Anxiety in Adolescence

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Introduction

Adolescence is a time of substantial change both physiologically and psychologically. It also is a period of time when individuals are particularly vulnerable to developing symptoms of anxiety disorders (Costello & Angold, 1995). This increased risk for the development of anxiety is likely due in part to the numerous transitions during this period. As a result, adolescence is a particularly important time regarding the development of psychopathology. This period often sets the stage for future beliefs about the self and others, developmental concerns, and interpersonal relationships, which all are factors that are important to the development of anxiety. Therefore, an accurate understanding of the vulnerability factors and the features of anxiety disorders is important for mental health professionals. The goal of this chapter is to review important areas associated with the epidemiology, etiology, assessment, descriptive psychopathology, and treatment of anxiety disorders. This chapter will review these disorders briefly with a focus on adolescence, and will conclude with comments for future research with individuals and adolescents suffering from anxiety disorders.

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Description

Anxiety disorders are one of the most prevalent psychiatric disorders, with lifetime prevalence rates of up to 31 % in the population (Kessler, 1995). The main anxiety disorders that could be the focus of attention for clinicians and researchers include panic disorder (PD), agoraphobia, social anxiety disorder (SAD), generalized anxiety disorder (GAD), obsessive-compulsive disorder (OCD), posttraumatic stress disorder (PTSD), acute stress disorder (ASD), and specific phobias (SP). PD is the fear of experiencing out of the blue physical sensations of anxiety (known as panic attacks). Agoraphobia is characterized by anxiety of places where escape may be difficult in the event that an individual has a panic attack. SAD is an excessive fear of being negatively evaluated in social or performance situations. GAD is characterized by excessive and uncontrollable worry that leads to somatic and cognitive symptoms of anxiety. OCD is characterized by obsessions, which are intrusive and distressing thoughts and images that cause anxiety, and compulsions, which are thoughts or behaviors designed to reduce this anxiety. PTSD is characterized by intrusive thoughts about a past trauma, avoidance of such thoughts, emotional numbing, and physical sensations of anxiety. ASD also involves anxiety about a trauma, although can only be diagnosed within the first month following the event. Specific phobias are excessive fears of particular objects or situations.

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Diagnosing the anxiety disorders during adolescence is particularly difficult. The Diagnostic and Statistical Manual (DSM) places the eight above mentioned disorders in their own section, adding anxiety disorders due to a medical condition or a substance, and a Not Otherwise Specified category for clinically impairing symptoms that do not meet full criteria for any of the other disorders (American Psychiatric Association, 2000). This presumes that most of the anxiety disorders develop during adulthood, as there is a separate section in the DSM for disorders that are usually diagnosed during childhood. One of these disorders, separation anxiety disorder, is rarely diagnosed during adolescence (Wicks-Nelson & Israel, 2009). In fact, it is often difficult to determine whether one should draw on what we know about adults with anxiety disorders, or what we know about childhood anxiety among this population. Indeed, it is important to note that not very much research has focused on anxiety during adolescence, and much of the literature that does combines the functioning of adolescents with children. This is surprising, as several studies suggest that anxiety disorders are the most common disorder diagnosed during adolescence (Anderson, 1994; Kim-Cohen et al., 2003). Additionally, there are marked developmental differences between even young and older adolescents, and thus more research is needed to examine how anxiety and its related disorders present during this period.

Etiological Factors

Adolescence represents a period of significant change in several domains that result in the individual increasing their independence from their parents and building their sense of self and way of relating to others. These changes, however, can result in high levels of stress for the adolescent, which in turn can set the stage for psychopathology. How these changes relate to the development of anxiety among adolescents will be discussed in the following section.

Biological Factors

There are extensive biological changes that occur during puberty, mostly involving increased hormone levels via the hypothalamus and the pituitary gland. These hormones result in increased height and weight, changes in the body's composition of fat and muscle, and maturation of the reproductive organs. Some studies indicate that the timing of puberty can increase risk of developing anxiety disorders. Specifically, research has suggested that individuals who experience puberty earlier than their peers are more likely to experience symptomatology compared to peers who develop "on time" or later, particularly among girls (Reardon, Leen-Feldner, & Hayward, 2009). Moreover, the physical changes associated with puberty also may increase risk for anxiety. Females tend to experience increases in the amount of fat compared to males (who experience increases in muscle growth), in addition to growth of the hips and breasts. As a result, body image becomes particularly important for girls, and can result in increased stress and lower self-esteem.

