

Study protocol: Intensive care anxiety and emotional recovery (Icare)—A prospective study

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ABSTRACT

Background: Survivors of intensive care units (ICUs) commonly present with symptoms of anxiety, depression and post-traumatic stress disorder (PTSD) during recovery. A number of factors have been identified as predictors of these adverse emotional outcomes, but the role of state anxiety during critical illness in the development of these emotional problems remains unknown.

Purpose: The Intensive Care Anxiety and Emotional Recovery (ICARE) study protocol proposes the development of a statistical model to determine the relationship between state anxiety during ICU stay and symptoms of anxiety, depression and PTSD at three occasions; after ICU discharge but prior to hospital discharge and at the third and sixth months post ICU discharge.

Methods: Prospective study including adult patients admitted to the ICU of a tertiary metropolitan Australian hospital for ≥ 24 h who are able to: (1) communicate verbally or nonverbally; (2) understand English and (3) open their eyes spontaneously or in response to voice to respond to the Faces Anxiety Scale (state anxiety assessment). One hundred and seventy patients will be assessed for their levels of state anxiety during their ICU stay to achieve a sample size of about 104 patients six months after discharge. The outcomes of the ICARE study will include symptoms of anxiety, depression and PTSD assessed by standardised questionnaires widely used in intensive care research. Demographic, clinical, and social support information will also be collected.

Results: The projected sample size will provide sufficient power to evaluate the association between state anxiety and adverse emotional outcomes, as well as a variety of variables that will be entered into a multivariate regression analysis.

Conclusion: This study will provide new evidence to improve care during critical illness and reduce adverse outcomes during recovery with the potential to decrease unnecessary suffering, promote comfort and improve long-term recovery.

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Introduction

Advances in research, technology and expert care have permitted continuous improvements in the survival of intensive care patients. However, these survivors commonly present with symptoms of anxiety, depression and post-traumatic stress disorder (PTSD) during recovery. Systematic reviews including studies of

survivors of the ICU; mainly from developed countries such as the United Kingdom (UK), United States of America (USA), Australia and some European countries, have reported that the prevalence of these emotional problems in the ICU population is relatively high.^{1–3} When looking at the literature as a whole, it can be observed that approximately 25% of ICU survivors experience some emotional problem, either symptoms of anxiety, depression or PTSD. Further, it has been suggested that these emotional problems after the ICU experience may negatively affect these survivors' health-related quality of life (HRQoL).^{4–9}

A number of factors have been identified as predictors of these adverse emotional outcomes in ICU survivors.^{7,9–19} In the

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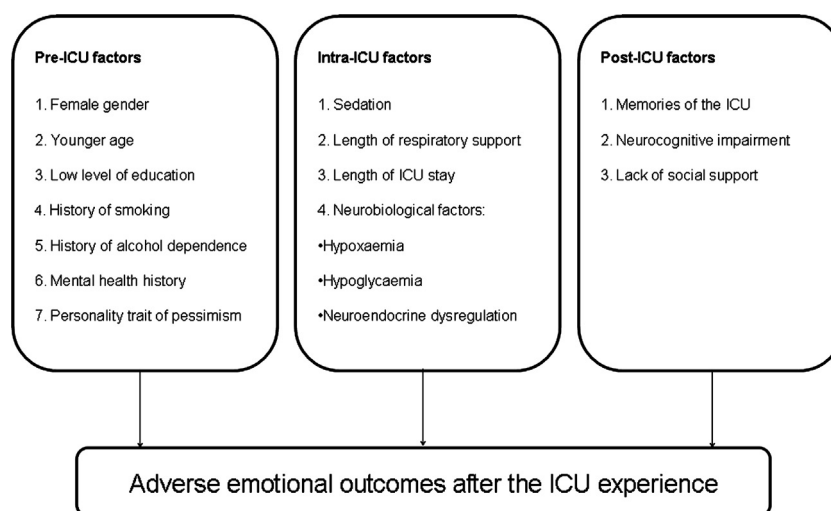


Fig. 1. Risk factor for the development adverse emotional outcomes after the ICU experience.

