Anxiety disorders are one of the most prevalent categories of childhood and adolescent psychopathology. Due to their distressing, time-consuming, and/or debilitating nature, impairments in academic, social, and family functioning are often substantial. This article reviews the nature, etiology, assessment, and treatment of anxiety disorders in youth. We conclude by reviewing implications for nurses involved in the care of youth with anxiety disorders.

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Key words: Anxiety disorders; Children; Treatment; Obsessive-compulsive disorder; Social phobia; Cognitive-behavioral therapy

Anxiety disorders are conditions in which extreme, often disabling, anxiety or fear is the shared primary symptom. Normal anxiety may be defined as “a diffuse, unpleasant, vague sense of apprehension, often accompanied by autonomic symptoms—such as headaches, palpitations, tightness in the chest, restlessness, mild stomach discomfort that can be an appropriate response to a threatening situation or stimulus” (Kaplan & Sadock, 1998, p. 591). Whereas fear is considered specific and targeted, anxiety is considered more diffuse and unfocused. Pathological anxiety and fear, as compared to normal symptoms, are diagnosable conditions when the anxiety, fear, or both cause significant distress, interfere with functioning, or are marked by time consumption (American Psychiatric Association [APA], 2000).

When distinguishing normal, transient anxiety symptoms from pathological conditions, clinicians should be sensitive to age- and gender-appropriate norms in relation to developmental tasks and progressions. The nature of a child’s fears and anxieties changes throughout childhood as developing cognitive abilities enable youth to recognize and understand dangers in different situations as well as to evaluate their sense of control over a particular situation (Ollendick, Yule, & Ollier, 1991). In the field of child and adolescent development, evidence-based studies systematically measure child populations at different ages to assess similarities and differences across different developmental periods, spanning prenatal to older adolescent development (Bongers, Koot, van der Ende, & Verhulst, 2003; Muris, Merckelbach, Mayer, & Prins, 2000). These studies provide developmental norms and characterize normal versus pathological development. Common fears in infancy include fears of loud noises, being startled, and strangers. Toddlers are commonly fearful of the dark as well as separating from attachment figures. Among school-aged children, common worries include fears of loud noises, being startled, and strangers. Toddlers are commonly fearful of the dark as well as separating from attachment figures. Among school-aged children, common worries include concerns regarding injury and natural disasters. Older children and adolescents experience competency-based concerns and also have worries associated with the health status of themselves and others (American Academy of Child and Adolescent Psychiatry [AACAP], 2007).

Although all children report fears and worries (Lapouse & Monk, 1964), it is when the frequency and intensity of such symptoms are excessive or exaggerated in relation to the developmental norm that concern about psychopathology should be noted. A clinical diagnosis is warranted when the child’s symptom presentation meets specific diagnostic criteria (outlined below) and causes
significant distress or impairment in functioning. Research has demonstrated that children with anxiety disorders have significant impairments in academic, familial, or social functioning (Langley, Bergman, McCracken, & Piacentini, 2004), with those experiencing chronic symptoms often reporting persistent interference in everyday functioning into adulthood (Pine, Cohen, Gurley, Brook, & Ma, 1998).

### SYMPTOMS OF ANXIETY

According to Lang’s (1968) multiple-systems theory of emotion, symptoms are of a cognitive (e.g., worry thoughts), physiological (e.g., racing heart rate), or behavioral (e.g., avoidance) nature. The cognitive component of anxiety is related to the anxious thoughts that develop in response to cognitive distortions in the attention, interpretation, and memory components of information processing (Beck, 1976). Although the specific content of thoughts varies across anxiety orders, these thoughts are generally focused on the risk of being harmed (Rinck & Becker, 2005). Table 1 provides examples of worries or cognitive distortions associated with specific anxiety disorders.

The physiological component of anxiety disorders consists of the associated autonomic or somatic sensations. Although individuals experience physiological arousal symptoms in response to feared situations, individuals with anxiety disorders experience physiological symptoms that are excessive in duration or intensity for the particular situation or stimulus (Hoehn-Saric & McLeod, 2000). Sleep-related problems are more prevalent among clinically anxious youth and are associated with increased anxiety severity and interference in family functioning (Alfano, Ginsburg, & Kingery, 2007). In a recent study of sleep-related problems in children with generalized anxiety disorder (GAD), separation anxiety disorder (SAD), and/or social phobia, Alfano et al. (2007) reported that the most common sleep-related problems were insomnia, nightmares, and refusal/reluctance to sleep alone. Table 2 presents a complete list of the most common physiological symptoms associated with anxiety disorders.

The behavioral component of anxiety refers to the action that individuals take to prevent exposure to feared stimuli or to reduce anxiety associated with exposure to the feared stimuli. Among the most common behavioral symptoms associated with the anxiety disorders is avoidance, in which individuals avoid specific stimuli (e.g., bridges) or situations (e.g., public speaking) to prevent anticipated harm. Avoidance often leads to impairment in maintaining normal routines or in family, academic,

<table>
<thead>
<tr>
<th>Anxiety Disorder</th>
<th>Sample Worries</th>
<th>Anticipated Harm</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAD</td>
<td>Being separated from caretaker</td>
<td>Harm to self or caretaker</td>
</tr>
<tr>
<td>PD</td>
<td>Being unable to escape the current situation</td>
<td>Dying, losing control, or going crazy</td>
</tr>
<tr>
<td>Social phobia</td>
<td>Negative social judgment</td>
<td>Being embarrassed, negatively evaluated, or rejected</td>
</tr>
<tr>
<td>PTSD</td>
<td>Past traumatic event</td>
<td>Reexperiencing the traumatic event</td>
</tr>
<tr>
<td>OCD</td>
<td>Contamination</td>
<td>Contracting a disease</td>
</tr>
<tr>
<td>GAD</td>
<td>Routine life issues such as academic performance or social interactions</td>
<td>Wide range of possible negative outcomes (e.g., failure, rejection)</td>
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### Table 1. Content of Anxious Thoughts for Specific Anxiety Disorders

