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Classification of Anxiety Disorders in Children and Adolescents

Cecilia A. Essau[1], Beatriz Olaya[2], and Thomas H. Ollendick[3]
[1]University of Roehampton, UK
[2]CIBER en Salud Mental (CIBERSAM), Spain
[3]Virginia Polytechnic Institute and State University, USA

Anxiety is a mood state characterized by strong negative emotion in response to threatening events or situations – either real or imagined (Barlow, 1988). It is part of the human condition and is observed in infancy and early childhood. Anxiety is a complex phenomenon which is expressed through three interrelated response systems: physical, cognitive, and behavioral systems. At the cognitive level, the situation is perceived as either threatening or dangerous. Cognitive components of anxiety include anxiety thoughts in response to negative distortions in attention and interpretation, such as worry, fear of being unable to cope with the situation, and uncertainty about the future (Beck, 1976). At the physical level, the perception or anticipation of danger involves the activation of the sympathetic nervous system, which produces both chemical and physical effects that help to mobilize the body for action (Rapee, Craske, & Barlow, 1995). At the behavioral level, the urge that accompanies the fight/flight response is a desire to escape the situation. Behavioral responses include nail-biting and foot-tapping. The most common behavioral symptom, however, is avoidance of the fearful stimuli (e.g., tunnel) or situations (e.g., speaking in a group). Although avoidance results in temporary relief of the anxiety symptoms, it keeps anxiety going and may cause impairment in various life domains.

All children experience anxieties and fears as a normal part of growing up (Table 1.1). However, fears and anxieties change throughout childhood and adolescence and correspond to the child's cognitive development in recognizing and interpreting situations as dangerous. Anxiety serves as a biological warning system and readies the child for action. As such, anxiety can have adaptive value when a child is actually confronted by dangerous stimuli. In fact, moderate levels of anxiety enhance performance and facilitate important developmental transitions. Although normal anxiety can be acutely distressing, in most children it is usually transient. However, because all children show anxiety in some situations and because anxiety is normative at certain developmental periods, it is often difficult to differentiate "normal" from "abnormal" anxiety (or an anxiety disorder). An anxiety is classified as a

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Table 1.1 Common fears in infancy, childhood and adolescence.

Age	*Developmental issues*	*Feared objects/situations*	*Corresponding DSM-IV anxiety disorders*
0–6 months	Biological regulation	Loud noises Loss of physical support	—
6–18 months	Object permanence Formation of attachment relationship	Strangers Separation from parents Sudden and unexpected objects	Separation anxiety disorder
2–3 years	Exploration of the world Magical thinking	Animals Dark Imaginary creatures	Specific phobia Separation anxiety disorder
3–6 years	Autonomy Self-control	Fear of the dark Fear of storms Fear of loss of caregivers	Specific phobia
6–10 years	School adjustment Concrete operations: inference of cause-effect relations and anticipation of dangerous events	School Worry Dark Bodily injury and physical danger Being alone Germs Supernatural being	Generalized anxiety disorder Obsessive-compulsive disorder
10–12 years	Social understanding Friendship	Social concerns Physical appearance Thunder and lightning	Social phobia Specific phobia
13–18 years	Identity Formal operations: catastrophizing about physical symptoms Sexual relationships Physical changes	Social anxiety Peer rejection Personal appearance	Social phobia

Source: Adapted from Klein and Last (1989) and Warren and Stroufe (cited in Ollendick & March, 2004, pp. 92–115).

disorder that should be treated when: (1) the duration and intensity does not correspond to the real danger of the situation; (2) it occurs in "harmless" situations; (3) it is chronic (i.e., lasts over a long period of time); and (4) causes impairment and interferes with psychological, academic, and social functioning (Essau, 2007).

Our current classification systems – the Diagnostic and Statistical Manual (DSM) currently in its fourth edition (DSM-IV) (APA, 2000) and the International Classification of Diseases (ICD) currently in its 10th revision (ICD-10) (WHO, 1992) –

make an explicit distinction between "normal" and "abnormal" anxiety based on the number, severity, persistence, and impairment of symptoms. Additionally, the symptoms cannot be better accounted for by other mental disorders, a general medical condition, or as a result of substance use.

Categorical Classification Systems: DSM-IV and ICD-10

Both DSM-IV and ICD-10 classification systems use categorical approaches to classification. The basic assumption of this approach is that emotional, behavioral, cognitive, and physiological symptoms of psychopathology cluster together to form discrete disorders that are distinct from each other (APA, 2000). The DSM-IV criteria were established, for the most part, by empirical studies via systematic field trials and then balanced by expert opinion. In contrast, the diagnostic criteria in the ICD-10 are based primarily on expert consensus that was later tested with field trials in various countries (WHO, 1992). Although the most recent versions of these systems have increasingly resulted in greater convergence between them, some differences remain (Table 1.2).

Several changes have taken place in the categorization of anxiety disorders in childhood in DSM-IV (APA, 1994). Except for separation anxiety disorder (SAD), all the other anxiety disorders are classified in one category regardless of the age in which the disorder first manifests. Two anxiety disorders that are specific to childhood in DSM-III-R – avoidant disorder and overanxious disorder – were subsumed under social phobia and generalized anxiety disorder (GAD), respectively, in DSM-IV. The decision was to increase consistency with the ICD; furthermore, the decision was based on the lack of evidence that avoidant disorder and overanxious disorder are sufficiently different from their adult counterparts (Kendall & Warman, 1996). Children and adolescents with avoidant disorder do not differ significantly in sociodemographic features (e.g., race, socioeconomic status) from those with social phobia, and there was considerable overlap between these two disorders (Francis, Last, & Strauss, 1992).

