



**Patients' Discharge Information Needs and Nurses' Discharge Information Support
Regarding Myocardial Infarction in Bangladesh**

Robina Sultana

**A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of
Master of Nursing Science (International Program)**

Prince of Songkla University

2014

Copyright of Prince of Songkla University



**Patients' Discharge Information Needs and Nurses' Discharge Information Support
Regarding Myocardial Infarction in Bangladesh**

Robina Sultana

**A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of
Master of Nursing Science (International Program)**

Prince of Songkla University

2014

Copyright of Prince of Songkla UnivThesis

Thesis Title Patients' Discharge Information Needs and Nurses' Discharge
Information Support Regarding Myocardial Infarction in
Bangladesh

Author Robina Sultana

Major Program Nursing Science (International Program)

Major Advisor:

Examining Committee

.....
(Assist.Prof.Dr.Wongchan Petpichetchian)

.....Chairperson
(Assist.Prof.Dr.Ploenpit Thaniwattananon)

Co-advisor:

.....
(Assist.Prof.Dr.Wongchan Petpichetchian)

.....
(Dr.Charuwan Kritpracha)

.....
(Dr.Charuwan Kritpracha)

.....
(Assist.Prof.Dr.Tippamas Chinnawong)

.....
(Assist.Prof.Dr.Jom Suwanno)

The Graduate School, Prince of Songkla University, has approved this
thesis as partial fulfillment of the requirements for the Master of Nursing Science
(International Program)

.....
(Assist.Prof.Dr.Teerapol Srichana)

Dean of Graduate School

This is to certify that the work here submitted is the result of the candidate's own investigation. Due acknowledgement has been made of any assistance received.

.....Signature

(Asst.Prof.Dr. Wongchan Petpichetchian)

Major Advisor

.....Signature

(Robina Sultana)

Candidate

I hereby certify that this work has not been accepted in substance for any degree, and is not being currently submitted in candidature for any degree.

.....Signature

(Robina Sultana)

Candidate

Title	Patients' Discharge Information Needs and Nurses' Discharge Information Support Regarding Myocardial Infarction in Bangladesh
Author	Robina Sultana
Major Program	Nursing Science (International Program)
Academic Year	2013

ABSTRACT

This comparative, descriptive study aimed to identify the level of patients' discharge information needs regarding myocardial infarction, the level of nurses' discharge information support to patients with myocardial infarction and compare patients' discharge information needs and nurses' discharge information support to patients with myocardial infarction. The study was conducted at one tertiary level, government hospital in the central part of Bangladesh. The participants comprised 130 patients with myocardial infarction and 120 nurses. The Modified Cardiac Patient Learning Need Inventory, Patient Version (MCPLNI-Patient) was used to assess the discharge information needs of patients with myocardial infarction. The Cardiac Patients Learning Support Inventory, Nurse Version (CPLSI-Nurse) was used for assessing the nurses' discharge information support to patients with MI. The content validity of both instruments was examined by three experts and the reliability was obtained by using Cronbach's alpha coefficient yielding values of .90 and .98, respectively. The data were analyzed by using descriptive statistics, independent *t*-test and Mann-Whitney *U* test.

The results of this study show that the mean score of patients' discharge information needs was high ($M = 4.40$, $SD = 0.37$). For each category they scored medication at the highest level, followed by symptom management. Whereas, the mean score of nurses' discharge information support was at a moderate level ($M = 3.60$, $SD = 0.59$). The categories of medication, dietary and symptom management were at a high level. The mean score of patients' discharge information needs was significantly higher than that of the nurses' discharge information support ($M = 4.40$, $SD = 0.37$ vs $M = 3.60$, $SD = 0.59$, $t = 12.76$, $p < .001$).

Based on the study findings, it is recommended to improve existing nursing practice regarding MI patients' education to reduce the gap between patients' discharge information needs and nurses' discharge information support to MI.

ACKNOWLEDGEMENTS

My deepest gratefulness to the almighty Allah for blessing and helping me in every step of my life, especially, when I face any problems. I express greetings and blessings to my last Prophet Mohammad SAW, his family, friends, and followers.

I would like to express appreciation and gratitude to my major advisor, Assist. Prof. Dr. Wongchan Petpichetchian for greatly contributing, guidance, valuable advice and empowerment throughout the study in accomplish my thesis completion. It might be difficult to complete my study without her help and effort. Great appreciation is also conveyed to my co-advisor, Dr. Charuwan Kritpracha for her constructive guidance and significant encouragement. Furthermore, I would like to express my gratitude to Assoc. Prof. Dr. Aranya Chaowalit, the Dean of Faculty of Nursing, Prince of Songkla University, Assist. Prof. Dr. Ploenpit Thaniwattananon, the validation expert of my instruments and the chairperson of my thesis defense, and all of my thesis examination committee for their valuable suggestions.

Special thanks to Dr. Peggy S. Gerard, PhD, RN, Dean and Professor, School of Nursing, Purdue University Calumet, who permitted me to modify and use the instruments in this study. In addition, I would like to thank two other experts: Assist. Prof. Dr. Kazol Kumar Karmaker, the National Institute of Cardiovascular Diseases and Hospital, Dhaka, Bangladesh; Miss. Uma Jantawises, APN, RN, Critical Care Unit, Songklanagarind Hospital, Thailand for their assistance in validation of the instruments.

I would like to extend my thanks to the authority of the National Heart Foundation Hospital and Research Institute and the authority of the National Institute of

Cardiovascular Diseases and Hospital, Dhaka for the permission for data collection. My sincere thanks to all MI patients and nurses who participated in my study. Special gratitude to the Government of the People's Republic of Bangladesh, Ministry of Health and Family Welfare, and the Director of the Directorate of Nursing Services of Bangladesh for giving me the scholarship and financial support to study in Thailand.

The greatest respect and thanks go to my mother Mrs. Amena Begum, father Md. Chan Miah, mother-in-law Mrs. Rawshanara Begum for their loving prayer and support throughout the study. Special thanks to my husband Kazi Arif Hossain Ezaz who has taken care of my son during my study time. Moreover I am glad to acknowledge my son, Rudra for his greatest sacrifice. Finally, I would like to give thanks to all of my friends and relatives who helped me and gave me support to finish the study.

Robina Sultana

CONTENTS

	Page
ABSTRACT	v
ACKNOWLEDGEMENTS.....	vii
CONTENTS	ix
CHAPTER	
1. INTRODUCTION	
Background and Significance of the Problem	1
Objectives of the Study.....	6
Research Questions.....	6
Conceptual Framework.....	7
Hypothesis	10
Definition of Terms	11
Scope of the Study	12
Significance of the Study.....	12
2. LITERATURE REVIEW	
Overview of Myocardial Infarction (MI)	13
Myocardial infarction (MI).....	13
The Situation of MI in Bangladesh.....	18
Impact of MI.....	20
Patients' Information Needs	23
Overview of Information Needs	23
Definitions of information need.....	24
Importance of measuring information needs	25

CONTENTS (Continued)

	Page
Measurement of Information Needs	26
Nurses' Role in Providing Information Support.....	31
Discharge Information for Patients With Myocardial Infarction	32
Discharge Information Contents for Patients With Myocardial Infarction	34
Factors Related to Patients' Information Needs and Nurses' Information Support	50
Factors Related to Patients' Information Needs	50
Factors Related to Nurses' Information Support	54
Summary.....	57
3. RESEARCH METHODOLOGY	
Population and Setting.....	59
Sample and Sampling	61
Instrumentation	62
Data Collection Procedure.....	70
Ethical Considerations	72
Data Analysis	73
4. RESULTS AND DISCUSSION	
Results	75
Discussion.....	89
5. CONCLUSION AND RECOMMENDATIONS	
Conclusion	102

CONTENTS (Continued)

