# NUTRITIONAL STATUS AND PRACTICE AMONG PATIENTS WHO UNDERWENT MAJOR SURGERY IN HOSPITAL UNIVERSITI SAINS MALAYSIA

By

Rosliana Binti Mohd

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CERTIFICATEi
ACKNOWLEDGEMENT ii
LIST OF TABLES vii
LIST OF ABBREVIATIONSviii
ABSTRACTix
ABSTRAKx
CHAPTER 1 1
INTRODUCTION1
1.1 Background of Study 1
1.2 Problem Statement
1.3 Research Objectives 4
1.3.1 General Objective4
1.3.2 Specific Objective
1.4 Research Question
1.5 Research Hypothesis5
1.6 Definition of Operation Term6
1.7 Significance of the Study7
CHAPTER 2
LITERATURE REVIEW8
2.1 Introduction
2.2 Nutritional Status

2.3 Perioperative Surgery
2.4 Nursing Practices for Perioperative Procedure10
2.5 Instrumentation 11
2.6 Conceptual Framework : Healthcare System Model 12
CHAPTER 3 16
RESEARCH METHODOLOGY 16
3.1 Research Design 16
3.2 Population and Setting16
3.3 Sampling Plan16
3.4 Instrumentation 18
3.5 Ethical Consideration
3.6 Data Collection Plan
3.7 Data Analysis
CHAPTER 4
RESULT
4.1 Introduction
4.2 Demographic Characteristics
4.3 Nutritional status and nutritional practice among patients undergone major postoperative surgery
4.4 Association between level of education and the nutritional status

### Pages

4.5 The difference between types of surgery and nutritional status for patients undergone general major surgery and orthopedics surgery
CHAPTER 5
DISCUSSION
5.1 Introduction
5.2 Nutritional status and nutritional practice among patients undergone major surgery
5.4 Association between level of education and the nutritional status
5.5 The difference between types of surgery and nutritional status for patients undergone general major surgery and orthopedics surgery
CHAPTER 6
CONCLUSIONS AND RECOMMENDATIONS
6.1 Summary of the Study Finding
6.2 Strength and Limitation
6.3 Implication and Recommendation
6.4 Theoretical implication
REFERRENCES 40
APPENDIXES
RESEARCH INFORMATION FOR PARTICIPANT
MAKLUMAT KAJIAN BAGI PESERTA 46
PARTICIPANT CONSENT FORM

### Pages

QUESTIONNAIRE FORM	
TABLES	59
PERMISSION TO USE QUESTIONNAIRE	60
ETHICAL APPROVAL	61
PERMISSION TO CONDUCT STUDY	62

### LIST OF TABLES

Tables		Pages
Table 4.1	Frequency and percentage of demographic data	24
Table 4.2	Status of energy requirement for patients postoperative surgery	25
Table 4.3	Status of energy requirement for patients postoperative surgery	25
Table 4.3	Status of energy requirement for patients postoperative surgery	26
Table 4.4	Type of nutrition for breakfast	27
Table 4.5	Types of nutrition for lunch by patients	27
Table 4.6	Types of nutrition for dinner by patients	27
Table 4.7	Frequency and percentage of protein intake in a week by patients underwent major postoperative surgery	28
Table 4.8	Frequency and percentage of fruit intake by patients undergone major postoperative surgery.	28
Table 4.9	Frequency and percentage of patients performed exercise	29
Table 4.10	Frequency and percentage duration of exercise performed by surgical during each session	29
Table 4.11	Mean, SD and p-value of types of surgery with nutritional status among patients undergone major surgery	30
Table 4.12	t value, mean, SD of the different types of surgery with nutritional status	31

### LIST OF ABBREVIATIONS

- 1. GIT : Gastrointestinal tract
- 2. BMI : Body Mass Index
- 3. ICU : Intensive Care Unit
- 4. WHO : World Health Organization
- 5. SGA : Subjective Global Assessment

# NUTRITIONAL STATUS AND PRACTICE AMONG PATIENTS WHO UNDERWENT MAJOR SURGERY IN HOSPITAL UNIVERSITI SAINS MALAYSIA (HOSPITAL USM)

#### ABSTRACT

Patients who underwent major surgery do not get enough nutrients, have increased rates of complications and mortality than well-nourished patients. The primary objective of postoperative care is restoration of normal gastro intestinal function to allow adequate food intake and rapid recovery. The goal of this descriptive cross-sectional study is to examine the nutritional status and nutritional practice for patients who have undergone major postoperative procedure. This study also examined the association between level of education and the nutritional status and the different types of surgery and the nutritional status of the patients.

