Psychosocial Care in Intensive Care Units: Impact on Trauma and Wellbeing

A thesis submitted to the University of Hyderabad for the Degree of

DOCTOR OF PHILSOPHY IN PSYCHOLOGY

at the Centre for Health Psychology

by

Chivukula Venkata Usha

CENTRE FOR HEALTH PSYCOLOGY
UNIVERSITY OF HYDERABAD
HYDERABAD-500046

September 2013

DEDICATED WITH APPREICIATION AND GRATITUDE

to my

Parents and Family

Psychosocial Care in Intensive Care Units: Impact on Trauma and Wellbeing

A thesis submitted to the University of Hyderabad for the Degree of

DOCTOR OF PHILSOPHY IN PSYCHOLOGY

at the Centre for Health Psychology

by

Chivukula Venkata Usha

Regn. No: 09CPPH03

under the guidance of

Prof Meena Hariharan

CENTRE FOR HEALTH PSYCOLOGY
UNIVERSITY OF HYDERABAD
HYDERABAD-500046

September 2013

DECLARATION

Date: 30-09-2013

This is to certify that I, ***Chivukula Venkata Usha*** have carried out the research embodied in the present thesis for the full period prescribed under PhD ordinances of the University.

I declare to the best of my knowledge that no part of this thesis was earlier submitted for the award of research degree of any University.

(Signature of the candidate)

Chivukula Venkata Usha

Regn. No: 09CPPH03

Director

Signature of the Supervisor

Centre for Health Psychology
University of Hyderabad
Gachibowli, Hyderabad
India

Date: 30-09-2013

CERTIFICATE

I certify that the Ph.D. Thesis: ***"Psychosocial Care in Intensive Care Units: Impact on Trauma and Wellbeing"*** is the original work of ***Chivukula Venkata Usha*** carried out under my supervision and guidance. The thesis design has not been submitted previously in part or in full to this or any other University or Institution.

(Meena Hariharan)

Professor

ACKNOWLEDGEMENTS

The rendezvous has ended, it's time to reminisce and remember each and every one who has supported me along this long but fulfilled thoroughfare. At the outset I would like to express my heartfelt gratitude to my mentor Prof Meena Hariharan, for her unremitting support and guidance. I could not have asked for a better role model who could have been more inspirational, supportive and patient. Her persistent passion, knowledge and conviction will always inspire me, and I feel honoured to be her student.

The data analysis and interpretation of results would not have transpired without the generous support from Dr Suvashisha Rana. I am indeed indebted to him for guiding me through the statistical analysis. The detailed instructions thoughtful comments helped me to get into the depth of the subject. Most of the results described in this thesis would not have been obtained without Prof C.R. Rao. Expressing a few words of gratitude would be insufficient for his unconditional support.

My special thanks to all the members of my Doctoral Committee for their support, guidance and helpful suggestions. I owe my heartfelt gratitude to Dr Ratnakar for his invaluable suggestions and guidance not just during the Doctoral Committee meetings but even when we're going to a rough phase of seeking permissions from hospitals for data collection. I thank Dr Ramnathan and Dr Padmaja the members of the Doctoral Committee. Their encouragement, insightful comments, and hard questions gave a direction and focus to my work.

I am indebted to my college Principal Dr Sr Alphonsa Vattoli for her providing me a facilitating work environment and extending support for the completion of my

thesis. I thank my Vice-Principal Dr Sr Christine Fernandes for her empathetic understanding and constant moral support.

I am extremely fortunate to be surrounded by wonderful colleagues at the Department of Psychology at St Francis College. My special thanks to my HOD Ms Tina Fernandes for her generous support and motivation throughout these years and especially at times when situations were overwhelming. My special appreciations to all my colleagues at college who have been strong source of support. A journey is easier when you have a good friend and companion. I thank Sunayana, for being my side throughout this endeavor. Supporting each other at every stage of research helped us not only gain knowledge but maintain the emotional poise, which was much required in this expedition.

Translating questionnaires is indeed a tedious task, but Prof Sarraju made the task simple and clear, my sincere thanks to him for spending time and translating the questionnaires into Hindi language. My sincere thanks to Dr Gouri, who helped me, translate the questionnaires into Telugu. I also thank Dr Sudha, Mr Pavan and Mr Satish, who extended their help in re-translating the questionnaires.

I thank all the Medical Directors of hospitals for believing in my work and giving me consent to carry out my study. I also extend my thanks to all the Doctors who gave me valuable inputs in the area of Cardiothoracic Surgery, a field which I was inadequately equipped. Collecting data is invariably a trying experience; I am extremely thankful to the front office personnel and the medical staff of the different hospitals for giving me the insider organisational view and for supporting me in recruiting and handling the cases in hospitals. I specially thank all the patients who have been the most valuable part of my study, without whom the study would not

have been possible. Even during the most difficult phase of recovery, they unwearyingly answered the questionnaires.

The office personnel of Centre for Health Psychology, Ms Sucharita, Mr. Prasad and Mr Shyam who silently worked along with us till late in the evenings and on holidays, are the special people whom I wish to gratefully acknowledge.

My parents have always been my source of strength. I thank God for them and also thank them for their support in all my pursuits. This journey would not have contemplated without the enduring support of my husband. I thank him for being by my side, sharing and sustaining both the pleasures and hardships of completing my thesis. I am blessed with two wonderful kids who not only coped with all the upheavals during my busy work schedule but also extended their support in their own little ways.

I end this note with contentment and triumph!

ABSTRACT

Intensive Care Units (ICUs) are isolated areas of hospitals meant for providing focused care to patients critically ill or convalescing from surgery. Patients here need close monitoring and intervention. Such isolation, while necessary to protect the patients from infection and complications may create distress and trauma. This can be minimized with biopsychosocial approach in ICU treatment. The present study investigates the impact of Psychosocial Care on ICU Trauma and Wellbeing of patients convalescing in ICU after Coronary Artery Bypass Graft.

The study involved a combination of a correlation design and a between subject design with unrelated samples. A multistage sampling method was used. The sample consisted of hospitals and 250 post-operative CABG patients. The study measured the ICU Quality, Psychosocial Care received by the patients, their Trauma and Hospital Wellbeing.

The results indicated that Psychosocial Care was a major predictor of ICU Trauma and Hospital Wellbeing. The results revealed significant differences among hospitals in Quality of ICU and Psychosocial Care. The findings indicated that patients treated in High ICU Quality, received higher Psychosocial Care experienced lower levels of ICU Trauma and higher Wellbeing, than patients treated in a Low ICU Quality. The study suggests a biopsychosocial approach in treatment and care of ICU patients. The implications and limitations of the study are disc

Content

List of Tables

List of Figures

Abbreviations

ICU	Intensive Care Units
PSC	Psychosocial Care
IOM	Institute of Medicine
CAD	Coronary Artery Disease
GBD	Global Burden of Disease
CABG	Coronary Artery Bypass Graft
ITU	Intensive Therapy Unit
CCU	Critical Care Unit
ICM	Intensive Care Medicine
PTSD	Post Traumatic Stress Disorder
NABH	National Accreditation Board for Hospitals
JCI	Joint Commission International
ISCCM	Indian Society of Critical Care Medicine
NHS	National Health Service
PHD	Protection of Human Dignity
FPCC	Family Patient Communication Channel
FPAP	Family Patient Anxiety Prevention
RE	Re-Experience
E N &A	Emotional Numbing & Avoidance
H A	Hyper-Arousal
Hd	Hamming Distance

CHAPTER-1

INTRODUCTION

CHAPTER I

INTRODUCTION

"A patient comes unbidden to a large organization which awes and irritates him even as it also nurtures and cares. As he strips of his clothing, he strips off too, his famous costume of social roles, his favoured style, and his customary identity in the world. He becomes subject to time schedule and a pattern of activity not of his own making." (R.Wilson 1963 p-70)

Combating a major illness, disease or a surgery is a challenge for the patients. Illness not only cripples an individual physically but also impedes the psychological and social functioning. The situation necessitates not only comprehending the nature and symptoms of the illness but also adapting to the life-changes that come along with it. The visible external indicators of illness, which are obvious and treatable, are often handled by the medical professionals but the invisible indicators which are more on the psychological or social level often go untreated. These include anxiety, depression, emotional problems, social and interpersonal issues, lack of resources and a disruption in work and family life. Handling these complex issues require that the medical professionals extend care and support to patients and family members, understand their mental anguish and restore the physical, psychological and social functioning. This is possible only if there is a paradigm shift from the disease centered approach of health professionals, to a holistic patient centered approach. The debate on providing holistic care in health care field began in the early nineteenth century. The proposal of the biopsychosocial care model by Engel, (1977) pioneered the shift from a bio-medical care to biopsychosocial care. According to Engel, the medical model solely looked into biological indices of the disease and failed to address the

psychological and social issues attached to it. He proposed the biopsychosocial model of health which not only took into account the patients' psychological state, and social context but also stressed the role of the physician and the health care system in augmenting the patients' health. The model recommended individualized treatment with emphasis on care. Engel stated that any illness or disease should be viewed as a result of interacting mechanism at the cellular, organismic, interpersonal and environmental levels (Fava & Snino, 2008). The biopsychosocial model also proposed the role of psychosocial factors in facilitating and modifying the course of illness. Engel's biopsychosocial model not only brought in a revolution in the medical care system but also lead to the emergence of other approaches like the Patient-Centered-Care (Mead & Bower, 2000) and the Integrative Medicine. The patient centered care which got a boom in the late nineties was based on the work of Gerteis, Edgman-Levitan, Daley & Del Banco (1993). Since then this approach was embraced by health care organisations and policy makers. The Institute of Medicine (IOM, 2001) defined patient-centered care as care '*that respects and responds to the individual patient's preferences, needs and values and ensures that clinical decision incorporates patient's valu*es.' The IOM then proposed that health or a disease is a function of psychological and social variables, and health is a condition that is determined by the dynamic interaction among the biological, psychological and social factors (IOM, 2001). McWhinney (1989) defined patient-centered care as a comprehensive approach where the physician tries to see the illness through the patient's perspective and responds to the needs and preferences of the patient. Mead and Bower (2000) and Hobb (2009) proposed that improved communication, appropriate intervention, enhanced satisfaction and good patient outcomes are some of the benefits of patient-

centered care. This paved a way for the institutes and organisations governing the health care sector to integrate the patient centered approach into the treatment regime.

The alarming rise of diseases like HIV-AIDS, cancer, and terminal illness necessitated not only the provision of patient centered care but also the management of psychosocial distress and challenges faced by the patients and families of the patients who go through the disease. The need for managing the psychosocial distress in Cancer, disaster, HIV-AIDS and terminal ill patients pressed the need for implementing psychosocial interventions in the diagnosis, treatment and care of these diseases. The IOM critiqued that health care sector provided highly specialized biomedical treatment which included both pharmacological and surgical treatment, but failed to address the psychosocial adversities related with illness. According to IOM, Psychosocial Care and intervention facilitates the handling of individuals going through the ordeal of the dreadful diseases and helps to re-establish the normal functioning.

Despite the fact that Psychosocial Care has been practiced in medical sectors, literature shows that such interventions are primarily limited to dealing with mental health disorders, HIV-AIDS, disaster management, cancer interventions, terminal illness or palliative care. Patients who encounter such diseases face physical, psychological, social and spiritual issues. There is pain, agony, difficulty in performing everyday activity, anger, denial, uncertainty, issues of body image, interpersonal issues, sense of isolation, and fear of death that questions the very purpose of life. In such conditions Psychosocial Care interventions help the patient and the family not only in the management of the disease as such, but also in dealing with the psychosocial issues that emerge while going through the ordeal of these diseases. However it is important to note that psychosocial issues emerge not only in

diseases like cancer, HIV-AIDS or a terminal illness, but also in chronic or acute illness or when a patient is hospitalized for a surgery. With the changing life style and environmental stressors there is an alarming rise in diseases like Coronary Heart Disease, Hypertension, Diabetes, Arthritis and many other chronic diseases. These conditions come along with physical, psychological and social ordeals which have an effect on the patient outcome. It is essential that the health care sector broadens its horizon to incorporate Psychosocial Care interventions in the treatment of these diseases.

Coronary Artery Disease (CAD) is a disease condition whose prevalence is found to be several folds higher in India than in industrialized nations. The Global Burden of Diseases (GBD) study reported that the mortality rate estimated from CAD in India was at 1.6 million in the year 2000, (Gupta, 2005). Currently India has a burden of more than 47 million patients (Neo CarDiabCare, 2012). Coronary Artery Bypass Graft surgery (CABG) is an intervention for CADs. Statistical estimates show that 10,000 (Coronary Artery Bypass Graft) CABG surgeries were being performed annually in India in 1990s. Presently the annual number is about 60,000 (Koduganti, et al, 2005; Indian Cardiac Surgery, 2011) The data on CABG surgeries in India shows that there has been a steady annual rise 25-30 % in the number of interventions over the last ten years.

Koduganti et al., (2005) estimated that the number of CABG surgeries in patients less than 40 years will increase from 7.7% in 2004 to 10.4% in 2007 and in patients above 70 years the number of surgeries will increase from 7.8% in 2004 to 10.3% in 2007.

Severe cardiac disease is often perceived by the individual as a life-threatening and devastating event. The knowledge of the need for the imminent surgery

contributes to physical and psychological stress. Anesthesia, surgery, and cardiopulmonary bypass are often accompanied with strong physical and emotional stressors. Psychological or neurologic alterations are often observed in patients after cardiac surgery (Roach, et al., 1996). Considering the characteristics of CADs and the psychosocial distress attached to the disease, it is important to recognize the influence of appropriate care and attention on recovery from the disease. By way of offering suitable psychosocial attention one could reduce the time period patients have to stay in the hospital with added consequences pertaining to apprehension and strain. Moreover CAD intervention requires a stay in the ICU, where the patient is kept on high vigil in the midst of high technology gadgets attached to the body for continuous monitoring. The extreme environmental conditions of the ICU confer physical and mental stress and anxiety in the patient. The management of such distress in the intensive care unit requires Psychosocial Care and interventions. To understand the need and significance of Psychosocial Care interventions in an Intensive Care Unit, it is essential to understand the environment and the protocols of the ICU.

The intensive care unit (ICU), also known as a critical care unit (CCU), intensive therapy unit or intensive treatment unit (ITU) is a special department of a hospital or health care facility that provides intensive care medicine (Intensive Care Society,2011). This branch of medicine caters to patients with life threatening illness that includes pre and post surgical care requiring close monitoring, to maintain the patient's normal body functions. Highly trained doctors and critical care nurses care for the seriously ill with the support from special equipment and medication. Patients who are critically ill, who are convalescing after a major invasive surgery, patients

with high risk of complications like multiple organ failure and trauma are those who are admitted into the ICU.

The roots of an Intensive Care Unit can be traced back to the year 1853, when nurse Florence Nightingale, launched the Monitoring Unit for the critically injured soldiers of the Crimean War. The first Intensive Care Unit was established in 1952 at Copenhagen after the Polio epidemic. Since the inception in 1952, the ICUs have gone through continuous development. The use of innovative technology and advanced equipment has brought about radical changes in the ICUs and ICU care. The introduction of the multidisciplinary approach in the ICUs has led to a reduction of mortality and morbidity in seriously ill patients.

The term 'Critical Care Unit' (CCU) instantaneously evokes images of sick patients lying in specially designed beds, surrounded by the latest biomedical equipment, monitoring devices and tubes attached to their body. The atmosphere here is that of a large room, with artificial lighting, beeps of monitoring machines, sounds of ventilators, mourns of the patients and a constant movement of highly skilled doctors and nursing staff. For the purpose of prevention of infection entry into the ICUs is restricted even for the members of the family unless the doctor needs their presence for some specific purpose. This cold and sterile environment is self-contained, and is usually built in a secluded area of a hospital, totally dedicated to the management of patients with life-threatening illnesses, injuries and complications, and monitoring of potentially life-threatening conditions. The critical care unit provides special expertise and facilities for support of vital functions and uses the skills of medical, nursing and other personnel experienced in the management of these problems (Intensive Care Medicine, 2012).The critical care units are also referred to as Intensive Care Units (ICU) or Intensive Care Therapy. However, there is a subtle

difference in the connotation. While Critical Care deals more with the vital aspects of emergency care, which more often than not is limited to physical health viz. optimizing organ support, improving physiological homeostasis, and reducing the mortality and morbidity in patients. Intensive Care refers to attention or care that is comprehensive. Critical care is the care of a critically ill person, using protocols for many situations, while intensive care involves administration of care retrospectively. The Swedish Society of Anaesthesia and Intensive Care (SFAI, 2008) defines intensive care as the care 'to prevent and treat failure in one or more organ systems so that continued life can be meaningful from the patient's point of view' Intensive care is a branch of medicine, providing a holistic approach towards managing critically ill patients, in a well-equipped intensive care unit. Intensive Care connotes a meaning that the patient care is in '*entirety'* with a *'holistic approach'*. In literary terms Intensive Care means 'in depth'. Hence, in this context 'intensive care refers to the care that embraces the psychological, social and spiritual needs of the patients alongside the medical care. The intensive care is provided with a team-based approach, led by specialists in critical care medicine. It is about providing medical care and life support systems, using the latest technology, round the clock. This process involves an integrated approach of specific skills along with inputs from many other related disciplines. Intensive care thus is the management of both the ongoing physiological abnormalities in critically ill patients as well as the psychological and social aspects of care using higher processing and integrating skills. It is an approach where the patient is taken care of and not the disease and the potentially dehumanizing environment is transformed into a humane and healing place.

The new millennium has seen a surge of technology into the field of intensive care, which has led to a symbiotic relationship between the medical care and technology (Almerud, Alapack, Fridlund & Ekebergh, 2008). The use of high technology machines and intricate gadgets, in a way has overpowered the holistic approach in the care practices. Increased use of complicated gadgets has increased the focus on devices than on the patient, which not only dehumanizes the patient but also burdens the nurses and lowers their effectiveness (Mc Gann, 2011). Dependency on the sophisticated gadgets to perform procedures not only complicates the treatment procedures but many a time impedes the doctor-patient or the nurse-patient association, which is one of the vital aspects of patient-centered or holistic care. There is a paradigm shift from a professional approach to a scientific approach in the ICU, thus removing the personal interactions between the health care professionals and the patient. Such observations are made by the paramedical staff in a study on technology versus care in ICU (Verhulst, 2008). The study revealed that 62% of the ICU staff felt that the high technology gadgets used in an ICU, are rather user friendly, while 22% of the ICU staff felt that the use of such devices hinders them in getting a good overview of patients and 41% of the nurses felt that controlling and adjusting to these complicated devices prevents them of giving essential care to patients. Effect of care in a low technology special care unit versus care in a high technology environment (ICU) on patient outcomes in chronically critically ill patients was studied (Rudy et al., 1995). The results showed not only a reduction in the cost of care but also better patient outcome in a low technology ICU. Evidence from research has shown a technology explosion in the field of ICU care. In the present state of affairs it becomes imperative for the health care professional to balance between the objectivity of technology and the subjectivity of human interaction. It is important that medical

practitioners recognize the need to attend to the non-medical aspects of patients in order to treat the disease. This requires the medical practitioners to have a 'patient-as-person' approach and not 'patient-as-disease or organ' approach (Mead & Bower, 2000). This kind of treatment can only be achieved by holistic care or patient centered care. Psychosocial Care is an approach through which holistic care can be extended to patients. Psychosocial Care perspective provides the patients and the family with emotional support. It is an '*all inclusive'* care wherein the patient's rights are respected, dignity is protected, and at the same time the emotional, cultural and spiritual needs are taken care.

After a major cardiac surgery, patients are housed in a Cardiac Intensive Care Units as a proactive measure for closer monitoring and continuous intervention. Coronary Artery Bypass Graft (CABG) popularly known as bypass surgery of heart is a surgical procedure which requires the patients to stay in ICU for four to six days during which the convalescence takes place under close monitoring. Cardiac patients having major blocks in their artery are advised CABG surgery because the blocks, if left unattended interfere with the life schedule and may prove fatal. CABG is an invasive procedure, performed to remove obstructions in coronary arteries. During the surgical process the obstructed artery is replaced by a graft which allows free flow of blood in the obstructed portion of the artery. Surgeons take veins or arteries from another part of the patient's body, such as thoracic artery or internal mammary artery from the breastbone region, saphenous vein from the leg, veins from the back of the arm, abdominal region, and sometimes from a donor, to ensure a channel to go around the injured region and make sure that the heart muscles are provided with enough blood (American Heart Association, 2001; Scheidt, 1996). The surgical procedure used is the median sternotomy, wherein an incision is made along the sternum, to

provide an access to the heart. CABG necessitates hospitalization and a post-operative stay of two to seven days in the ICU. The patients are admitted into the hospital a few days prior to the surgery. Pre-operative medical investigations and procedures are performed on them, and from the day of admission the patients surrender to accommodate the schedule of the hospital and remain marionettes in the hands of the medical staff. The patients' biorhythms are altered to put up with the timing of the hospital staff, the attire changes, the diet is planned by the hospital not taking into consideration their likes, dislikes or allergies. They are seldom explained about the procedures, the schedule of which often involves some degree of uncertainty.

Once the surgery is performed, gaining consciousness in the ICU after surgery is alarming for the patients. The cold, sterile, artificially lit room is not at all welcoming. Above all, the bizarre beeps from the gadgets, continuous bright lights, the eerie silence, the physical and emotional dependency, pain, isolation, loneliness, ambiguity about the outcome and apprehension of the state of health have a massive impact on the physical and psychological state of the patients. The patients prior to the surgery, though are given an orientation on the anesthesia and the surgical procedure, are normally not prepared to cope with the physical environment and probable psychological state on regaining consciousness post anesthesia. In all probability the patients in pre-operative stage are informed about risks involved in the surgery for which an informed consent is mandatory. Studies have shown that in most cases patients are informed that CABG is not a complete cure for the underlying heart condition but relieves from the angina symptoms and improves functional ability (Tolmie, Lindsay & Belcher, 2006). Such incomplete information often leaves a patient in a state of uncertainty and ambiguity. Research indicates that 80% of the patients show progressive results but studies have shown that, risk factors like

repetition of angina, myocardial infarction, and cardiac arrest are possible in a span of 10 years (Duits, Boeke, Taams, Passchier & Erdman.1997; Lip & Metcalfe, 1994). Such information about the prognosis and outcomes is conveyed to the patients and family but not to their satisfaction and understanding. The patients with such knowledge and orientation during pre-operative period carry these apprehensions and anxiety to post-operative state and some of them, owing to the impact of anaesthesia and sedation may not be in a state to articulate, communicate or clarify their fears. Keeping in view that CABG has both physical and psychological post-operative complications, it is desirable to strongly advocate greater emphasis on Psychosocial Care in the Intensive Cardiac Care Units where CABG patients are housed.

There is research evidence to state that high dependency on the specialized medical equipment in the ICU, painful procedures, and unpreparedness for the potentially threatful environment has physiological and psychological repercussions on the patients. While physiological consequences of being in the ICU range from weakness, lack of appetite to sleeplessness which may recede after the patients have recovered from the illness, the psychological effects are long lasting. The traumatic experiences of ICU are long-lasting and have adverse effects on the cognitive–affective functioning of the patient (Hariharan & Chivukula, 2011). Beside the psychological effects, stay in ICU also impacts the social functions of the patients. Distancing from the family, restriction in social activities are some of the consequences of being in an ICU. Dyer (1995) equates the experience of the ICU patients to that of a torture victim, claiming that debility and dependence in torture situations are produced by depriving people of food, drink, sleep and human contact and the same situation occurs in the ICU. Research shows that patients who have spent time in the ICU face physical, psychological and social challenges, which are

traumatizing. The trauma and the challenges the patients face in the ICU reflect on lowered patient Wellbeing and prognosis.

Scientific advancement and medical expertise has reduced the mortality rate among the ICU patients. The latest medical procedures have also helped the health care providers reduce the hospitalization period among patients, but the psychological sequel that comes along with the stay in ICU still remains. Trauma is the unique individual experience of an event or enduring conditions, wherein the individual's ability to integrate his/her emotional experience is overwhelmed. In such conditions the individual experiences a threat to life, bodily integrity, or sanity (Pearlman & Saakvitne, 1995). Trauma caused by an event or situation hinders the individual's ability to cope and the individual is physically, emotionally, and cognitively overwhelmed. The ICU experience is an inundating event which incapacitates the patient and sometimes divests him/her of sanity.

Psychological effects may vary from apprehension and anxiety to more serious conditions like delirium and Post Traumatic Stress Disorder (PTSD). Past research has shown that patients who have experienced ICU stay, undergo severe psychological consequences like delirium, anxiety, depression and PTSD. PTSD is a condition triggered by the experience of a traumatic event (American Psychiatric Association, 2000) which must be severe enough to cause powerful subjective responses such as intense fear, helplessness and horror. It is the result of an incident of trauma (Jones et al., 2010) and causes strong emotional reactions like vulnerability, shock and intense fear. Patients in the ICU exhibit symptoms which are similar to PTSD. These reactions continue in the patients even as the traumatic event of the surgery and the ICU stay is over. The reactions appear as, re-*experiencing* the event (flashbacks), *avoiding* the situations that reminds of the occurrence of the event, a

numbed reaction and *hyper arousal* (Margolies, 2010). One of the difficulties the patients face is the intrusion of the past into the present often known as *re-experience. Intrusion* brings about distressing memories of the incident in the form of flashbacks, recollection of events and nightmares are some of the response. High physiological reactivity or overwhelming emotional states are some of the reactions seen in a patient when exposed to trauma related incidents. *Avoidance and Emotional Numbing* is often observed in trauma survivors. Patients attempt to avoid any trauma related thoughts, feelings and conversations. Avoidance of people places and activities that remind of the traumatic incident and inability to recall important aspects of the traumatic event, loss of interest and diminished activity, feeling numb are some of the responses seen in trauma survivors. Hyper-arousal is hyper vigilance, alert for danger, difficulty in sleeping/ sleep disturbance, difficulty in concentrating, irritability or angry outbursts. Patients who have ICU experience often illustrate trauma symptoms such as re-experience, numbing and hyper arousal. In a reported case of ICU Trauma, a patient aged 89 with multiple symptoms of dry cough with intermittent bleeding was admitted into ICU after an episode of epileptic attack. During his stay in ICU the hospital carried out a procedure of lumber puncturing without explaining to the patient the process and the pain involved. The patient who was highly respected in the community as a man of principles, after this experience manifested high apprehensions, irrational fears and helplessness during nights after being shifted out of the ICU. He never slept during nights and expressed the fear that if he winked someone might drag him out, bend him like an animal put for slaughter and hit his back. This is a typical example of hyper arousal and re-experience. The memories of ICU either resurface as flashbacks or are avoided because of the painful experiences associated with them. The experiences in the ICU can even bring about feelings of

anger and irritability. Such experiences often have an impact on the patients' physical, emotional, social and spiritual wellbeing (Mansingh & Ramphal, 1993; Crandon, Carpenter &McFarlane, 1995; Bruce et al., 2000; Moini et al., 2000). When a patient is transferred to a ward, the memories of ICU bring about feelings helplessness, hopelessness and vulnerability, which have an effect on the day to day functioning, and quality of life of patients. Being in good health refers to both emotional and psychological Wellbeing (López & Torres, 2001) and if the patient's wellbeing is affected due to the traumatic experience of surgery, the consequences are perceptible on the quality of life and health outcomes. The ICU stay triggers PTSD symptoms in many survivors and can affect a person's quality of life after leaving the hospital (Davydow, Gifford, Desai, Needham, & Bienvenu, 2008). In a reported case, a 75 year old woman admitted into the hospital for hip fracture was advised surgery. She was admitted into the surgical ICU in pre-operative stage. As part of preparation for surgery, she was put on catheter. However, the nurses concerned administered the catheter without explaining to the patient what they were doing. She protested and resisted the procedure, though could not prevent it. This left the patient in shock and she developed the feelings that she was molested by the staff in ICU. The consequence of this was that though the surgery was successful, she continued with paranoid-like symptoms where she continuously felt that the people in ICU were 'wicked' and would harm her entire family. After discharge from hospital, she was able to walk but her trauma continued and gradually she developed dementia. Even in that state her apprehensions continued for a long period.

The displeasure of being sick is prominent, when a patient is in the ICU than in a routine hospitalisation. Patients are no longer their customary selves either while undergoing treatment or after discharge from the ICU. The memories of frightening

experiences may be a threat to their later psychological recovery in the general ward following the ICU stay (Schelling, et al., 1999; Samuelson, 2006) and continue to affect them several months after discharge from hospital (Russell., 1999; Adamson, Murgo, Boyle, Kerr, Crawford, & Elliott, 2004; Jones et al., 2007). Post ICU patients may develop severe psychological symptoms, like post traumatic stress disorder (Scragg et al., 2001; Jones, Griffiths, Humphris & Skirrow, 2001; Cubertson et al., 2004). The repercussions of the ICU stay on the wellbeing and health outcomes, the psychological distress, cultural and social concerns can only be handled by using integrated health care practices. Vas, Avlund, Lauridan, and Hendriksen, (2005) proposed that functional decline in patients is associated with clinical and social problems and these can only be improved using a holistic care.

Medical professionals can improve the patient's physical and psychological outcomes by integrating holistic health care practice into the treatment regime. Policy makers have tried to embrace the aspect of holistic care into the health care system. The IOM (2001) listed 'patient-centered-care' as one of the aims in improving health care. The National and International Boards of Hospitals like the National Accreditation Board for Hospitals (NABH), The Joint Commission International (JCI) and The Society of Critical Care Medicine (SCCM) provided guidelines and set standards for hospitals to ensure holistic care to the patients. The hospitals which are accredited to these Boards are under the scrutiny of the Board and are expected to follow the set standards. The hospitals in India can be accredited to two Boards viz. National Accreditation Board for Hospitals (NABH) and The Joint Commission International (JCI). In an accredited hospital, there is a strong focus on patient rights, benefits and patient safety. These hospitals are expected to practice bench mark protocols, like special care for vulnerable groups and critically ill patients to ensure

controlled clinical outcome to meet the stringent standards. The staff in an accredited hospital is also provided with continuous learning and training programs to keep up the standards of medical and clinical processes.

The Intensive Care department in a hospital operates as a separate entity and with specifically defined policies, protocols, procedures, set standard guidelines for providing quality health care. The Indian Society of Critical Care Medicine sets guidelines for the plan and design of the ICU and also sets quality indicators. These guidelines are laid with reference to the administration in the ICU, admission policies, clinical procedures, drugs and infusion, patient care and safety, staff in ICU and discharge procedures to name a few. The guidelines lay emphasis on delivery of quality oriented services prescribed by the Broad. The guidelines also help the health care professionals to discharge their duties under the recommended standards, so that the patients receive treatment with the best possible care. Under the recommendations of these guidelines the ICU staff is trained in clinical management, improving processes of medical care and patient outcomes in the ICU.

Although the JCI, NABH, and the ISCCM guidelines have been developed to encompass the Psychosocial Care into the health care system in practice, it has not received the attention and significance that it disserves. Statistics shows that only 183 hospitals all over India are NABH accredited and 509 hospitals are applicants for accreditation (National Accreditation Board for Hospitals & Healthcare Providers, 2012) while the number of hospitals in India under JCI accreditation is 12 (Heidelberg Medical Services. 2012). The hospital services in India range from public/government run hospitals to the corporate/private hospitals. Due to the elaborate medical services, the number of hospitals under the scrutiny of these Boards is very few. Moreover in India the practices followed in hospitals are skewed towards

the bio-medical model, leaving aside the Psychosocial Care. Psychosocial Care is a central element of care in the ICU. The fact that it is not being given the importance is a cause of concern. This brings us to a question whether adherence, partial adherence or non-adherence to standard guidelines for providing Psychosocial Care results in significant differences in patient care, recovery and Wellbeing?

CHAPTER II

REVIEW OF LITERATURE

CHAPTER II
REVIEW OF LITERATURE

Thoughts, feelings and behaviours affect our health and well-being. Recognition of the importance of these influences on health and disease is consistent with evolving conceptions of mind and body and represents a significant change in medicine and the life sciences.

Baum & Posluszny, 1999: 138

Research in Intensive Care Units (ICU) has revealed how this man-made atmosphere sends a strange feeling, affecting the person both physically and psychologically. An attempt has been made to review studies related to care in ICU and the effect of ICU stay on patients. An observation made during the review was that ICU studies related to medical aspects are available in plenty while research on Psychosocial Care in ICU patients is scarce. Even studies in the area of Psychosocial Care were limited to cancer, HIV-AIDS, terminally ill patients and also on samples who were affected by a natural disaster. Further, it is observed from literature that ICU quality has always been measured in terms of medical care. The measure of psychological outcomes which categorically ought to be a part of ICU Quality has been neglected. Consequently psychological aspects of quality care can be considered a virgin area with wide scope for explorative research. Indian studies in the area of intensive care and Psychosocial Care were comparatively few. The literature was reviewed on the lines of ICU environment and care and the impact they have on patient outcomes. The review was taken up with a goal to understand the current state of the ICU care and identify gaps in research. Research publications in the field of

Psychology, Nursing, Medicine, and Sociology were referred for this literature review.

The Origin and Development of Intensive Care Unit

The Intensive Care is defined as an advanced level of health care, where monitoring, diagnosis and treatment is carried with utmost care so that the vital functions of the patients are protected and the patients move towards a meaningful life. The Intensive care has seen a remarkable development in terms of technology and medicine since its inception in 1950. The 19th century ICU was rudimentary, with fewer gadgets, open room and natural light, where more importance was given to patient care. The evidence-based medicine during that period gave much scope to communication with patients, patients' physical environment, personal hygiene and nutrition (Munro, 2010). However the invention of technology made the ICU more sophisticated with complex equipment resulting in a shift of focus from humanized patient-centered-care to a dehumanized mechanical care. Thus technology while used as an aid, turned to be an intrusion into patient care. The less invasive techniques and improved patient monitoring techniques have helped to reduce the mortality and morbidity, but have increased the exposure to stressors. The ICU environment is thus considered as overwhelming and potentially hostile and is denounced to be the cause of the unpleasant consequences on the physical and psychological functioning of the patients. Wenham and Pittard (2009) commented that most patients are conscious and sensitive to the events in their environment, during their stay in an ICU where the environment itself becomes a source of psychological stress. A number of studies have described the physical and mental condition of the patients in ICU.

The Physical and Mental Conditions of ICU Patients

Research studies have revealed that stay in ICU cripples a person physically. The first and foremost effect seen on the critically ill patient is the severe loss of weight. Loss of weight and weakness is due to the muscle wasting. ICU patients lose about 2% of their muscle mass every day, and some of them lose up to 50% of their muscle mass (Griffiths and Jones, 1999), which leaves the patients with formidably low energy levels and protein deficit. More over the medicine and the diet bring about an altered taste and smell perceptions, thus reducing food intake which also contributes to the weight loss. In a clinical review, Broomhead and Brett, (2002) reported that weight loss, fatigue, poor appetite, and muscle weakness may contribute to impair physical functioning, which results in severe exhaustion and the patients are unable to accomplish even simple physical tasks. The patients feel purposeless and lose confidence, as their arms and legs feel unfit and do not respond to their own body requirement (Granberg Axéll., 2001, Johansson & Fjellman-Wiklund., 2005, Johnson et al., 2006). Critically ill patients also have disorders of motor and sensory peripheral nerves, known as neuropathy or a temporary damage to the nerves of the peripheral nervous system. It is associated with a combination of autonomic and sensory changes like muscle weakness, cramps, spasm, numbness and pain. Some of the patients exhibit severe limb weakness with marked muscle atrophy, or a severe degeneration of proximal muscles (Hund et al., 1996). The loss of muscle mass, muscle weakness, joint stiffness, muscular neuropathy cause reduced mobility (Hund et al.,1996) which decrease the sensory function and may have a long lasting effect on the functional outcome and quality of life.

The tubes and wires attached to the body make the patient immobile which increases dependency and vulnerability, and adds to a feeling that they are no longer

in charge of their physical condition (Gjengedal.,1994, Samuelson., 2006, & Almerud., Alapack ., Fridlund & Ekebergh, 2008). Dependency in patients admitted in an ICU begins with their inability to perform self care, which sends in feelings of powerlessness, frailty and vulnerability (Henriksen & Vetlesen, 2000). Samuelson, (2011) has also described that patients in ICU have feelings of insecurity, powerlessness and helplessness. These feelings are associated with lack of awareness of what has happened to them, loss of information, dependency and lack of ability to manage on their own. In a focused interview on experiences of ICU patients, McKinley, Nagy, Stein-Parbury, Bramwell and Hudson (2002) found that patients experienced vulnerability in ICU due to extreme physical and emotional dependency, and depersonalised care. The study showed that vulnerability decreased when patients were informed about what was occurring while they were in ICU, when care was individualized and when their families were present. Almerud et al. (2007) conducted unstructured interviews on nine ICU patients to find out 'what it means to be critically ill.' Dependency was one of the constituents of patient experiences. Patients felt they were compromising on integrity, and their freedom disappeared in the ICU environment. They sensed that they were monitored but at the same time felt they were invisible to the medical staff which led to feelings of security and vulnerability. The study challenged the present care giving system to develop an integrated and comprehensive approach to care which would strike a balance between clinical competence and holistic care.

In a narrative study on critically ill adult patient Lykkegaard and Delmar, (2013) found that ICU patients described, depending for help as unusual and embarrassing. Patients described dependency to be associated with feelings of burden and lowered dignity. Receiving help especially for body care was associated with

shame, powerlessness and weakness. The investigators recommended enhancing awareness in patients and improved communication from staff, to reduce vulnerability in patients. Patients experience vulnerability not only due to limitation of movements but also because they cannot verbally communicate due to intubation or tracheotomy. This inability to express one's thoughts verbally to ICU staff or to convey feelings to loved ones creates severe emotional distress in patients. Vulnerability can cause loss of role identity or lack of autonomy (Lokhart & Berard., 2001), which in turn may have serious psychological implications like depression and trauma. Thus the research findings suggest that the medical requirement of patients in the ICUs have the potential to create a state of helplessness. Already in a vulnerable physical state, the patients easily lose orientation because of the strange surrounding in the ICU.

ICU Environment: Impact on Patients

Exposure to unfamiliar physical environment has the potential to induce anxiety even in a healthy normal person because of the changes in sensory inputs. For a patient who wakes up from sedation in an ICU, it may be more anxiety provoking. The extreme physical environment of the ICU engenders alterations in sensory inputs viz. sensory deprivation, sensory overload, excessive noise, physical and social isolation, and restriction of movement, are found to be some of the causes of psychological trauma. Most of these stressors are from the ICU environment and the treatment procedure.

The concept of environmental influences on healing has been known since Nightingale (1859). Nightingale focused on sanitation and other aspects of the environment that contribute to the health and healing of the patients and was also instrumental in bringing forth the body-and-mind connection. According to her the

environment played a central role in a patient's healing of body and mind. Nightingale went on to influence the healthcare environment by varying the patient's visual perspective, utilizing color and natural light more effectively, and eliminating excessive noise.

"Unnecessary noise, or noise that creates an expectation in the mind, is that which hurts a patient . . . . Such unnecessary noises undoubtedly induced or aggravated delirium in many cases". (Nightingale, 1859)

Apart from the discomfort it creates in patients, noise is also found to cause disrupted sleep, impaired wound healing and hyper arousal (Fontaine, Briggs & Pope-Smith., 2001). The recommended noise levels in the ICU during the day time are less than 45dB, less than 40 dB in the afternoon and less than 20dB during the night. However studies found that noise levels in intensive care unit do not change during day and night. Noise levels were recorded in a General Intensive Care Units, for three consecutive days by Christensen (2007). The study showed that the noise levels in the ICU was 56.42dB, and reached a peak of 80 dB sometimes, which is far beyond the recommended standards. Qutub and Said (2009) measured the noise levels in ICU throughout the shift, using a sound level meter. The study showed that there was no significant difference in the exposure to noise in any of the shifts. The patients were exposed to a noise level that ranged from 59.3dB to 65.67 dB. The intensity of noise continued to remain at 59.5 dB, and never went below 56dB. Though there were multiple factors that contributed to the noise in ICU viz. ventilators and monitoring devices, the main factors were found to be communication between the staff, bed occupancy, and severity in patients' condition. Similar results were found by Akansel and Kaymakci, (2008), on CABG patients, where the mean noise level was recorded as 65dB, with the peak noise levels as high as 89dB. Morrison., Haas., Shaffner.,

Garrett., & Fackler. (2003) measured the psychological and physiological responses to noise in the ICU. Though the responses were not significantly associated with noise, the top three psychological responses were annoyance, startle and anxiety and the top three physiological responses to noise were insomnia, tachycardia (increased heart beat), and fatigue (Hsu, Ko, Liao, Huang, Chen, Li,Hwang, 2010).

Independent studies identified various sources such as monitor alarms, staff conversations (Dennis., Lee., Woodard., Szalal., Walker., 2010), cardiac monitor, voices, carts travelling in hall, pulse oximeter alarms (Dube et al., 2008), falling of objects, opening and closing of doors, telephone, people talking, beeping machines, hallway traffic (Taylor-Ford., Catlin., and LaPlante., 2008; Milette 2010) as some of the sources of noise in the ICU. Studies have shown that noise is one of the causes for sleep deprivation and ICU delirium. Reduction of noise level involves alteration of ICU design and modification of some care practices in the ICU. Kahn., Cook., & Carlisle (1998) commented that 51% of the noise in ICU can be modified and reduced. Connor and Ortiz, (2009) in their study found that educating ICU staff with noise-reducing strategies resulted in quieter ICU environment and was beneficial to both patients and staff. Taylor Ford et al., (2008); and Pugh et al., (2007) advocate that educational program to teach nursing and other staff about the effects of noise and importance of reduction of noise in the ICU, monitoring the noise levels during the day and night, modification of ICU staff practices are policies that can be followed by the ICU team.

The other physical environment factor beside noise that needs to be regulated is the light. The need for natural light assumes significance as it is related to the biorhythms.

“*Second to their need for fresh air is their need for light . . . it is not only light but direct sunlight . . . the usefulness of light in treating the disease is all important”. (Nightingale, 1859, pp. 47–48)*

The human body functions on a 24-hour programmed internal clock, which is also known as the circadian rhythm. The primary stimulus responsible for the synchronization of the circadian rhythm is the light-dark cycle (Czeisler, Buxton., & Khalsa, 2005; Rea, Bierman, Gifueiro, Bullough 2008). When a patient is in ICU, he/she is exposed to continuous artificial light, which disrupts circadian rhythm that in turn impacts the sleep-wake cycle. Recommendations say that the day light in the ICU should not exceed 30 foot-candle and the night lighting should not exceed 6.5 foot candle. In violation of this, studies have shown that the patients are exposed to the bright lights all through night, the reason being the patient care activities that take place during the night. A study by Dunn, Anderson and Hill, (2010) showed that patient care activities like collection of blood sample, patients’ bath were performed between 9 pm to 6 am which requires the use of continuous light. A review study by Tamburri, DiBrienza, Zozula and Redeker, (2004) on nocturnal care interactions on patients during 147 nights, showed that many of the nursing activities like measuring vital signs, administering medication, assessing output via catheter, obtaining blood samples and bathing patients take place between 7 pm to 6 am. Such activities require continuous light at the nursing station and also near the patient’s bed. The prevalence of strong lighting and noise affects physiological parameters such as blood pressure, heart rate and sleep (Ryherd et al., 2008). These stressors and the ongoing activities contribute to the incidence of ICU delirium, i.e. a temporary loss of orientation in time and place and experience of unreal events (Granberg Axell, Malmros, Bergboom & Lundberg, 2002 and Granberg-Axell, Bergboom & Lundberg 2001).

The literature suggests that the design of ICUs affects patient's recovery, as the risk of developing ICU delirium increases by about 50% in windowless rooms. Minimizing patient care activities, except the emergency activities during the night can not only reduce the exposure to light but also increase the length of undisrupted sleep in ICU patients. Controlling their effect is not a complicated task for the ICU team. Monitoring, re-scheduling and adhering to the guidelines would definitely bring about a change in these practices leading to improved patient outcomes.

There is a strange and eccentric niche, in the ICU environment due to the different stimuli loads. Sensory imbalance or sensory alteration is experienced by patients due to the different stimuli loads in the ICU (Baker, 2004). According to Baker sensory overload is caused by internal factors such as pain, anxiety, discomfort and hallucination, and external factors like constant/frequent noise (e.g. ventilators, suction, alarms, telephones, conversation), excess/constant light, frequent non-therapeutic touch (i.e. only being touched during nursing/medical interventions), pain and discomfort and hallucinations from drugs. Similarly, sensory deprivation is also induced because of lack of communication, depersonalization, lack of or uninvited therapeutic touch, invasion of personal space, lack of demarcated night/day routine and social isolation. Depression, anxiety, confusion and delirium are some of the response to the sensory overload and sensory deprivation. The unfamiliar sounds have an impact on the physical and psychological Wellbeing and can delay the recovery (McLaughlin, 1996). Due to the sensory deficit, patients experience hallucination, emotional liability and psychological issues (Cropp et al., 1994; Topf, 2000). The tightly restricted motions, intrusive procedures, minimum communication, disorientation and helplessness are some of the causes of sensory imbalance, which can bring about a psychotic state in the patient.

The sensory imbalance is one of the causes for ICU psychosis or ‘madness in ICU’ McKegney (1996). The term is referred to as ‘an unfortunate spin-off’ of medical progress, in cardiothoracic ICU patients who exhibited disorientation, hallucination, agitation and confusion. McKegney’s study was the earliest to recommend uninterrupted sleep in ICUs by reducing the level of noise and light at night, and place calendars and clocks in ICUs to orient them. The study also recommended a glass window view of the natural outside. After 17 years of the above study ICU psychosis is still recognized as one of the major complications of ICU stay, reflecting the presence of similar conditions in the ICU environment. The other terms used in describing the cognitive changes in ICU patients are delirium.

Delirium (ICU delirium) is a distressing, high rated patient disorder that may be related to the environment amongst patients in ICUs (Van Rompaey, Schuurmans., Shortridge-Baggett, Truijen & Bossaert, 2008). Diagnostic and Statistical Manual of Mental Disorders, DSM-IV, (2000), defined delirium as an ‘acute disturbance of consciousness with inattention accompanied by a change in cognition or perpetual disturbance that develops over a short period and fluctuates over time’. Granberg-Axell et al., (2002) found mild delirium based behaviour like restlessness and fear to moderate delirium like ‘out of control’ in ICU patients with a few patients who experienced severe delirium, like bizarre thinking. Several studies (Fong et al., 2009; Miller, 2008; Pun et al. 2005) indicated that about 70% of patients admitted in ICU suffer from delirium. Rincon, Granados, Unutzer, Gomex, Duran, et al., (2001) in their descriptive study found the presence of psychological disorders in ICU patients. The study showed that out of the 96 patients taken into the study, 29.2% had depression, anxiety or delirium. Rompaey et al., (2009) conducted a delirium assessment study on adult male ICU patients. The study revealed that out of the 523

patients screened for delirium, 30% i.e. 155 patients were found to be delirious. The patients were screened for delirium using the NEECHAM Confusion Scale (1996). The study also reported that isolation of patients, restricted family visits, use of physical restraints were some of the factors that caused delirium in patients. The study stressed the role of ICU environment and the ICU policies as factors responsible for the cause of delirium. Delirium also has an impact on the outcomes and length of stay in ICU. In a study on 48 ICU patients, it was observed that 39 (81.3%) patients developed delirium and 29 (60.4%) of these developed other complications (Ely et al., 2001). ICU delirium also is found to have other negative outcomes viz. cognitive impairment, increase in re-intubation, increased length of stay and increased mortality (Pisani, 2009; Lat et al., 2009 ; Robinson et al., 2008; Pandaharipande et al., 2008 Balas et al., 2012.).

A study on the effect of ICU environment on delirium was conducted by Arenson, Macdonald, Grocott, Hiebert & Arora (2013). Post operative cardiac surgery patients were taken from two different ICU environments viz. one with no barriers between bed spaces and with no windows and the second with private rooms with physical barriers for each patient and wall-to-wall exterior windows. Out of the 1010 patients studied 148 (14.7%) experienced delirium after cardiac surgery. The prevalence of delirium in the two different ICU environments 1 and 2 was 16.1% and 13.5% respectively showing no significant difference between the two. The authors conclude that environment alone is not likely to be a cause of delirium but when combined with other factors like age, mechanical ventilation, length of stay the prospect of developing delirium are high. The authors in their study have not included the other factors of ICU environment like noise, light, sleep disruption. The

authors recommend a multi-model approach to ICU care. The other factors which cause delirium are sleep/wake cycles, noise and night-time interruption of sleep. Reducing the sensory imbalance is not an ardent task for the ICU team. Research has established that providing information to reduce anxiety, frequent orientation to time and place, uninterrupted sleep, reduction of noise, family involvement, caring touch, encouraging autonomy in self care are some ways to minimize sensory imbalance Field., (2005).

Research reveals that management of delirium is done mainly through pharmacological treatment. However few non-pharmacological interventions like exercise and early mobility are found to be helpful in reducing delirium. Schweikert et al., (2009) conducted an interventional study on early mobility and reduction of delirium in ICU patients. They found that the group of patients who were given physical and occupational therapy along with interruption of sedation were found to have significant decrease in delirium (50%) in the ICU. The patients also showed significant improvement in functional status. Needham et al., (2010) found that a multidisciplinary rehabilitation approach was effective in treating delirium. Rehabilitation treatments reduced delirium from 67% to 30% and functional status improved from 56% to 78%. Delirium in ICU can also be prevented by reducing the light and noise levels during the night so that the patients' biorhythm is not affected and also reducing patient care activities during night to help patients to get continuous hours of sleep (Inouye, et al., 1990 & Trzepacz., 2000). Research has revealed the causes and after effects and interventions of ICU delirium. However Balas et al., (2012) in their review opined that the delirium can be reduced in patients by minimizing physical restraints, sensory impairment, sedation, sleep deprivation and

facilitating mobility, allowing daylight through windows in the ICU, which can be easily controlled and regulated by providing quality care.