In DSM-IV, anxiety disorders can be categorized into eight separate major diagnostic syndromes, which are applicable to children, adolescents, and adults. These include: social phobia, specific phobia, GAD, obsessive-compulsive disorder (OCD), panic disorder, post-traumatic stress disorder (PTSD), and agoraphobia. The common characteristics of all these anxiety disorders are extensive anxiety, physiological anxiety symptoms, and behavioral disturbances (e.g., extreme avoidance of feared objects or situations) which cause significant impairment in functioning. They differ in relation to the nature of the feared stimulus and the anxiety response produced by it. The content of anxious thoughts or worries, and the anticipated harm also varies across anxiety disorders. For example, the main content of worry or anxious thoughts experienced by children with OCD may be contamination, and the anticipated fear is contracting a disease (Keeley & Storch, 2009). Among children with SAD, the content of worry is related to being separated from the caregiver, and the anticipated fear is harm to self or the caregiver (Seligman & Ollendick, 2011).

For almost all anxiety disorders, any differences in diagnostic criteria for children, adolescents, and adults are provided within the criteria set. These differences are

Table 1.2 Classification of anxiety disorders according to ICD-10 and DSM-IV.

ICD-10	*DSM-IV*
F40 Phobic anxiety disorders	
F40.0 Agoraphobia	300.22 Agoraphobia without history of panic disorder
.00 Without panic disorder	
.01 With panic disorder	
F40.1 Social phobias	300.23 Social phobia
F40.2 Specific (isolated) phobias	300.29 Specific phobia
F40.8 Other phobic anxiety disorders	
F40.9 Phobic anxiety disorder, unspecified	
F41 Other anxiety disorders	
F41.0 Panic disorder [episodic paroxysmal anxiety]	300.21 Panic disorder with agoraphobia
F41.1 Generalized anxiety disorder	
F41.2 Mixed anxiety and depressive disorder	300.01 Panic disorder without agoraphobia
F41.3 Other mixed anxiety disorders	
F41.8 Other specified anxiety disorders	300.02 Generalized anxiety disorder
F41.9 Anxiety disorder, unspecified	300.00 Anxiety disorder NOS
F42 Obsessive-compulsive disorder	
F42.0 Predominantly obsessional thoughts or ruminations	300.3 Obsessive-compulsive disorder
F42.1 Predominantly compulsive acts [obsessional rituals]	
F42.2 Mixed obsessional thoughts and acts	
F42.8 Other obsessive-compulsive disorders	
F42.9 Obsessive-compulsive disorder, unspecified	
F43 Reaction to severe stress, and adjustment disorders	
F43.0 Acute stress reaction	
F43.1 Post-traumatic stress disorder	308.3 Acute stress disorder
F43.2 Adjustment disorders	309.81 Posttraumatic stress disorder
F43.8 Other reactions to severe stress	
F43.9 Reaction to severe stress, unspecified	

usually related to duration, symptom types, or the extent to which children possess enough insight into the excessiveness or inadequacy of fear (APA, 2000). Specifically, for example, in order to minimize overdiagnosis of normal developmental fears, the symptoms must be present for at least 6 months in specific and social phobias (APA, 2000). Children may also express their anxiety through crying, tantrums, and clinging. For OCD, specific and social phobias, children do not have to acknowledge their fears as being unreasonable or excessive.

In ICD-10, childhood anxiety disorders are classified in a single category, with subcategories that comprise separation anxiety disorder, phobic anxiety disorder, social anxiety disorder, and sibling rivalry disorder; these disorders differ from anxiety disorders in adults by being exaggerations of normal developmental fears (WHO, 1992). ICD also has a category called "other" which includes identity disorder and overanxious disorder.

In this chapter, we will review the major characteristics of anxiety disorders as listed in DSM-IV and their differences from ICD-10.

Separation Anxiety Disorder (SAD)

SAD is defined as a developmentally inappropriate and excessive anxiety regarding separation from those to whom the individual is attached (APA, 2000). In order to meet the DSM-IV criteria for SAD at least three of the following eight criteria must be met: (i) recurrent excessive distress when separation from home or major attachment figures occurs or is anticipated; (ii) persistent and excessive worry about losing, or about possible harm befalling, major attachment figures; (iii) persistent and excessive worry that an untoward event will lead to separation from a major attachment figure (e.g., getting lost or kidnapped); (iv) reluctance or refusal to go to school or elsewhere because of fear of separation; (v) persistently and excessively fearful or reluctance to be alone or without major attachment figures at home or without significant adults in other settings; (vi) persistent reluctance or refusal to go to sleep without being near a major attachment figure or to sleep away from home; (vii) repeated nightmares involving the theme of separation; and (viii) repeated complaints of physical symptoms (e.g., headaches, stomach aches, nausea, or vomiting) when separation from major attachment figures occurs or is anticipated (APA, 2000). Furthermore, the symptoms must last at least 4 weeks and the onset of the symptoms must be before 18 years of age.