	Page
Strengths and Limitations	104
Implication and Recommendations	105
REFERENCES	108
APPENDICES	118
A: Informed Consent Form	118
B: Questionnaire for Myocardial Infarction Patients (Form-1).....	122
C: Questionnaire for Nurses (Form-2).....	125
D: Effect Size Calculation	128
E: Permission for Use of the Instrument.....	129
F: Additional Items Analysis	131
G: List of Experts	135
H: Vitae.....	136

LIST OF TABLES

Table	Page
1 The Contents of Discharge Information for the Patients With MI	34
2 Frequency and Percentage of the Patients Classified by Demographic Characteristics (n = 130).....	76
3 Frequency and Percentage of the Patients Classified by Health-related Characteristics (n = 130).....	77
4 Frequency and Percentage of the Nurses Classified by Demographic Characteristics (n = 120).....	79
5 Frequency and Percentage of the Patients Classified by Level of Patients' Discharge Information Needs of Patients With MI (n = 130)	81
6 Means, Standard Deviation, and the Levels of Patients' Discharge Information Needs of Each Category (n = 130)	81
7 Comparisons of Patients' Discharge Information Needs Between Age Groups, Gender, Marital Status, Among Educational Level and Income per Month, Between Previous Admission and Smoking Habit of Patients With MI (n = 130).....	82
8 Frequency and Percentage of the Nurses Classified by the Level of Nurses' Discharge Information Support to Patients With MI by Nurses (n = 120).....	84
9 Means, Standard Deviation, and the Levels of Nurses' Discharge Information Support to Patients With MI by Nurses Categorized by Each Subscale (n = 120)	84

10	Means, Standard Deviation, Mean Rank, <i>t</i> -test, Chi Square Test and Mann-Whitney <i>U</i> Test Result of Demographic Variables and Total Score of Discharge Information Support by Nurses (n = 120).....	85
11	Comparison of the Mean Scores Between Patients' Discharge Information Needs (n = 130) and Nurses' Discharge Information Support (n = 120) by <i>t</i> -test	87
12	Comparison Between Patients' Discharge Information Needs (n = 130) and Nurses' Discharge Information Support (n = 120) by Mann-Whitney <i>U</i> test	88
13	Discharge Information Needs and Support Categories, Means and Ranks (Ordered by Patient Ranks)	88
14	The Difference of Mean Scores of MI Patients' Discharge Information Needs (n = 130) and Nurses (n = 120) Discharge Information Support.....	131

LIST OF FIGURE

Figure	Page
1 Conceptual Framework of the Study	10

CHAPTER I

INTRODUCTION

Background and Significance of the Problem

Myocardial infarction (MI) is a common manifestation of coronary heart disease and the leading cause of death among all cardiovascular diseases worldwide. According to the World Health Organization [WHO] (2011), an estimated 7.3 million people died due to MI from 17.3 million of all cardiovascular disease (CVD) deaths which represent 30% of all global deaths in 2008. In the United States, an estimated number of 610,000 patients suffer from acute myocardial infarction (AMI), 325,000 patients have recurrent MI and an additional 195,000 have silent MI each year (Roger et al., 2011), and 20% of the survivors are readmitted within a year (Kolansky, 2009).

Cardiovascular diseases (CVD) including MI have increased in low and middle-income countries and it takes place in more than 80% of all global CVD deaths (WHO, 2011). In Asian countries, the mortality rates were on average 70% higher than the developed /OECD (The Organization for Economic Co-operation and Development) countries for the year 2008 (WHO, 2012). In Bangladesh coronary heart diseases, especially ischemic heart disease is the first leading cause that represents 12% of all deaths in the country (“Chronic Disease,” 2009). From the top ten causes of mortality in Bangladesh, 4.5% people died from MI in Upazila health

complexes, 6.4% in the district and general hospitals, and 6.1% in medical college hospitals in 2010 (Government of the People's Republic of Bangladesh, 2011).

There are some risk factors that increase the chance of developing MI. They are classified as major and contributing risk factors. Risk factors may also be classified in two groups, 1) non-modifiable factors (increase age, male gender, heredity) and 2) modifiable factors (tobacco smoke, high blood cholesterol, high blood pressure, physical inactivity, obesity and overweight, diabetes mellitus). On the other hand, stress, alcohol drinking and an unhealthy diet and nutrition are considered as contributing risk factors for MI (American Heart Association, 2014).

The increasing rate of MI mortality in Bangladesh as a low-income country has emerged as a likely a result of multiple risk factors. The specific risk factors for Bangladesh are pointed out by the Centre for Control of Chronic Diseases in Bangladesh ("Chronic Disease," 2009) as high blood pressure, smoking, high cholesterol, physical inactivity, low fruits and vegetable intake, and urban air pollution. Yusuf and colleagues (2004) conducted a study from 52 countries in Asia, Europe, the Middle East, Africa, Australia, North America and South America. They found that abnormal lipids, smoking, hypertension, diabetes, abdominal obesity, psychological factors, consumption of fruits, vegetables, and alcohol and regular physical activity account for most of the risks of MI in all regions of those countries.

MI is a life threatening disease and MI occurs when a complete cutoff of the blood supplies result in the death of heart cells. Eighty to ninety percent of all acute MI can develop a secondary thrombus. When a thrombus develops, perfusion to the myocardium distal to the occlusion is halted, resulting in necrosis (Martinez &

Bucher, 2007). Once myocardial Infarction (MI) develops, without prompt treatment, it can damage the affected part of the heart.

Nowadays, patients with MI gain benefit from rapid diagnosis by using new technology and devices and timely intervention resulting in increased survival rate, a shorter length of hospital stay and reduced hospital costs. Early discharge from the hospital means that- patients need to continue care at home. Appropriate discharge information given to patients and families can manage the gap in this care in the setting of the home. One study found that patient-focused, nurse-delivered discharge information increases self-care adherence, improves the clinical outcome and reduces the cost of care (Koelling, Johnson, Cody & Aaronson, 2005). Meeting the MI patients' information needs prior to discharge can enable them to cope with potential health problems they may have, so that they can care for themselves at home as well as recover and maintain their health.

Discharge information is important and influences patients' recovery and potentially reduces the risk of heart attack recurrence. Gerard and Peterson (1984) mentioned the eight categories of information as important areas of information for cardiac patients: introduction to CCU, anatomy and physiology, psychological concerns, risk factor, medication, dietary information, physical activity and miscellaneous. From this perspective, nurses are in a prime position to support cardiac patients especially patients with MI.

Before effective educational sessions are given, health care professionals must assess the information necessary for patients' recovery. As a nurse, providing information for an MI patient is an important nursing function in enhancing cardiac rehabilitation (Smith & Liles, 2007). Although the study reported that patients

preferred physicians over nurses to provide them with information (Scott & Thompson, 2003), in reality, particularly when large numbers of patients are waiting for medical services, nurses play an active role as sources of information.

Patient education in the nursing profession indicates the quality of nursing care. The principal aim of cardiac education for MI patient is to provide necessary information that is important to them. Successful self-management for recovery at home can be ensured by meeting the patients' information needs prior to hospital discharge (Maloney & Weiss, 2008). Reasonably, people want to learn what they perceive as important to them. The learning process would be meaningful to patients with MI if nurses could recognize the existing knowledge that the MI patients already have and then integrate new information with their prior knowledge resulting in intrinsic motivation. This idea is supported by Ausubel's learning theory (Ausubel, as cited in Novak, 2011). Moreover, successful education regarding cardiac disease and recovery takes place if there is a similar perception between patients and nurses about MI patients' information needs. However, there is still a gap in nurses' perception about the patients' perceived needs. One study has shown that patients were more likely to emphasize the practical information about their condition, its causes and prevention, whereas nurses focused more on the medical aspect of care, such as medication, anatomy and physiology (Timmins & Kaliszer, 2003). Similarly, other studies have also found the incongruity in different content areas (Scott & Thompson, 2003; Smith & Liles, 2007; Turton, 1998). These incongruent findings could imply ineffective information provided.

