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Abstract

Daily stress can have a bearing on children's emotional and academic development. This study aimed to assess daily stressors and to determine their prevalence among primary education students, taking into account their gender, academic year, social adaptation, and the school location. A sample of 7,354 Spanish schoolchildren aged between 6 and 13 years (boys, $N = 3,777$, girls, $N = 3,577$; $M = 10.32$, $SD = 1.47$) completed the Children's Daily Stressors Inventory (Inventario de Estrés Cotidiano Infantil, IECI in Spanish). Based on the IECI cut-offs, the majority of participants reported an absence of daily stress (68%) or only mild stress (23.2%). The prevalence of severe daily stress was 8.7%. While broadly positive, these results regarding the incidence of daily stressors in childhood highlight the need to teach children effective strategies for coping with their day-to-day problems. Intervention of this kind would be especially important for children from socially and economically disadvantaged areas and for those who present behavioral and emotional difficulties such as aggressive or inhibited behavior.

Keywords

daily stressors, primary education, childhood, prevalence

In recent decades, research has increasingly recognized the effect of stress on children's development (Byrne, Thomas, Burchell, Olive, & Mirabito, 2011; Grant et al., 2006; Haggerty, Sherrod, Garmezy, & Rutter, 1994; Humphrey, 2004), and there is a

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growing interest in developing theoretical models and measurement instruments to study the phenomenon and contribute to its prevention. The concept of stress refers primarily to environmental situations or stimuli that constitute a threat or challenge and/or which exceed or undermine an individual's biological or psychological capacities (Cohen, Kessler, & Gordon, 1995; Lazarus & Folkman, 1984).

When studying stress, it is necessary to take into account the type and nature of the stressor (Compas, 1987). With respect to childhood, stressors can be classified as follows: (a) life events, defined as exceptional, traumatic, unpredictable, or uncontrollable situations that have an important effect on the individual's life and that require him or her to make certain adaptive adjustments (Williamson et al., 2003), as, for example, in the case of the death of a loved one, the birth of a sibling, parental divorce, or accidents; (b) chronic or permanent stressors, which result from increasingly harsh physical and social conditions in the immediate environment that lead to privations and disadvantages for the individual concerned (Evans, 2006), for example, living in poverty or prolonged exposure to conflict; and (c) daily stressors, defined as daily hassles that serve to irritate or overwhelm the individual (Byrne et al., 2011), for instance, the demands of school; conflict with teachers, peers, or parents; visits to the doctor; or the feeling of receiving insufficient attention from parents.

This study focuses on daily stressors during the primary education stage. It is worth noting at the outset that daily stress is considered to be an important factor in relation to children's development, with high stress levels being shown to have negative effects on their social and emotional adaptation (Escobar, Trianes, & Fernández-Baena, 2008; Seiffge-Krenke, 2000; Trianes et al., 2009). Children's stress has been linked to behavior responses such as irritability, stubbornness, restlessness, immaturity, and dependence (Lau, 2002). These kinds of responses represent the immediate effect of stress on the child, whose behavior as a result can be classified into four types: impulsive (acting-out and overactive), passive-aggressive, dependent, and repressed (Chandler & Maurer, 1996).

Regarding the long-term effect of stress, children who are exposed to daily stressors are at risk of developing a wide variety of internalizing problems, including anxiety, depression, and low self-esteem (Escobar, Trianes, Fernández-Baena, & Miranda, 2010; Sandstrom, Cillessen, & Eisenhower, 2003). Daily stress may also make it more difficult for children to adjust to life at school, and this can manifest as poor academic achievement, a negative attitude toward school, and aggressive behavior (Byrne et al., 2011; Trianes et al., 2009).

Factors associated with the incidence of stressors in childhood include gender, age, school adaptation, and the kind of school environment. Gender is a variable in adolescence that is related to differences in levels of stress and its effect, with girls being more strongly affected (Escobar, Blanca, Fernández-Baena, & Trianes, 2011; Murray, Byrne, & Rieger, 2011; Seiffge-Krenke, 2000). By contrast, the majority of studies conducted in children have not reported significant gender differences (Byrne et al., 2011; Escobar et al., 2013; Trianes et al., 2009).