It may be concluded from the above mentioned studies that the environment of the ICU is highly potential. Though the main objective of an ICU is to keep the patient alive with the 'best possible humane care' by the staff and the use of high technology machine (American Thoracic Society 2012), there are stressors in the ICU environment which may accentuate the inevitable stress of an intensive care trauma. The noise, the sedation, the light, the invasive procedures, isolation, immobility, anxiety, delirium and disorientation directly or indirectly contribute to ICU trauma.

Intensive Care Unit Trauma (ICU Trauma)

Experiencing treatment in a modern day ICU is a potentially traumatic event. Along with the life-saving technology, the ICU environment also means unpleasant noise, bright lights, and overwhelming sights bodily sensations, (E.g. hearing others patients scream or moan, seeing his own and others wounds), and invasive and painful procedures (Fontaine, Briggs & Smith 2001). Treatment in the ICU is paradoxical and creates feelings of apprehension and anxiety in patients and sends out subjective reactions of fear, helplessness, or horror that are cardinal features of psychological trauma. Events that involve experience of a serious threat to one's own physical integrity or sanity, threat to life or an emotional experience that is overwhelming are accompanied by intense fear, horror, and helplessness leading to trauma. The trauma, which is the result of ICU experience manifests in different forms.

Anxiety and depression are major outcomes of being in an intensive care for a surgical or a medical complication. Rincon et al (2001) assessed the levels of anxiety and depression in 86 patients of an adult critical care unit. The results showed that

24% of patients showed signs of anxiety and 13.7% had depression. The study stressed on the need for screening the patients for anxiety. McKinley, Stein-Parbury, Chehelnabi & Lovas (2004) assessed anxiety in cardiac patients through a clinical interview. Results showed that out of the 106 patients interviewed, two thirds of them were moderate to severely anxious. The study recommends non-pharmacological interventions, provision of information and emotional support as some interventions to reduce anxiety. Literature has documented that anxiety and depression is prevalent in CABG patients. Rattray and Hull, (2008) in a review reported that anxiety, depression and post traumatic stress decreased overtime for some patients while for others these problems were enduring. Similar results were also found in a study on CABG patients, by Murphy et al (2008) who identified that anxiety and depression persisted in these patients. In a pre and post surgery study they found that out of the 184 patients, minor anxiety continued in 92% of the patients, six months post surgery and 8% of the patients exhibited major anxiety. While 72% of the patients showed symptoms of minor depression, 28% showed signs of major depression.

Studies published in the last one and a half decade have emphasized that psychological effect of experiences of ICU stay recur in the form of panic reactions, nightmares, flashbacks or delusions whenever the patients revisit their experience in ICU (Scragg., Jones & Fauvel., 2001; Jones et al., 2001). These experiences are similar to PTSD. PTSD is an anxiety disorder that develops after exposure to a traumatic event The National Health Science encyclopedia defines the PTSD as: '*a psychological and physical condition, which can be caused by extremely frightening or distressing events, when somebody witnesses traumatic events and then feels extreme fear, horror, or helplessness'* (National Health Services NHS, 2008). For a patient to be diagnosed with PTSD, he or she must meet the following criteria:

exposure to a traumatic event that evoked intense feelings of fear, hopelessness, or horror; demonstration of at least one clinically significant symptom of re-experiencing clinically significant symptoms of avoidance or emotional numbing, clinically significant symptoms of persistent arousal; the presence of symptoms that persisted for at least one month; and the presence of the symptoms adversely impacted functioning or resulted in significant distress (American Psychiatric Association,2000).Similar persistent psychological symptoms are observed in patient who go through an intensive care experience. The presence of long term psychological trauma in ICU patient has been reported in literature. Jackson et al. (2007) from their review state that the prevalence of ICU related PTSD ranged from 5% to 63% in patients. Koshy et al., (1997) report that out of the total sample of patients with an ICU stay of 4 days, 15% were suffering from PTSD even after a year of discharge. Schelling et al., (1999) reported that there were as high as 27.5% of PTSD patients with acute respiratory disorder. According to Skirrow et al., (2001) and Gregurek et al.,(2001) these figures are much higher when compared to 1% in general population, 19% in war victims and 3.5% in victims of assault. The large percentages reported in various surveys point out the dire need for research designs to identify the specific aspects in ICU causing trauma. Scragg, Jones and Fauvel (2001) used the Trauma Symptom Checklist and found that 30 out of the 80 adult general ICU patients, i.e. 38% reported significant symptoms of PTSD. The study showed that the post-traumatic stress was directly attributable to the experience of treatment in the intensive care unit. The authors further added that, it is not imperative whether the patient is from surgical, cardiac or medical ICU. Girard et al (2007) identified the significant presence of PTSD in ICU survivors. In his study on 43 patients from medical and coronary ICU he found that 14% of the patients had high levels of PTSD.

Myhren et al, (2010) found that 25% of the 170 patients from medical, surgical and trauma ICU had high levels of PTSD. They also observed that there was no difference in the risk of developing PTSD between these three groups of patients. Jackson et al., (2007) reported that the prevalence of PTSD in a general medical ICU ranges from 5% to 63 % while in special populations like sepsis and respiratory disorders it is found to be ranging from 18.5% to 43%, these results imply that the prevalence of PTSD varies with the disease condition. Davydow et al (2008), in his review article contradicting the findings of Jackson et al. (2007) established that severity of illness was not a predictor of PTSD, but other factors related to the ICU environment cause trauma in patients.

Research findings to date suggest that PTSD symptoms may be associated with the ICU experience. Survivors of ICU report of delusional memories, which refer to dreams, nightmares, paranoid delusions and hallucinations (Kiekkas, 2010). Re-experience is one of the symptoms of PTSD. The characteristic of this symptom is to be related to the result of the way the traumatic event is laid down in the memory. Granja et al. (2005) conducted a study on 1433 adult ICU patients and found that 41% of patients experienced dreams and 30% experienced nightmares during their ICU stay. They also report that patients recollected experiences like difficulty with tracheal tube (81%), nose tube (75%), family worries (71%), inability to move (64%), fear of death (64%), difficulty in communication (59%) noise and sleep disturbance (54%). The other manifestation of trauma is hyper-arousal. The patients in the ICU are in a state of hyper-arousal because they are always on high alert. Hyper-arousal symptoms are found to be associated with emotional numbing in children between the group of 7 and 14 (Weems, 2003). Research on adult ICU patients in the area of hyper-arousal, is scarce.

The fact that critical illness causes PTSD has been established in the above studies. It is important to recognize the features of the ICU that trigger the development of PTSD. There are several factors in the ICU that can influence the occurrence of PTSD in patients. Davydow et al. (2008) critically reviewed data on the prevalence of PTSD in general ICU survivors and also the risk factors for the development of ICU PTS (ICU-Post Trauma Stress). The review revealed that while 1,104 patients showed clinically significant PTS, there were 93 patients who had the prevalence of clinician diagnosed PTS. The study revealed that the consistent predictors of post-ICU PTS are prior psychopathology, sedation, psychotic experiences like delirium, ICU syndrome and ICU memories. It is important to find out if the post ICU stress is the result of factors other than the ICU experience per se. Myhren et al. (2010) in their study on Posttraumatic stress in the first year of ICU discharge identified some predictors of post traumatic stress. According to the study, educational status, employment status, personality traits, pain, lack of control, factual recall, memory of feelings, delusional memories are some of the predictors of post ICU stress. A significant observation from the above study is that apart from ICU environment, there are other determinants such as personality and socio-demographic factors. While the stable factors such as personality and socio-demographic factors are beyond the purview of intervention, there may be other means of minimizing ICU Trauma.

Quality care refers to the attitude of the care provider to view the patient as a human being with all the physical, emotional, cognitive and social needs along with the medical needs demanded by the patients' health conditions. In other words, the quality of care can be enhanced only when it includes the psychosocial considerations.

Psychosocial Care and is Positive Impact

Psychosocial Care originates from the biopsychosocial model of health care. In the biopsychosocial approach the health professionals practice the integrative approach. This approach is a 'whole person' approach wherein the health care professional integrates his/her knowledge about the patients' biological system with the behavioural, social and cultural background and provides effective medical service. While the bio-medical model with its focus on medical responses to biological alterations, resulted in the development of drugs and vaccines that have contributed to a dramatic decline in mortality rates in the twentieth century, the biopsychosocial model takes account of the psychosocial dimensions viz. personal, emotional, family and social in addition to the biological aspects (diseases) of all patients. The model emphasizes on the patient-centered care delivered by interdisciplinary provider teams that include Health Psychologist. The biopsychosocial care model thus is a 'holistic' approach to illness, where as the medical practitioners understand the human experience of illness rather than the limited construct of 'disease'.

Health care is based on a constant interaction between the provider and the patient. Health care relates to addressing not only patients' disease but also the concerns. Patients seek health care service for biomedical treatment, medical information, psychological assistance, therapeutic listening and general health advice. The health care is complete and holistic only when patients receive all the above services to their satisfaction. According to Engel (1977), the patient- provider relationship starts with the patient's expression of his/her health condition and the

providers understanding of the patient's perception of health. When this kind of relationship exists between the patient and the provider, a framework of helping alliance is formed in which the medical care takes place. Such an alliance encompasses the biological, psychological, social and spiritual aspects of care of the patients and their families. Psychosocial Care deals with not only creating a relationship between physicians, patients, and their caregivers in the emotionally charged medical environments but also extending support during crisis, helping patients and their caregivers tackle the emotional reactions to critical events and also help them to adapt to the ongoing situations.

Psychosocial Care interventions have been widely used in the field of Cancer care, Palliative Care, HIV-AIDS and in Disaster Management. The goal of Psychosocial Care in cancer patients is to recognize and address the effects of cancer and its treatment on the mental status and emotional wellbeing of patients and their family members (Andrykowski & Manne, 2006). It is found that provision of Psychosocial Care to cancer patients helps in effective management of disease related symptoms and adverse effects of treatment viz. pain (Gorin et al.,2012), fatigue (Kangas, Bovbjerg and Montgomery 2008), loss of body image and isolation. Cancer diagnosis and treatment is associated with physical, psychological and social morbidity (Kissane et al. 1998, Zabora et al 2001) which affects the patients' quality of life. The patients also face issues at the domestic front, and experiences problems in daily living, finances and employment (Schulz et al., 1995*).* Literature has revealed that cancer is associated with severe distress. A U.S. based National Comprehensive Cancer Network (NCCN) Clinical Practice Guidelines in Oncology defines distress in cancer as 'a multifactorial unpleasant emotional experience of a psychological (cognitive, behavioural, emotional), social and/or spiritual nature that may interfere

with the ability to cope effectively with cancer, its physical symptoms and its treatment'. Distress extends along a continuum, ranging from common normal feelings of vulnerability, sadness, and fears, to problems that can become disabling, such as depression, anxiety, panic, social isolation, and existential and spiritual crisis. Holland., Anderson et al. (2010) state that Psychosocial Care interventions help patients get over the distress. The IOM guidelines (2008) state that 'attending to the psychosocial needs should be an integral part of quality cancer care and is not possible to deliver good-quality cancer care without addressing patient's psychosocial health needs'. Similar recommendations have been mentioned in the care of HIV-AIDS and Palliative Care. The severity of the disease, the distress associated with diseases like cancer and HIV-AIDS call for provision of Psychosocial Care for these patients.

However research is not misguiding in saying that patients admitted in the intensive care unit for a surgery experience acute, multiple, recurring and overwhelming stress. Intense adverse emotions, fear, anxiety, agony, loneliness, bewilderment, depersonalisation, hopelessness, and acute confusion are all the responses to ICU stay (Lusk et al., 2005). Such traumatic events shatter lives and result in a major loss of resources (Hobfoll, 2001).These losses can include the physical (health, safety), the personal/ psychological (self esteem and emotional well-being) the moral/spiritual (values and belief system) and the social (family, friends, and community health) resources. Psychosocial issues are not only restricted to cancer or palliative care, but emerge even in intensive care units. There is abundant literature which shows that patients undergoing cardiac surgery go through psychosocial distress and these issues can be address by extending Psychosocial Care.

Need for Psychosocial Care in CABG Patients

CABG is performed to alleviate the symptoms of Angina, breathlessness, prevent Myocardial Infarction and improve functional ability, quality of life and survival (Cameron et al., 1994; Brandrup-Wognsen et al., 1997; Brorsson et al., 2001). Studies show that CABG surgery brings about a definite change in the health related quality of life in patients (Colak, 2008). The surgery has positive outcomes and is highly beneficial for patients with Coronary Artery Disease as the patients can observe a change in their pre-operative status.

However CABG surgery is associated with high levels of apprehension, anxiety, depression and psychological distress (Ebirim & Tobin, 2011; Powell & Johnston 2007; Luttik, et al., 2011 and Chaudhury, et al., 2006). The entire procedure of surgery and recovery after surgery presents a great challenge for patients (Lindsay et al., 2000). Patients experience psychological distress and cognitive impairment (Duits, et al., 1997, Selnes, et al., 2004). After the surgery the time taken to achieve optimum health is reasonably long. Recovery from a surgery and returning to normal life is a dynamic process and is associated with physical, psychological and social effects (King et al, 1994; Lopez, Ying, Poon &Wai, 2007). Lopez et al (2007) in a prospective study examined the physical, psychological and social recovery patterns in 68 CABG patients. The patients were interviewed once before surgery, and twice after surgery. The results showed that the physical recovery and depression levels in patients reduced gradually after discharge. Depression was associated with poor recovery. The drawback of this study was that the psychological recovery measured only the depression levels. The study stressed on development of adequate teaching and rehabilitation programs to be conducted for the nurses.

CABG patients go through physical problems like pain from chest and leg incision, loss of appetite, fatigue and sleep disturbance (Gallagher et al., 2004). It has been found that the psychosocial problems are a challenge to recovery from CABG surgery and are powerful predictors of recovery (Linden et al., 1996). Moser and Dracup (1995) found that 25% of CABG patients have significant problems in long-term recovery. Psychological problems after a cardiac surgery include anxiety, depression, restlessness, irritability, panic and anger due to the feelings of powerlessness, lack of control, and reduced self-esteem (Shih et al., 1997). CABG patients are at a risk of anxiety and depression. In a study on prevalence of anxiety and depression in patients undergoing CABG surgery, it was found that out of the 184 patients, 92% of patients had minor anxiety symptoms and 8% had major anxiety. Minor depression was observed in 72% patients and 14% had major depression (Murphy 2008).The prevalence of anxiety and depression among patients with cardiac conditions is three times higher than in the general population, with 25–30% of patients reporting persistent problems with anxiety and/or depression (Blumenthalet al., 2001). Depression in CABG patients is associated with high levels of mortality and morbidity and decreased functioning (McKhan et al., 1997, Burg et al., 2001). A major surgery like CABG is a risk for the life of a patient and often results in depression, cognitive disorientation, and mood swings. It takes a long time for patients to make this transition from a state of illness to a state of Wellbeing. It was found that for patients who had undergone a heart surgery, reorientation to life is a long process and as many as 52% of the total patients taken into the study continue to be in a depressed state for a period of three years, which has an impact on the Wellbeing (Karlson, Lidell & Johansson, 2007). Anxiety and depression impact the quality of life, and are associated with poorer self-management and health outcomes

(Carney et al 2002, Frasure-Smith & Lesperance, 2003). The levels of depression, anger and mood swings after a CABG surgery are found to be positively associated with the length of recovery (Gaberson, 1995). Severe cardiac disease is often perceived by the individual as a life-threatening and devastating event. Recent studies also confirmed that post- traumatic stress disorder (PTSD) was prevalent in 14.7% of CABG patients (Dao et al., 2010). PTSD symptoms, including traumatic memories related to CABG surgery, were evident in up to 18% of 148 patients in a six month follow-up study. Researchers have begun to acknowledge that cardiac treatment itself can result in long-term psychological impact which can in turn impact quality of life (Boykoff et al., 2009).

Apart from the physical and psychological distress the patients' experience of the surgery itself is distressing. Research on patients' experiences of a cardiac surgery bring out themes like loss of dignity, feelings of being dehumanized, feeling of being isolated from family and friends, fear of outcome and apprehension about future. Patients were found to have overwhelming need to feel safe. Trust, hope, regaining control over them, and being close to family and friends influenced the feeling of being safe. The study also found that family, friends and ICU staff could positively or negatively affect the need for feeling safe (Hupcey, 2001). Gardner et al., (2005) in their study found that apart from the pain and physical dysfunction patients expressed feelings of isolation, helplessness and apprehension. Many of the patients expressed a change in their view of life since surgery. In a phenomenological study by Corrigan, Samuelson, Fridlund, & Thomé, (2007) it was found that ICU stay brought in the experience of 'life being beyond their control', and 'fear of unknown' in the patients. These experiences not only had a deep impact on the patients but also had a strong prediction for trauma. A study on stressful experiences in CABG patients (Gois et al.,

2012) revealed that patients felt the ICU experience as hard. The patients felt they were being isolated from family and the recovery period was the hardest part. Patients also complained of immobility, feeling of thirst or being choked due to tubes. The above study also brought into light the fact that apart from some patients being satisfied, some of them complained of being given a depersonalized treatment and felt they were not 'listened to'. Patients expressed that some of their informational needs were not met (Doering, McGuire, Rourke, 2002). The high technology and the busy schedule of the ICU staff influenced care. Patients reported feelings of depersonalization, or feelings of being treated as a commodity and alienation (Doering et al., 2002; Hawthorne, 1990; Lukkarinen, 1999). A study by Camp (1996) and Laitinen (1996) revealed that patients expressed feelings of confusion. The fast paced, busy ICU environment, constant activity and the conversations between ICU staff resulted in confusion. Research on experiences of cardiac patients emphasizes the need for a personalized care which is possible through providing a holistic care and improving the ICU Quality so that the negative effects of the ICU environment are minimized. Thus the ICU Quality is assessed not only by the parameters related to biomedical aspects, but there is a need to include psychosocial aspects that constitute the appropriate bench mark for the services provided in ICU. Such supportive interventions and quality care in the ICUs would distinctly bring a change in the health care perspective. Another important aspect of Psychosocial Care is the family member of the patients. Studies have revealed that the family members of the patients equally go through the painful ordeal of procedures in the hospitals. Research has established that the family members also go through the psychological sequel of anxiety, depression, fear, apprehension and PTSD. There is abundant literature on involving the family member in the care and decision making process in the ICU.

Bergbom and Askwall (2002) found that the presence of family and their participation in the care process during their stay in the ICU neutralized feelings of threat, estrangement and meaninglessness in patients. Involving relatives and friends in the care process helped to maintain the patients' identity and individuality. The study found that patients were able to affirm themselves and attain strength and support. Addressing family needs and involving family in the care process brings down the anxiety and apprehension in the family. Grendell, (1998) in his study says that the patients' ability and response to cope up majorly depends on the degree of social and emotional support they receive from the environment. During the time of stress and anxiety, support, nurturance and warmth from close family members plays a vital role in recovery. The social and emotional support from family is an effective buffer and helps lower the anxiety in patients.

Working towards providing optimal psychological care will have a positive effect on patients' psychological recovery and may also help physical recuperation after critical care. Psychosocial support can be used by the ICU team to establish therapeutic relationships. These relationships are built through psychological, social, and spiritual care. ICU care is more than just removing the disease of the patient. The health care team has to ensure that the care provided in the ICU would help the patient and their family in handling the feelings of distress and improving their Wellbeing. In other words, what it indicates is that an effective Psychosocial Care in ICU ensures sustains and protects Wellbeing in ICU patients.

Supportive interventions and quality care in the ICU would distinctly bring a change in the health care perspective.

ICU Quality Indices

Many national and international organizations have focused on the quality of care being provided by the nation's hospitals, and specifically in the ICU. Among those organizations are The Joint Commission International (JCI), The Leapfrog Group, and the National Quality Forum (NQF), The Society of Critical Care Medicine (SCCM), and the American Association of Critical-Care Nurses (ACCN) in the United States, and The National Accreditation Board for Hospitals (NABH) and the Indian Society for Critical Care Medicine (ISCCM) in India, are the leading organization to set bench mark for Health Care. All the above mentioned organizations while set standards for hospital care also have a special focus on ICU too. The guidelines include psychosocial domains into the medical care.

The Joint Commission International (JCI, 2010) in its guidelines says "*A hospital must embed effective communication, cultural competence, and patient- and family-centered care practices into the core activities of its system of care delivery—not considering them stand-alone initiatives—to truly meet the needs of the patients, families, and communities served".*

The JCI encourages hospitals to adopt a combination of the practices and use them for creating processes, policies, and programs that are best suited for their organizations. The recommendations regarding the hospital practices include minute aspects related to practices at the time of admission such as informing the patients about patient rights, minute aspects related to patients' assessment, treatment, end-of-life care and discharge. These heads specified detailed practices related to psychosocial needs of the patient and the families. The detailed guidelines of JCI are appended to the dissertation (Appendix I A).

Endorsing the holistic approach to patient care, the JCI aptly stated -*"Every patient that enters the hospital has a unique set of needs—clinical symptoms that require medical attention and issues specific to the individual that can affect his or her care. As patients move along the care continuum, it is important for hospitals to be prepared to identify and address not just the clinical aspects of care, but also the spectrum of each patient's demographic and personal characteristics."* The above recommendations of the JCI reflect the person- centered approach which includes the biopsychosocial aspects of care.

Similar guidelines are laid down by the National Accreditation Board of Hospitals (NABH). The NABH also stressed on the patient centered approach and recommended the patient rights to be protected. The guidelines laid by NABH though are broad and prescriptive are not as specific and categorical in behavioural terms. The emphasis of NABH focused on the process to be adopted by the hospitals, such as the compliance with providing the discharge summary, the mandate of the hospital to protect individual's dignity and privacy during examination etc. (For reference please see Appendix I B) This leaves some scope for interpretation on the part of the hospitals while in case of JCI, the guidelines were spelt out in terms of specific behavioural aspects, giving scope for objectivity in assessing the compliance with the benchmark.

While the above Commission/Board has provided guidelines for the hospital functioning in general, the Indian Society for Critical Medicine laid the guidelines specifically for the ICUs.

The Indian Society of Critical Care Medicine (ISSCM) was constituted in the year 1993. The ISCCM initiates the promotion, education, and training of the ICU personnel. According to ISCCM, the ICU operates on defined policies, protocols,

procedures, and should have its own quality control, education, training and research. The ICU is an area where no compromise can be made on the quality of health care delivery (ISCCM, 2010). Hence it is important that hospitals accept and adopt the guidelines. Going by this the ISCCM set elaborate guidelines for Intensive Care Units encompassing the standards for infrastructure, training and education of nurses, human resource, patient care and research. The guidelines of ISCCM describe in detail about the planning and designing of the ICU. Details of the guidelines are appended in Appendix I C. The ISCCM guidelines are very specific and detailed. They have covered every possible aspects related to the physical environment, infrastructure, health and hygiene practices and the requirement of personnel. These guidelines have stressed adequately on the physical and medical aspects. While the psychosocial aspects also find a place in the guidelines they do not seem to enjoy equal prominence.

Each and every recommendation that is set by the Board is intended to play a major role in minimizing the adverse effect of the ICU environment. The intensive care units are transforming into increasingly complex and fast–paced environments. The round the clock services are primarily aimed at providing quality services to the patients. The ICU Quality is measured in terms of the biomedical aspects of treatment viz. structure and facilities in the ICU, procedures performed, medication, hygiene, and the psychosocial outcomes of treatment viz. physical and psychological outcomes of patients, patient satisfaction, patient respect, and patient mortality. Such quality can only be maintained by setting indicators, which can be used as instruments to supervise and monitor healthcare (De Vos, 2012).

The guidelines are created to ensure that the ICU environment minimizes stressors. But research reveals that in spite of recommendations and guidelines the

ICU environment continues to be a source of high stress for patients and impinges on the patient Wellbeing. The traumatic experience and outcomes of ICU patients can be safeguarded only when the hospitals safeguard the standards set by the Boards and also provide Psychosocial Care. In critical care, supportive clinician-patient relationships are considered extremely vital (Wilkin & Slevin, 2004). Research has identified specific supportive interventions, such as providing explanations, reassuring and raising faith and hope, cheering-up, strengthening patients' self-esteem, giving emotional warmth, offering empathetic listening, physical and emotional presence, emotional care, empathetic touch and spending extra time with patients (Frazier et al., 2002) can reduce the length of stay in ICU and also improve the patients' Wellbeing.

Hospital Wellbeing: Impact on Prognosis

Hospitalisation has the potential to induce hospital anxiety, while admission in ICU is found to surpass the anxiety and result in ICU Trauma. This is found to be closely related to reduce the pace of convalescence, and result in relapse and re-hospitalisation. Hence the effort of the hospitals is to instill, sustain and enhance Wellbeing in patients so that it contributes positively to healing, recovery and discharge from hospital.

Patient outcomes of critical care can be measured on medical and non-medical criteria. The medical criterion is the prognosis viz. the presence or absence of the disease, recovery or survival from disease. The non-medical criterion is measured in terms of the quality of recovery or survival. The quality of patient outcomes can be described as Wellbeing or quality of life. Wellbeing is a significant outcome measure for patients admitted to the intensive care unit (ICU). Going by the definition of WHO

‘wellbeing of a patient’ should reflect his/her physiological and psychological condition, social functioning and perception of health.

In the context of hospitalized patients the wellbeing is measured in terms of Hospital Wellbeing. Hospital Wellbeing refers to the subjective perception and evaluation of a patients’ health condition in terms of their affect states, psychological functioning, social relations and spiritual Wellbeing. In case of ICU patients, the Wellbeing at best can be measured in terms the person’s level of satisfaction with their prognosis of health, as well as mental state.

ICU stay has a significant effect on the Wellbeing of patients. Literature reveals that the psychological distress that patients undergo viz. the anxiety of being in the hospital, apprehension over the outcome of the surgery and depression which comes along with the feeling of being alone, helplessness, and the traumatic experience of the surgery or procedure effects the physical, psychological and social Wellbeing. Research studies have evaluated the effect of ICU stay on patients. Adrian et al., (1988) from their study reported that after the ICU stay, patients exhibited a decreased level of concentration, attention and psychomotor functioning. Such cognitive decline may cause short-term memory loss, psychomotor slowing, or executive dysfunction affecting the Wellbeing in patients. A significant percentage of critically ill patients experience cognitive dysfunction, which affects their quality of life and overall daily functioning in the longer term (Gordon et al., 2004)

Research has shown that anxiety and depression are two major psychological outcomes of heart surgery (Goodman, 1997; King & Parrinello, 1988; Laitinen, 1996; Moore, 1994; Plach & Heidrich, 2002), which influence patients’ physiological recovery and the quality of life. Patients who experience a high level of stress, and patients who experienced postoperative mental confusion have a low quality of life

(Heijmeriks, et al., 2000; Schelling, et al., 2003). A study by García et al., (2003) showed that out of the 197 critically ill patients, 37% felt their quality of life to be similar, and 25% felt it was better but 38% of the critically ill patients complained of low quality of life, with the psychological domains being affected the most. In a study on 194 patients from three different ICUs it was found that low posttraumatic stress and high optimism were the predictors of higher health-related quality of life (Myhren, Ekeberg & Stokland, 2010).

The literature on Wellbeing in ICU patients is limited. Most of the studies done were either on physical and psychological outcomes of ICU or on quality of life in ICU patients. Few studies that were available in the area of wellbeing are mentioned here. One such study was conducted on advanced chronic ill patients. This study by Chiarchiaro et al., (2013) looked into the effect of trajectories of functional, emotional, social and physical Wellbeing in three groups of patients. It was observed that scores on all the subscales of Wellbeing declined in all the 40 patients. The study cannot be generalized to all the ICU patients as it was conducted on advanced ill patients. Tolmie et al., (2006) conducted a long term follow up study on experience of health and wellbeing in CABG patients. In-depth interviews of 62 patients revealed that the Wellbeing improved over the seven years but the process of recovery was complex. The study stressed the need for interventions that would facilitate self management for optimal recovery. Halm and Alpen (1993) in their review stated that the physical and psychological Wellbeing in patients can be improved by employing creative strategies to minimize the impact of environment. In another study by Nedeljkovic et al., (2011), it was found that the functional and physical component of quality of life improved in 86 CABG patients. Mental health status, personality profile and rehabilitation were some of the predictors of quality of life. Deisch et al. (2000)

conducted a prospective repeated measures design on 100 patients undergoing CABG. Data were collected preoperatively and seven days postoperatively. Patients listened to the guided imagery tapes twice a day throughout the study. Findings demonstrated reduced physical pain, anxiety, fatigue, and length of stay and increased patient satisfaction in the experimental group. A number of studies on cardiac patients (Friesner et al., 2006, Halpin et al., 2002, Bergmann et al., 2001, Hwang et al., 1998) have included psychosocial interventions like guided imagery, relaxation techniques, emotional and informational support, personal attention by medical professionals, and breathing exercises. These interventions have helped reduce the impact of ICU environment and enhance patient outcomes. Some of the reviews have suggested rehabilitation programs for patients to recover from ICU stress. In a study by Ghashghaei et al., (2012), thirty two patients who underwent CABG were selected and allocated to two groups two months before admission. While the rehabilitation group is given exercise, nutritional and psychological consultation and risk factor management, the reference group did not get this program. The result showed significant improvement of functional capacity in the rehabilitation group. In another study by Rajendran et al., (2004) 74 CABG patients were enrolled into the rehabilitation program prior to surgery, were initiated into lifestyle changes based on diet, relaxation, exercise, attitude and motivation. Results showed favorable changes in the functional outcome and lowered cholesterol and blood sugar. However rehabilitation programs can be implemented post ICU discharge, and there is a probability that many patient would not be willing to consider to be a part of the program. An interventional study by Peris et al., (2011), suggested an intra ICU psychological intervention for reducing psychological distress. Peris et al., (2011) conducted the study on 376 patients, 123 patients enrolled into intervention were

found to have low PTSD symptom than the control group. The above study suggested the presence of an intra-ICU Psychologist, who may help critically ill patients recover from this acute, stressful experience.

The quality of life and day to day functioning after surgery was also associated with cognitive functionality during the ICU stay (Gordon et al., 2004). A study on impact of critical illness on 252 patients on health related quality of life by Hofthuis et al., (2008) revealed that physical functioning, general health and social functioning declined in the patients. The ICU survivors had significantly lower health related quality of life even after six months of discharge. Chelluri et al., (2004) in their study found that ICU patients' quality of life was impaired mainly on the physical and social domains. Interventions like providing support may improve the functional status and quality of life. Low levels of health related quality of life and Wellbeing were associated with memories and cognitive disturbances of ICU stay (Granja, 2005).

Independent studies by Davydow et al, (2008); Rattray et al., (2005); Scragg et al, (2001) on post ICU patients revealed that that 2% to 25% of patients diagnosed with PTSD had a great influence on quality of life. Schelling et al., (2003); and Samuelson, (2011) add that patients' memories of frightening experiences may be a threat to their later psychological recovery following the ICU stay and these experiences continue to affect them several months after discharge from hospital (Russell, 1999; Adamson et al., 2004; Jones and Griffiths, 2005). The emotional stress and trauma, experienced by ICU patients not only produces the risk of ICU-syndrome and delirium (Rotondi et al., 2002) but also have an enduring effect on patients' later quality of life (Russell, 1999).

However the purpose of the hospitals must be to enhance Wellbeing of patients which is possible through holistic care in ICU which reflects the ICU quality. Patients feel supported in a holistic approach that focuses on their quality of life, intimate relationships, and social situation (Sundquist and Yee 2003). Moreover empowering patients through support and education enables them to have some feeling of control. Including simple techniques like empathy, understanding, and reassurance, health care team can contribute to positive psychological outcomes for patients (Lin and Bauer-Wu 2003). With this the trauma is minimized and wellbeing is optimized. However the question is whether the hospitals strictly adhere to the mandatory standards in maintaining the ICU Quality so as to assure Wellbeing?

ICU Trauma as a repercussion of ICU stay for the patient is one of the intensely researched fact. This psychological adversity is likely to lower the Wellbeing of the patients. However, the research evidence has proved the differential impact of ICU on patients indicating the complexity of the phenomenon called ICU Trauma. It is of interest to investigate into the possible factors that play a significant mediating role in generating, enhancing or mitigating ICU Trauma and Hospital Wellbeing among patients who spend the mandatory time in ICU following major surgery.

Research questions were framed to answer some of the gaps found in literature review, which lead to the formulation of objectives and hypothesis

The present study addresses the following research questions

1. Does Psychosocial Care impact Hospital Wellbeing and ICU Trauma?
2. Do the hospitals differ in providing Psychosocial Care in their ICU practices, and does this difference in practices have an effect on ICU Trauma and Hospital Wellbeing?
3. To what extent do the hospitals comply with the guidelines provided by appropriate authorities?
4. Do the patients from different Qualities of ICU differ in the Psychosocial Care received?
5. Is the ICU Quality associated with Psychosocial Care, ICU Trauma and Hospital Well being?

The objectives of the study are

1. To determine the impact of Psychosocial Care on ICU Trauma and Hospital Well being.
2. To investigate if the Hospitals differ in providing Psychosocial Care practices in their ICUs.
3. To evaluate the extent to which the ICUs of Hospitals, comply with the Standard Guidelines provided by the appropriate authorities.
4. To find out if there is a difference in the Psychosocial Care practices provided to patients belonging to different Qualities of ICUs.
5. a To find out if there is a difference in the ICU Trauma in patients who have received different levels of Psychosocial Care.

5. b To find out if there is a difference in the Hospital Wellbeing in patients who have received different levels of Psychosocial Care.
6. To examine the association between ICU Quality, Psychosocial Care, ICU Trauma and Hospital well being.

The present study was initiated with the following hypothesis

It was hypothesized that

1. Psychosocial Care provided in ICUs will have a significant positive impact on ICU Trauma and Hospital Wellbeing.
2. The Hospitals will significantly differ in providing Psychosocial Care practices, in ICUs
3. There will be a significant difference in Psychosocial Care provided to patients belonging to different Qualities of ICUs.
4. a There will be a significant difference in the ICU Trauma among patients who have received different level of Psychosocial Care.
4. b There will be a significant difference in the Hospital Wellbeing among patients who have received different level of Psychosocial Care
5. ICU Quality will be associated with Psychosocial Care, Wellbeing and ICU Trauma in patients.

CHAPTER-III

METHOD

CHAPTER III
METHOD

The chapter presents an overview of the design, tools and the procedure adopted in conducting the study. The review of the research findings led to the inference that patients who are admitted in the Intensive Care Units (ICUs) of the hospitals experience what is termed as ICU trauma.

The present study involved a correlation design to determine the impact of Psychosocial Care and ICU Quality on ICU Trauma and Hospital Wellbeing in patients who were admitted in a Cardiac ICU for a stipulated period of time after a CABG surgery. For the purpose, the Independent Variables (predictors) were Psychosocial Care and ICU Quality, whereas the Dependent Variables (criterions) were the ICU Trauma and Hospital Wellbeing. The study also adopted a between subject design by taking equal number of unrelated samples from five hospitals. Here the Independent Variables were Hospitals (H1, H2, H3, H4 and H5) and ICU Quality (High, Medium and Low ICU Quality), whereas the Dependent Variables were Psychosocial Care, ICU Trauma and Hospital Wellbeing. The study treated Psychosocial Care (High, Medium and Low Psychosocial Care) as Independent Variables in order to find the influence on ICU Trauma and Hospital Wellbeing as Dependent Variables.

Participants

A multistage sampling method was used for the study. The first unit of sample was the hospitals and the last unit of the sample was the patients who underwent Coronary Artery Bypass Graft (CABG) and stayed in the ICU for a minimum period of two days. A total of 250 patients constituted the participants. In the first stage, all

the hospitals existing in the twin cities of Hyderabad and Secunderabad were listed out. As per the list there were 24 hospitals in total. Out of these 18 are from Hyderabad and 6 are from Secunderabad. The internet was used to find the names and location of the hospitals. In the next stage, a survey was taken up to obtain information on the number of Coronary Artery Bypass Grafts (CABG) performed in each of these hospitals in a week. The number of surgeries ranged from 3 to 80 surgeries per month. Only those hospitals where a minimum of 12 CABG surgeries per week are performed were screened in. The other hospitals were dropped. There were 15 hospitals which fulfilled this criterion. Out of these 10 hospitals were randomly selected. These hospitals were approached for permission to conduct the study.

Based on the following inclusion and exclusion criteria, a total of five hospitals were retained in the sample.

Inclusion Criteria for hospitals

1. Hospitals that were accredited by National Accreditation Board for Hospitals (NABH)
2. Hospitals with Intensive Cardiac Care Unit (ICCU)
3. Hospitals where at least 12 Coronary Artery Bypass Graft (CABG) surgeries per were performed
4. Hospitals willing to sign the Informed Consent Form

Inclusion Criteria for Patients

1. All patients who underwent CABG, and had a minimum stay of two days in the ICU
2. Patients in a condition to communicate verbally
3. Men and women within the age group of 40-75 years.

4. Patients willing to participate in the study and sign the Informed Consent Form

Exclusion Criteria for Patients

1. Patients below the age of 40 years and above 75 years
2. Patients who were unable to communicate because of their post operative physical condition
3. Patients with history of chronic or acute disease other than cardiac problem
4. Patients with any other medical complications
5. Patients with history of chronic psychological disorders
6. Terminally ill patients

In order to reach the sample size of 250 patients who stayed for a period of at least two days in the ICU following CABG surgery, a quota sampling was followed. A total of 50 CABG patients from each of the five hospitals were included in the study. Among the 250 patients recruited for the study 70 % were men and 30 % were women. The age of the total participants varied from 40 to 75 years, with a mean age of 55.2 years.

Table-3.1 *Socio-demographic features of sample*

S.No	**Hospital**	**Age**	**Gender**		**Income Level**				**No of days in ICU**					
		M/SD	**Male**	**Female**	**L**	**M**	**U M**	**H**	**2**	**3**	**4**	**5**	**6**	**7**
1	H1	58/9	38	12	0	14	18	18	1	23	21	4	1	0
2	H2	53/9.2	32	18	0	26	23	0	0	6	35	6	3	0
3	H3	56/8.9	34	16	16	30	4	0	0	17	25	5	3	0
4	H4	55/11	34	16	0	9	26	15	2	5	31	7	4	1
5	H5	54/9.3	36	14	1	23	23	4	0	12	27	6	2	3
Total	**H1-H5**	**55/9.7**	**174**	**76**	**17**	**102**	**94**	**37**	**3**	**63**	**139**	**28**	**13**	**4**

*Note.*H1-H5= the five hospitals included in the study, L=low income, M=middle income, UM= upper middle, H= High income level

Instruments

The following tools were developed and used for the present study:

1. Patient History Record
2. ICU Practices Checklist.
3. ICU Psychosocial Care Scale.
4. ICU Trauma Scale.
5. Hospital Wellbeing Scale.

The tools were initially constructed in English. Since they had to be administered to people in their local languages, the tools were translated into Hindi and Telugu. For this purpose, the scales were given to language experts (both in Hindi and Telugu), for translation. The translated versions of scales were then back translated into English in order to ensure that the contents were translated without changing meaning of the items. It was ascertained that there was no discrepancy in the meaning of any of the items. All the tools are appended in Appendix II A-E. The tools used for the study are described below in detail.

Patient History Record

This is a detailed Information Sheet used to collect information about personal/ demographic and clinical details. The sheet included detailed information regarding age, gender, socio-economic status, and occupation. The sheet also included information regarding the clinical condition of the patients. Information as: *state of the patient when admitted into hospital*, *history of any other chronic or acute disease other than cardiac problem*, *any other medical complications*, *number of days of stay*

in ICU were included in the sheet. This tool was used for the purpose of screening the patients. The inclusion and exclusion criteria were checked based on this information.

ICU Practices Checklist

The ICU Practices Checklist was developed for the purpose of the study. The items of the checklist were constructed on the basis of the guidelines specified for Intensive Care Units by the Joint Commission International, The Indian Society of Critical Care Medicine and the National Accreditation Board for Hospital. The above boards set uniform standards with focus on patient rights, patient outcomes, structures and processes in the hospitals. The standards related to patient care, patient rights, patient needs and requirements, ICU quality and ICU care practices were taken as a baseline and the items of the scale were constructed. The prescribed guidelines from these three sources were consolidated, and converted into points. These points were uniformly translated into statements indicating the prevalence of practices in ICU. For example, the guideline that the ICU should ensure immediate availability of a physician, within a span of five minutes is stated as '*There is a Physician in the ICU (round the clock) who will be available within 5 minutes in an emergency'*. Thus a checklist of 34 items was evolved by pooling the guidelines from the three sources.

Scoring

The ICU Practice Checklist thus was a tool of 34 statements, that required the observer to mark 'Yes' wherever the practice was found to be prevalent. Every item marked as 'Yes' is given a score of '1' and that marked as 'No' a score of '0'. The score on the checklist is the total score on all the items. The maximum score is 34 and

the minimum score is 0. Item 32 had a reverse scoring. Higher score on the checklist indicates better ICU Quality.

ICU Psychosocial Care Scale

ICU Psychosocial Care Scale was developed specifically for the study to measure the variable Psychosocial Care. Psychosocial Care is managing the psychological, social, emotional, spiritual, practical and existential reactions of patients and their loved ones (Loscalzo, 2008). Psychosocial Care comprises of a wide array of facilities provided to the patients, so that the patients' dignity is protected and emotions are respected while he or she is being treated.

The scale is a revised version of Intensive Care Experience Rating Scale (Hariharan & Chivukula, 2011). The original form and contents of the 18-item Psychological Experience Rating Scale (PERC) was modified and expanded to 24-item scale. The revised version was administered on a sample of 50 patients who had a minimum stay of two days in the ICU. The final form of the ICU Psychosocial Care Scale is a 5-point scale with 18 items. This five point scale measured the ICU Psychosocial Care in terms of frequency ranging from 'Never to Always' that varied the score from 1 for Never to a score of 5 for Always. The final scale was evolved after the pilot testing. The scale has both positive and negative items. The item numbers 1,2,4,6,7,8,10.11,12,13,14,15,16,and 18 are positively scored and items 5, 9 and 17 which are negative items the scores are reversed. To obtain the total score of the scale, scores of items are added. The scale yields a maximum score of 90 and a minimum score of 18. A pilot study was also carried out to establish the content validity (Appendix III A) and internal consistency among the items. The internal

consistency of the scale was established by applying item analysis (Appendix III B). Cronbach's Coefficient alpha, after the internal consistency was found to be α=0.753.

Based on the Factor Analysis (Appendix III C) the scale is divided into three dimensions. The three dimensions are scored separately

Protection of Human Dignity (PHD): This dimension has 7- items (Item nos. 9, 10, 11, 12, 13, 14, and 16). The total score of these five items is the score on this dimension. The items of this dimension seek information about procedures performed health status, organizing exit meetings, post-discharge information, protecting patient's dignity. The total score of this dimension ranged between 7 and 35.

Family Patient Communication Channel (FPCC): This dimension has 6- items (Item nos.1, 2, 3, 4, 6, and 8).The score of this dimension is the total score of all the items in this dimension. Items are related to communication, diagnosis, treatment programs, answering queries and concerns of the patients and family members. The total score of this dimension ranged between 6 and 30.

Family Patient Anxiety Prevention (FPAP)*:* The dimension has 5 items (Item nos. 5, 7, 15, 17, and 18) which are associated with handling anxiety and agitation in patients and family member, explaining the benefits of treatment program, health care professionals taking time to answer questions and concerns. The total score of this dimension ranged between 5 and 25.

Subsequent to the pilot study the scale is a 5-point Likert Scale with 18-item comprising of 3-dimensions namely, Protection of Human Dignity, Family Patient Communication Channel and Family Patient Anxiety Prevention. The scale has a total score and a dimension score.

Hospital Wellbeing Scale

The Hospital Wellbeing Scale was constructed taking the Warwick-Edinburgh Mental Wellbeing Scale as the basis. The Warwick-Edinburgh Wellbeing Scale is a 14-item scale developed by (Tennant et al., 2007) from the Warwick and Edinburgh University.

Hospital Wellbeing is defined as a subjective perception and evaluation of a patient's health condition in terms of his/her affect states, psychological functioning, social relations and spiritual status. Hospital Wellbeing is an important component of health, especially during the period of recovery, as it impinges on the individual's mental health and quality of life.

In view of the fact that Hospital Wellbeing is a measure of four important measures of health i.e. physical, mental social and spiritual health, the present scale was constructed to measure all the above components of well being. The original 14-item scale was expanded by adding 30 more items. The final version of the scale after pilot testing and establishment of internal consistency retained 28 items. The scale measured the feelings and experiences of the patients on a 5-point scale measuring how often the patient feels in the way described in the item. The options ranged from 'None of the time' to 'All of the time'. The scale has four dimensions namely Psychological Wellbeing (item 3, 9, 11, 13, 19, 23, and 25), Physical Wellbeing (items 1, 4, 5, 14, 16, 20, and 24), Social Wellbeing (items 2, 8, 10, 12, 17, 27, and 28) and Spiritual Wellbeing (items 6, 7, 15, 18, 21, 22, and 26).

The scoring of the instrument is simple. Sum of the items on each dimension is the score for that particular dimension. The total score on the Hospital Wellbeing scale is obtained by adding the scores on all the dimensions. The maximum score for

the scale is 140 and the minimum score is 28. Since each dimension comprised of 7 items the scoring for each of the dimensions viz. Psychological Wellbeing, Physical Wellbeing, Social Wellbeing and Spiritual Wellbeing ranged between 7 and 35. The reliability of the scale was established through a pilot study, and the calculated Cronbach's alpha was found to be α=0.878.The process of developing this tool and the evolution of the final form is described in Appendix IV

The ICU Trauma Scale

ICU Trauma can be defined as emotional state of discomfort and stress resulting from the memories of catastrophic experiences of being in the ICU which shatters the patient's sense of security, which in turn affects the cognitive and affective behavioral manifestations associated with the patients during the ICU stay and the period immediately afterwards (Figley, 1985). .

ICU Trauma Scale was developed to measure the Trauma in post-operative Cardiac ICU patients. The scale is a modified version of Davidson Trauma Scale developed by Davidson et al., (1997). The original scale consisted of 17 items, with 5-point rating. The items of the scale are divided into 3-clusters: Intrusion, Avoidance/Numbing, and Hyper arousal. The scale was adapted and modified to make it suitable to the Indian Context. The final scale after pilot testing has 15 items. The ratings measure the frequency of Trauma experience ranging from 'Not at all' to 'Always'.

The 15 items enlisted in the scale measured three dimensions of Trauma namely Re-Experience, Emotional Numbing and Avoidance, and Hyper arousal. The Re-Experience dimension has 5 items 1, 3, 4, 13, 14, (E*x. I get distressing dream about my stay in ICU).* There were 6 items in Emotional Numbing & Avoidance dimension

items 2, 6, 8, 9, 10, 12 (Ex. *I am unable to recall some of the events in ICU).* Four items measured Hyper-arousal 5, 11, 15, 16 (Ex. *I experience strong physical sensation like increased heart beat, sweating etc whenever I remember my stay in ICU).* The total scores for each dimension were obtained by adding the item scores of the dimension. The scores of all the three dimensions were summed up to obtain a score on ICU Trauma. The total score ranges from 15 to 75 with high scores indicating more severe Trauma. The scores on the Dimension Re-Experience ranged between 5 and 25 on Emotional Numbing and Avoidance the scores ranged between 6 and 30 and on Hyper-arousal the scores ranged between 4 and 20. Pilot study results showed the Internal Consistency reliability of the scale as α =0.72.The process of evolution of final form of the scale is appended in Appendix V.

Procedure

The procedure of the study is explained under three broad headings; viz. The Administrative procedure, The Pilot Testing and The Main Study

1. The Administrative Procedure

The hospitals in Hyderabad and Secunderabad were listed out, using the internet source. The hospitals conducting a minimum of 12 CABG surgeries per week were identified by survey method. The investigator personally visited the hospitals and contacted the Medical Directors and held discussions with them. Those hospitals matching the inclusion criteria were identified. Letters were dispatched to the Medical directors, with details of the study and requesting the cooperation needed from the hospitals. (Letters to the Medical Directors and the Informed Consent Forms are enclosed in Appendix-VI & VII). Those hospitals who signed the Informed Consent to participate in the study were included in the sample. Five hospitals agreed to grant

permission and extend their cooperation. Permission order with signed consent form was received from the hospitals, along with the identity cards for the investigator. On completion of this formality, data collection was initiated. The Medical Directors in all the hospitals assigned a duty doctor or nursing staff of the particular Cardiac Ward to assist the investigator. The duty doctor/ nurse helped the investigator acquire details about the Post-operative CABG patients.

2. Pilot Testing

The Pilot Study was conducted on 50 patients drawn from four out of five hospitals included in the sample. With the assistance of the duty doctor and nursing staff on duty, the investigator spent five days in each ICU to observe the practices adopted in ICU care and to fill up the checklist on ICU practices. The investigator sampled different timings of each day in order to obtain the observations of 24 hours.

Once the checklist was completed, with the help of the duty doctor and nursing staff on duty the investigator identified the CABG patients who were shifted from the ICU to the ward/ special room or the High Density Unit. The duty doctor introduced the investigator to the patients and the family. The investigator explained the purpose of her visit and sought their written consent for participation in the study. The patients' history and basic information was obtained. Only those who fulfilled the inclusion criteria were administered the three scales. At first the ICU Psychosocial Care Scale was administered followed by the ICU Trauma Scale and then the Hospital Wellbeing Scale was administered. The data of the pilot study was analysed to finalize the tools.

3. Main Study

The main study was carried out using the finalized tools. The investigator spent 30 to 35 days in each hospital to complete the required sample of 50 CABG patients in each hospital. The same procedure adopted in pilot study was followed. After establishing rapport, the written informed consent was obtained from the patients. Total time taken from the point of obtaining informed consent to administration of the last scale ranged between 45 to 60 minutes. However in view of patients' need for rest, the tests were administered in two to three sittings on the same day. Each session was of 15 to 25 minutes depending on the condition of the patient.

In case of patients who were not ready or not in condition to sit up and respond to the scales on their own, the investigator read out the instructions, clarified doubts if any, and took the patients' response for each item and recorded the same. Sometimes patients could not answer all the questionnaires at a stretch, in such case they were asked to rest for a while, and the study was continued when the patients felt comfortable. After the patient responded to all the scales, he/she was debriefed and thanked.