The cardiac education program by nurses for MI patients should focus on the content areas that patients consider most important, but there is a lack of

studies identifying the contents and the amount of perceived important information provided by the nurses to MI patients. Turton (1998) reviewed previous literature and concluded that the post MI patients can manage themselves during post discharge period safely and make informed decisions about potential life changes if they are given information about their condition, risk factors, medications, diet, psychology, physical activities and ways to deal with the potential symptoms. Thus, it is important to assess whether a gap exists between what the patients need and what nurses actually provide them with. This knowledge would be used to form a discharge information plan for them.

In Bangladesh, discharge information is influenced mainly by doctors' self-selected information. Doctors write the necessary information on the discharge certificate specifically focusing on medication and follow up visit, sometimes concerning diet, smoking cessation, reduction of body weight and any further investigation required according to the patient's condition. Nurses make this information understandable to MI patients during discharge time. However, sometimes nurses provide information to MI patients without making any discharge plan. They provide information that they perceive as important for MI patients without formally assessing the MI patient's information needs. On the other hand, the concept of cardiac rehabilitation at a primitive stage in Bangladesh, there is no visible activity regarding this matter. One study has found that clear ideas about a cardiac rehabilitation program were absent among almost all nurses even after they have worked for several years in cardiology (Zahan, 2013).

Moreover, in Bangladesh there is no known study related to patients' perception about discharge information needs or nurses' discharge information

support. Therefore, detecting the difference between the perception of patients with myocardial infarction regarding their discharge information needs and the nurses' discharge information support in Bangladesh would be beneficial. This knowledge will be helpful for an effective cardiac education plan for the myocardial infarction patients, and perhaps may lead to prevention of further readmission and death.

Objectives of the Study

There were three objectives of this study:

1. To describe the level of patients' discharge information needs regarding myocardial infarction
2. To describe the level of nurses' discharge information support to patients with myocardial infarction
3. To compare patients' discharge information needs and nurses' discharge information support to patients with myocardial infarction

Research Questions

There were three research questions as follows:

1. What is the level of patients' discharge information needs regarding myocardial infarctions?
2. What is the level of nurses' discharge information support to patients with myocardial infarction?
3. Is there any difference between the patients' discharge information needs and nurses' discharge information support?

Conceptual Framework

This study was guided by, partly, an adult learning theory. Ausubel's learning theory (Ausubel, as cited in Novak, 2011). Known as the "Assimilation Theory of Meaningful Learning", the theory posits that people make their learning meaningful through the integration of new information and prior knowledge which consequently leads to intrinsic motivation. In the case of patients with MI, their learning about care at home given by nurses would be effective if the nurses who support or provide them such information know what they need to learn. There would be a perfect match if nurses have been able to identify patients' information need or the patients indicate their needs to the nurses. In fact, this was currently unknown in the context of Bangladesh.

As this study focused on the needs of patients with MI regarding discharge information, related literature in the field was used to help identify specific content areas that the patients may need. The work of Gerard and Peterson (1984) was integrated into the conceptualization of patients' discharge needs. They conceptualized the learning needs of cardiac patients and categorized them into eight categories, namely, introduction to CCU, anatomy and physiology, psychological concerns, risk factors information, medication information, dietary information, physical activity information, and miscellaneous information.

For specific use in this study, the researcher modified Gerard and Peterson's conceptualization and tool devised by Gerard. Specially, "Introduction to CCU" deleted since it was considered inappropriate for patients who need no longer CCU care. Each of the other seven categories is briefly described as follows:

- 1) **Anatomy and physiology** is the structural and functional information of the heart. It includes the normal shape, its normal function, causes of its alteration, effect of this alteration and how long it takes to come back to normal.
- 2) **Psychological concerns** refers to the normal psychological response following MI, the importance of sharing fear, feelings and thought, the effect of stress on heart, the way to manage this stress at present and in future.
- 3) **Risk factors information** includes the meaning of risk factors, the factors which have affected the heart, the way to decrease the chance of another heart attack, the way these factors affect the heart.
- 4) **Medication information** refers to the general rules about taking medications, indication of taking specific medications, the side effects of each medication and the management of that side effect.
- 5) **Dietary information** includes the general rules for eating, the function of diet that affects the patient's heart, the meaning of cholesterol and triglyceride and in what food it is found, the restrictions of diet and ways to adapt to the recommended diet with one's lifestyle.
- 6) **Physical activity information** refers to the reasons for the limitation of physical activity, general guideline for physical activity, and activities which are not allowed for the patient, the way to know when to increase activities.
- 7) **Miscellaneous information** includes the available support services for the patient after being discharged, the support available for his/her

family and the tests and investigations that will be conducted in the future with regard to his/her heart.

In addition, the category “Symptom management” was added similar to Turton’s study (1998). She modified the Cardiac Patient Learning Need Inventory (CPLNI) after a pilot study by adding this category according to subjects’ suggestion. After modification, she found that all three groups (patient, spouse/partner and nurse) of that study rated this category as either first or second in importance. Two other different studies also used this category (Timmins & Kaliszer, 2003; Uysal & Enc, 2012). The patients and all nurses' groups (CCU nurses, ward nurses and rehab nurses) in Timmins and Kaliszer’s study (2003) ranked this category as first in importance. All eight categories, including ‘symptom management,’ were considered relevant to content areas for further investigation. The last category, miscellaneous information, identified non-specific needs. This was further modified by adding an open-ended question to capture other needs that are not listed. Figure 1 depicts the conceptualization of the key concepts of this study, patients’ discharge information needs and nurses’ discharge information support regarding myocardial infarction before patients’ discharge.

Although there is no research evidence direct comparison of the difference between these two parties, a systematic review study conducted by Scott and Thompson (2003) showed that patients and nurses prioritized content areas differently. It is then hypothesized that, within the context of care in Bangladesh, this gap may exist.

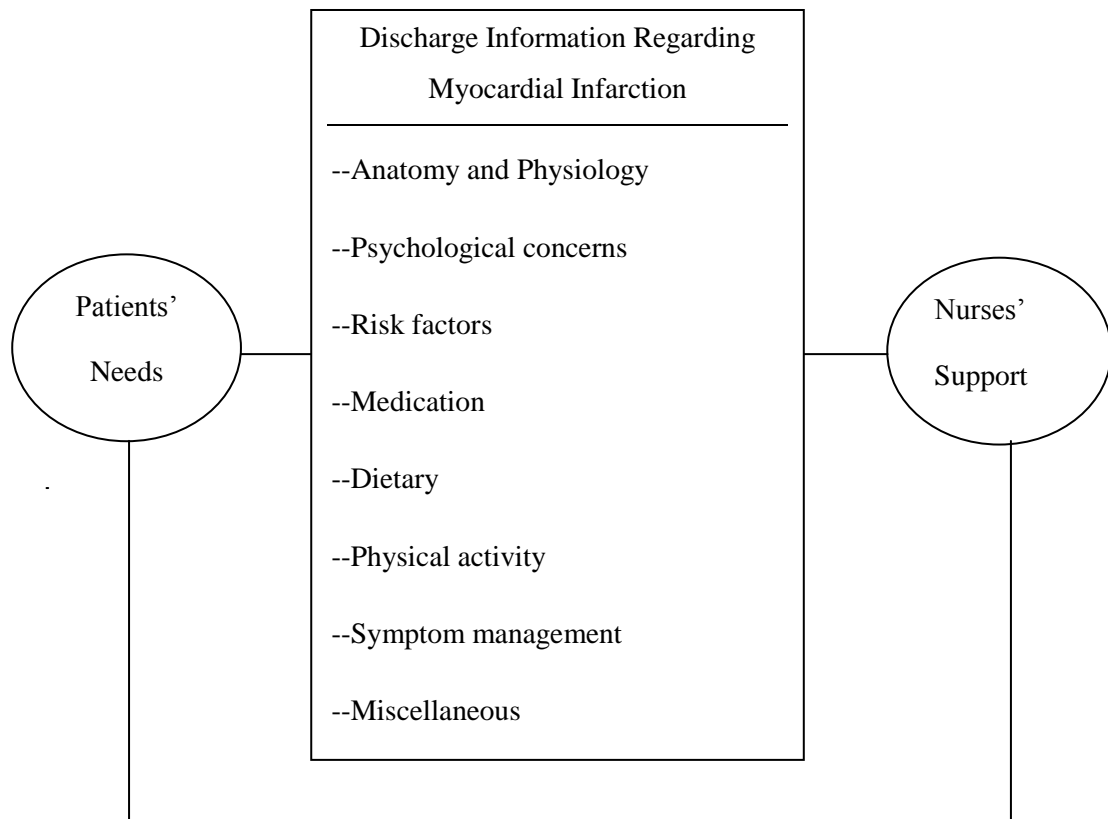


Figure 1

Conceptual Framework of the Study

Hypothesis

There is a difference between patients' discharge information needs and nurses' discharge information support regarding myocardial infarction in Bangladesh.