A few studies have begun to examine the effects of pubertal hormones on the development of internalizing disorders. There is some evidence that the hormones that result in puberty may have a relationship with the development of anxiety disorders. For example, one study suggested that hormones released by the adrenal and gonadal systems (which are related to puberty) may increase risk for anxiety among boys, but not girls (Susman et al., 1991). Additionally, cortisol, a hormone that is produced in response to stress and arousal, and is released from the adrenal glands, is increasingly being studied in its relationship with psychopathology. Although it is clear that cortisol is a biological marker of the stress response, its relationship with psychopathology may depend on a number of factors, including the severity and duration of the symptoms. Within the anxiety disorders, some evidence suggests that cortisol is related to PTSD, although the data are equivocal regarding its relation to the other anxiety conditions (Reardon et al., 2009). Given the relatively small number of studies examining this issue, more research is needed in order to draw strong conclusions within this area.

Interpersonal Stress

One robust predictor of the development of anxiety disorders has been the relationship functioning of parents and children. Specifically, several studies suggest that the children of anxious parents are at a greater risk for developing an anxiety disorder compared to those whose parents do not meet criteria for an anxiety diagnosis (Beidel & Turner, 1997; Kearney, Sims, Pursell, & Tillotson, 2003). Other studies have found evidence that attachment patterns during early childhood are predictive of the development of anxiety disorders during adolescence (Muris, Mayer, & Meesters, 2000; Warren, Huston, Egeland, & Sroufe, 1997). Parenting behaviors that are risk factors for anxiety disorders include overprotection, control, rejection, and lack of warmth (McLeod et al., 2007). Thus, parenting behavior that interferes with adolescents' attempts to develop into relatively independent young adults increases risk for the development of anxiety (Davila, La Greca, Starr, & Landoll, 2010).

Moreover, during adolescence peer relationships become more important to an individual's functioning than parental relationships (Larson, 1983). Difficulties in the development of close relationships can lead to chronic stress, which leaves the individual vulnerable to the developmentt of psychopathology. How adolescents function within these relationships can not only affect their future relationship development but also can impact the development of their anxious symptoms (Davila et al., 2010). Thus, positive peer relationships can protect adolescents against the development of anxiety disorders, whereas problematic relationships can increase risk for the development of anxiety (La Greca & Harrison, 2005).

It is important to note that adolescence is a period of time where many sex differences emerge in risks for psychological disorders. With most of the anxiety disorders, females have higher prevalence rates and tend to report more impairment as a result of their symptoms (Chapman, Mannuzza, & Fyer, 1995). One reason why girls are more at risk for the development of anxiety (and depressive) disorders is due to their vulnerability to stress. Particularly, several studies have suggested that girls are more focused on their relationship functioning, and thus are more vulnerable to experiencing stress within these relationships (e.g., Rudolph, 2002). This increased stress results in problematic ways of relating to others, leading to internalizing symptoms characterized by anxiety and depression (Rose & Rudolph, 2006; Rudolph, 2002). Thus, relationship stress is an important vulnerability factor to consider when working with adolescents, particularly for girls.

Cognitive Factors

Cognitive vulnerabilities include ways the individual thinks about themselves and about their world. Specific cognitive vulnerabilities include biases in attention (how one views the world and reacts to threat), interpretation of events, and memory processes. Attentional biases are characterized by excessive focus on perceived threatening or anxiety-provoking stimuli. These biases result in individuals focusing on anxiety-provoking stimuli over neutral or positive stimuli, which serve to maintain their anxious symptoms. Interpretation biases result in the individual inferring negative meanings from ambiguous events. Finally, memory biases involve excessive recall of perceived negative past events. There is considerable evidence of anxiety being associated with biases of attention and interpretation (e.g., Schultz & Heimberg, 2008), although whether anxiety is associated with biases of memory may depend on the specific disorder (Coles & Heimberg, 2002).