The responses were coded, scored and entered into the SPSS package for processing. While in the process of administering the scales and interacting with the patients and family members any relevant information from the patient or the family members were noted down verbatim. Further, any relevant observation by the investigator was also recorded immediately. This constituted the qualitative data.

CHAPTER IV

RESULTS

CHAPTER IV
RESULTS

The results made an attempt to study the Psychosocial Care in Intensive Care Units and its impact on ICU Trauma and Hospital Wellbeing. The results are discussed and presented in accordance to the hypotheses stated in the preceding chapter.

Correlation coefficients were carried out to find the effect of the Independent Variables viz. Psychosocial Care, ICU Quality, Income Level, Duration of Stay, Age, and Gender on the Dependent Variables, ICU Trauma and Wellbeing. The results of correlation set a path to find the factors impacting ICU Trauma and Hospital Wellbeing. A multiple regression analysis was carried out to find out the impact of Psychosocial Care and Quality of ICU, on ICU Trauma and Hospital Wellbeing. An attempt was made to find out if the ICUs of hospitals differed in providing Psychosocial Care, and if patients from these ICUs differed in ICU Trauma and Hospital Wellbeing. ANOVA and Tukey's HSD test was used for the purpose. The ICUs of the hospitals were classified based on the quality of care provided. This was done by applying the method of Hamming Distance. An attempt was made to find out if the ICU Quality has an effect on the Psychosocial Care, ICU Trauma and Hospital Wellbeing. In order to examine this ANOVA and Tukey's HSD test were applied. Applying Cluster Analysis the hospitals were divided into High, Medium and Low Psychosocial Care in ICUs. The effect of different levels of Psychosocial Care on ICU Trauma and Hospital Wellbeing was examined by applying ANOVA and Tukey's HSD test. The association between ICU Quality and Psychosocial Care, ICU Quality

and ICU Trauma and ICU Quality and Hospital Wellbeing was analysed using Chi-Square Contingency Test.

Factors Impacting ICU Trauma and Hospital Wellbeing

The correlation coefficient (*r*) between Psychosocial Care, ICU Quality, Income Level, Duration of Stay, Age, Gender and ICU Trauma and Wellbeing is presented in Table1.

Table 1

Correlation measures of Psychosocial Care, ICU Quality, and Income Level with ICU Trauma and Wellbeing

	WB	P sy WB	Phy WB	Soc WB	Spr WB	Trauma	RE	EN &A	HA
PSC	**.43****	**.36****	**.36****	**.39****	**.37****	**-.34****	**-.36****	**-.27****	**-.32****
PHD	.31**	.24**	.18**	.34**	.31**	-.26**	-.26**	-.21**	-.25**
FPCC	.44**	.36**	.43**	.36**	.35**	-.30**	-.31**	-.23**	-.30**
FPAP	.15*	.15*	.14*	.12	.10	.18*	-.23**	-.14*	-.10
ICUQ	**.07**	.03	.05	.04	.13	**-.13***	-.08	-.13*	-.15*
ICUQ-B	.01	-.02	.00	.03	.08	-.11	-.07	-.12	-.12
ICUQ-E	.01	-.02	.01	-.01	.05	-.07	-.02	-.08	-.10
ICUQ-P	.15*	.11	.10	.11	.21**	-.16**	-.12	-.15*	-.19**
Income Level	.15*	.14*	.17**	.08	.09	-.11	-.60	-.09	-.17**
Duration of Stay	-.08	-.03	-.06	-.14	-.07	-.01	-.02	-.01	-.04
Age	-.05	-.06	.06	-.05	.00	.05	.06	.04	.04
Gender	-.06	-.08	.00	-.09	-.06	.11	.12	.06	.12

Note. PSC= Psychosocial Care, PHD= Protection of Human Dignity, FPCC= Family Patient Communication Channel, FPAP= Family Patient Anxiety Protection, ICU Q= ICU Quality, ICU Q-B= ICU Quality Bio-medical, ICU Q-E= ICU Quality Environmental, ICU Q-P= ICU Quality Psychological, Psy WB= Psychological Wellbeing, Phy WB= Physical Wellbeing, Soc WB= Social Wellbeing, Spr WB= Spiritual Wellbeing.
N=*250*, ***p*<.01,**p*<.05

Significant positive correlation was found between Psychosocial Care and Wellbeing, r (248) = .43 p< .01 for the entire sample of CABG patients (N=250). Significant positive correlation was found between Psychosocial Care and Psychological Well

being, r (248) = .36 p< .01, Physical Wellbeing, r (248) = .36, p< .01, Social Wellbeing, r (248) = .39 p< .01, and Spiritual Wellbeing, r (248) = .37 p< .01. It can be observed from Table 1 that all the dimensions of Psychosocial Care are positively correlated with the dimensions of Wellbeing suggesting that increase in Psychosocial Care, increases the Wellbeing in patients. Another significant observation from the table is that Psychosocial Care is significantly negatively correlated with ICU Trauma, r (248) = -.34 p< .01 and its dimensions viz. Re-experience, r (248) = -.36 p< .01, Emotional Numbing and Avoidance, r (248) = -.27 p< .01 and Hyper-arousal r (248) = - .32 p< .01. Significant negative correlations were also found between the dimensions of Psychosocial Care and dimensions of Trauma. The results of correlation showed that Psychosocial Care varies inversely with Trauma and concomitantly with Wellbeing in CAGB patients. The results of Table 1 also showed that though overall ICU Quality was not significantly correlated with Wellbeing and its dimensions, negative correlation was found between ICU Quality and Trauma, r (248) = -.13 p< .05, and also in two of the dimensions of Trauma viz. Emotional Numbing and Avoidance, r (248) = -.13 p< .05 and Hyper-arousal r (248) = - .15 p< .05. Another interesting observation was that the Psychological component of ICU Quality was positively correlated with overall Wellbeing scores, r (248) = .15 p< .05, and Spiritual Wellbeing r (248) = .21 p< .01. A logical observation made from the table was the significant negative correlation between the Psychological component of ICU Quality and Trauma, r (248) = - .16 p< .01, and its dimensions, Emotional Numbing and Avoidance, r (248) = -.15 p< .05 and Hyper-arousal r (248) = - .19 p< .01. A significant positive relation was also found between Income Level and Wellbeing, r (248) = .15 p< .05, and the dimensions of Psychological Wellbeing, r (248) = .14 p< .05, and Physical Wellbeing, r (248) = .17 p< .01. The results of Table

1 emphasize the importance of the psychological aspect of ICU Quality. The results bring into light the fact that psychological and emotional support in the ICU will not only augment the Wellbeing in patient but also lessen the trauma levels in patients. The results presented in Table 1 also showed that out of all the factors taken, Psychosocial Care, Quality of ICU, and Income Levels seem to be related to Trauma experienced by the patients and also their Wellbeing.

Simple linear regression analyses were computed to find out the impact of independent variables on Hospital Wellbeing and ICU Trauma. Psychosocial Care, ICU Quality, Income level, Age, Gender, and Duration of Stay in ICU were identified as individual independent variable to predict Hospital Wellbeing of CABG patients. Results are presented in Table 2.

Table 2
Summary of simple regression analysis for variables predicting Hospital Wellbeing in ICU patients

Predictors	***C***	***B***	***SEB***	***β***	***t***	***SE***	***R^2***	***F(1,248)***
Psychosocial Care	44.93	.81	.11	.43**	7.5**	11.43	.18	56.80**
ICU Quality	89.01	.23	.22	.06	1.04	12.64	.004	1.09
Income Level	87.87	2.2	.98	.15*	2.3*	12.54	.02	5.2*
Age	97.35	.06	.08	.05	.76	12.65	.003	.63
Duration of Stay	98.44	1.18	.91	.08	1.30	12.63	.007	1.7
Gender	95.96	1.73	1.73	.06	.99	12.64	.004	.99

Note. C = Constant, B = Unstandardized Beta Coefficient, SEB = Standardized Error of Beta, β = Standardized Beta Coefficient, *t* = *t*-values of Beta, SE = Standard error of the estimates. Adjusted R^2= .18
N=250 **p<.01,*p<.05

It can be observed from Table 2 that among all the predictors that were taken to determine the impact on the criterion Wellbeing, Psychosocial Care explained

statistically significant (18%) proportion of the variance in Wellbeing, R^2 =.18, adjusted R^2=.18, $F(1,248)=56.80$, $p< .01$. The relationship between Psychosocial Care and Wellbeing is positive with, β= .43, $p< .01$ showing that high Psychosocial Care is associated with high Wellbeing. The high beta value shows a strong relation between the predictor Psychosocial Care and criterion Wellbeing. The results in Table 2 in addition showed that Income Level is also a significant predictor of Wellbeing, though it accounts only for 2% of variance on the Wellbeing scores, R^2=.02, adjusted R^2=.01, $F(1,248)$ =5.2, $p<.05$. The β= .15, $p<.05$, shows a positive correlation between Income Level and Hospital Wellbeing. Income Level can be referred to as a social indicator of Wellbeing. The conditions in which the patient is treated, the environment, and his experience of living in such environment influences Wellbeing. It may be relevant to mention here that the patients opting for CABG surgery are given options of three different kinds of packages from which one exercises the choice that suits one's economic status. It involves the options between general ward and shared cubicles, to special room accommodation during pre and post surgery. A patient from an upper socio economic status, getting treatment in a higher package which includes a special room before and after surgery, will have better attention than a patient who comes through a government run medical scheme and is placed in a general ward before and after surgery. This is likely to play an important role in determining the Hospital Wellbeing in patients. The results of simple linear regression in Table 2 shows that the other independent variables, like ICU Quality, Age Gender and Length of Stay are not significant individual predictors of Wellbeing in ICU. The Psychological care and Income levels are found to independently predict the Hospital Wellbeing of patients.

A logical question that follows the above findings is that while Psychosocial Care and Income level independently contribute to the Hospital Wellbeing of CABG patients, what would be their contribution in combination. To find out the strength of Psychosocial Care and Income Level as predictors, multiple linear regression using the enter method was done by taking the Wellbeing of the patients (N=250) as criterion. The results are presented in Table 3.

Table 3

Summary of multiple regressions analysis for variables Psychosocial Care and Income level predicting criterion Hospital Wellbeing in patients

Predictors		***B***	***SEB***	***β***	***t***	***r***
Psychosocial Care		.85	.12	.45**	7.15**	.43
Income level		.85	.99	.06	.86	.14
R^2	.19					
C	44.43					
F (2,247)	28.74**					

Note. B = Unstandardized Beta Coefficient, SEB = Standardized Error of Beta, β = Standardized Beta Coefficient, C= Constant, *t* = *t*-values of Beta, Adjusted R^2= .18. *N=250,* ***p*<.01

Multiple linear regression from Table 3 revealed that the combined predictors explained 19% of variance in Wellbeing, R^2 = .19, adjusted R^2 = .18, *F* (2, 247) = 28.74, p< 01. Psychosocial Care was a significant predictor (β = .45, *p*<.01) in the final model. It can also be observed from Table 3 that Income Level is also positively correlated (r = .14) with Wellbeing, showing that higher Income Level is associated with greater Wellbeing. Income Level is also a significant predictor (β =.06, *p*<.05) in the final model.

If Psychosocial Care and Income Level are predictors of patients' Wellbeing, logically they are also expected to predict the ICU Trauma of patients though in an

inverse direction. An attempt was made to find out the factors impacting ICU Trauma. Six simple linear regression analyses were also computed to assess if the six predictors, viz. Psychosocial Care, ICU Quality, Income level, Age, Gender, and Duration of Stay in ICU could individually predict ICU Trauma in patients undergoing CABG procedure. The results are presented in Table 4.

Table 4

Summary of simple regression analysis predicting Trauma in patients

Predictors	***C***	***B***	***SEB***	***β***	***t***	***SE***	***R^2***	***F*(1,248)**
Psychosocial Care	67.80	-.41	.07	-.34**	5.73**	7.76	.12	32.80**
ICU Quality	48.52	-.30	.15	-.13*	2.03*	8.19	.02	4.13*
Income Level	45.56	-1.13	.64	-.11	1.77	8.21	.01	3.15
Age	40.20	.04	.05	.05	.81	8.25	.00	.65
Stay in Hospital	42.90	-.07	.59	-.01	.11	8.26	.01	.01
Gender	40.16	1.88	1.13	.10	1.67	8.21	.01	2.73

Note. C = Constant, B = Unstandardized Beta Coefficient, SEB = Standardized Error of Beta, β = Standardized Beta Coefficient, t = t-values of Beta, SE = Standard error of the estimates, Adjusted R^2 = .11
N=250 ***p*< 01, **p*<.05

The results revealed that statistically significant (11%) proportion of the variance in Trauma was explained by Psychosocial Care, R^2 = .12, adjusted R^2 = .11, F (1,248) =32.80, p <.01. The relationship between Psychosocial Care and Trauma was negative, β = -.34, p <.01, stating that with increase in the Psychosocial Care, the Trauma among patients decreases. Apart from the Psychosocial Care, Trauma is also caused by the very environment of the ICU. The results on regression analysis show

that the ICU Quality has an impact on Trauma. A small yet a statistically significant (2%) proportion of the variance in Trauma was explained by ICU Quality, R^2=.02, adjusted R^2= .01, F (1,248) =4.13, p <.05. A value β = -.13 p< .05 shows that ICU Quality is inversely related to ICU Trauma, i.e. improved ICU Quality results in reduced Trauma.

The findings infer that Psychosocial Care and good ICU Quality play a positive role in mitigating or minimizing ICU Trauma. Evidence from literature associated psychological distress and trauma as a consequence of ICU stay. Studies have recommended the need of psychological approaches and psychosocial interventions in dealing with ICU trauma. Such interventions can be brought about only by enhancing Psychosocial Care. The results of simple linear regression analyses substantiate the above statement by indicating that Psychosocial Care and ICU Quality are significant contributors in reducing ICU Trauma, while variables like Age, Gender, Duration of Stay in hospital and Income level play no significant role in ICU Trauma.

To find out the strength of Psychosocial Care and ICU Quality on Trauma a multiple linear regression analysis using the enter method was computed, by taking ICU Trauma of the patients (N=250) as the criterion. As it can be observed from Table 5 Trauma in patients was significantly negatively related r = -.34, p < .01 , to Psychosocial Care showing that higher levels of Psychosocial Care is associated with lower levels of Trauma. The multiple linear regression from Table 5 revealed that the combined predictors explained 12% of variance in Trauma, R^2 = .12, adjusted R^2 = .12, F (2, 247) = 17.14, p < .01. Psychosocial Care was a significant predictor (β = -.38, p<.01) in the final model. It can also be observed from Table 5 that ICU Quality

is also negatively correlated r = -.13 p<.05 with Trauma, showing that higher ICU Quality is associated with lower levels of Trauma.

Table 5

Summary of multiple regressions analysis for variables Psychosocial Care *and ICU Quality predicting criterion trauma in patients*

Predictors	***B***	***SEB***	***β***	***t***	***r***
Psychosocial Care	-.47	.09	-.38**	5.49**	-.34**
ICU Quality	.20	.17	.08	1.18*	-.13*
R^2	.12				
C	67.32				
F (2,247)	17.14**				

Note. B = Unstandardized Beta Coefficient, SEB = Standardized Error of Beta, β = Standardized Beta Coefficient, *t* = *t*-values of Beta, C= Constant, Adjusted R^2 =.12. *N=250,* ** *p* <.01,* *p* < *.05*

The results of simple linear regression and multiple linear regressions (Table 4 & 5) show that while Psychosocial Care is significant predictor Trauma, the influence of ICU Quality on Trauma is marginal. From the simple and multiple regression analyses to predict wellbeing (Tables 2 and 3) and also from the simple and multiple regression analyses to predict trauma (Table 4 and 5) it is very evident that Psychosocial Care emerged as a significant predictor of Hospital Wellbeing and ICU Trauma while the contribution of Income Level in predicting Wellbeing and the ICU Quality in predicting ICU Trauma are marginal. Psychological Care thus emerges as a significant major contributor in enhancing hospital Wellbeing and minimizing ICU Trauma.

The regression analysis revealed that a significantly higher degree of Psychosocial Care was found to have not only a positive impact on Hospital Wellbeing but also minimize ICU Trauma. This in turn is expected to have a noticeable influence on the pace of recovery, restoration of wellbeing and minimizing the chances of re-hospitalization. Thus, a higher level of Psychosocial Care which demands a holistic approach and a marginal increase in time invested in communication, may prove to be cost effective when compared to the impact on the patients' wellbeing. Hence it calls for the hospitals to weigh its overall advantages and include it as an important dimension in ICU care.

The regression analysis has established the significance of Psychosocial Care in ICU. The results not only ascertain the positive influence of Psychosocial Care on Wellbeing but also proved that enhanced Psychosocial Care can reduce the psychological distress and trauma in patients. The next question is that if Psychosocial Care plays such significant role in determining the Wellbeing and Trauma, do the hospitals recognize it? If so which are the hospitals that enhance patient Wellbeing and minimize Trauma by optimizing Psychosocial Care? Do the hospitals differ in their Psychosocial Care practices in ICU? An attempt was made to find out if there is any significant difference between the five hospitals, with regard to Psychosocial Care received by the patients, admitted into the ICU, after undergoing CABG

Differences between hospitals in the Psychosocial Care practices, and its significant effect on Wellbeing and Trauma

Differences between hospitals in the Psychosocial Care practices

Psychosocial Care is measured in three dimensions viz. Protection of Human Dignity, Family Patient Communication Channel, and Family Patient Anxiety Protection. Besides these dimensions a composite score of Psychosocial Care is also

evolved. Using this composite score and scores on each dimension, four One-way ANOVAs and corresponding Tukey's HSD test of multiple group comparison were carried out to examine if the five hospitals differed significantly in providing Psychosocial Care in general and in the three specific dimensions. The results of ANOVAs and the corresponding *M* and *SD* scores are presented in Table 6. A corresponding visual representation is depicted in Figure 1.

Table 6
Mean, Standard Deviation and ANOVAs of the five hospitals on Psychosocial Care and its dimensions

	Hospitals					One-way ANOVA		
Variable	H1	H2	H3	H4	H5	Mean Square		F(4,245)
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	Between	Within	
PSC	**65.32 (6.17)**	**57.62 (5.17)**	**53.46 (3.33)**	**62.50 (5.26)**	**62.00 (6.19)**	**1085.33**	**28.41**	**38.20****
PHD	27.98 (2.59)	24.14 (2.72)	21.76 (2.00)	26.88 (2.60)	24.92 (3.11)	294.57	6.78	43.57**
FPCC	22.68 (3.88)	18.34 (2.84)	17.40 (2.46)	20.94 (2.95)	21.40 (3.07)	242.83	9.48	25.61**
FPAP	14.66 (2.05)	15.14 (1.68)	14.30 (1.57)	14.68 (1.52)	15.68 (1.67)	14.15	2.92	4.84**

Note. PSC= Psychosocial Care, PHD= Protection of Human Dignity, FPCC= Family Patient Communication Channel, FPAP= Family Patient Anxiety Protection H1-H5, the five hospitals included in the study. *N=250, n=50,* ***p* < .01, * *p*<.05

The five hospitals taken into the study are represented as H1 through H5. The results of ANOVAs showed significant differences between the five hospitals with regard to the Psychosocial Care in ICU, F (4,245) = 38.20, p<.01. An examination of mean values revealed that the patients in H1, received the highest Psychosocial Care (*M*=65.32, *SD*=6.17), compared to their counterparts admitted into H3, who received relatively the lowest Psychosocial Care (*M*=53.46, *SD*=3.33). The mean scores of H4,

H5 and H2 are found to be distributed between these two hospitals in descending order (H4, *M*=62.50, *SD*=5.26; H5, *M*=62.00, *SD*=6.19; H2, *M*=57.62 *SD*=5.17). In order to find out whether the five hospitals differed significantly with each other in Psychosocial Care received, Tukey's HSD tests of multiple group comparisons were carried out. The results are presented in Table 7.

Table 7

Tukey's HSD test of Multiple Group Comparisons of Hospitals on Psychosocial Care and its dimensions

	Mean comparison (Tukey's HSD)									
Variable	H1-H2	H1-H3	H1-H4	H1-H5	H2-H3	H2-H4	H2-H5	H3-H4	H3-H5	H4-H5
PSC	**7.70****	**11.86****	**-**	**3.32***	**4.16****	**4.88****	**4.38****	**9.04****	**8.54****	
P H D	3.84**	6.22**	-	3.06**		2.74**	-	5.12**	3.16**	1.96*
F P C C	4.34**	5.28**	1.74*	-	-	2.60**	3.06**	3.54**	4.00**	4.00**
FPAP	-	-	-	1.02*	-	-	-	-	1.38*	1.00*

Note. *PSC= Psychosocial Care, PHD= Protection of Human Dignity, FPCC =Family Patient Communication Channel, FPAP= Family Patient Anxiety Protection.* H1-H5, the five Corporate Hospital included in the study. *N=250, n=50, **p<.01,*p<.05*

It is observed from the Table 7 that H1 significantly differed from H2, *(p*<.01), H3 (*p* <.01) and H5 *(p*< .05) with regard to Psychosocial Care. This has to be interpreted with reference to the mean scores presented in Table 6. It is observed from Table 6 that the patients of H1 obtained the highest scores in Psychosocial Care (*M*=65.32). Though H4 (*M*=62.50) and H5 (*M*=62.00) were very close, Psychosocial Care received by the patients in H1 significantly differed from those in H5, but not from H4. Further from the Tukey's HSD test in Table 7, it was found that H3 is found

to differ significantly from H1 (p <0.01), H2 (p <0.01), H4 (p<0.01) and H5 (p<0.01). A comparison of mean scores from Table 6 indicates that the patients in H3 (M=53.46) received the lowest Psychosocial Care in the ICU, compared to all their counterparts in the other four hospitals. While the hospitals were found to differ on the overall Psychosocial Care an attempt was made to see if the same trend is observed in the three dimensions viz. Protection of Human Dignity, Family Patient communication channel and Family Patient Anxiety Prevention. Table 6 presents the mean and SD scores along with the results of ANOVA and Table 7 presents the results of Tukey's HSD test.

Difference between ICUs of hospitals in Protection of Human Dignity (PHD)

Table 6 revealed significant differences between the five hospitals on the dimension of Protection of Human Dignity, F (43.57, p< 0.01). It may be observed from Table 6 that H1 scored a higher mean (M = 27.98, SD = 2.59) than the other hospitals in the dimension related to Protection of Human Dignity. H4 (M = 26.88, SD = 2.60) is closer to H1, while H3 had the lowest score on this dimensions (M = 21.76, SD = 2.00). H2 (M = 24.14, SD = 2.72) and H5 (M = 24.92, SD = 3.11) have comparable scores. The above scores reveal that on the dimension of Protection of Human Dignity H1 has the highest mean, and H3 has the lowest mean score. The results of Tukey's HSD test presented in Table 7 also revealed that Hospital 1 i.e. H1 differs significantly from H2 (p<0.01), H3 (p <0.01) and H5 (p<0.01), and not from H4. Similarly while H2 showed significant difference only with H4 (p<0.01), Hospital 3 i.e. H3 differed significantly from all the other hospitals except H2. It is also found that H5 differed from H1 (p<0.01), H3 (p<0.01) and H4 (p<0.05), but showed no difference from H2. It may be observed from Table 6 that on the dimension of Protection of Human Dignity, H1 scored a higher mean (M = 27.98)

than the other hospitals in the dimension related to Protection of Human Dignity. H4 (M = 26.88) is closer to H1, while H3 had the lowest score on this dimensions (M = 21.76). Hospital 2 i.e. H2 (M = 24.14,) and H5 (M = 24.92,) have comparable scores. In other words, H1 and H4 are found to be significantly sensitized on Protection of Human Dignity in ICU while H2 and H5 are on the same level with respect to this dimension. However, H3 with a lowest mean score is found to be least sensitive to this dimension of Psychosocial Care in ICU compared to the other hospitals. The results of Table 6 and 7 indicate that Hospital 1 i.e. H1 laid emphasis on understanding issues of patients' vulnerability and made provision in their hospitals to sensitize the medical care professional in this area of Psychosocial Care.

Difference between hospitals in Family Patient Communication Channel (FPCC)

Looking into the dimension of Family Patient Communication Channel, the scores on ANOVAs in Table 6 revealed a significant difference between hospitals on Family Patient Communication Channel F = 25.61, p<.01, indicating that the hospitals differ in their levels of communication with patients and family with regard to information on diagnosis and treatment details. It can be observed from Table 6 that H1 (M = 22.68, SD = 3.88) has a higher level of communication with patients and their families while H5 (M = 21.40, SD = 3.07) stands close to H1. On the other hand H3 (M = 17.40, SD = 2.46) scores the lowest on this dimension. Mean scores of H2 (M = 18.34, SD = 2.84) are close to that of H3. Table 7 presents the results of Tukey's HSD test. At the outset a quick glance reveals that there exists a significant difference between every hospital with every other hospital except two combinations, no significant difference was found between H1 and H5 and similarly between H2 and H3. The results in Table 7 showed that, H1 significantly differs from H2 (p< 0.01), H3 (p< 0.01), and H4 (p< 0.05). Looking into the means from Table 6 it can be

observed that H1 (M = 22.68) and H5 (M = 21.40) with significantly higher scores compared to other hospitals are found to extend much better services in liasoning between ICU patients and their families compared to other three hospitals. Hospital 3 i.e. H3 was found to be at the lowest position (M = 17.40) and H2 (M = 18.34) comparably at a low level did not differ in their relatively lower services on Psychosocial Care related to Family Patient Communication Channel. Hospital 4 i.e. H4 (M=20.94), occupying a third position significantly differed from H1 ($p< 0.05$) and H5 ($p< 0.01$) which scored significantly higher. H4 also differed from H2 ($p< 0.01$) and H3 ($p< 0.01$) which scored lower on this dimension of Psychosocial Care. It can be inferred from the above results that the two dimensions of Psychosocial Care viz. Protection of Human Dignity and Family Patient Communication Channel, vary from hospital to hospital. As mentioned in the description of instruments, Protection of Human Dignity deals with care aspects like protecting the privacy and dignity of patients during personal care, informing patients or family about procedures before they are done, informing patients or family about health status and the like. The Family and Patient Communication Channel dimension deals with aspects of communication such as answering queries and concerns of patients and family, communicating to patients about the diagnosis and treatment programs. Looking into these dimensions one can say that it is not a difficult task for hospitals to provide such facilities to patients and their families. With the increase in cardiac surgeries, the medical care professional may find the above aspects of care time consuming. However the results showed that they are major contributors to the Wellbeing in patients. There may be differences between hospitals on these aspects due their policies or administration style. However when Psychosocial Care is such major

contributor to patients' health outcomes it is important that hospitals organize specific in-service training programs to professionalize Psychological Care to patients.

Differences among hospitals in Family-Patient Anxiety Prevention

Coming to the dimension of the Family Patient Anxiety Prevention (FPAP), the results of ANOVA revealed a significant difference between five hospitals F= (4,245) =4.84 p< 0.01. The results are presented in Table 6. The results also revealed that H5 (M = 15.68, $S.D$ = 1.67) scores the highest on this dimension and H3 (M = 14.30, SD = 1.57) scores the lowest. The mean score of the other hospitals are found to be distributed between these two (H2, M = 15.14, SD = 1.68, H4, M = 14.68, SD = 1.52, H1, M = 14.66, SD = 2.05).The Tukey's HSD test presented in Table 7 showed a significant difference between H5 and the three other hospitals viz.H1 (p<0.05), H3 (p<0.05), and H4 (p<0.05). Comparing the means in Table 6, it can be observed that Hospital 5 i.e. H5 (M=15.68) differed significantly from H1 (M=14.66); H3 (M=14.30) and H4 (M=14.68). This indicates that H5 (M=15.68) and H2 (M=15.14) took relatively better care in preventing anxiety in the patient and the families while all the other hospitals with lower mean scores and with no significant differences from each other were relatively low in extending this service. The dimension of Family Patient Anxiety Prevention deals with handling anxiety and agitation in patients and their family members, explaining treatment procedures and benefits of treatment, which keeps away apprehensions in patients and family. A reason for Hospital 5 i.e. H5 scoring high on this dimension can be because the hospital provided information booklets with detailed information on the hospital stay, care in hospital, availability of services and so on which could have played a role in reducing the apprehensions, anxiety and agitation in patients and their families. Hospital 5 also had provided a waiting area for families when the patient was in ICU, the waiting area is a

quiet private area where the family could wait, relax or refresh, when the patient was in ICU. Another interesting aspect that can be noted was that H1 which had scored the highest on the overall Psychosocial Care and on the other two dimensions of Psychosocial Care i.e. Protection of Human Dignity and Family Patient Communication Channel has comparatively low scores on the dimension of Family-Patient Anxiety Prevention. The investigator's observation could provide explanation to the above findings. The two major reasons for higher anxiety level are inadequate physical space and lack of continuous communication between the ICU and the family. During the unstructured interview with the investigator many patients and family members confided that they underwent bouts of high anxiety during the ICU stay. They felt that despite a good organizational network in the hospital there was a conspicuous absence of liasioning between ICU staff and attendant family member. Further the observation of the investigator corroborated with the experience of patient's family/ attendant regarding inadequate space. The family members felt that there was no space where they could wait, while the patient was in ICU. The only option they had was to wait in reception area or to go back home and wait for the hospital authorities to call. This caused severe anxiety in patients and families. Thus H1 which scored high on all parameters of psychological care lagged behind in this respect. The dimension Family Patient Anxiety Prevention deals with most of the psychological aspects of care, e.g. safeguarding the patient and family from getting agitated, preventing disorientation in patients and so on. It is significant to note from Table 6 that the mean scores of all the hospitals on this dimension are comparable.

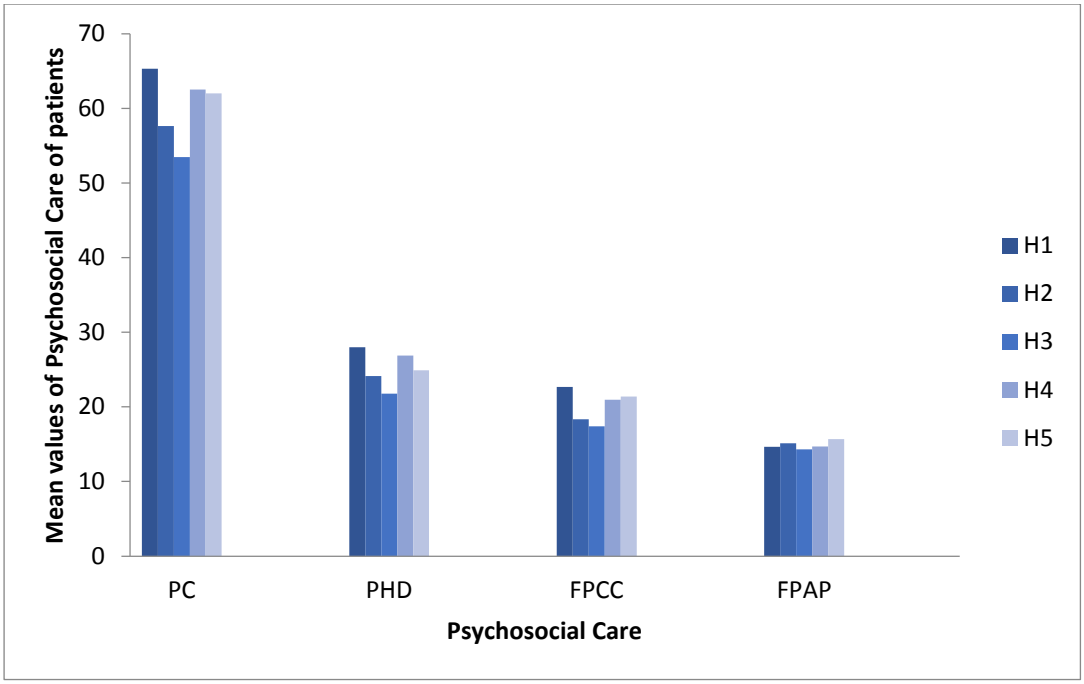

Figure 1 Graph showing the differences in Psychosocial Care received by patients in the five different hospitals .PC = Psychosocial Care, PHD = Protection of Human Dignity; FPCC = Family Patient Communication Channel, FPAP = Family Patient Anxiety Prevention. H1-H5, the five hospitals included in the study.

Figure 1 gives a visual depiction of the differences among the five hospitals on overall Psychosocial Care as well as the differences on individual dimensions. The bars clearly indicate a comparatively higher peak for H1 on all dimensions except Family-Patient Anxiety Prevention (FPAP). The figure also indicates that two other hospitals that rank next to H1 are H4 and H5, while H3 appears to dwarf lower.

Summarizing the results of Table 6 and 7 we can say that H1 is significantly higher and different from all the other hospitals on the overall Psychosocial Care score, and the dimensions of Protection of Human Dignity and Family Patient Communication Channel. It may be inferred from the above results that the ICU care provided by H1 is better than the care in the other hospitals. The mean scores reveal that the hospital takes good care in maintaining effective communications with family and the patients, provides enough care in protecting the human dignity of the

patients in ICU. However, it needs to pay adequate attention in preventing anxiety in the patient and their family attendants.

The results indicate that though Psychosocial Care is one of the vital components of Bio Psychosocial Care, the hospitals are yet to create a bench mark on this aspect. While standard guidelines have provided specific points related to protection of patients' rights, and made significant reference to the need to have clear information and communication, they do not seem to have gained as much attention that the quantifiable medical mandates have received. The reason that hospitals tend to overlook the psychosocial component of health care and pay attention only to the bio-medical aspects of care, may be because it is easier to follow, verify and measure the quantifiable biomedical aspects such as patient nurse ratio, provision of oxygen cylinder etc than the qualitative aspects such as psychological care that includes informing the patient regarding the details of procedure, communicating with patient or family, drawing a curtain before giving a sponge bath and so on.

Differences between Hospitals in Patients' Wellbeing

Psychosocial Care is positively related to Wellbeing. This has been substantiated by the regression analysis. A question that arises here is whether the five of hospitals differing significantly, with regard to Psychosocial Care also differ in Hospital Wellbeing of patients. Five One-way ANOVAs were conducted to compare the five hospitals on Wellbeing and its four dimensions. An attempt was made to see if the hospitals significantly differed in the Wellbeing of the patients, and also if they differed in the specific dimensions viz. Psychological Wellbeing, Physical Wellbeing, Social Wellbeing and Spiritual Wellbeing, The means, standard deviations and results of ANOVAs are presented in Table 8 and are diagrammatically represented in Figure

2. The results of Tukey's HSD test of multiple group comparison are presented in Table 9.

Table 8

Means, Standard Deviations and One-way ANOVA of the five hospitals on Well-being and its dimensions

	Hospitals					One Way ANOVA		
Variable	H1	H2	H3	H4	H5	Mean Square		*F*(4,245)
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	Between	Within	
Wellbeing	**100.46 (11.22)**	**88.84 (11.04)**	**93.56 (11.51)**	**93.74 (12.21)**	**91.92 (13.83)**	**906.63**	**147.81**	**6.13****
Psy WB	22.52 (4.20)	19.48 (3.86)	20.64 (3.91)	20.28 (4.07)	19.54 (4.56)	76.38	17.03	4.48**
Phy WB	20.08 (4.33)	17.50 (3.61)	18.74 (3.80)	18.92 (4.32)	18.62 (4.48)	42.19	17.01	2.48*
Soc WB	27.86 (3.27)	25.42 (3.48)	26.62 (3.00)	26.64 (3.32)	25.82 (3.46)	47.52	10.96	4.34**
Spir WB	30.00 (2.49)	26.44 (2.79)	27.56 (2.69)	27.90 (2.87)	28.14 (3.08)	83.21	7.78	10.69**

Note. H1-H5 =the five hospitals included in the study. Psy WB= Psychological Wellbeing, Phy WB= Physical Wellbeing, Soc WB= Social Wellbeing, Spr WB= Spiritual Wellbeing *N=250, n=50, **p<.01,*p<.05*.

The results of One-way ANOVA presented in Table 8 revealed that the there is a significant difference between the hospitals on the overall Wellbeing scores of patients F (4,245) =6.13, p <.01.

Looking into the mean scores of individual hospitals it can be observed that, the Wellbeing scores of patients in H1 (*M*=100.46, *SD*=11.22)) were considerably higher, than the Wellbeing scores of patients from other hospitals. While patients from H2 scored the lowest (*M*=88.84, *SD*=11.04), the scores of other three hospitals were spread out between the scores of H1 and H2, (H4, *M*=93.74, *SD*=12.21; H3, *M*=93.56, *SD*=11.51; H5, *M*=91.92, *SD*=13.83). From Table 8 it can also be observed that the five hospitals significantly differed from each other on all the four dimensions of Wellbeing viz. Psychological Wellbeing *F (*4,245) =4.48, *p*<.01; Physical Wellbeing *F (*4, 245) =2.48, *p*<.05; Social Wellbeing *F* (4,245) =4.33, *p*<.01 and Spiritual Wellbeing *F (*4, 245) =10.69, *p*<.01. The mean scores of the five hospitals on various dimensions showed that, the scores of H1 on Psychological Wellbeing (*M*=22.52, *SD* 4.20), Physical Wellbeing (*M*=20.08, *SD* 4.33), Social Wellbeing (*M*=27.86, *SD* 3.27), and Spiritual Wellbeing (*M*=30.00, *SD* 2.49) were highest and the scores of H2 were the lowest on Psychological Wellbeing (*M*=19.48, *SD* 3.86), Physical Wellbeing (*M*=17.50, *SD* 3.61), Social Wellbeing (*M*=25.42, *SD* 3.48), and Spiritual Wellbeing (*M*=26.44, *SD* = 2.79). The means and *SD*s of H3, H4 and H5 show that the three hospitals were in close proximity on all the dimensions. To substantiate the findings Tukey's HSD tests were done and the results are presented in Table 9.

Table 9

Tukey's HSD test of Multiple Group Comparisons between Hospitals on Wellbeing and its dimensions

	Mean comparison (Tukey's HSD)									
Variables	H1-H2	H1-H3	H1-H4	H1-H5	H2-H3	H2-H4	H2-H5	H3-H4	H3-H5	H4-H5
Wellbeing	11.62**	6.90*	6.72*	8.54**	-	-	-	-	-	-
Psy WB	3.04**	-	-	2.98**	-	-	-	-	-	-
Phy WB	2.58*	-	-	-	-	-	-	-	-	-
Soc WB	2.44**	-	-	2.44**	-	-	-	-	-	-
Spir WB	3.56**	2.44**	2.10**	1.86**	-	-	1.70*	-	-	-

Note. H1-H5, the five Corporate Hospital included in the study. Psy WB= Psychological Wellbeing, Phy WB= Physical Wellbeing, Soc WB= Social Wellbeing, Spr WB= Spiritual Wellbeing
***p<.01,*p<.05*

It may be observed from Table 9 that H1 significantly differed from H2 (p<0.01) on all dimensions and overall Wellbeing. Similarly H1 also differed significantly from H5 (p<0.01) on all the dimensions except Physical Wellbeing. The Wellbeing of patients in Hospital1 i.e. H1 was found to be significantly higher than Hospital 2 i.e. H2 showing higher mean scores on overall Wellbeing (H1 *M*=100.46; H2 *M*=88.84), Psychological Wellbeing (H1 *M*=22.52; H2 *M*=19.48), Physical Wellbeing (H1, *M*=20.08; H2 *M*=17.50), Social Wellbeing (H1 *M*=27.86 and H2 *M*=25.42), Spiritual Wellbeing (H1 *M*=30.00; H2 *M*=26.44). Similarly patients of H1 were found to score significantly higher mean scores compared to patients in H5 on overall Wellbeing (H1 *M*=100.46; H5 *M*=91.92), Psychological Wellbeing (H1 *M*=22.52; H5 H1 *M*=19.54), Social Wellbeing (H1 *M*=27.86; H5 *M*=25.82) and Spiritual Wellbeing (H1 *M*=30.00; H5 *M*=28.14).

So far as the Spiritual Wellbeing is concerned H1 was found to differ significantly (p<0.01) from all other hospitals. On this dimension, as revealed in Table 8 the mean scores of all the other hospitals (H3 M=27.56, SD 2.69; H4 M=27.90, SD 2.87 and H5 M=28.14, SD = 3.08) were found to be significantly lower compared to H1 (H2, M=26.44, SD 2.79). On the dimension of Spiritual Wellbeing significant difference (p<0.05) was observed between H2 (M=26.44) and H5 (M=28.14). The results of Table 8 showed a highly significant difference on the overall Wellbeing score of H1 & H2 (p<.01) and H1 & H5 (p<.01). It was also found that H1 also differed significantly from H3 (p<.05) and H4 (p<.05), further showing that the overall Wellbeing in patients is highest in hospital H1.The results of Table 6 and Table 8, when compared indicate that H1 scored the highest on Psychosocial Care (Table 6) and Wellbeing (Table 8). It may be relevant here to refer to findings of regression analysis ascertained that Psychological Care contributed significantly to Hospital Wellbeing.

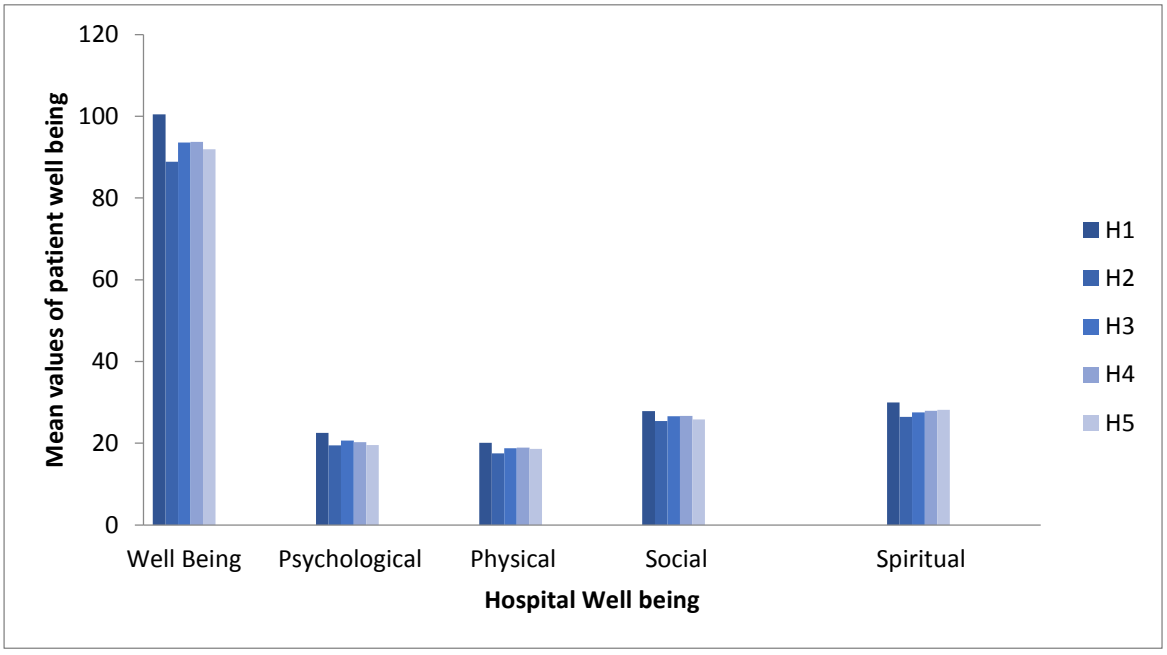

Figure 2. Graph showing the differences in Wellbeing of patients in the five hospitals. The five hospitals coded as H1, H2, H3, H4, and H5.

The difference between the five hospitals on overall Wellbeing and also its dimensions are depicted in Figure 2. It may be observed that the higher Wellbeing levels of H1 are glaring on overall Wellbeing as well as its dimensions.

Comparing Table 6 and Table 8 on H5's Psychosocial Care scores and the Wellbeing scores respectively, it may be observed that H5's score on Psychosocial Care and its dimensions are not very low (*M*=62.00, *SD*=6.19), but on the dimension of Wellbeing the mean score is low (*M*=91.92, *SD*=13.83). Similar observations can be made on the scores of H2, which has the lowest scores on Wellbeing (*M*=88.84, *SD*=11.04). This indicates that psychological care though contributes to Wellbeing is not the only factor that determines Wellbeing. Apart from this, as indicated in regression analysis the income level seems to contribute in determining the Wellbeing. However the variance explained by these two factors is limited to 2%. This suggests that there are other factors which influence hospital Wellbeing of patients. These may relate to the physical environment, experience of relief on being moved out of the ICU etc., One of the observations made by the investigator in these two hospital i.e. H2 and H5 was that after the ICU stay, patients in these hospitals, were moved to the High Dependency Unit (HDU), instead of being shifted to the wards or rooms. The HDU is also called the Step-Down-ICU. The environment of a Step-Down- ICU is comparable to that of ICU with a slight quality change such as lower nurse patient ratio and lesser number of complicated gadgets like the ventilators etc. Normally patients who are extubated into HDUs are those who need constant monitoring and care even after the ICU stay. But in H5 and H2 all the post-operative patients were extubated to the HDU, as the hospital did not have the policy of shifting patients into a ward or a room. The hospitals shifted the patients to HDU not because of the need for a closer monitoring but because of lack of sufficient wards and rooms.

This forced the patients to prolong the ICU kind of experience for a longer duration compared to their counterparts in other hospitals. This might have had a negative impact on the Wellbeing of the patients. Studies have shown that prolonged stay in ICU has an adverse effect on the Wellbeing of the patients. The reason for a low overall Wellbeing in patients of H5 and H2 may be due to the continuation of the trauma of being in an ICU or an environment similar to the ICU.

The results of Tukey's HSD test in Table 9 also showed that, H1 significantly differed from all other hospitals in overall Wellbeing H 2 ($p< 0.01$), H 3 ($p< 0.05$), H 4 ($p< 0.05$) and H5 ($p< 0.01$). It may be relevant to mention here that Psychosocial Care in this hospital was also found to be high (refer Table 6). Higher the psychological care higher is the Wellbeing as revealed by the regression analysis. Further an observation by the investigator was that H1 catered to the needs of higher socioeconomic class. Wellbeing as revealed by regression analysis is partly determined by Income Level, which in turn is a component in socioeconomic class. Thus, the higher scores on Wellbeing of this hospital may partly be due to the high Psychosocial Care, which may also be contributed by the socio economic background of the patients. It can also be inferred from Table 9 that H1 differed significantly from all other hospitals on the dimension of Spiritual Wellbeing. No significant differences were found among the other hospitals on this dimension other than H2 and H5. The results in Table 6 established that patients in H1 received a better Psychosocial Care. When a patient receives good care and support from significant people around him (doctors, nurses or the caregivers), there is a feeling that everything is under control and the individual is content with the life situation. And out of humility, such situations are likely to be attributed to external factors, which may include supernatural power like God. Indian society has its significant religious and spiritual

orientation. It is characteristic of the individual to feel spiritually or religiously inclined after overcoming a major health crisis. This is likely to happen only when one is contented with the received care and is free of trauma. Thus, H1may have contributed to higher scores on Spiritual Wellbeing of its CABG patients.

Wellbeing and Psychosocial Care have a positive correlation, while both the variables negatively correlate with Trauma. Going by the simple logic, if the hospitals significantly differed in the Psychosocial Care provided in the ICUs and the state of hospital wellbeing in the patients, they must also differ significantly in the ICU Trauma experienced by the patients. The following tables and the explanations relate to the differences among hospitals in the ICU Trauma experienced by the patients.

Differences among hospitals in ICU Trauma of Patients

ICU Trauma was measured by ICU Trauma Scale which had three dimensions viz. Re-Experience, Emotional Numbing and Avoidance, and Hyper-Arousal. A composite score of all the dimensions constituted the total score measuring overall ICU trauma. Five One-way ANOVAs and Tukey's HSD of multiple group comparison were carried out to inquire if the five hospitals significantly differed in patients' experience of overall ICU trauma and also in its three specific dimensions.

The mean, standard deviation and results of ANOVAs of the five hospitals on Trauma are presented in Table 10 and graphically represented in Figure 3. Results of Tukey's HSD tests were presented in Table 11.

Table 10

Summary of One-way ANOVA of the five hospitals on Trauma and its dimensions

	Hospitals					One-way ANOVA		
Variable	H1	H2	H3	H4	H5	Mean Square		*F*(4,245)
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	Between	Within	
Trauma	38.62 (6.30)	42.16 (6.12)	44.46 (6.10)	43.44 (11.23)	44.42 (9.60)	293.87	64.32	4.57**
Re-Experience	12.34 (2.72)	14.06 (2.66)	14.32 (2.56)	14.90 (4.10)	14.32 (3.15)	39.65	9.54	4.15**
Emotional Numbing& Avoidance	16.06 (2.69)	17.02 (2.67)	18.38 (2.73)	14.84 (4.85)	18.24 (4.10)	46.77	12.44	3.76**
Hyper-Arousal	10.22 (2.24)	11.08 (1.82)	11.76 (1.94)	11.10 (2.84)	11.86 (2.30)	21.67	5.10	4.25**

Note. H1, H2, H3, H4, H5, the five hospitals, included in the study.
**p < .01, * p<.05

It is evident from Table 10 that the five hospitals differed significantly on Trauma F (4,245) = 4.57, p<0.01 and its three dimensions namely Re-Experience F (4,245) = 4.15, p<0.01 Emotional Numbing and Avoidance F (4,245) = 3.76, p<0.01 and Hyper Arousal F (4,245) = 4.25, p<0.01. Looking into the means of the hospitals on overall Trauma and its dimension, it may be noted that patients of H1 (M = 38.62, SD = 6.30) have the lowest level of Trauma than the patients of other hospitals. Patients of H2 (M = 42.16, SD = 6.12) and H4 (M = 43.44, SD = 11.23) fall next to patients of H1 on Trauma levels. While the mean score of Trauma experienced by patients in the two other hospitals (H5, M = 44.42, SD = 9.60; H3, M =44.46, SD =6.10) are comparatively high. An observation of scores on the dimensions of Trauma shows that the mean score of patients of H1 on Re-experience, (M = 12.34, SD =

2.72)) are comparatively less than the scores of patients in the other four hospitals H2 (*M* = 14.06, *SD* = 2.66), H3 (*M* = 14.32, *SD* = 2.56), H4 (*M* = 14.90, *SD* = 4.10), H5 (*M* = 14.32, SD = 3.15). The scores of H3 (*M* = 18.38 *SD* = 2.73) and H5 (*M* = 18.24, *SD* = 4.10) on Emotional Numbing and Avoidance are comparable. On the dimension of Hyper-Arousal again it may be observed that H1 scored the lowest (*M* = 10.22, *SD*= 2.24) and H5 (*M* =11.86 *SD* = 2.30) scored the highest. The scores of the other hospitals fall in between these two scores. Summarizing the results of Table 10 we can say that while H1 scores low on Trauma and its dimension, H3 and H5 score high on Trauma and the dimensions of Trauma.