Definition of Terms

Patients' Discharge Information Needs Regarding Myocardial Infarction

Patients' discharge information needs regarding myocardial Infarction refers to important contents reported by patients with myocardial infarction that they need to know in order to help them understand the nature of the disease, its treatments, as well as the required contribution to lessen complications. Eight content areas are identified as important: Anatomy and physiology, psychological concerns, risk factors, medications, dietary, physical activity, symptom management and miscellaneous. In this study, information needs were measured by a questionnaire adapted from the Modified Cardiac Patient Learning Needs Inventory, Patient Version (MCPLNI-Patient), using a rating scale ranging from not important to very important. The higher score indicates the more important information that the myocardial infarction patients need to learn.

Nurses' Discharge Information Support Regarding Myocardial Infarction

Nurses' discharge information support regarding myocardial infarction refers to information provided by the nurses to the patients with myocardial infarction. Eight areas of content similar to the MCPLNI-Patient are covered. It was measured by the- Cardiac Patient Learning Support Inventory, Nurse Version (CPLSI-Nurse), using the rating scale ranging from not supported to highly supported. The higher score indicates the more supported information nurses provide to their patients.

Scope of the Study

This study focused on exploring and comparing the level of patients' discharge information needs and nurses' discharge information support regarding myocardial infarction. The participants of the study comprised nurses and patients with MI recruited from the National Institute of Cardiovascular Diseases and Hospital, Dhaka which is a 414-bedded tertiary level government hospital in Bangladesh. Nurses who were working and patients with MI who were admitted during a period of October 2013 to January 2014 were enrolled.

Significance of the Study

The result of this study would be helpful for further development of a cardiac educational program for patients with myocardial infarction before discharge. More specifically, it is beneficial in the following ways:

1. To facilitate nurses in providing appropriate information for patients with MI before discharge.
2. To assist nurses in developing discharge information materials for patients with MI.
3. To develop a training program for new nursing staff to support knowledge related to discharge information for patients with MI.

CHAPTER 2

LITERATURE REVIEW

This chapter gives a further insight pertaining to patients with myocardial infarction, particularly patients' discharge information needs and nurses' information support. The following topics were reviewed and presented: 1) Overview of Myocardial Infarction, 2) Patients information needs, 3) Discharge information for patients with myocardial infarction, 4) Factors related to patients' information needs and nurses' information support.

Overview of Myocardial Infarction

Myocardial Infarction (MI)

Myocardial infarction occurs when the blood flow that brings oxygen to the heart muscle is severely reduced or cut off completely. This happens because coronary arteries that supply the heart muscle with blood flow can slowly become narrow from a buildup of fat, cholesterol and other substances that together are called plaque. This slow process is known as atherosclerosis. Plaque at high risk of disruption leads to thrombosis it is called "vulnerable plaque" or "High-risk plaque". There are several histological types of vulnerable plaque. The most common type of suspected vulnerable plaque is an inflamed thin-cap fibro-atheroma, which is thought to account for 60% to 70% of coronary events (Waxman, Ishibashi, & Muller, 2006).

With the diagnostic test through ECG infarcts are defined as either ST-Elevation (STEMI) or Non-ST-Elevation (NSTEMI) with the pathophysiological difference being related to the degree of coronary artery occlusion. When this plaque ruptures exposing the underlying membrane it results in platelet aggregation, fibrin accumulation and thrombus formation. The thrombus either partially occludes the vessel causing a NSTEMI, or completely occludes the vessel causing ST-segment elevation (STEMI) (Browne, 2010). When the heart muscle is starved for oxygen and nutrients, it is called ischemia. When damaged or death of part of the heart muscle occurs as a result of ischemia, it is called a heart attack or myocardial infarction (MI). Prolonged ischemia causes irreversible cell damage and muscle death.

There are many risk factors that contribute to the development of MI. Some of them are modifiable. These include high blood cholesterol, hypertension, physical inactivity, obesity, being overweight, taking birth control pills, excessive drinking of alcohol and diabetes mellitus. Some other factors are non-modifiable such as age, heredity, sex hormones, and race (Morton et al., 2005). A large prospective study recruited patients from 52 countries and identified nine potentially modifiable risk factors including abnormal lipids, smoking, hypertension, diabetes, abdominal obesity, psychosocial factors, consumption of fruits and vegetables, consumption of alcohol, and regular physical activity that accounted for over 90% of the population attributable risk (PAR) for first myocardial infarction in men and 94% in women (Yusuf et al., 2004).

A MI patient suffers from chest pain which occurs suddenly and continually despite rest and medication and this symptom occurs in most MI patients. The nature of chest pain is severe, persistent and unlike any other pain, immobilizing

chest pain is not relieved by rest, or changing position. MI patients usually describe the pain as heaviness, pressure, tightness, burning, constriction, or crushing. The pain begins in the center of the chest, and is most commonly located in substernal, retrosternal, or epigastric areas which may radiate to the neck, jaw, and arm or to the back. It may occur while the patient is active or at rest, or asleep or awake. However, it commonly occurs in the early morning hours. It usually lasts for 20 minutes or more. Some patients may not experience pain but may have discomfort, weakness, or shortness of breath. They may have ashen, clammy, and cool skin. They also may experience nausea and vomiting. Their body temperature may increase within the first 24 hours up to 100.4° F and occasionally to 102.2° F. Their heart rates and respiratory rates may be faster than normal (Martinez & Bucher, 2007). An MI patient may develop various complications like sudden death, arrhythmias, cardiac failure, hypoxia, hypotension, cardiogenic shock, papillary muscle insufficiency, ventricular aneurysm, myocardial rupture, pulmonary embolus, pericarditis, deep vein thrombosis, post MI syndrome, and emotional difficulty (Morton, Fontaine, Hudak, & Gallo, 2005). Patients with MI may be diagnosed by a clinical history of ischemic type chest pain, changes in serial ECG tracing, and abnormal serum cardiac biomarkers such as creatinine kinase-MB fraction and troponin (Das et al., 2011).

