Abstract  The present study examined the frequency and characteristics of panic disorder in children and adolescents who had been referred to a pediatric psycho-pharmacology clinic. Of the 280 children and adolescents evaluated in this clinic, 35 were diagnosed with panic disorder using a semi-structured clinical interview (K-SADS) and other objective measures. Approximately half of the youngsters with panic disorder also met criteria for the diagnosis of agoraphobia. There was extensive comorbidity between panic disorder and other internalizing and externalizing disorders. Parents reported clinically significant levels of child symptomatology on the CBCL. Teacher- and child-reported symptomatology on the CBCL was within the normal range. At the same time, it was notable that no child had been referred specifically for evaluation or treatment of panic disorder or agoraphobia. Implications for clinical assessment/identification and treatment are discussed.

Keywords  Panic disorder  •  Agoraphobia  •  Children  •  Adolescents  •  Anxiety disorders

Panic disorder (PD) was initially considered to be an adult disorder [1, 2] but recent research indicates that adolescents and prepubertal children do experience this disorder [3–6]. The prevalence of PD among adolescents in the general community

Received: 28 June 2006 / Accepted: 30 October 2006 / Published online: 21 December 2006
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has been reported to be about 1% [7–10]. In clinic samples of children and adolescents, the prevalence of PD has been reported to be as high as 10–15% [11–14]. This disorder is more common in females and adolescents, especially after 14 years of age [3, 6].

Now that it is accepted that children and adolescents experience PD, research has begun to examine whether the nature of panic is different in children, adolescents, and adults [2, 15]. A central issue is whether children have the cognitive capacity to make the catastrophic attributions that are characteristic of panic (e.g., thoughts of losing control or going crazy). The cognitive model of panic [16] proposes that PD results from a catastrophic misinterpretation of bodily sensations; in other words, the individual perceives that bodily sensations are far more dangerous than they actually are. Nelles and Barlow [2] contend that children’s interpretation of their somatic symptoms shifts from external to internal causality over the course of development. They propose that younger children think that physical sensations have an external cause (e.g., “my heart beats faster because I’m taking a test”) [2, 5, 6]. Adolescents, in contrast, are more likely to think that physical sensations have an internal cause (“my heart is beating faster and I’m just sitting here in class like I always do—I must be going crazy”). Based on this cognitive model and Piaget’s theory of cognitive development, Nelles and Barlow [2] contend that adolescents are likely to develop PD because they are able to make the internal catastrophic attributions that seem necessary for a diagnosis of PD (“my heart is beating rapidly—I must be going crazy”). Nelles and Barlow [2] argued that children would not develop PD because they cannot make the internal, catastrophic attributions necessary for the development of PD.

Children and adolescents with PD describe physiological symptoms that are similar to those found with adults: palpitations, shaking, shortness of breath, nausea, hot and cold flashes, dizziness, and sweating [13, 14, 17, 18]. These studies also provide evidence that some children and adolescents with PD describe “catastrophizing” cognitive symptoms like fear of dying or going crazy. Across all studies, physiological symptoms were far more frequent than cognitive symptoms and adolescents were more likely to report cognitive symptoms than prepubertal children. Overall, existing research suggests that the characteristics of panic attacks in children and adolescents are similar to those of adults [6].

There is surprisingly little information about agoraphobia in youngsters with PD. In a sample of 17 youngsters diagnosed with PD with agoraphobia, Biederman et al. [12] reported that the most common symptoms of agoraphobia were endurance of the situation with intense anxiety and the need to be accompanied by a companion. A majority of these youngsters also exhibited an extreme fear of being alone at home. Kearney et al. [17] found a somewhat different pattern of avoidance behaviors in a sample of 18 youngsters who were diagnosed with PD with agoraphobia. In this study, the most commonly avoided situations involved settings with groups of people who were unknown to the child (e.g., restaurants, crowds, elevators, parks, stores). Despite a high frequency of avoidance behaviors, Kearney et al. [17] reported that the severity of this avoidance was not substantial.

The findings by Kearney et al. [17] raise the question of whether PD (with or without agoraphobia) produces significant impairment in daily functioning in children and adolescents. Although childhood onset of PD is associated with greater impairment in adults [19], it is possible that impairment is not evident until years after the onset of this disorder. Indeed, Ollendick [20] reported that adolescents with PD did not seek treatment in the early stages of their attacks, even though the

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