Intensive Care Anxiety and Emotional Recovery (ICARE) study, these risk factors have been classified into three categories: prior to critical illness, during intensive care treatment and after ICU discharge risk factors (Fig. 1). Prior to critical illness risk factors include demographic characteristics such as female gender and younger age, low level of education, history of smoking and alcohol dependence, mental health history (premorbid anxiety, depression and psychiatric illness) and personality trait of pessimism. During intensive care risk factors include sedation, duration of mechanical ventilation, length of ICU stay and neurobiological factors such as hypoxaemia, hypoglycaemia and neuroendocrine dysregulation; and after ICU risk factors include memories of the ICU, neurocognitive impairment and lack of social support. The presence of state anxiety during ICU stay has been identified as a frequent and serious problem for critically ill patients, which could be another possible during intensive care treatment factor, related to adverse emotional outcomes, however, the relationship between this emotion during critical illness and adverse emotional outcomes remains unknown.²⁰

Anxiety was conceptualised as state anxiety and trait anxiety by Spielberger in the sixties.²¹ This distinction has provided a better understanding of this complex phenomenon and this approach has been recognised in much literature and research. State anxiety is defined as a normal and temporary emotion that involves physiological arousal and feelings of tension, apprehension, nervousness and worry when a stressful situation is perceived. Trait anxiety, on the other hand, corresponds to the person's tendency to become state anxious as part of their personality trait.²² Because critically ill patients are constantly exposed to a great variety of stressors while receiving intensive care treatment, state anxiety is highly prevalent in the ICU population, especially in those requiring mechanical ventilation.²³ In Australia, for example, an investigation including 106 ICU patients found some level of anxiety in 85% of them.²⁴ The level of anxiety reported was moderate to severe despite receiving sedation and/or analgesia.²⁴

In addition, it is known that anxiety during critical illness is either poorly assessed or not assessed at all because of the challenge implied in assessing a self-report symptom in patients with inability to verbalise their feelings due to endotracheal intubation and mechanical ventilation. Thus, clinicians often identify state anxiety by observation of behavioural (e.g. restlessness) and physiological (e.g. tachycardia) manifestations.^{24,25} Unfortunately, clinicians' observations of these two components are unreliable indicators of state anxiety in ICU settings since common conditions such as delirium or pain share similar physiological and

behavioural characteristics with this emotion which may lead to erroneous symptom interpretation.²⁵ Moreover, it has been found that state anxiety may not always be accompanied by physiological changes.^{24,26,27}

Another factor that has made the assessment difficult is the lack of appropriate instruments to assess state anxiety in ICU patients. Only recently, specially designed tools for the assessment of this emotion in seriously ill patients have been available, although the use of these has not yet been included in routine clinical practice.^{24,27–29} This study protocol proposes the development of a statistical model in order to acquire a better understanding about the relationship between state anxiety during the ICU stay and short and medium-term emotional outcomes in survivors of the ICU as well as the association between the levels of state anxiety and sedation/analgesia during the intensive care treatment.

Methods

Aims

This study aims to determine the association between state anxiety during the ICU stay and symptoms of anxiety, depression and PTSD at three occasions in survivors of the ICU; after ICU discharge but prior to hospital discharge and at the third and sixth months after ICU discharge. It also aims to examine the relationship between state anxiety and sedation/analgesia for ICU patients during the intensive care treatment.

Design

This research is a prospective longitudinal cohort study of ICU survivors. This observational design will allow studying state anxiety during the ICU stay as an intra-ICU risk factor for the subsequent development of adverse emotional outcomes during recovery. It will also allow follow up of the patients at three occasions to determine the short and medium-term effects of state anxiety on emotional recovery.

Setting

This study will be conducted in the adult ICU of a tertiary metropolitan hospital located in Brisbane, Queensland, Australia. This ICU has 25 beds, including general ICU patients and post-cardiac surgery patients. The nurse/patient ratio is 1:1 and in 2009/2010, there were approximately 2000 admissions to this ICU.

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