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Acute procedural anxiety in adults: Epidemiology, clinical features, assessment, and diagnosis

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INTRODUCTION

Acute procedural anxiety is an excessive fear of medical, dental, or surgical procedures that results in acute distress or interference with completing necessary procedures. Patients may experience anxiety in anticipation of and/or during many types of procedures.

This topic addresses the epidemiology, clinical manifestations, screening, assessment, course, and differential diagnosis of acute procedural anxiety in adults. Treatment of anxiety and phobias related to clinical procedures are discussed elsewhere. (See "[Acute procedural anxiety and specific phobia of clinical procedures in adults: Treatment overview](#)".)

TERMINOLOGY

Acute procedural anxiety — Acute procedural anxiety is an excessive fear of medical, dental, or surgical procedures that results in acute distress in anticipation of or during the procedure, or interference with completing the necessary procedure.

Acute procedural anxiety is not a diagnosed disorder in the American Psychiatric Association Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR) [1].

Studies often use the terms “preprocedural anxiety” or “preoperative anxiety” to describe acute procedural anxiety.

Specific phobias of clinical procedures — Presentations of acute procedural anxiety are diagnosed as a specific phobia when the focus of the fear is specific to the procedure or its immediate effects (eg, a fear of seeing blood during venipuncture or suffocating during a magnetic resonance imaging [MRI] scan), and this fear causes significant distress or impairment. A specific phobia would not be diagnosed when the anxiety about the procedure is due to other factors, such as the implications or outcomes of the procedure or fear of detection of an illness. Specific phobias related to clinical procedures include blood-injection-injury phobia, dental phobia, and MRI claustrophobia [2,3].

Specific phobias are a diagnosed disorder in the DSM-5-TR [1]. (See ["Specific phobia in adults: Epidemiology, clinical manifestations, course, and diagnosis"](#) and ["Acute procedural anxiety and specific phobia of clinical procedures in adults: Treatment overview"](#).)

EPIDEMIOLOGY

Since there is no standard threshold nor definition of positive cases of acute procedural anxiety, and due to methodologic differences, estimated rates vary widely and interpretation of studies are limited [4-32]. Large community-based epidemiology studies that use structured interviews to estimate the lifetime prevalence of acute procedural anxiety are limited to specific phobias of blood-injection-injury phobia and dental phobia [33-40].

Incidence — In some cases, high rates of anxiety appear to be related to the prognostic implications of the test. For example, a systematic review of 58 studies including 24,490 subjects undergoing colonoscopy reported that up to 50 percent of participants in the study had moderate to severe anxiety [5]. In other settings, the invasive nature and risk of the procedure itself may be associated with high rates of anxiety. Patients undergoing major heart surgery report a high level of preoperative anxiety with point prevalence up to 80 percent in patients undergoing coronary artery bypass surgery [28-31]. However, minimally invasive procedures and those with less significant prognostic implications still invoke significant rates of anxiety, and there is not always a clear association between the procedure related risk and the incidence of anxiety.

Risk Factors — Preprocedural anxiety is more likely in the following circumstances:

- Female gender [5,41-45]
- High baseline anxiety [5]
- Previous negative or positive experience with anesthesia [41]
- Lower level of education [5,7,42]

Other risk factors may include:

- Hospitalization prior to surgery [28,41-45]
- Procedural specific factors (see '[Focus of fear](#)' below)

CLINICAL MANIFESTATIONS

Patients with acute procedural anxiety experience a high level of anticipatory anxiety before a procedure and/or acute anxiety at the time of the procedure. In severe cases, anxiety may be associated with avoidance or delay of necessary medical or diagnostic procedures.

Components of anxiety — Anxiety is characterized by the interaction of cognitive, physiological, and behavioral components [46].

- Cognitive components include a feeling of apprehension of possible future threat or danger to one's personal safety or security.
- Physiological manifestations often include tachycardia, palpitations, sweating, shortness of breath, and muscle tension.
- Behavioral features of anxiety may include avoidance or reassurance seeking. These behaviors have the goal of decreasing the anxiety or escaping from the perceived threatening stimulus. (See '[Avoidance or delay of procedure](#)' below.)