Thygesen et al. (2012) provided the criteria for diagnosis of myocardial infarction. They mentioned that the term acute myocardial infarction (MI) should be used when there is evidence of myocardial necrosis in a clinical setting consistent with acute myocardial ischemia. Under these conditions any one of the following criteria meets the diagnosis for MI: 1) Detection of a rise and/or fall of cardiac biomarker values (preferably cardiac troponin) with at least one value above

the 99th percentile upper reference limit (URL) and with at least one of the following:

i) Symptoms of ischemia, ii) New or presumed new significant ST-segment–T wave (ST–T) changes or new left bundle branch block (LBBB), iii) Development of pathological Q waves in the ECG, iv) Imaging evidence of new loss of viable myocardium or new regional wall motion abnormality, v) Identification of an intracoronary thrombus by angiography or autopsy, 2) Cardiac death with symptoms suggestive of myocardial ischemia and presumed new ischemic ECG changes or new LBBB, but death occurred before cardiac biomarkers were obtained, or before cardiac biomarker values would be increased, 3) Percutaneous coronary intervention (PCI) related MI is arbitrarily defined by elevation of troponin values ($> 5 \times$ 99th percentile URL) in patients with normal baseline values (\leq 99th percentile URL) or a rise of troponin values $>20\%$ if the baseline values are elevated and are stable or falling. In addition, either (i) symptoms suggestive of myocardial ischemia or (ii) new ischemic ECG changes or (iii) angiographic findings consistent with a procedural complication or (iv) imaging demonstration of new loss of viable myocardium or new regional wall motion abnormality are required, 4) Stent thrombosis associated with MI when detected by coronary angiography or autopsy in the setting of myocardial ischemia and with a rise and/or fall of cardiac biomarker values with at least one value above the 99th percentile URL, 5) Coronary artery bypass grafting (CABG) related MI is arbitrarily defined by elevation of cardiac biomarker values ($> 10 \times$ 99th percentile URL) in patients with normal baseline cTn values (\leq 99th percentile URL).

Patients with MI are treated by anticoagulation therapy.

Anticoagulation therapy may be used with either mechanical reperfusion (Percutaneous Coronary Intervention, Coronary Angioplasty) or pharmacological

agents (fibrinolytic agents such as streptokinase, anistreplase, or urokinase) (Antman et al., 2004). These may be considered as having a role to maintain potency after successful reperfusion as well as prevention of deep vein thrombosis, pulmonary embolism and left ventricular thrombus (McCann & Menown, 2008). Primary PCI (Percutaneous Coronary Intervention) with stent or balloon operated on the occluded infarcted-related artery (Campbell-Scherer & Green, 2009). Pharmacological therapy is an essential component for the management of MI. The main purposes of pharmacological therapy are anticoagulation, decrease myocardial workload, and relief of pain. Early management of MI patients involves maintaining the oxygen saturation above 95% by administering oxygen, pain relief through Morphine, and reperfusion therapy Nitroglycerin, ASA (antiplatelet therapy), and Streptokinase. Beta blockers are administered to MI patients to reduce the myocardial oxygen consumption by reducing myocardial contractibility. Calcium antagonists decrease myocardial oxygen demands by decreasing the afterload, contractibility, and the heart rate (Morton et al., 2005). MI patients' drug regimen may be guided by the severity of patients' symptoms, hemodynamic status and the medication history.

Pathologically, myocardial infarction passes through three phases as acute, healing and healed. The timing of acute phase is considered a duration from 6 hours of the onset of the infarction to 7 days, healing phase 7 days to 28 days and healed phase 29 days and beyond. The entire process usually takes at least 5 to 6 weeks (Thygesen, Alpert, & White, 2007). Nursing intervention is an important part in combination with pharmacological intervention in the management of patients with MI specially at healing phase that can contribute to prompt healing of infarction.

Provision of sufficient information through education for patients with

MI can help them to adjust to manage their lives after discharge from hospital. Prior education nurses should focus on assessing patients' discharge information needs and provide appropriate information that patients need to know in order to reduce suffering, prevent complications and recurrence.

The Situation of MI in Bangladesh

There is a lack of exact data on the incidence and prevalence of MI in Bangladesh. The estimated mortality rate of cardiovascular disease in 2008 in Bangladesh was 397 per 100,000 and about 10% of that was attributed to ischemic heart disease (WHO, 2012). Moreover, ischemic heart disease was the first leading cause of mortality in 2002 that caused 12% of the total deaths in Bangladesh ("Chronic Disease," 2009). Furthermore, Hoque's study (as cited in Asgar, 2010) reported the incidence of ischemic heart disease which includes angina pectoris, unstable angina and myocardial infarction at approximately three per thousand until 1976. He also noted that a study in 1985 reported it to be approximately 14 per thousand. The prevalence in urban population was reported to be as high as approximately 100 per thousand population. Economic transition, urbanization, industrialization and globalization bring about lifestyle changes that promote heart disease. This trend is due to increased risk factors of tobacco use, physical inactivity and having an unhealthy diet. As a consequence, higher MI prevalence in the urban population was observed. The MI rate in Bangladesh increases day by day. Every day about 10 to 20 MI patients are admitted to the National Institute of Cardiovascular Diseases and Hospital, Bangladesh (Hospital Record, 2012).

The National Institute of Cardiovascular Diseases and Hospital (NICVD), Bangladesh was established in 1978. It is a postgraduate specialized teaching hospital. Patients with MI come from both rural and urban areas and they receive the tertiary level of care from this hospital. It is the only specialized cardiac government hospital in Bangladesh which provides all the cardiac facilities. MI patients are treated in this hospital by administering oxygen, use of pain killers through morphine, and pharmacological and mechanical reperfusion therapy. For pharmacological reperfusion therapy, Nitroglycerin, ASA are freely supplied to all patients, and Streptokinase is supplied for a limited number, of poor patients by the government. The patients who can afford the bill, buy the necessary medication from outside the hospital. In recent years, the number of the mechanical reperfusion procedures has increased in this hospital. According to the National Health Bulletin (Government of the People's Republic of Bangladesh, 2011), the number of angioplasty procedures performed in 2010 was 25, whereas, in 2005 it was only four with the peak of 43 in 2007. Moreover, the total number of PCI in 2010 was 1,312 whereas in 2003 it was only 371. On the other hand, the number of surgical procedures performed, such as CABG was 152 in 2010 whereas in 2000, it was only 44.

According to the admission criteria, the more serious patients with MI come to the emergency department and are admitted to the cardiac care unit (CCU). After recovering from the acute state they are referred to the post cardiac care unit (PCCU), then to general wards for further care. The majority of patients with MI are discharged from a general ward. Few patients are discharged from PCCU directly. During the time of discharge, a discharge certificate is made by a cardiologist in

which the key contents are addressed, including diagnosis, treatment, medication that patients need to continue, risk factors needing control (body weight, blood pressure, blood sugar, cholesterol, quit smoking), details on how to maintain a healthy diet and an appointment for next follow-up visit with the cardiologist. Nurses explain all information to the MI patients that are mentioned on the discharge certificate during the actual time of discharge. After discharge, MI patients attend in the outpatient department for follow-up visit as instructed by a cardiologist.

Impact of MI

Despite level of mortality associated with myocardial infarction having significantly improved due to advances in the management of MI, still there is a high mortality rate due to impact of MI (Crilley & Farrer, 2001). MI patients face numerous impacts on their health, not only on their physical health but also social and psychological health.

Physiological impact of MI. Patients with MI often shows a variety of physical symptoms, i.e., pain in the arm, chest, shoulder or back. There is an individual difference in pain intensity, location and duration (Khan, Albarran, Lopez, and Chair, 2010). MI patients may experience other symptoms beside chest pain, such as discomfort, weakness, shortness of breath, nausea, vomiting, increased body temperature, and increased pulse rate. They may also have ashen, clammy, and cool skin (Martinez & Bucher, 2007). MI patients have higher levels of fatigue than others as a result of decreased motivation and activity, especially in patients undergoing percutaneous coronary intervention (PCI) (Alsen, Brink, Brandstrom, Karlson, & Persson, 2010). Moreover, after MI various complications may arise, such as

ventricular tachycardia, ventricular fibrillation, atrial tachycardia, atrial fibrillation, bradycardia, second-degree heart block, third-degree heart block, myocardial ischemia, congestive heart failure, cardiac arrest, reinfarction and cardiac death (Cherrington, Moser, Lennie, & Kennedy, 2004).