<table>
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### Table 2. Somatic and Sleep-Related Symptoms of Anxiety Included in the DSM-IV-TR

<table>
<thead>
<tr>
<th>System</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiac</td>
<td>accelerated heart rate, heart palpitations, chest pain, shortness of breath, heart pounding</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>difficulty swallowing, nausea, diarrhea, gastrointestinal discomfort, frequent urination</td>
</tr>
<tr>
<td>Respiratory</td>
<td>shortness of breath, smothering sensation, choking sensation, dry mouth</td>
</tr>
<tr>
<td>Neurological</td>
<td>numbness, tingling, trembling/shaking</td>
</tr>
<tr>
<td>Temperature regulation</td>
<td>sweating, hot flashes, chills</td>
</tr>
<tr>
<td>Vestibular system</td>
<td>dizziness, light-headedness, faintness, feeling unsteady</td>
</tr>
<tr>
<td>Sleep-related problems</td>
<td>insomnia, reluctance/refusal to sleep alone, nightmares, talks/walks in sleep, excessive tiredness</td>
</tr>
<tr>
<td>Others</td>
<td>exaggerated startle response, muscle tension</td>
</tr>
</tbody>
</table>
and/or social domains of functioning. Another behavioral symptom associated primarily with obsessive–compulsive disorder (OCD) is the engagement of rituals (e.g., hand washing) that serve to reduce anxiety. These rituals are either excessive or unrealistic strategies for preventing the feared situation from occurring (Storch & Merlo, 2006).

**EPIDEMIOLOGY**

Several large, methodologically rigorous epidemiological studies have indicated that anxiety disorders are one of the most prevalent categories of childhood and adolescent psychopathology (Anderson, Williams, McGee, & Silva, 1987; Chavira, Stein, Bailey, & Stein, 2004; Kashani & Orvaschel, 1990; McGee et al., 1990). The most recent prevalence estimates from a pediatric primary care sample including more than 700 families suggest that approximately 20% of children (ages 8–17 years) were above the clinical cutoff on a brief anxiety screen measure (Chavira et al., 2004). In this study, 28% of the children with an anxiety disorder diagnosis had an additional comorbid diagnosis. In a follow-up sample of 190 families, 1-year prevalence rates for Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) child anxiety disorders were as follows: 10% for specific phobia, 6.8% for social phobia, and 3.2% for GAD (Chavira et al., 2004). Recent epidemiological studies of pediatric OCD show that by late adolescence (age 18 years), the lifetime prevalence rate of OCD is between 1% and 4% (Douglass et al., 1995; Zohar, 1999), and studies of SAD indicate prevalence rates of approximately 4–5% of youth (Masi, Mucci, & Millepiedi, 2001). Although no large-scale epidemiological studies of childhood posttraumatic stress disorder (PTSD) or panic disorder (PD) exist, community-based studies indicate lifetime prevalence for PTSD ranging from 1% to 14% (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995) and lifetime prevalence for PD ranging from 1% to 5% (Grant et al., 2006).

Although comorbidity rates vary depending upon the primary diagnosis, there exists a strong comorbidity among anxiety disorders in youth (Verduin & Kendall, 2003). For example, an epidemiological study of pediatric OCD revealed that 84% of youth diagnosed with OCD had comorbid disorders, including major depression (62%), social phobia (38%), alcohol dependence (24%), and dysthymia (22%; Douglass et al., 1995). The most common comorbid diagnoses include other anxiety disorders and depressive disorders (Kovacs & Devlin, 1998). Additionally, children with anxiety disorders frequently experience other psychiatric conditions, including attention-deficit/hyperactivity disorder and disruptive disorders (Anderson, 1994).

**ETIOLOGY**

The etiology of child and adolescent anxiety may be of a biological and/or learned nature. Indeed, researchers posit that anxiety arises from a complex interaction of specific characteristics related to the child (e.g., biological, psychological, and genetic factors) and his or her environment (e.g., conditioning, observational learning, family relations, traumatic events; Weems & Stickle, 2005). There are an abundance of theoretical models that would define child and adolescent anxiety within their frame of reference.

**Biological Model**

Within a biological model of etiology, researchers have investigated genetic influences as well as neurobiological structures and circuits. A recent meta-analysis of the genetic epidemiology of anxiety disorders demonstrated that PD, phobias, OCD, and GAD aggregate in families and concluded that genetic factors have a moderate influence on the development of anxiety disorders (Hettema, Neale, & Kendler, 2001). Researchers have suggested that, although clearly not the only contributing influences, genetic factors may help us understand why certain individuals exposed to similar experiences have different responses and outcomes concerning the development of pathological anxiety (National Institute of Mental Health, 1999).

Research aimed at identifying specific brain areas and circuits underlying anxiety disorders has provided support for neurobiological influences in anxiety. The most support for neuroanatomical influences has come from research investigating the amygdala’s role in fear conditioning. Research in this area has implicated the amygdala in the pathophysiology of anxiety disorders (Rauch, Shin, & Wright, 2003). Neurochemical factors have also been implicated in the development of anxiety symptoms. Abnormal function of serotonin, norepinephrine, dopamine, and γ-aminobutyric acid systems as well as abnormal chemoreceptor reactivity have all been implicated in anxiety (Millan, 2003).
Cognitive–Behavioral Model

Within a cognitive–behavioral model, abnormal thoughts, feelings, and behaviors are described as reactions that have been learned as a result of conditioning and observation. Wolpe (1958), a behavioral theorist, highlighted behavioral conditioning as an important etiological factor in the development and maintenance of anxiety and posited that an individual associates a threatening stimulus with a nonthreatening stimulus so that the latter by itself triggers anxiety. Once the fearful or anxious reaction has been learned through classical conditioning, the fear or anxiety is maintained through the operant mechanism of negative reinforcement (Mowrer, 1947). Negative reinforcement is manifested by avoidance learning, escape learning, or both. Escape learning involves terminating an aversive situation, whereas avoidance learning involves avoiding fear- or anxiety-provoking situations. Consequently, without opportunities for new learning provided by exposure, the fear or anxiety does not extinguish. This process of acquisition and maintenance of fears is known as Mowrer’s two-factor theory (Mowrer, 1947).