Research has shown that stressors change over time, with the way in which children perceive, evaluate, and respond to stressful stimuli differing as a function of their

social and cognitive development (Compas, Melcarne, & Banez, 1992; Trianes, 2002). The stressors reported during childhood are closely related to the family and school contexts (Byrne et al., 2011; Trianes et al., 2009), whereas upon entering adolescence, the focus of stress switches to personal and bodily changes, the changing relationship with parents and peers, and the start of romantic relationships (Byrne, Davenport, & Mazanov, 2007; Seiffge-Krenke, Aunola, & Nurmi, 2009). A child's developmental stage also affects his or her ability to respond to stress. For example, younger children may be less able to reflect upon their experiences, and their cognitive skills may limit the range of coping strategies they are able to draw upon; they are also likely to have a more limited emotional repertoire in their response to stress (Amirkhan & Auyeung, 2007; Compas et al., 1992).

Children's social adaptation has also been linked to stress. Socially competent students report very few stressors, tend to have better interpersonal relationships, and are better able to adapt to school (Escobar et al., 2010). Those who present inadequate social behaviors, such as aggression or inhibition, usually experience numerous stressors (Barrett & Heubeck, 2000; Henriksen & Murberg, 2009; López, Olaizola, Ferrer, & Ochoa, 2006).

Where schools are located has also been studied by environmental psychologists as a possible source of stress. Urban areas are characterized by more noise and pollution than are rural settings, and these aspects are potential stressors that produce health problems (Evans, 2006; Evans & Stecker, 2004). However, the results in this regard are inconsistent. In fact, some studies have found that when the family's socioeconomic status is controlled for, there are no differences in the perceived stress between students from urban as opposed to rural areas (Elgar, Arlett, & Groves, 2003; Hesketh et al., 2010).

The aim of the present study was to assess daily stressors and to determine their prevalence in a large sample of primary education students, taking into account gender, academic year, social adaptation, and the school location.

Method

Participants

The sample comprised 7,354 students (3,777 boys and 3,577 girls) from across the whole of the region of Andalusia (Spain). At the time of the study, they were in Primary Years 1 to 6 and ranged in age from 6 to 13 years ($M = 10.32$, $SD = 1.47$). A total of 120 state-run schools took part and accounted for approximately 1.8% of all primary education students enrolled in the state system in Andalusia (according to data from the Ministry of Education, Culture, and Sport).

The exclusion criteria included students with (a) low levels of item comprehension and (b) inadequate completion of the tests administered. Teacher assessments of the students' social adaptation could only be obtained for 6,170 of the 7,354 children in the original sample. In the remaining cases, teachers stated they had insufficient time to complete the corresponding observation sheet.

The context in which schools were located was also recorded, a distinction being made between those in rural areas (i.e., in towns or villages of fewer than 2,000 inhabitants), those in urban areas (i.e., towns or cities with more than 10,000 inhabitants, or those with more than 2,000 inhabitants and whose economy was not based primarily on agriculture or stockbreeding), and those in urban areas classified as socially and economically disadvantaged (i.e., priority educational districts, hereinafter “urban PED”).

Instruments

Children’s Daily Stressors Inventory (Inventario de Estrés Cotidiano Infantil, IECI in the original Spanish). This is a self-report instrument (Trianes, Blanca, Fernández-Baena, Escobar, & Maldonado, 2011) comprising 22 dichotomous items (Yes/No) that describe the occurrence of various events, problems, demands, concerns, and setbacks arising in everyday interactions with the environment and that may produce an emotional reaction and have a negative effect on children’s development. The IECI yields three partial scores corresponding to health and psychosocial problems, stressors in the school context, and stressors within the family, and these are summed to produce a total daily stressors score. The factor related to health and psychosocial problems refers to illness, visits to the doctor, minor ailments, and concern with body image (e.g., “This year I’ve had to go to the emergency department,” “My parents have often had to take me to the doctor”). The factor related to stressors in the school context refers to situations such as an excess of after-school activities, problems interacting with the teacher, poor grades, difficulties relating to classmates, or perceived problems with concentration (e.g., “I find schoolwork difficult,” “The other children pick on me a lot at school”). Finally, stressors within the family refers to situations such as financial difficulties, lack of contact with and/or supervision by parents, a sense of being alone, sibling conflicts, and demands from parents (e.g., “I spend a lot of time on my own at home,” “My parents ask too much of me”). The total raw score possible ranges from 0 to 22. High scores indicate that the child perceives a large number of stressors in his or her life. The authors of the IECI recommend using the total stressors score, as this shows stronger correlations with other tests that are widely used to diagnose emotional problems such as anxiety and depression.