Both DSM-IV and ICD-10 are similar in terms of the specific indicator for SAD; however, they differ in criteria related to impairment, age of onset, and symptoms duration. Specifically, DSM-IV requires that the symptoms result in impairment in the academic, familial, social, and other domains. ICD-10, on the other hand, requires impairment only in the social domain. In terms of age of onset, DSM-IV specifies an onset anytime before the age of 18 years whereas ICD-10 states that separation concerns need to be present during the preschool years and should these concerns persist, SAD is diagnosed during later childhood and adolescence. The symptoms must have been present for at least 4 weeks in DSM-IV. ICD-10 does not specify any criteria for minimum duration.

Specific Phobia

The main feature of a specific phobia (formerly called simple phobia in DSM-III and DSM-III-R) is a marked and persistent fear of a specific object or situation that poses little or no danger (APA, 2000). The presence or anticipation of a specific object/situation almost always leads to an immediate anxiety response which might reach the severity threshold of situational bound panic attack. The situations or objects are avoided whenever possible or endured with intense anxiety. The fear and the avoidance behavior have to interfere significantly with the child's normal life or to be associated with clinically significant suffering (Ollendick, King, & Muris, 2004).

DSM-IV modified three criteria that are used for children, namely that (i) panic-like features might be manifested with different emotional responses and may take

the form of crying, tantrums, freezing or clinging; (ii) children are not required to consider their fear as irrational or excessive; and (iii) the duration in children must be at least of 6-month duration to warrant a diagnosis.

The DSM-IV differentiates between four subtypes of specific phobia: animal type (fear cued by animals or insects), natural-environment type (fear cued by natural environment such as water, heights, storm), blood-injection-injury type (fear cued by seeing blood, or receiving an injection), situational type (fear cued by specific situations such as flying in an airplane, going through a tunnel), and a residual category (fear cued by other stimuli such as choking, vomiting, loud sounds, and costumed characters). The main feature of each subtype of specific phobia is that fear is circumscribed to a specific object. Thus, when confronted with a feared object, the child with specific phobia will become immediately frightened. The fear is related to concern about dreadful things happening or fear of consequences related to being exposed to the feared object. The decision to differentiate between various types of phobia arises from research suggesting that each type has distinct features, including different gender distribution, age of onset, physiological response, and comorbidity patterns (Antony, Brown, & Barlow, 1997; Lipsitz, Barlow, Mannuzza, et al., 2002; Ollendick, Raishevich, Davis, Sirbu, & Ost, 2010).

The diagnostic criteria of ICD-10 are similar to that of DSM-IV, except that ICD-10 does not classify specific phobic into specific types. Furthermore, ICD-10 does not specify a duration criterion whereas DSM-IV indicates duration of at least 6 months.

Social Phobia

Social phobia (or social anxiety disorder) is characterized by a persistent fear of social (e.g., social gatherings, oral presentation) or performance (e.g., oral presentation) situations that involve possible scrutiny of others (APA, 2000). The individuals fear they will act in a way (or show anxiety symptoms) that will be humiliating or embarrassing. As a result, the feared situations are avoided or are endured with distress. Exposure to the feared social situations generally produces high levels of anxiety and is associated with a wide range of symptoms such as stammering, trembling, and blushing. DSM-IV provides a specifier for social phobia: the specific and the generalized type (APA, 2000). Individuals with the specific type of social phobia have a fear of specific, circumscribed social situations, while those with generalized social phobia fear being in most social situations. As such, the latter tends to be more disabling and severe (Ollendick, 2009).

ICD-10 and DSM-IV differ in several points. First, ICD-10 requires the predominance of avoidance. Second, ICD-10 has an additional diagnostic category for social phobia that is specific to childhood (i.e., before the age of 6 years). Although DSM-IV does not have specific diagnostic criteria for social anxiety disorder of childhood, four of its diagnostic criteria have been modified for children. These modifications include the following: (i) there must be evidence that children are capable of showing age-appropriate social relations with familiar people and show social anxiety in peer settings, not just with adults; (ii) the anxiety may be expressed by crying, tantrums, freezing, or shrinking from social situations with unfamiliar people; (iii) children do not have

to recognize that their fear is excessive or unreasonable; and (iv) the duration must be at least 6 months to warrant a diagnosis (APA, 2000). Third, DSM-IV requires that there must be evidence in children that the social anxiety occurs in peer situations, not just in interactions with adults. This requirement does not exist in ICD-10. In fact, the diagnosis criteria for social anxiety disorder of childhood note that the symptoms can be limited to situations that are mainly with adults, or with peers, or with both.

Generalized Anxiety Disorder (GAD)

The main feature of a GAD in DSM-IV is the presence of uncontrollable, unrealistic worry about a number of events or activities (APA, 2000). The anxiety and worry are accompanied by at least three of the following six physiological symptoms: restlessness or feeling keyed up or on edge; being easily fatigued; difficulty concentrating or mind going blank; irritability; muscle tension; and sleep disturbance. These symptoms must be persistent for at least 6 months and be distressing or cause impairment in social, academic, occupational, or other important areas of functioning. DSM-IV modifies the number of somatic symptoms that must be present in children. Specifically, only one instead of three out of the six physiological symptoms is required (APA, 2000).

In DSM-IV, the duration in which the symptoms must be present is specified to be 6 months, while in ICD-10, the duration is less explicit by indicating that the anxiety symptoms be present "for several months" (WHO, 1992, p. 140). DSM-IV requires that the GAD symptoms cause significant distress and impairment in various life domains, whereas in ICD-10, the impairment is not included as one of the criteria. Another difference between the two classification systems is related to the way they handle comorbid disorders. ICD-10 does not allow for the dual diagnosis of GAD with depression, panic disorder, obsessive-compulsive disorder, or a phobic disorder. By contrast, DSM-IV allows the presence of these comorbid disorders.