Focus of fear — The focus of fear in acute procedure anxiety can vary depending on the procedural type and may include the following [10,13,21,47-53]:

- Concerns about the potential risks, pain or discomfort, and complications of the procedure
- Fears about implications and outcomes of the procedure
- Uncertainty about illness, disability, and other factors related to the procedure
- Fear of general anesthesia that accompanies surgical procedure
- Long wait time for results of procedure
- Embarrassment or shame of procedure or preparation (eg, bowel prep)
- Fear of death

Avoidance or delay of procedure — Avoidance or delay of a necessary medical or dental procedure is one of the main negative health consequences in patients with severe acute procedural anxiety. Rates of avoidant behavior have been documented mainly for the specific phobias [54,55], but avoidance occurs in other manifestations of acute procedural anxiety as well [37-39,55-58].

SCREENING

Based on high rates of procedure-related anxiety and the availability of effective interventions, we suggest that all individuals be screened at least once prior to a procedure. Screening may be accomplished by simply asking the patient if they have anxiety regarding the procedure or by administering a specific tool.

We use the following scales to screen for anxiety related to specific procedures:

Anesthesia and surgical procedures — The Amsterdam Preoperative Anxiety and Information Scale (APAIS) screens for anxiety related to anesthesia and surgical procedures. The APAIS is a six-item patient self-administered questionnaire, measures fear of anesthesia and surgical procedures, and need for information about the procedure ([table 1](#)) [59]. It has been shown to be a valid and reliable instrument in identifying preoperative anxiety. The APAIS has been translated and validated in several different languages [60-72]. A cut-off score of 11 or above in the anxiety subscale is considered a positive screen for anxiety. A score of 5 or higher on the information subscale indicates a need to provide information about the procedure beyond the informed consent process.

Dental anxiety — The Dental Anxiety Scale-Revised (DAS-R) is a brief, four-item patient self-administered questionnaire for screening and measuring the severity of dental anxiety. The DAS-R has been shown to be a valid and highly reliable measure for dental anxiety [73]. A score of 13 or above constitutes a positive screen. A score of 15 or higher indicates a highly anxious patient ([table 2](#)).

MRI claustrophobia — We use the six-question Claustrophobia Miniscreen for screening patients for MRI claustrophobia ([table 3](#)). A study of 80 adult MRI patients suggested that the six items can discriminate between patients who will and will not panic during an MRI scan [74]. A score of nine or above on the Miniscreen was highly predictive of panic during the scan. Further psychometric evaluation of the Miniscreen has not been conducted.

ASSESSMENT

In addition to a detailed psychiatric evaluation including past medical and psychiatric history, we are careful to assess for the following as part of our evaluation of individuals with acute procedure anxiety.

History of acute procedural anxiety — We inquire about past history of acute procedural anxiety including coping strategies and past treatment methods. Past experience with a procedure may affect anxiety levels when the procedure is repeated [11,75]. Increased fear upon repeating the procedure may be due to concerns about progression of the underlying illness [11].

Focus of fear — We discuss the risks, complications, and level of expected pain associated with the specific procedure. We also address uncertainties about the risk of anesthesia, complications from surgery, expectations for recovery, and recovery time. We minimize maladaptive beliefs or preconceived negative ideas about the procedure and its consequences to minimize anxiety. (See '[Clinical manifestations](#)' above.)

Avoidance behaviors — We determine the severity of the anxiety and whether it leads to avoidance behaviors such as avoidance of doctor's appointments, delay in scheduling the procedure, missed appointment during the procedure day, or avoidance of follow-up of test results.

Comorbid anxiety disorders — We assess for and address comorbid anxiety disorders in all individuals who present with acute procedure anxiety. Individuals with a history of another anxiety disorder, such as generalized anxiety disorder, may be vulnerable to the development of acute procedural anxiety [76]. Additionally individuals with a diagnosis of specific phobia (and possibly acute procedure anxiety) are found to have higher rates of co-occurring anxiety disorders than those without specific phobia [35].

COURSE OF ILLNESS

In most cases of acute procedural anxiety, the anxiety tends to peak prior to the procedure and decrease after the procedure. This pattern has been observed in several observational studies [13,43,45,77-79]. However, in at least one study more persistent symptoms were found [12].

DIAGNOSIS

Acute procedural anxiety is diagnosed in the presence of excessive fear of medical, dental, or surgical procedures that results in acute distress in anticipation of or during the procedure. The anxiety causes significant distress and may cause avoidance of the procedure including delay in scheduling the procedure, early termination of the procedure, or the patient's need for premedication to complete a procedure. (See '[Assessment](#)' above.)