In addition to the two-factor theory, observational learning influences the development of anxiety. Children learn about anxiety-provoking situations by observing others experience such situations or by acquiring information through activities like reading or watching the news on television (Rachman, 2004). Furthermore, they are capable of retaining and reproducing event memories acquired via observational learning (Murachver, Pipe, Gordon, Owens, & Fivush, 1996). Finally, cognitive theorists posit that cognitive biases, including attentional biases toward threat-related information, distorted judgments of risk, and selective memory processing, impact the development of anxiety (Craske & Pontillo, 2001).

Ecological Models

Ecological models focus on the impact of the family system and other environmental influences on the development of anxiety disorders and particularly highlight the bidirectional relationships among child, family, and other environmental contributions to anxiety. For example, research has revealed relationships among levels of child temperament characteristics (i.e., behavioral inhibition), insecure parent–child attachment, and anxious and controlling parenting styles (Elizabeth et al., 2006; van Brakel, Muris, Bogels, & Thomassen, 2006). Parental modeling of fearful and anxious expressions and behaviors has also been found to contribute to the development of anxiety in children (Muris, Steerneman, Merckelbach, & Meesters, 1996). Additionally, environmental factors outside the family system, such as poverty and community violence, directly and indirectly (through influence on family functioning and relationships) contribute to the development of anxiety (Cicchetti & Lynch, 1993; Lynch & Cicchetti, 2002; Samaan, 2000).

**DSM-IV-TR Anxiety Disorders**

The core symptoms for six anxiety disorders are listed in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR)*; APA, 2000 and are described below. In keeping with the understanding of the importance of developmental issues when diagnosing disorders, the *DSM-IV-TR* provides notes when criteria specifically relate to children. For example, it is noted in *DSM-IV-TR* that in children, the anxiety may be expressed by crying, tantrums, freezing, or clinging. Unlike adults, children are not required to acknowledge that their fears are unreasonable or excessive (with respect to specific phobias, social phobia, and OCD). Finally, persistence of a diagnosis for at least 6 months is required for specific and social phobias in children to minimize the overdiagnosis of transitory, normal developmental fears (APA, 2000).

**Separation Anxiety Disorder**

SAD is characterized by excessive worry about separation from another person who represents safety for the affected child, typically a parent. In new, unfamiliar, or feared situations, youth with SAD are often dependent on their safety figure. Common features of the disorder include excessive demonstration of distress upon real or threatened separation (e.g., tantrums, crying, somatic complaints), fear of harm or permanent separation from caretaker, and fear of getting lost, kidnapped, or dying. School refusal is a common symptom of SAD, occurring in approximately 75% of children with the diagnosis (Masi et al., 2001). When separated from the person representing safety, significant worry about self or the person representing safety results in both distress and interference with functioning (APA, 2000). For example, the child may resist participating in social or academic activities like reading or watching the news on television (Craske & Pontillo, 2001).
activities, resulting in a disruption of the development of competency in these domains.

Within the clinical setting, children with SAD may present with sleep problems, such as nightmares (often with a theme of separation from, or harm to, the attachment figure). Furthermore, these children may experience a number of somatic complaints (e.g., stomachache) related to the distress associated with SAD. The presence of clingy and whiny behavior within the clinical setting may also be an indicator of SAD. The clinical presentation of SAD may vary with age, with younger children exhibiting excessive crying and temper tantrums upon separation from the attachment figure and older children displaying social withdrawal and manipulative behavior to avoid school or separation (Francis, Last, & Strauss, 1987).

Panic Disorder

PD is characterized by both the actual occurrence of panic attacks and persistent worry and vigilance about prospective symptoms of another panic attack. Panic attacks involve an overwhelming fear of being in danger for no apparent reason as well as physiological symptoms such as pounding heart or chest pain, sweating, trembling or shaking, shortness of breath or choking sensation, nausea, dizziness, feelings of unreality or depersonalization, and fear of going crazy or dying (APA, 2000). Panic is, by definition, severe distress. PD can be quite disabling because of efforts to avoid particular situations or stimuli believed by the individual to trigger panic attacks (Biederman et al., 1997). The most common symptoms reported are palpitations, shortness of breath, sweating, faintness, and weakness. In adolescence, chest pain, flushes, trembling, headache, and vertigo are also commonly reported symptoms. In youth, cognitive symptoms are less common, with the most frequent cognitive symptoms being a fear of losing control (Masi, Favilla, Mucci, & Millepiedi, 2000). As with adults, there is a strong association between PD and agoraphobia in youth (Masi et al., 2000). Individuals with agoraphobia experience anxiety related to being in places or situations from which escape might be difficult or in which help may not be available in the event of having a panic attack. As a result, they often avoid such situations or endure them with severe distress (APA, 2000).

The presenting problem for youth with PD will pertain to one or more of the many physiological symptoms of panic attacks. Parents of youth with PD may also report agoraphobic symptoms related to their child’s panic attacks. Unlike in adulthood, catastrophic interpretations of physiological symptoms may not be part of the clinical presentation (Ollendick, 1998). PD is less common in childhood than in adolescence, and the clinical presentation of PD varies across the developmental span (Diler et al., 2004). Specifically, younger children’s panic attacks are often related to particular triggering events whereas adolescent’s panic attacks are more often reported as unexpected and not linked to a particular antecedent event (Ollendick, 1998).