GAD was first diagnosed in children and adolescents in DSM-IV where, as noted earlier, it subsumes the DSM-III-R-defined overanxious disorder. This change was made to reflect the developmental continuum of the disorder (APA, 1987, 1994; Liebowitz, Barlow, Ballenger, et al., 1998). GAD differs from overanxious disorder in terms of putting greater emphasis on somatic symptoms. In GAD, worry is described as a future focused-worry or anxious apprehension, whereas in overanxious disorder, worry also includes past performance and behavior (Ollendick & Seligman, 2005).

Obsessive-compulsive Disorder (OCD)

The essential feature of OCD in DSM-IV is the presence of obsessions and compulsions (APA, 2000) that cause significant distress, are time-consuming (take more than 1 hour a day), or debilitating and result in interferences in normal functioning that significantly affects the person's life (Piacentini & Bergman, 2000). Obsessions are persistent thoughts, images or impulses that are intrusive, inappropriate, and distressing that must be differentiated from excessive worries about real-life problems.

Individuals with OCD attempt to ignore or suppress the obsessions and recognize them as a product of their own mind. Some common examples of obsessions include fear of dirt or contamination by germs, fear of causing harm to self and others, and religious or sexual preoccupations (Geller, Warner, Williams, & Zimerman, 1998; Masi, Mucci, Nicoletta, Bertini, Milantoni, & Arcangeli, 2005).

Compulsions are repetitive behaviors or mental acts that are performed in response to an obsession and often according to rigid rules. Compulsions are meant to reduce distress or to prevent some dreaded event from occurring. Some common compulsive themes are repeatedly cleaning or decontamination rituals (e.g., bathing, excessive washing), repeatedly checking things (e.g., locks), counting, straightening, and arranging things in a certain way (Geller et al., 1998; Masi et al., 2005). Rituals may provide temporary reduction in anxiety; however, they do not lead to long-term relief because the images and thoughts return persistently and recurrently. Consequently, children with OCD become more and more trapped in a time-consuming and vicious cycle of obsessions and compulsions (Carter & Pollock, 2000). The individual recognizes that the obsessions or compulsions are excessive or unreasonable. However, this criterion does not apply to children. DSM-IV requires that the obsessions or compulsions are not better accounted for by another disorder.

The two classification systems differ significantly in their definition of OCD. First, in DSM-IV, OCD is classified in the section of anxiety disorders, which reflects the fact that it shares the core symptom of anxiety. Specifically, anxiety is often associated with obsessions, and that anxiety is often relieved temporarily by giving way to compulsions. In ICD-10, OCD is not classified as an anxiety disorder, but in the section on Neurotic, Stress-related, and Somatoform disorders, which is within the same larger category as anxiety disorders. Second, they also differ in the way obsessions and compulsions are defined. Obsessions are defined in DSM-IV as recurrent and persistent thoughts, images, or impulses; compulsions are repetitive behaviors or mental acts; thus, compulsions can also be cognitive events. Obsessions are considered to cause anxiety or distress, whereas compulsions are aimed at preventing or reducing distress. In this respect, obsessions and compulsions are assumed to have a functional relationship. In ICD-10, an obsession is defined as a thought, idea, or image, whereas compulsion is defined as an act. Obsessions and compulsions have a common feature of being repetitive and unpleasant. Third, the threshold for OCD in DSM-IV is higher than that in ICD-10 in that its symptoms need to be time-consuming and must be present more than 1 hour per day.

Panic Disorder with or without Agoraphobia

Panic disorder is characterized by recurrent, unexpected panic attacks (APA, 2000). To meet the diagnosis of a panic disorder, an individual must additionally experience at least 1 month in which he or she is concerned about having additional attacks, is worried about the consequences of the attacks, or changes his or her behavior because of the attacks.

DSM-IV defines a panic attack as a discrete period of fear or discomfort that reaches a peak within 10 minutes. It is accompanied by 4 out of 13 autonomic or cognitive symptoms: (1) palpitations, pounding heart, or accelerated heart rate; (2) sweating;

(3) trembling or shaking; (4) sensations of shortness of breath or smothering; (5) feeling of choking; (6) chest pain or discomfort; (7) nausea or abdominal distress; (8) feeling dizzy, unsteady, lightheaded, or faint; (9) derealization or depersonalization; (10) fear of losing control or going crazy; (11) fear of dying; (12) paresthesias (numbness or tingling situations); and (13) chills or hot flushes (APA, 2000). The attacks must not stem from the direct effects of a substance, or a general medical condition. Panic disorder is diagnosed if the attacks continue even when the precipitant is no longer present. It is not diagnosed if the panic attacks are better accounted for by another psychiatric disorder.

Panic disorder is frequently associated with agoraphobia, which is anxiety about being in places or situations in which escape might be difficult or help unavailable in the event of an unexpected panic attack or experience of panic-like symptoms. Some common examples of agoraphobic fears include being outside the home alone; being in a crowd or a shopping center; and travelling in a bus or train. In DSM-IV, individuals can receive a diagnosis of (a) panic disorder without agoraphobia, (b) panic disorder with agoraphobia, or (c) agoraphobia without history of panic disorder.