Another cognitive factor that has been found to be important to the development of anxiety disorders is anxiety sensitivity. Anxiety sensitivity represents a fear of consequences of experiencing anxiety, such as fear of panic symptoms, mental incapacitation, and others noticing one's anxiety (Reiss, 1991). Studies have suggested that high levels of anxiety sensitivity predict the development of panic attacks and anxiety symptoms prospectively, even when controlling for baseline anxiety symptoms (Hayward, Killen, Kraemer, & Taylor, 2000; Schmidt

et al., 2010). Studies also have found evidence of anxiety sensitivity representing a risk factor for anxiety disorders among adolescents (e.g., Anderson & Hope, 2009).

Comorbidity

Among most DSM diagnoses, comorbidity (i.e., where an individual meets criteria for two or more disorders at the same time) is the rule rather than the exception. Thus, when seeing an adolescent with symptoms resembling anxiety, it is important to consider other possible diagnoses. First, individuals who meet DSM criteria for one anxiety disorder are more likely to also meet criteria for another anxiety disorder. Second, depression also exhibits high comorbidity levels with the anxiety disorders. Several studies have suggested a strong relationship between being diagnosed with an anxiety disorder and major depressive disorder (Kessler et al., 1994). Third, anxiety also has been shown to increase risk for substance use disorders. For example, research suggests that individuals often use substances to cope with their anxious symptoms (e.g., Kushner, Sher, & Beitman, 2004). Finally, anxiety disorders also are associated with increased risk for developing eating disorders, particularly among adolescent females (Babio, Canals, Pietrobelli, Perez, & Arija, 2009). Because individuals with eating disorders are less likely to seek treatment, a careful assessment procedure including a physical examination may be useful in distinguishing between anxiety and eating pathology.

As a result of the high levels of comorbidity, it is recommended that clinicians conduct a thorough assessment with adolescents seeking treatment for anxiety. In some cases, approaches effective in treating anxiety also have been useful in treating comorbid cases, although at times comorbidity can negatively impact treatment outcome (e.g., Heimberg & Becker, 2002). Therefore it is important to have a broad understanding of the specific features associated with the anxiety disorders.

Assessment

Assessment of anxiety disorders (and other psychological disorders) is a complex process. The major concerns include focusing on nomothetic assessments with documented psychometric properties, while considering idiographic aspects of the individual patient. In terms of anxiety disorders, examination of an individual's behavior without considering their specific fears can lead to an inaccurate diagnosis. For example, during the assessment phase a clinician may learn that a patient avoids social situations because they make them anxious. However, determining whether this patient is avoiding this situation because they will be negatively evaluated (and thus are experiencing symptoms of SAD) or because they are scared they might have a panic attack (and thus are experiencing symptoms of PD) is an important distinction. Among adolescents, another consideration includes the relationship the adolescent has with his/her parents. Although it is very important for clinicians to focus on the needs of his/her patients, adolescents still are too young to consent to treatment without their parents. Therefore, including the parents during the assessment phase, and determining before treatment the extent that parents will be involved, is essential, regardless of the individual's diagnosis.

The assessment phase ideally would include clinical interviews, self-report measures, and behavioral assessments across multiple sources (i.e., adolescent, parent, teacher). Among adults, one widely used semi-structured interview for assessment of the anxiety disorders is the Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV; Brown, DiNardo, & Barlow, 1994). The ADIS-IV has been developed for use with children and adolescents, and includes interviews for both the child and the parent (ADIS-C/P; Silverman & Albano, 1996). The ADIS-C/P also includes questions to diagnose related disorders including depression and attention deficit/hyperactivity disorder. Its psychometric properties have been well documented, and it has been used in numerous studies. The full interview takes

approximately 2 h, and provides the interviewer with probe questions to differentiate between comorbid conditions. Due to its length, completing the full ADIS can be time consuming, despite its usefulness in differentiating between the different anxiety disorders. Thus, it may be useful to include self-report measures to help determine the specific nature of an individual's fears.

Each anxiety disorder is characterized by a core fear which leads to some form of avoidance or is endured with considerable distress. This fear guides individuals' behavior, typically resulting in avoidance of any situation where they may have to experience or approach the feared object/situation. Thus, understanding anxiety disorders revolves around differentiating between the main fear that characterizes each. A brief review of these disorders will follow, with an eye toward identifying the features of each that are characteristic of adolescents.

