

# **SLEEP DURING AND AFTER CARDIOTHORACIC INTENSIVE CARE AND PSYCHOLOGICAL HEALTH DURING RECOVERY**

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A thesis submitted in accordance with the total requirements for  
admission to the degree of Master of Nursing (Research)

Faculty of Health

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February 2016

### **Certificate of authorship/originality**

I certify that the work in this thesis has not been previously submitted for a degree nor has it been submitted as part of the requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help I have received in my research work and in the preparation of this thesis has been acknowledged. In addition, I certify that all the information sources and literature used are indicated in the thesis.

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Signature of candidate

## **Acknowledgements**

This study has involved numerous people to whom I am deeply grateful. I sincerely thank my supervisors, Professor Sharon McKinley, Doctor Rosalind Elliott and Doctor Leila Gholizadeh, who passionately offered support, motivation, encouragement, comment and guidance. I appreciated all your time and effort in providing long-distance support toward finishing this thesis to a high standard. I thank the staff at Royal North Shore Hospital intensive care unit and cardiothoracic surgery ward for their support during data collection.

I am grateful for Giselle Alegria for proof reading the draft of my thesis. My sincere appreciation goes to the intensive care unit patients who spent time in answering questionnaires patiently. Also I am thankful for your concerns of my wellbeing during data collection for being in the third trimester of pregnancy.

To my husband and children (Michael, Talay and Mali Caruana), I am so grateful to have you by my side. I have no word to describe how important your support is to me especially during the candidature. Although, getting married, having one child and then another, renovating our house, moving interstate, changing job, getting sick and building a house were unforeseeable when I commenced this study, I believe our team work got much stronger now than ever. I thank my parent for the pray that keeps me calm and the courage you have instilled in me.

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## Abstract

The research in this thesis investigated sleep and recovery in coronary artery bypass graft (CABG) patients during and after Intensive Care Unit (ICU) treatment. Intensive care patients and former ICU patients experience sleep disruption and poor sleep quality. Psychological distress, including depression, anxiety, stress and symptoms of posttraumatic stress disorder (PTSD), and diminished health-related quality of life (HRQOL) are common among former ICU patients. Few previous studies employed longitudinal analysis to explore continuity of problems related to sleep disruption and poor sleep quality, and whether patients who experience sleep problem in ICU continue to have sleep problems during recovery. Few studies have compared sleep between on-pump and off-pump open-heart surgery patients. The main reason for adult ICU admission in Australia is CABG surgery. Therefore cardiothoracic ICU patients were the focus of this study. The broad aim was to determine any association between sleep disruption in the cardiothoracic ICU and during recovery, and patients' psychological wellbeing and HRQOL during recovery.

One-hundred and one ICU patients who had undergone CABG surgery completed self-report questionnaires on their sleep quality in ICU, on the ward, and at two and six months after discharge; prehospital sleep state was retrospectively reported while in ICU. Perception of the ICU experience was assessed at two months after discharge, and psychological health and HRQOL six months after discharge using validated instruments.

Descriptive and multivariate statistical analyses revealed that patients had a mean age of  $66.60 \pm 11.07$  years, 78% were male and the median ICU stay was two days. In ICU, 76.0% of patients reported poor sleep quality, 71.9% in the ward, and 68.4% and 62.0% at two and six months after discharge; 11.9% of patients had poor sleep at all time points. Six months after hospital discharge there was a positive relationship between poor sleep quality and lower psychological wellbeing and lower HRQOL in bivariate analyses. In multivariate analysis, prehospitalisation insomnia ( $p=0.004$ ), and mental ( $p \leq 0.0005$ ) and physical ( $p \leq 0.0005$ ) HRQOL were independently associated with sleep quality at six months after discharge, but not on-pump versus off-pump open heart surgical technique.

In conclusion, it has been shown in this thesis that the quality of sleep of a substantial proportion of postoperative CABG patients is often poor in ICU, in hospital and up to six months after hospital discharge. This was associated with physical and mental aspects of HRQOL six months after discharge, but not with whether surgery was performed on or off cardiopulmonary bypass.