Although DSM-IV and ICD-10 are similar in the way the diagnostic features of panic disorder are defined (i.e., the recurrence/intensity and unexpected nature of panic attacks), they differ in two areas. First, DSM-IV requires a minimum 1-month period in which there is a change in behavior as a result of the attacks or that the individual has a fear of additional attacks or their implications. For this reason, the core of the panic disorder in DSM-IV is the so-called 'fear of fear'; in ICD-10, it is the presence of panic attacks that constitutes the panic disorder (Ollendick & Seligman, 2005). Second, in DSM-IV, agoraphobia is considered in the diagnosis of panic disorder, with three possible outcomes: panic disorder without agoraphobia, panic disorder with agoraphobia, and agoraphobia without history of panic. This association is not made in the ICD-10. This difference is related to the way in which agoraphobia is defined. DSM-IV defines agoraphobia as involving avoidance of situations or having excessive anxiety about being in situations in which a panic attack might take place or in which it would be difficult to escape should an attack occur. In ICD-10, agoraphobia is defined as the fear of open or crowded places or a fear of situations in which escape might be difficult.

Post-traumatic Stress Disorder (PTSD) and Acute Stress Disorder

PTSD is an anxiety disorder that may develop after the person has been exposed to an extremely traumatic event that involves actual or threatened death or serious injury to the self or others (APA, 2000). The person responds to the traumatic event with intense fear, helplessness, or horror (Criterion A). However, children may respond by disorganized or agitated behavior.

PTSD symptoms are organized into three clusters: intrusive recollection, avoidant/numbing, and hyper-arousal. In order to meet the diagnosis, symptoms from each of these three clusters must be present. DSM-IV requires that the traumatic event is persistently re-experienced (Criterion B: intrusive recollection) in at least one of the following ways: (a) recurrent and intrusive recollections, (b) recurrent nightmares of the events, (c) acting or feeling as if the trauma were recurring, (d) intense

psychological distress upon exposure to internal or external cues that represent or are similar to an aspect of the traumatic event, and (e) physiological reactivity upon exposure to external or internal cues that represent or are similar to an aspect of the traumatic event (APA, 2000). Of these five symptoms, three have been modified to make them applicable to children. First, recurrent and intrusive recollections may be expressed through repetitive play that contains themes or aspects of the trauma. Second, instead of having recurrent distressing dreams of the event, children may have frightening dreams without recognizable content. Finally, children may experience trauma-specific re-enactment, instead of acting or feeling as if the traumatic event were recurring.

Criterion C (avoidant and numbing) requires the presence of at least three symptoms related to persistent avoidance and numbing of general responsiveness to stimuli associated with the trauma; these symptoms were not present before the trauma. These include: (a) efforts to avoid thoughts, feelings, or discussions of the trauma; (b) efforts to avoid activities, places, or people that arouse recollections of the trauma; (c) unable to recall an important aspect of the trauma; (d) significant reduction in interest or participation in activities; (e) feelings of detachment or disengagement from others; (f) restricted range of affect; and (g) a sense of a foreshortened future.

Criterion D (hyper-arousal) requires that at least two symptoms of increasing arousal be present that were not present before the traumatic event. These include sleep disturbance; irritability or outbursts of anger; concentration difficulty; hypervigilance; and exaggerated startle response. In order to meet the diagnosis of PTSD, symptoms (in Criteria B, C, and D) must be present for at least 1 month and cause significant distress and impairment in important areas of functioning.

Acute Stress Disorder (ASD) is an anxiety disorder that occurs within a month of a traumatic event. The main criterion is the same as for PTSD and that the diagnosis requires the presence of symptoms of re-experiencing, persistent avoidance, and hyperarousal. However, unlike PTSD, dissociative symptoms such as derealization and depersonalization are emphasized in ASD.

DSM-IV and ICD-10 differ in the way the main criterion of PTSD is defined. Specifically, ICD-10 states that the person must have been exposed to a "stressful event or situation of an exceptionally threatening or catastrophic nature, which is likely to cause pervasive distress in almost anyone" (WHO, 1992, p. 147). Furthermore, ICD-10 does not specify the minimum number of symptoms that is required for the diagnosis to be met.

The diagnostic guidelines for ICD-10 state that the disorder should only be diagnosed after 6 months from the time of exposure to the trauma and the symptoms cannot be better accounted for by another disorder.

Problems with the DSM and ICD in the Classification of Anxiety Disorders in Children and Adolescents

Despite the widespread application of DSM-IV and ICD-10 in diagnosing anxiety disorders in children and adolescents, there are a number of limitations. These include: lack of developmental consideration, high comorbidity rates, reliability and validity issues, and vagueness of the criterion threshold.

Lack of developmental consideration

Except for separation anxiety disorder, all of the anxiety disorders in DSM-IV are grouped together regardless of their age of onset. This means that the same criteria can be applied to children, adolescents, and adults, although the decision for this continues to attract much debate. The focus of the debate lies around DSM-IV's insensitivity to the developmental aspects of anxiety disorders (Whiteside & Ollendick, 2009). As shown by several authors, anxiety/worry tends to change in its magnitude and character due to differences in cognitive, emotional, and social development across age. For example, common fears among toddlers include dark and separation from attached figures, whereas among school-aged children, these include fear of injury and natural disasters (Muris, Merckelbach, & Collaris, 1997). Among adolescents, the fears are mostly related to rejection from others (Muris et al., 1997). Studies have also shown that fears decrease with age (Ollendick, Matson, & Helsel, 1985), whereas some anxiety disorders such as social phobia (Essau, Conradt, & Petermann, 1999) increase with age.