Social Phobia

Social phobia, or the fear of embarrassment or negative evaluation in social or performance situations, is manifested by the avoidance of situations in which the child fears acting in a humiliating or embarrassing manner (APA, 2000). The DSM-IV-TR notes that, in children, there must be evidence of the capacity for age-appropriate social relationships with familiar people, and the anxiety must not be limited to interactions with adults but must occur in peer settings as well (APA, 2000). Three main factors in the development and maintenance of social phobia are highlighted: (a) cognitive biases (e.g., beliefs that individuals will predictably interact with others in a manner that will elicit rejection and/or negative evaluation from others), (b) deficits in social skills, and (c) operant conditioning (e.g., negative reinforcement for avoidance behaviors; Kashdan & Herbet, 2001). Researchers describe a vicious cycle, in which anticipatory anxiety of a perceived threatening social situation leads to negatively biased cognitions and anxiety symptoms in the feared situations, which consequently leads to actual or perceived poor performance in the feared situations, which then leads to embarrassment and increased anticipatory anxiety about the feared situations (Hirsh & Clark, 2004). Children and adolescents with social phobia have been found to experience greater sensitivity to rejection, report fewer friendships and close relationships, and perceive less social support and acceptance from peers (LaGreca & Lopez, 1998).

Within the clinical setting, youth with social phobia may present as shy and socially withdrawn and may exhibit noticeable anxious–somatic symptoms, including blushing, sweating, and shaking, when interacting with unfamiliar people. Limited eye contact is also quite common. In extreme presentations, youth may have difficulty
with articulation or may become mute. Interpersonal deficits may be evident when interacting with socially phobic youth, who often report having few close friendships with their peers. Whereas younger children with social phobia tend to hide behind adults or attempt to physically escape from a social situation, older children tend to remain in the social situation but with few efforts to engage or participate (Kronenberger & Meyer, 2001).

**Obsessive–Compulsive Disorder**

OCD is characterized by recurring intrusive thoughts or excessive worries (obsessions) and/or activities or rituals the person feels driven to perform to reduce anxiety (compulsions). The obsessions and/or compulsions are distressing, time-consuming (more than 1 hour per day), or debilitating (interfered with normal functioning; APA, 2000). The most common obsessive themes in the pediatric population include fears of contamination (e.g., dirt, germs, toxins); preoccupations about harm to self or others; the need for symmetry, exactness, and order; concerns with religious or moral conduct (e.g., being concerned with committing a sin); lucky or unlucky numbers; and preoccupations concerning forbidden sexual or aggressive thoughts (Masi et al., 2005; Swedo, Rapoport, Leonard, Lenane, & Cheslow, 1989). The most common compulsive themes include cleaning or decontamination rituals (e.g., excessive washing, bathing, or grooming); checking, counting, repeating, straightening, and routinized behaviors (e.g., doors, locks, homework, appliances); confessing, praying, and reassurance seeking; touching, tapping, and rubbing; measures to prevent harm to self or others; and hoarding and collecting (Masi et al., 2005; Swedo et al., 1989). Although rituals may provide a temporary reduction in anxiety, they do not result in long-term relief due to the persistent and recurrent nature of intrusive thoughts and images. Consequently, youth with OCD become trapped in a time-consuming and unrelenting cycle of obsessions and compulsions that leads to significant distress and impairment in functioning (Carter & Pollock, 2000).

Youth with OCD may present to health professionals with a number of physical or behavioral complaints that are consequences of obsessive–compulsive symptoms (Snider & Swedo, 2000). For example, dermatological problems may arise secondary to compulsive hand washing or skin picking. Weight loss may occur due to refusal to eat certain foods that are perceived as contaminated. Compulsive avoidance of bathrooms due to contamination fears may lead to the development of secondary encopresis or enuresis. Additionally, youth may present to their dentists with bleeding gums as a result of excessive teeth cleaning (Snider & Swedo, 2000).

Research has supported a distinction between early- and late-onset OCD, such that early-onset (i.e., prepubertal) OCD is more likely to occur in males, to be characterized by symptom presentations characteristic of compulsions without obsessions and more primitive compulsions (i.e., touching, tapping, rubbing), to have comorbid tic symptomatology, and to involve family members in their rituals (Freeman et al., 2003; Geller et al., 1998; Storch, Gelfken, Merlo, Jacob, et al., 2007). Furthermore, youth, especially young children, may lack insight into the senselessness of their OCD symptoms, and therefore, may not report their symptoms to their parents (AACAP, 1998).

**Posttraumatic Stress Disorder**

PTSD is characterized by recurrent symptoms of anxiety related to past trauma, such as physical abuse or natural disasters (APA, 2000). Cognitive, autonomic, and behavioral symptoms of anxiety are typically involved. The main manifestations of traumatic reactions include repetitive and intrusive thoughts about the trauma, flashbacks or nightmares in which the child reexperiences the trauma, heightened arousal, avoidance of stimuli associated with the trauma, sleep disturbances, and separation difficulties (Yule, 2001). Cognitive changes, such as difficulties in concentration and memory problems, are also common. Additionally, a child may report a sense of foreshortened future or a premature awareness of his or her own mortality (Yule, 2001). This disorder always involves significant distress and can result in marked interference with functioning (APA, 2000).

Primary complaints of youth with PTSD in the clinical setting may involve physiological arousal symptoms such as difficulty sleeping or exaggerated startle response. Parents of youth with PTSD may report a temporal association between a particular traumatic event and the onset of atypical behavior such as sexual acting out or aggression (Kronenberger & Meyer, 2001). It is common for youth with PTSD to be reluctant about discussing the traumatic event, and their descriptions of the traumatic event often lack a discussion of their associated emotional experience.
Generalized Anxiety Disorder

GAD involves diffuse excessive worry over a wide variety of routine daily activities such as school performance, social concerns, or family interaction. It is characterized by 6 months or more of chronic, exaggerated worry and tension that are unfounded or much more severe than the anxiety that most people experience. The excessively anxious thoughts generally involve thoughts related to negative, uncontrollable, or catastrophic outcomes. Studies of youth with GAD have demonstrated that youth selectively attend to negative and threat-related information (Taghavi, Dalgleish, Moradi, Neshat-Doost, & Yule, 2003). Avoidant behavior is common for situations that provoke anxiety. GAD may be accompanied by physiological or somatic symptoms, including trembling, twitching, muscle tension, headaches, irritability, hot flashes, nausea, frequent urination, and fatigue (Kendall & Pimentel, 2003). Symptoms must interfere with some aspect of daily functioning to meet the diagnostic criteria of GAD (APA, 2000).