Psychological impact of MI. Experiencing an MI is an upsetting event in a patient's life. The initial reaction to an MI is usually anxiety rather than depression (Hanssen, Nordrehaug, Eede, Bjelland, & Rokne, 2009). Hanssen et al. conducted an 18-month follow up study in 288 patients with acute MI. They found that at baseline the patients were more anxious when compared with the reference population, Norwegian general population ($p < .001$). Anxiety level decreased after 3 to 18 months and was not higher than those of the reference population. In other words, patients with MI in this study reported to have anxiety levels similar to the reference population after 3 to 18 months. Ruz, Lennie, and Moser (2011) reviewed and found from previous studies that anxiety was the most common psychological response that represented 70% to 80% of all patients with acute cardiac events. As a consequence, patients who were anxious during the first 48 hours after AMI had 4.9 times risk of in-hospital complications, such as infarction, recurrent ischemia, ventricular fibrillation, or tachycardia. In addition, anxiety was found to be correlated with long term complications, such as recurrent MI and an increased rate of 5-year mortality.

Depression is another coexisting psychological response in patient with MI. Green et al. (2009), as a part of the 'Post-MI Guideline Panel', reviewed evidence on the effect of depression on persons after myocardial infarction. They found that depression was common in patients following MI. According to their updated review,

the prevalence of depression can range from 41% in the acute phase to 60% at one month after MI. Another study found that the prevalence of depression was more common in patients who had shorter hospital stays compared to patients with a longer hospital stay after controlling their complications (Hanssen et al., 2009).

Uncertainty is a major factor and can dramatically affect psychological adaptation. According to the theory of uncertainty in chronic illness, MI patients experience uncertainty during diagnosis and treatment and when illness has a downward trajectory, and continual uncertainty in an ongoing chronic condition and also with the possibility of recurrence (Smith & Liehr, 2014). Liao and Lo (2006) conducted a study to explore the adaptation and impact of uncertainty on individuals with acute MI during hospitalization. The patient's behaviors were analyzed in the frame of uncertainty theory and found that patients' behaviors when facing uncertainty, noted three phases during hospitalization. First phase, patients reported the uncertainty of the progress of disease and symptoms, second, the uncertainty of technical examination and the effectiveness of its treatment and third, the uncertainty of prognosis and his/her self-care abilities. MI patients who experience uncertainty or angst at the time of discharge may develop depression. After the concept analysis of uncertainty in illness, McCormick (2002) found that most studies showed a relationship between high uncertainty with high emotional distress, anxiety and depression.

Social and economical impacts of MI. Social impact is another important consequence affecting patients with MI. Most of patients with MI fail to return to work due to reduced health status. As a result, patients become unemployed and have a decreased income (Crilley & Ferrer, 2001). Moreover, they feel dependent

on other family members who may need to quit their job in order to take care of this patient. In addition, patients with MI need money to cover the costs of investigation, treatment and medication. As a result individual patients and families may face an economic crisis. Poor social support also affects patients with MI. Patients who develop physical disabilities become a family and social burden. Avoiding this consequence, patients isolate themselves socially. The study found that patients with MI often try to keep their worries to themselves and avoid talking to their close family about their everyday problems such as anxiety, loneliness and the balance between security and insecurity (Delmar, Jakobsen, Forup, & Pedersen, 2012). Patients with MI in social isolation with a high level of stress have more than four times the mortality risk of those who are neither isolated nor suffered from stress (Burg et al., 2005).

Patients' Information Needs

Overview of Information Needs

Provision of health care is now need-based rather than routine care. When providing care to the patient, health care professionals, especially nurses, need to have a clear understanding about the concept of information needs. In simple terms, information needs are what clients need to know. In its broader sense, it is widely used to represent a gap or deficit in the clients' knowledge that might be corrected by information and/or education (Timmins, 2006).

Through a concept analysis study using Rodger's framework, Timmins identified several antecedents of information needs. These antecedents include major

life changes, other events or life threatening or incapacitating illness following the work of Lazarus and Folkman (as cited in Timmins, 2006). These can be perceived as a challenge or a threat, depending on novelty, timing in life and the level of uncertainty or unpredictability about the event. In response to events, individuals displayed two major coping mechanisms: managing the problem by problem-focused coping and regulating their response by emotion-focused coping (Timmins). Problem-focused coping includes seeking information, trying to get help, inhibiting action and taking direct action. It is this quest for information that creates information needs.

Timmins (2006) further identified the consequences of the information need. The information received helps them to adapt to their situation. The expressing of need and the receiving of information increases satisfaction and reduces stress, in turn, assisting coping skills. On the other hand, those clients who do not express a need for specific information might be adversely affected if too much information is given. This may result in dissatisfaction with the communication process, and may increase the level of stress and difficulty with coping. The provision of information by nurses through assessment of patients' individual information need is a component of the professional care task for the appropriate individual and group.

Definitions of information need. According to Miranda & Tarapanoff (2008), information need is a state or process started when one perceives that there is a gap between the information and knowledge available to solve a problem and the actual solution of the problem. In other word, an information need is the recognition that one's knowledge is inadequate to satisfy the goal within the context/ situation that one finds oneself at a specific time (Ormandy, 2011). Timmins (2006) states that an information need is a personal item that an individual requires information about.

These needs occur as a result of the individual's natural coping mechanism, whereby they seek out information in response to a problem-focused approach. Furthermore, an information need is defined as a state or process started when one perceives that there is a gap between the information and knowledge available to solve a problem and the actual solution of the problem (Miranda & Tarapanoff, 2008).

However, in this study, patients' discharge information needs refers to important contents reported by patients with myocardial infarction that they need to know in order to help them understand the nature of the disease, its treatments, as well as required contribution to lessen complications.

Importance of measuring information needs. In recent years, education has been considered an integral component of care for patients after myocardial infarction (Chan, 1990). According to Ausubel's assimilation theory of meaningful learning as an adult, a successful instructional process is dependent both on a learner and a teacher, in this case, a patient with MI and a nurse. In this theory, Ausubel explained the process of teaching as expositing teaching in which the teacher presents the concepts and ideas a student should learn, and to reception learning in which the teacher places new ideas in the context of learners' cognitive structure. The most important single factor influencing learning is what the learner already knows and then, integrating the new knowledge with the relevant existing knowledge ("Assimilation theory", 2011). Thus, the new information is not simply added to the old in a cumulative way, rather it acts upon the existing information and both are transformed into a new and more detailed cognitive structure.

Ausubel stated that meaningful learning would not occur unless the learner makes an active attempt to relate new knowledge to the already acquired

knowledge and without well anchored and integrated knowledge in the cognitive structure it would remain unrelated and therefore be easily forgotten. After assuring that the learner has required prior knowledge, the teacher has to present learning material in an organized and structured manner with a sufficient amount of practice in the form of application of learning material in order to facilitate its assimilation.

Similarly, learning about care at MI patients' home would be meaningful if patients would be able to identify the content areas that they already know and what they need to know (to be informed of) and then integrate the new information with their relevant existing knowledge. On the other hand, nurses' support or information provided has to compliment MI patients' existing knowledge and their need to learn. This mutual understanding will aid the success of a cardiac educational program.

Measurement of Information Needs

To measure myocardial infarction patients' information needs, there are some existing tools. The most popular existing tools are the Cardiac Patient Learning Need Inventory (CPLNI), the Patient Learning Need Scale (PLNS), the Turkish Cardiac Patient Learning Need Inventory (TR-CPLNI), and the self-administered questionnaire, "Everything You Ever Wanted to Know About Heart Disease". All of these instruments are adapted from the original CPLNI developed by Gerard and Peterson in 1984. All of them are more or less the same. Some items were changed, added or deducted to best fit the culture where the research was completed. Further details of the tools are described below.

The Patient Learning Needs Scale (PLNS). The PLNS is one of the cardiac patient's learning needs assessment tools. The tool has 40 items consisting of

a questionnaire which measures five categories of information needs (medication, complication and symptoms, treatment and activities of living, illness related concerns, support and care in the community). The 40 items in the PLNS are graded with a five-point Likert scale (1 = not at all important to 5 = extremely important). Internal consistency reliability has been confirmed with the Cronbach's alpha scale of .92. Factor analysis was done to support construct validity (Smith & Liles, 2007).