DSM-IV acknowledges this limitation by modifying some symptom features for some disorders which are unique for certain age groups (Beesdo, Knappe, & Pine, 2009). For example, the threshold for GAD is lower in children compared to adults, in that only one instead of three out of six symptoms is required to meet GAD. In ICD-10, children are given different (than adults) diagnostic coding for anxiety disorders that show deviation from normal developmental trends (Beesdo et al., 2009).

High comorbidity

Comorbidity seems to be the rule rather than the exception among children and adolescents with anxiety disorders, with up to 72% of those who meet the diagnosis of anxiety disorders meeting criteria for at least one other psychiatric disorder (Angold, Costello, & Erkanli, 1999; Essau, Conradt, & Petermann, 2000; Feehan, McGee, Nada-Raja, & Williams, 1994; Lewinsohn, Zinbarg, Seeley, Lewinsohn, & Sack, 1997; Kashani & Orvaschel, 1988; Strauss & Last, 1993). The most common comorbid disorder with anxiety is that of depression (Anderson, Williams, McGee, & Silva, 1987; Lewinsohn et al., 1997; McGee, Feehan, Williams, Partridge, Silva, & Kelley, 1990). Among those with anxiety and depression, anxiety generally occurs first before that of depression (Lewinsohn et al., 1997; McGee et al., 1990).

The underlying assumption of the categorical approach is that each anxiety disorder can be recognized as qualitatively different from other disorders. However, the high comorbidity rate has raised questions about the meaningfulness of our current classification systems because it seems to suggest that disorders may not be distinct or, in the least, have not been sufficiently differentiated from one another (Seligman & Ollendick, 1999).

Regardless of the meaning of comorbidity in terms of classification, the presence of comorbid disorders presents a challenge to the clinician as it could cloud the focus of treatment. In the presence of comorbid disorders, clinicians need to decide which disorder should be given priority in terms of treatment (e.g., severity versus order of onset). Answers to these questions may help us design effective treatment for anxiety disorders with comorbid disorders (Brown & Barlow, 2009). Curry, Wells,

Lochman, Craighead, and Nagy (2003) argued that comorbidity necessitates the choice of one of three systematic approaches: sequential treatment (i.e., treating the primary disorder first, and the comorbid disorder second); common process treatment (i.e., targeting common process of both disorders); and modular treatment (i.e., an integrative approach to both disorders that involves addressing the processes which are specific to each disorders). Some other authors have argued (Kendall, Kortlander, Chansky, & Brady, 1992; Oei & Loveday, 1997) that complete treatment is needed to address the principal and comorbid disorders and that we should not expect that the treatment of any one disorder will necessarily produce positive outcomes for the comorbid disorders.

Criterion threshold

A further criticism of the categorical approach is the seemingly arbitrary and dichotomous nature of diagnoses, which specifies that a certain symptomatic threshold criterion (i.e., number of symptoms, their duration, persistence) and clinical significance must be present before diagnoses can be made. Therefore, if a child reports a range of symptoms but falls short of one criterion, a diagnosis will not be made (or meet a nonspecific classification of, for example, anxiety disorder not otherwise specified). This one criterion could be related to number of symptoms (i.e., two symptoms instead of three), duration (five months instead of six), persistence (three instead of four); in still other instances, all the symptoms criteria may be met but these symptoms fail to cause significant impairment (Beesdo et al., 2009; Shear, Bjelland, Beesdo, Gloster, & Wittchen, 2007; Wakefield & First, 2003). For this reason, some authors (Beesdo et al., 2009), have proposed to lower the threshold for children in order to allow early detection of children with anxiety problems so that adequate treatment can be provided.

In DSM-IV the "clinically significant distress and impairment" criterion was introduced to reduce the false-positive problem (Wakefield & First, 2003). However, the introduction of this criterion has been criticized because of the lack of uniform criteria for determining impairment across the lifespan (Wittchen & Jacobi, 2005). It has been argued that the early stage of some anxiety disorders (e.g., specific phobia) may be easier to detect than at the later stage where avoidance behavior has led to periods of not experiencing severe anxiety reactions and impairment (Wittchen & Jacobi, 2005).

The inclusion of "clinically significant distress and impairment" criterion influences both the prevalence and probable course and outcome of anxiety disorders. This point is clearly illustrated in a study by Zimmerman and colleagues (2004) who showed that the addition of this criterion significantly reduced the prevalence of anxiety disorders (specific phobia, PTSD, GAD). Similarly in a study by Shaffer, Fisher, Dulcan, and Davies (1996), the prevalence of anxiety significantly increased when the clinical significance criterion threshold was lowered or omitted.

Bittner, Goodwin, Wittchen, Beesdo, Höfler, and Lieb (2004) examined the extent to which anxiety disorders and impairment associated with anxiety disorders predict major depression. Their findings showed that GAD in early adolescence was the best predictor of major depression in young adulthood, followed by panic disorder, agoraphobia, specific and social phobia. Greater risk of developing a major depression was associated with impairment in one or more social roles. Furthermore, the

vagueness in the definition of "clinically significant" has been considered as being responsible for the lack of reliability of anxiety disorders reported in some early studies (Hodges, Cools, & McKnew, 1989). Another related issue is the way in which anxiety symptoms manifest themselves differently in different age groups. In this case, the clinician must make a judgment whether the behavior falls outside developmentally appropriate behavior in a child. Therefore, a clearer definition of this threshold would improve diagnostic reliability (Albano, Chorpita, & Barlow, 2003; Whiteside & Ollendick, 2009).