As compared to children without GAD, children with GAD experience higher levels of generalized tension (Ginsburg, Riddle, & Davies, 2006), which may be described as a chronic inability to relax. Parents of children with GAD may describe their child as a “worrier” with few coping skills to effectively handle concerns. Within the clinical setting, nurses may observe children with GAD engage in excessive attempts to seek approval from their parents or other adults. Whereas younger children report anxiety pertaining to specific situations, older children increasingly report “generalized” anxiety about a number of different situations (Kronenberger & Meyer, 2001).

ASSESSMENT

The psychological and behavioral assessment of anxiety disorders is a well-studied area. It is beyond the scope of this article to conduct a comprehensive review of this topic. However, we will provide a brief overview of some of the most common assessment methods and measures in the diagnosis of anxiety disorders. Evidence-based methods of assessment include diagnostic interview schedules, rating scales, observations, and self-monitoring forms (Silverman & Ollendick, 2005). When assessing symptoms, it is important to note that an isolated behavior may not be an indicator of psychopathology. Often, psychopathology can be diagnosed when a cluster of abnormal behaviors and symptoms have been reported.

Diagnostic interviews are reliable and valid measures designed to facilitate diagnostic decisions consistent with the *DSM-IV-TR* classification system (APA, 2000). The most common diagnostic interviews employed in the diagnosis of anxiety disorders include the Anxiety Disorders Interview Schedule for *DSM-IV*—Child and Parent Versions (Silverman & Alban, 1996), Schedule for Affective Disorders and Schizophrenia for School-Age Children—Present and Lifetime Version (Kaufman, Birmaher, Brent, & Rao, 1997), and Structured Clinical Interview for *DSM-IV* (First, Gibbon, Spitzer, & Williams, 1996). These measures are clinician-administered structured interviews that assess for anxiety disorders as well as for the presence of other psychiatric disorders (i.e., disruptive behavior disorders, mood disorders, psychotic disorders). Although comprehensive and methodical, these interviews require trained administrators, are often time-consuming (lasting approximately 60–120 minutes), and can be expensive to conduct. Therefore, within clinical settings such as hospital- or school-based clinics, it may be more feasible to administer screening instruments (see below) to assess for the need to refer patients for additional, more comprehensive diagnostic evaluations.

Self-report or parent-report rating scales are relatively easy to administer (i.e., require minimal training for clinicians), can be completed quickly and independently, and are useful screening devices. Additionally, these measures can be easily readministered throughout the course of treatment to capture clinical change over time. Screening methods, such as the Screen for Child Anxiety Related Emotional Disorders—Revised (SCARED-R; Muris, Merckelbach, Schmidt, & Mayer, 1999), are helpful to provide a quick assessment of general anxiety symptoms. The SCARED has five factor-derived subscales (Panic/Somatic, Separation Anxiety, Social Phobia, General Anxiety, and School Phobia) that permit the identification of specific problem areas related to anxiety. The Multidimensional Anxiety Scale for Children (March, 1997) is another commonly used measure of general anxiety symptoms that consists of four factor-derived subscales (Physical Symptoms, Harm Avoidance, Social Anxiety, and Separation/Panic) and an Anxiety Disorders Index, which includes items found to differentiate children with and without an anxiety disorder diagnosis. The Fear Survey...
Schedule for Children—Revised (Ollendick, 1983) is a commonly used measure to assess childhood fears, and factor analytic research has identified five subscales: Fear of Failure/Criticism, Fear of the Unknown, Fear of Injury and Small Animals, Fear of Danger/Death, and Fear of Medical Situations.

In addition to general anxiety measures, syndrome-specific measures exist to assess for particular anxiety symptoms and are often utilized when clinicians have hypotheses about specific anxiety disorder diagnoses. The Social Anxiety Scale for Children—Revised (LaGreca & Stone, 1993) is used for the assessment of symptoms related to social phobia and includes items that evaluate avoidance/distress in new social situations, fear of evaluation, and general social distress. The Children’s Yale–Brown Obsessive–Compulsive Scale—Child Report and Parent Report (Storch et al., 2006), a measure of symptoms related to OCD, evaluates the severity of obsessions and compulsions based on the following criteria: distress, frequency, interference, resistance, and symptom control. Finally, the Trauma Symptom Checklist for Children (Briere, 1996) assesses symptoms related to PTSD and yields six clinical subscales: Anxiety, Depression, Anger, Posttraumatic Stress, Dissociation, and Sexual Concerns.

These self-report and parent-report measures are paper-and-pencil instruments that may be administered in a number of different settings, including school, hospital, and home environments. These measures come with easy-to-use manuals that provide instructions regarding the scoring of the responses as well as information pertaining to the norms and clinical cutoff scores for different ages to permit the identification of youth in need of further clinical attention.

Both observational and self-monitoring methods have been used less frequently in the assessment of child anxiety. Direct observation tasks include (a) social evaluative tasks in which a child is observed performing in a social situation (e.g., public speaking), (b) behavioral avoidance tasks in which a child’s response to being exposed to a fear or anxiety-provoking stimuli is observed, and (c) parent–child interaction tasks in which parent and child are observed in a problem-solving task (Silverman & Ollendick, 2005). Self-monitoring procedures identify and quantify symptoms and behaviors via diary-like entries. Although useful in evaluating and monitoring treatment outcome, compliance with self-monitoring procedures is an obstacle in youth (Saelens & McGrath, 2003). With both observational and self-monitoring procedures, further information regarding their feasibility, reliability, and validity is needed to ensure the utility of these assessment methods (Silverman & Ollendick, 2005).