41 surgical patients who were hospitalized in the general surgery and the orthopedics surgery wards Hospital USM were recruited in this study using purposive sampling. Data were collected from March 2014 to April 2014 using validated questionnaire and analyzed using SPSS version 20.0 for frequency, percentage, mean, standard deviation and p value. Ethical approval was obtained from Research Ethics Committee (Human), USM. The respondents rated their highest frequency for breakfast, lunch and dinner as rice and noodle (breakfast : 26.8%, Lunch : 92.7%, Dinner : 46.3%). The result shows that the level of education was significantly associated with nutritional status (p<0.001). Thus, there was no significantly different of types of surgery and the nutritional status (p=78.82). The results show that surgical patients at the ward were not influenced by factors of hospitality.

Thus caregivers should identify the defect of nursing care, and institute appropriate changes to improve the quality of nursing care in order to promote patients healing process.

# STATUS NUTRISI DAN AMALAN PEMAKANAN DALAM KALANGAN PESAKIT YANG TELAH MENJALANI PEMBEDAHAN UTAMA DI HOSPITAL UNIVERSITI SAINS MALAYSIA (HOSPITAL USM)

#### ABSTRAK

Pesakit yang menjalani pembedahan utama, kebanyakannya berisiko tinggi untuk mengalami masalah pemakanan yang tidak seimbang. Objektif utama penjagaan postoperatif adalah pemulihan fungsi gastro usus untuk menggalakkan pengambilan makanan yang seimbang dan menggalakkan pemulihan. Matlamat kajian ini adalah untuk mengkaji status pemakanan dan amalan pemakanan bagi pesakit yang menjalani prosedur posoperatif utama. Kajian ini juga, turut menentukan hubungan antara tahap pendidikan dan status pemakanan serta perbezaan jenis pembedahan dengan status pemakanan pesakit.

41 pesakit yang menjalani pembedahan dimasukkan ke wad hospital untuk pembedahan am dan ortopedik Hospital USM telah disenaraikan dalam kajian ini menggunakan kaedah persampelan bertujuan. Data telah dikumpulkan dari bulan Mac 2014 hingga April 2014 dengan menggunakan borang soal selidik yang telah disahkan dan dianalisis menggunakan perisian SPSS versi 20.0 untuk kekerapan, peratusan, min, sisihan piawai dan nilai purata. Kebenaran etika telah diperolehi daripada Jawatankuasa Etika Penyelidikan (Manusia), USM. Jenis makanan yang mencapai peratusan tertinggi bagi sarapan, makan tengah hari, dan makan malam, adalah nasi dan mi (sarapan: 26.8%, Makan tengah hari: 92.7%, Makan Malam: 46.3%). Hasil kajian ini mendapati bahawa tahap pendidikan pesakit berkaitan secara langsung dengan status pemakanan (p < 0.001). Kajian ini juga mendapati bahawa tidak ada perbezaan yang signifikan antara jenis pembedahan dan status pemakanan (p = 78.82). Keputusan ini menunjukkan bahawa pesakit pembedahan di wad tersebut tidak dipengaruhi oleh faktor-faktor hospitaliti.

Oleh itu, penjaga hendaklah mengenal pasti kekurangan penjagaan rawatan, dan memperkenalkan langkah-langkahyang sesuai untuk meningkatkan kualiti penjagaan kejururawatan bagi menggalakkan proses penyembuhan.

#### **CHAPTER 1**

#### INTRODUCTION

#### 1.1 Background of Study

Nutritional status can be defined as the level of nutrition intake either it meets the metabolic need of a person or not, whereas, malnutrition is the condition when the body do not get enough nutrients such as protein, carbohydrate, vitamins, fiber, minerals as the body needs to maintain good health.

Existing research suggest that malnutrition is prevalent in patients undergoing major abdominal surgery and is common for further deterioration in nutritional status in the hospital following major surgery (Garth, Newsome, Simmance, Crowe, 2010). Perioperative refers to the activities before (preoperative), during (intraoperative) and after (postoperative) a surgical procedure. The perioperative period begins when the patient is informed of the need of surgery, include the surgical procedure and recovery, and continues until the patient resumes his or her usual activities. The surgical experience can be segregated into three phases which are preoperative, intraoperative and postoperative phase. The word "perioperative" is used to encompass all three phases. The postoperative phase starts with the patient's transfer to the recovery unit and end with the resolution of surgical sequences. The postoperative period either may be brief or extensive, and most commonly ends outside the facility where the surgery was performed (Jones & Bartlet; 2012).

Scottish Intercollegiate Guidelines Network (2004) shows that for normally nourished patients, the primary objective of postoperative care is restoration of normal GI function to allow adequate food intake and rapid recovery. Malnourished patients are at increased risk of postoperative complications and mortality.



Malaysia (USM).