Table 11

Tukey's HSD test of Multiple Group Comparisons, of Groups of Hospitals on Trauma and its dimensions

	Mean comparisons (Tukey's HSD)									
Variables	H1-H2	H1-H3	H1-H4	H1-H5	H2-H3	H2-H4	H2-H5	H3-H4	H3-H5	H4-H5
Trauma	-	5.84**	4.82*	5.80**	-	-	-	-	-	-
RE	1.72*	1.98*	2.16**	1.98*	-	-	-	-	-	-
E & A	-	2.32*	-	2.18*	-	-	-	-	-	-
H A	-	1.54**	-	1.64**	-	-	-	-	-	-

Note. RE= Re-Experience, E & A= Emotional Numbing &Avoidance, HA= Hyper-Arousal H1-H5, the five hospitals included in the study. ***p* < .01, * *p*<.05

A scrutiny of results of Tukey's HSD test presented in Table 11 throws light on differences between every combination of the five hospitals. Tukey's test scores showed that only H1 differed from other hospitals on the composite scores of Trauma. On the overall Trauma H1 differed significantly from H3 ($p<0.01$) and H4 ($p< 0.05$) and H5 ($p<0.01$). On Re-experience, H1 differed significantly from all the 4 hospitals i.e., H2 ($p<0.05$), H3 ($p<0.05$), H4 ($p<0.01$) and H5 ($p<0.05$). On Emotional

Numbing and Avoidance, H1 differed from H3 (p<0.05) and H5 (p<0.05). Similar observations can be made on the dimension of Hyper Arousal, where H1 differed from H3 (p < 0.01) and H5 (p < 0.01). From Table 11, and the mean scores of the hospitals in Table 10, it is evident that the patients of H1 (M = 38.62) have experienced low levels of Trauma than the patients of the other hospitals H2 (M = 42.16); H3 (M =44.46); H4 (M = 43.44) and H5 (M =44.42). The lower level of Trauma in patients of H1 is clearly perceivable on all dimensions, as also presented in Figure 3.

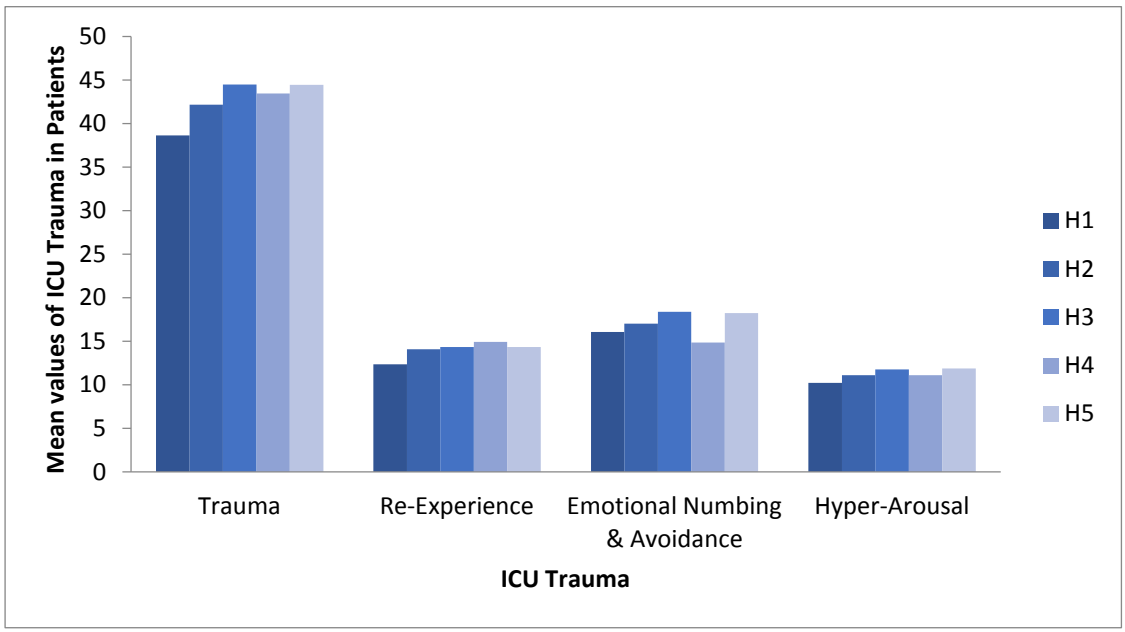

Figure-3 *Graph showing differences in Trauma experienced by patients in the five different hospitals taken into the study. The five hospitals coded as H1, H2, H3, H4, and H5.*

Comparing Table 6 and 7 with Table 10 and 11, it can be noted that in Psychosocial Care, H1 was higher than the rest of the hospitals. The results once again substantiate that enhanced Psychosocial Care, decreased Trauma, and psychological distress in patients go together. The results can be compared with the results of simple regression analysis (Table 5), which established that Psychosocial

Care is negatively correlated with Trauma. Thus Psychosocial Care plays a pivotal role in the reduction of Trauma in patients.

While Psychosocial Care is found to be a significant determinant of Hospital Wellbeing and ICU Trauma in CABG patients who spend the stipulated number of days in Intensive Cardiac Care Unit (ICCU), there are other factors which contribute towards the Wellbeing and Trauma in patients. The ICU environment and the practices of intensive care may constitute major determinants of Wellbeing and Trauma. The physical environment, biomedical facilities, available professional expertise, Psychosocial Care, alertness, commitment of ICU team and a number of other aspects related to ICU practices may have a significant impact on patient comfort and recovery. All these minute aspects are delineated in the guidelines provided by the National Accreditation Board of Hospitals, Indian Society of Critical Care Medicine and Joint Commission International, with an objective of quality assurance in ICUs. All these aspects on the whole help in assessing the ICU Quality.

An attempt is made to assess the ICU Quality using a checklist evolved from the guidelines. Based on these scores, the ICUs of the five hospitals are relatively classified as High, Medium and Low ICU Quality. Further, statistical tests were applied to examine if the three groups of hospitals significantly differed in the provided Psychosocial Care, and the patients' experience of Hospital Wellbeing and ICU Trauma. The results related to ICU Quality are presented below.

Assessment of ICU Quality

The ICU Quality of every hospital is assessed against the bench mark set by the guidelines provided by NABH, ISCCM and JCI. The hospitals are expected to follow these guidelines. Taking this fact into consideration, an attempt was made to find out

how hospitals adhere to these guidelines. The ICU Quality Checklist (mentioned in Chapter III) was used to find out the Quality of Care in ICU. The frequencies and percentages were found to measure the extent to which the hospitals adhered to the ICU guidelines provided by NABH, ISCCM and JCI. Further the adherence was classified into biomedical aspects, psychosocial and environmental standards maintained by ICU. The adherence levels are considered as measurement of quality. The scores of five hospitals are presented in Table 12. The results are graphically represented in Fig 4.

Table 12
Frequencies and Percentages of Bio-medical, Psychosocial and Environmental Quality Care provided by Hospitals

Hospitals	ICU Quality			
	Bio-medical (13 items)	Psychosocial (10 items)	Environmental (11 items)	Total (34 items)
H1	12 (92.3%)	6 (60%)	4 (36.3%)	22 (64.7%)
H2	12 (92.3%)	4 (40%)	4 (36.3%)	20 (58.8%)
H3	9 (69.6%)	2 (20%)	2 (18.1%)	13 (38.2%)
H4	12 (92.3%)	5 (50%)	6 (54.5%)	23 (67.6%)
H5	12 (92.3%)	4 (40%)	4 (36.3%)	20 (58.8%)

It may be observed that out of the five hospitals taken into the present study, H4 shows a standard quality of 67.6%, followed by H1 with 64.7%. While the ICU Quality in H3 is only 38.2%, H2 and H5 measured upto58.8% each. While this is the overall differences in quality, differences in quality are also evident in each of the dimensions indicated above. It is noted that all the hospitals seem to have given a great emphasis on Biomedical Quality through medical intervention and emergency management, and rightly so. The scores on this dimension of ICU Quality show that

four of the five hospitals viz. H1, H2, H4 and H5 adhere to 92.3% of Bio-medical Quality Care, while H3 adheres to only 69.6% on aspects of Bio-medical Quality Care. The results in Table 12 shows that while H1 adheres to 60% of psychosocial quality care, H4 adheres to 50% of Psychosocial Quality Care, followed by H2 and H5 at 40%. The adherence level of H3 is lowest at 20% on Psychosocial Quality Care. Level of adherence to the Environmental Quality Care is highest in H4 (54.5%), followed by H1, H2 and H5 at 36.3%. The level of adherence of H3 to Environmental Quality Care is the lowest at 18.1%. Looking into Table 12 it may be observed that although the boards of hospitals like the NABH, ISCCM & JC1 set standards for a holistic patient centered care, the results in Table 12 show that the hospitals limit to the bio-medical approach of treatment. It may be interesting to note that all the hospitals taken into the study are NABH accredited hospitals, in spite of which the standard Quality Care, which is mandatory is not totally adhered to. It is clearly evident from Figure 4 that all the five hospitals rightly emphasized on Bio-medical aspects related to ICU set up. At the same time the neglect of adherence to Psychosocial and Environmental aspects of care is also clearly evident.

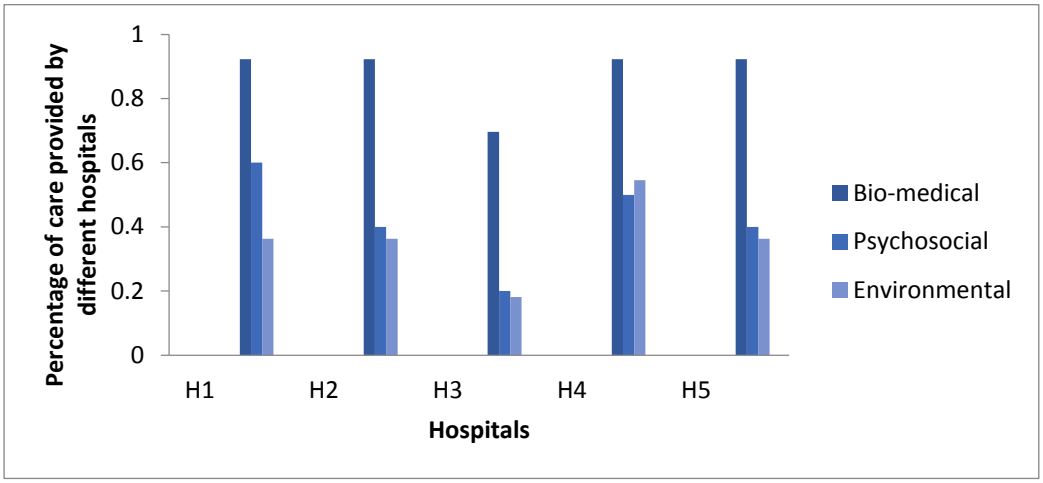

Figure- 4 Graph showing the differences in quality of ICU in bio-medical, psychosocial, and environmental care provided in the ICUs of five different hospitals (H1-H5)

The results of Table 12 paved a way for a possibility of some interesting findings. An attempt was made to categorize the hospitals on the basis of the Quality of Care provided by the ICUs. This was done on the basis of calculating the distance between the hospitals on various items in ICU Quality check list. For this purpose the Hierarchical clustering method and Hamming Distance was used. Detailed explanations of Hamming Distance are appended in Appendix VIII. After applying Hamming Distance and Hierarchical Cluster method the five hospitals were grouped into three categories based on ICU Quality. H1 and H2 were grouped into High ICU Quality, H4 and H5 into Medium ICU Quality while H3 was in Low ICU Quality.

Effect of ICU Quality on Psychosocial Care, ICU Trauma and Hospital Wellbeing

An attempt was made to find out if the three groups of hospitals differing in their ICU Quality differed significantly in the Psychosocial Care provided to the patients in ICUs. Further, an investigation was carried out to understand if the patients admitted in the ICUs differing in quality differed in their Hospital Wellbeing and ICU Trauma. Separate One-way ANOVAs and Tukey's HSD tests were carried out on the overall scores and the dimension scores of the three variables mentioned above.

Effect of ICU Quality on Psychosocial Care

One-way ANOVAs were done taking these three groups of hospitals viz. High ICU Quality, Medium ICU Quality and Low ICU Quality to see if there was a significant difference between these ICUs with regard to Psychosocial Care. The results of ANOVAs and their corresponding means and standard deviation of the three groups of hospitals on Psychosocial Care are presented in Table 13 and are diagrammatically represented in Figure 5. The results of Tukey's HSD test are presented in Table 14.

Table 13

Mean, Standard Deviation and One-way ANOVA of Psychosocial Care among three Qualities of ICUs of hospitals

Variable	ICU Quality			One- way ANOVA		
	High Quality ICU	Medium Quality ICU	Low Quality ICU	Mean Square		F(4,247)
	M (SD)	M (SD)	M (SD)	Between	Within	
Psychosocial Care	**61.47 (6.86)**	**62.25 (5.72)**	**53.46 (3.33)**	**1426.41**	**34.21**	**41.70****
PHD	26.06 (3.27)	25.90 (2.97	21.76 (2.0)	356.80	8.61	41.42**
FPCC	20.51 (4.02)	21.17 (3.00)	17.40 (2.46)	247.56	11.33	21.84**
FPAP	14.90 (1.88)	15.18 (1.66)	14.30 (1.56)	1 2.91	3.02	4.27**

Note. PSC= Psychosocial Care, PHD= Protection of Human Dignity, FPCC= Family Patient Communication Channel, FPAP= Family Patient Anxiety Protection, High ICU Quality (n=100), Medium ICU Quality (n=100), Low ICU Quality (n=50)
**p < .01, * p<.05

The results of ANOVAs presented in Table 13 revealed that the three groups of hospitals belonging to High, Medium and Low ICU Quality significantly differed on Psychosocial Care F (2,247) = 41.70, p< 0.01and on all the three dimensions of Psychosocial Care viz. Protection of Human Dignity, F (2,247) = 41.42, p<0.01; Family Patient Communication Channel, F (2,247) = 21.84, p< 0.01, and Family Patient Anxiety Prevention F (2,247) =4.27, p< 0.01. The results of ANOVA in Table 13 revealed that the Medium ICU Quality has a higher mean (M = 62.25, SD = 5.72) than the mean scores of High ICU Quality (M = 61.47, SD = 6.86) on the dimension of Psychosocial Care. Patients of a Low ICU Quality received the lowest Psychosocial Care (M = 53.46, SD = 3.33). It can be observed from Table 13 that the mean scores of Medium ICU Quality are higher than the High ICU Quality (M =

21.17 *SD*=3.00; *M* = 20.51 *SD*=4.02) on the dimension of Family Patient Communication Channel. Similar results were observed on the dimension Family-Patient Anxiety Prevention, where the mean scores of Medium ICU Quality were higher (*M* = 15.18, *SD*=1.66) than the High ICU Quality (*M* = 14.90, *SD*=1.88). Another important observation was that only on the dimension Protection of Human Dignity the mean score of High ICU Quality (*M*=26.06, *SD*=3.27) was higher than the mean scores of Medium ICU Quality (*M*=25.90 *SD*=2.97).

Table 14

Tukey's HSD test of Multiple Group Comparisons of three Qualities of ICUs of hospitalization Psychosocial Care and its dimensions

Variables	High-Medium	High-Low	Medium-Low
Psychosocial Care		**8.01****	**8.80****
Protection of Human Dignity	4.30**		4.14**
Family Patient Communication Channel	3.11**		3.77**
Family Patient Anxiety Prevention		.	

Note. ***p* < .01, * *p*<.05

The results of the Tukey's HSD test presented in Table 14 showed no significant difference between the Medium ICU Quality and High ICU Quality on the overall Psychosocial Care, while a significant difference was observed between the High ICU Quality and Low ICU Quality ($p<0.01$) and Medium ICU Quality and Low ICU Quality ($p<0.01$). On the dimension of Family Patient Communication Channel the results of Tukey's HSD test showed a significant difference ($p<0.01$), between the Medium Quality ICU (*M* = 21.17) and High Quality ICU (*M* = 20.51). A significant difference was also observed between the Medium ICU Quality and Low ICU Quality

(p<0.01), on this dimension. A variation from the above results were observed on the dimension of Protection of Human Dignity where the High ICU Quality (M=26.06) and Medium ICU Quality (M=25.90) differed significantly on (p<0.01). It may be observed that on this dimension the mean scores of High ICU Quality are higher than the mean scores of Medium ICU Quality. While no significant difference was observed between High ICU Quality and Low ICU Quality on this dimension, Medium ICU Quality and Low ICU Quality (p<0.01) differed significantly. An interesting observation from the Tukey's HSD test was that on the dimension Family-Patient Anxiety Prevention there was no significant difference between any of the categories of hospitals.

The results are an evidence to say that the two ICUs of the hospitals in the Medium ICU Quality group had a better means of communication with the family and patient. It was observed during the investigation that the hospitals that come under Medium ICU Quality provided 'information booklets' to the family and the patient. The 'information booklets' had information regarding the diagnostic facilities, ICU admission and discharge procedures and so on. Moreover it is important to note that ICUs were categorized on the basis of biological, psychosocial and environmental facilities provided by the hospitals. The two hospitals in Medium ICU Quality were quite spacious. The availability of space helped the hospitals to provide extra facilities to patients and their families. The hospitals had provided a waiting area outside the ICU where the family could wait and find out about the patients health condition, while s/he was in the ICU. Private areas and rooms were provided for family members to relax and refresh when the patient is in ICU, which was not the case in hospitals categorized as High ICU Quality. These facilities helped families not only get information regarding the patient's health condition and prognosis but also gave

the patient and the family a reassurance that they were available for each other in case of emergency. Feelings of apprehension, fear and agitation in the family and the patient can be handled if the hospitals come up with such measures. An observation made by the investigator was that the two hospitals under the Medium ICU Quality had a nursing school attached. The in-house training might have helped the nurses to provide enhanced psychosocial care services and improved communication to the patient and their families.

It is evident from Table 13 and 14 that ICU Quality has an effect on the Psychosocial Care. Adhering to the Standards set by the Boards of hospitals would enhance Psychosocial Care which in turn would not only reduce the anxiety and trauma in patients and family members but also enhance the Wellbeing in patients. The difference in the means on Psychosocial Care is evident in the graphical representation in Figure 5 and also in the mean plots represented in Figure 6a to 6d. Figure 6a shows that High and Medium ICU Quality patients are almost on the same level with respect to Psychosocial Care. It is evident from Figure 6b and 6d that on the dimension of Protection of Human Dignity and Family Patient Anxiety Prevention the High ICU Quality and the Medium ICU Quality are comparable on same level. It can be observed in figure 6c that on the dimensions Family Patient Communication Channel the Medium ICU Quality is slightly higher than the High ICU Quality. However a noticeable factor in all the figures (6a-6d) is that the Low Quality ICU is on the lowest level.

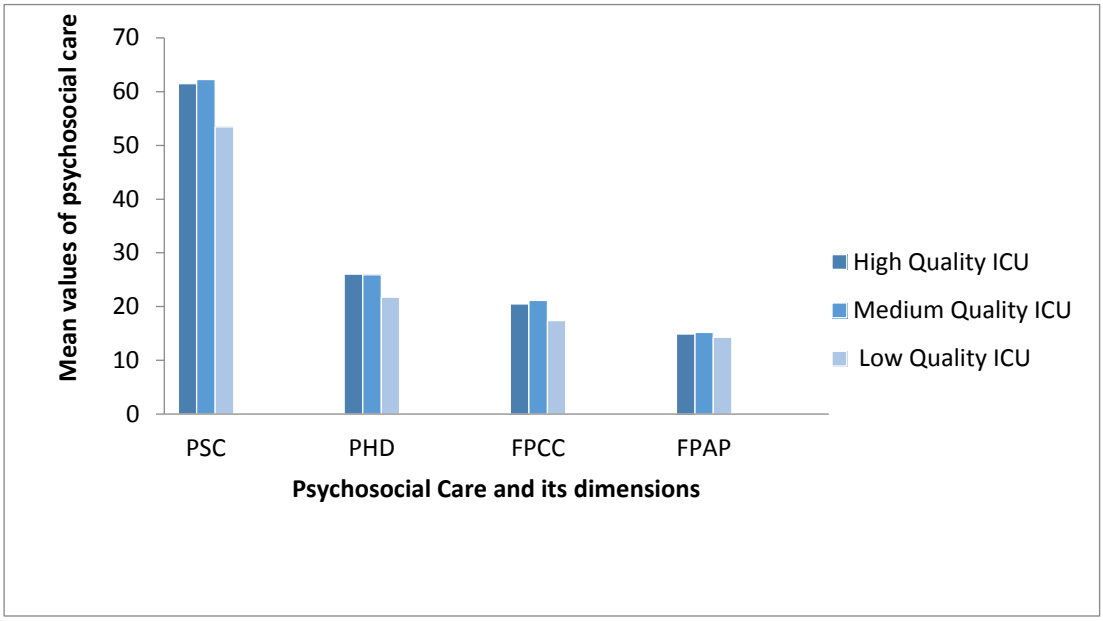

Figure- 5 Graph showing differences in Psychosocial Care and its dimension scores of patients in High, Medium and Low ICU Quality. PSC= Psychosocial Care, PHD= Protection of Human Dignity, FPCC= Family Patient Communication Channel, FPAP= Family Patient Anxiety Protection

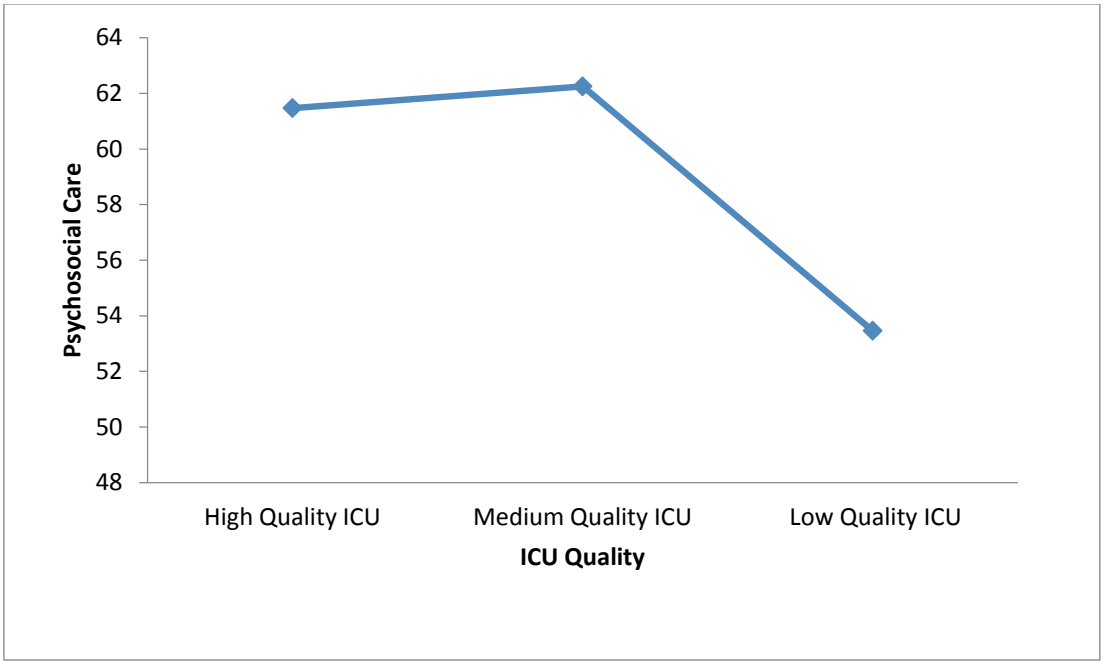

Figure-6 a Graph showing the mean plot of Psychosocial Care

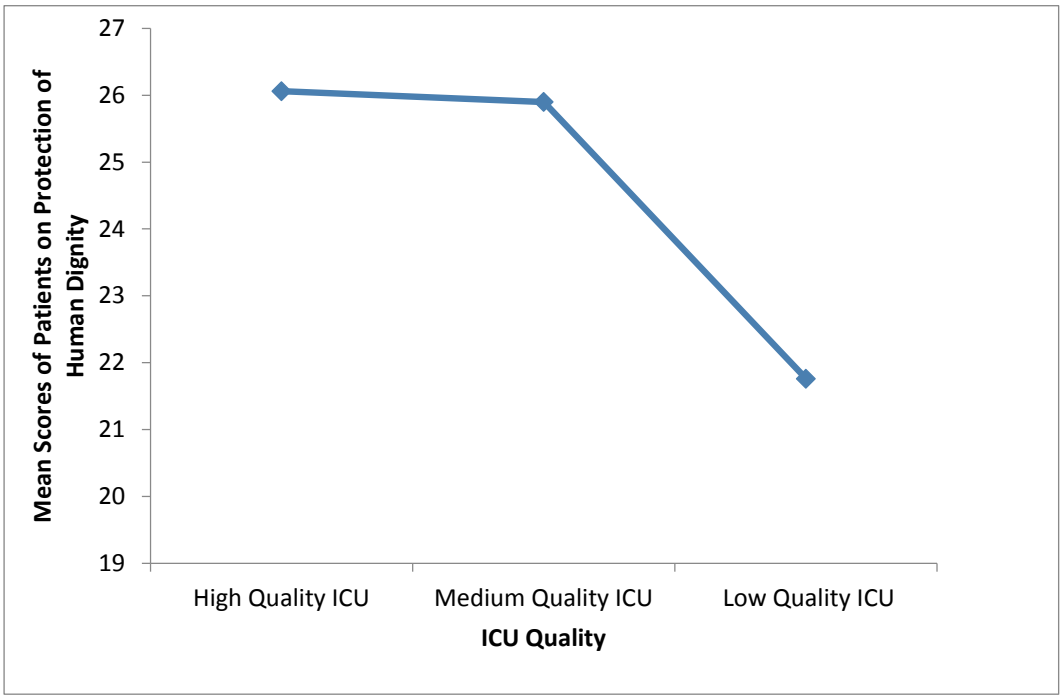

Figure-6 b Graph showing the mean plot of Protection of Human Dignity

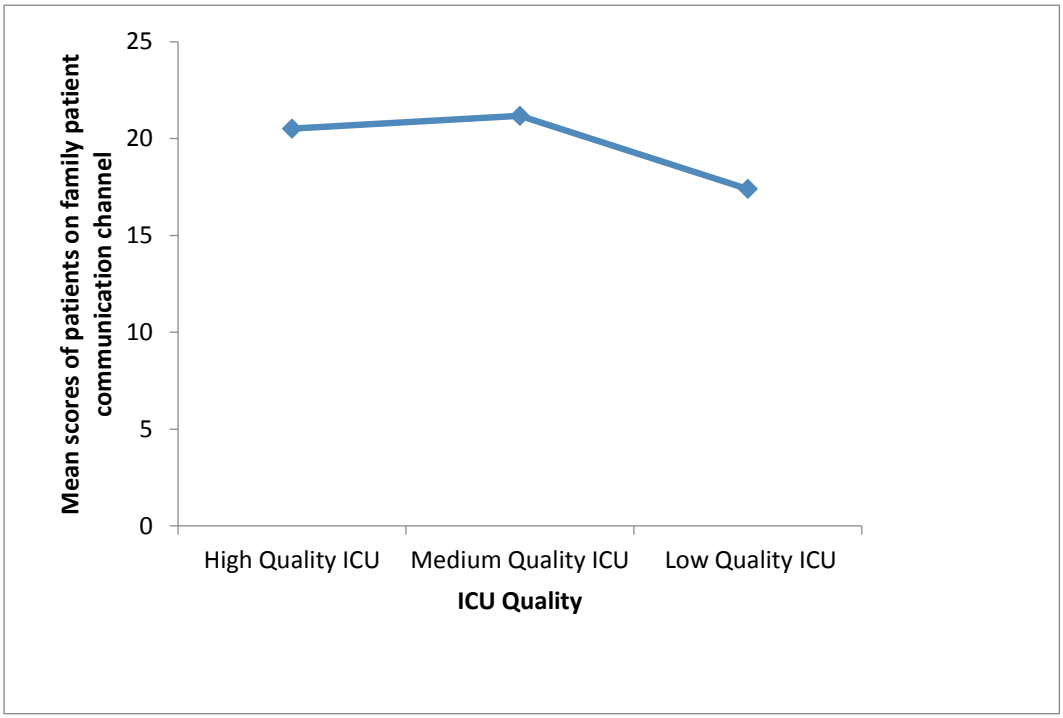

Figure-6 c Graph showing the mean plot of Family Patient Communication Channel

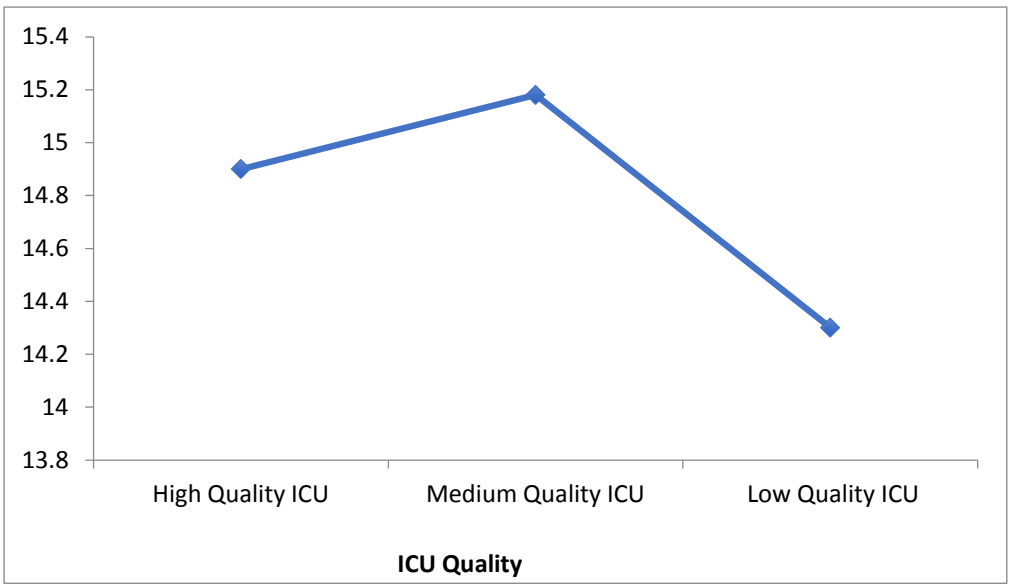

Figure-6 d Graph showing the mean plot of Family Patient Anxiety Prevention

Psychological care is found to be contributing to the hospital Wellbeing. Since the results indicated a significant difference in Psychological Care provided by hospitals with difference in ICU Quality, it may be of interest to see if the three groups of hospitals differing in ICU Quality also differ in Hospital Wellbeing of patients. One-way ANOVA was carried out on the scores of Wellbeing and their dimensions.

Effect of ICU Quality on Hospital Wellbeing

The results of ANOVA and the mean scores of Wellbeing in the different category of hospitals are presented in Table 15

Table 15

Mean, Standard Deviation and One-way ANOVA of Wellbeing among three Qualities of ICUs of hospitals

Variable	ICU Quality			One Way ANOVA		
	High ICU Quality	Medium ICU Quality	Low ICU Quality	Mean Square		F(4,247)
	M (SD)	M (SD)	M (SD)	Between	Within	
Wellbeing	**94.65 (12.88)**	**92.83 (13.00)**	**93.56 (11.51)**	**83.45**	**160.61**	**< 1**
Psychological	21.00 (4.29)	19.91 (4.31)	20.64 (3.90)	30.38	17.88	1.7
Physical	18.79 (4.17)	18.77 (4.38)	18.74 (3.80)	.04	17.55	< 1
Social	26.64 (3.57)	26.13 (3.41)	26.62 (2.3)	7.60	11.58	< 1
Spiritual	28.22 (3.18)	28.02 (2.96)	27.56 (2.68)	7.27	9.01	< 1

Note. High ICU Quality (n=100), Medium ICU Quality (n=100) Low ICU Quality (n=50), N=250, NS = Not Significant. **p < .01, * p<.05

Results of One-Way ANOVA presented in Table 15 showed no significant difference on overall Wellbeing and its dimensions among the High, Medium and Low Quality of ICUs.

Effect of ICU Quality on ICU Trauma

The results presented in the chapter asserted the contribution of Psychological Care in lowering ICU Trauma in patients. Psychological Care is also found to differ with ICU Quality. It may be relevant to investigate if ICU Trauma of patients from three ICU qualities differed significantly. Four One-way ANOVAs and Tukey's HSD

tests of multiple group comparisons were carried out to compare the three ICU Quality groups of hospitals on Trauma and its dimensions.

Results of ANOVA of the three Qualities of ICUs of hospitals on Trauma and the dimension of Trauma are presented in Table 16. The graphical representation of the data can be seen in Fig 7 & Fig 8 a, b, c, d.

Table 16

Mean, Standard Deviation and One-way ANOVA of Trauma in three Qualities of ICUs of Hospitals

	ICU Quality			One Way ANOVA		
Variable	High ICU Quality	Medium ICU Quality	Low ICU Quality	Mean Square		F(4,247)
	M (SD)	M (SD)	M (SD)	Between	Within	
Trauma	**40.39 (6.43)**	**43.93 (10.14)**	**44.46 (6.10)**	**419.09**	**65.17**	**6.43****
RE	13.20 (2.81)	14.41 (3.63)	14.32 (2.55)	41.90	9.77	4.30**
E & A	16.54 (2.71)	18.04 (4.47)	18.38 (2.72)	80.01	12.44	6.42**
H A	10.65 (2.07)	11.48 (2.60)	11.76 (1.94)	26.88	5.20	5.17**

Note: RE= Re-Experience, E & A= Emotional Numbing &Avoidance, HA= Hyper-Arousal .High ICU Quality (n=100), Medium ICU Quality, (n=100), Low ICU Quality (H3) (n=50), N=250, **p < .01, * p<.05

Table 17

Tukey's Multiple Group Comparisons of Groups of Hospitals on Trauma and its dimensions

Variables	High-Medium	High-Low	Medium-Low
Trauma	3.54**	4.07**	
Re-Experience	1.21*	1.84**	
Emotional Numbing & Avoidance	1.5*	1.84**	
Hyper-Arousal		1.11*	

Note. High ICU Quality, (n=100), Medium ICU Quality, (n=100) Low ICU Quality (n=50), **p < .01, * p<.05

Results of One-way ANOVA presented in Table 16 revealed that the three ICU Qualities differed significantly on Trauma F (4,247) = 6.43, p< 0.01 and the three dimensions of Trauma viz. Re-Experience F (4,247) = 4.30, p< 0.01 , Emotional Numbing and Avoidance F (4,247) = 6.42, p< 0.01 and Hyper Arousal F (4,247) = 5.17, p< 0.01 .

Looking into the means in Table 16 it is evident that the patients of High ICU Quality have experienced the lowest mean on Trauma (M = 40.39, SD=6.43), followed by its counterparts viz. Medium ICU Quality (M = 43.93, SD = 10.14) and Low ICU Quality (M = 44.46, SD = 6.10). Similar observations can be seen on the dimensions of Trauma also. On Re-experience the patients of High ICU Quality have lower mean (M = 13.20, SD = 2.81) than the patients of Medium ICU Quality (M = 14.41, SD = 3.63) and Low ICU Quality (M = 14.32, SD = 2.55) in that order. Similar trend was observed on the dimension of Emotional Numbing & Avoidance and the dimension of Hyper Arousal where the High ICU Quality (M = 16.54, SD = 2.71; M = 10.65, SD = 2.07) scored the lowest than the Medium ICU Quality (M = 18.04, SD = 4.47; M = 11.48, SD = 2.60 and Low ICU Quality M = 18.38, SD = 2.72; M = 11.76,

SD = 1.94). Comparing Table 16 and 17 it can be inferred that the patients in hospitals with High ICU Quality, experience higher Wellbeing and low levels of Trauma. These findings are supported by the simple regression analysis presented in Table 4, which also showed that ICU Quality is significant predicator of Trauma. In order to verify if these differences on Trauma between the patients of three Qualities of ICU are statistically significant, Tukey's HSD tests were done for all parameters and the results presented Table 17. According to Table 17 the High ICU Quality patients scored significantly lower than the Medium ICU Quality on overall Trauma ($p< 0.01$) as well as on the dimensions of Re-Experience ($p< 0.05$) and Emotional Numbing & Avoidance ($p< 0.05$). However there was no significant difference between these two ICU Qualities on Hyper-arousal. It can also be observed that the patients of High ICU Quality differed significantly from patients of Low ICU Quality on overall Trauma ($p<0.01$) and all the dimensions viz. Re-Experience ($p< 0.01$), Emotional Numbing & Avoidance ($p< 0.01$) and Hyper Arousal ($p<0.05$).No significant difference is found between Medium and Low ICU Quality on overall Trauma and any of the dimensions. On all dimensions where Tukey's test showed significant differences, the High Quality ICU group was found to score lower than the Medium Quality ICU and Low Quality ICU group, while the Low Quality ICU group scored the highest. Summarizing the results on the ICU Quality it can be concluded that patients treated in a High Quality of ICU have lower levels of Trauma, and the hospitals that maintain High ICU Quality extend a better Psychosocial Care in turn reducing the Trauma in Patients.

The mean score of patients of three ICU Qualities on Trauma and its dimensions are diagrammatically represented in Figure 7 and the mean plots are presented in Figure 8 a, b, c, and d. Figure 7 clearly shows a perceivably lower height of bars of the group treated in High ICU Quality on Trauma scores. The mean plots show the differences in means of patients of three ICU Qualities on Trauma and its dimensions. Looking into the mean plots of Figure 8 it can be observed that the Trauma mean scores of High Quality ICU group is much lower compared to the Medium and Low Quality ICU groups. The same trend is perceivable in Figure 8 b, c, and d, showing a comparison of mean trauma scores on the dimensions, Re-Experience, Emotional Numbing & Avoidance and Hyper Arousal respectively. In case of Figure 8c and 8d, it can be clearly seen that the group belonging to Medium ICU Quality is paced perceivably lower on Emotional Numbing & Avoidance and Hyper-Arousal compared to the group belonging to Low ICU Quality.

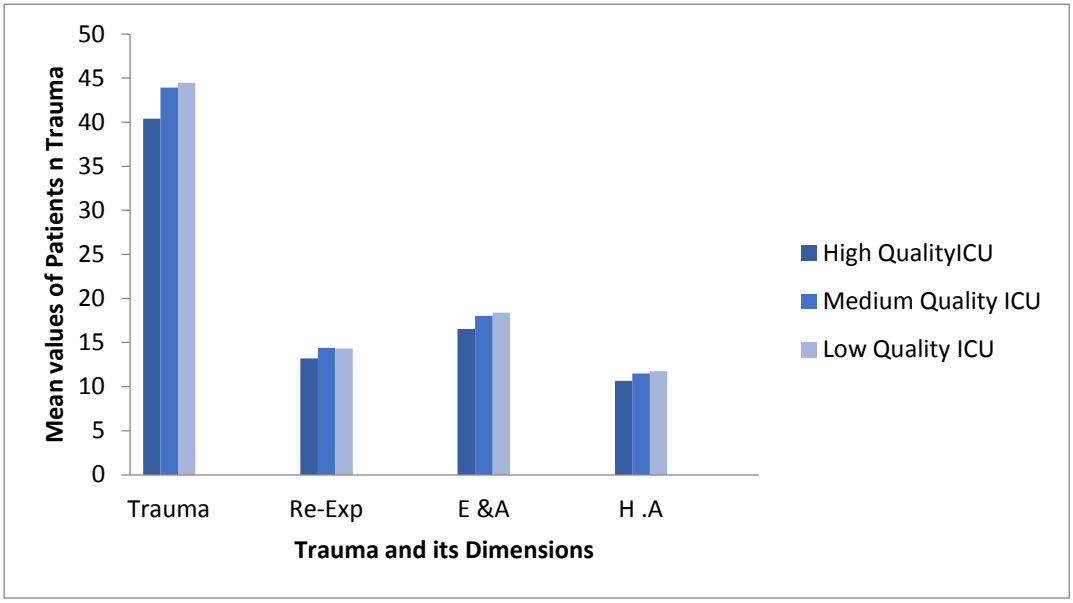

Figure 7 Graph showing difference in Trauma of patients in High, Medium and ICU Quality
Note. Re-Exp= Re-Experience, E & A= Emotional Numbing &Avoidance, H.A= Hyper-Arousal

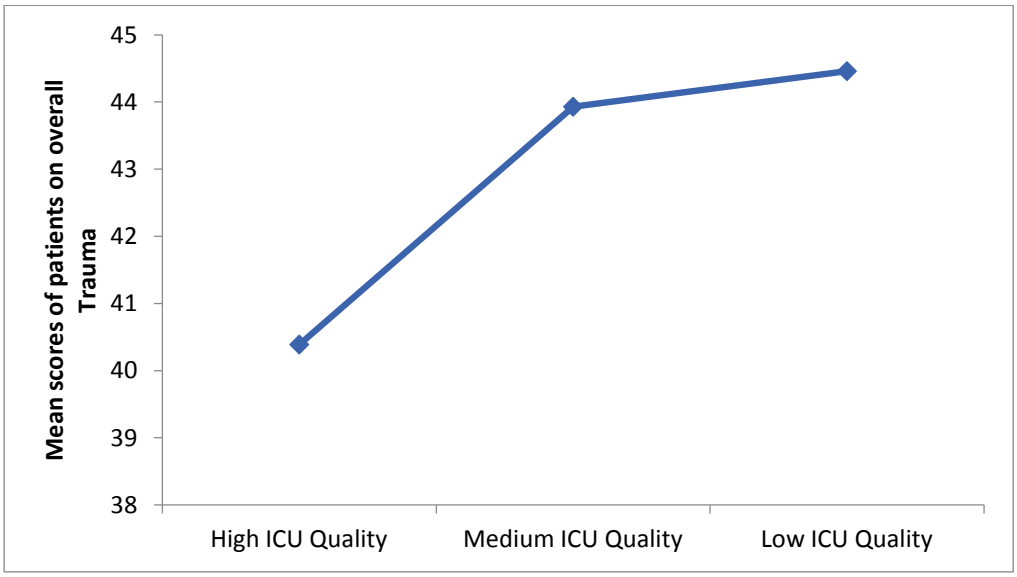

Figure-8 a Graph showing the mean plot of three ICU Qualities on Trauma

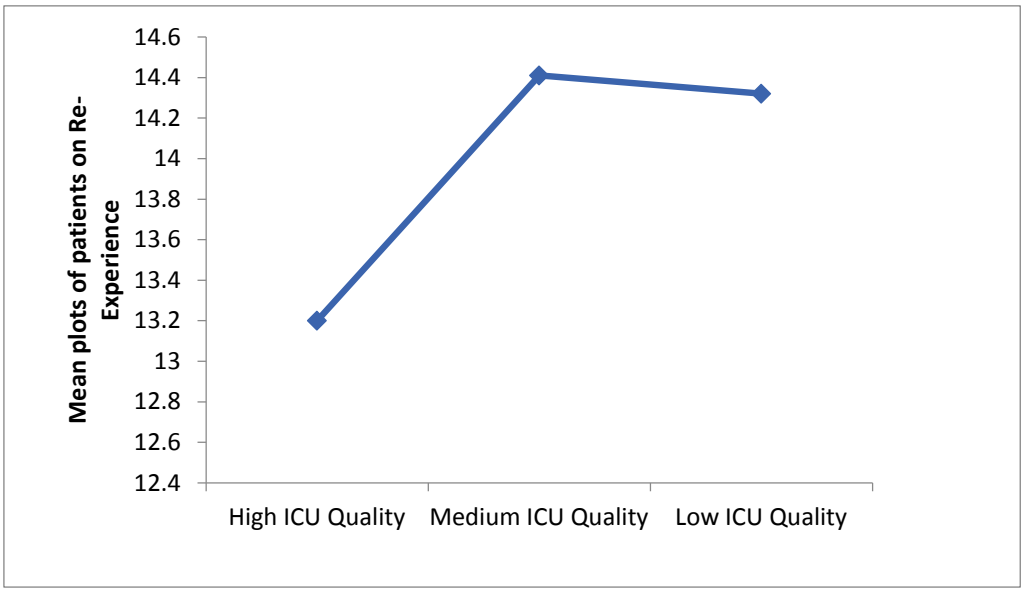

Figure-8b Graph showing the mean plot of three ICU Qualities on Re-Experience

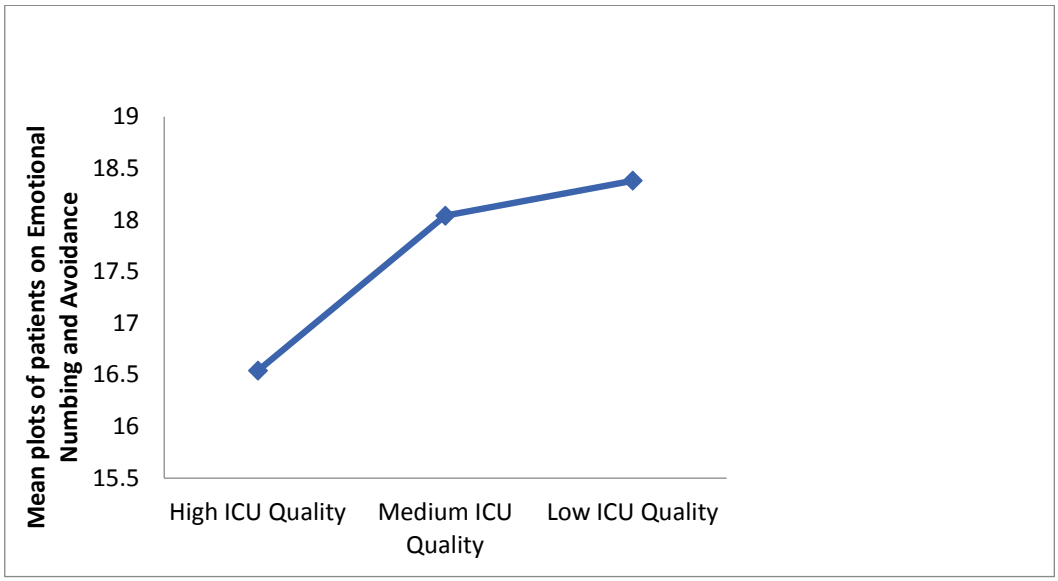

Figure 8 c Graph showing the mean plot of three ICU Qualities on Emotional Numbing & Avoidance

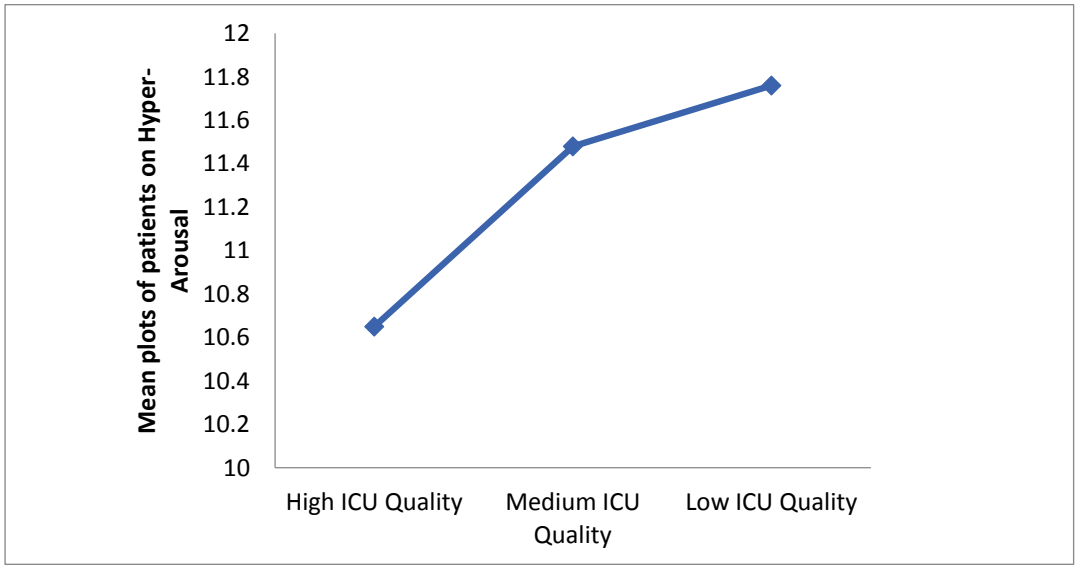

Figure-8 d Graph showing the mean plot of three ICU Qualities on Hyper-Arousal

Psychosocial Care as a determinant of Hospital Wellbeing

Taking results mentioned above into consideration it can be inferred that Psychosocial Care has emerged as a central element which plays a vital role in enhancing Wellbeing decreasing Trauma and improving health outcomes of CABG patients. Further analysis was carried out to substantiate the above findings. The patients were classified into three groups (High, Medium and Low) based on the Psychosocial Care they received. For the purpose of classification, Cluster Analysis was used applying SPSS version 19. Three cluster groups evolved on the basis of patients score on the 18-items of ICU Psychosocial Care Scale. Based on the mean scores of the patients clusters were named as High Psychosocial Care group, Medium Psychosocial Care group with and a Low Psychosocial Care group. The High, Medium and Low Psychological Care groups had 51, 106 and 93 patients respectively. This is presented in Table 18. From the point of holistic care and endorsement of the need for biopsychosocial care it is important to take special note of the fact that out of the total sample of 250 CABG patients the proportion receiving High Psychosocial Care is the lowest at 20.4%. This is represented in Figure 9

Table 18

Distribution of the patients into the three Psychosocial Clusters

Clusters	Psychosocial Care	Number of Patients	Percentage
1	High Psychosocial Care	51	20.40
2	Medium Psychosocial Care	106	42.40
3	Low Psychosocial Care	93	37.20

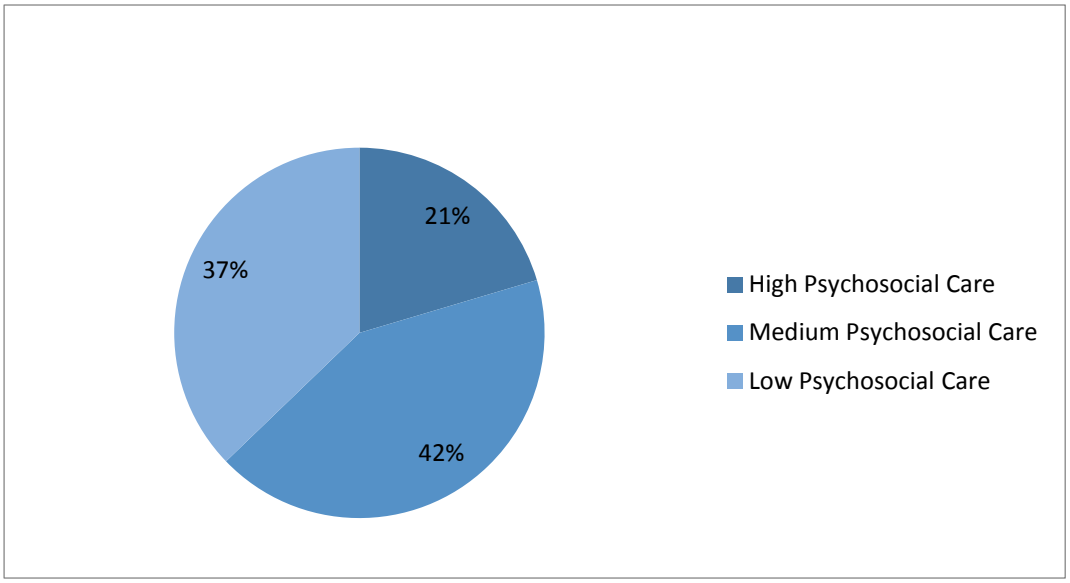

Figure 9 Pie diagram showing the distribution of the patients into the three Psychosocial Clusters

This brings into light the neglect of Psychosocial Care in ICUs, thus reducing the connotation of 'Intensive Care' to 'Critical Care'. The results of regression analysis have authenticated that Psychosocial Care has an impact on Wellbeing and Trauma. To substantiate the finding a One-way ANOVA was run to find if the three groups of patients viz. High Psychosocial Care group, Medium Psychosocial Care group and Low Psychosocial Care group differed on their Wellbeing scores. Table 19 presents the results of the ANOVA

Table 19

Mean, Standard Deviation and ANOVA of Wellbeing on Psychosocial Clusters of patients

	Psychosocial Care			One -way ANOVA		
	High	Medium	Low	Mean Square		F(2,247)
	M (SD)	M (SD)	M (SD)	Between	Within	
Wellbeing	103.00 (11.42)	93.45 (11.14)	88.89 (12.20)	3283.45	134.70	24.36**
Psychological	23.33 (3.90)	20.20 (4.00)	19.27 (4.03)	280.01	15.86	17.65**
Physical	21.51 (4.52)	18.62 (3.80)	17.44 (3.67)	274.71	15.33	17.92**
Social	28.35 (2.66)	26.55 (3.24)	25.25 (3.45)	160.06	10.34	15.47**
Spiritual	29.80 (2.31)	28.08 (2.85)	26.94 (3.03)	136.05	7.96	17.07**

Note. High Psychosocial Care (n=51), Medium Psychosocial Care (n=106). Low Psychosocial Care (n=93), **p < .001, * p<.05.