The Cardiac Patient Learning Needs Inventory (CPLNI). The Cardiac Patient Learning Needs Inventory (CPLNI) was first developed by Gerard (Gerard & Peterson, 1984) and measures eight categories of information needs with 43 items. The eight categories of information were: introduction to the CCU, cardiovascular anatomy & physiology, psychological concerns, risk factors, information about medication, dietary information, physical activity information and miscellaneous information. The 43 items are graded on a five-point Likert scale (1 = not at all important to 5 = extremely important). The Cronbach's alpha for total items was .91 and Cronbach's alpha for each item ranged from .68 to .96 (Gerard & Peterson, 1984). This tool was modified by Karlik and Yarcheski (1987), Chan (1990), Turton (1998), Timmins and Kaliszer (2003).

In Karlik and Yarcheski's study (1987), the same CPLNI was used as originally developed by Gerard (Gerard & Peterson, 1984), but in this study the wording on the CPLNI was modified for the nurses to "read in the third rather than the first person". The coefficient α for the total test in this study was .95 and the coefficient α for the individual categories ranged from .77 to .85 (Karlik & Yarcheski,

1987). For this value, they did not mention if either value comes from the patients' or nurses' questionnaire.

For the purpose of Chan's study (1990), the CPLNI was used after modification. In this study two dimensions used were "important to learn" and "realistic to learn". The category "Introduction to CCU" was deleted as it was considered inappropriate for the subjects. A total of thirty seven items were used in both dimensions. One additional item was used to ask subjects to list and rate any other informational topic they might also have perceived as important and realistic to learn. Face and content validity of the modified instruments were assessed independently by several experts in the field of cardiovascular patient teaching. All interviews were conducted by a single interviewer to enhance reliability. Surprisingly, they did not report whether the tool was consistently reliable.

The CPLNI was used in Turton's study after modification (1998). This modification resulted from expert's recommendations and answers from structured interviews with subjects. Prior to the pilot study, the content validity was measured by four experienced nurses who were currently working in CCU. According to experts' comments, a column "non-applicable" was added to the spouse/partner's instrument. Some of the individual items were also modified. The category "introduction to CCU" was removed as it was considered inappropriate for subjects following hospital discharge. During the pilot study, the modified CPLNI consisted of 37 items, grouped in seven categories. Some comments were obtained from subjects by using structured interview. Based on the results of a pilot study, the CPLNI was modified by using the term "life-style factors" instead of "risk factors." The category "symptom

management was added, and three additional pieces of informations were added.

After this modification, the CPLNI contained eight categories with 38 items.

Turton's version of the CPLNI (1998) was used in Timmins and Kaliszer (2003) to study in an Irish population. This is the latest version of the CPLNI (as cited in Uysal & Enc, 2012) that has eight categories with 37 items using the same response format, a five-point Likert scale with an added 'not applicable' response. The categories were: Anatomy and physiology of the heart, psychological factors, lifestyle factor, medication information, dietary factor, physical activity, symptom management and miscellaneous. Each item of the nurses' version started with the stem "the patient needs to know". The Face and content validity was established in the Irish setting by a panel of six experts from the field of coronary care nursing and changes were made according to their comments. In this study, no reliability value was reported.

The Turkish Cardiac Patient Learning Needs Inventory

TR-CPLNI. The CPLNI has been translated into many languages. Uysal and Enc (2012) used it for testing a validity-reliability of the CPLNI with Turkish populations. It had eight categories, 38 items and six levels of the rating scale: 1= not important, 2 = somewhat important, 3 = moderately important, 4 = important, 5 = very important, 6 = not appropriate. The content validity index was used to determine the validity of the instrument items. The CVI of the TR-CPLNI items was determined as .96. The reliability was measured by means of Cronbach's alpha resulting in a value of .96 for the entire scale and for subscales the coefficients ranged from .78 to .92. The test-

retest reliability analysis was also performed with a 15-day interval, yielding a value of .77 (Uysal & Enc, 2012).

The Self-administered Questionnaire “Everything You Ever Wanted To Know About Heart Disease.

This questionnaire was also modified from Gerard’s tool (Gerard & Peterson, 1984). It was specifically developed from a questionnaire that was used in a preliminary study (Czar & Jenkins as cited in Czar & Engler, 1997) of learning needs in 51 patients with coronary artery disease in an out patients cardiology clinic. Patients were asked in the preliminary study to recall their perceived learning needs during their previous hospitalization. The internal consistency reliability of the instrument was reported with coefficient alpha of .92. A limitation of that study was, the patients had difficulties recalling their needs, and the level of importance of each need was not determined. As a result, that the questionnaire was modified. The modified questionnaire contained 10 categories with 38 items, a 5- point Likert scale ranging from 1 (not important) to 5 (very important). The categories included cardiac anatomy and physiology, food restrictions, exercise, recognizing symptoms, sex, medications, smoking, work, stress, and general concerns. An open-ended item subscale called questions that come to mind was included at the end of the questionnaire. Face and content validity was tested by a panel of experts (Czar & Engler, 1997).

In summary, several versions of the CPLNI and other questionnaires have been used to assess the information needs of patients with MI. Most of the studies used the CPLNI. The categories of information were modified according to the stage of recovery and study settings either by adding or deleting some categories

to best fit the study population. From the above discussion about the measurement of information needs, Turton's (1998) version of the CPLNI was chosen because in this version the category introduction to CCU was deleted as that it might not be appropriate for the patients in this study who had declared to discharge. Moreover, the symptom management of Turton's version may be appropriate for this study because in recent years some other studies (Timmins & Kaliszer, 2003; Uysal & Enc, 2012) have used this category that was highly valid and reliable. In this study the CPLNI needs to be modified to best fit with Bangladeshi culture because most of the previous studies were conducted in the UK and the US (Gerard & Peterson; Chan; Ashton; and Hughes as cited in Timmins & Kaliszer, 2003) over the past 20 years.

Nurses' Role in Providing Information Support

As a health care professional, providing information for patients with MI is an important nursing function in delivery of cardiac rehabilitation (Smith & Liles, 2007). Before providing information nurses need to assess the patient's individual needs then plan to meet these needs in order to provide the most effective education for the individual patient (Garvey & Noonan, 2011). Liljeroos, Snellman, and Ekstedt (2011) described in their phenomenological study that uncertainty and inactivity in patients with MI during convalescence is due to lack of knowledge, since the patient does not know what changes they need to make. For post MI education nurses are identified most frequently as the existing teacher (Bridin, 2003). They can provide information and help in acquiring related knowledge by establishing relationships through patient-nurse communication (Liljeroos et al., 2011). Nurses also clarify the information that patients gather from other sources like doctors and other health care providers. The study found that nurses have not only underlined the

major role in re-wording and re-explaining but also informing and assisting patients in taking their part in medical decisions that concern them (Roberts, Schofield, Freeman, Hill, Akkerman, & Rodger, 2002 as cited in Moret, Rochedreux, Chevalier, Lombrail, & Gasquet, 2008).

Discharge Information for Patients With Myocardial Infarction

The information that is identified as most importantly needed by the patient with MI may guide to develop guidelines for developing teaching plans. Karlik and Yarcheski (1987) conducted a replication study and found that 12 items were replicated as the most important considered by CCU patients and nurses, of the 18 items in the original study (Gerard & Peterson, 1984). They claimed that the items they identified can serve as guidelines for developing teaching plans for patient with MI.

Guideline-based instruction or information at the point of discharge can improve the outcomes in patients with MI (Rogers et al., 2007). In the Rogers et al.'s (2007) study, the American College of Cardiology's Guidelines Applied in Practice (GAP) was initiated for patients with MI. The GAP emphasized guideline-based medications, lifestyle modification and follow-up planning. They analyzed 1-year follow-up mortality both pre and post-GAP and compared the mortality. The result showed that the use of GAP at the point of discharge significantly decreased the post-GAP mortality as well as 1-year mortality of patient with MI (Rogers et al., 2007).