Figure 1.1 : Average Major and Minor surgery for 9 months in Hospital Universiti Sains

Figure 1.1 shows that the number of major surgery and minor surgery in Hospital USM. Major surgery in nine months from January 2013 until September 2013 is 140 patients in average. Minor surgery is 146 patients. Postoperative patients with major surgery need adequate nutrition more than minor surgery patients. Major surgery can be defined as any invasive operative procedure in which a more extensive resection is performed and it includes major part of body or organ (Emory University, 2013).

Besides that, postoperative recovering process required adequate nutrition intake to make sure healing process is progressing. Wound repair must occur in a physiologic environment conducive to tissue repair and regeneration. However, several clinically significant factors are known to impede wound healing, including a diet deficient in protein, vitamins, or minerals. In addition, increased metabolic demands are made by the inflammation and cellular activity in the healing wound, which may require increased protein or amino acids, vitamins, and minerals (MacKay and Miller, 2003).

According to a research from Scottish Intercollegiate Guidelines Network (2004), energy and protein requirements depend on body composition, clinical status and mobility. An estimation of requirements is 30 kcal/kg/day and 1.0 g protein/kg/day for the average patient. Few patients require more than 2,200 kcal/day. Additional calories are unlikely to be used effectively and may constitute a metabolic stress.

Journal of Human Nutrition and Diet proved that malnourished patients with gastrointestinal (GI) cancer, as with all malnourished surgical patients, have increased rates of complications and mortality and longer hospital admissions than well nourished patients (Chima et al., 1997; Edington et al., 2000; Isabel et al., 2003; cited in Garth et al., 2010). Apart from the clinical implications for the patient, these outcomes ultimately contribute to increased healthcare costs (Edington et al., 2000; Middleton et al., 2001; cited in Garth et al., 2010).

Complications that possible relevance to postoperative procedure are included mortality, anastomotic leak, sepsis, wound infection, transfer to the intensive care unit, requirement for parenteral nutrition, prolonged post-operative ileus which defined as an ileus lasting more than 7 post-operative days (Artinyan et al., 2008), wound dehiscence, return to theatre, pneumonia, urinary tract infection and the number of days the patient required nasogastric tube drainage (Garth et al., 2010). Thus, nutrition is one of the important factors to be considered by the physicians to help postoperative patient to recover effectively without further complications.

#### **1.2 Problem Statement**

Current research from Beaton, Carey, Solomon, and Young(2013) show that hospitalized patients especially those who have undergone major surgery are possibly risk for malnourished. In a recent study of preoperative and postoperative nutritional status of patients with major surgery was done to find out that the prevalence of malnutrition as determined by the subjective global assessment (SGA) was 24% on admission and 51% at the time of discharge, while according to Garth, Newsome, Simmance and Crowe, 2010, malnutrition is prevalence in hospitalized patients with international studies estimating the prevalence to be in the range 20-42%. These show that insufficient intake of nutrition for postoperative patients are common among them and it will delay their rehabilitating process.





Low quality service from caregivers for postoperative patients is due to lack of information guideline. Clinical practitioner should provide healthcare professionals with knowledge and information drawn from the systematic review research findings and expert knowledge of healthcare, thus they can ultimately make rational and integrated clinical decisions in practice using knowledge and information. Healthcare Informatics Research from Department of Nursing, Seoul National University Hospital, Korea (2010) the systematic review of 18 studies on the effect of nursing practice guideline shows that the effect of nursing practice guidelines was found to be effective in improving the process such as improving the accuracy of nursing records and outcome of nursing activities such as decreasing the incidence of complications.

Patients who do not take sufficient meals per day after surgery can cause insufficient body nutrient intake to recover from surgical wound. Studies in hospital patients have shown that up to 20% of meals are missed while patients attend or are fasted for investigative or therapeutic interventions, whilst 40% of the content of meals delivered to the patient is discarded. The provision of appetizing hospital food and access to sufficient nursing staff to help patients who have difficulty in eating, is a key issue in helping patients return to a normal food intake (Scottish Intercollegiate Guidelines Network, 2004). This is due to the problem of only 32.0% of patients met at least half of their estimated energy requirements by the second day of a soft ward diet. Protein intake on the second day of a soft ward diet was also higher for malnourished patients compared to well-nourished patients (Garth et. Al.,2010).

#### **1.3 Research Objectives**

#### 1.3.1 General Objective

The objective for this study is to determine the nutritional status and practice of patients underwent major surgery in Hospital Universiti Sains Malaysia (Hospital USM).

#### **1.3.2 Specific Objective**

The specific objectives of this study are as follows :

1. To determine the nutritional status and nutritional practice of patients underwent major surgery in Hospital USM.

2. To examine the association between level of education and nutrition status among patients underwent major surgery in Hospital USM.

3. To examine the difference between types of surgery and nutritional status for patients underwent major surgery in Hospital USM.