The inventory’s norms can be used to transform raw scores into *T* scores, according to which three levels of stress can be established: (a) absence of stress: *T* scores below 56; (b) mild stress: *T* scores between 56 and 65; and (c) severe stress: *T* scores of 66 or above.

Observation Scale for Teachers (Escala de Observación del Profesorado, EOP in the original Spanish). The children’s social adaptation was assessed by teachers using the EOP (Muñoz, Trianes, Jiménez, Sánchez, & García, 1996) to assign their students to one of the scale’s four categories: aggression, inhibition, sociability, and leadership. Aggression indicates that a student causes conflict and exhibits violent behavior and high emotional reactivity. Inhibition identifies children with few social relationships, a

tendency to isolate themselves, and low visibility among their peers. Sociability reflects friendly behaviors and social competence. Finally, leadership refers, in addition to social competence, to behaviors based on the principle of equality, cooperation, assistance, and defending the interests of the group. Scores on this scale show a high correlation with students' social competence as measured by sociometric techniques (Trianes et al., 2002).

Procedure

Access to the study sample was gained through collaboration with the teachers' federation of the employees' association in Andalusia. A call for participants in an epidemiological study about daily stress in childhood was posted on the association's website, and the same request was also made through various letters sent to school management boards. A total of 120 schools from across the whole of Andalusia agreed to take part.

Prior to administering the tests, each participating school informed parents about the study, making it clear that participation was voluntary and that all data would remain confidential. Once the consent of families had been obtained, the IECI was completed by students under the supervision of a teacher and during the normal school day. With the aim of standardizing the instructions given by teachers to students, the test was accompanied by an instruction sheet created by the research team. In addition, and following the instructions given, teachers voluntarily completed the EOP. Once the tests had been completed, the respective schools returned them to the research team.

Data Analysis

A comparison of means (independent samples *t* test and one-way analysis of variance) was applied to total scores for daily stressors in relation to gender, academic year, social adaptation, and school location. In addition, the norms and cut-offs (*T* scores) established for the IECI (Trianes et al., 2011) were used to analyze the prevalence of daily stressors according to three levels of intensity: absence of stress, mild stress, and severe stress.

Results

Total scores on the IECI were analyzed to determine whether there were any differences according to gender, academic year, social adaptation, and school location (Table 1). The results revealed no differences between boys and girls, $t(7,352) = -0.82$, $p = .41$. With regard to the stage of primary education, children in the third cycle (Primary Years 5 and 6) scored significantly lower than children in the first and second cycles (Primary Years 1 to 4), $F(2,7353) = 30.73$, $p < .01$, partial $\eta^2 = .008$.

Significant differences were also observed in relation to social adaptation, with children assigned to the aggressive category reporting a higher number of stressors,

Table 1. Descriptive Statistics and Prevalence of Daily Stressors (Using IECI Cut-Offs) in Primary Education Students According to Gender, Academic Year, Social Adaptation, and School Location.

