development of anxiety problems. These results also have practical implications, pointing to the importance of considering the perception of control as a target in preventive and clinical interventions with school-age children.

References


Received April 29, 2011
Revision received June 27, 2011
Accepted July 13, 2011