DIFFERENTIAL DIAGNOSIS

We differentiate acute procedural anxiety from other disorders with similar presentation:

- **Generalized anxiety disorder (GAD)** – GAD is characterized by excessive worries about a number of different real life concerns that may include health or treatment-related concerns. Anxiety is not limited to worries about a specific procedure. Furthermore, GAD is a chronic condition, whereas acute procedure anxiety is more acute and circumscribed. (See ["Generalized anxiety disorder in adults: Epidemiology, pathogenesis, clinical manifestations, course, assessment, and diagnosis"](#).)
- **Agoraphobia** – Agoraphobia is characterized by anxiety and avoidance of places and situations from which escape is difficult or help might not be available in the event of panic-like symptoms. The focus of fear in agoraphobia is fear of losing control and consequences of having a panic attack rather than fear of a specific medical, dental, or surgical procedure. (See ["Agoraphobia in adults: Epidemiology, pathogenesis, clinical manifestations, course, and diagnosis"](#).)
- **Panic disorder** – Patients with panic disorder may have a panic attack while undergoing a clinical procedure. However, in panic disorder, the panic attacks are usually spontaneous, triggered by a physical symptom (internal sensation) and the focus of fear is the fear of the panic attack itself or its consequences. In acute procedural anxiety the fear is focused on aspects of the procedure itself. (See ["Panic disorder in adults: Epidemiology, clinical manifestations, and diagnosis"](#).)
- **Adjustment disorder with anxious mood** – Patients undergoing an extensive clinical evaluation for a severe medical illness may be anxious during a medical procedure. However, the anxiety experienced during the procedure is in response to the stressor illness and not limited to aspects of the procedure.
- **General medical conditions** – We rule out underlying medical conditions as a cause of acute procedural anxiety. As an example, cardiac conditions such as arrhythmias and respiratory conditions such as pulmonary embolism or pneumothorax can present with acute anxiety.

SOCIETY GUIDELINE LINKS

Links to society and government-sponsored guidelines from selected countries and regions around the world are provided separately. (See "[Society guideline links: Anxiety and anxiety disorders in adults](#)".)

SUMMARY AND RECOMMENDATIONS

• Terminology

- **Acute procedural anxiety** – Acute procedural anxiety is an excessive fear of medical, dental, or surgical procedures that results in acute distress in anticipation of or during the procedure, or interference with completing the necessary procedure. (See '[Acute procedural anxiety](#)' above.)
- **Specific phobias** – Some specific phobias may be a subset of the varied manifestations of acute procedure anxiety. These are diagnosed when the patient's fears are specific to the procedure and its immediate effects. (See '[Specific phobias of clinical procedures](#)' above.)
- **Epidemiology** – Since there is no standard threshold nor definition of positive cases of acute procedure anxiety, the estimated rates of anxiety vary widely among studies. Additionally, methodological differences limit interpretation of epidemiologic studies. (See '[Epidemiology](#)' above.)
- **Clinical manifestations** – Patients with acute procedural anxiety experience a high level of anticipatory anxiety before a procedure and/or acute anxiety at the time of the procedure. (See '[Clinical manifestations](#)' above.)
 - **Components of anxiety** – Anxiety is characterized by the interaction of cognitive (eg, apprehension of future threat), physiological (eg, tachycardia, sweating), and behavioral components (eg, avoidance or reassurance seeking). (See '[Components of anxiety](#)' above.)
 - **Focus of fear** – The focus of fear in acute procedural anxiety can vary depending on the procedure type and may include concerns about pain, discomfort, complications, outcome, prognosis, disability, fear of anesthesia, death, wait time for results, embarrassment regarding procedure or preparation. (See '[Focus of fear](#)' above.)
 - **Avoidance of procedure** – Avoidance or delay of a necessary medical or dental procedure is one of the main negative health consequences in patients with severe acute procedural anxiety. (See '[Avoidance or delay of procedure](#)' above.)

- **Screening** – Based on high rates of procedure related anxiety and the availability of effective interventions, we suggest that all individuals be screened at least once prior to a procedure.
- **Assessment** – As part of our assessment of individuals with procedural anxiety, we review prior history of acute procedural anxiety, discuss the patient's fear focus, assess the patient's understanding of the procedure and recovery, and assess the severity of anxiety and for the presence of avoidance of the procedure. We also address comorbid anxiety disorders. (See '[Assessment](#)' above.)
- **Course of illness** – In most cases of acute procedure anxiety, the anxiety tends to peak prior to the procedure and decrease immediately after the procedure. (See '[Course of illness](#)' above.)
- **Diagnosis** – We diagnose acute procedural anxiety in individuals who present with excessive fear or anxiety about a procedure. This acute anxiety may be triggered by the thought or anticipation of the procedure or during the procedure itself. Distress about the procedure may lead to avoidance of the procedure. (See '[Diagnosis](#)' above.)

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