Reliability and validity issues

Classification systems provide a common language and facilitate communication, guide treatment, and inform research (Lewis & Araya, 2001). However, in order for these functions to be useful, psychiatric diagnoses such as anxiety disorders need to be reliable and valid (Lewis & Araya, 2001). Diagnostic reliability is normally assessed using test–retest (i.e., stability of diagnoses over time) or inter-rater reliability (i.e., agreement of child's diagnosis across assessors) methods.

Inter-rater reliability of the anxiety disorders in children and adolescents used to be poor, with kappa values ranging from 0.24 to 0.84, with a mean of 0.52 (Hodges et al., 1989). However, the development of structured or semi-structured diagnostic interview schedules such as the Diagnostic Interview Schedule for Children (DISC; Shaffer, Schwab-Stone, Fisher et al., 1993) and the Anxiety Disorders Interview Schedule for Children (ADIS; Silverman & Albano, 1996) has greatly enhanced inter-rater reliability of anxiety disorders. For example, Lyneham, Abbott, and Rapee (2007) examined the inter-rater agreement on diagnoses achieved using the parent and child versions of the ADIS-IV in 7- to 16-year-old children with anxiety disorder. The level of agreement for principal diagnosis (kappa = 0.92) and for the individual anxiety disorders (kappa = 0.80–1.0) was excellent when information from parent and child interviews was combined. Agreement ranged from good to excellent when the analysis was done separately for child or parent interviews; inter-rater agreement was not affected by the participant's age or gender.

Some other studies have, however, showed less positive results. For example, Rapee, Barrett, Dadds, and Evans (1994) examined parent–children agreement for the DSM-III-R anxiety disorders and for each specific anxiety disorder (separation anxiety disorder, overanxious disorder, social phobia, specific phobia). Their results showed poor parent–child agreement for overall anxiety disorders and for each anxiety disorder. Levels of agreement between parents and children were affected by the child's age and gender. Specifically, high agreement was reported for older compared to younger, and for boys compared to girls on the overall anxiety category and for social phobia specifically. Grills and Ollendick (2003) similarly found poor levels of parent–child agreement for specific phobia, social phobia, separation anxiety disorder, and GAD. Parent-consensus agreement varied from poor (for specific and social phobia) to good (separation anxiety disorder and GAD). The level of agreement was higher for parent-consensus compared to child-consensus. This finding suggested that clinicians were more inclined to favor information from the parents than from the children. In line with previous findings (Rapee et al., 1994), Grills and Ollendick (2003) also found higher agreement for older than for younger children. In terms of gender, parents

showed higher agreement on social phobia and separation anxiety with their sons than did parents of daughters.

The test–retest reliability of anxiety disorders seems to differ across diagnostic interview schedules (Angold, 2002), with values ranging from 0.59 for K-SADS and DISC-IV to 0.82 for intraclass agreement. Silverman, Saavedra and Pina (2001) examined the test–retest reliability of the DSM-IV anxiety symptoms and disorders in children with the ADIS. The children and their parents were interviewed using the ADIS for DSM-IV with an interval of 7–14 days. Results showed excellent reliability in symptoms for SAD, social phobia, specific phobia, and GAD. Good to excellent reliability was also obtained when diagnoses of these disorders are combined.

Despite these limitations with agreement among informants, categorical systems such as the DSM and ICD are important for guiding research, education/training, and clinical practice. Moreover, in clinical settings, the two systems are often associated with reimbursement for treatment services.

Dimensional approach of classification

In the dimensional system, anxiety is defined as a set of emotions and behaviors which occur together in a specific pattern. Anxiety is viewed as existing on a continuum, with children experiencing varying levels of anxiety. In addition to the children themselves, their parents and teachers are often asked questions about the children's behavior in order to derive anxiety symptoms and their severity levels. The threshold between normal and abnormal anxiety is derived using various statistical methods such as factor analysis and confirmatory factor analysis. Assessment in a dimensional approach relies on rating scales.

A major advantage of a dimensional compared to a categorical approach is that it more readily accounts for developmental changes in children, is easier to administer, and is therefore less costly (Essau, Petermann, & Feehan, 1997). It also provides normative data which could be differentiated by gender and age groups. More importantly, it helps to provide sufficient coverage of symptom presentation that may be of clinical significance when criteria for diagnostic categories are not met (Brown & Barlow, 2009). As such, the dimensional approach to classification of anxiety is useful as a screening instrument, particularly in community surveys. An example of a screening instrument is the Spence Children's Anxiety Scale (SCAS; Spence, 1998). The SCAS is a self-report questionnaire, designed to assess children and adolescent's perception of the frequency with which they experience symptoms relating to DSM-IV SAD, social phobia, panic disorder and agoraphobia, GAD, OCD, and fears of physical injury (i.e., specific phobia). The internal consistency of the SCAS has been reported to be excellent, with Cronbach Alpha for the total score reported to be 0.92 (Spence, 1998). The test–retest reliability coefficients have also been reported to be high, ranging from 0.60 to 0.86, for retest intervals between 2 and 12 weeks (Ishikawa, Sato, & Sasagawa, 2009; Mellon & Moutavelis, 2007; Spence, 1998).