	<i>N</i>	IECI <i>M</i> (<i>SD</i>)	Absence of stress <i>n</i> (%)	Mild stress <i>n</i> (%)	Severe stress <i>n</i> (%)	χ^2
Gender						16.94**
Boys	3,777	7.15 (3.60)	2,494 (66.0)	915 (24.2)	368 (9.7)	
Girls	3,577	7.08 (3.57)	2,510 (70.2)	792 (22.1)	275 (7.7)	
Academic year						18.38**
First cycle	421	7.33 (3.67)	292 (69.4)	100 (23.8)	29 (6.9)	
Second cycle	3,262	7.46 (3.63)	2,138 (65.5)	801 (24.6)	323 (9.9)	
Third cycle	3,671	6.79 (3.51)	2,574 (70.1)	806 (22.0)	291 (7.9)	
Social adaptation						118.29**
Aggressive	447	8.68 (3.67)	227 (50.8)	137 (30.6)	83 (18.6)	
Inhibited	1,395	7.58 (3.68)	875 (62.7)	367 (26.3)	153 (11.0)	
Sociable	3,772	6.93 (3.50)	2,636 (69.9)	851 (22.6)	285 (7.6)	
Leader	556	6.36 (3.50)	420 (75.5)	97 (17.4)	39 (7.0)	
School location						66.61**
Rural	656	6.86 (3.43)	465 (70.9)	141 (21.5)	50 (7.6)	
Urban	5,070	6.92 (3.58)	3,564 (70.3)	1,106 (21.8)	400 (7.9)	
Urban PED	1,628	7.83 (3.60)	975 (59.9)	460 (28.3)	193 (11.9)	
Total	7,354	7.12 (3.59)	5,004 (68.0)	1,707 (23.2)	643 (8.7)	

Note. First cycle = Primary Years 1 and 2 (6-8 years); Second cycle = Primary Years 3 and 4 (8-10 years); Third cycle = Primary Years 5 and 6 (10-13 years). PED = priority educational district.

** $p < .01$.

$F(3,6169) = 48.11, p < .01$, partial $\eta^2 = .023$. It is also worth noting that students who were rated by teachers as showing a predominance of inhibited behaviors reported a higher number of stressors than did their peers assigned to the sociable and leader categories.

The analysis according to school location (i.e., rural, urban, urban PED) also revealed significant differences in the number of stressors, $F(2,7353) = 42.06, p < .01$, partial $\eta^2 = .011$. Specifically, higher numbers of daily stressors were reported by children attending schools in urban PEDs, as compared with the other two categories (rural and urban); there was no significant difference between the latter two contexts.

With respect to the prevalence of daily stressors among primary education students, it should be noted that the majority of participants reported low numbers of stressors (Table 1). Specifically, 68% of participants experienced an absence of stress, 23.2% were assigned to the mild stress category, and the prevalence of severe stress was 8.7%. In terms of the proportion of children in the severe stress category, the highest percentages corresponded to boys, $\chi^2(2, N = 7,354) = 16.94, p < .001$, to students in the second cycle (Primary Years 3-4), $\chi^2(4, N = 7,354) = 18.38, p = .001$, to students with problems of social adaptation (aggressive or inhibited), $\chi^2(6, N = 6,170) = 118.29, p < .001$, and to students attending a school in a PED, $\chi^2(4, N = 7,354) = 66.61, p < .001$.

Discussion

Daily stress in children has been shown to contribute to the development of psychological problems and poor emotional and school adaptation (Byrne et al., 2011; Grant et al., 2006). Consequently, the aim of this study was to assess daily stressors and to determine their prevalence in a representative sample of primary education students, taking into account their gender, academic year, social adaptation, and the school location.

The data for the prevalence of daily stressors show that the majority of students were categorized as experiencing either an absence of stress (68%) or only mild stress (23.2%). The low levels of daily stressors reported by these children would be consistent with optimum physical, social, and emotional development (Carter, Garber, Ciesla, & Cole, 2006; Trianes et al., 2009). It should be noted, however, that 8.7% of participants were assigned to the severe stress category according to their scores on the IECI, and they therefore constituted an at-risk group for emotional and behavioral problems.

In terms of the number of daily stressors, the analysis revealed no difference between boys and girls, a finding that is consistent with the results of previous studies of children and stress (Byrne et al., 2011; Trianes et al., 2009). However, although the mean daily stressors score did not differ by gender, the prevalence rates show that the proportion of boys assigned to the severe stress category was 2% higher than the corresponding figure for girls. This finding does require further study.