#### **1.4 Research Question**

1. What is the nutritional status and practice among patients who have undergone major postoperative surgery in Hospital USM?

2. Is there any association between level of education and nutrition status of patients who have undergone major postoperative surgery in Hospital USM?

3. Is there any difference between types of surgery and the nutrition status for patients who have undergone general major and orthopedics postoperative surgery?

#### **1.5 Research Hypothesis**

1.5.1 HO : There is no significant association between level of education and nutritional status among patients undergone major postoperative surgery in Hospital USM.

HA: There is a significant association between level of education and nutrition status among patients undergone major postoperative surgery in Hospital USM (HO  $\neq$  HA).

1.5.2 HO : There is no significant difference between types of surgery and nutritional status for patients undergone general and orthopedics major surgery in Hospital Universiti Sains Malaysia.

HA : There is a significant difference between types of surgery and nutritional status for patients undergone general and orthopedics major surgery in Hospital Universiti Sains Malaysia.

5

#### **1.6 Definition of Operational Term**

#### **Nutritional status**

The nutritional status is defined as the condition of a body in those respects is influenced by the diet, or the levels of nutrients in the body and the ability of those levels to maintain normal metabolic integrity. The measurement used to identify the nutritional status is by the simple open-ended questions included body weight of the patient, height, current BMI and energy requirement. The formula to calculate body mass index (BMI) is weight (kg) / [height (m)]2. The formula to calculate energy requirement is based on Harris Benedicts formula which is energy requirement per person, male : 66.47 + 13.75W + 5.0H - 6.76A, female : 665.10 + 9.56W + 1.85H - 4.68A.

#### **Nutritional practice**

Clinical nutrition practice is the provision of direct nutrition care to individuals and groups. (Academy of Nutrition and Dietetics; 2013) This nutrition practice can be measured by eight simple open-ended questionnaire listed in section C. The criteria state included nutritional intake in the morning, noon and dinner, how often patients ttook source of protein such as chicken, how often they took snacks and fruits. This measurement was adapted from a research journal entitled "The relationship between nutritional knowledge and healthy attitude and practice during pregnancy" (Mirsanjari, Wan, Affizal, Mohd, Maryam, and Mir; 2012)

#### Major postoperative surgery

Major surgery means any surgery in which the patient must be put under general anesthesia and given respiratory assistance because he or she cannot breathe independently. In addition, major surgery usually carries some degree of risk to the patient's life, or the potential for severe disability if something goes wrong during the surgery. (McMahon, 2013) Major surgery Post-operative is from the time of admission in the recovery room to the time of follow-up evaluation. This is the last phase of perioperative nursing and it is usually as well critical as other phases since the recovery

of the patient from the surgical intervention is being monitored (Nursing Careers Allied Health, 2010)

#### 1.7 Significance of the Study

Further in this research, many data about nutritional practice and status of patients undergoing major postoperative surgery could be achieved. This is important to improve nursing care especially for postoperative nursing guideline. Healthcare Informatics Research from the Department of Nursing, Seoul National University Hospital, Korea (2010) with the systematic review of 18 studies on the effect of nursing practice guideline shows that the effect of nursing practice guidelines was found to be effective in changing the process such as improving the accuracy of nursing records and outcome of nursing activities such as lowering the risk of the incidence of complications.

On the other hand, this study will prove that the nutritional status of patient undergone major postoperative surgery will commonly suffer malnutrition within their recovery time in postoperative phase. According to Garth, Newsome, Simmance & Crowe (2010), malnutrition is prevalent in hospitalized patients with international studies estimating the prevalence to be in the range of 20-42%.

In addition, this study investigated the routine practices among nurses and caregivers on patient who have undergone major postoperative surgery. This information is important to relate the prevalence of malnutrition patients with the practices.

Based on the existing journals, knowledge is very important but the studies about this are limited in Malaysia especially about nutritional and their dietary behavior. The advancement technology could make knowledge about health and education is very important especially for patients.

#### **CHAPTER 2**

#### LITERATURE REVIEW

#### **2.1 Introduction**

The bulletin of the American College of Surgeon (2012) defined surgery as a procedure to structurally alter the human body by incision or destruction of tissues and is part of the practice of medicine. Surgery is also a diagnostic or therapeutic treatment of conditions and disease process by any instrument causing localized alteration or transportation of live human tissues includes laser, ultrasound, ionizing, radiation, scalpels, probes and needles. Surgery is divided into two which are major surgery and minor surgery. Major surgery involved the organs of the head, chest and abdomen. Examples of major surgery include organ transplant, removal of a brain tumor, removal of a damaged kidney or open-heart surgery. The person will need to stay in hospital for some time. The risk of complications may be high and the person will take a longer time to recover. Meanwhile, in minor surgery presents a low risk of complications and fast recovery time. The person can usually go home the same day. Examples of minor surgery include tonsillectomy, sewing up a cut or biopsy of a breast lump. (Better health channel website; 2013)