It is evident from the results of Table 19 that the three groups of patients belonging to High, Medium and Low Psychosocial Care differed significantly on total Wellbeing F (2,247) = 24.36, p<0.01 and the four dimensions of Wellbeing viz. Psychological Wellbeing F (2,247) = 17.65, p<0.01, Physical Wellbeing F (2,247) =17.92, p<0.01, Social Wellbeing F (2,247) =15.47, p<0.01 and Spiritual Wellbeing F (2,247) = 17.07, p<0.01. An examination of the mean scores presents in Table 19 revealed that the group of patients who received High Psychosocial Care scored high on Wellbeing (M=103.00, SD =11.42) than their counterparts who received Medium Psychosocial Care (M=93.45, SD =11.14) and Low Psychosocial Care (M = 88.89, SD = 12.20). On the dimensions of Psychological Well being the group receiving High

Psychosocial Care (*M* = 23.33, SD = 3.90) scored relatively higher scores compared to the group with Medium Psychosocial Care (*M* = 20.20, *SD* = 4.00) and Low Psychosocial Care (*M* = 19.27, *SD* = 4.03). Similarly on the dimension of Physical Wellbeing, the group who received High Psychosocial Care scored higher means (*M* = 21.51, *SD* = 4.52) than the group belonging to Medium Psychosocial Care (*M* = 18.62, *SD* = 3.80) and Low Psychosocial Care group (*M* = 17.44, *SD* = 3.67). The same trend was found in the case of Social Wellbeing wherein the group who received High Psychosocial Care was found to have scored higher means (*M* = 28.35, SD = 2.66) than the Medium Psychosocial Care group (*M* = 26.55, *SD* = 3.24), and Low Psychosocial Care group (*M* = 25.25, *SD* = 3.45). Even on Spiritual dimension, the High Psychosocial Care group had a higher score (*M* = 29.80, *SD* = 2.31), than their Medium Psychosocial counterparts (*M* = 28.08, *SD* = 2.85) and Care Low Psychosocial Care (*M* = 26.94, *SD* = 3.03).

In order to verify if the differences between each group with every other group is significant Tukey's HSD tests were conducted. The results are presented in Table 20. It may be observed from Table 20 that the High Psychosocial Care group was found significantly higher from Medium Psychosocial Care group, (p<0.01) and Low Psychosocial Care group, (p<0.01) on the overall Wellbeing scores. Similar trend was observed on the other dimensions of Wellbeing. The High Psychosocial Care group was significantly higher on Psychological Wellbeing (p<0.01), Physical Wellbeing, (p<0.01), Social Wellbeing, (p<0.05) and Spiritual Wellbeing, p<0.01 compared to Medium Psychosocial Care group. Similar significant differences were observed between High and Low Psychosocial Care groups. The High Psychosocial Care group scored significantly higher on Psychological (p<0.01), Physical (p<0.01), Social

(p<0.01) and Spiritual Wellbeing (p<0.01) compared to Low Psychosocial Care group.

Table 20

Tukey's HSD test of Wellbeing in patients who have received High, Medium and Low Psychosocial Care.

	Psychosocial Care		
	High –Medium	High-Low	Medium -Low
Wellbeing	9.54**	14.10**	4.56*
Psychological	3.15**	4.06**	
Physical	2.90**	4.07**	1.18*
Social	1.8*	3.10**	1.3*
Spiritual	1.71**	2.86**	1.14*

Note. High Psychosocial Care (n=51), Medium Psychosocial Care (n=106). Low Psychosocial Care (n=93) ** p < .01, * p<.05

In the light of the above results, it may be stated that the patients who received High Psychosocial Care also have higher Wellbeing. As observed in Table 19 and 20, on overall Wellbeing the High Psychosocial Care group > Medium Psychosocial Care group> Low Psychosocial Care group.

Figure 10 gives a clear visual depiction where the hierarchy of heights is found in decreasing order from High to Low Psychosocial Care group on overall and also the dimensions of Wellbeing. The mean plots presented in Figure 11 a, b, c, and d also show a sharp downward position of means from High Psychosocial Care group to Low Psychosocial Care group on overall Wellbeing (11 a), and its dimensions of Psychological Wellbeing(11 b),Physical Wellbeing(11 c), Social Wellbeing(10 d),and Spiritual Wellbeing(11 e),

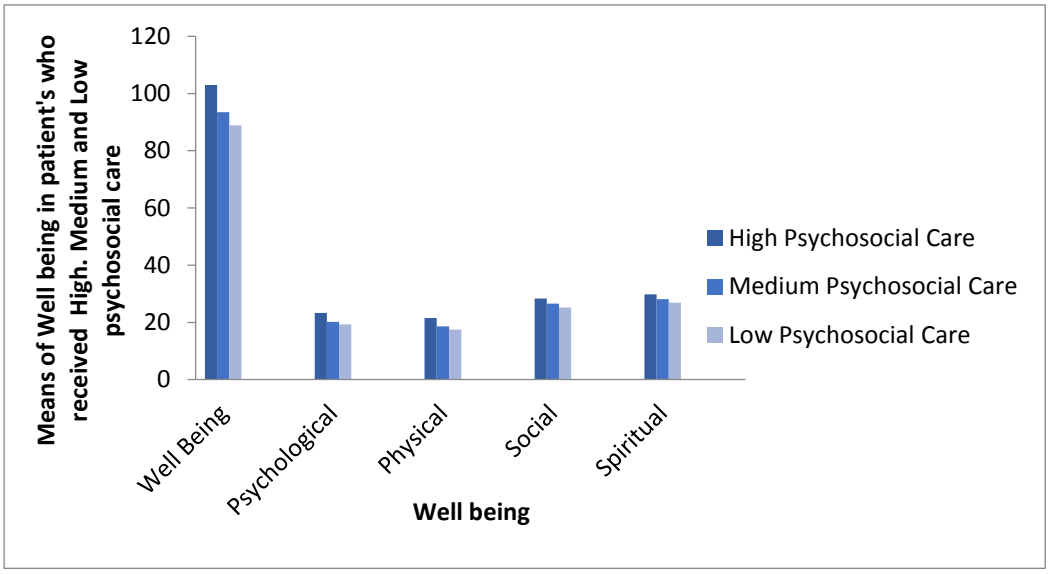

Figure 10 Graph showing the differences of Wellbeing of patients with High Psychosocial Care, Medium Psychosocial Care and Low Psychosocial Care

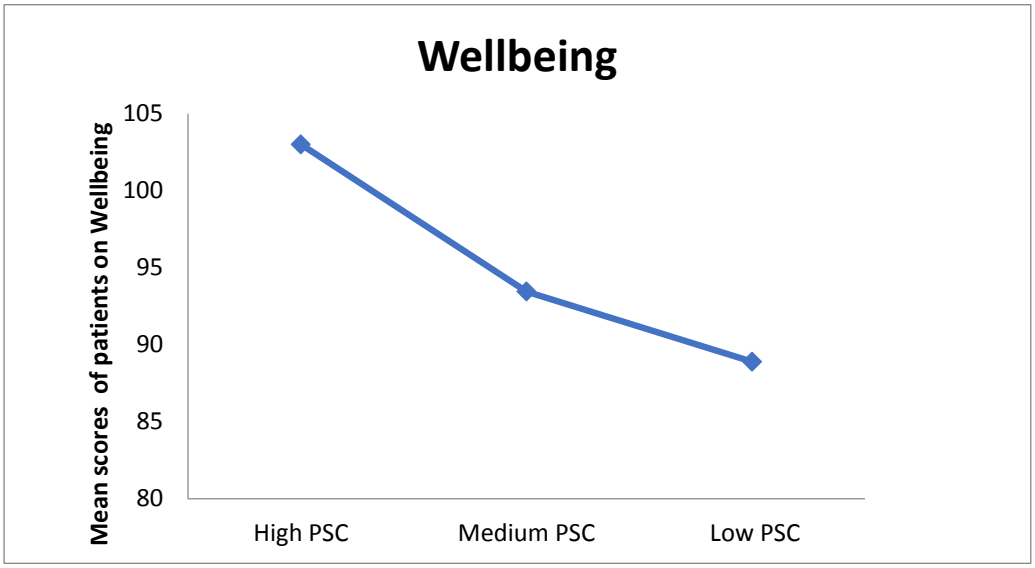

Figure 11a Graph showing mean plots of overall Wellbeing in patients with High, Medium and Low Psychosocial Care

Note. PSC= Psychosocial Care

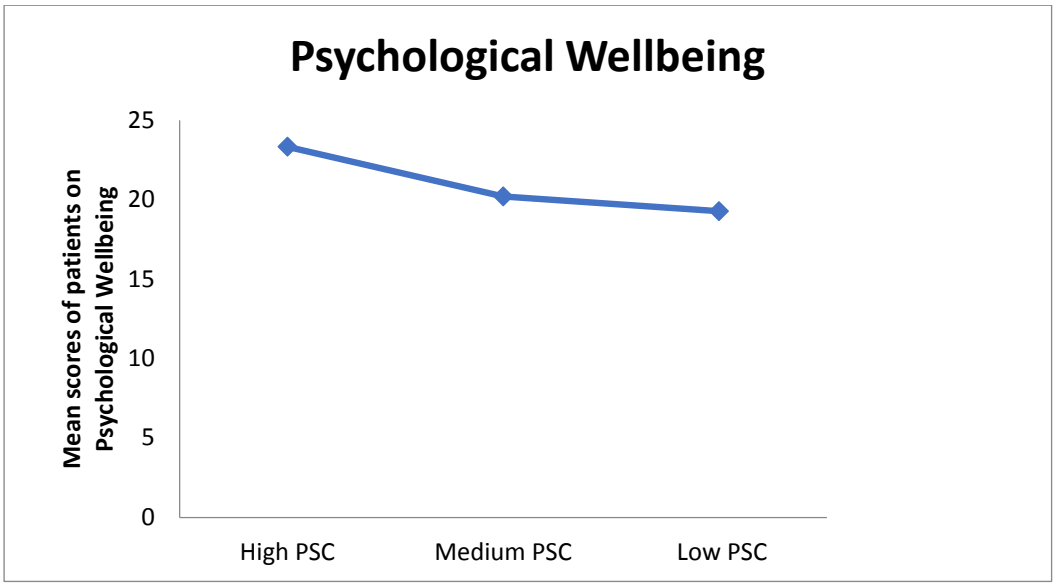

Figure 11b Graph showing mean plots of Psychological Wellbeing in patients with High, Medium and Low Psychosocial Care
Note. PSC= Psychosocial Care

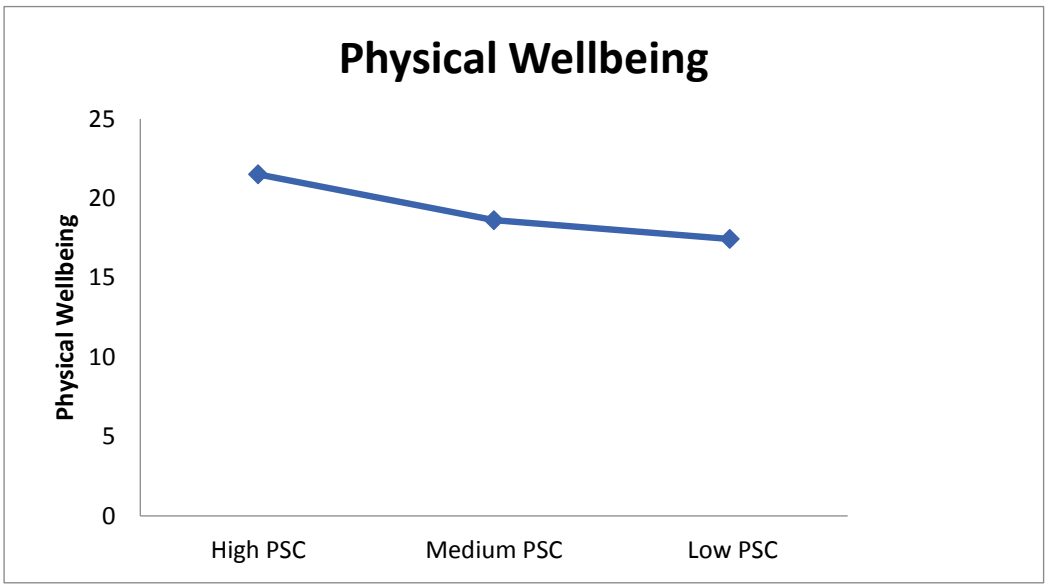

Figure 11c Graph showing mean plots of Physical Wellbeing in patients with High, Medium and Low Psychosocial Care
Note. PSC= Psychosocial Care

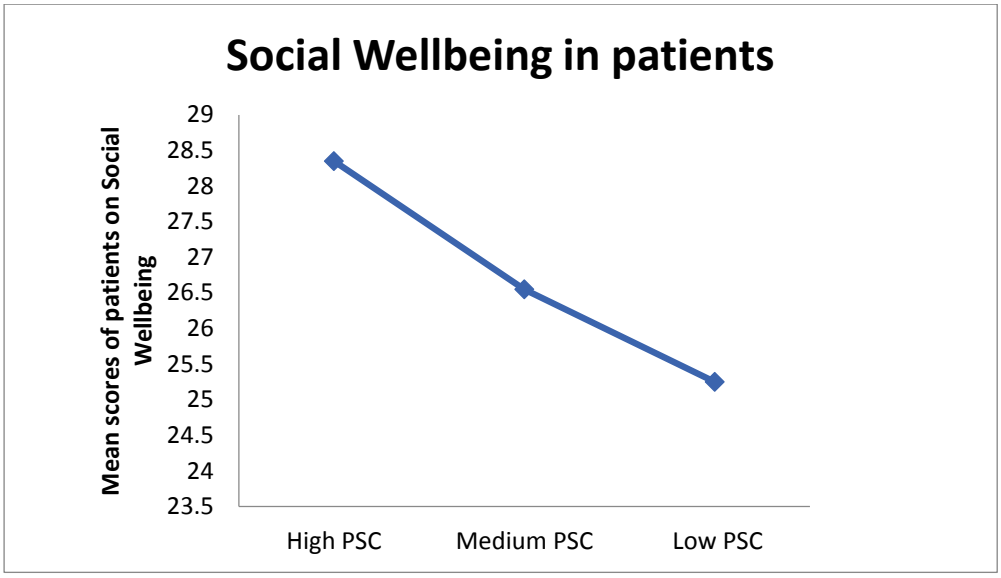

Figure 11d Graph showing mean plots of Social Wellbeing in patients with High, Medium and Low Psychosocial Care
Note. PSC= Psychosocial Care

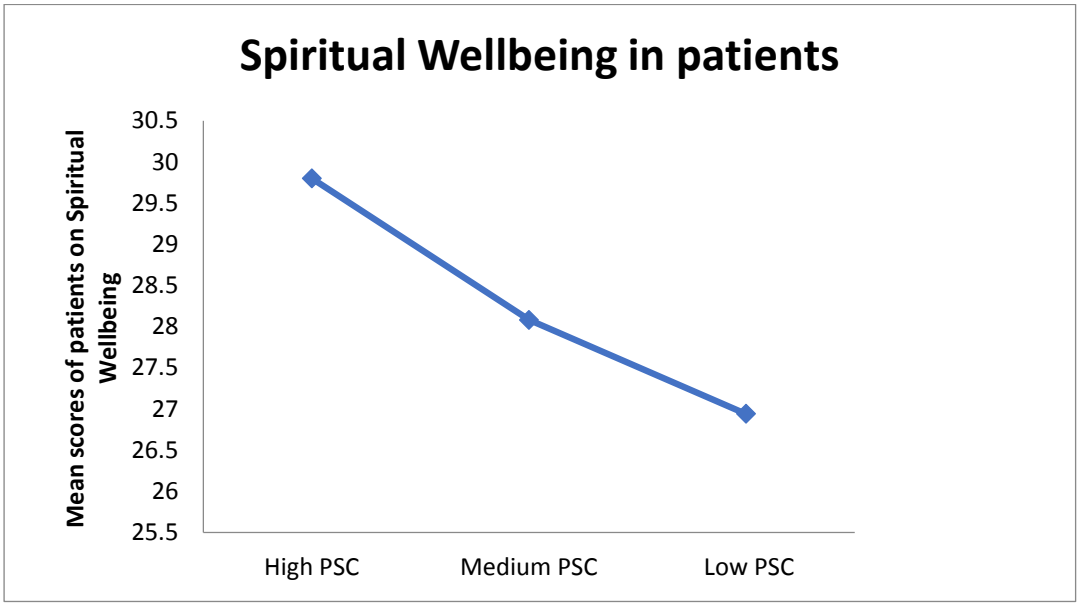

Figure 11e Graph showing mean plots of Spiritual Wellbeing in patients with High, Medium and Low Psychosocial Care
Note. PSC= Psychosocial Care

Psychosocial Care as a determinant ICU Trauma

One-way ANOVAs were also carried out to find out if the patients belonging to High, Medium and Low Psychosocial Care differed on the Trauma experience. The mean scores and results of ANOVAs are presented in Table 21. The graphical representation of the mean scores is shown in Fig 12 and 13a to 13d.

It is evident from the results of ANOVA scores in Table 21 that the three groups of patients significantly differed on overall ICU Trauma scores F (2,247) = 13.13 p<0.01 and the three dimensions of it viz. Re-experience F (2,247) = 15.28 p<0.01, Emotional Numbing & Avoidance F (2,247) = 8.92 p<0.01 and Hyper Arousal F (2,247) = 8.98 p<0.01.

Table 21

Mean, Standard Deviation and One-way ANOVA of Trauma in patients who have received different levels of Psychosocial Care

	Psychosocial Care			One -Way ANOVA		
	High	Medium	Low	Mean Square Between	Mean Square Within	F(2,247)
	M (SD)	M (SD)	M (SD)			
Trauma	37.75 (8.30)	43.19 (8.60)	44.65 (6.65)	813.84	61.97	13.13**
Re-Experience	11.94 (2.95)	14.07 (3.27)	14.81 (2.68)	137.50	8.99	15.28**
Emotional Numbing & Avoidance	15.67 (3.77)	17.92 (3.69)	18.04 (3.08)	108.96	12.21	8.92**
Hyper-Arousal	10.14 (2.38)	11.20 (2.43)	11.80 (1.91)	45.30	5.04	8.98**

Note: M = Mean, SD = Standard Deviation, High Psychosocial Care (n=51), Medium Psychosocial Care (n=106). Low Psychosocial Care (n=93), ***p < .01, * p<.05*

Looking into the mean scores, it may be noted that the group with high Psychosocial Care had the lowest mean on overall Trauma (*M* = 37.75, *SD* = 8.30) followed by the Medium Psychosocial Care group (*M* = 43.19, *SD* = 8.60) and the Low Psychosocial Care group (*M* = 44.65, *SD* = 6.65). The table also reveals the lowest means for High Psychosocial Care group on Re- Experience (*M* = 11.94, *SD* = 2.95), Emotional Numbing and Avoidance (*M* = 15.67, *SD* = 3.77) and Hyper Arousal (*M* = 10.14, *SD* = 2.38). The above results bring us to an understanding that higher Psychosocial Care has the power of lowering ICU Trauma. The results presented in Table 21 also showed that the patients of Low Psychosocial Care group had experienced high overall Trauma (*M* = 44.65, *SD*= 6.65) and also scored high on the dimensions of Trauma viz. Re-Experience (*M* = 14.81, *SD*= 2.68), Emotional Numbing and Avoidance (*M* = 18.04, *SD* = 3.08) and Hyper Arousal (*M* = 11.80, *SD* 1.91). In order to verify if the difference between each group with every other group is statistically significant Tukey's HSD test were carried out.

Table 22

Tukey's HSD test of Trauma in patients who received High, Medium and Low Psychosocial Care.

	Psychosocial Care		
	High –Medium	High-Low	Medium -Low
Trauma	5.44**	6.90**	
Re-Experience	2.12**	2.86**	
Emotional Numbing & Avoidance		2.37*	
Hyper-Arousal	1.06*	1.65**	

Note: *High Psychosocial Care (n=51), Medium Psychosocial Care (n=106). Low Psychosocial Care (n=93), **p < .01, * p<.05*

Table 22 shows the results of Tukey's HSD test on scores of High, Medium and Low Psychosocial Care groups on Trauma. It may be observed from Table 22 that the High Psychosocial Care Group scored significantly higher than the Medium Psychosocial group on overall Trauma ($p< 0.01$), as well as two of its dimensions Re-experience ($p< 0.01$) and Hyper-Arousal ($p< 0.05$). There is no significant difference between these two groups on Emotional Numbing and Avoidance. It may also be noted that the High Psychosocial Care group by scoring significantly low on overall Trauma scores differed significantly from Low Psychosocial Care group ($p< 0.01$) and also all the three dimensions of Trauma that is to say Re-experience ($p< 0.01$) Emotional Numbing and Avoidance ($p< 0.05$) and Hyper Arousal ($p< 0.01$). No significant difference was seen in Low and Medium Psychosocial Care group on Trauma and its dimensions.

Figure 12 makes it very evident that the High Psychosocial Care group has experienced low Trauma not only on overall scores but also on all dimensions with its bars showing shorter heights compare to the Medium and Low psychosocial Care group. Figure 13a to 13d depict the mean plots of the three groups with differential Psychosocial Care on overall Trauma, and the dimensions of Re-experience, Emotional Numbing and Avoidance and Hyper Arousal respectively. All these graphs clearly project the upward slope of the line indicating that higher the Psychosocial Care lower the Trauma.

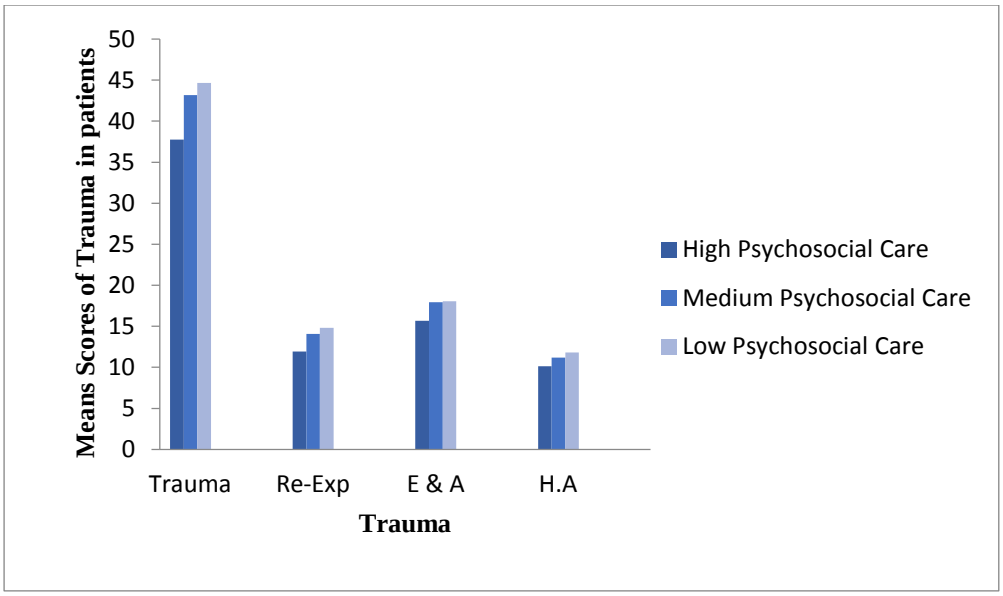

Figure -12 Graph showing the differences in Trauma among patients with High, Medium and Low Psychosocial Care

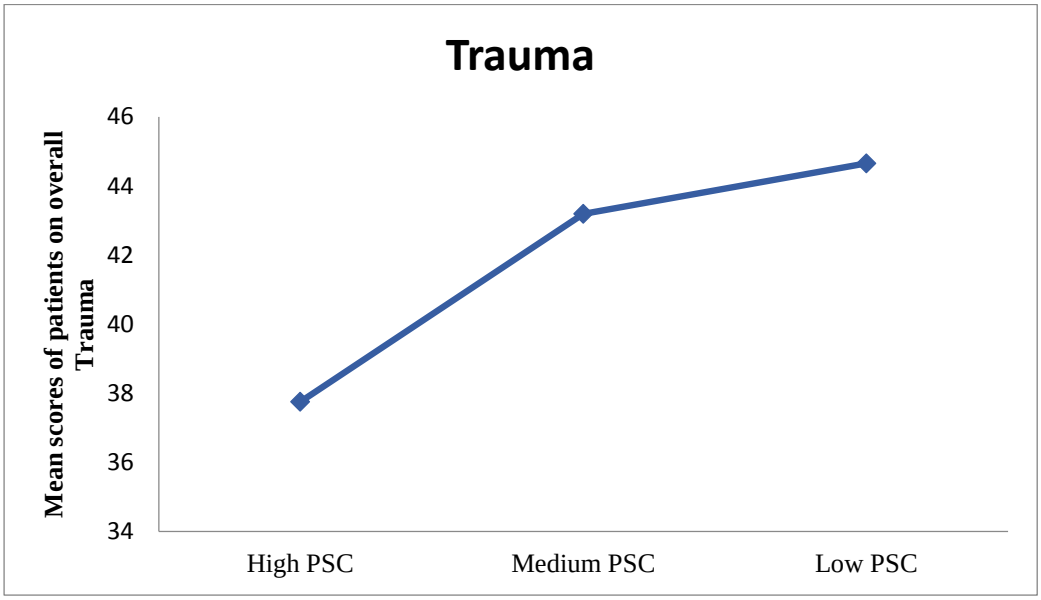

Figure 13 a Graph showing mean plots of overall Trauma in patients with High, Medium and Low Psychosocial Care

Note. PSC= Psychosocial Care

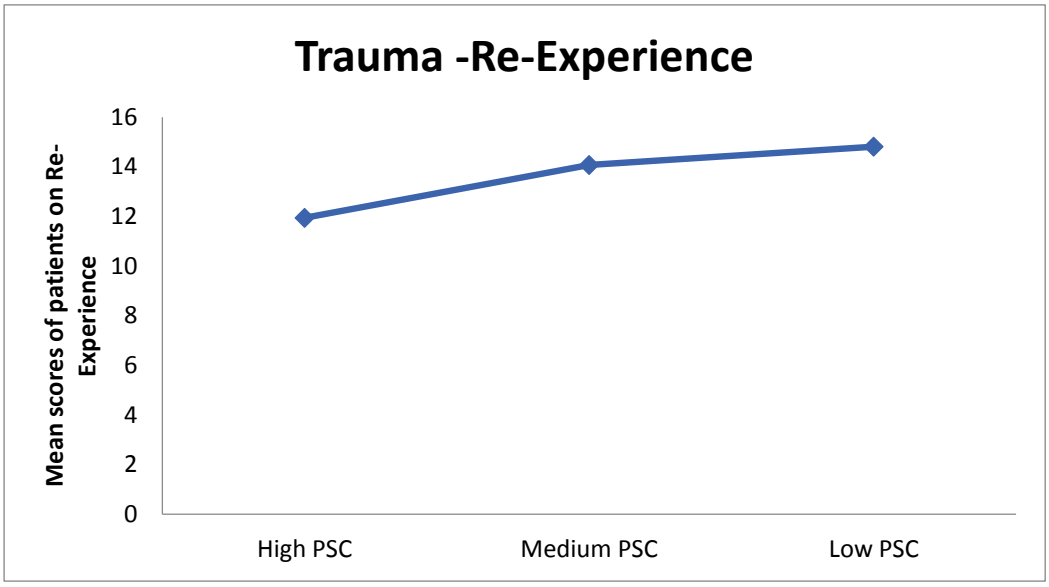

Figure 13 b Graph showing mean plots of Re Experience in patients' with High, Medium and Low Psychosocial Care
Note. PSC= Psychosocial Care

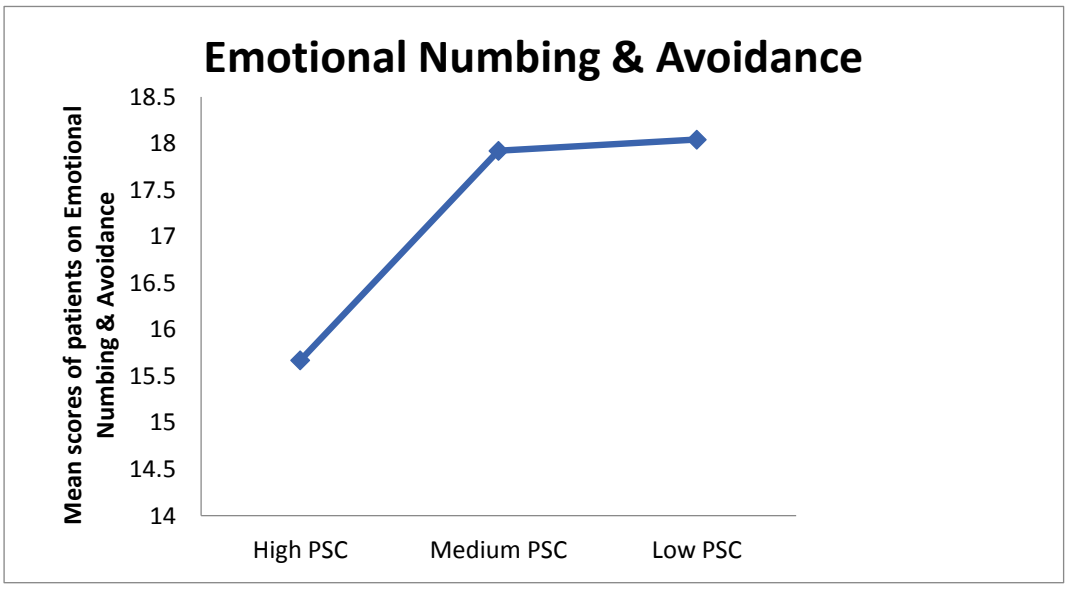

Figure 13c Graph showing mean plots of Emotional Numbing and Avoidance in patients with High, Medium and Low Psychosocial Care
Note. PSC= Psychosocial Care

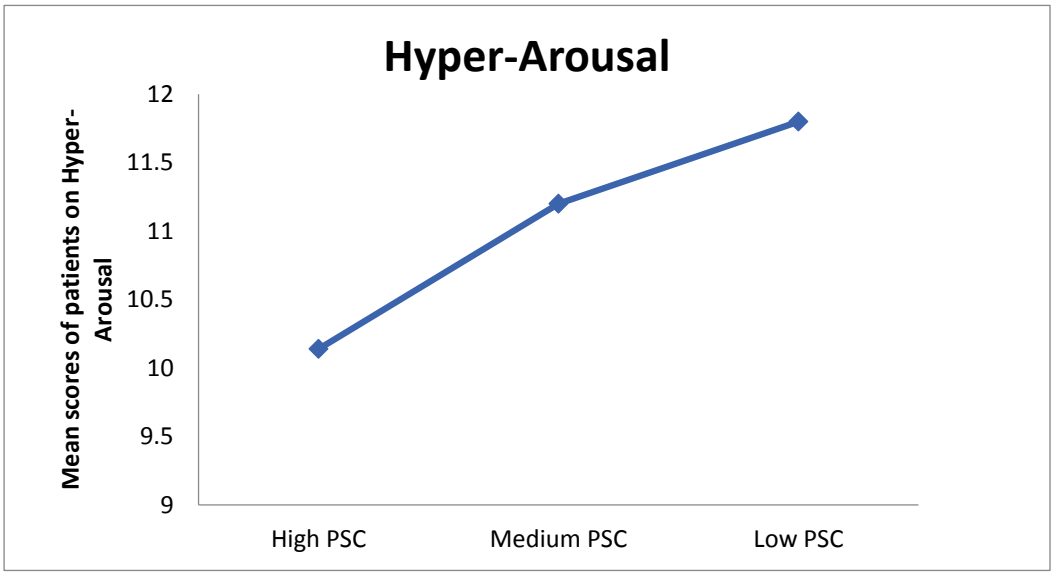

Figure 13d Graph showing mean plots of Hyper-Arousal in patients' with High, Medium and Low Psychosocial Care
Note. PSC= Psychosocial Care

The results discussed until now showed that Psychosocial Care in ICU assumed a significant role in patients' Wellbeing and Trauma. It may be of research interest to examine further the association between Psychosocial Care, ICU Trauma, Hospital Well being and ICU Quality. A Chi-Square test was done to see the distribution/association of patients in the three Qualities of ICUs based on their Psychosocial Care, Trauma and Wellbeing. A K-mean cluster analysis was used to classify patients into clusters based on their responses or scores on the Psychosocial Care, Trauma and Wellbeing. The analysis resulted in emergence of two clusters for Psychosocial Care and three each for Trauma and Wellbeing. This classification was used to find the association between the above variables viz. Psychosocial Care, ICU Trauma and Hospital Wellbeing and ICU Quality.

Association between ICU Quality and Psychosocial Care

A 2x3 Chi-Square Contingency Test for Independence was carried out to see if there was a significant association between the Psychosocial Care received by patients and the ICU Quality in which they have been treated. The results of the Chi-Square are presented in Table 23. The results revealed that out of the 250 patients, 115 received High Psychosocial Care while 135 belonged to the Low Psychosocial Care group. Further out of the 250 patients 100 each belonged to High and Medium ICU Quality while 50 belonged to Low ICU Quality. It may be observed from Table 23 that there is a significant association between the level of Psychosocial Care in patients and the ICU Quality χ^2 (2) =54.22, p <0.01, $n=250$. A further scrutiny of the table revealed that out of the 115 patients of High Psychosocial Care a significant proportion of 54 patients belonged to High ICU Quality, as against the expected frequency of 46, and 61 against 46 belonged to Medium ICU Quality. As a contrast, while 23 of 115 are expected to be treated in Low ICU Quality none of them belonged to Low ICU Quality. This suggests that high level of Psychosocial Care is closely associated with High ICU Quality. Similarly out of the 135 patients receiving Low Psychosocial Care 46 belonged to High ICU Quality as against the expected frequency of 54. As a contrast 50 belonged to Low ICU Quality while only 27 were expected to be from this group. This indicates that in Low ICU Quality patients are more likely to receive Low Psychosocial Care.

Table 23
Chi-Square showing association between the ICU Quality and Quality of Psychosocial Care

ICU Quality		Psychosocial Care		
		High Psychosocial Care	**Low Psychosocial Care**	**Total**
High ICU Quality	Count	54	46	100
	Expected Count	46	54	100
Medium ICU Quality	Count	61	39	100
	Expected Count	46	54	100
Low ICU Quality	Count	0	50	50
	Expected Count	23	27	50
Total	Count	115	135	250
	Expected Count	115	135	250
	% within hospital category	46%	54%	100%
		$\chi 2 = 54.22$**		

Note. ** $p<0.01$

The results of high association between quality of Psychosocial Care and Quality of ICU lead to further enquiry into the association between Quality of ICU and Hospital Wellbeing in patients.

Association between ICU Quality and Wellbeing

A 3X3 contingency test for independence was carried out to see if there is any association between ICU Quality and Wellbeing. The 3X3 contingency table presented in Table 24 revealed that out of the 250 patients, 36 patients belonged to

high Wellbeing group, 121 to the medium wellbeing group and 93 patients were in the low Wellbeing group. Out of the 250 patients taken into the study, 100 patients each were from the high and medium ICU Quality and 50 patients from low ICU Quality. The χ^2 computed revealed significant association between ICU Quality and Wellbeing χ^2 (2) = 5.11, p <0.01, n = 250. An in depth analysis of the results showed that out of the 36 patients with high Wellbeing 16 belonged to High ICU Quality, which is higher than the expected frequency of 14.4. It was also observed from the table that the expected (14.4) and observed (14) frequency of high Wellbeing patients in medium ICU Quality are comparable. On the contrary the frequency of high Wellbeing patients in low ICU Quality is lower (6) than the expected count (7.2). The results of the table also revealed that out of the 121medium Wellbeing patients 52 belonged to high ICU Quality, where the expected frequency was 48.4. The frequency of the medium Wellbeing patients belonging to medium ICU Quality is lower (41) than the expected frequency (48.4). On the contrary the frequency of medium Wellbeing patients in low ICU Quality is higher (28) than the expected frequency of 24.2. An interesting observation in expected lines is that out of the 93 low Wellbeing patients only 32 belonged to high ICU Quality, which is lower than the expected frequency of 37.2, in contrary 45 belonged to medium ICU Quality, which is higher than the expected frequency of 37.2. The observed frequency of medium Wellbeing in low ICU Quality is lower than the expected frequency (18.6). The above results facilitate to say that Wellbeing is an outcome of ICU Quality and a decline in the ICU Quality also decreases the patient Wellbeing. The results once again ascertain that the ICU Quality has a powerful relationship with the levels of Wellbeing in patients.

Table 24

Chi-Square showing association between the ICU Quality and patients with high, medium and low Wellbeing

		Well Being			
ICU Quality					
		High Wellbeing	**Medium Wellbeing**	**Low Wellbeing**	**Total**
High ICU Quality	Count	16	52	32	100
	Expected Count	14.4	48.4	37.2	100
Medium ICU Quality	Count	14	41	45	100
	Expected Count	14.4	48.4	37.2	100
Low ICU Quality	Count	6	28	16	50
	Expected Count	7.2	24.2	18.6	50
Total	Count	36	121	93	250
	Expected Count	36	121	93	250
		$\chi 2 = 5.11^{**}$			

Note. ** $p<0.01$

Association between ICU Quality and Trauma

A Chi square test for independence was conducted to find out the association between ICU Quality and Trauma. The 3X3 contingency of Chi square table was prepared and the results are presented in Table 25. The results showed a strong association between ICU Quality and ICU Trauma in patients χ^2 (2), =46.95 p <0.01 n=250. It may be observed from Table 25 that out of the 250 patients, 74 patients had high ICU Trauma, 85 had medium level of ICU Trauma and 91 patients had low ICU Trauma. Out of the 74 patients with high levels of ICU Trauma only 11 belonged to high ICU Quality which is significantly lower than the expected frequency of 29.6,

ascertaining once again that high ICU Quality is associated with lower ICU Trauma. It can be also observed from the table that the frequency of high ICU Trauma patients in medium ICU Quality (48) is significantly higher than the expected frequency which is 29.6. On the contrary the expected (14.8) and observed (15) frequency of high ICU Trauma patients in low ICU Quality is nearly the same. An interesting observation that can be noted from the results is that out of the 91 low ICU Trauma patients 39 each belonged to the high and medium ICU Quality, where the expected frequency was 36.4, while a small proportion of 13 low ICU Trauma patients belonged to low ICU Quality which is lower than the expected frequency of 18.2. From the above findings it is evident that patients treated in a high ICU Quality undergo lesser amount of ICU Trauma and low ICU Quality undergo higher levels of Trauma, suggesting a strong association between ICU Quality and ICU Trauma in patients.

Table 25
Chi-Square showing association between the ICU Quality and patients experiencing high, medium and low trauma

ICU Quality		**Trauma**			
		High Trauma	**Medium Trauma**	**Low Trauma**	**Total**
High ICU Quality	Count	11	50	39	100
	Expected Count	29.6	34	36.4	100
Medium ICU Quality	Count	48	13	39	100
	Expected Count	29.6	34	36.4	100
Low ICU Quality	Count	15	22	13	50
	Expected Count	14.8	17	18.2	50
Total	Count	74	85	91	250
	Expected Count	74	85	1	250
		χ^2= 46.95**			

Note. ** p<0.01

Summary of Results

The findings of the study can be summarized as follows

One of major findings of the study was a significance of Psychosocial Care in the Intensive Care Units. The results of the study not only ascertained the positive impact of Psychosocial Care on Wellbeing but also found that Psychosocial Care played a significant role in reducing psychological trauma in CABG patients.

The results also revealed that the Quality of ICU was negatively correlated with ICU Trauma i.e. enhanced ICU Quality can reduce the trauma experience in CABG patients.

Increased Psychosocial Care in ICUs enhanced Wellbeing in patients and moderated the Trauma levels. This was observed when individual hospitals were compared on their Psychosocial Care practices in their respective ICUs. The results revealed that patients treated in Intensive Care Units that provided high Psychosocial Care, reported higher Wellbeing and lower ICU Trauma.

The above findings were significant and indicated that while standard guidelines were provided to hospitals to protect the patients' rights and patient dignity, with significant reference to information and communication, hospitals were yet to create quantifiable evaluation techniques to ensure Psychosocial Care in ICUs. It was observed that ICU Care was skewed towards bio-medical care, rather than environmental and psychosocial aspects of care, which was found to have a direct effect on ICU Trauma

The ICU Quality which was assessed against the bench mark set by the standard guidelines was found to have a significant influence on the Psychosocial Care received by patients and the ICU Trauma experience.

The results revealed that ICUs which adhered to standard guidelines had better means of communication with family and patients and took necessary measures to provide the family with information regarding diagnostics, discharge, diet etc.

The findings pointed out a close association between the Quality of ICU with Psychosocial Care received by patients, Trauma experiences and Wellbeing.

Thus to summarize the results, it may be stated that Psychosocial Care emerged as a powerful predictor of ICU Trauma, Hospital Wellbeing and ICU quality.

The significance of the results is discussed in detail in the chapter that follows.

CHAPTER V

DISCUSSION

The good physician treats the disease; the great physician treats the patient who has the disease.

Sir William Osler, circa 1900

The present study was taken up with the primary objective of finding out the impact of Psychosocial Care on ICU Trauma and Hospital Wellbeing. It was hypothesized that Psychosocial Care will have a significant positive impact on the ICU Trauma and Hospital Wellbeing. The results revealed the impact of Psychosocial Care on Hospital Wellbeing and ICU Trauma in more than one way. The results of multiple regressions clearly indicated that Psychosocial Care is a powerful predictor of Hospital Wellbeing and ICU Trauma. Further the results of ANOVA clearly indicated that Psychosocial Care plays a significant role in mitigating ICU Trauma and also in enhancing Hospital Wellbeing.

What constitutes Psychosocial Care relates basically to the attitude and behavior of the middle level workers like nursing staff, and attendants. Psychosocial Care concerns to some extent with, the ethical practices like protecting the patient's privacy, obtaining oral informed concern before procedures, explaining the procedures before initiating so as to minimize, if not mitigate the anxiety, responding to non-verbal communication of the patient, and liaisoning between the patient and family. These practices do not call for specific allocation of time or funds. This can be introduced, incorporated, monitored and measured by introducing regular in-service training for the staff where they should be oriented and sensitized to the psychosocial needs of the patients. This minor intervention through a policy by the management of

hospitals will be highly beneficial both to the patient and to the management in view of the pace of recovery for the patient and reputation of the hospital. The importance of Psychosocial Care in ICU setting has been emphasized in the past research.

Wilkin et al., (2004) highlighted that clinician-patient relationship is extremely vital in a critical care setting. Supportive interventions viz. explanations, giving advice, reassuring and raising faith and hope, strengthening patients' self- esteem, giving emotional warmth, empathetic listening and empathetic touch, emotional care, and spending extra time with patients are some of the psychological and social aspect (Frazier *et al.*. 2003).

ICU care that does not include the above aspects leaves the patient anxious, disoriented, uncertain, vulnerable, unattended and perhaps unventilated and suppressed. This will have its repercussion in the form of nightmares, flashbacks, re-experience, avoidance and numbing culminating in trauma that sometimes closely resembles PTSD even after their discharge from ICU. The results of the present study corroborate with earlier findings that negative emotions, when intervened with Psychosocial Care, can prevent the immediate and long term negative impact. Negative emotions and stress have both immediate and long term effect on patients' physical and psychological wellbeing (Deja et al. 2006). Providing Psychosocial Care helps reducing negative stress and restores Wellbeing. The results of the study proved that patients who received high Psychosocial Care had higher levels of Wellbeing and lower levels of Trauma. It is important for the hospitals to reorient themselves on Psychosocial Care in view of its great contribution in mitigating Trauma and enhancing Wellbeing. Research has proved that Trauma negatively impacts convalescence (Barskova & Oesterreich, 2009) and sometimes is responsible for relapse and rehabilitation (Hudetz, Gandhi, Iqbal, Patterson, Byrne, Warltier & Pagel.,

2010). Psychosocial Care functions as prophylactic in preventing such repercussions of ICU trauma.

The findings of the study clearly indicated that Psychosocial Care is a strong predictor of hospital Well being and ICU Trauma. Thus the first hypothesis Psychosocial Care provided in ICUs will have a significant impact on ICU Trauma and Hospital Wellbeing is accepted.

The study hypothesized that hospitals will significantly differ in providing Psychosocial Care practices in ICUs. This implies that the ICUs differ in their quality. The Indian Medical Council has not made it mandatory for the hospitals to be accredited by NABH. The hospitals may or may not opt to be assessed and accredited by this body. Even among the hospitals which opt for NABH accreditation it is not binding on them to abide by all the guidelines stipulated by them. Given these circumstances the probability of Quality differences in ICUs of hospitals is very high.

The results of the study clearly revealed that the five hospitals included in the study significantly differed in the quality of Psychosocial practices adopted in ICUs. The hospitals were also found to differ significantly on each of the three of dimensions of Psychosocial Care. The study proved that the hospitals differed on aspects related to Protection of Human Dignity in ICU, factors included in liasoning between the patient undergoing treatment in ICU and the family waiting outside ICU. In addition, significant differences were also found in practices related to preventing anxiety in patients and family. Once again it is reiterated that introducing small but essential practices, such as drawing a curtain around a patient during physical examinations and private services such as sponging, attending to toilet needs and conducting procedures would go a long way in protecting and preserving the self respect of the patient. The hospitals are found to differ significantly on these aspects.

Adopting such practices calls for more of an attitudinal change and skills of empathy than any investment of finances or time. Hospitals are also found to differ significantly in connecting the patient in the ICU to the attendant family members waiting outside. Informing the family members about the condition of the patient, timings of the procedures to be done, reactions of the patients if any, the possible time for recovery and subsequent shift from the ICU helps in preventing anxiety in the family members arising out of ambiguity and uncertainty. In case the patient is conscious a feed back to the patient that the family members are present outside the ICU and that they are kept informed about everything happening to the patient will provide a sense of security and reassurance to the patient.