With respect to the stage of primary education, children in the third cycle (Primary Years 5 and 6) reported significantly fewer stressors than did their peers in the first and second cycles (Primary Years 1-4). One explanation for this result could be that pre-adolescent students (aged 11-12) had greater experience and more skills when it came to coping with typical childhood stressors (e.g., having to see the doctor, being alone at home, visiting relatives), such that they cease to perceive them as such; conversely, they may be more prone to experience other types of stressor that arise in adolescence (e.g., concerns about romantic relationships, uncertainty over the future). Several studies have reported that stressors related to health and family have less of an effect in adolescence, a period when stress linked to peer relationships begins to acquire greater weight (Rudolph & Hammen, 1999). Whatever the case, the effect size for the difference between the three stages of primary education is low (explaining approximately 1% of the variability in the data), and this suggests that levels of perceived stress actually remain relatively stable across childhood (age 6-12). The proportion of children assigned to the severe stress category ranged between 6.9% and 9.9% for the three stages of primary education with the highest percentage corresponding to children in the second cycle (Primary Years 3-4).

Students who exhibited socially maladaptive behaviors, that is, aggression or inhibition, reported higher numbers of daily stressors. This relationship could have a number of explanations: (a) low social competence generates more stressors (stress generation model), (b) stressors hinder the optimum development of social competence (stress exposure model), or (c) a combination of the two (reciprocal stress

model). A further point to consider is that aggressive or inhibited behavior may be a response to frequent stress in children (Chandler & Maurer, 1996). Although the effect size for differences according to social adaptation is low (explaining 2.3% of the variability in daily stressors), the fact that the highest proportions in the severe stress category corresponded to children who were classified as aggressive (18.6%) or inhibited (11%) highlights the importance of preventive and corrective interventions that can help promote social competence and coping skills.

There was a significant difference between schools in PEDs and the other two categories (rural and urban); there was no difference between these latter two contexts. Previous studies have concluded that levels of stress are similar in rural and urban settings once the socioeconomic status of families is controlled for (Elgar et al., 2003; Hesketh et al., 2010). Importantly, however, the present study found that children attending schools in PEDs accounted for the highest proportion (11.9%) in the severe stress category. These results confirm the need for increased efforts, resources, and educational programs to tackle the problems faced by children in socially disadvantaged areas.

Although severe daily stress correlates highly with emotional and behavioral problems, it is important to note that experiencing high levels of stress does not inevitably lead to such difficulties. Indeed, a child's adaptation depends on the number of problems experienced, on the coping strategies (productive and counterproductive) that are used, and also on the presence of protective or buffering factors (such as the family environment and the quality of upbringing) that may reduce the risk of problems developing.

This study does have certain limitations, notably that the self-report measure used to assess daily stress does not provide scores for physical and behavioral symptoms. Future research should include a specific measure of responses to stress so as to obtain information about the physical, behavioral, and emotional manifestations of stress in childhood. Such a measure would complement the more general information provided by the teachers' observation instrument used here and would serve as a platform from which to develop more specific interventions.

The results highlight the importance of studying daily stressors in childhood, as well as the need to implement prevention programs in schools, especially those in socially and economically disadvantaged areas. While these programs can help promote optimum physical, social, and emotional development in all students, the results of this study suggest that such interventions would be especially relevant to children who present behavioral and emotional difficulties such as aggressive or inhibited behavior. School-based daily stress-management interventions have been shown to be an effective way of reducing stress symptoms, enhancing coping skills, reducing anxiety symptoms, and improving physiological measures of relaxation (Bothe, Grignon, & Olness, 2014; Kraag, Zeegers, Kok, Hosman, & Abu-Saad, 2006). Among the skills that need to be included in programs of this kind, special emphasis should be placed on positive thinking, effective communication, adaptive problem-solving, goal setting, and time management (Frydenberg et al., 2004). It would also be useful to provide teachers, and especially year leaders, with training in this school-based approach so that they can model and reinforce the stress-management strategies their students require.

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