#### **2.2 Nutritional Status**

Nutritional status is a measurement of how well the nutrients are in the diet, either it meets the physiologic needs of your body. Health care professionals like registered dietitians, nurses and physicians are trained to review and assess many different parameters to assess a person's nutritional status. They do this through the use of medical tests and other tools that provide dietary information. (Livestrong.com,2011)

In a nutritional aspect, hospital length of stays are quickly decreasing and moving towards a 'fast-track' approach, where stays are 5 -7 days. In the "fast track" progression,

diet initiation is started with clear liquids as early as 1-2 days and advanced to regular diet by day 4 or 5. Discharge from the hospital will not occur until tolerance of a solid oral diet is demonstrated. Dependence on postsurgical oral intake to fully meet nutritional needs can be problematic as nausea and decreased appetite are reported in 30% of patients; in addition, delayed gastric emptying can hinder progress. If a patient requires nutrition support subsequent to surgery, the lack of enteral access can be problematic, as surgeons often will not want to place a feeding tube through a new anastomosis until after day 7. (Decher & Berry, 2012)

#### 2.3 Perioperative Surgery

'Perioperative' refers to the total surgical experience. The phases of patients surgical journey includes pre-, intra- and postoperative procedure (Phillips, 2004; Diane Gilmour, 2005). For the purpose of this research, the perioperative period is from the minute the patient arrives in through the operating theatre doors to the moment they leave through those same doors post-procedure. (Diane Gilmour, 2005)

Preoperative is the phase when the patient had decided for surgical intervention up to the time of transfer to the operating room. Health teaching is an essential avenue to hinder the patient from anxiety and stress for the upcoming surgical procedure. Teaching the patient about deep breathing, turning, splinting, and purse- lip breathing exercises would be very helpful to prevent the patient from developing complications like pneumonia and other respiratory problems as well as circulatory conditions.

Intra-operating is from the time when the patient is received in the operating room to the time the patient is admitted in the recovery room. The surgical team is already in charge of the patient, composing of the surgeon, assistant surgeon, anesthesiologist, holding area nurse, circulating nurse and scrub nurse. The circulating nurse is in charge of monitoring the patient's well-being in collaboration with the anesthesiologist and the surgeon, dispensing solutions, supplies and instruments, and documenting the progress of the surgery. The scrub nurse, on the other hand, assists the surgeon by handling instruments and supplies to the surgeon while maintaining surgical asepsis.

Post-operative is from the time of admission in the recovery room to the time of follow – up evaluation. This is the last phase of perioperative nursing and it is usually as well critical as other phases since the recovery of the patient from the surgical intervention is being monitored. The anesthesia report and the nurse's notes from the intra – operative phase are being well verified prior to admission to recovery room to make sure that the patient is undergoing as what is expected. Again, the use of nursing process involving assessment, planning, implementation and evaluation are the keys to hastened recovery. (Nursing Careers Allied Health, 2010)

#### 2.4 Nursing Practices for Perioperative Procedure

During the pre operative phase, assessment is done in terms of age of the patient, by which young children and older adults are the most vulnerable to complications; the patient's nutritional status, where in post op recovery usually relies; fluid and electrolyte status, because hydration is important to prevent hypovolemia during surgery; presence of infection and other health problems, since it can predispose the patient for sepsis and other untoward conditions post operatively; the holistic bodily functions, clearance from cardio, respiratory, renal, neurologic, hematologic and other pertinent functions prior to procedure is really a routine to avoid life threatening situations during and after the surgical procedure; use of medications like anticoagulants, to prevent hemorrhagic complications; as well as health habits like smoking and sedentary lifestyle, in order to assess the possible needed health teachings suited for the patient. Meanwhile, preparations during this phase include the process of obtaining the informed consent done by the physician and letting the patient verbalize his/ her fears and utilizing therapeutic communication in letting them understand fully well the procedure they will undergo. Gastrointestinal and skin preparations are also included during this phase and also the giving of prescribed medications, like tranquilizers, sedatives, analgesics, and anticholinergics.

The nurse responsibilities in intra-operating phase include the verification of the pre- operative checklist, composing of the informed consent, various preparations, and if prescribed medications are given as well as for availability of blood and intravenous access. Knowing the indicated surgical intervention well is beneficial for the nurse to know the exact position and skin preparation to be done. The principles of surgical asepsis are being strictly utilized during this phase and include preparations in terms of layout, health of surgical team, surgical attire, and surgical scrub. The overall goal of the nurse is to ensure patient safety and promote homeostasis, so there is careful dispensing of supplies and instruments and there is strict maintenance of aseptic environment.