Depending on the clinical setting, nurses may be able to acquire additional assessment information that may be useful for diagnosis and treatment planning purposes. For example, nurses working in the school setting may have the advantage of obtaining information from the child’s teachers regarding the child’s anxiety symptoms as compared to his or her peers (Fisher, Masia-Warner, & Klein, 2004). Additionally, school nurses may be able to identify specific precipitating factors (e.g., classroom presentations, group work) by observing the child in his or her natural school environment. Nurses working within the child’s home will have the opportunity to observe parent–child interactions within their natural setting and may also be able to assess for parental modeling of anxious coping styles. Furthermore, the nurse working in the home environment can evaluate neighborhood risk factors (e.g., community violence) that may be contributing to the child’s anxiety. Finally, within a doctor’s office or hospital setting, nurses may have the advantage of conducting a more thorough physical examination that may rule out medical explanations for somatic symptom complaints that may or may not be a function of anxiety.

TREATMENT

Practice guidelines for the treatment of anxious youth recommend a multimodal approach to treatment, and comprehensive care should include consideration of psychoeducation, cognitive–behavioral interventions, school consultation, family therapy, psychodynamic psychotherapy, and pharmacotherapy (AACAP, 2007). To date, behavioral and cognitive–behavioral interventions have received the most empirical support for the treatment of childhood anxiety (Kazdin & Weisz, 1998; Ollendick & King, 1998; McClellan & Werry, 2003), whereas there is no documented support for psychodynamic or family psychotherapies. The evidence base for pharmacotherapy approaches is growing (Kutcher, Reiter, & Gardner, 1995), and there are particularly promising results for the use of selective serotonin reuptake inhibitors (SSRIs) in the short-term treatment of childhood anxiety (AACAP, 2007). It is recommended that
medications be considered in moderate to severe cases, in cases in which anxiety-related impairment prevents participation in psychotherapy, or when the child only partially responds to psychotherapy (AACAP, 2007).

Behavioral Therapy

Behavioral interventions for the treatment of anxiety include exposure, systematic desensitization, contingency management methods, and modeling techniques (Werry & Wollersheim, 1991). With exposure exercises, an individual fear hierarchy is established, in which the child and therapist work together, using the Subjective Levels of Distress Scale (Wolpe, 1969), to rate the level of distress associated with feared situations or objects on a scale (0 [no distress] to 100 [severe distress]). Once the hierarchy is developed, the child is exposed in a stepwise fashion to identified fear-provoking stimuli and is instructed to focus on the anxiety. Exposure initially raises anxiety and distress levels; however, repeated exposure results in increased tolerance of stimuli and progressively reduced levels of anxiety upon repeated exposure. In systematic desensitization, the child is exposed to fear-provoking stimuli but is also taught to engage in an activity or response (e.g., relaxation, distraction) incompatible with anxiety. Contingency management methods serve to identify and modify the rewards that the child receives that maintain anxiety. Parents are taught to provide positive reinforcement when the child confronts fears and to remove positive reinforcement when the child engages in avoidance behaviors. Finally, modeling is a form of social learning treatment in which the child observes a participant model gradually confronting the feared situation with eventual mastery.

Cognitive–Behavioral Therapy (CBT)

Cognitive–behavioral interventions aim to teach the child to identify anxiety cues, utilize specific coping responses, and challenge anxiety-related cognitive distortions. Kendall (1994) has developed an evidence-based cognitive–behavioral treatment for anxiety in which children learn to recognize somatic reactions and anxious feelings, become aware of anxiety-related cognitions, develop a coping plan (i.e., self-talk and problem solving), evaluate coping responses, and apply self-reinforcement for adaptive coping responses. Additional cognitive–behavioral interventions include self-monitoring of anxiety symptoms, cognitive restructuring, and relaxation techniques (i.e., deep breathing, progressive relaxation; Kronenberger & Meyer, 2001).

There is strong empirical support for behavioral and cognitive–behavioral interventions for childhood anxiety delivered in individual, group, and family-based formats (Compton et al., 2004; James, Soler, & Weatherall, 2005; Silverman et al., 1999). A recent meta-analysis reported a large effect size (0.86) for CBT for childhood anxiety disorders (excluding PTSD and OCD), and results indicated that treatment gains were maintained several years following active treatment, suggesting the durability of CBT effects (In-Albon & Schneider, 2006). Randomized, controlled studies have indicated that, compared to control conditions, CBT results in significantly greater symptom improvement for social phobia (Barrett, 1998; Kendall, 1994; Kendall et al., 1997; Manassis et al., 2002; Wood, Piacentini, Southam-Gerow, Chu, & Sigman, 2006), GAD (Barrett, 1998; Kendall, 1994; Kendall et al., 1997; Manassis et al., 2002; Wood et al., 2006), SAD (Barrett, 1998; Kendall, 1994; Kendall et al., 1997; Manassis et al., 2002; Wood et al., 2006), PD (Manassis et al., 2002), OCD (Barrett, Healy-Farrell, & March, 2004; Pediatric OCD Treatment Study [POTS] Team, 2004; Storch, Geffken, Merlo, Mann, et al., 2007), and PTSD (King et al., 2000).

Psychopharmacotherapy

A recent review of pharmacological treatment for childhood anxiety disorders concluded that there is good evidence to support the efficacy of SSRIs in the treatment of anxiety disorders in children (Reinblatt & Riddle, 2007). Several recent randomized, placebo-controlled trials of SSRIs have provided evidence for the short-term efficacy of these medications in the treatment of childhood anxiety disorders, including GAD (Birmaher et al., 2003; Research Units on Pediatric Psychopharmacology Anxiety Study Group [RUPP], 2001; Rynn, Siqueland, & Rickels, 2001), social phobia (Birmaher et al., 2003; RUPP, 2001; Wagner et al., 2004), SAD (Birmaher et al., 2003; RUPP, 2001), and OCD (POTS Team, 2004). No randomized, placebo-controlled trials of SSRIs exist for pediatric PD or PTSD. Uncontrolled trials of SSRIs for pediatric PD suggest that SSRI treatment results in clinically significant reductions in symptoms (Masi et al., 2000; Renaud, Birmaher, Wassick, & Bridge, 1999). Although there are limited data
regarding the pharmacological treatment of pediatric PTSD, most clinical treatments consist of SSRIs or adrenergic agents (e.g., clonidine, propranolol) that are derived from data in adult studies (Reinblatt & Riddle, 2007). Although these studies provide promising results for the efficacy of SSRIs, there are limited data pertaining to which SSRI is most efficacious, as few trials evaluate the relative efficacy of different SSRIs.