Unstructured interviews revealed that patients missed their families and wanted them by their side after gaining conscious in the ICU. Some of the patients expressed their fears about getting back to family and social roles. With movement restricted, verbal communication not being effective or possible, lack of privacy, ambiguity about the outcomes and deprivation of sleep, critical care patients experience high levels of vulnerability. Emotional support and providing information of what was occurring while in ICU helps to bring down the emotional distress and vulnerability (McKinley et al. 2002). The present study supports the earlier findings, reiterating that patients of hospitals who provided high Psychosocial Care experienced lower trauma of this kind.

Indian culture being highly affiliation oriented, there is a natural desire for the family to be together in times of crisis. A family member undergoing CABG and admitted into ICU is considered a major family crisis. The separation of the patient from rest of the family tends to create anxiety in both the patient and the family. Under such circumstances, reducing the anxiety in family and patients is one of the

aspects of Psychosocial Care. Research has shown that presence of family members or a support system reduces anxiety in patients. A study on perceived social support in CABG patients by Chivukula, Swain, Rana and Hariharan, (2013) found that social support functions as an effective intervention in minimizing anxiety and depression. The study referred above also endorses the fact that invasive procedures spontaneously elicit social support from significant others, and this support has a positive impact on lowering anxiety in patients.

With restriction on visiting the ICU, the family members expect continuous information about the patient's condition and prognosis. It is imperative that the nurse or the doctor on duty give complete information about the procedures done and the patient's prognosis. However, noticeable gaps in information came to the limelight in this study. Such gaps in information cause anxiety both in patients and family. A study on patient care practices in ICUs by Hariharan and Chivukula (2011) found that hospitals often claim to have provided care to patient but in reality the patients and family do not receive the expected care. The study found differences in the care claimed to have provided by the ICU staff and the care received by the patient. Such discrepancies in care practices were found in the area of information and communication, being sensitive to the needs of patients and reducing anxiety and tension in patients and family. These gaps can be handled if the hospital management endorses the need for implementation of care practices and looks into the needs of patients in a biopsychosocial perspective instead of implementing them in a mechanical routine fashion. A significant finding of the present study in the area of communication and information was that hospitals that communicated well with the patient and the family members showed higher patient Wellbeing scores. Similar observations were made by Stewart et al. (2000), who found that patient-centered care

which includes proper communication with patients and their family members had a positive impact on the patient's outcomes. This indicates that introduction of such simple practice ensured a disproportionately large benefit in terms of patient's psychological state which is a desirable outcome for the hospital.

When a patient is in ICU, the family also shows signs of psychological distress. Fear anxiety, acute stress disorder and depression (Mc Adam, 2009. Schmidt and Azoulay, 2012) are some psychological phenomenon observed in families of patients. The anxiety and stress can be handled if the ICU team constantly communicates with family members and informs them about the patient. Schaefer & Block, (2009) in their study pointed out that empathic communication, discussing prognosis with family, involving family in decision making are core elements of Quality Care in ICU. Rendering the above mentioned Psychosocial Care services require more of attitude change through training than time, and money.

The present research found that the hospitals significantly differed in this aspect. The reasons could be that all these hospitals did not give prominence to handling the anxiety and psychological distress in patients and their family. It is important to note that none of the hospitals employed a health psychologist who is trained in helping patients handle stress, anxiety, trauma and other negative effect.

Hospitals can provide high quality Psychosocial Care only when the ICUs maintain their quality. Apart from the interaction with doctors and nurses the families of patients also need some privacy. They require a place where they can wait, discuss, share their anxieties and fears with other family members and also take care of their spiritual needs. Sharing their issues with others would help them in emotional venting and drawing social support. Shared decision making may decrease family stress and help families to cope (Davidson et al. 2005). The present study found that the

hospitals scoring low on the dimension related to communication and handling anxiety and trauma did not have waiting areas, refreshing rooms and areas for lodging the grievances for the family. When the patient's family is not allocated a room or allowed into the ICU they end up waiting either in the reception area or a vacant area outside the hospital, which adds to the stress, frustration and discomfort. In such situations a waiting area would certainly help, and more so with outstation patients. Creating an exclusive place for the family of ICU patients may demand a onetime investment for the hospital, which may prove highly cost effective in view of patient satisfaction and comfort. This is one of the recommendations of the Boards that set guidelines for the hospitals and ICUs.

The five hospitals are found to be on different levels on all the aspects related to Psychosocial Care. Those hospitals which took care of the dimensions related to Psychosocial Care contributed positively in handling ICU Trauma and added to hospital Wellbeing of the patients. The second hypothesis that the hospitals will significantly differ in providing Psychosocial Care practices is accepted.

The third hypothesis of the study stated that there will be a significant difference in Psychosocial Care provided to patients belonging to different ICU qualities.

The Quality of ICU is assessed on several dimensions such as Biomedical, Environment and Psychosocial Care. Majority of hospitals included in the study were found to be abiding by the biomedical norms to the extent of more than 90% of what is laid down in the guidelines. To this extent, parity was observed among the five hospitals included in the study. What contributed to the differences between the hospitals in their ICU Qualities are factors related to Physical Environmental and Psychosocial Care practices. The results revealed that the hospitals' adoption of

environment norms in ICU ranged between 18% – 36%, while their adherence to Psychosocial Care ranged between 20%-60%. Given such wide variations in Psychosocial Care practices, those hospitals scoring high on this aspect are naturally likely to be either higher on the overall Quality of ICU or in case they lag behind on aspects related to physical environment , the higher scores on Psychosocial Care practices are likely to counter balance the loss of scores in physical environment. While physical environment is a significant factor, concern for the patients and their psychological needs (which constitutes Psychosocial Care) is responsible for regulating the physical environment, to suit the needs of the patients.

Physical environment includes ventilation, temperature, noise etc. In addition to these the significant people extending the services in ICU also contribute to the environment. Such environment plays a significant role in providing adequate rest, sleep and feeling of security which are highly essential for faster convalescence and prognosis.

Sleep is one of the most important requirements of ICU patients. Though, illness, pain and medication, are some of the causes of sleep disturbance, research has shown that the ICU environment is the primary cause of sleep disturbance. Noise from ventilators, alarms, beepers, telephones and conversations are some of the environmental causes. The artificial lights, the nursing activities such as dressing, adjustment of intravenous drips, medication administration are also some of the causes for sleep disturbance (Gabor et al., 2003). The recommendations say that the lights should be dimmed and noise levels should not exceed 35 dB during the night, but the present study revealed that none of the hospitals follow this recommended guideline. Perhaps one of the reasons for variation of light and sound between day and night is to prevent the disorientation in patients. In one of their research Bourne and

Mills, (2004) advocate efficacy of guidelines for controlling night time noise and care activities to improve patient sleep quality and outcomes.

While this was not observed by the hospitals, an undesirable practice of giving sponge bath to patients at 4 am was found to contribute to the loss of day and night orientation in patients. The patients during the unstructured interview expressed their discomfort about their sleep being disturbed in the early hours. It was found by the investigator that this practice was adopted only to accommodate the work load distribution between the nurses on day and night shifts. This is the testimony of underplaying the importance of Psychosocial Care in ICUs.

Those hospitals caring for regulating the physical environment and minimizing the interference of physical environment, to suit the psychosocial needs of patients were found to focus on Psychosocial Care. Thus the differences in providing Psychosocial Care to patients in three ICU qualities can be attributed to the differences in empathy leading to converting the environment to suit patient needs.

The hypothesis that there is a difference in the Psychosocial Care provided to the patients belonging to different Qualities of ICU is accepted.

The study hypothesized that there will be a significant difference in ICU Trauma in the patients receiving different levels of Psychosocial Care. The results of the study revealed that the patients who were clustered into high Psychosocial Care were found to be higher on hospital Wellbeing, while those belonging to lower cluster of Psychosocial Care had lower Wellbeing. The results also revealed that patients belonging to the uppermost cluster of received Psychosocial Care experienced significantly lower level of ICU Trauma compared to those in middle and lower clusters of Psychosocial Care.

ICU Trauma originates from various factors such as physical immobility, uncertainty of prognosis, external locus of control, sleep deprivation, unfavorable environment, loss of orientation, insecurity of being administered by strangers, isolation from family members, inadequate information on procedures and outcomes, critical state of other patients around, lack of emotional and social support, apprehensions about resuming normal family and social roles etc. Unstructured interviews with the patients revealed that the patients longed to have their families beside them after gaining consciousness in ICU. Under such circumstances emotional support plays a crucial role in handling the Trauma. McKinley et al., (2002) strongly argued that emotional support and providing information of what was occurring while in ICU help as a positive intervention to emotional distress and vulnerability. The findings of the present study concurred with the above finding with the results reiterating that patients receiving high levels of Psychosocial Care experience lower levels of Trauma and vice versa.

The hypothesis that there will be significant difference between patients receiving different levels of Psychosocial Care in ICU Trauma is accepted.

The hypothesis of the study stated that there will be significant difference in Hospital Wellbeing among patients receiving different levels of Psychosocial Care in ICUs. The results of the study clearly indicated that patients belonging to the top most cluster of received Psychosocial Care were found to experience higher level of Hospital Wellbeing and vice versa.

The health care delivery system has always viewed the medical and psychological health as two different entities, and ICU care is no exception. The present health care delivery is more skewed to a disease centered approach. This

disease based approach views a patient as a ‘case’ and undervalues the psychological aspects of patient care. The technology driven medical system has always focused on the disease and the psychological and socio-cultural dimensions of care are blurred to the background. When this is extended to ICU care, the patient who gets discharged from the hospital may be relieved of the symptoms for which he/she got admitted but may have lowered state of psychological wellness and also experience the trauma of ICU which in turn deprives the person of the buffering effect that wellbeing provides ensuring sound immune system. As a consequence the chances of slower recovery, relapse and re-hospitalization are high. In view of this there is a pressing need to bring about a change in the ICU policies of the hospitals as well as outlook of the health care professionals. An orientation and training in holistic care is the need of the hour. The training in holistic health care will help medical care professionals to take a ‘patient-as-person’ approach and not ‘patient-as-disease’ or organ approach (Mead & Bower, 2000). In view of the large number of surgeries and their outcomes in the ICU, hospitals could provide intermittent reinforcement in the form of in-service training programmes which could help ICU staff to reduce the psychological distress and enhance the wellbeing in patients.

The study clearly indicated that high level of Psychosocial Care played a significant role in sustaining higher levels of Wellbeing in patients admitted into ICU for CABG. The hypothesis states that there will be a significant difference in hospital Wellbeing among patients receiving different levels of Psychosocial Care is accepted.

The last hypothesis of the study states that ICU Quality will be associated with Psychosocial Care, Wellbeing and ICU Trauma in patients.

The results of the study threw light on the fact that ICU Quality is closely associated with Psychosocial Care, Wellbeing and ICU Trauma. It was found that

patients treated in High ICU Quality received good Psychosocial Care showed high levels of Wellbeing and suffered lower levels of Trauma. The reverse is found in case of patients treated in Low ICU Quality. The major finding of this study is that Psychosocial Care and ICU Quality positively contribute in enhancing wellbeing among the CABG patients. While Psychosocial Care had a significant impact both on Wellbeing and Trauma, ICU Quality was found to have a significant impact on minimizing the ICU Trauma.

A significant finding of the study is that Psychosocial Care and ICU Quality are negatively correlated with Trauma, indicating that they play a positive role in minimizing Trauma in patients. ICU Quality is indicated by a number of tangible factors related to medical intervention, the physical environmental setting, norms such as the number of beds, patient nurse ratio, availability of help in terms of time, temperature, lighting, noise level etc., and intangible factors related to the level and quality of communication with patient and family. All these factors determine the ICU experience of the patient which in turn contributes to the level of ICU Trauma. The ICU environmental conditions such as noise, light, temperature, lack of orientation of time and space, use of sedatives like benzodiazepines and lack of privacy cause ICU delirium and ICU Trauma. Reducing the light and noise levels during the night, making available a calendar and a watch, or titrating the levels of sedation (Jacobi et al., 2002, Ouimet et al., 2007) could lower ICU Trauma. All the above and the physical environment such as noise, temperature and light can be regulated easily by introducing a routine as per NABH guidelines.

Another reason for ICU Trauma is the recollection of memories and experiences in the ICU. This is by and large caused because of apprehensions induced by incomplete information, ambiguity, uncertainty and confusion that are added to the

health condition. This can only be prevented or minimized through effective Psychosocial Care. Some of these can be introduction of practices such as pre-operative preparation by giving prior information about the procedure, communicating about the outcome of the surgery, providing social support etc. This can be done through peer intervention where a person with successful history of CABG interacts with the patient prior to surgery explaining the personal experiences and the recovery process. This model may help instilling confidence and help patient cope with the uncertainty and prevent trauma, anxiety and depression which are the after effects of ICU stay.

Controlling the adverse impacts of ICU, leading to Trauma, through Psychosocial Care not only results in minimizing distress and trauma but the interaction of paramedical staff with the patients may constitute empathetic support factor for the patients undergoing treatment. Such perception of social support positively contributes to inducing and sustaining Wellbeing. This phenomenon is clearly indicated in the results of the study.

Thus the last hypothesis stating that ICU Quality will be associated with Psychosocial Care, ICU Trauma and Hospital Wellbeing and is accepted.

Conclusion

Providing extensive health services is one of the aims of health care delivery system. Enormous amounts are spent by the hospitals on the medical equipment, pathological and diagnostic services. Appointing Health Psychologists may add to the recurring cost of the hospitals, but compared to the services offered by Health Psychologists, and in terms of the outcome reflected in higher wellbeing and lower trauma, it may prove highly desirable and beneficial. Employing of a Health

Psychologist would help hospitals handle the psychosocial issues of the patients. A Health Psychologist not only provides direct intervention to the patients and their families to reduce their anxiety, trauma and enhance wellbeing but also can provide training to the medical and para-medical professionals in effective intervention through psychosocial approach to patients in hospital in general and ICU patients in particular. A multidisciplinary treatment plan which includes a Health Psychologist in the team will go a long way in providing interventions to prevent ICU trauma.

In view of available statistics improving the ICU quality through Psychosocial Care intervention will certainly be cost effective. According to the available Indian statistics in the year 2010, 47 million patients were treated for Coronary Artery Diseases. Further according to the available data 10% of Coronary Artery Disease patients undergo CABG surgery (Michaels & Chatterjee., 2002). As per the hospital norms ICU stay for 4-6 days is mandatory for CABG patients. Going by such calculation in a year about 4.7 million Indians have ICU stay for 4- 6 days after CABG. Laying emphasis on Psychosocial Care in ICUs will benefit such large population belonging to just CABG category. If it is extended to all ICUs several million of patients would reap the benefit of prevention or minimizing of ICU Trauma and optimizing on Hospital Wellbeing.

Implications

The subject of ICU Trauma and impact of Psychosocial Care is considered a virgin area of research in India. With the alarming increase in Coronary Artery Disease there is a wide scope to carry out interventional research. The study gives scope for further research in the area of ICU Care. This assumes a lot of significance in the context of India emerging as a country that is attracting medical tourism.

Intervention studies in this topic by comparing the model ICU with others varying in their levels of Psychosocial Care are necessary to drive home the positive impacts of holistic care in the ICUs. Inputs on the significance of biopsychosocial approach to the patients must form a significant part of the curriculum of medical, nursing and paramedical courses so as to make them integral part of professional training. It must be mandatory for the ICU staff to attend intermittent in-service training programmes to reinforce the significance of every aspect of Psychosocial Care practice in ICUs. These training programmes must present the case studies of patients who were victims of ICU Trauma due to neglect of holistic approach. Appointment of a Health Psychologist in ICU must be a part of the mandate of NABH. The study also implies the significance of exit meetings with the patients and the family where briefing is given not only by the surgeon but also by the Health Psychologist, Dietician and Physiotherapist.

In addition to all these the follow up or review visits of the patients must include assessment by the Health Psychologist in order to measure wellbeing, post discharge trauma and anxiety in patients.

Limitations

The study suffers from a few limitations. The first limitation of the study is that it is limited to Cardiac ICU and that too with CABG patients. Since it has not included the patients from different ICUs such as Surgical ICU, Medical ICU, Neurological ICU etc. generalization of the findings to all ICUs cannot be scientific.

The second limitation is that the study could not include Government hospitals as the number of CABG procedure is very rare because of the Government scheme for the low income population who get their surgery done in the corporate hospitals whose expenditure is met by the Government. Hence contribution of other factors related to SES on Trauma and Wellbeing could not be established concretely.

REFERENCES

REFERENCES

Adamson, H., Murgo, M., Boyle, M., Kerr, S., Crawford, M., & Elliott, D. (2004). Memories of intensive care and experiences of survivors of critical illness: an interview study. *Intensive Critical Care Nursing, 20*, 257-263.

Adrian, J., Crankshaw, D. P., Tiller, J. W. G., & Stanley, R. O. (1988). Affective, cognitive and subjective changes in patients undergoing cardiac surgery -- A preliminary report. *Anaesthesia and Intensive Care, 16*(2), 144-149.

Akansel, N., Kaymakçi, S. (2008). Effects of intensive care unit noise on patients: A study on coronary artery bypass graft surgery patients. *Journal of Clinical Nursing, 17*(12), 1581-90. doi: 10.1111/j.1365-2702.2007.02144.x.

Almerud S., Alapack R J., Fridlund B & Ekebergh M. (2007). Of vigilance and invisibility – being a patient in technologically intense environments. *Nursing in Critical Care, 12*, 151–158

Almerud, S., Alapack, R. J., Fridlund, B., Ekebergh, M. (2008). Caught in an artificial split: A phenomenological study of being a caregiver in the technologically intense environment. *Intensive and Critical Care Nursing, 24*(2), 130-136

American Heart Association (2001). Heart and stroke facts: 2001 statistical supplement. *American Heart Association*, Dallas, TX: Author.

American Psychiatric Association. (2000). Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, *Text Revision American Psychiatric Association*, Washington, DC.

Andrykowski, M.A., Manne, S.L. (2006).Are psychological interventions effective and accepted by cancer patients? I-Standards and levels of evidence. *Annals of Behavioural Medicine 32*,93–97.

Arenson B.G., Macdonald L.A., Grocott H.P., Hiebert B.M., Arora R.C. (2013).Effect of intensive care unit environment on in-hospital delirium after cardiac surgery. *Journal of Thoracic Cardiovascular Surgery. 146*(1),172-8.

Baker, C. (2004). Preventing ICU syndrome in children. *Paediatric Nursing16(10)*

Balas, M. C., Rice, M., Chaperon, C., Smith, H., Disbot, M., & Barr (2012). Management of Delirium in Critically Ill Older Adults. *Critical Care Nursing ,32*,15-26. doi: 10.4037/ccn2012480

Barskova T & Oesterreich R. (2009). Post-traumatic growth in people living with a serious medical condition and its relations to physical and mental health: a systematic review. *Disability Rehabilitation. 31*(21), 1709-33. doi: 10.1080/09638280902738441.

Bergbom, I. and Askwall, A. (2000): Nearest and dearest: A lifetime for ICU patients, *Intensive and Critical Care Nursing*, Vol 16, Issue 6, Pages 384-395

Bergmann P, Huber S, M¨achler H, Liebl E, Hinghofer-Szalkay H, Rehak P, Rigler B. (2001). The influence of medical information on the perioperative course of stress in cardiac surgery patients. *Anesthesia and Analgesia*; 93: 1093–1099.

Blumenthal JA, Lett HS, Babyak A *et al*. Depression as a risk factor for mortality after coronary artery bypass surgery. *Lancet* 2003; 362,604-09.

Bourne, R.S., Mills G.H.(2004).Sleep disruption in critically ill patients--pharmacological considerations. *Anaesthesia. 59*, (4), 374

Boykoff, N., Moieni, M and Subramanian, S. 2009. Confronting chemobrain: an in‐depth look at survivors' reports of impact on work, social networks, and health care response. *Journal of Cancer Survival, 3*(4):223‐232.

Brandrup-Wognsen G, Berggren H, Caidahl K, Karlson T, Sjoland H, Herlitz J. Predictors for recurrent chest pain and relationship to myocardial ischaemia during long-term follow-up after coronary artery bypass grafting. *European Journal of Cardiothoracic Surgery* 1997; 12,304– 11.

Broomhead L.R., Brett S.J. (2002). Clinical review: intensive care follow-up-what has it told us? *Critical Care 6* (5). 411-7.

Brorsson B, Bernstein SJ, Brook RH, Werko L. (2001). Quality of life of chronic stable angina patients 4 years after coronary angioplasty or coronary artery bypass surgery. *Journal of Internal Medicine 249,* 47– 56.

Bruce C.A.R., Donaldson S., Palmer W., Crandon I.W. (2000) Spinal injuries at the University Hospital of The West Indies. *West Indian Medical Journal* 49 :216–9.

Burg MM, Benedetto C, Rosenberg R, Soufer R. (2001).Depression prior to CABG predicts 6-month and 2-year morbidity and mortality. *Psychosomatic Medicine,63,*103.

Cameron J, Mahanonda N, Aroney C, Hayes J, McEniery P, Gardner M, et al. (1994).Outcome five years after percutaneous transluminal coronary angioplasty or coronary artery bypass grafting for significant narrowing limited to the left anterior descending coronary artery. *American Journal of Cardiology 74,*544–9.

Camp, P. (1996). Having faith: Experiencing coronary artery bypass grafting. *Journal of Cardiovascular Nursing, 10*(3), 55-64.

Carney RM, Freedland KE, Miller GE, Jaffe AS (2002): Depression as a risk factor for cardiac mortality and morbidity: a review of potential mechanisms. *Journal of Psychosomatic Research 53,*897-902.

Chaudhary, S., Sharma, S., Pawar, A. A., Kumar, B., K, Srivastava, K, Sudarsanan, S., & Singh, D. (2006). Psychological correlates of outcome after coronary artery bypass graft. *Medical Journal Armed Force India, 62*, 220-223.

Chelluri L., Im K.A., Belle S.H., et al. (2004). Long-term mortality and quality of life after prolonged mechanical ventilation. *Critical Care Medicine 32*, 61–69

Chiarchiaro, J., Olsen, M. K., Steinhauser, K. E., & Tulsky, J. A. (2013). Admission to the intensive care unit and well-being in patients with advanced chronic illness. *American Journal of Critical Care, 22*(3), 223-31. doi: 10.4037/ajcc2013346.

Chivukula, U., Swain, S., Rana, S and Hariharan, M. (2013).Perceived social support and type of cardiac procedures as modifiers of hospital anxiety and depression. *Psychological Studies, 58* (3), 242-247. DOI 10.1007/s12646-013-0199-5

Christensen, M. (2007). Noise level in a general intensive care unit: a descriptive study. *Nursing Critical Care 12* (4) 188-97

Cochran, T. M. (1984). Psychological preparation of patients for surgical procedures. *Patient Education and Counseling*: *Critical Care Medicine*, *39*(2), 371-379. doi 10.1097/CCM.0b013e3181fd66e5

Colak Z., Segotic,I., Uzun, S., Mazar,M., Ivancan, V and Majeric-Kogler,V. (2008). Health related quality of life following cardiac surgery-correlation with EuroSCORE *European Journal of Cardiothoracic Surgery, 33* (1): 72-76. doi: 10.1016/j.ejcts.2007.09.023

Connor A, Ortiz E. (2009). Staff solutions for noise reduction in the workplace. *Permanente Journal, 13*(4), 23-7.

Corrigan, I., Samuelson, K. A., Fridlund, B., & Thome, B. (2007). The meaning of post-traumatic stress-reactions following critical illness or injury and intensive care treatment. *Intensive Critical Care, 23* (4).206-215

Crandon IW, Carpenter R, McDonald A. (1994). Admissions for trauma at the University Hospital of the West Indies. *West Indian Med Journal 43*. 117–20.

Cropp, A.; Woods, L.; Raney, D. & Bredle, D. (1994). Name that tone: the proliferation of alarm sin the intensive care unit. *Chest, 105*, 1217–1220.

Cubertson, B. H., Hull, A., Strchan, M. & Scott, J. (2004). Post-traumatic stress disorder after critical illness requiring general intensive care. *Intensive Care Medicine, 30* (3), 450-455.

Czeisler *C.*, Buxton O., Khalsa C. (2005).The human circadian timing system and sleep-wake regulation. In: Kryger MH, Roth T, Dement W, eds. Principles and Practice of Sleep Medicine (pp. 375–381). Philadelphia, PA: Elsevier Saunders.

Dao T.K., Chu D., Springer J., et al. (2010).Clinical depression, posttraumatic stress disorder, and comorbid depression and posttraumatic stress disorder as risk factors for in-hospital mortality after coronary artery bypass grafting surgery. *Journal of Thoracic Cardiovascular Surgery, 140,* 606–610.

Davidson T.A., Caldwell E.S., Curtis J.R., et al. (1999).Reduced quality of life in survivors of acute respiratory distress syndrome compared with critically ill control patients. *JAMA 281,* 354–360

Davidson, J. R., Tharwani, H. M., Connor, K. M. (2002). Davidson Trauma Scale (DTS): Normative scores in the general population and effect sizes in placebo-controlled SSRI trials. *Depression and Anxiety, 15*, 75-78.

Davydow, D. S., Gifford, J. M., Desai, S. V., Needham, D. M., & Bienvenu, O. J. (2008). Posttraumatic stress disorder in general intensive care unit survivors: A systematic review. *General Hospital Psychiatry, 30(5),* 421-434. doi: 10.1016/j.genhosppsych.2008.05.006

De Vos M.L.G. (2012). Effective use of quality indicators in intensive care. *The National Intensive Care Evaluation,* Netherlands. http://arno.uvt.nl/show.cgi?fid=128149.Retrieved on 25-07-2013

Deisch P., Soukup S.M., Adams P., Wild M.C. (2000). Guided imagery: replication study using coronary artery bypass graft patients. *Nursing Clinics of North America, 35,* 417-425.

Dennis C.M., Lee R., Woodard E.K., Szalaj J.J& Walker C.A.(2010). Benefits of quiet time for neuro-intensive care patients. *Journal of Neuroscience Nursing,42* (4), 217-24.

DoeringL.V., . McGuire A.W, Rourke D. (2002).Recovering From Cardiac Surgery: What Patients Want You To Know. *American Journal of Critical Care. 11(4),* 333-343.

Dube J.A., Barth M.M., Cmiel C.A, Cutshall S.M.,Olson S.M., Sulla S.J…et al. (2008).Environmental noise sources and interventions to minimize them: A tale of 2 hospitals. *Journal of Nursing Care Quality 23*(3):216-24.

Duits, A. A., Boeke, S., Taams, M. A., Passchier, J., & Erdman, R. A. (1997). Prediction of quality of life after coronary artery bypass graft surgery: A review and evaluation of multiple, recent studies. *Psychosomatic Medicine, 59,* 257-268.

Dunn,H., Anderson, M.A &Hill, P.D. (2010). Nighttime Lighting in Intensive Care Units. *Critical Care Nursing, 30*(3), 31-37doi: 10.4037/ccn2010342.

Dyer, I. (1995). Preventing the ITU syndrome or how not to torture an ITU patient! Part 1. *Intensive and Critical Care Nursing, 11* (3), 130-13.

Ebirim, L & Tobin, M. (2011). Factors responsible for pre-operative anxiety in elective surgical patients at a university teaching hospital: A Pilot Study. *The Internet Journal of Anesthesiology, 29* (2). doi: 10.5580/1584

Ely, W., Gautam, S., Margolin, R., Francis, J., May, L., Speroff, T… et al. (2001). The impact of delirium in the intensive care unit on hospital length of stay. *Intensive Care Medicine,* (*27),* 1892-1900.

Engel, G. L. (1977). The need for a new medical model: A challenge for biomedicine. *Science New Series, 196*(4286), 129-136. JSTOR

Fava, G. A. & Sonino, N. (2008). The Biopsychosocial Model Thirty Years Later. *Journal of Psychotherapy and Psychosomatics, 77,* 1–2. doi:10.1159 / 000110052.

Field, D. (2005). The patient within the critical care environment. In K.S. Ed Adam, S. Osborne (Eds.) *Critical Care Nursing*, Oxford University Press.

Figley, C. R. (Ed.) (1985). Trauma and its Wake: The Study and Treatment of Post-Traumatic Stress Disorders. In the Psychosocial Stress Book Series. New York:

Fong, T. G., Tulebaev, S. R., & Inouye, S. K. (2009). Delirium in elderly adults: Diagnosis, prevention and treatment. *Nature Reviews Neuroscience,* 5(4), 210-220.

Fontaine, D. K., Briggs, L. P., & Pope-Smith, B. (2001). Designing humanistic critical care environments. *Critical Care Nursing Quarterly*, *24*, 21-35.

Frazier S.K., Moser D.K., O'Brien J.L., Garvin B.J., An K., Macko M. (2002).Management of anxiety after acute myocardial infarction. *Heart Lung31,*411–420.

Friesner SA, Curry DM, Moddeman GR. (2006). Comparison of two pain-management strategies during chest tube remova relaxation exercisewith opioids and opioids alone. *Heart Lung*; 35, 269–276.

Gabor, J., Cooper, A., Crombach, S., et al. (2003). Contribution of the intensive care unit environment to sleep disruption in mechanically ventilated patients and healthy subjects. *American Journal of Respiratory Critical Care*, 167 708-15.

Gallagher, R., McKinley S., Dracup K. (2004).Post discharge problems in women recovering from coronary artery bypass graft surgery. *Australian Critical Care, 17* (4) (2004), pp. 160–165

Garcia L.F., Bota P.D., De Cubber M., Vincent J.L. (2003). Long-term outcome in ICU patients: what about quality of life? *Intensive Care Med.* 29, 1286–93. doi: 10.1007/s00134-003-1875-z.

Gardner, G., Elliott, D., Gill, J., Griffin, M., & Crawford, M. (2005). Patient experiences following cardiothoracic surgery: an interview study. *European Journal of Cardiovascular Studies, 4* (3), 242-50

Gerteis, M., Edgman-Levitan, S., Daley, J., & DelBanco T. L. (1993). Through the patient's eyes: Understanding and promoting patient-centered care. *San Francisco*: Jossey-Bass Publishers

Ghashghaei, F. E., Sadeghi, M., Marandi, S. M., & Ghashghaei, S. E. (2012). Exercise-based cardiac rehabilitation improves hemodynamic responses after coronary artery bypass graft surgery, *ARYA Atherosclerosis, 7*(4), 151–156.

Girard, T. D., A. K. Shintani., Jackson, J.C., Gordon, S.M., Pun, B.T., Henderson, M.S……et al. (2007). Risk factors for post-traumatic stress disorder symptoms following critical illness requiring mechanical ventilation: A prospective cohort study. *Critical care, 11* (1).

Girard, T. D., Pandharipande, P. P., & Ely, E. W. (2008). Delirium in intensive care unit. *Critical Care, 12* (3).

Gjengedal E. (1994). Understanding a world of critical illness. A phenomenological study of the experiences of respiratory patients and their caregivers., Department of Public Health and Primary Health Care, Division for Nursing Science University of Bergen.

Gois, C.F.L., Aguillar, O.M., Santos, V, Rodriguez E.O.L. (2012). Stress factors for patients undergoing cardiac surgery. *Invest Education Enferm, 30*(3) 312-319.

Goodman, H. (1997). Patients' perceptions of their education needs in the first six weeks following discharge after cardiac surgery. *Journal of Advance Nursing 25* (6), 1241-51

Gordon, S., & Nelson, S. (2006). Moving beyond the virtue script in nursing. In S. Nelson & S. Gordon (Eds.), *The complexities of care: Nursing reconsidered* (pp. 13-29). Ithaca:Cornell University Press.

Gorin SS, Krebs P, Badr H, et al. (2012) Meta-analysis of psychosocial interventions to reduce pain in patients with cancer. *Journal Clinical Oncology 30:*539–547.

Granberg-Axell, A. I., Malmros, C. W., Bergboom, I. L. & Lundberg D.B. (2002) Intensive care unit syndrome/delirium is associated with anemia, drug therapy and duration of ventilation treatment, *Acta Anaesthesial Scand, 46*(6), pp. 726-731.

Granberg-Axell, A., Bergbom, I., Lundber, D. (2001). Clinical signs of IcU syndrome/delirium: an observational study. *Intensive and Critical Care Nursing. 17,* 2, 72-93.

Gregurek, R. (2001). Increase of frequency of post-traumatic stress disorder in disabled war veterans during prolonged stay in a rehabilitation hospital. *Croatian Medical Journal, 42*, 161–164.

Grendell, R.N. (1998). Psychosocial alterations. In: Thelan LA, Urden LD, Lough ME, Stacy KM (eds), *Critical Care Nursing. Diagnosis and Management*, 3rd edn. St. Louis, MI: Mosby.

Griffiths R.D., Jones C. (2007).Seven lessons from 20 years of follow-up of intensive care unit survivors. *Current Opinion Critical Care. (13)*508-13.

Griffith, R.D. & Jones, C. (2005). Delirium and confusion: more than ICU-syndrome. In Ridley, S. (Ed.). *The Psychological Challenges of Intensive Care*. Oxford: Blackwell Publishing Ltd. 28–39

Griffiths R.D & Jones C. (1999). Recovery from intensive care. *British Medical Journal 14,* 319(7207), 427-9

Gruen, W. (1975). Effects of brief psychotherapy during the hospitalisation period on the recovery process in heart attacks. *Journal of Consultant Clinical Psychology, 43,* 223-232.

Gupta, R. (2005). Burden of coronary heart disease in India. *Indian Heart* J*ournal*, *57,*632–8.

Halm, M. A. & Alpen, M. A. (1993). The impact of technology on patients and families. *Nursing clinics of North America, 28*(2), 443–457.

Hariharan, M., & Chivukula, U. (2011). Patient Care in Intensive Care Units (ICUs): Biopsychosocial Assessment. *Journal of Indian Health Psychology, 5*(2), 25-35.

Hawthorne, M. (1990). *An interpretive study of the metaphors male coronary artery surgery patients use to describe the surgical experience.* Unpublished qualitative study, Adelphi university.

Heidelberg Medical Services (2012). JCI Accredited Hospitals in India. http://www.heidelbergmedical.com/featured-articles/114/jci-accredited-hospitals-in-india

Heijmeriks, J. A., Dassen, W., Prenger, K., & Wellens, H. J. J. (2000). The incidence and consequences of mental disturbances in elderly patients post cardiac surgery-comparison with younger patients. *Clinical Cardiology, 23* (7), 540-546 DOI: 10.1002/clc.4960230714

Henriksen, J., & Vetlesen, A. J. (2000). The ethic of caring: Ontology, values and ethical theories in working with human beings. København: Hans Reitzel.

Herdegen, J. J. (2002). Intensive Care Unit sleep disruption: Can the cycle be restored? *Critical Care Medicine, 30,*709–710.

Hobbs, J. L. (2009). A dimensional analysis of patient-centered care. *Nursing Research, 58*(1), 52-62.

Hobfoll , S.E. (2001). The Influence of Culture, Community, and the Nested-Self in the Stress Process: Advancing Conservation of Resources Theory. *Applied Psychology 50*, (3), 337-421.

Hofhuis JG, Spronk PE, van Stel HF, Schrijvers GJ, Rommes JH, Bakker J. 2008 The impact of critical illness on perceived health-related quality of life during ICU treatment, hospital stay, and after hospital discharge: a long-term follow-up study. *Chest.133(2)*:377-85. Epub

Holland , J.C., Andersen,B., Brietbart W.S., Compas, B., Dudley, M.M., Fleishman, S., ….et al. (2010). Distress management, clinical practice guidelines on oncology. *The NCCN 8*, 448-485.

Hsu, S.M., Ko, W.J., Liao, W.C., Huang, S.J., Chen, R.J., Li, C.Y., Hwang, S.L. 2010. Associations of exposure to noise with physiological and psychological outcomes among post-cardiac surgery patients in ICUs. *Clinics, 65*(10), 985-989. DOI:10.1590/S1807-59322010001000011

Hudetz, J.A., Gandhi, S.D., Iqbal, Z., Patterson, K.M., Byrne, A.J., Warltier., D.C, Pagel, P.S.(2010). History of post-traumatic stress disorder is associated with impaired neuropsychometric performance after coronary artery surgery. *Journal of Cardiothoracic Vascular Anesthesia24* (6):964-8. doi: 10.1053/j.jvca.2010.02.019.

Hund E.F., Fogel W., Krieger D., et al. (1996). Critical illness polyneuropathy: Clinical finding and outcomes of a frequent cause of neuromuscular weaning failure. *Critical Care Medicine. 24.*1328-1333

Hupcey, J. E. (2001). The mean of social supports for the critically ill patient. Intensive and *Critical Care Nursing, 17*, 206-212.

Hwang SL, Chang Y, Ko WJ, Lee MB. (1998). Stress-reducing effect of physician's tape-recorded support on cardiac surgical patients in the intensive care unit. *Journal of the Formosan Medical Association*; 97: 191–196.

IBM Corp. Released. (2011). IBM SPSS Statistics for Windows, Version 19.0. Armonk, NY: IBM Corp.

Indian Cardiac Surgery (2011). http://www.indiancardiacsurgery.com/

Indian Society of Critical Care Medicine. (2010). ICU Planning and Designing in India-Guidelines 2010. http://www.isccm.org/

Inouye, S.K., van Dyck C.H., Alessi C.A., et al. (1990).Clarifying confusion: the confusion assessment method. A new method for detection of delirium. *Annals of Internal Medicine. 113*.941–948.

Institute of Medicine (IOM). (2004). Keeping patients safe: Transforming the work environment of nurses. Washington, DC: National Academy Press.

Institute of Medicine Report: Recognizing Psychosocial Health Needs to Treat the Whole Patient. (2008). *Journal of Oncology Practice 4*(3) doi: 10.1200/JOP.0833003

Institute of Medicine, (2001). *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, D.C.: *National Academies Press.* Retrieved from http://www.iom.edu.np

Intensive Care Medicine (2012).Annual update in intensive care and emergency medicine. *Springer 27.* Retrieved from http://link.springer.com/journal/134

Intensive Care Society. (2011). Guidelines and Standards. http://www.ics.ac.uk/ics-homepage/guidelines-standards/Retreived on 28, June 2013.

Jackson, J. C., Hart, R. P., Gordon, S. M., Girard, T. D., & Ely, E. W. (2007). Post-traumatic stress disorder and post-traumatic stress symptoms following critical illness in medical intensive care unit patients: Assessing the magnitude of the problem. *Critical Care, 11*(1).

Jackson, J. C., Mitchell, N., and Hopkins, R. O. (2009). Cognitive functioning, mental health and quality of life in ICU survivors: An overview. *Critical Care Clinic, 25,* 615-628.

Jackson, J. C., Obremskey, W., Bauer, R., Greevy, R., Cotton, B. A., Anderson, V., Song,V & Ely, E.W. (2007). Long-term cognitive, emotional, and functional outcomes in trauma intensive care unit survivors without intracranial hemorrhage. *Journal of Trauma, 62* (1), 80-88.

Jacobi, J., Fraser, G. L., Coursin, D. B., Riker, R. R., Fontaine, D & Coplin, W. M. (2002). Clinical practice guidelines for the sustained use of sedatives and analgesics in the critically ill adult. *Critical Care Medicine, 30,*119–141. doi: 10.1097/00003246-200201000-00020.

Johansson L & Fjellman–Wiklund A (2005). Ventilated patients' experiences of body awareness at an intensive care unit. *Advanced in physiotherapy, 7,154*–161.

Johnson P., St John ,W & Moyle, W. (2006). Long-term mechanical ventilation in a critical care unit: existing in an uneveryday world. *Journal of Advanced Nursing*, 53, 551–558.

Joint Commission International Accreditation Standards for hospitals (4th Ed) (2010). Joint Commission International. Retrieved from http://www.jointcommissioninternational.org.

Joint Commission on Accreditation of Healthcare Organizations (2002). *Health care at the crossroad: Strategies for addressing the evolving nursing crisis*. Oakbrook Terrace, IL: Joint Commission on Accreditation of Healthcare Organizations.

Jones C., Backman C., Capuzzo M., Flaatten H., Rylander C, Griffiths R.D. (2007). Precipitants of post-traumatic stress disorder following intensive care: a hypothesis generating study of diversity in care. *Intensive Care Medicine, 33*,978-985.

Jones, C., Bäckman, C., Capuzzo, M., Egerod, I., Flaatten, H & Rachel. (2010). Intensive care diaries reduce new onset post traumatic stress disorder following critical illness: A randomised, controlled trial. *Critical Care, 14*(68) doi: 10.1186/cc9260

Jones, C., Griffiths, R. D., Humphris, G. (2000). Disturbed memory and amnesia related to Intensive Care. *Memory, 8, 79*-94.

Jones, C., Griffiths, R. D., Humphris, G., Skirrow, P. M. (2001). Memory, delusions, and the development of acute posttraumatic stress disorder-related symptoms after intensive care. *Critical Care Medicine, 29*(3), 573-80.

Kahn, D. M., Cook, T. E., & Carlisle, C. C. (1998). Identification and modification of environmental noise in an ICU setting. *Chest, 114*, 535-40.

Kamdar, B. B., Needham, D. M., Collop, N. A. (2012). Sleep deprivation in critical illness: Its role in physical and psychological recovery. *Journal of Intensive Care Medicine, 27*(2), 97-111. doi: 10.1177/0885066610394322.

Kangas M., Bovbjerg D.H & Montgomery G (2008) Cancer-related fatigue: A systematic and meta-analytic review of non-pharmacological therapies for cancer patients. *Psychol Bull 134:700–741.*

King K, Jensen L. (1994). Preserving the self: women having cardiac surgery. *Heart Lung 23*, 99-105.

King, K., & Parrinello, K. (1988). Patient perceptions of recovery from coronary artery bypass grafting after discharge from the hospital. *Heart & Lung, 17*(6), 708-715.

Kissane, D.W., Bylund C.L., Banerjee S.C, et al.*(2012)* Communication skills training for oncology professionals. *Journal of Clinical Oncology 30.* 1242–1247.

Koduganti, S. C., Hiremath, S., Tiwari, S., Raghu, T. R., Kahali, D., & Dani, S. (2006) Coronary intervention data in India for the year 2005. *Indian Heart Journal 58,* 279-81.

Koshy, G.,Wilkinson, A., Harmsworth, A., & Waldmann, C. S. (1997). Intensive care unit follow-up program at a district general hospital. *Intensive Care Medicine, 23*, 160.

Laitinen, H. (1996). Patients' experience of confusion in the intensive care unit following cardiac surgery. *Intensive and Critical Care Nursing, 12*, 79-83.

Lat, I., McMillian, W., Taylor, S., Janzen, J. M., Papadopoulos, S., & Korth, L., et al. (2009). The impact of delirium on clinical outcomes in mechanically ventilated surgical and trauma patients. *Critical Care Medicine,* 37(6), 1898-1905.

Levey, R. E., Dieter, R. A., Preston, J. C., Smith, P. M., and Levey, T. L. (2005). Psychological needs of coronary artery bypass surgery patients. http://www.fac.org.ar/scvc/llave/surgery/levey1/levey1i.htm

Lin, H. and Bauer-Wu, S. 2003. Psycho-spiritual well-being in patients with advanced cancer: an integrative review of the literature. *Journal of Advanced Nursing, 44*(1),69-80.

Lin, H. and Bauer-Wu, S. 2003. Psycho-spiritual well-being in patients with advanced cancer: an integrative review of the literature. *Journal of Advanced Nursing*, *44*(1), 69-80.

Linden W., Stossel C, & Maurice J. (1996).Psychosocial interventions for patients with coronary

Lindsay, G., Smith, L. N., Hanlon, P., Wheatley, D. J. (2000). Coronary artery disease patients' perception of their health and expectations of benefit following coronary artery bypass grafting. *Journal of Advanced Nursing, 32,* 1412–21.

Lip, G. Y., & Metcalfe, M. J. (1994). Have we identified the factors affecting prognosis following coronary artery bypass surgery? *British Journal of Clinical Practice, 48,* 317-322.

Lockhart, I.A. & Berard, R.M.F. 2001. Psychological vulnerability and resilience to emotional distress: a focus group study of adolescent cancer patients. *International Journal of Adolescent Medicine and Health*, 13(3):221-229.

Lopez,V., Sek Ying,C., Poon, C.Y & Wai,Y.(2007). Physical, psychological and social recovery patterns after coronary artery bypass graft surgery: a prospective repeated measures questionnaire survey. *International Journal of Nursing Studies. 44* (8), 1303-15

Lukkarinen, H. (1999). Life course of people with coronary artery disease. *Journal of Clinical Nursing, 8,* 701-711.

Lusk B, Lash AA. (2005). The stress response, psychoneuroimmunology, and stress among ICU patients. *Dimensions of Critical Care Nursing*; 24: 25–31.

Luttik, M. L., Jaarsma, T., Sanderman, R., & Fleer, J. (2011). Advisory brought to practice: Routine screening on depression (and anxiety) in coronary heart disease; consequences and implications. *European Journal of Cardiovascular Nursing, 10*(4), 228-33. doi: 10.1016/j.ejcnurse.2010.08.005

Lykkegaard, K., & Delmar.C. (2013). A threat to the understanding of oneself: Intensive care patients' experiences of dependency. *International Journal of Qualitative Studies on Health Well-being, 8*. doi: 10.3402/qhw.v8i0.20934

Mansingh A, Ramphal P.(1993) The nature of interpersonal violence in Jamaica and its strain on the National Health System. *West Indian Medical Journal*. *(42),* 53–6.

Margolies, L. (2010). Understanding the Effects of Trauma: Post-traumatic Stress Disorder (PTSD). *Psych Central*. Retrieved on July 22, 2013, from

http://psychcentral.com/lib/understanding-the-effects-of-trauma-post-traumatic-stress-disorder-ptsd/0003971

McAdams, C. R., & Keener, H. J. (2008). Preparation, action, recovery: A conceptual framework for counselor preparation and response in client crises. *Journal of Counseling & Development, 86,* 388- 398.

McFarlane M. (1995). Management of penetrating abdominal injuries. *West Indian Medical Journal* 44:140–2.

McGann, G. (2011). Unintended consequences of critical care technology. *Medscape*

McKegney F. P. (1966). The intensive care syndrome. The definition, treatment and prevention of a new "disease of medical progress". *Conn Med,* **30,** 633–636.

McKegney F. P. (1966). The intensive care syndrome. The definition, treatment and prevention of a new "disease of medical progress". *Conn Med,* **30,** 633–636.

McKhann, G.M., Borowicz, L.M., Goldsborough, M.A., Enger, C.I & Selnes, O.A.(19970 Depresion and cognitive decline after coronary artery bypass grafting *The Lancet, 349* 1282–1284

McKinley S., Stein-Parbury J., Chehelnabi J& Lovas.J. (2004). Assessment of anxiety in intensive care patients by using the faces anxiety scale. *American Journal of Critical care 13 (2)*

McKinley, S., Nagy, S., Stein-Parbury, J., Bramwell, M., and Hudson, J. (2002).Vulnerability and security in seriously ill patients in intensive care. *Intensive Crit*ical *Care Nursing, 18*(1), 27-36.

McLaughlin, A., McLaughlin, B., Elliott, J., & Campalani, G. (1996). Noise levels in a cardiac surgical intensive care unit: A preliminary study conducted in secret. *Intensive Critical Care Nursing*, *12*(4), 226-230.

McWhinney I. (1989). The need for a transformed clinical method. In Stewart M, Roter D, (Ed.). Communicating with Medical Patients. London. Sage.

Mead, N., & Bower, P. (2000). Patient- centeredness: A conceptual framework and review of the empirical literature. *Social Science Medicine, 51*(7), 1087-110. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/11005395

Michaels, A.D., & Chatterjee, K. (2002). Angioplasty Versus Bypass Surgery for Coronary Artery Disease. *Circulation, 106*, e187-e190. doi: 10.1161/ 01.CIR.0000044747.37349.64

Milette , I. (2010). Decreasing noise level in our NICU: The impact of a noise awareness educational program. *Advanced Neonatal Care, 10* (6), 343-51.

Miller, M. O. (2008). Evaluation and management of delirium in hospitalized older patients. *American Family Physician, 78*(11), 1265-1270.

Moini M., Rezaishiraz, H., Zafarghandi M.R. (2000) Characteristics and outcome of injured patients treated in urban trauma centers in Iran. *Journal of Trauma* 48,503–7.

Mojoyinola,J.K & Mayangunna, J.A. (2009). Impact of emotional reactions on patient' recovery from physical illness: Implications for the medical social workers. *Ethnomed, 4* (2), 139-144

Moore, S. (1994). Development of discharge information for recovery after coronary artery bypass surgery. *Applied Nursing Research, 7*(4), 170-177.

Morrison, W. E., Haas, E. C., Shaffner, D. H., Garrett, E. S., & Fackler, J. C. (2003). Noise, stress, and annoyance in a pediatric intensive care unit. *Critical Care Medicine, 3,* 1113-9. doi 10.1097/00003246-200301000-00018

Moser, D.K., Dracup, K. (1995). Is anxiety early after myocardial infarction associated with subsequent ischemic and arrhythmic events? *Psychosomatic Medicine, 58*, 395–401.

Munro, C. L. (2010). The “Lady With the Lamp” Illuminates Critical Care Today. American *Journal of Critical Care, 19* (4), 315-317. doi: 10.4037/ajcc2010228

Murphy, B. M., Elliott, P. C., Higgins, R. O., Le Grande, M. R., Worcester, M. U. & Tatoulis, J. (2008). Anxiety and depression after coronary artery bypass graft surgery: most get better, some get worse. *European Journal of Cardiovascular Prevention and Rehabilitation, 15* (4), 434-40. doi: 10.1097/HJR.0b013e3282fbc945.

Myhren, H., Ekeberg, O., Tojen, K., Karlsson, S., & Stokland, O. (2010). Posttraumatic stress, anxiety and depression symptoms in patients during the first year post intensive care unit discharge. *Critical Care 14* (1) doi: 10.1186/cc8870

National Accreditation Board for Hospitals & Healthcare Providers. (2012). NABH Accredited Hospitals. Retrieved on July 4, 2013 from http://nabh.co/main/hospitals/accredited.asp

National Health Service. (2008) Direct Quote from Http://Www.Nhsdirect.Nhs.UK/Articles/Article.Aspx .

NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines) http://www.nccn.org/professionals/physician_gls/f_guidelines_nojava.asp

Needham, D.M., Korupolu, R., Zanni, J.M., Pradhan, P., Colantuon, E., Palme, J.B., et al. (2010) Early Physical Medicine and Rehabilitation for Patients With Acute Respiratory Failure: A Quality Improvement Project. *Archives of Physical Medicine and Rehabilitation.91* (4):536–542.

Neelon V.J, Champagne M.T, Carlson JR, Funk SG. (1996). The NEECHAM Confusion Scale: construction, validation, and clinical testing. *Nursing Research 45*,324-330

Neo CarDiabCare. (2012). Alarming statistics from India. *Neo CarDiab Care*. Ahmedabad, India http://neocardiabcare.com/alarming-statistics-india.html, Retrieved on 22, July,2013.

Nightingale, F. (1859). Notes on Nursing: What it is, and what it is not. Lippincott Williams & Wilkins. United States of America

Ouimet, S., Kavanagh, B. P., Gottfried, S. B., … et al. (2007). Incidence, risk factors and consequences of ICU delirium. *Intensive Care Medicine, 33*(1), 66–73.

Pandharipande P., Cotton BA., Shintani A., Thompson J., Pun B.T., Morris J.A Jr., Dittus R., Ely E.W. (2008). Prevalence and risk factors for development of delirium in surgical and trauma intensive care unit patients. *Journal of Trauma 65* (1) 34-41, doi: 10.1097/TA.0b013e31814b2c4d.

Pearlman, L. A., & Saakvitne, K. W. (1995). Trauma and the Therapist. New York: Norton.

Peris, A., Bonizzoli., Iozzelli, D., Migliaccio, D. L., Zagli, G., & Belloni, L. (2011). Early intra-intensive care unit psychological intervention promotes recovery from post traumatic stress disorders, anxiety and depression symptoms in critically ill patients. *Critical Care, 15,* (41).

Pisani, M.A. (2008). Delirium Assessment in the intensive care unit: patient population matters. *Critical care, 12,* (2). 131 doi:10.1186/cc6847

Plach, S., & Heidrich, S. (2002). Social role quality, physical health, and psychological wellbeing in women after heart surgery. *Research in Nursing & Health, 25,* 189-202.

Pugh, R.L. (2007). Impact of noise on the intensive care unit. *Critical & Emergency Care* http://ihe-online.com/fileadmin/artimg/the-impact-of-noise-in-the-intensive-care-unit.pdf. Retrieved on 15-7-2013.

Pun B.T., Gordon S.M., Peterson J.F Shintani A.k., Jackson J.C., Foss.J……. et al. (2005) Large-scale implementation of sedation and delirium monitoring in the intensive care unit: A report from two medical centers. *Critical Care Medicine. 33*.1199–1205.

Qutub H .O. & El-Said K.F. (2009) Assessment of ambient noise levels in the intensive care unit of a university hospital. *Journal of Family and Community Medicine 16*(2)53-57.

Rajendran,A.J., Manoj, S., Karthikeyan, D & Davis,S. (2004). Cardiac Rehabilitation For CABG Patients in South Indian Setup : A Prospective Study. *IJPMR, 15,* 23-33

Rattray J.E & Hull A.M. (2008). Emotional outcome after intensive care: literature review. *Journal of Advance Nursing , 64* 2-13.

Rea M.S., Bierman A., Gifueiro M.G., Bullough J.D. (*2008*).A new approach to understanding the impact of circadian disruption on human health. *Journal Circadian Rhythms*. *6* (7).

Redeker, N. S., Ruggiero J. S., & Hedges, C. (2004). Sleep is related to physical function and emotional well-being after cardiac surgery. *Nursing Research, 53*(3), 154-62.

Richard, J. C., Hekler, D. B., Idler, E. B., Ellen. L., Tanya, M. S., Erich, W. L., & Tyrone, K. J. (2008). Psychosocial factors in heart surgery: pre-surgical vulnerability and postsurgical recovery. *Health Psychology, 7*(3), 309-319. doi: 10.1037/0278-6133.27.3.309

Rincon, H. G., Granados, M., Unutzer, J., Gomez, M., Duran, R., Badiel, M., Salas, C., Martinez, J., Mejia, J., Ordoñez ,C., Florez, N., Rosso, F., & Echeverri, P. (2001). Prevalence, detection and treatment of anxiety, depression, and delirium in the adult critical care unit. *Psychosomatics, 42*(5), 391-6.

Ringdal, M., Plos, K., Lundberg, D., Johansson, L., & Bergbom, I. (2009). Outcome after injury: memories, health-related quality of life, anxiety, and symptoms of depression after intensive care. *The Journal of Trauma, 66*(4), 1226-33. doi:10.1097/TA.0b0 13e318181b8e3.

Roach, G. W., Kanchuger, M., Mangano, C. M., Newman, M., Nussmeier, N., Wolman R, et al. (1996). Adverse cerebral outcomes after coronary bypass surgery: Multicenter Study of Perioperative Ischemia Research Group and the Ischemia Research and

Education Foundation Investigators. *The New England Journal of Medicine, 335*, 1857-63.

Robinson, B. R., Mueller, E. W., Henson, K., Branson, R. D., Barsoum, S., & Tsuei, B. J. (2008). An analgesia-delirium-sedation protocol for critically ill trauma patients reduces ventilator days and hospital length of stay. *Journal of Trauma-Injury Infection & Critical Care*, 65(3), 517-526.

Rompaey, B. V., Elseviers, M. M., Marieke, J., Schuurmans, M. J., Baggett, L. M. S., Truijen, S., & Bossaert, L.(2009). Risk factors for delirium in intensive care patients: A prospective cohort study. *Critical Care 13(3).* doi: 10.1186/cc7892

Rotondi, A.J., Chelluri, L.,Sirio, C., Mendelsohn, A., Schulz, R.,Steven, B.,Kelly, I.,Donahoe, M. & Pinsky, M.R. (2002). Patient's recollections of stressful experiences while receiving prolonged mechanical ventilation in an intensive care unit. *Critical Care Medicine, 30*, (4), 746–752.

Rudy, E. B., Daly, B. J., Douglas, S., Montenegro, H. D., Song, R., & Dyer M. A. (1995). Patient outcomes for the chronically critically ill: special care unit versus intensive care unit. *Nursing Research Journal, 44*(6).

Russell, S. (1999). An exploratory study of patients' perceptions, memories and experiences of an intensive care unit, *Journal of Advanced Nursing, 29,* (4), 783–791.

Ryherd, E.E., Persson Waye, K., & Ljungkvist, L. (2008). Characterizing noise and perceived work environment in a neurological critical care unit. *Journal of the Acoustical Society of America, 123,* 747-756. doi:10.1121/1.2822661

Samuelson, K. A. M. (2011). Unpleasant and pleasant memories of intensive care in adult mechanically ventilated patients-Findings from 250 interviews. *Intensive Critical Care Nursing, 27(2),* 76–84.

Samuelson, K. A., Lundberg, D., & Fridlund, B. (2007) Stressful memories and psychological distress in adult mechanically ventilated intensive care patients – A 2-month follow-up study. *Acta Anaesthesiologica Scandinavica, 51*(6), 671-8.

Samuelson. (2006). Sedation during mechanical ventilation in intensive care: sedation practices and patients′ memories, stressful experiences and psychological distress. Lund University, Sweden, Lund.

Schaefer, K.G., Block, S.D. (2009). Physician communication with families in the ICU: Evidence-based strategies for improvement. *Current Opinion Critical Care* 15*1–9.*

Scheidt, S. (1996). A whirlwind tour of cardiology for the mental health professional. In R. Allan, & S. Scheidt, (Eds.), Heart and mind: The practice of cardiac psychology (pp. 15-62). Washington, DC: *American Psychological Association.*

Schelling G, Stoll C., Vogelmeier C., et al. (2000).Pulmonary function and health-related quality of life in a sample of long-term survivors of the acute respiratory distress syndrome. *Intensive Care* Medicine 26,1304–1311

Schelling, G., Richter, M., Roozendaal, B., Rothenhausler, H.B., Krauseneck, T., Stoll, C., et al.(2003). Exposure to high stress in the intensive care unit may have negative effects on health-related quality-of-life outcomes after cardiac surgery. *Critical Care Medicine, 31*(7), 1971-1980.

Schelling, G., Stoll, C., Kapfhammer, H. P., Rothenhäusler, H. B., Krauseneck, T., Durst, K……., et al. (1999). The effect of stress doses of hydrocortisone during septic shock on posttraumatic stress disorder and health-related quality of life in survivors. *Critical Care Medicine, 27(12),* 2678-83.

Schmidt, M., & Azoulay, E. (2012). Having a loved one in the ICU: The forgotten family. *Current Opinion in Critical Care, 18*(5), 540-547. doi:10.1097/MCC. 0b013e328357f141.

Schnyder, U., Mörgeli, H., Nigg, C., Klaghofer, R., Renner, N., Trentz, O.(2000). Early psychological reactions to life-threatening injuries. *Critical Care Medicine, 28*(1), 86-92.

Schulz, R., Williamson, G.M., Knapp, J.E., Bookwala, J., Lave, J & Fello, M. *(1995*). The psychological, social, and economic impact of illness among patients with recurrent cancer. *Journal of Psychosocial Oncology 13*, 21–45.

Schweickert W, Pohlman M, Pohlman A, Nigos C, Pawlik A, Esbrook C, et al. (2009).Early physical and occupational therapy in mechanically ventilated, critically ill patients: a randomised controlled trial. *Lancet*. 373:1874–1882.

Scragg P., Jones A., Fauvel N. (2001). Psychological problems following ICU treatment. *Anaesthesia. 5*,9–14. doi: 10.1046/j.1365-2044.2001.01714.x.

Selnes, O., Grega, M. A., Borowicz, L. M., Barry, S., Scott, Z., & McKann, A. (2004). Self-reported memory symptoms with coronary artery disease: A prospective study of CABG patients and non-surgical controls. *Cognitive Behaviour Neurology, 148–56.*

Shih, F.J., Chu, S.H., Yu, P.J., Hu, W.Y., Huang, G.S. (1997). Turning points of recovery from cardiac surgery during the intensive care unit transition. *Heart & Lung, 26* (2), 99–108

Skirrow, P., Christina, J. C., Griffiths, D., & Kaney, S. (2001). Intensive care- easing the trauma. *The Psychologist, 14*(12).

Stewart, M., Brown, J.B., Donner, A., McWhinney, I.R., Oates, J., Weston, W.W., et al. (2000). The impact of patient-centered care on outcomes. *Journal of Family Practice, 49*, 796-804.

Sundquist, K. and Yee, L. 2003. Sexuality and body image after cancer. *Australian Family Physician, 32* (1/2)19-22.

Sundquist, K. and Yee, L. 2003. Sexuality and body image after cancer. *Australian Family Physician, 3*2 (1/2)19-22.

The Swedish Society of Anaesthesia and Intensive Care (SFAI, 2008) http://www.ssai.info/organisation/national-societies.html

Tamburri L, DiBrienza R, Zozula R, Redeker N. (2004). Nocturnal care interactions with patients in critical care units. *American Journalof Critical Care*. *13* (2): *102*–115.

Taylor-Ford, R., Catlin, A., & LaPlante, M. (2008). Effect of a noise reduction program on a medical-surgical unit. *Clinical Nursing Research 17*(2), 74-88.

Tembo, A. C., & Parker, V. (2005). Factors that impact on sleep in intensive care patients. *Intensive Critical Care Nursing, 25*(6), 314-22. doi: 10.1016/j.iccn.2009.07.002

Tembo, A. C., Parker, V., & Higgins, I. (2013).The experience of sleep deprivation in intensive care patients: Findings from a larger hermeneutic phenomenological study. *Intensive and Critical Care Nursing*,

Tennant, R., Hiller, L., Fishwick, R., Joseph, S., Weich, S., & Stewart-Brown, S. (2007). Warwick Edinburg Mental Wellbeing Scale (WEMWS): Development and UK Validation. *Health and Quality of Life Outcomes, 5* (63). doi 10.1186-1477-7525-5-6

The Joint Commission: Advancing Effective Communication, Cultural Competence, and Patient- and Family-Centered Care: A Roadmap for Hospitals. (2010) Oakbrook Terrace, IL: The Joint Commission

Tolmie, E. P., Lindsay, E. M., & Belcher, P. R. (2006). Coronary artery bypass graft operation: Patients' experience of health and well-being over time. *European Journal of Cardiovascular Nursing 5*,(3)228-36

Topf, M. (2000). Hospital noise pollution: an environmental stress model to guide research and clinical interventions. *Journal of Advanced Nursing*, *31*, (3), 520–528

Trzepacz, P. T. (2000). Is there a final common neural pathway in delirium? Focus on acetylcholine and dopamine. *Seminar on Clinical Neuropsychology, 5,* 132-48.

Van Rompaey B., Schuurmans M.J., Shortridge-Baggett L.M., Truijen S & Bossaert L. (2008).Risk factors for intensive care delirium: a systematic review. *Intensive Critical Care Nursing 24.* 98–107.

Vas, M., Avlund, K., Lauridan, J., and Hendriksen, C. (2005). Feasible model for prevention of functional decline in older people: Municipality-randomized, controlled trial. *Journal of the American Geriatrics Society, 53,* 563-568.

Verhulst, V. (2008).Technology in ICU; the nurses' point of view. *Critical Care (12),* (2), 528. doi:10.1186/cc6749.

Weems, C. F., Saltzman, K. M., Reiss, A. L., & Carrion, V. G. (2003). A prospective test of the association between hyper arousal and emotional numbing in youth with a history of traumatic stress. *Journal on Clinical Child Adolescent Psychology, 32*(1), 166-71.

Weis, F., Kilger, E., Roozendaal, B., de Quervain, D. J., Lamm, P., Schmidt, M., et al. (2006). Stress doses of hydrocortisone reduce chronic stress symptoms and improve health-related quality of life in high-risk patients after cardiac surgery: a randomized study. *Journal of Thoracic Cardiovascular Surgery*, *131*(2), 277-82.

Wenhem, T & Pittard, A. (2009). Intensive care unit environment. *Continuing Education in Anaesthesia, Critical care & Pain, 9* (6), 178-183

Wilkin K, Slevin E. (2004). The meaning of caring to nurses: an investigation into the nature of caring work in an intensive care unit. *Journal of Clinical Nursing*; 13: 50–59.

Xie, H., Kang, J., & Mills, G. H. (2009). Clinical review: The impact of noise on patients' sleep and the effectiveness of noise reduction strategies in intensive care units. *Critical Care*, *13*(2). doi: 10.1186/cc7154

Zabora JR, Brintzenhofeszoc K, Curbow B, Hooker C, Piantadosi S. (2001).The prevalence of psychological distress by cancer site. *Psycho-Oncology. 10,* 19-28

APPENDICES

Appendix-I

Guidelines and Recommendations of Hospital Boards

Appendix I A

Joint Commission International (JCI)

The Joint Commission International Recommendations for hospitals

Admission	**End-of-Life Care**
□ Inform patients of their rights. □ Identify the patient's preferred language for discussing health care. □ Identify whether the patient has a sensory or communication need. □ Determine whether the patient needs assistance completing admission forms. □ Collect patient race and ethnicity data in the medical record. □ Identify if the patient uses any assistive devices. □ Ask the patient if there are any additional needs that may affect his or her care. □ Communicate information about unique patient needs to the care team.	□ Address patient communication needs during end-of-life care. □ Monitor changes in the patient's communication status during end-of-life care. □ Involve the patient's surrogate decision-maker and family in end-of-life care. □ Address patient mobility needs during end-of-life care. □ Identify patient cultural, religious, or spiritual beliefs and practices at the end of life. □ Make sure the patient has access to his or her chosen support person.
Assessment	**Discharge and Transfer**
□ Identify and address patient communication needs during assessment. □ Begin the patient–provider relationship with an introduction. □ Support the patient's ability to understand and act on health information. □ Identify and address patient mobility needs during assessment. □ Identify patient cultural, religious, or spiritual beliefs or practices that influence care. □ Identify patient dietary needs or restrictions that affect care. □ Ask the patient to identify a support person. □ Communicate information about unique patient needs to the care team.	□ Address patient communication needs during discharge and transfer. □ Engage patients and families in discharge and transfer planning and instruction. □ Provide discharge instruction that meets patient needs □ Identify follow-up providers that can meet unique patient needs.
Treatment	**Organization Readiness**
□ Address patient communication needs during treatment. □ Monitor changes in the patient's communication status. □ Involve patients and families in the care process. □ Tailor the informed consent process to meet patient needs. □ Provide patient education that meets patient needs. □ Address patient mobility needs during treatment.	***Leadership*** □ Demonstrate leadership commitment to effective communication, cultural competence, and patient- and family-centered care. □ Integrate unique patient needs into new or existing hospital policies. ***Data Collection and Use*** □ Conduct a baseline assessment of the hospital's efforts to meet unique patient needs. □ Use available population-level demographic data to help determine the needs of the surrounding community.

□ Accommodate patient cultural, religious, or spiritual beliefs and practices. □ Monitor changes in dietary needs or restrictions that may impact the patient's care. □ Ask the patient to choose a support person if one is not already identified. □ Communicate information about unique patient needs to the care team.	□ Develop a system to collect patient-level race and ethnicity information.

Appendix I B

National Accreditation Board of Hospitals (NABH)

Guidelines for hospitals on patient care practices

1. Patient care is continuous and multidisciplinary in nature
2. The patient's record (s) is available to the authorized care providers to facilitate the exchange of information
3. The organization has a documented discharge process
4. A discharge summary is given to all the patients leaving the organization
5. The organization protects patient and family rights during care
6. Patients and families are informed of their rights in a format and language that they can understand
7. Patient rights support individual beliefs, values and involve the patient and family in decision making processes
8. Patient rights include respect for personal dignity and privacy during examination, procedures and treatment
9. Patient rights include information on how to voice a complaint
10. Patient has a right to have an access to his / her clinical records
11. A documented process for obtaining patient and / or families consent exists for informed decision making about their care
12. Patient and families have a right to information and education about their healthcare needs
13. Patient and families have a right to information on expected costs

Appendix I C

Indian Society of Critical Care Medicine (ISCCM)

Guidelines for ICUs

Human Resource for ICU

Human resource development is one of the most important task and component of the whole programme. Dedicated, highly motivated, ready to work in stress situations for long periods of time are the type of personal needed. They include

Team Leader

It is important to have a good team led by an Intensivist (who spends >50% of his time in ICU). He should be a full timer particularly for tertiary centres. He should be qualified and trained and able to lead the team. Experience is absolutely essential to lead the ICU team.

Resident Doctors (only MCI endorsed)

Post graduates from Anaesthesia, Medicine or Respiratory Medicine or other allied branches even surgical specialties. Other residents may be graduates depending upon total Bed strength of ICU.

Though need of resident doctors per number of patient has not been prescribed in literature, however, it is understood and recommended that one doctor cannot take care of more than five patients who are critically sick on ventilator and/or undergoing invasive monitoring with MOFS.

Therefore, it is suggested that one PG resident with one graduate resident may be good for an ICU of 10 to 14 beds with 1/3 of the pts may be falling into above category. Total no of residents should include who will relieve those going on leave or have to take sudden offs.

Nursing staff (only NCI Endorsed)

Nursing – 1/1 nursing for Ventilated or MOFS patients is desirable but in no circumstance the ratio should be < 2 /3 (Two nurses for 3 such patients).

This will affect the outcome immensely.

1/2 to 1/3 nurse patient ratio is acceptable for less seriously sick patients who do not require above modalities.

Other staff

Respiratory Therapist looks after the patients being ventilated respiratory physiotherapy, this takes away lot of load off the duty doctor and the nurses

Physiotherapist help in mobilisation, and **Technicians** who can perform simple procedures like taking samples and sending them to proper place in proper manner makes the task easy and less stressful.

Computer person can prepare reports, enter data and bring out print outs as and when needed. He can also maintain library, Internet and protocols practiced in ICU.

Biomedical engineer within the campus makes the job of ICU less frustrating when snags creep in within sensitive ICU equipment. He can be correct them fast.

Nutritionist is also a very important professional who can contribute to outcome of patient. They have to be trained in desired practices and should be more inclined towards enteral feeding than TPN.

Cleaning, class IV and Guards are also important to ICU particularly when they understand needs of ICU and its patients. They have a huge role to play in prevention of Nosocomial infection, keeping ICU clean and protect from overcrowding.

One person should be responsible for observing protocols of Pollution and Infection control. Such person should act in close collaboration of Microbiology personnel

Pathologist and Pharmacist

In addition the ICU should be ably supported by clinical Lab staff, Microbiology and Imaging staff who can understand the protocols of ICU and act within discipline of ICU protocols.

Having professionals from Clinical Lab, Microbiology, Imaging, Pharmacy for support whenever needed will be desirable.

Not only they have to be qualified but have to be trained and have to be a team person. Scarce availability of these qualities all in one has made their availability extremely difficult and the turnover is high.

Bed Strength it is recommended that total bed strength in ICU should be between 8 to 12 and not <6 or not >14 in any case

Space between beds Bed space- minimum 100 sq ft (Desirable) >125.

Partition between two room and maintaining privacy of patients

It is recommended that there should be a partition/separation between rooms when patient privacy is desired which is not unusual.

Standard curtains soften the look and can be placed between two patients which is very common in most Indian ICUs, however they are displaced and become unclean easily and patients privacy is disturbed

Therefore, two rooms may be separated by unbreakable fixed or removable partisans, which may be aluminium, wood or fibre. However permanent partitions takes away the flexibility of increasing floor space temporarily (In Special circumstances) for a particular patient even when the adjoining bed/room may not be in use.

There are also electronic windows which are transparent when the switch is off and are opaque when the switch is on, Although expensive now, the cost of this option may come down over time.

Central Nursing station

This is the nerve centre of ICU, despite lots of development, the old standard of a central station is still holds good and endorsed by most guidelines and regulations regardless of today's practice needs.

All/near-all monitors and patients must be observable from there, either directly or through the central monitoring system. Most ICUs use the central station, serving six to twelve beds arranged in an L or U fashion,

Alarms . music . phone beside-clock

Each group should decide if they want to provide the patient access to music (audio), telephone etc.

However an alarm bell which has both indicators by sound and light must be provided to each patient and he be taught about it, how to use it when needed.

Bedside clocks, calendars and bulletin boards help the conscious patient well oriented and in better moods

Light in room

Natural Light – Access to outside natural light is recommended by regulatory authorities in USA,

It may be helpful in maintaining the circadian rhythm

Natural lighting in the unit can decrease power consumption and the electrical bill which is so relevant to Indian circumstances.

Access to natural light also means one may have access to viewing external environment which may be developed into green and soothing.

Recommended Spot lighting should be shadow free l50 foot candles (fc) strength

Patients may need rest and quiet surroundings during the day, Blackout curtains or blinds or Individual eye may be used. These may be helpful when the staff requires a high level of lighting at the bedside while the patient is resting.

Light switches should be strategically located to allow some patient control and adequate staff convenience. A second remote control can be turned on/off by the nurses/doctors to observe patients intermittently at night without entering the room and disturbing the patient.

Noise Control in ICU

The international Noise Council recommends that the noise level in an ICU be under 45 dBA in the daytime, 40 dBA in the evening. and 20 dBA at night (dBA is a scale that filters out low frequency sounds and is more like the human hearing range than plain dB

A watch ticks at about 20 dBA,

A normal conversation is at about 55 dBA.

A vacuum cleaner produces -about 70 dBA

A garbage disposal-- about 80 dBA.

Noise level monitors are commercially available.

lf the unit noise exceeds that level, a light comes on or flashes to remind the staff to decrease the noise level.

Furnishing

Providing the patient with a place to keep a few small personal items of their own make the environment more familiar and personalized.

Some finishing touches like some art work/décor/ sculpture may change the ICU atmosphere a great deal and has been recommended by the SCCM.

Ceiling design may be enhanced by varying the ceiling height, softening the contours, griddled lighting surfaces, painting it with a medley of soft colours rather than a plain back ground colour, or decorating it with mobiles, patterns or murals, to make it more patient and staff friendly.

Hand Hygiene and Prevention of Infection

Every bed should have attached alcohol based anti-microbial instant hand wash solution source, which is used before caregiver (doctor/Nurse/relative/Paramedical) handles the patient.

Water basin at all bedsides has not proven popular and successful because of poor compliance by one and all and also for reasons of space constraints and maintenance issues.

All surroundings of ICU should be kept absolutely clean and green if possible for obvious reasons

MEETING THE NEEDS OF FAMILIES AND VISITORS

It is very important to value family members and take care of their needs.

Many features that ease the stress of facing threat of death because of critical illness may not be necessarily expensive. Identifying these needs by acting as a visitor of a patient in ICU may be useful. Some of these may be as follows:

Signages--Clearly marked and multilinguistic including English and Hindi + Local Language guiding them to correct desired location, Once they reach the unit, it should be easy for them to learn how to gain entry into the unit.

Waiting and seating space

Many guidelines suggest that l-l/2 to 2 seats per patient bed be provided in the waiting area, Despite using this ratio, many admit that their waiting area is still too small.

In rural and semi-urban India, there are large and extended families, This should be reflected in the size of waiting rooms of institutions that commonly serve such populations,

Designers can establish several small areas within a larger space with a variety of seating and lighting options, Large open rooms may be easier to achieve, but they are often noisy and lack the capability to provide areas for privacy, intimacy and rest,

Minimally, a separate small room for grieving or private conferences should be provided near the unit with soothing decor and comfortable seating, This may be used for counselling the family members in times of need.

One large TV should be provided for them

Family members often go through periods when they spend several long hours in the waiting room, ln such cases, recliners or even hideaway beds are greatly appreciated,

Enough number of restrooms should be provided.

Some institutions have their own hotels, motels, or guesthouses /Dharmshalas.

Lockers be provided to families, that can allow them to bring things they need without having to drag them all with them whenever they come and go.

Written information about dining facilities inside and outside the hospital should be available.

Ideally, a café or tea counter with refrigerator, microwave, sink and/or vending machines can be provided in or near the waiting area,

An information shelf having booklets or videos on diseases relevant to critical care are helpful.

Pamphlets for the consumer on critical care and on advanced directives may be very useful.

Trained volunteer or social workers can help families cope and to reduce their anxiety, keep them updated with compassion about condition, progress, procedures, expenses about the patient.

SCCM has also recently published a manual in this regard

Communication

A central communication area is also needed for unit, committee and hospital-wide announcements; newsletters and memos: and announcements of outside events and meetings.

Bulletin boards are necessary but often unsightly. lt is better to plan them because they may be added after the fact in a less effective or appealing manner**.**

Appendix-II

Appendix-II A

Patient History Record

Instructions

You are requested to provide the information asked below. All the information provided by you will be kept confidential and will be used only for research purpose.

Name _____

Age _____

Gender _____

Occupation _____

Income Level _____

Condition at the time of admission

Conscious ☐

Unconscious ☐

Semi-conscious ☐

History of any other chronic or acute disease other than cardiac problem

_____

_____

Any other medical complication before or after surgery

_____

_____

Number of days of stay in ICU _____

Appendix-II B **Checklist for ICU Practices**

Hospital ID ----------

S.No		Yes	No
1	There is a Physician in the ICU (round the clock) who will be available within 5 minutes in an emergency.		
2	The Nurse Patient ratio higher than 1:4.		
3	The noise level in the ICU follows the recommended standards of 45dBA, 40dBA and 20dBA in the morning, evening and night.		
4	There is a window so that patients have an access to natural light.		
5	There a calendar in the ICU to help the conscious patient well oriented.		
6	There is a bed side clock for the patient to get to know the time.		
7	The Doctors wear a cap to maintain the sterile conditions in the ICU.		
8	The Doctors use infection preventing mask to maintain the sterile conditions.		
9	The Nurses wear a cap to maintain the sterile conditions in the ICU.		
10	The Nurses use infection preventing mask to maintain the sterile conditions.		
11	The nurses follow the hand hygiene procedures every time they come in contact with the patient.		
12	The total number of beds in the ICU within the norm of 8-12.		
13	There is a partition between two beds to maintain privacy of the patient.		
14	There is an alarm bell (indicated by sound and light) provided to the each patient to have an easy accessibility to the nurse or doctor.		
15	There is a room for grieving or private conference.		
16	The waiting area has a smooth décor.		
17	There are lockers provided to the families.		
18	The hospital provides an information booklet on the diseases relevant to critical care.		

19	The hospital provides pamphlets with rules and regulations for the families of the patients on critical care.		
20	There are waiting rooms or suitable and quiet areas available for the relatives of the patients.		
21	There is a Pharmacist in the ICU.		
22	There is a Physiotherapist in the ICU.		
23	There a Social Worker in the ICU.		
24	The hospital has a diagnostic pathological laboratory support.		
25	The ICU nurses are trained in critical care.		
26	There is an isolation room for patients who are seriously ill (burns or contagious diseases).		
27	There is written information about the availability of dining facilities for family members.		
28	The nurse see all the monitors from the nursing station		
29	The hospital provides a trained professional Psychologist to help patients and family cope with stress.		
30	The waiting area has a refreshment counter for the family member.		
31	The lights in the ICU are turn down during night		
*32	The practice of bathing/sponging the patients in the early hours is practiced		
33	Patient privacy is ensured by closing door or pulling curtains.		
34	The alarms are turned down and the noise level of the monitors is reduced at night		

Scoring ‘Yes’=1, ‘No’=0
* reverse score

Appendix-II C Hospital ID _____

ICU Psychosocial Care Scale

Respondents: Patients and Family

Name: ---------- Nature of Problem ----------

Age: ---------- Duration of stay in ICU ----------

Gender: ---------- Patient I.D ----------

There is an attempt to observe and identify the practices in ICU. This rating scale relates to the specific practices adopted in the ICU of the hospital you are admitted. Kindly read them carefully and respond appropriately by giving information regarding the ICU practices.

Listed below are a few statements. You need to read each statement and select a response from the five options mentioned in columns.

Example: The patient is monitored round the clock by the medical staff.

Never Rarely Sometime Most Often Always

(1) (2) (3) (4) (5)

In case you feel that the medical staffs rarely monitor the patient, you need to check √ in the column '2' against the statement.

There is no 'right' or 'wrong' answer. Your responses will be kept confidential and will be used purely for research purposes.

S.No	Item	Never	Rarely	Some times	Most Often	Always
1	The family is informed in advance about the expenditure of the procedures.					
2	Specific time is allotted to the family by one of the members of the health care team to answer questions and concerns.					
3	The diagnosis is informed to the family.					
4	The doctors experience and expertise in handling particular kinds of cases is notified.					
5	The family members are unsure as to where they can lodge a complaint or represent their grievances.					
6	The patient/family is clearly explained about the benefits of the treatment program					
7	The patient's feelings agitation, and anxiety are handled effectively by the ICU team.					
8	The patient is assured that his/her family is					

	just outside the ICU and available on call.					
9	Patient / family are informed about tests and procedures only after they are done.					
10	A curtain is drawn around the patient during examination, procedures and treatment.					
11	There is a provision in the hospital to take care of the spiritual needs of the patient/family.					
12	The family is kept informed about the progress or decline of the patient's health status.					
13	There is an exit meeting before the patient is discharged, where the patient or family is explained about post discharge care like diet, exercise, alarm signals etc.					
14	A curtain is around the patient while taking care of his/her toilet and bowel needs.					
15	The patient is kept informed about the change in the day, date and time (day & night).					
16	A curtain is drawn around the patient while he/ she is sponged.					
17	The family is uncertain as to where the patient is taken for specific tests.					
18	The doctor or the nurse briefs the family about the condition of the patient on a day to day basis.					

Dimensions & Scoring The item numbers 1,2,4,6,7,8,10.11,12,13,14,15,16,and 18 are positively scored and items 5, 9 and 17 which are negative items the scores are reversed. To obtain the total score of the scale, scores of items are added. The scale yields a maximum score of 90 and a minimum score of 5.

Protection of human Dignity- 9, 10, 11, 12, 13, 14, 16

Family Patient Communication Channel-1, 2, 3,4,6,8

Family Patient Anxiety Prevention-5, 7,15,17,18

रोगी के पहचान की संख्या: -------

अस्पताल पहचान की संख्या: ------

<u>आई.सी.यू. में मनोसामाजिक देखभाल की प्रणालियॉ</u>

नाम: ..... समस्या: .....

उम्र : ..... आई.सी.यू. की अवधि: .....

लिंग: ..... भर्ती के समय की स्थिति: .....

☐ सचेत

☐ अचेतन

☐ अल्प चेतन

<u>निर्देश:</u> यह आई.सी.यू. के प्रणालियों को पहचानने और परीक्षा करने का एक प्रयत्न है। यह रेटिंग स्केल उन विशिष्ट प्रणालियों की परीक्षा के लिए है जो अस्पताल के आई.सी.यू. में लागू किए गए है, जहॉ आप हैं। कृपया उन्हें ध्यान से पढ़े और उपयुक्त उत्तर दें।

नीचे कुछ वक्तव्य दिये गये हैं। आप इन वक्तव्यों को पढ़कर एक उत्तर चुनें। कॉलम में पॉच विकल्प दिये गये हैं।

उदाहरण: रोगी का निरीक्षण हर वक्त चिकित्सक द्वारा किया जा रहा है।

कभी नहीं कभी एक बार कभी-कभी कई बार हमेशा

(1) (2) (3) (4) (5) यदि आपको लगता है कि डाक्टरों के द्वारा कभी भी एक बार निरीक्षण किया जा रहा है तो आपको कॉलम '2' के सामने (√) लगाए। ये प्रश्न आपके सही या गलत जवाब पाने के लिए नहीं किए जा रहे है सिर्फ आपकी प्रतिक्रिया जानने के लिए किया जा रहा है।

क्रम संख्या	विषय	कभी नहीं	कभी एक बार	कभी कभी	कई बार	हमेशा
1	परिवार को पहले ही आई.सू.यू. इलाज के खर्च के बारें में सूचित किया गया है।					
2	आपके सवालों का संतोषजनक जवाब देने के					

	लिए चिकित्सकों ने निर्देशित समय दिया है।					
3	रोग निर्णय के बारें में परिवार को सूचित किया गया।					
4	चिकित्सक के अनुभव और निपुणता के बारें में पहले ही बताया गया है।					
5	परिवार के सदस्य इस बात को लेकर स्पष्ट नहीं है कि अपनी समस्याओं को लेकर कहॉ शिकायत करें या तकलीफों के बारें में किसे बताया या कहॉ किनसे मिले?					
6	रोगी/परिवार को चिकित्सा के फायदा के बारें में विस्तार से समझाया गया है।					
7	रोगी की भावनाओं, व्याकुलताओं और घबराहट को आई.सी.यू. के सदस्यों ने अच्छे से संभाला।					
8	रोगी को विश्वास दिलाया गया है कि परिवार के लोग आई.सी.यू. के बाहर हैं और बुलाने पर तुरन्त आ जाएँगे।					
9	रोगी और उनके परिवार को टेस्टों और चिकित्साप्रणाली के बारें में बाद में सूचित किया गया है पहले नहीं।					
10	रोगी के निरीक्षण, विधियों और इलाज के वक्त उसके चारों ओर पर्दा डाला गया।					
11	अस्पताल में रोगी और परिवार की आध्यात्मिक आवश्यकताओं की आपूर्ति के लिए प्रबंध किया गया है।					
12	परिवार को रोगी की हालत में सुधार, गिरावट या रोग के कम होने के बारें में सूचना दी गई।					
13	अस्पताल से जाने से पहले एक मीटिंग रखी गई जिसमें रोगी या परिवार को रोगी के आहार, व्यायाम और सावधानी की जानकारी दी गई।					
14	रोगी की विसर्जन-क्रिया के दौरान चारों ओर पर्दा डाला गया।					
15	रोगी को तिथि और समय (रात-दिन) के बदलाव की जानकारी दी गई।					
16	रोगी के शरीर को पोंछते वक्त चारों ओर					

	पर्दा डाला गया है।					
17	परिवार को मालूम नहीं है कि रोगी को विशिष्ट परीक्षा (टेस्टों) के लिए कहाँ ले जाया गया।					
18	चिकित्सक या नर्स के द्वारा परिवार को रोगी की हालत हर रोज़ विस्तार से बताई गई है।					

ఆస్పత్రి ఐ.డి. : రోగి ఐ.డి. :

పరిస్థితులలోని రోగుల మానసిక, సామాజిక అంశాల పర్యవేక్షణ విశ్లేషణ పత్రం

పేరు :..... ఆరోగ్య సమస్య :.....

వయస్సు :..... ఐ.సి.యులో ఉన్న సమయం :.....

స్త్రీ/పురుష :..... రోగి ఆస్పత్రిలో చేరినప్పుడు అతని స్థితి :

- ☐ స్పృహ ఉంది
- ☐ స్పృహ లేదు
- ☐ కొంత స్పృహ ఉంది

ఐ.సి.యు లో రోగి చేరినప్పుడు అక్కడి పర్యవేక్షణకు సంబంధించి అడుగుతున్న ఈ క్రింది ప్రశ్నలకు సరైన సమాధానాలు ఇవ్వండి. ప్రతి ప్రశ్నకు ఐదు సమాధానాలు ఇవ్వబడ్డాయి - ఆ ఐదు సమాధానాలు ఏ సౌకర్యం ఎంత తరుచుగా జరుగుతుంది, అనే దానికి సంబంధించినది. మీ విషయంలో అవి ఎంత తరుచుగా జరుగుతాయో ఆలోచించి, సిర్ధారించి సరియైన గది ☐ లో ✔ అనే గుర్తు పెట్టండి.

ఉదాహరణకు : రోగిని డాక్టర్లు 24 గంటాలా పరీవేక్షిస్తుంటారు.

కాదు	అప్పుడప్పుడు	కొన్నిసార్లు	తరచు	ఎప్పుడూ
(1)	(2)	(3)	(4)	(5)

సమాదానాలలో తప్పు ఒప్పులుండవు. మీరు వెలిబుచ్చిన మీ అభిప్రాయాలు పూర్తిగా గోప్యంగా4 ఉంచబడతాయి. వీటిని కేవలం పరిశోధనకు మాత్రమే ఉపయోగించుకుంటారు.

సంఖ్య	విషయం	కాదు	అప్పుడప్పుడు	కొన్నిసార్లు	చాలాసార్లు	తరచు	ఎప్పుడూ
1.	రోగి చికిత్సకోసం అయ్యే ఖర్చు గురించి మీకు ముందుగానే తెలియ పరిచారు						
2.	రోగి కి సంబంధించిన ప్రశ్నలు / సందేహాలు తీర్చడానికి కుటుంబంలో ఒకరికి తగినంత సమయం ఇవ్వబడింది.						
3.	రోగి యొక్క రోగనిర్ధారణ కుటుంబానికి తెలియపరచటమైంది.						
4.	ఇటువంటి కేసులకు సంబంధించి డాక్టర్లకు పూర్వానుభవం ఉంది అని రోగికి చికిత్స అందిస్తున్న డాక్టర్ల అనుభవం, కుశలత విషయంలో కుటుంబ సభ్యులకు అవగాహన కలిగించారు.						
5.	సేవలకు సంబంధించిన ఫిర్యాదులను ఎవరికి ఇవ్వాలో కుటుంబ సభ్యులకు తెలుసా						
6.	చికిత్సా వలన రోగికి కలిగే మేలు/లాభాలు గురించి కుటుంబ సభ్యులకు తెలపడమైంది.						
7.	రోగి బంధువుల ఆందోళన ఆరాటాన్ని భావోద్వేగాలు బృందం అర్థం చేసుకొని తగిన సలహా అందించడమైనది.						
8.	రోగి కుటుంబ సభ్యులు ICU బైట అందుబాటులో ఉన్నారని రోగికి ధైర్యాన్నివ్వడమైనది.						
9.	రోగి కుటుంబసభ్యులకు రోగికి జరిగిన పరీక్షలు గురుంచి అవి అయిపోయిన తర్వాతే తెలపడమైనది.						
10.	రోగి కి వైద్య పరీక్షలు చేయాల్సివచ్చినప్పుడు రోగి చుట్టూ పరదావేసి ఉంచుతారు.						
11.	రోగి కుటుంబ సభ్యులు తమ ప్రార్థనలు చేసుకోవటానికి ప్రత్యేక స్థలం కేటాయించబడింది.						
12	రోగి పరిస్థితి మెరుగుపడుతున్నా / క్షీణిస్తున్నా ఆ వివరాలు కుటుంబ సభ్యులకు ఎప్పటికప్పుడు తెలుపుతారు.						

సంఖ్య	విషయం	కాదు	అప్పుడప్పుడు	కొన్నిసార్లు	చాలాసార్లు	తరచు	ఎప్పుడూ
13	రోగి ఆస్పత్రి నుంచి ఇంటికి పంపించేటప్పుడు అనను వాడవలసిన మందులు, అతనికివ్వవలసిన ఆహారం, మొ॥ విషయాలకు సంబంధించిన అన్ని జాగ్రత్తలు వివరిస్తారు.						
14	మల మూత్ర విసర్జన సమయంలో రోగి చూట్టు పరదా ఉంటుంది.						
15	రోగికి తేది సమయం మొ॥ వివరాలు ప్రతిరోజు తెలుపుతూనే ఉంటారు.						
16	తడిబట్టతో ఒళ్ళు తుడిచేటప్పుడు ఇతరులు చూడకుండా రోగి చుట్టూ పరదా ఉంచుతారు.						
17	రోగిని పరీక్షలకు తీసుకొని వెళ్ళేటప్పుడు ఎక్కడకు తీసుకు వెళ్తున్నారన్నది కుటుంబ సభ్యులకు తెలియదు.						
18	రోగి ఆరోగ్య పరిస్థితిని కుటుంబ సభ్యులకు ఎప్పటికప్పుడు డాక్టర్లకు తెలియజేస్తున్నారు.						

Appendix-II D

Hospital ID _____

Patient Well Being Scale

Name _____ Nature of Problem _____
Age _____ Duration of stay in ICU _____
Gender _____ Patient I.D. _____

Instructions: Given below are statements. Choose the answer that best describes your thoughts and feelings and tick (√) in the column that best suits your options. There no right or wrong answer.

S.No	Item	None of the time	Rarely	Some of the time	Often	All of the time
1	I've been feeling optimistic about my health.					
2	I feel that I will be useful.					
3	I feel relaxed.					
4	I am getting back to my normal sleep and wake up rhythms.					
5	I am picking up energy.					
6	I thank god for my recovery.					
7	I believe God loves and cares about me.					
8	I feel close to other people.					
9	I feel confident.					
10	I feel loved.					
11	I feel emotionally stable and sure of myself.					
12	I feel wanted.					
13	I have specific future plans.					
14	I am able to eat well.					
15	I feel peaceful after I do my prayers.					
16	I am able to move around.					
17	I feel interested in other people.					
18	I set aside some time for my prayers.					
19	I am able to think clearly.					

20	I am gradually picking up physical strength to get back to normal activities.					
21	My faith in God infuses strength in me.					
22	I strongly believe in the presence of God to protect me.					
23	I feel cheerful.					
24	My physical pain has reduced remarkably.					
25	I am getting back to a state where I can effectively deal with problems.					
26	I believe that there is some real purpose of my life.					
27	I am enjoying the strong support of my family.					
28	I enjoy the company of the people who visit me.					

Dimensions:

- Psychological: 3, 9, 11, 13, 19, 23, and 25.
- Physical : 1, 4, 5, 14, 16, 20, and 24.
- Social : 2, 8, 10, 12, 17, 27, and 28.
- Spiritual : 6, 7, 15, 18, 21, 22, and 26.

Scoring

Sum of the items on each dimension is the score for that particular dimension. The total score on the Hospital Wellbeing scale is obtained by adding the scores on all the dimensions. The maximum score for the scale is 140 and the minimum score is 28. Each dimension comprised of 7 items the scoring for each of the dimensions viz. Psychological Wellbeing, Physical Wellbeing, Social Wellbeing and Spiritual Wellbeing ranged between 7 and 35

रोगी के पहचान की संख्या: -------

अस्पताल पहचान की संख्या: ------

रोगी के भलाई की मापनी

सूचना: नीचे कुछ वक्तव्य दिये गये हैं। उनमें से जो जवाब आपके विचार और भावनाओं के अधिक निकट हो उस पर सही (√) का चिह्न लगाइए।

क्रम संख्या	**विषय/वक्तव्य**	**कभी नहीं**	**कभी एक बार**	**कभी कभी**	**कई बार**	**हमेशा**
1	मैं अपने स्वास्थ्य के बारें में आशान्वित हूँ।					
2	मुझे लगता है कि मैं अपने और दूसरों के लिए उपयोगी होऊँगा।					
3	मैं 'निश्चिंत' अनुभव करता हूँ।					
4	मैं फिर से अपने सोने और जगने की सामान्य स्थिति प्राप्त कर रहा हूँ।					
5	मैं ताकतवर बनता जा रहा हूँ।					
6	मैं अपने स्वास्थ्यलाभ के लिए ईश्वर को धन्यवाद देता हूँ।					
7	मैं विश्वास करता हूँ कि भगवान की कृपा मुझ पर है और वे मेरी रक्षा करते हैं।					
8	मैं अनुभव करता हूँ कि मैं लोगों के निकट हूँ और उनसे मिल झुलकर रह सकता हूँ।					
9	मैं आत्मविश्वास का अनुभव करता हूँ।					
10	मैं अनुभव करता हूँ कि लोग मुझे प्यार करते हैं/चाहते हैं।					
11	मैं भावाद्वेगों से दूर शांत अनुभव करता हूँ और खुद पर विश्वास करता हूँ।					
12	मैं अनुभव करता हूँ कि लोग मुझे चाहते हैं।					
13	भविष्य की मेरी अपनी विशेष योजनाएँ हैं।					
14	मैं ठीक से भोजन कर पा रहा हूँ।					

15	मैं अपनी प्रार्थना करने के बाद शांति का अनुभव करता हूँ।					
16	मैं इधर उधर जा पा रहा हूँ।					
17	दूसरों के साथ वक्त गुजारने से मुझे अच्छा लग रहा है।					
18	मैं हर दिन कुछ समय के लिए प्रार्थना करता हूँ।					
19	मैं स्पष्ट सोच पा रहा हूँ।					
20	मरी अपनी ताकत क्रमश: बढ़ रही है और मैं अपने दैन:दिन काम कर पा रहा हूँ।					
21	भगवान के प्रति मेरा विश्वास मुझमें शक्ति बढ़ाता है।					
22	मुझे दृढ़ विश्वास है कि ईश्वर मेरी रक्षा करता है।					
23	मैं बेहद खुश हूँ।					
24	मेरा शारीरिक दर्द बेहद कम हो गया है।					
25	मैं अपनी पुरानी ताकत पा रहा हूँ और समस्याओं का सामना अच्छी तरह से कर सकता हूँ।					
26	मैं विश्वास करता हूँ कि मेरी अपनी ज़िन्दगी का कुछ खास उद्देश्य है।					
27	मैं अपने परिवार के दृढ़ सहारे से संतुष्ट हूँ।					
28	जो लोग मुझसे मिलने आते हैं उनके साथ में आनंद अनुभव करता हूँ।					

రోగి శ్రేయస్సు కొలమానం

ఆస్పత్రి ఐ.డి. :
రోగి ఐ.డి. :

పేరు :..... స్త్రీ/పురుష :.....

వయస్సు :..... ఆరోగ్య సమస్య :.....

మీకు నచ్చిన ప్రశ్నలు చదివి వాటిలోంచి ఏ జవాబు మీ ఆలోచనలకు, అనుభవాలకు అనుకులంగా ఉంటుందో దాని ఎదురుగా ✔ అని గుర్తు పెట్టండి.

		1	2	3	4	5
1.	నా ఆరోగ్యం మెరుగుపటం గురించి నాకు ఆశఉంది.					
2.	ఇది నాకు ఉపకరించిందని (ఉపయోగమేనని) భావిస్తున్నాను.					
3.	నేను సేద తీరాను (Relax).					
4.	నా స్వస్థితికి (Normally) నేను వచ్చాను.					
5.	నాకు ఓపిక వస్తోంది.					
6.	భగవంతుడికి నేను కృతజ్ఞుడ్ని.					
7.	భగవంతుడు నన్ను రక్షిస్తాడనేనేను నమ్ముతాను.					
8.	ఇతరులు నాకు చాలా సన్నిహితులుగా అన్పిస్తున్నారు.					
9.	నా మీద నాకు నమ్మకం (ఒకభరోసా) కలిగింది.					
10.	నేను ప్రేమించబడ్డాననిపిస్తోంది / నాకందరి ప్రేమ అందింది.					
11.	నా భావావేశాలు సమానంగా ఉన్నాయి (No Negative/No Positive).					
12.	నేనందరికి కావాలి అని నాకనిపిస్తోంది. (నేను అందరిచేతా కోరదగిన వ్యక్తినే)					
13.	నా భవిష్యత గురించి నాకు ప్రత్యాకమైన ఆలోచానలున్నాయి.					
14.	నేను బాగా తినగాలుగుతున్నాను.					
15.	నా ప్రార్థన తర్వాతా నేను ప్రశాంతంగా ఉన్నాను.					
16.	నేను అటూ, ఇటూ తిరగ్గలుగుతున్నాను.					
17.	ఇతరులను నేను పట్టించుకుంటున్నాను.					
18.	నా ప్రార్థనలకోసం కొంత సమయంనేను కేటాయించగలుగుతున్నాను.					
19.	నా ఆలోచనలు స్పష్టంగా ఉన్నాయి.					
20.	నేను నెమ్మదిగా ఆరోగ్యం పుంజుకుంటున్నాను.					
21.	భగవంతుడి మీద నాకున్న నమ్మకం నాకు శక్తినిస్తోంది.					
22.	భగవంతుని సాన్నిధ్యమే నాకు రక్ష అని నేను గట్టిగా నమ్ముతున్నాను.					
23.	నేను సంతోషంగా ఉన్నాను.					
24.	నా ఒంటినోప్పులు తగ్గినాయి.					
25.	నా సామర్థ్యాన్ని మునుపటిలాగే తిరిగి నేను పొందుతున్నాను.					
26.	నా జీవితానికి సార్థకత ఉందని నేను నమ్ముతున్నాను.					
27.	నా కుటుంబం నాకిచ్చిన సహాయనికి నేను సంతోషిస్తున్నాను.					
28.	నన్ను పరామర్శించే వాళ్ళ సాన్నిధ్యాన్ని నేను enjoy చేస్తున్నాను.					