Panic Disorder and Agoraphobia

The core fear of panic disorder (PD) involves experiencing a panic attack, a discrete period of intense anxiety typically characterized by increased heart rate, chest pressure, difficulty breathing, and other physiological symptoms of anxiety (American Psychiatric Association, 2000). Panic attacks generally only last a few minutes, and typically observers are not aware of the symptoms that the patient is experiencing. However, from the patient's perspective, these acute anxiety attacks are associated with severe physical and cognitive symptoms of anxiety. Individuals experiencing a panic attack often have catastrophic thoughts about their symptoms. As a result of these fears, individuals with PD have excessive concerns about experiencing future attacks, worry about what these attacks mean about them (e.g., "am I going crazy?"), or change their behavior to avoid having future attacks (e.g., they will avoid exercise or caffeinated drinks; APA, 2000).

A diagnosis of PD can occur either with or without agoraphobia. Agoraphobia involves anxiety about being in a situation where one may not be able to escape in the event that they experience a panic attack (APA, 2000). The additional fears associated with agoraphobia often result in increased avoidance of several situations, including malls, grocery stores, and other situations with large groups of people. Therefore, the symptoms of PD with agoraphobia can result in impairment across a wide variety of situations. Many patients with PD (with or without agoraphobia) will often carry a particular object (e.g., an inhaler, a bottle of pills) around with them to serve as a "safety signal." A safety signal is something that individuals believe will help them cope with anxiety, and is characteristic of all anxiety disorders. Individuals also can rely on close friends, family, and romantic partners. Thus, these individuals can enter their feared situations as long as they have their "safety person" with them. Although these safety signals can help them to enter situations which they normally would fear, use of safety signals can often interfere with treatment.

PD typically has an age of onset around mid to late adolescence. This disorder occurs in about 1 % of adolescents in the community, and as high as 15 % of adolescents seeking treatment, with at least half percent also meeting criteria for agoraphobia (Essau, Conradt, & Petermann, 1999; Last & Strauss, 1989). Research has suggested that the cognitions experienced by adolescents while panicking are similar to those of adults (Nelles & Barlow, 1988). However, data also suggests that many adolescents with PD either are diagnosed with a different disorder (e.g., depression), or are referred for treatment due to comorbid diagnosis (Doerfler, Connor, Volungis, & Toscano, 2007) such as ADHD and mood disorders.

Social Anxiety Disorder

Social anxiety disorder (SAD) is characterized by excessive fears of being negatively evaluated in social situations (APA, 2000). Most individuals with this disorder will avoid social situations with any chance of ambiguity, or hover on the periphery in order to avoid possible embarrassment. Individuals with SAD frequently use close friends,

romantic partners, or family members as safety signals. Therefore, the socially anxious individual can attend parties and other evaluative situations as long as their safety person attends with them (and stays by their side). SAD has a fairly early age of onset with many individuals first experiencing clinically significant symptoms during early to mid adolescence (Mannuzza, Fyer, Liebowitz, & Klein, 1990). Therefore, considering the increasing social pressures faced by adolescents, the early teen years are likely a difficult time for individuals with high levels of social fears.

SAD appears to be a relatively common fear among treatment-seeking adolescents. Research suggests that the period of adolescence is one of the highest risks for the development of social anxiety, particularly for girls (e.g., Wittchen, Stein, & Kessler, 1999). Possible reasons include difficulties with body satisfaction, gender role stressors, or changes in physical development (Nolen-Hoeksema & Girgus, 1994). For example, one study suggested that the onset of puberty predicted increased risk for the development of social anxiety among females, but not males during adolescence (Deardorff et al., 2007). Studies have suggested that social fears can decrease the development of appropriate social skills, friendships, and romantic relationships (Johnson & Glass, 1989; Rubin, LeMare, & Lollis, 1990). In fact, socially anxious adolescents experience rejection by peers, fewer friendships, and poor quality friendships (Inderbitzen, Walters, & Bukowski, 1997; La Greca & Lopez, 1998). Social fears also can impact academics, and future occupational functioning. For example, it is not uncommon for socially anxious adolescents to choose a less prestigious career path just because it will allow them to avoid public speaking or interacting with others.