Despite the empirical support for the efficacy of SSRIs in the reduction of anxiety symptoms, it is important to consider the side-effect profiles and other potential risks associated with the use of medication for childhood anxiety. Overall, SSRIs are generally well tolerated by patients and relatively safe if overdosing occurs (Williams & Miller, 2003). Side effects associated with SSRIs in clinical trials for pediatric anxiety disorders include gastrointestinal problems (e.g., abdominal pain, diarrhea), headaches, and insomnia (Reinblatt & Riddle, 2007). “Activation syndrome” represents another potential side effect of SSRI treatment. Activation syndrome is a term used to describe several side effects of SSRIs that commonly occur together, including irritability, somatic manifestations of anxiety, restlessness, aggressivity, disinhibition, emotional lability, impulsivity, hypermania/mania, and social withdrawal (Goodman, Murphy, & Storch, 2007). Additionally, recent reviews of the use of SSRIs in pediatric patients with anxiety disorders and major depressive disorder have indicated that SSRIs are associated with an increased risk of suicidality (Goodman et al., 2007; Hammad, Laughren, & Racosin, 2006). Given this increased risk, the U.S. Food and Drug Administration Advisory Committee has recommended that a black box warning regarding the risk of suicidality for all antidepressants in pediatric patients be included as part of the product labeling (U.S. Food and Drug Administration, 2007). Psychoeducation regarding these adverse side effects is necessary, and parents should be advised to closely monitor their child’s response to medication (Hammerness, Vivas, & Geller, 2006). Factors to consider when selecting medication and dosage include age, body weight, pubertal status, neurological status, and family history of medication response (Hammerness et al., 2006).

For short-term and more immediate relief, the high-potency benzodiazepines may be used, although these medications are habit forming and many patients report discontinuation difficulties with long-term use (Williams & Miller, 2003). Side effects of this class of drug include sedation, dizziness, and cognitive blunting. In addition, reports of behavioral disinhibition have been reported (Graae, Milner, Rizzotto, & Klein, 1994; Walkup, Labellarte, & Ginsburg, 2002). Given the potential for abuse and dependence in benzodiazepines, clinicians should have caution when considering this medication as a treatment option for pediatric populations. Currently, research is exploring the combination of CBT and psychopharmacological approaches (e.g., SSRIs) in the treatment of pediatric anxiety with promising results.

**Family Therapy**

Family therapy for child anxiety disorders is suggested if dysfunctional family interactional patterns (e.g., overcontrol, overprotection, conflict) or parental anxiety symptoms are posited to be contributing to the development or maintenance of the child’s anxiety problems. Key interventions include psychoeducation regarding the nature and maintenance of anxiety symptoms, contingency management plans, reduction of parental anxiety, cognitive restructuring techniques, improvement of the parent–child relationship, and relapse prevention (Ginsburg & Schlossberg, 2002). Studies have demonstrated the effectiveness of family-based CBT in the treatment of a number of childhood anxiety disorders (Barrett et al., 2004; Ginsburg & Schlossberg, 2002).

**Psychodynamic Therapy**

There is limited empirical support for psychodynamic therapy for anxious youth (AACAP, 2007). This type of intervention targets children’s underlying fears and anxieties through nondirective or minimally directed play (Bernstein, Rapoport, & Leonard, 1997). Goals of psychodynamic therapy include mastering themes of separation, autonomy, self-esteem, and age-appropriate behavior (Bernstein et al., 1997).

**Diagnosis-Specific Interventions**

Although the previously described interventions may be useful in the treatment of all childhood anxiety disorders, certain diagnosis-specific interventions have been established as well. Social skills training (LeCroy, 1994) for children with social phobia, in which children learn specific social skills (e.g., smiling, initiating a conversation, being assertive), assists the child in acquiring and applying social skills in social situations. For
youth diagnosed with OCD, research has demonstrated strong support for CBT with a particular focus on exposure with response prevention (E/RP) techniques. E/RP techniques involve (a) placing the child in anxiety-provoking situations associated with obsessions (exposure) and (b) preventing the individual from engaging in anxiety-reducing compulsions (response prevention; Storch, 2005).

**IMPLICATIONS FOR NURSES**

Given the considerable range of involvement that nurses may have in the care of their patients and families (e.g., on inpatient units, as prescribing practitioners), they serve an important role in the recognition of childhood anxiety symptoms. The implementation of nurse care for children with anxiety disorders should be guided by a model that includes a systematic approach to assessing and treating symptoms. Within this model, the importance of establishing a calm and safe therapeutic environment is emphasized. Additionally, maintaining a nonjudgmental and empathic perspective may be particularly helpful for youth who struggle with understanding and coping with their anxiety.

**Assessment**

The assessment process should be guided by an evaluation of the patient’s presenting problems. Given the variable nature of anxiety, it is important to assess for cognitive, physiological, and behavioral symptoms. For example, a child with PTSD may present with intrusive thoughts related to harm, sleep-related problems, and avoidance behaviors. Obtaining information from multiple informants is critical for the assessment process, as discrepant data from different informants may facilitate the development of hypotheses regarding the nature of the child’s anxiety. For example, if a teacher describes significant anxiety in the child but the parent denies observing any noticeable discomfort, it may be possible that a particular stimulus within the school environment is contributing to the child’s anxiety. When evaluating the chief complaint, it is also important to gather information regarding how the child’s anxiety interferes with his or her functioning. Anxiety symptoms may cause impairment in academic, social, and family domains.