In post-operative, the nursing role includes checking ABCs or airway, breathing, and circulation, oxygen saturation and ventilation, vital signs and level of consciousness are being assessed and given priority. Drainage, fluid status and hydration are also checked. Patient's ability to move, gag, and discomforts are later assessed to know if the patient is ready to be transferred out from recovery room. And lastly, patient's safety is ensured by putting the side rails always up.

Other than that, the most important role for the three phases are to make sure that the patient have lower risk of getting malnutrition especially for major post-operative surgery. This is because malnutrition is prevalent in hospitalized patients, with international studies estimating the prevalence to be in the range of 20–42% (A. K. Garth, C. M. Newsome, N. Simmance& T. C. Crowe, 2010;Edington et al., 2000; Middleton et al., 2001; Kyle et al., 2002; Lazarus & Hamlyn, 2005; Bankset al., 2007).

#### **2.5 Instrumentation**

In this study, the questionnaire was divided into three major sections. The first section (A) was the demographic data of the patient such as age, race, gender, level of education, occupation and type of surgery. These data was modified from Mirsanjary et. Al., 2012. These section is categorized to section A (Demographic data) includes data such as age, race, gender, level of education, occupation and types of surgery. These data

is important to check patient history and to confirm the inclusion criteria of the respondent.

Then, the second section (B) was the data collected from Garth et. Al., 2010. The data collected are body weight, height, body mass index (BMI), and energy requirement. These data is to check patients nutritional status.

Then, the last part of questionnaire was nutrition practice quality. These simple open-ended question ask eight questions such as usual food intake in the morning, noon, and dinner, how often they take eggs, chicken/duck, snacks, fruits and how do they do their exercise. These questionnaire is modified from Mirsanjari et. Al., 2012 from the last section of questionnaire that is nutritional practice section.

#### 2.6 Conceptual/Theoretical Framework

Conceptual framework was a structure that links global concepts together and represents the unified whole of a larger reality. The specifics about phenomena within the global whole are better explained by theory. The same concept may be used differently in various theories. For example, one nursing theory may use the concept of environment to mean all that surrounds a human being (the external environment), whereas another theory may use this concept to mean the external environment and all the biological and psychological components of the person (the internal environment). Recent studies have found that Americans received only about half of the appropriate care that they are supposed to receive, and even that varies on the basis of where people live. (American Journal Of Public Health;2007)

One important cause of the deficiencies in the US healthcare system was that financial incentive for providers was misaligned with the goal of providing the highest possible quality of care. Weak incentives to improve quality are reflected nationwide in the low adoption rate of electronic health records, with fewer than 10% of ambulatory care physicians using a system with key features necessary to improve care despite strong evidence that well-designed electronic system scan improve the quality and safety of care. Recent efforts to change this by the Centers for Medicare and Medicaid Services not with-standing, reducing medical errors may actually reduce provider revenue given the prevalence of fee-for-service payment.

The system was expanded to improve the problems. There note several ways to achieve the best quality of care. Firstly, Address under capacity where it exists. This could improve access to a range of services by building greater capacity where needed, scientifically assessing scheduling practices, and selectively contracting out services. Then, Improve inpatient care. This will help to consider either contracting out high-tech services to high-volume, high-quality providers in the community or further regionalizing high-tech services. Validated measures of inpatient quality for use, broader than the limited set commonly used in national public reporting efforts, would be of great value in accelerating improvement in inpatient care quality.

Third element in the model was to create stronger incentives for desired behaviors. Studies have shown that financial incentives offered directly to patients can significantly increase the rate of healthy behaviors. For example, a randomized trial of veterans who were heavy smokers demonstrated that those offered \$20 per class to attend 5 smoking cessation classes, \$100 to quit smoking, free smoking cessation counseling, and nicotine patches were nearly 4 times as likely to quit smoking as the control group, who received only the free smoking cessation counseling and nicotine patches. (American Journal Of Public Health;2007)

Then, the Healthcare system model suggests an element to encourage in investing in improving health for patients. The ambulatory intensive caring model, initially developed with funding from the California HealthCare Foundation. It works on the notion that intensive provision of outpatient services to complex ambulatory patients who are chronically ill is a cost-effective approach to improve health outcomes.

Last element introduced in this model was to improve outreach and to continue investment in research as shown in the figure 2.1. To reach out more actively to recently discharged military personnel to ensure that they feel welcomed to the system and that

they receive the care they need. Recently there have been efforts to improve the transition from active status to veteran status, but the importance of perfecting this transition cannot be underestimated.