Generalized Anxiety Disorder

Generalized anxiety disorder (GAD) is characterized by excessive and uncontrollable worries about a number of topics within one's life (APA, 2000). As a result of these worries, patients will experience several somatic symptoms including muscle tension, restlessness, and difficulty falling asleep. Among adolescents with this disorder, worries typically focus on the future, school and classwork, family relationships, and friend and romantic relationships (Albano & Hack, 2004). Epidemiological studies suggest that GAD typically has an age of onset during late adolescence (Kendler, Neale, Kessler, Heath, & Eaves, 1992). Previous versions of the DSM have diagnosed children and adolescents with excessive worries with overanxious disorder. However, as of DSM-IV, overanxious disorder has been subsumed under the category of GAD.

Based on available data, the features that characterize adolescents with GAD appear to be similar to adults with the disorder. Typical adolescents with GAD will set high achievement goals for their academics, and will frequently worry about not making these achievements. These perfectionistic tendencies can carry over into other areas, such as being on time for appointments and within their friendships. GAD also is associated with difficulties within close relationships. Studies indicate that GAD is associated with a range of problematic interpersonal behaviors, from excessive dependency to cold and hostile personality traits (e.g., Newman & Erickson, 2010). Finally, due to the nature of the disorder, individuals with GAD frequently engage in checking behavior. For example, these individuals might call a close friend just to "check that they are ok." Therefore, the chronic worry leads to impairment across several domains.

Studies have suggested that similar to adults, adolescents with GAD often experience high levels of comorbid depression (Masi, Favilla, Mucci, & Millipiedi, 2000). Additionally, studies have suggested that adolescents with comorbid GAD and depression are at higher risk for developing suicidal ideation compared to those with either disorder alone (Pawlak, Pascual-Sanchez, Rae, Fischer, & Ladame, 1999; Strauss, Last, Hersen, & Kazdin, 1988). Other studies have suggested that adolescents with GAD may initiate use of alcohol at a lower age compared to their nonanxious peers, perhaps as a self-medication strategy (Clark, Parker, & Lynch, 1999; Kaplow, Curran, Angold, & Costello, 2001).

Obsessive-Compulsive Disorder

The characteristic symptoms of obsessive-compulsive disorder (OCD) are made up of obsessions, or intrusive thoughts or images that cause anxiety or distress, and compulsions, or repetitive behaviors used to reduce anxiety or distress (APA, 2000). Although the focus of the obsessions (to increase anxiety) and the compulsions (to decrease anxiety) remain rather constant, the specific rituals and symptoms vary greatly for each patient. Indeed, there are several areas of obsessions and compulsions that are only somewhat functionally related. For example, upon experiencing an obsession that one's hand is contaminated or dirty, a typical response is to excessively wash one's hand. Alternatively, it is not at all uncommon for a patient with OCD to experience obsessions related to a close friend or family member being hurt which leads to a compulsion to count objects in the environment. Although DSM criteria do not require both obsessions and compulsions for a diagnosis, individuals experiencing only one type of symptom are rare (Swedo et al., 1989). In trying to diagnose this disorder, it is important to keep in mind the function of the thoughts and behaviors.

Research indicates that OCD often develops during childhood or adolescence, with prevalence rates at this time being around 1–2 % (Rasmussen & Eisen, 1990). Although some studies suggest that among children boys tend to develop OCD earlier than girls (Swedo et al., 1989), during adolescence prevalence rates appear to be equal among the sexes (Flament et al., 1988). Despite these data, not much research has examined the particular impairments associated with OCD during adolescence. It appears that OCD presents similarly across adults and adolescents, with both being characterized by difficulties across interpersonal, academic, and home environments. Common difficulties associated with adolescent OCD include difficulties completing homework, difficulties grooming, and other situations where the obsessions and compulsions interfere with concentration. There is evidence that parents are more likely to notice the problems associated with OCD compared to their adolescent children, although a multi-informant assessment procedure may still be important for these patients (Piacentini, Bergman, Keller, & McCracken, 2003). One important aspect to note is that although adolescents with OCD often seek treatment for their symptoms, many are often diagnosed incorrectly or do not receive an empirically supported treatment (Flament et al., 1988).

