



Factors associated with anxiety in critically ill patients: A prospective observational cohort study[☆]



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ABSTRACT

Background: Anxiety is an unpleasant emotion that most intensive care patients experience. This emotion is an important issue in intensive care settings because of its prevalence, adverse effects and severity. Little is known about the factors associated with state and trait anxiety during critical illness.

Objectives: To describe the patterns of state anxiety reported by intensive care patients, and identify factors associated with state and trait anxiety.

Design: Prospective observational cohort study.

Settings: One mixed intensive care unit in Brisbane, Australia.

Participants: Adults ($n = 141$, ≥ 18 years) admitted to the intensive care unit for ≥ 24 h; able to communicate verbally or non-verbally; understand English; and, open their eyes spontaneously or in response to voice.

Methods: Outcomes were state anxiety as measured by the Faces Anxiety Scale and trait anxiety as measured by the State-Trait Anxiety Inventory. Pre-intensive care factors tested for possible associations with both state and trait anxiety were: age, gender, marital status, employment status, level of education, smoking status, personality trait of optimism and evidence of mental health care/treatment. Intra-intensive care factors tested were: reason for admission to the intensive care unit, delirium, pain, airway status, hours of mechanical ventilation, severity of illness, days of stay in intensive care, exposure to corticosteroids, opioids, benzodiazepines, anxiolytics, antidepressants, beta-blockers, anaesthetic agents and analgesics; length of sedation and analgesia and total doses of sedatives and analgesics.

Results: Of 141 participants, 98 (70%) were male with an average age of 54 (standard deviation: ± 15) years and stayed in intensive care for about 4 (Interquartile Range: 3–7) days. The majority ($n = 115$; 82%) of participants experienced state anxiety at least once during their stay in intensive care, with 57% reporting moderate to severe levels. Factors related to state anxiety in intensive care were pain and trait anxiety. Factors associated with trait anxiety were trait optimism, state anxiety, evidence of mental health care/treatment and age.

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Conclusions: This study provides a better understanding of contributing factors for anxiety in the critically ill. Trait anxiety and state anxiety were significantly associated with each other, namely, patients who were anxious by nature experienced higher levels of state anxiety, which persisted throughout their stay in the intensive care unit. Recognising the importance of state and trait anxiety assessments using validated tools and determining ways to manage anxiety in the critically ill are critical aspects of the intensive care nurses role.

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What is already known about the topic?

- Critically ill patients often experience anxiety during intensive care unit stay.
- Anxiety during critical illness has recently been associated with the development of anxiety, depression and posttraumatic stress symptoms after the intensive care unit experience.

What this paper adds

- State anxiety persists throughout the intensive care unit stay, with highest levels reported from days 6 to 12.
- Factors associated with state anxiety during critical illness include trait anxiety and pain.
- Factors associated with trait anxiety during critical illness include age, trait optimism, state anxiety, and evidence of mental health treatment.
- Early assessment and management of anxiety during intensive care unit treatment might help to reduce the risk of adverse emotional outcomes after critical illness.

1. Introduction

Anxiety is an unpleasant emotion that most intensive care unit patients experience (Tate et al., 2012). This emotion comprises two components: state and trait. State anxiety alerts the individual of imminent danger enabling them to prepare and deal with the threat (Doenges et al., 2010). It helps the body to respond to stressful situations through physiological arousal and feelings of tension, apprehension, nervousness and worry. Trait anxiety is a more stable characteristic of an individual's personality. It is the tendency of a person to become state anxious (Spielberger, 1966, 1983; Spielberger and Reheiser, 2009).

Although state anxiety is a normal adaptive mechanism in human beings, it can become detrimental if it impairs an individual's ability to function (Steimer, 2002). State anxiety can progress to agitation or panic and even modify physiological function (e.g. promote the formation of gastric ulcers or dysrhythmias); becoming pathological and representing a clinical concern (Doenges et al., 2010; Moser and Dracup, 1996; Steimer, 2002). High levels of anxiety, particularly when sustained, are less adaptive and might contribute to the development of adverse emotional outcomes after the intensive care experience (Nelson et al., 2000).

A high prevalence of state anxiety has been identified in critically ill patients, especially in those requiring

mechanical ventilation. In a descriptive study including 192 ventilated patients state anxiety was found in all of them, with low levels in 20% ($n = 38$), moderate to severe levels in 62% ($n = 119$) and high levels in 18% ($n = 35$) of the patients (Chlan, 2003). In addition, a significantly higher prevalence of anxiety was reported in mechanically ventilated patients than in non-ventilated (74.2% versus 25.8% respectively, $p = 0.02$) in seriously ill patients at risk of dying (Puntillo et al., 2010). In a qualitative investigation exploring this emotion in 30 intensive care patients, all the patients exhibited anxiety at some stage during the study (Tate et al., 2012).

A high proportion of intensive care patients usually report moderate to high levels of anxiety despite receiving sedation and/or analgesia. In 106 Australian patients (89% ventilated) severe anxiety was reported by 35% of patients who received sedation ($n = 45$) and 66% of patients who did not ($n = 61$) (McKinley et al., 2004). Several years later, using similar measurement instruments, McKinley and Madronio (2008) reported lower levels of anxiety in 100 non-ventilated patients. However, more than a quarter (28%) of patients still reported moderate to severe anxiety, and half of them (14%) had received sedation (McKinley and Madronio, 2008).

The need for intensive care treatment is accompanied by several physical, psychological and environmental sources of distress. Physical sources of distress such as invasive mechanical ventilation may lead to physiologically and psychologically distressing experiences since the patients are not able to verbalise their feelings, symptoms or wants. In fact, spells of terror, nervousness when left alone, and sleeping disturbances have been associated with endotracheal intubation (Rotondi et al., 2002). Psychological sources of distress such as confusion, fear, panic, and frustration are common while receiving intensive care (Tate et al., 2012). Examples of environmental sources of distress are noise, lights and lack of privacy (Puntillo et al., 2010; Yava et al., 2011). Despite the sources of distress during intensive care treatment being documented in the literature, there is little empirical research exploring sources of distress as potential risk factors for anxiety in the intensive care unit. Statistical approaches such as multivariate analysis to determine unique contributions and rule out the influence of confounding factors are needed.

Although there is some description of anxiety in the critically ill population, the majority of the evidence available provides information only about the state component. Recent reports have shown a relationship

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