Figure 2.1: Health Care System Model

Note : From Designing a Model Health Care System; American Journal Of Public Health; 2007

#### 2.6.1 Conceptual Framework of The Study

In this study, the elements applied are to improve inpatient care and to invest in improving health. Patients who have undergone major postoperative surgery will firstly be monitor in the recovery room then transferred out to either intensive care unit (ICU) or to the open ward. In this phase, they need the best services from caregivers either family members or nurses so that they have lower risk of complications. Improve in inpatient care notify caregivers to always improve in health care procedures, such as annual daily living, therapeutic interventions or psychological care as shown in figure 2.2 below. On the other hand, they have to consider in holistic care of patient especially to improve

nutrition intake. Improving patients health is a very important intervention for nurses as it is the main objective they were hospitalized. Caregivers should monitor every change that patient show, so as to make sure there must be positive outcome in patient's health status every day.



Figure 2.2 :Diagram of Health Care Model in this study

#### **CHAPTER 3**

#### **RESEARCH METHODOLOGY**

#### 3.1 Research Design

This descriptive cross sectional study explored the postoperative information of nutritional status and nutritional practice among patients underwent major surgery in Hospital USM.

#### 3.2 Population and Setting

The targeted population in this study was the surgery patients in Hospital USM. The patients were recruited from the general surgery ward and orthopedics ward (3 Utara, 2 Intan, 2 Zamrud, 4 Selatan, 4 Utara) in Hospital USM.

#### 3.3 Sample

#### 3.3.1 Sampling Size

Sample size was calculated according to Rao soft sample size calculator with margin error of 5% and confident level of 95%. Response distribution of 50% was considered for an estimated total of 84 respondents after count its 10% dropout. A sample of 93 patient in a month undergone major postoperative surgery participated, therefore the required sample size was fulfilled. Systematic sampling was carried out from patients attending ward for preoperative preparation, till postoperative ward or surgery clinics as outpatients. Adult patients age within 18 to 64 years of age, undergone major surgery, More than day 3 of postoperative, and willing to participate in the study.

#### 3.3.4 Sampling Method

This study was used non probability method via purposive sampling method. For this sampling method, major post-operative patients in surgical wards were selected based on inclusion and exclusion criteria. By using this sampling method design, the bias were avoided during the time when the study is conduct.

#### **Inclusion Criteria**

Inclusion criteria for a sample refer to those that were eligible for participation and the exclusion criteria consist of those characteristics that rule out certain people (Moule & Goodman, 2009).

Patients who were :

1.Adult patients between 18 to 64 years of age

2.Patients undergone surgery excluded neuro surgery

3.Patients under general anaesthesia during surgery

4. More than day 3 of postoperative procedure

5.Conscious and alert

6. Willing to participate in the study

7. Able understand Malay and English

#### **Exclusion Criteria**

1.Undergone minor surgery

2.Patients not under general anaesthesia

3.Refuse to participate

4. Unable to understand Malay and English

#### **3.4 Instrumentation**

#### 3.4.1 Instrument

Instruments that used in this study were self-administrated questionnaires based on previous study entitled Nutritional status, nutrition practices and post-operative complications in patients with gastrointestinal cancer (2010) and Relationship between nutritional knowledge, healthy attitude and practice during pregnancy (2012). This questionnaire was categorized into three sections which were demographic data, nutritional status and nutrition practice.

Section A : Demographic characteristics. Six criteria were asked such as the age of the patient, race, gender, level of education, occupation and types of surgery done. These data were important to confirm that the patient fulfill the inclusion criteria.

Section B was the nutritional status of the patient undergone major postoperative surgery. This section purposed to clarify the nutritional status of the patients by the items needed, such as body weight (kg), height (cm), Body mass index status (BMI), and energy requirement for each individual. These items were needed to calculate the nutritional status of the patients.

a) BMI= Weight (kg) / [Height(m) X Height(m)]

b) Energy requirement per individual,

Harris and Benedict equation :

Male: 66.47 + 13.75W +5.0H - 6.76A

Female : 665.10 + 9.56W + 1.85H - 4.68A

W: weight, H: height, A: Age

Section C asked about the nutrition practice being applied before operation and after operation. In this section, the questionnaires translated from Mitra Mirsanjari et. Al. (2012) in the practice. This is the open-ended structural questions for patient to fulfill

according to their habit and practice in nutrition before and after their operation. The items included types of food taken in the morning, noon and night, intake of egg, chicken or duck, snacks and fruits. This is important to understand the eating habit of the patients pre and postoperative.

#### 3.4.2 Variable Measurement

The independent variable is patient undergone major postoperative surgery. In demographic data section, type of surgery is one of the questions asked for the subject. This is to classify that the patient is under major postoperative surgery which has risk of malnutrition.