Posttraumatic Stress Disorder and Acute Stress Disorder

Posttraumatic stress disorder (PTSD) is relatively well known amongst the general population, yet the specific features and symptoms of this disorder are not. PTSD is an anxiety disorder that develops following a particularly frightening or traumatic event that was either experienced or witnessed directly (APA, 2000). Although traumatic events can lead to the development of a variety of psychological disorders (e.g., Grant, Beck, Marques, Palyo, & Clapp, 2008), PTSD is made up of a particular constellation of symptoms, grouped into "clusters" by our current diagnostic system. The first cluster is known as "Reexperiencing" symptoms because individuals repeatedly think of their trauma. Symptoms of reexperiencing include intrusive thoughts and dreams of the event, and flashbacks during which individuals feel as if the event is actually recurring. The second cluster of symptoms is known as the "Avoidance and Numbing" cluster, which consists of avoiding thoughts and activities that remind one of the event and symptoms in which people's emotions and ways of relating to others are reduced. The third cluster is called "Hyperarousal," and consists of typical symptoms of excessive anxiety, including difficulty sleeping, hypervigilance (being on alert for danger), and an exaggerated startle response. Importantly, PTSD can only be diagnosed if the symptoms persist for longer than 1 month after the trauma.

PTSD can develop from a wide variety of traumas, including natural disasters, motor vehicle accidents, sexual abuse, and sexual and physical assault. Despite these differences, the presentation of this

disorder across different traumas is highly similar. Adolescents appear to experience similar symptoms and presentations as adults. When discussing their trauma, typical PTSD patients will only describe the basic details, avoiding any negative thoughts or emotions experienced during the event. Many patients have not told anyone about the event, and thus it may take several sessions to build a rapport with the patient before they discuss the details of the event. A thorough PTSD assessment would also include the details of the trauma. Although a multi-informant perspective is useful for diagnosing PTSD, adolescents may be less likely to divulge to their parents that they experienced a trauma. This is an important consideration both for parents and clinicians. Adolescent PTSD appears to be relatively common, with prevalence rates reported as high as 16 % and 19 % for boys and girls, respectively (Kilpatrick et al., 2003). The development of PTSD during adolescence is associated with similar risk factors as adults, including difficulties in social functioning, anxiety and depression, difficulty remembering the trauma, and negative feelings about the trauma (Udwin, Boyle, Yule, Bolton, & O'Ryan, 2000).

Acute stress disorder (ASD) is characterized by excessive anxiety and dissociative symptoms following a trauma (APA, 2000). ASD can only be diagnosed within 1 month of the trauma. ASD shares several symptoms of PTSD, including intrusive thoughts or images, avoidance of trauma-related stimuli, and increased arousal. However, ASD also is characterized by dissociative symptoms that are not part of a PTSD diagnosis, such as a subjective sense of numbing or detachment, derealization, and depersonalization. The rationale for including dissociation as a symptom of ASD is that use of such coping in the early aftermath of trauma is predictive of later PTSD (Harvey & Bryant, 2002).

Not much is known about the presentation of ASD among adolescents. Studies indicate that as many as 28 % of adolescents experiencing trauma may experience ASD (e.g., Meiser-Stedman et al., 2005). Although there is evidence of ASD predicting later PTSD status (Brewin, Andrews, Rose, & Kirk, 1999), other data suggests little predictive utility of the dissociative symptoms of ASD, even among adolescents. This has led some to question the utility of the ASD diagnosis (e.g., Dalgleish et al., 2008).