Appendix-II E Hospital ID _____

Post ICU Patient's Trauma Scale

Instructions: Here are some statements related to your experiences in the ICU please tick (√) the number that describes your experience. There is no 'right' or 'wrong' answer.

1- Not at all, 2- Once a while, 3- Sometimes, 4- A lot of times, 5- Always

S.No	Item	1	2	3	4	5
1	I get painful images/ memories or thoughts of my stay in ICU.					
2	I am not able to experience either happiness or sorrow.					
3	I feel as though some of the experiences are reoccurring					
4	I am upset by some of my experiences in the ICU.					
5	I experience strong physical sensations (increased heart beat, sweating etc) whenever I remember my stay in ICU.					
6	I am avoiding any thoughts or feelings related to ICU.					
7	I find it hard to imagine a long life span.					
8	I wish to avoid any situation that would remind me of ICU.					
9	I am unable to recall some of the events in ICU.					
10	I find it difficult to concentrate.					
11	It is hard for me enjoy anything.					
12	I don't want to be left alone after my stay in ICU.					
13	I get distressing dreams of my stay in ICU.					
14	I find myself irritable and angry.					
15	I have trouble falling asleep.					

Scoring:

The total scores for each dimension are obtained by adding the item scores of the dimension. The scores of all the three dimensions are summed up to obtain a score on ICU Trauma. The total score ranges from 15 to 75 with high scores indicating more severe trauma.

Re-Experience :1, 3, 4, 13, 14, (5 items) Scoring range
Emotional Numbing& Avoidance: 2, 6,8,9,10,12 (6 items)
Hyper arousal : 5, 11, 15, 16 (4 items)

रोगी के पहचान की संख्या: -------

अस्पताल पहचान की संख्या: ------

आई.सी.यू. के पश्चात रोगी की भावनात्मक चोट की मापनी

सूचना: यहाँ कुछ वक्तव्य दिये गये हैं जो आपके आई.सी.यू. के अनुभवों से संबंधित हैं। कृपया उस संख्या पर सही का चिह्न लगाए जो आपका अनुभव बताएँ।

1. बिल्कुल नहीं
2. कभी एक बार
3. कभी-कभी
4. कई बार
5. हमेशा

क्र.सं	**वक्तव्य**	1	2	3	4	5
1	मुझे आई.सी.यू. की दर्दनाक स्मृतियाँ की याद आती रहती है।					
2	मैं सुख या दुख अनुभव नहीं कर पा रहा हूँ।					
3	मुझे ऐसा लगता है कि कुछ अनुभव फिर से घटित हो रहे हैं।					
4	मैं आई.सी.यू. के अनुभवों से मुझे अभी भी घबराहट/परेशान हो रही है					
5	जब भी मैं अपने आई.सी.यू. में रहने की याद करता हूँ तब मैं अधिक शारीरिक संवेदनाओं को अनुभव करता हूँ। (तेज धड़कन, पसीना आना आदि)					
6	आई.सी.यू. के अनुभवों या विचारों को मैं टाल रहा हूँ।					
7	मैं अक्सर चौकता हूँ।					
8	लम्बी उम्र की उम्मीद करना मेरे लिए मुश्किल है।					
9	मैं आई.सी.यू. की याद दिलाने वाली हर परिस्थिति को टालना चाहता हूँ।					
10	मैं आई.सी.यू. की कुछ बातों को याद करने में असमर्थ हूँ।					

ఐ.సి.యు. ట్రామా కొలమానం

ఆస్పత్రి ఐ.డి. :
రోగి ఐ.డి. :

పేరు :..... స్త్రీ/పురుష :.....

వయస్సు :..... ఆరోగ్య సమస్య :.....

మీరు శస్త్ర చికిత్సానంతరము అత్యవసర చికిత్సా ప్రదేశములోనే ఉండి వచ్చిన వారగుట చేత మీ అనుభవాలను తెలుసుకొనవలెనని మీకు ఈ ప్రశ్నపత్రము అందచేశాంచ, మీరు వీటి సమాధానం తెలియజేయగలరని కోరుచున్నాం.

	1	2	3	4	5
1. ఐ.సి.యులో గడిపిన క్షణాలు తలచుకుంటే భాదకరమైన ఆలోచనలు వస్తాయి.					
2. నేను సంతోషంగానీ, దుఖ:గాని అనుభవించలేకపోతున్నాను.					
3. అదే అనుభవం మళ్ళీనాకు కలుగుతుందేమోనని భయంగా ఉండి.					
4. ఐ.సి.యు. నాకు జరిగిన అనుభవలు నాకు భాధ కలిగిస్తాయి.					
5. ఐ.సి.యు. తలచుకున్నప్పుడల్ల నాకు (గుండె దడ, చెమట పట్టడం) జరుగుతాయి.					
6. ఐ.సి.యు. గురించిన ఆలోచననే నేనిష్టపడటం లేదు.					
7. నేను ఎక్కువ కాలం బతుకుతాను అన్న ఆలోచన కలుగుతుంది.					
8. ఐ.సి.యు. లో నేనిప్పటి స్థితిని గుర్తు చేసేదేదైనా నేను ఇష్టపడటం లేదు.					
9. ఐ.సి.యు లో జరిగిన కొన్ని సంఘటనలు / అనుభవాలు గుర్తుకు తెచ్చుకోవడం కష్టంగా ఉంది.					
10. నేను ఏ పని మీద ఏకగ్రత పెట్టలేకపోతున్నాను.					
11. దేన్ని సంతోషంగా అనుభవించలేక పోతున్నాను.					
12. ఐ.సి.యు లో ఉండి వచ్చిన తరువాత ఒంటరిగా ఉండటం కష్టంగా ఉంది.					
13. ఐ.సి.యు లో ఉండి వచ్చిన తరువాత ఆందోలన కరమైన కలలు వస్తున్నాయి.					
14. నాకు తరుచుగా చికాకు, కోపం వస్తుంది.					
15. నాకు నిద్రపట్టడం కష్టంగా ఉంది.					

Socring

పునరనుభవం : 1,3,4,13,14
ఆవేశపడటం : 2,6,8,9,10,12
తప్పించుకోవటం :
ఉద్రేకపడటం : 5,7,11,15,16

Development of Scales and Pilot Testing

Appendix III

The process of evolution of ICU Psychosocial Care Scale

Appendix-III A Content Validity

An attempt was made to establish the content validity of the scale. For this purpose the scale was given to a panel of 10 experts in the field of psychology and medicine. The panel constituted of 5 doctors (intensivists / cardiothoracic surgeons) and 5 psychologists. The panels of experts were asked to read each of the items carefully and decide whether that item was essential to measures the 'Psychosocial Care' or not. If they felt it is essential 'E' was marked against the item in the column provided and if they felt it was not essential 'NE was marked against the item. The total number of 'Essential' and 'Not Essential' scores was found. The Content Validity Ratio for each item was established using the Lawshe formula for Content Validity Ratio (Lawshe1975). The analysis suggested the dropping of 6 items (items: 4, 5, 6, 7, 12, and 17).

Appendix III B

Internal Consistency

The results of the pilot study were used for a reliability analysis of the scale. Item analysis was used to find the internal consistency. The internal consistency is calculated as Cronbach's Alpha. The results of the item analysis on the 24-item ICU Psychosocial Care in Scale gave a Cronbach's alpha α value of 0.527, which is not an acceptable value for a research instrument, suggesting the removal of inconsistent items. Tables 1a - 1d show the item total statistics after removal of each of the items that were inconsistent. The tables also show the item total correlation which helps to decide whether the item should be removed. The table further gives the value of what Cronbach's alpha would be if that particular item was deleted. Looking into table-1a we can observe that removal of item 12 will lead to an improvement of Cronbach's alpha value from 0.527 to 0.59. We can observe that the item total correlation of item 12 is also low. To further increase the alpha value, some more items needed to be deleted. Observing the item total correlation of items 17, in Table-1a and items 6 and 7 in Table 1b, we can see that the item total correlations of these items are lower than the other items of the scale and deleting these items would give us a Cronbach's alpha value of α=.651.Table-1c shows the item total correlation of item 9 is much lower than the correlations of the other items. Removal of this item would further increase the Cronbach's alpha value to α=.727. From Table 1d we can observe that dropping of item 4 will further increase the alpha value to .753. Since this is a high alpha value, no further analysis was done. A summary of changes in the Cronbach's Alpha value after each item is deleted is shown in table 2. According to this table, the analysis suggested deletion of items 4, 6, 7,9,12 and 17. The results of the content validity and

the item analysis were comparable, except for item 9. Keeping in view of the necessity of the items, item 9 was retained and items 4, 5 6, 7, 12 and 17 were removed. The internal consistency of the scale with 18 items after dropping the six items was Cronbach's α=0.753.

Item total statistics of Psychosocial Care *in ICU Practices*

Item No	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
PQ1	77.30	39.153	.307	.639	.489
PQ2	77.42	38.820	.476	.722	.471
PQ3	77.24	40.880	.271	.535	.500
PQ4	78.12	47.332	-.279	.574	.576
PQ5	78.82	41.212	.182	.490	.512
PQ6	78.12	45.985	-.173	.533	.564
PQ7	77.64	45.704	-.152	.544	.561
PQ8	77.80	38.735	.350	.763	.481
PQ9	78.26	44.890	-.089	.528	.552
PQ10	77.48	39.806	.317	.679	.490
PQ11	77.62	43.098	.017	.468	.541
PQ12	**77.62**	**47.547**	**-.265**	**.511**	**.589**
PQ13	78.38	35.832	.518	.697	.443
PQ14	77.82	41.334	.209	.480	.508
PQ15	76.50	40.704	.456	.682	.488
PQ16	77.58	41.922	.142	.584	.518
PQ17	77.08	44.565	-.069	.368	**.551**
PQ18	77.42	41.963	.194	.677	.512
PQ19	77.50	41.398	.199	.634	.510
PQ20	76.52	39.969	.468	.706	.481
PQ21	78.62	41.914	.191	.458	.512
PQ22	76.46	39.233	.404	.826	.479
PQ23	78.02	40.591	.232	.496	.504
PQ24	77.66	41.862	.172	.418	.514

*Note: * Cronbach's Alpha if item-12 & 17 are deleted*

Table1-b

Item total statistics of Psychosocial Care *in ICU Practices*

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
PQ1	70.00	41.918	.338	.611	.587
PQ2	70.12	41.455	.526	.719	.569
PQ3	69.94	43.364	.339	.475	.591
PQ4	70.82	51.620	-.338	.542	.666
PQ5	71.52	44.214	.202	.482	.606
PQ6	**70.82**	**49.416**	**-.172**	**.532**	**.651**
PQ7	**70.34**	**49.576**	**-.185**	**.426**	**.651**
PQ8	70.50	40.908	.425	.735	.574
PQ9	70.96	48.366	-.095	.511	.641
PQ10	70.18	42.763	.337	.670	.589
PQ11	70.32	46.793	-.005	.422	.637
PQ13	71.08	38.075	.578	.685	.545
PQ14	70.52	44.418	.224	.467	.604
PQ15	69.20	43.755	.477	.677	.586
PQ16	70.28	45.553	.116	.516	.617
PQ18	70.12	45.455	.174	.654	.610
PQ19	70.20	44.082	.248	.621	.601
PQ20	69.22	42.420	.553	.700	.574
PQ21	71.32	45.365	.175	.436	.609
PQ22	69.16	41.362	.499	.808	.570
PQ23	70.72	43.716	.241	.477	.601
PQ24	70.36	45.337	.155	.416	.612

*Note: * Cronbach's Alpha if item 6&7 are deleted*

Table1-c

Item total statistics of Psychosocial Care *in ICU Practices*

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
PQ1	63.76	45.370	.317	.542	.668
PQ2	63.88	44.026	.578	.714	.644
PQ3	63.70	46.908	.309	.418	.670
PQ4	64.58	54.779	-.314	.535	.727
PQ5	65.28	46.410	.279	.474	.672
PQ8	64.26	43.707	.449	.692	.652
PQ9	**64.72**	**51.879**	**-.104**	**.491**	**.709**
PQ10	63.94	45.649	.361	.652	.663
PQ11	64.08	49.340	.045	.356	.700
PQ13	64.84	41.443	.552	.677	.636
PQ14	64.28	47.553	.233	.467	.677
PQ15	62.96	46.651	.515	.676	.659
PQ16	64.04	47.672	.204	.383	.680
PQ18	63.88	48.353	.208	.648	.679
PQ19	63.96	46.937	.278	.588	.672
PQ20	62.98	45.612	.549	.699	.653
PQ21	65.08	49.626	.089	.326	.689
PQ22	62.92	44.647	.485	.797	.652
PQ23	64.48	46.785	.253	.458	.675
PQ24	64.12	48.965	.127	.401	.687

*Note: * Cronbach's Alpha if item 4&9 are deleted*

Table1-d

Item total statistics of Psychosocial Care *in ICU Practices*

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
PQ1	61.02	45.734	.327	.542	.693
PQ2	61.14	44.204	.607	.709	.669
PQ3	60.96	47.590	.294	.392	.697
PQ4	**61.84**	**55.933**	**-.357**	**.496**	**.753***
PQ5	62.54	46.988	.274	.465	.699
PQ8	61.52	43.561	.497	.681	.674
PQ10	61.20	45.633	.403	.613	.686
PQ11	61.34	49.617	.060	.341	.723
PQ13	62.10	41.969	.549	.667	.665
PQ14	61.54	48.131	.228	.465	.703
PQ15	60.22	47.277	.500	.622	.686
PQ16	61.30	47.847	.230	.362	.703
PQ18	61.14	48.613	.231	.606	.702
PQ19	61.22	47.196	.298	.588	.696
PQ20	60.24	46.064	.554	.699	.679
PQ21	62.34	50.351	.071	.324	.715
PQ22	60.18	45.130	.485	.797	.679
PQ23	61.74	47.625	.228	.456	.703
PQ24	61.38	49.506	.125	.392	.712

*Note: * Cronbach's Alpha if item 4is deleted*

Table 2

A summary of changes in Cronbach's Alpha value after each item deleted

S.No	Deleted Items	Cronbach's Alpha after Items are deleted
1	12	.589
2	17	.617
3	6&7	.651
4	9	.709
5	4	.753

Appendix III C

Factor Analysis

A Factor Analysis is done to group the items to identify the dimensions of the scale. The maximum likelihood approach was used for extraction of factors. The Oblimin Kaiser Rotation was used to extract factors that are correlated with one another. The results of Factor Analysis are shown in Tables' 3a and 3d Table 3b shows the items in the scale grouped into three Factors. Factors with Eigen value of 1 or more was taken as a cut off, consequently it may be observed that 3 factors could be extracted, with Factor 1 accounting for 27% of variance, Factor 2 for 5.5% of variance and Factor 3 for 4.2% of variance.

Table 3a

The Eigen values and sums of squared loading of the three factors extracted by Maximum Likelihood method.

Factor	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	4.86	27.03	27.03	3.91
2	.98	5.46	32.49	3.36
3	.75	4.20	36.69	2.61

Table 3b

Oblimin Rotated factor loadings of 18 variables

S.No	Variables	Factors			Eigen Values %of variance
		1	2	3	
1	The family is informed in advance about the expenditure of the procedures.		**.60**		30.28
2	Specific time is allotted to the family by one of the members of the health care team to answer questions and concerns.	.43	**.66**	.28	8.51
3	The diagnosis is informed to the family.	.44	**.69**		7.85
4	The doctors experience and expertise in handling particular kinds of cases is notified.	.42	**.59**	.33	6.69
5	The family is well informed as to where they can lodge their complains or grievances.			.24	5.70
6	The patient/family is clearly explained about the benefits of the treatment program	.41	**.52**	.32	5.26
7	The patient's feelings agitation and anxiety are handled effectively by the ICU team.			.28	4.89
8	The patient is assured that his/her family is just outside the ICU and available on call.	.27	**.56**	.42	4.54
9	Patient / family are informed about tests and procedures only after they are done.	**.41**	.26		4.16
10	A curtain is drawn around the patient during examination, procedures and treatment.	**.75**	.32		3.80
11	There is a provision in the hospital to take care of the spiritual needs of the patient/family.	**.56**	.30	.33	3.37
12	The family is kept informed about the progress or decline of the patient's health status.	**.52**	.31	.35	2.74
13	There is an exit meeting, with the concerned doctor before the patient is discharged, where the patient or family is explained about post discharge care like diet, exercise, alarm signals etc.	**.73**	.39	.64	2.51
14	A curtain is around the patient while taking care of his toilet and bowel needs.	**.80**	.41	.38	2.29
15	The patient is kept informed about the change in the day, date and time (day & night).	.20	.32	**.63**	2.24
16	A curtain is drawn around the patient while he/ she is sponged.	**.55**	.42	.35	1.87
17	The family is uncertain as to where the patient is taken for specific tests.	.30		**.44**	1.74
18	The doctor or the nurse brief the family about the condition of the patient on a day to day basis.	.33	.30	**.57**	1.47

Note: The variables extracted in each factor are highlighted in bold.

It may be observed from Table 3a that variables with Factor loadings above .30 were considered to be significant in order to understand, name and explain Factors. The distribution of the 18 variables into the three Factors is shown in Table3c. A detailed description of these Factors is given below.

Factor 1 was found to have 7 variables (9, 10, 11,12,13,14, and 16) with Factor loading above .30 and explain 27% of variance. All the variables under this factor elucidate facts like respecting and protecting the patients' rights and safeguarding the dignity of the patient. This Factor was named as ***Protection of Human Dignity*** .

Factor 2 which explains 5.5%of variance comprised of 6 variables (1, 2, 3, 4, 6, and 8) with all the variables having a Factor loading above .30. The variables under this Factor lay emphasis on importance of communication between health care professionals and patient/family. This Factor was named as ***Patient Family Communication Channel.***

Factor 3 was found to have 5 variables that explained 4.2% of variance. Three of its variables (15, 17, and 18) had a Factor loading above .30, while variables 5 and 7 had a Factor loading of less than .30. As both the variables focused on important aspects of Psychosocial Care such as representation of grievances and handling feelings of agitation and anxiety, it was essential to include them under this Factor. All the variables of this Factor deal with preventing apprehensions and anxiety in patients and family. The Factor was named as ***Patient Family Anxiety Prevention***

Appendix IV

Hospital Wellbeing Scale

For the development of Hospital Well Being Scale a list of 30 items were added to the original 14 item Warwick Edinburg Mental Well Being Scale, making a 44-item scale. WHO defined well being as a broad concept, determining four important aspects i.e. physical, mental social and spiritual health. Keeping in view the definition of well being it was decided that the Hospital Well being scale for the present study should comprise of four dimensions viz. Psychological, Physical, Social and Spiritual Well being. In accordance the 44 item scale was given to a panel of 8 experts in the field of Psychology. The experts were asked to categorize these items into four dimensions i.e. Psychological, Physical, Social and Spiritual Well being. Only those items which received 100% consensus were retained under the dimension. Those items where the expert opinion did not converge with respect to inclusion into a particular dimension were dropped. On the basis of such stringent expert judgment the scale was reduced to a 28 items scale. The scale was put through a pilot test on a sample of 50 patients, for a reliability analysis. Item analysis was used to find the internal consistency. The internal consistency was calculated as Cronbach's Alpha α=0.877. Since the internal consistency was high no items were dropped after the reliability analysis. Total item correlation and the Cronbach's Alpha of the Hospital Well being Scale are presented in Table-4.

The final scale consisted of 28 items to be rated on 5-point rating scale. The scale comprised of four dimensions, measuring four aspects of well being namely, psychological well being, physical well being, social well being and spiritual well being.

Table 4

Shows the item total statistics of Hospital Well being Scale

S.No	Item	Scale Mean if Item Deleted	Scale Variance if item is deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1	I've been feeling optimistic about my health.	94.32	136.998	.365	.870
2	I feel that I will be useful.	94.00	133.714	.518	.866
3	I feel relaxed.	94.68	131.079	.566	.864
4	I am getting back to my normal sleep and wake up rhythms.	94.72	135.022	.403	.869
5	I am picking up energy.	94.78	133.318	.475	.867
6	I thank god for my recovery.	93.18	140.722	.322	.871
7	I believe God loves and cares about me.	93.24	139.778	.348	.871
8	I feel close to other people.	93.42	140.085	.299	.871
9	I feel confident.	94.40	130.367	.572	.864
10	I feel loved.	93.56	136.007	.493	.867
11	I feel emotionally stable and sure of myself.	94.54	132.049	.608	.864
12	I feel wanted.	93.84	143.647	.046	.878
13	I have specific future plans.	94.66	128.025	.631	.862
14	I am able to eat well.	95.68	132.140	.571	.865
15	I feel peaceful after I do my prayers.	93.84	138.545	.294	.872
16	I am able to move around.	94.68	131.814	.500	.866
17	I feel interested in other people.	94.02	136.714	.340	.871
18	I set aside some time for my prayers.	93.82	142.477	.102	.877
19	I am able to think clearly.	94.58	135.759	.447	.868
20	I am gradually picking up physical strength to get back to normal activities.	94.72	129.675	.603	.863
21	My faith in God infuses strength in me.	93.40	143.429	.082	.876
22	I strongly believe in the presence of God to protects me.	93.20	146.000	-.059	**.878**

23	I feel cheerful.	94.22	132.747	.586	.864
24	My physical pain has reduced remarkably.	95.44	130.864	.568	.864
25	I am getting back to a state where I can effectively deal with problems.	94.86	135.592	.423	.869
26	I believe that there is some real purpose of my life.	94.46	134.580	.464	.868
27	I am enjoying the strong support of my family.	93.54	137.723	.490	.868
28	I enjoy the company of the people who visit me.	93.56	136.823	.387	.870

Appendix V

ICU Trauma Scale

ICU Trauma Scale was developed to measure the Trauma in post-operative Cardiac ICU patients. The scale is adapted from Davidson Trauma Scale (Davidson et al 1997). The original scale consisted of 17 items, with 5-point rating. The items of the scale are divided into 3-clusters: Intrusion, Avoidance/Numbing, and Hyper arousal. The scale was adapted and modified to suit Indian Context. The final scale after pilot testing has 15 items. The ratings measure the frequency of trauma experience ranging from 'Not at all' to 'Always'

The 15 items enlisted measured three dimensions of Trauma as in the original scale. The Re-Experience dimension has 5 items (items1, 3, 4, 13, 14) *e.g. I get distressing dream about my stay in ICU*. There were 6 items in Emotional Numbing & Avoidance dimension (items 2, 6, 8, 9, 10, 12) e.g. *I am unable to recall some of the events in ICU*. Four items measured Hyper arousal (5, 11, 15, 16) *e.g. I experience strong physical sensation (increased heart beat, sweating etc) whenever I remember my stay in ICU*. The total scores for each dimension were obtained by adding the item scores of the dimension. The scores of all the three dimensions were summed up to obtain a composite score on ICU trauma. The total score ranges from 15 to 75 with high scores indicating more severe trauma. The scores on the Dimension Re-Experience ranged between 5 and 25. On Emotional Numbing and Avoidance the scores ranged between 6 and 30, and on Hyper arousal the scores ranged between 5 and 25. Pilot study results showed the Internal Consistency reliability of the scale as 0.72α

The process of evolution of final form of the scale is described below

While modifying the scale some items from the original scale were retained, some were modified to suit the Indian context. The modified scale consisted of 16 items, with three dimensions, viz. Re-Experience: 1, 3, 4, 13, 14, (5 items); Emotional Numbing & Avoidance: 2, 6, 8, 9, 10, 12 (6 items); Hyper arousal: 5, 7, 11, 15, 16 (5 items). The scale was pilot tested to establish the reliability coefficient. Item analysis showed good internal consistency, but suggested the removal of item 7, thus giving an internal consistency of α=0.72. The item total correlation and the Cronbach's Alpha of ICU Trauma Scale are presented in Table-5.

Table 5

Shows the item total statistics of ICU Trauma Scale

S.No	Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1	I get painful images/ memories or thoughts of my stay in ICU.	38.64	46.317	.178	.717
2	I am not able to experience either happiness or sorrow.	38.74	44.645	.307	.703
3	I feel as though some of the experiences are reoccurring.	38.44	45.721	.271	.706
4	I am upset by some of my experiences in the ICU.	38.32	44.753	.314	.702
5	I experience strong physical sensations(increased heart beat, sweating etc) whenever I remember my stay in ICU.	39.20	44.694	.310	.702
6	I am avoiding any thoughts or feelings related to ICU.	38.54	47.192	.156	**.717**
8	I find it hard to imagine a long life span.	38.86	42.694	.460	.685
9	I wish to avoid any situation that would remind me of ICU.	38.36	46.643	.105	.730
10	I am unable to recall some of the events in ICU.	38.32	44.140	.396	.694
11	I find it difficult to concentrate.	38.84	44.790	.298	.704
12	It is hard for me enjoy anything.	39.16	44.300	.286	.705
13	I don't want to be left alone after my stay in ICU.	39.00	40.408	.603	.667

14	I get distressing dreams of my stay in ICU.	39.30	42.500	.477	.684
15	I find myself irritable and angry.	38.66	42.596	.423	.689
16	I have trouble falling asleep.	37.78	44.747	.252	.710

Appendix VI

Letters to the Medical Directors

Prof. Meena Hariharan
Director

Centre for Health Psychology
University of Hyderabad
Prof. C. R. Rao Road,
Gachibowli Hyderabad- 500

046

To

Medical Director

Dear Sir/ Madam

Ms. Chivukula Usha is pursuing PhD from the Centre for Health Psychology, on the topic *Psychosocial Care in Intensive Care Units: Impact on Trauma and Wellbeing"*, under my supervision. With regard to the PhD programme, she has to collect data for her pilot study and main research study. The study requires to interview patients who have undergone Coronary Artery Bypass Graft surgery in your institution. The study will span over a period of one year [including pilot study and the main study]. The data collected will be kept confidential and will be used purely for research purposes. I request you to grant permission to Ms. Chivukula Usha to collect data from your institution.

Thanking you.

Yours sincerely

Meena Hariharan
Professor
Center for Health Psychology

Appendix VII

Informed Consent Form
University of Hyderabad
Centre for Health Psychology

Informed Consent Form
This is an informed consent form for patients/family of patients discharged from a Cardiac Intensive Care Unit participating in the research titled "***Psychosocial Care in Intensive Care Units : Impact on Patient Wellbeing and Trauma."***

The Informed Consent Form has two parts

- Information Sheet(to share the information about the study)
- Certificate of Consent(for signatures if you agree to participate)

Part I: Information Sheet

What is the study about?

The purpose of this is to examine the practices adapted in the ICU and whether the patient and the family members are comfortable with the practices.

This study is being conducted on patients who have undergone a cardiac surgery. You have been selected for the study, since you have undergone a cardiac surgery and you are discharged from the Intensive Care Unit. You may take some time to decide to participate in the research. Before you decide, you can talk to anyone you feel comfortable with.

There may be some words that you do not understand. Please stop to ask questions or clarify doubts as you go through the information and the researcher will take time to explain.

Purpose

The purpose of the research is to evaluate the psychosocial aspects of care practices in Cardiac Intensive Care Units and determine the impact of care on patient well being and trauma.

Participation

Why you are approached:

You have been selected for the study because you have undergone a cardiac surgery and have been in the ICU. Since this study deals with the specific practices in the ICU your experiences in the ICU would help you to answer the questionnaires.

Procedure

You will be required to answer the questionnaires given to you by the researcher. If there are any queries while you answer, you may take the researcher's help. If you have any questions regarding the study you can ask the researcher after you have answered.

Duration

There is no time schedule to answer the questions but you may answer the questions at your pace. In case you feel exhausted you may take a short break, relax and then answer the questionnaires.

Risks and Discomforts

There are no risks involved in the study. You may experience some discomfort in answering the questionnaires as you have just undergone a surgery. In such case, you can feel free to express your feelings to the researcher.

Benefits

There will be no immediate and direct benefits, but an interaction with the researcher may help you to ventilate your feelings and unwind your experiences.

Reimbursements

You will not be provided with any payment to take part in the research.

Confidentiality:

The information given by you will not be shared outside of the research team. The information that is collected from this research project will be kept confidential. Any information about you will have a number on it instead of your name. Only the researchers will know what your number is and will lock that information. It will not be shared with or given to anyone.

Right to refuse or withdraw

You may choose not to participate in this study if you wish to do so. Choosing to participate or not, will not affect the future treatment in the hospital. You will still have all the benefits that would otherwise be available at the hospital.

If you have any questions you may ask. If you wish to ask questions later, you may contact the researcher.

University of Hyderabad

Centre for Health Psychology

Psychosocial Care in Intensive Care Units: Impact on Patient Wellbeing and Trauma.

A Research Project

PART II: Certificate of Consent

I have been asked to give consent to participate in this research study titled "Psychosocial Care in Intensive Care Units: Impact on Patient Wellbeing and Trauma" which will involve completing one/three questionnaires. I have read the foregoing information. I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction. I consent voluntarily to participate in this study.

Name of Patient/family: _____

Patient I.D. _____

Signature: _____

Date: _____

Phone No: _____

Address: _____

रोगी के पहचान की संख्या: -------

अस्पताल पहचान की संख्या: ------

हैदराबाद विश्वविद्यालय

मनोविज्ञान केन्द्र

<u>सहमति पत्र</u>

शोध में भागा लेने वाले कार्डियाक आई.सि.यु. से बाहर आए हुए रोगी और उनके परिवार के लिए बनाया गया सहमति पत्र है। शोध का शीर्षक है आई.सी.यू. में मनोसामाजिक देखभाल: रोगियों की भलाई और भावनात्मक चोट पर प्रभाव।

सहमति पत्र के दो भाग हैं -

1. सूचना पत्र (अध्ययन के बारें में सूचना)
2. सहमति प्रमाण पत्र (अगर आपको भाग लेने के लिए सहमत हो)

भाग 1: सूचना पत्र

यह अध्ययन किसलिए?

यह अध्ययन उस रोगी पर किया जाएगा जिसकी हृदय चिकित्सा हुई हो। आपको इस अध्ययन के लिए इसलिए चुना गया है क्यों कि आप कार्डियाक सर्जरी से गुजरे हैं और आप आई.सी.यू. से बाहर आए हुए हैं। आप सोच समझने के बाद अपनी इच्छा के अनुसार इस अध्ययन में भाग ले सकते हैं। आप अपने मित्रों और परिवार के सदस्यों से विचार-विमर्श करने के बाद ही अपना निर्णय दे सकते हैं। इस पत्र में ऐसे शब्द हो सकते हैं जिनको आप समझ नहीं पा रहे/रही हैं। आपके मन में कोई शंका या प्रश्न हो तो कृपया अनुसंधाता को रोक कर जरूर पूछिएगा और अनुसंधाता आपके प्रश्नों का जवाब देने के लिए जरूर समय देगा।

उद्धेश्य:

इस अनुसंधान का उद्धेश्य आई.सी.यू. में अपनायी जानेवाली भलाई की प्रणालियों को मनोसामाजिक पक्षों का मूल्यांकन करना और रोगी की भावनात्मक चोट और उनकी भलाई पर उसके प्रभाव का निर्धारण करना है।

भागीदारी: आपको क्यों चुना गया है?

आपको इस अध्ययन के लिए इसलिए चुना गया है क्यों कि आप कार्डियाक सर्जरी करवा चुके हैं और आई.सी.यू. में रह चुके हैं। यह अध्ययन आई.सी.यू. की कार्य प्रणालियों से संबंध रखता है। इसलिए आपके आई.सी.यू. के अनुभव इन प्रश्नों के जवाब देने में आपकी सहायता करेंगे।

कार्य पद्धति:

आपको शोधार्थी द्वरा दी गयी प्रश्नावलियों का जवाब देना होगा। जवाब देते वक्त

यदि कोई संदेह हो तो आप शोधार्थी की सहायता ले सकते हैं। यदि अध्ययन से संबंधित कोई प्रश्न पूछना चाहें तो आप अपना जवाब देने के बाद शोधार्थी से पूछ सकते हैं।

जवाब देने का समय:

प्रश्नों के जवाब देने के लिए कोई निश्चित काल की सीमा नहीं है। लेकिन आप कुछ समय प्रश्नावली के जवाब के लिए ले सकते हैं। यदि आप थकान महसूस करते हैं तो कुछ समय के लिए आराम करें और फिर प्रश्नों का जवाब दें।

जोख़िम और असुविधा:

इस अध्ययन में भाग लेने से आपको कोई खतरा नहीं है। जवाब देने में आप कुछ असुविधा का अनुभव कर सकते हैं क्यों कि आपकी कार्डियाक सर्जरी अभी-अभी हुई है। फिर भी आप कृपया शोधार्थी के सामने अपने विचारों को खुले रूप में व्यक्त करने का कष्ट करें।

लाभ:

इस अध्ययन से आपको तुरंत फायदा नहीं होगा लेकिन शोधार्थी से बात करने से आपको सांत्वना मिलेगी और शोधार्थी से अनुभवों को बॉटने का आनंद मिलेगा।

मानदेय:

इस शोध में भाग लेने के लिए किसी प्रकार का मानदेय नहीं दिया जाएगा।

गोपनीयता:

आपकी सूचनाएँ शोध समिति द्वरा गोपनीय रखी जाएंगी। हर हालत में आपका नाम गोपनीय होगा क्यों कि आपके द्वरा दी गयी सूचना को एक नंबर दिया जाएगा।

इनकार करने या अध्ययन से हट जाने का अधिकार:

आप इस अध्ययन में भाग ले सकते हैं या नहीं ले सकते हैं। भाग लेना या न लेना, अस्पताल में आपके इलाज पर कोई प्रभाव नहीं डालेगा। आपको अस्पताल से मिलने वाले सभी लाभ प्राप्त होंगे। अगर चाहें तो आप अध्ययन से किसी भी समय हट सकते हैं।

संपर्क करें:

यदि आप शोधार्थी से कुछ पूछना चाहते हैं तो अभी या बाद में पूछ सकते हैं।

हैदराबाद विश्वविद्यालय

मनोविज्ञान केन्द्र

<u>सहमति पत्र</u>

मुझे "आई.सी.यू. में मनोसामाजिक देखबाल की प्रणालियॉ: रोगी और उनके परिवार की प्रतिक्रिया" अध्ययन में भाग लेने की रुचि है। इसलिए मैं इस अध्ययन में भाग लेने की सहर्ष सम्मति देता या देती हूँ। मै जानता/जानती हूँ कि इसमें एक या तीन प्रश्नावलियॉ है। मैंने सारी सूचनाएँ पढ़ी है। मुझे इससे संबंधित प्रश्न पूछने का मौका दिया गया है और सभी प्रश्नों के संतोषजनक उत्तर मुझे मिले हैं। मैं अपनी इच्छा से इस अध्ययन में भाग ले रहा/रही हूँ।

रोगी/परिवार का नाम : ----------

रोगी के पहचान की संख्या ----------

हस्ताक्षर ----------

दिनांक ----------

फोन नंबर ----------

पता : ----------

హైదరాబాద్ విశ్వవిద్యాలయం
సెంటర్ ఫర్ హెల్త్ సైకాలజీ
ఒప్పంద పత్రం

ఇది ఐ.సి.యు (అత్యవసర ప్రదేశం) నుండి బయటకు వచ్చిన రోగుల, రోగుల - బంధువుల యొక్క అనుభవాలు పరిశోధించడానికి మనస్తత్వ పరిశోధకులచే ప్రయత్నించే ఒప్పందానికి సంబందించిన పత్రం.

ఒప్పంద పత్రములో రెండు భాగాలు ఉన్నాయి:

1. రోగి మ్నస్తత్వాన్ని తెలుసుకొనవలసిన విషయానికి సంబంధించినవి.
2. సమాచారం ఇవ్వడానికి అంగీకరించిన వ్యక్తి యొక్క (కుటుంబ సభ్యుల) అనుమతి పత్రం.

మొదటి భాగం: విషయ సూచిక

పరిశోధన విషయం: అనుభవాలను గుండెకు సంబంధించిన శస్త్ర చికిత్స జరిగిన రోగియొక్క మనస్తత్వన్ని తెలుసుకోడానికి పరిశొధన. గుండెకు సంబంధించిన శస్త్ర చికిత్స చేయించుకొన్ని అత్యవసర విభాగం నుండి బయటకు వచ్చిన మిమ్ములి పరిశోధన నిమిత్తం ఎంచుకున్నాం. ఈ విషయంలో తగిన సమయం తీసుకొని, మీకు సంబంధించిన వారిని సంప్రదించి మాకు సహకరించమని కోరుతున్నాము. ఈ పత్రంలో మీకు తెలియని లేక అర్థంకాని పదాలు ఉంటే, పరిశోధకులను / మీకు ఈ పత్రం ఇచ్చిన వారిని వివరాలు తెలుసుకోగలరు.

పరిశోధన కారణం: సామాజిక మనస్తత్వ జాగృతి కోసం పరిశోధన నిర్వహించబడుతోంది. గుండెజబ్బులు అత్యవసర శస్త్ర చికిత్స రోగులకు సరియైన చికిత్స చేశారా? లేదా? అన్నది అధ్యయనంఒ చేయడమే ఈ పరిశోధన లక్ష్యం.

పరిశోధనలో పాల్గొనడానికి కారణం: మీరు శస్త్ర చికిత్సానంతరం అత్యవసర చికిత్సా ప్రదేశములో ఉండి వచ్చిన వారవటం చేత మీ అనుభవాలను తెలుసుకొవాలనే తలంపుతో మీకు ఈ ప్రశ్న పత్రం అందచేశాం. వీటికి సమాధానాలు ఇవ్వవలసిందిగా కోరుతున్నాం.

ప్రణాళిక: మీరు ప్రశ్నలు ఇచ్చిన శాస్త్రవేత్తలకు సమాధానాలు ఇవ్వాల్సిందిగా కోరుతున్నాం. సమాధానాలు ఇవ్వడంలో మీరు శాస్త్రవేత్తల సలహాలను తీసుకోవచ్చు.

కాలపరిమితి: మీరు సమాధానాలు ఇవ్వడానికి కాలపరిమితి "ఇంత" అని లేదు. సుమారుగా ఒక గంటలో ఇవ్వవచ్చు. దీని వల్ల మీరు అలసట చెందితే మరికొంత సమయం తీసుకొన వచ్చు.

ప్రమాదం, అసౌకర్యం: వీటి వలన మీకు ప్రమాదం కాని అసౌకర్యం గాని ఉండదు. ఒకవేళ మీరు శస్త్ర చికిత్స వలన సమాధానం ఇవ్వడంలో అసౌకర్యం ఉన్నట్లయితే మీ అభిప్రాయాన్ని వ్యక్తపరచవచ్చు.

లభాలు : వెంటనే వీటివలన లాభం ఉండకపోవచ్చు. కాని శాస్త్రవేత్తలుతో మీ మనోభావాలను పంచుకొనప్పుడు మీకు మానసిక ప్రశాంతత లభించవచ్చు.

డబ్బు చెల్లింపు : ప్రశ్నలకు సమాధానము ఇచ్చినందుకు మీకు ధన సహాయం ఏమీ ఉండదు.

రహస్యముగా ఉంచబడును : మీ వద్దనుంచి సేకరించిన విషయాలను శాస్త్రవేత్తలు రహస్యంగా ఉంచుతారు. శాస్త్రవేత్తలు వారి పరిశోధనకు ఉపకరించే సమాచారం రహస్యముగా ఉంచుతారు. దానిలో మీపేరు ఉండదు. మీకు సంబందించిన నంబరు మాత్రమే ఉంటుంది.

విరమించుకొనుట : మీకు ఈ విషయములో పాల్గొనడానికి ఇష్టం లేకపోతే విరమించవచ్చు. దీని వలన వైద్యులు మీకు వైద్య సహకారములో ఏ లోపం చేయరు మీ వైద్యానికి ఎటువంటి ఇబ్బంది ఉండదు. మీకు కావలసినప్పుడు మానుకోవచ్చు.

ఎవరిని సంప్రదించవలెను ? : మీరు తరువాత అయినా ప్రశ్నలను అడగవచ్చు. మీరు అడగాలను కొన్నప్పుడు శాస్త్రవేత్తలను సంప్రదించాండి.

హైదరాబాద్ విశ్వవిద్యాలయం
సెంటర్ ఫర్ హెల్త్ సైకాలజీ

ఐ.సి.యు వాతావరణ ప్రభావం : రోగి మానసిక విశ్లేషణ ఒప్పంద పత్రం

"ఐ.సి.యు వాతావరణ ప్రభావం : రోగి మానసిక విశ్లేషణ" అన్న అంశం మీద కొన్ని ప్రశ్నలకు సమాధానం నన్ను అడిగారు. ఈ పరిశోధన ద్వారా నేను నా సందేహాలను నివృత్తి చేసుకొగాలిగాను. ఎటువంటి అభ్యంతరం లేకుండా నేనిందులో పాల్గొంటున్నాను.

రోగి పేరు, కుటుంబ వివరాలు :.....

సంతకం :.....

తేది :.....

ఫోన్ నెం. :.....

అడ్రస్ :.....

Appendix VIII

Hamming Distance

Hierarchical clustering, a method of cluster analysis which is used to build a hierarchy of clusters, was applied to investigate the similarities among the five hospitals and hence forth possible grouping of the hospitals. Strategies for hierarchical clustering generally fall into Agglomerative (bottom up approach) and Divisive (top down approach). The Agglomerative tree diagram called the Dendrogram, using the Method of Complete Linkage was used to present the results of hierarchical clustering. The results of clustering are presented either as the distance or the similarity between the clustered rows or columns depending on the selected distance measure. Hamming Distance was employed to hierarchical cluster analysis to cluster the hospitals based on the ICU Quality.

Hamming distance (Hd) is defined as non-negative integer representing the number of mismatches between the bit strings (Boolean vectors). It is calculated using addition of scores where the coefficients on which the two vectors differ are considered as the score or the distance between the two vectors and the similar coefficients are taken as errors.

For example, the Hamming distance between two objects X=(x1, x2,…, xk) and Y=(y1,y2,….,yk) where the bit xi (where i=1, 2,…, k) is 1 is true/exists, otherwise xi is set to 0 can be calculated as follows

$$\text{If } \delta i(X,Y) = \begin{cases} 0 & when \quad x_i = y_i \\ 1 & other \quad wise \end{cases}$$

$$\text{Hd(X, Y)} = \delta 1(X,Y) + \delta 2(X,Y) + \cdots + \delta k(X,Y)$$

Illustration:

Let k=4 and let X= [0011] and Y= [0111] be bit strings

$$\delta 1(X,Y) = 0, \delta 2(X,Y) = 1, \delta 3(X,Y) = 1, and\ \delta 2(X,Y) = 0$$

Then the Hamming distance between X and Y is

$$\text{Hd(X,Y)} = \delta 1(X,Y) + \delta 2(X,Y) + \delta 3(X,Y) + \delta 4(X,Y) = 2$$

The features considered are ICU Quality characteristics (Standard Guidelines to be maintained) given in Table 6 (Column 1). The columns 2 to 6 are associated bit strings of the five hospitals as given in the heading of the columns. The hamming distance was calculated through SPSS version 19 and the results of the Hamming distances are presented in Table 7. The 34-item ICU checklist was used to calculate the distance between the hospitals. These distances were used to categorize the hospitals on the basis of the quality of care given in the ICU. The ICU Quality characteristics i.e. facilities provided or not provided are represented by “1” and “0” respectively (which are called as bit strings). The number of differences in the bit strings, of the corresponding hospitals is treated as the distance between the hospitals. It may be observed from Table 7 that Hospital-1 and Hospital-2 differ from each other on four items: 3, 15, 16, 17, and are similar on 30 items, and hence the hamming distance (dissimilarity index) between H1 and H2 is 4. Hospital 4 and Hospital 5 are at a distance of 3, as they differ from each other on three items: 15, 18 and 20. Hospital 3 stands apart from all the other hospitals, with a distance of 11. It may be observed from Table 7 that the distance between the hospitals varies from 3 to 11.

Following the calculation of Hamming distance, hierarchical Cluster Analysis has been employed to cluster the ICUs of hospitals based on the quality they provide. The Cluster Analysis was also done by the SPSS version 19. In this Agglomerative approach of clustering, each observation starts in its own cluster, and pairs of clusters are merged as one moves up the hierarchy. The clusters are linked at an increasing level of similarity. Figure-1 presents a Dendrogram which represents the hospitals that have been clustered. The numbers 1, 2, 3, 4 and 5 represent the five hospitals viz. H1, H2, H3, H4, and H 5. The height represents the distance. It may be observed from Figure-4 that the cluster of H 1 and H 2 are combined at a linkage distance of 4, and are the nearest neighbors. H 4 and H 5 are combined at a linkage distance of 3, and H3 which is at a linkage distance of 11 forms another cluster. Using the Method of Complete Linkage and the Hamming Distance, H1 and H2 are clustered together and represent the High ICU Quality hospital category and this category is named as Group 1. H3 and H4 are the next nearest neighbors and are clustered together and categorized as Group 2 and are named as the Medium ICU Quality hospital category. H3 stands apart from the rest of the hospitals and is categorized as a Low ICU Quality and named as Group-3. These three groups are recognized by chapping the Dendrogram at a tolerance distance 5.

Table 6

Scores of hospitals on the ICU checklist representing the facilities provided to improve ICU Quality Care

S.No	Items	H1	H2	H3	H4	H5
1	There is a Physician in the ICU (round the clock) who will be available within 5 minutes in an emergency.	1	1	1	1	1
2	The Nurse Patient ratio higher than 1:4.	1	1	0	1	1
3	The noise level in the ICU follows the recommended standards of 45dBA, 40dBA and 20dBA in the morning, evening and night.	0	1	1	1	1
4	There is a window so that patients have an access to natural light.	0	0	0	0	0
5	There a calendar in the ICU to help the conscious patient well oriented.	0	0	0	0	0
6	There is a bed side clock for the patient to get to know the time.	1	1	0	0	0
7	The Doctors wear a cap to maintain the sterile conditions in the ICU.	1	1	1	1	1
8	The Doctors use infection preventing mask to maintain the sterile conditions.	1	1	1	1	1
9	The Nurses wear a cap to maintain the sterile conditions in the ICU.	1	1	1	1	1
10	The Nurses use infection preventing mask to maintain the sterile conditions.	1	1	1	1	1
11	The nurses follow the hand hygiene procedures every time they come in contact with the patient.	1	1	1	1	1
12	The total number of beds in the ICU within the norm of 8-12.	1	1	1	1	1
13	There is a partition between two beds to maintain privacy of the patient.	1	1	1	1	1
14	There is an alarm bell (indicated by sound and light) provided to the each patient to have an easy accessibility to the nurse or doctor.	0	0	0	0	0
15	There is a room for grieving or private conference.	1	0	0	0	0
16	The waiting area has a smooth décor.	1	0	0	1	1
17	There are lockers provided to the families.	0	0	0	0	0
18	The hospital provides an information booklet on the diseases relevant to critical care.	1	0	0	1	0
19	The hospital provides pamphlets with rules and regulations for the families of the patients on critical care.	1	1	1	1	1
20	There are waiting rooms or suitable and quiet areas available for the relatives of the patients.	1	1	0	1	0
21	There is a Pharmacist in the ICU.	1	1	0	1	1
22	There is a Physiotherapist in the ICU.	1	1	1	1	1
23	There a Social Worker in the ICU.	0	0	0	0	0
24	The hospital has a diagnostic pathological laboratory support.	1	1	1	1	1
25	The ICU nurses are trained in critical care.	1	1	1	1	1
26	There an isolation room for patients who are seriously ill (burns or contagious diseases).	1	1	0	1	1
27	There written information about the availability of dining facilities for family members.	1	1	0	1	1

28	The nurse see all the monitors from the nursing station	0	0	0	0	0
29	The hospital provides a trained professional Psychologist to help patients and family cope with stress.	0	0	0	0	0
30	The waiting area has a refreshment counter for the family member.	0	0	0	1	1
31	The lights in the ICU are turn down during night	0	0	0	0	0
32	Bathing/sponging the patients is not practiced in the early hours	0	0	0	0	0
33	Patient privacy is ensured by closing door or pulling curtains.	1	1	0	1	1
34	The alarms are turned down and the noise level of the monitors is reduced at night	0	0	0	0	0
	Total	22	20	13	23	20

Table 7

The classical symmetrical distance matrix Hamming Distance computed using the Hamming Distance

Hospitals	H1	H2	H3	H4	H5
H1	.00				
H2	4.00	.00			
H3	11.00	7.00	.00		
H4	3.00	5.00	10.00	.00	
H5	6.00	4.00	7.00	3.00	.00

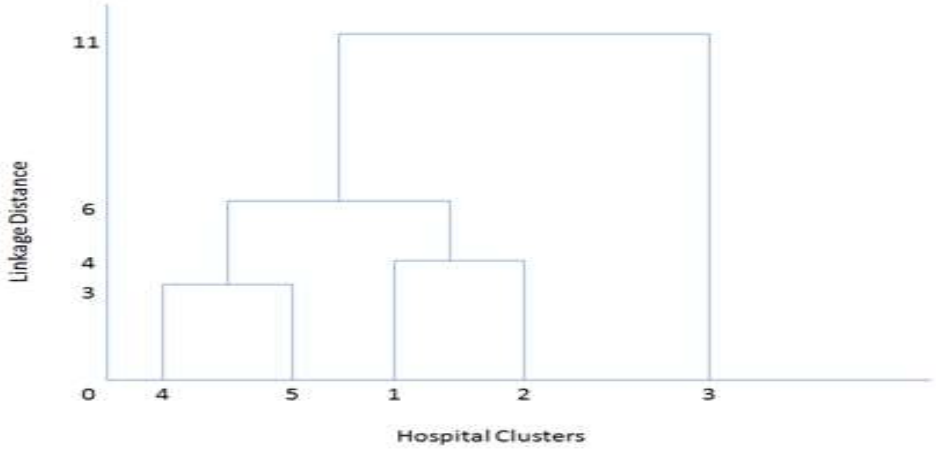

Fig 1: The Dendrogram or the complete linkage distance between the three groups of hospital Note 1&2(H1&H2), 4&5(H4&H5), 3(H3)