The dependent variable of this study is the nutritional status and nutrition practice. Nutritional status is measured by questionnaire in section B, regarding on body weight, height, body mass index, and body requirement. These criteria can be measured by current recorded data in patient folder. Usually, doctors and nurses already noted their patient current data as mentioned after operation. While nutrition practice is measured by a simple open-ended questionnaire in section C with eight questions such as usual food intake in the morning, noon and night. Patients have to fill in the blank to answer the question in the section C to identify their nutrition practice.

#### **3.4.3 Translation of Instrument**

The original instruments of nutritional status and practice were developed in the English Language. For this study, the English version of the instruments were translated into Malay Language using forward backward translation and was checked by expert from the Centre for Language and Translation, Universiti Sains Malaysia, Helath Campus, Kubang Kerian, Kelantan. The Malay version questionnaire were checked again by the nursing lecturer for correct medical terminology commonly used in nursing.

#### 3.4.4 Validity and Reliability

#### Validity

For the Malay version of parts A, B and C had been validated 3 experts of nursing lecturers.

#### Reliability

A pilot study was conducted to test the reliability of the instruments in parts A, B and C. Reliability of Malay version of the nutritional status and practice among patients underwent major surgery were test to check on the efficiency of the questionnaire.

#### **3.5 Ethical Consideration**

Prior to conduct the study, ethical approval was obtained from the Research Ethic Committee (Human), USM, Research Ethics Committee (Human) at the Hospital Universiti Sains Malaysia (HUSM) and permission to undertake the study from the Head of Surgery Department, HUSM. The invited postoperative patients who were willing to participate in the study were given oral and written information by the researcher and informed consent. Participants were given an information sheet about the study. All participants were informed that their participation is voluntary and their information will be treated with confidence. Anonymity of the participants was maintained throughout the study to ensure that this research was conduct in ethical manner and putting no risk for the participants. They were also informed that they can withdraw themselves anytime from the study and that their withdrawal subject to refusal of treatment and jeopardize their treatment in HUSM.

#### 3.6 Data Collection Plan

Data collection would be performed after obtaining approval from the Research Ethics Committee (Human), USM and Director, Hospital USM. Written consents were sought from respondents who fulfill the inclusion criteria and were willing to take part in the study. After obtaining consents, respondents was briefed and given questionnaire to be filled up and will be collected after 30 minutes. So, they will have adequate time to complete the questionnaires. Data collections were carried out from December 2013 until January 2014 as shown in Figure 3.1.

#### 3.6.1 Flow chart of data collection



Figure 3.1 Data collection of the study

#### **3.7 Data Analysis**

The data was analyze by using Statistical Package for Social Science (SPSS) version 20.0.

#### Socio-demographic data

Descriptive statistic was used for presentation of demographic data of the patients which comprises of mean, frequency and percentage.

#### Association between level of education and nutritional status

Pearson Chi Square was used to analyze the association between level of education and nutritional status. The data were converted into categorical. P values less than 0.05 will be interpret as significant so null hypothesis will be rejected.

#### The different between types of surgery and nutritional status

Independent t test was used to analyze the mean different of types of surgery and the nutritional status. P values less than 0.05 will be interpret as significant so null hypothesis will be rejected.

#### **CHAPTER 4**

#### RESULT

#### **4.1 Introduction**

This chapter presents the study findings. The results of the study were based on the data gathered from 41 surgical patients. The findings of the study are presented as follows: patients' characteristic, nutritional status and nutritional practice among patients who undergone major surgery, followed by the association level of education and nutritional practice, then the difference of nutritional status between types of surgery, general surgery and orthopedics surgery.

#### **4.2 Demographic Characteristics**

Descriptive statistics were used to describe the patients' characteristic as shown in table 4.2. Majority of the patients were male 29 (70.7%) and female 12 (29.3%.). Highest respondent were Malay 35n (85.4%), followed by Chinese .....and Indian 3 (7.3%). For level of education, most of the patients were at secondary school 23 (56.1%) and 34.1%. primary school with percentage for diploma and degree 4 (9.8%). 27 (65.9%) were working, while 14 (34.1%.) were unemployed. 17 (41.5%) out of 41 respondents were the orthopedics patients, followed by 24 (58.5%) out of 41 respondents from general surgery.

Demographic Characteristics	Mean (SD)	Frequency	Percentage
Age	40.20 (13.58)		
Gender			
Male		29	70.7
Female		12	29.3
Races			
Malay		35	85.4
Chinese		3	7.3
Indian		3	7.3
Level of Education			
Primary School		14	34.1
Secondary School		23	56.1
Diploma/Degree		4	9.8
Occupation			
Working		27	65.9
Unemployed		14	34.1
Types of Surgery			
General Surgery		24	58.5
Orthopedics		17	41.5

Table 4.1 Frequency and percentage of demographic data (n=41)