Specific Phobias

Specific phobias (SP) are characterized by excessive anxiety about a number of discrete events. Based on DSM criteria, these fears are divided into five types: animal type, natural environment type, situational type, blood/injection/injury type, and "other" for fears that cannot be included in the previous categories (APA, 2000). Adolescent samples appear to be characterized by similar subtypes (Muris, Schmidt, & Merckelbach, 1999). Although there is considerable heterogeneity in the specific fears associated with SP, individuals who meet criteria for this disorder tend to avoid the situations that elicit their anxiety. Diagnosing individuals with a specific phobia is contingent on these fears not being accounted for by another disorder. For example, a patient who fears driving, but whose fear is related to a past accident that also results in reexperiencing symptoms, avoidance, and excessive arousal, would be diagnosed with PTSD rather than a specific phobia of driving. In diagnosing SP, it is important to consider the impairment that results from the individual's fears. In addition, the specific fears that result in a diagnosis of SP must be excessive to a fear reaction that is normal to the situation, and must lead to excessive avoidance.

Related Disorders

Body dysmorphic disorder (BDD) is characterized by excessive concern that a specific aspect of one's appearance is flawed in the absence of any real deformity (APA, 2000). As a result, individuals with BDD experience negative thoughts about their perceived deformity, and excessively engage in behaviors focused on checking or hiding this deformity. Given the importance of body image during adolescence, this developmental period is particularly vulnerable for the development of BDD. Among adolescents with BDD, typical areas of the body which may be of concern include the skin, hair, or muscle shape and size (APA, 2000). These thoughts can become so distressing that they interfere with school, homework, and socializing with peers (Hadley,

Greenberg, & Hollander, 2002). Although this disorder was originally thought to be a somatoform disorder, more recent evidence suggests that it may be more closely related to the anxiety disorders. In particular, research has suggested that BDD is highly related to SAD, with BDD being the fourth most common comorbid disorder associated with SAD (Hollander & Aronowitz, 1999). In support of this, a recent review paper suggested that these two disorders are highly similar with respect to age of onset, trajectory, and cognitive biases (Fang & Hofmann, 2010). Further research is needed to examine the similarity of BDD with SAD, and whether BDD may be better conceptualized as an anxiety disorder.

Another disorder related to anxiety concerns is trichotillomania (TTM), which is characterized by an excessive urge to pull one's hair (APA, 2000). Research suggests that between 1 and 3.5 % of adolescents will experience this disorder (Christenson, Pyle, & Mitchell, 1991). Onset during adolescence appears to be common (Christenson & MacKenzie, 1995). However, few studies have examined the presentation of TTM among adolescents. Research suggests that across developmental age, the scalp appears to be the most common area of pulling hair (e.g., Tolin, Franklin, Diefenbach, Anderson, & Meunier, 2007). Although both OCD and TTM are characterized by repetitive behaviors, the former is generally focused on a variety of compulsive behaviors, whereas the latter is focused exclusively on hair pulling. In addition, whereas some evidence suggests that hair pulling at times may be automatic, at other times hair pulling may be preceded by anxiety (e.g., Woods, Piacentini, Himle, & Chang, 2005).

Treatment

In general, treatment of anxiety disorders among adolescents can be exceedingly complex. First, because of the changes and adjustments that occur during adolescence, a major consideration involves considering where the adolescent falls developmentally. That is, some adolescents may be more likely to respond to treatments that involve the parent, whereas in other cases including the parent may actually hinder rapport building or treatment adherence. Inclusion of developmental processes and idiographic differences is important when treating adolescents. Therefore, as part of the assessment process, clinicians also should consider the adolescent's environment, forms of social support, and the close relationships identified by the patient.

There have been several empirically supported treatments developed for the anxiety disorders. These treatments tend to have several similar elements, including psychoeducation, relaxation skills, cognitive restructuring (i.e., changing anxiety-related thought patterns into more balanced or neutral thoughts), and exposure. Exposure therapy involves having a patient experience the negative thoughts and feelings associated with their anxiety disorder in a controlled environment. The rationale is that repeated exposure to the anxiety-provoking stimuli will result in habituation or a reduced anxiety response to subsequent exposures to the stimuli. Cognitive-behavioral treatments (CBT) for anxiety disorders, which focus on reducing problematic thoughts and behaviors, all involve some type of exposure therapy. CBT also includes a substantial homework component, in which the patient applies the skills they learned during sessions to real-world applications.