Studies (Spence, 1997, 1998; Spence, Barrett, & Turner, 2003) that examined the factor structure of SCAS have provided strong support for a six-correlated factor model which involved six factors related to separation anxiety disorder, social phobia, panic disorder and agoraphobia, GAD, OCD, and fears of physical injury. In terms of its validity, studies have demonstrated differences between anxious children and

non-anxious children on the SCAS (Spence, 1998; Whiteside & Brown, 2008). The convergent validity of the SCAS has been established through its positive correlations with measures that purport to assess the construct of anxiety such as the Revised Children's Manifest Anxiety Scale (Reynolds & Richmond, 1978) and depression such as the Children's Depression Inventory (Kovacs, 1985) and the Depression Self-Rating Scale (Birleson, 1981) (Essau, Muris, & Ederer, 2002; Ishikawa et al., 2009; Spence et al., 2003).

Another example of a self-report questionnaire that is commonly used to measure the frequency and severity of anxiety in children and adolescents is the Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher, Khetarpal, Brent, et al., 1997). Exploratory factor analysis of the SCARED has revealed five factors, of which four measure anxiety disorder symptoms as conceptualized in the DSM-IV classification of anxiety disorders (panic/somatic, generalized anxiety, separation anxiety, and social phobia). The fifth subscale measures school phobia, which is a common type of childhood problem, but not necessarily anxiety related (King, Ollendick, & Tonge, 1995). The internal consistency of the SCARED has been reported to be good to excellent, with Cronbach Alphas ranging from 0.78 to 0.90 (Birmaher et al., 1997; Birmaher, Brent, Chiappetta, Bridge, Monga, & Baugher, 1999); moreover, the test–retest reliability on an average of 5 weeks has been reported to be moderate, with intraclass correlation coefficients ranging from 0.70 to 0.90. In terms of its validity, the SCARED has been reported to correlate significantly with other measures for anxiety in children and adolescents such as with the SCAS (Essau et al., 2002), the Revised Children's Manifest Anxiety Scale (Muris, Merckelbach, Mayer, et al., 1998), and with the internalizing subscale of the Child Behavior Checklist (Su et al., 2008). Finally, studies that focused on the factor structure of the SCARED have revealed a five-factor solution: panic/somatic, generalized anxiety, separation anxiety, social phobia, and school phobia (Birmaher et al., 1997, 1999; Crocetti, Hale III, Fermani, Raaijmakers, & Meeus, 2009; Hale III, Raaijmakers, Muris, & Meeus, 2005). As dimensional rating scales, the SCAS and the SCARED can be used to provide information about the severity of anxiety symptoms, which could assist with diagnosis, treatment planning, and measuring treatment outcomes (Silverman & Ollendick, 2008).

A problem with the dimensional approach, however, is that it does not allow the formulation of a clinical diagnosis of anxiety and, relatedly, the cut-off used to indicate "caseness" can be arbitrary (Essau et al., 1997). Furthermore, the results obtained may depend on the type of statistical procedures, the number and content of items, and the number of children and adolescents examined in the analyses.

Adding Dimensional Features of Anxiety to DSM/ICD?

In view of the above findings and debates, nosological systems need to consider (a) differences in the expression of anxiety symptoms across developmental stage and gender; (b) differences across informants; and (c) children's tendency to show various problems that are anxiety related (Hudziak, Achenbach, Althoff, & Pine, 2007). It is therefore important to have a system that enables the inclusion of categorical descriptors (e.g., anxiety disorders) and dimensional profiles (i.e., deviation for anxiety problems) (Hudziak et al., 2007). Hopefully, a dimensional profile would give

evidence-based information to determine changes in children's categorical descriptions (i.e., the presence or absence of anxiety disorders) and the extent to which the core and associated symptoms (e.g., avoidance, impairment) have changed. Furthermore, as argued by some authors, when studying childhood anxiety, knowledge of age-related expression of anxiety or other mood states that are considered normal is important because these states can be considered abnormal at one age and normal at another (Hudziak et al., 2007).

Additionally, the use of multiple sources of information (i.e., parents, teachers, children) often make it difficult to categorize children as having "normal" or "abnormal" anxiety because of lack of agreement among informants when reporting children's level of anxiety. In this case, it is important to consider whether decisions need to be made by using averages of anxiety symptoms across informants or based on the most severe problems as reported by any one or combination of informants (Hudziak et al., 2007). Brown and Barlow (2005, 2009) have also convincingly argued for the introduction of dimensional severity ratings to the extant diagnostic categories because such information should help to address some of the disadvantages of using only the categorical approach.

Conclusion

Our review has shown two major approaches to classifying anxiety disorders. This review has made us aware of numerous problems with our current classification systems of anxiety disorders in children and adolescents which warrant consideration in future studies:

- Categorical systems of classification (i.e., DSM-IV and ICD-10) make little attempt to adequately address the developmental perspectives in anxiety disorders, which is surprising given substantial age differences in the occurrence and expression of anxiety.
- The validity of using DSM-IV and ICD-10 diagnostic criteria which have been designed for adults to diagnose anxiety disorders in children and adolescents is yet to be fully determined.
- Adding dimensional features of anxiety to complement the categorical aspects of DSM/ICD is recommended.

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