Following a discussion of the presenting problems, the next step is to rule out potential medical causes for the child’s symptoms. Due to the multitude of somatic symptoms associated with anxiety disorders (see Table 2), a thorough physical and/or neurological examination may be needed to determine whether the child’s symptoms are psychological in nature. For example, although sleep-related problems are common features of anxiety, they may also be due to other medical conditions, such as sleep apnea.

Once the presenting problem has been deemed psychological in nature, the nurse should then assess for precipitating factors that trigger anxiety. Examples of precipitating factors include a traumatic event, exposure to social situations that may entail an evaluative component (e.g., public speaking), a physiological sensation (e.g., rapid heart rate), prevention of a compulsive ritual, or intrusive thoughts. The process of evaluating anxiety triggers may be difficult for young children who lack insight or who may not have the cognitive skills to evaluate antecedents of anxiety. However, recognition of triggers is a critical component to helping the child de-escalate anxiety symptoms.

Given the potential impact of family influences on the development and maintenance of anxiety, careful attention should also be paid to the interaction between the patient and his or her family members. Nurses should observe whether family members are reinforcing or accommodating the child’s anxiety symptoms. Furthermore, it is important to assess whether parents are modeling fearful or anxious reactions for their children. This may be especially critical if there is a history of family psychosocial problems.

Finally, it is important to screen for other psychological problems and to assess for their potential influence on the child’s anxiety. For example, a child’s oppositionality may exacerbate anxiety-related sleep problems if the child refuses to go to bed. Given high rates of comorbid psychopathology among anxiety disorders, it is also important for nurses to be aware of common comorbid conditions and their impact on treatment response. For example, a child with social phobia who also suffers from major depressive disorder may have little motivation and/or energy to engage in social interactions. Diagnosing comorbid disorders and recognizing their influence on the development and maintenance of anxiety symptoms are critical for comprehensive care.

**Treatment Planning**

Nurses play a critical role in facilitating the treatment planning process. Information obtained
by nurses during the assessment process will guide the selection of intervention methods. For example, if the nurse discovers that parental modeling of anxiety is a contributing factor to the child’s anxiety, involvement of the parent in treatment may enhance the effectiveness of treatment. If previous trials of CBT have reportedly resulted in only partial response, the nurse may recommend an additional or alternative approach (e.g., SSRI) to treatment.

Features of anxiety disorders, such as embarrassment, avoidance, resistance, and secretive behavior, may increase the complexity of the case and may have significant implications for the selection of intervention methods. For example, a patient unwilling to disclose the details of a traumatic experience may prevent clinicians from implementing proper treatment to reduce anxiety associated with the experience and accompanying distress. Additionally, a patient with limited insight into obsessive–compulsive symptoms (i.e., unable to recognize obsessive thoughts as irrational) will be particularly resistant to cognitive restructuring and may require pharmacotherapy prior to psychotherapy for CBT to be effective.

Finally, acquiring information regarding the child’s coping skills will help to identify specific targets for intervention. It is important to obtain information regarding the frequency with which the child utilizes specific coping strategies and how well the selected coping strategies are implemented. Examples of coping strategies include problem solving, acceptance, distraction, social support seeking, escape, denial, and emotional expression. If the child presents with mainly avoidance coping strategies (e.g., escape, denial) or a limited coping repertoire, he or she may benefit from instruction in more approach-oriented coping strategies (e.g., problem solving, social support seeking). Children facing uncontrollable stressors may require assistance with emotion-focused coping strategies (e.g., acceptance, emotional expression).

**Interventions for Acute Anxiety**

There are several intervention strategies that can be implemented within the clinical setting that may provide relief from acute anxiety. Labeling the child’s symptoms in a nonthreatening manner will help the child to recognize his or her anxiety and to feel comfortable in the clinical setting. Instructing the child to take slow, deep breaths may prevent the escalation of physiological symptoms. Progressive muscle relaxation exercises, in which the child is taught to tense and relax muscles from head to toes, may also facilitate a reduction in symptoms. Talking in a calm, soothing voice or playing relaxation tapes may also provide relief from acute anxiety. Encouraging the child to focus on a single object or person in the room may help the child to disengage from potentially anxiety-provoking stimuli. Finally, instructing the child to visualize a peaceful place (e.g., the beach) may also facilitate a reduction in acute anxiety.

**Formal Training**

The complexity of the characteristics associated with childhood anxiety disorders calls for clinicians with detailed knowledge concerning anxiety symptomatology as well as proper understanding of assessment and intervention techniques. This article provides an introduction to evidence-based practice in the area of childhood anxiety disorders. Nurses interested in learning specific techniques regarding assessment and intervention may gain expertise through formal training. Nurses with prescriptive privileges are encouraged to stay up-to-date regarding evidence-based recommendations for childhood anxiety disorders (both psychosocial and medication) and should be aware of the possible side effects of treatment medications. Those without formal training should consider referring patients with suspected anxiety disorders to an experienced, licensed psychologist or psychiatrist for comprehensive assessment and treatment.

**CONCLUSIONS**

Childhood anxiety disorders are one of the most prevalent categories of psychopathology in children and adolescents. They often cause significant distress and are characterized by broad impairments in academic, social, and family functioning. It is essential for clinicians to be aware of the clinical presentation of child anxiety disorders as well as proper assessment techniques for accurate diagnosis. A comprehensive assessment of childhood anxiety should capitalize on the multiple assessment techniques available, including diagnostic interviews, rating scales, and observational methods. Fortunately, evidence-based therapies exist for treatment of anxiety disorders in youth (AACAP, 2007). These include behavioral interventions, cognitive–behavioral interventions, psychopharmacology, family therapy, and psychodynamic therapy.
REFERENCES


ANXIETY DISORDERS