Only recently have these therapies been adapted for use with adolescent samples. Although the core components of CBT (psychoeducation, cognitive therapy, relaxation training, and exposure) are kept, two major facets are added to make these treatments more applicable to adolescents. First, the language and examples are simplified to help younger populations understand the rationale and procedures of the treatment. Second, components are included to help parents and their children during treatment. This can include educating the parent about the nature of anxiety disorders, including parents in part of the sessions, and having parents help the adolescent with homework. Downward extensions of adult CBT treatments are now being developed for all of the anxiety disorders (e.g., Foa, Chrestman, & Gilboa-Schechtman, 2009; Hoffman & Mattis, 2000; Pincus, May, Whitton, Mattis, & Barlow, 2010). However, it is important to note that some disorders have only limited evidence of effectiveness in reducing symptoms among adolescents.

There also is a considerable literature examining the use of psychotropic medications for the treatment of anxiety disorders. There are several different drug classes that have demonstrated effectiveness in reducing symptoms of anxiety, particularly the antidepressants (e.g., Rockhill et al., 2010). Selective serotonin reuptake inhibitors (SSRIs), a particular type of antidepressant, have been shown to decrease anxiety symptoms in adolescents across several of the main anxiety disorders. OCD likely has the strongest support for pharmacological treatments reducing symptomatology (Rockhill et al., 2010). Less research has examined psychotropic medications among the other anxiety disorders in adolescent samples, although there is some evidence for their efficacy. For example, one study compared CBT, a commonly used SSRI (sertraline), and combined CBT and SSRI to placebo among a sample of children and adolescents diagnosed with SAD, GAD, and separation anxiety disorder. Results suggested that all three treatments evidenced higher reductions in anxiety symptoms compared to placebo, supporting their efficacy (Walkup et al., 2008). Additionally, the combined treatment resulted in the highest reductions in symptoms, suggesting that a combination of medication and CBT may be the most effective in reducing symptoms of anxiety among adolescents (similar to adults).

It is salient to note that all medications will have side effects, which should be carefully considered with a medical professional before starting an adolescent on any medications. For SSRIs, side effects can range from headaches and nausea to increased risk for suicidal ideation or attempts. Thus, it is important for parents to carefully monitor their child when starting a new medication regimen.

Conclusions

Overall, there are several conclusions that can be drawn with respect to anxiety disorders among adolescents. First, based on the literature, there is evidence that the presentations of anxiety symptoms during adolescence are similar to that of adults. This is important, as developmental processes can impact both our assessment procedures and treatments for these impairing psychological conditions. However, further research is needed to examine the similarities and differences of the anxiety disorders among adolescents and adults. Second, anxiety symptomatology is highly prevalent among this population. In fact, adolescence appears to be the most vulnerable time for the development of significant symptoms of all or almost all of the anxiety disorders. Third, there is evidence that many of the anxiety disorders may be either misdiagnosed or left untreated until a comorbid disorder develops. This is highly unfortunate, as anxiety disorders tend to be chronic conditions that are unlikely to remit without treatment.

Therefore, there are several considerations to be kept in mind whether treating or researching anxiety among adolescents. Most youth are less likely to seek treatment for their concerns until their parents become aware of their difficulties. As a result, externalizing disorders (e.g., attention deficit/hyperactivity disorder) are more likely to be noticed than internalizing disorders such as anxiety and depression. Assessing a wide range of symptomatology may be important in order to obtain an accurate diagnosis. Additionally, consideration of the developmental age of the adolescent is crucial in order to obtain an accurate and thorough assessment. Although some patients may feel comfortable discussing their difficulties with parents, as adolescents become older they are less likely to do so. Keeping this in mind during the assessment and adjusting one's procedures accordingly is crucial in this population.

Finally, the literature examining anxiety among adolescents is still in its infancy. This is unfortunate, because the study of psychopathology during adolescence can help inform both how subclinical symptoms become diagnosable conditions and ways to decrease those at risk for significant psychopathology. Presently, although there are some general guidelines for assessing and treating adolescents with anxiety, most studies lump adolescents with children samples. Although these studies are highly informative, they limit the type of conclusions that can be drawn regarding the specific aspects of anxiety during this developmental period. Moreover, examining anxiety and its related disorders during

adolescence can increase our understanding of the etiologies associated with these disorders, and inform our knowledge of ways to reduce risk for these chronic, debilitating conditions.

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