Several studies mentioned different contents for assessing the discharge information need of patient with MI. The most common, up to date and culturally fit discharge information contents could be used to guide the development of an appropriate discharge care plan for patients with MI education. The following contents were commonly used to assess the discharge information for patient with MI.

Discharge Information Contents for Patients With Myocardial Infarction

The contents of discharge information should include all issues related to secondary prevention of myocardial infarction.

Based on the literature review, the contents of discharge information provided for patients with MI are presented in Table 1.

Table 1

The Contents of Discharge Information for the Patients With MI

Content areas	Authors							
	Gerard & Peterson, 1984	Karlik & Yarcheski, 1987	Chan, 1990	Czar & Engler, 1997	Turton, 1998	Timmins & Kaliszer, 2003	Smith & Liles, 2007	Uysal & Enc, 2012
1. Introduction to CCU	✓	✓	--	--	--	--	--	--
2. Anatomy and physiology	✓	✓	✓	✓	✓	✓	--	✓
3. Psychological information or information about psychological factor	✓	✓	✓	--	✓	✓	--	✓
4. Stress	--	--	--	✓	--	--	--	--
5. Risk factors	✓	✓	✓	--	--	--	--	--
6. Lifestyle factor	--	--	--	--	✓	✓	✓	✓
7. Smoking	--	--	--	✓	--	--	--	--
8. Medication or medication information	✓	✓	✓	✓	--	✓	✓	✓

Table 1 (Continued)

Contents areas	Authors							
	Gerard & Peterson, 1984	Karlik & Yarcheski, 1987	Chan, 1990	Czar & Engler, 1997	Turton, 1998	Timmins & Kaliszer, 2003	Smith & Liles, 2007	Uysal & Enc, 2012
9. Drug information	--	--	--	--	✓	--	--	--
10. Treatment and activity of living	--	--	--	--	--	--	✓	--
11. Diet or dietary or dietary factor or dietary information	✓	✓	✓	--	✓	✓	✓	✓
12. Food	--	--	--	✓	--	--	--	--
13. Activity or Physical activities	✓	✓	✓	--	✓	✓	✓	✓
14. Exercise	--	--	--	✓	--	--	--	--
15. Work	--	--	--	✓	--	--	--	--
16. Sex	--	--	--	✓	--	--	--	--
17. Symptom management	--	--	--	--	✓	✓	--	✓
18. Symptom recognition	--	--	--	✓	--	--	--	--
19. Complications and symptoms	--	--	--	--	--	--	✓	--
20. Miscellaneous	✓	✓	✓	--	✓	✓	--	✓
21. General concerns	--	--	--	✓	--	--	--	--
22. Support and care in the community	--	--	--	--	--	--	✓	--

The original CPLNI for identifying MI patients' educational needs was developed by Gerard (Gerard & Peterson, 1984). It is still used as a valuable and effective cardiac patients' educational need measurement instrument. During its lifetime this tool has been modified by several researcher by adding or deleting or changing some terms, e.g.- the content area of education about introduction to CCU was deleted because it was inappropriate for patients who no longer required CCU care (Chan, 1990; Turton, 1998). Moreover, a recent study was conducted by Galdeano, Furuya, Rodrigues, Dantas, and Rossi (2012) to validate and to evaluate the reliability of the CPLNI in Portuguese patients with coronary artery disease. They found that the domain introduction to CCU yielded the lowest values with Cronbach's alpha and test-retest value of .47 and .51, respectively.

Czar and Engler (1997) used the term stress only as an alternative to psychological factor from the original study. Instead of risk factor from the original instrument some studies used the term lifestyle factors (Smith & Lilies, 2007; Timmins & Kaliszer, 2003; Turton, 1998; Uysal & Enc, 2012) and one study (Czar & Engler, 1997) also used the term smoking only. Similarly, in Turton (1998) the term drug information was used as a substitute for medication information. Moreover, the term food was used in Czar and Engler's study (1997) instead of dietary information. Furthermore, Czar and Engler's study (1997) also used the terms exercise, work and sex as the different three categories that were covered by only one category in original study named physical activity.

In addition, some studies have added different categories rather than use the original CPLNI, e.g. - Symptom management (Timmins & Kaliszer, 2003; Turton, 1998), this term was also used in two other studies differently as symptom

recognition and complications and symptoms respectively (Czar & Engler, 1997; Smith & Lilies, 2007). Treatment and activity of living is the another term that was not used in the original study (Smith & Liles, 2007). Two other dissimilar terms with original study were used as general concerns, and support and care in the community (Czar & Engler, 1997; Smith & Liles, 2007). After analyzing the above mentioned studies, it can be said that the following eight content areas are the important educational need content for an MI patient before discharge and will be used in this study:

Anatomy and physiology. Anatomy and physiology describes the structural and functional information of the heart. The basic informations of the heart is: It is a hollow, muscular, cone-shaped organ. It works as a pump whose purpose is to drive the blood into and through the arteries throughout the whole body. This organ also has its own unique blood supply known as the coronary circulation. Coronary blood supplies through two main coronary arteries, left and right coronary artery. The main left coronary artery supplies the left atrium, inter ventricular septum, left ventricle and the anterior wall of the right ventricle. On the other hand, the right coronary artery supplies the right atrium, the right ventricle and Sino-atrial node (Ahmed, 2013).

In patients with MI, coronary blood flow may be reduced, due to atherosclerosis and the presence of plaques within the coronary arteries. As a result, this patient supply can often fail to meet the increased demand for oxygen, causing angina pectoris (Ahmed, 2013), thus patients face various symptoms including chest pain. MI occurs, when the complete cutoff of blood supplies results in the death of heart cells. Without prompt treatment it can result in necrosis of the affected part of

the heart (Martinez & Bucher, 2007). After successful reperfusion, infarct resorption occurs at steady pace following the acute injury of an MI. The percent reduction in infarct size is independent of the initial infarct size. The healing process occurs rapidly within the first few months following acute injury with gradual reduction over the course of the next year (Pokorney et al., 2012). Pokorney et al. (2012) reported a reduction of 24% in infarct size over a mean 4-month time period.

From the literature, it is found that this category of information, the item for education should consist of the reasons why the patient had chest pain, what the heart looks like and its works (Gerard & Peterson, 1984) including blood supply (Timmins & Kaliszer, 2003; Uysal & Enc, 2012), the causes of heart attack (Gerard & Peterson, 1984; Timmins & Kaliszer, 2003; Uysal & Enc, 2012), what happens when a person has a heart attack (Gerard & Peterson, 1984; Timmins & Kaliszer, 2003; Uysal & Enc, 2012), time for healing the damaged heart muscle (Timmins & Kaliszer, 2003; Uysal & Enc, 2012), process of heart healing (Gerard & Peterson, 1984; Uysal & Enc, 2012) and the reason for irregular heart beat or skipped beat (Gerard & Peterson, 1984).

Psychological concerns. Patients after MI suffer from various psychological symptoms that adversely affect patient's quality of life with increases cardiac morbidity and risk of recurrent cardiac events (Strik, Denollet, Lousberg, & Honig, 2003). Patients with MI usually worried about their social role, interpersonal relations and personal health, which can worsen symptoms and complicate their future care. Discharge information including relaxation methods after discharge decrease the post discharge psychological symptoms (Aghakhani et al., 2011).

The NICE guideline (2007) provided some recommendations that are necessary for management of post MI anxiety after discharge. They are: (1) provide evidence-based information about treatments to facilitate shared decision-making, (2) provide information on the nature, course and treatment of panic disorder or generalized anxiety disorder, including the use and likely side-effect profile of medication, (3) patient should be informed of self-help groups and support groups and be encouraged to participate in such programs where appropriate, (4) all patients prescribed antidepressants should be informed that, although the drugs are not associated with tolerance and craving, discontinuation/ withdrawal symptoms may occur on stopping or missing doses or, reducing the dose of the drug. These symptoms are usually mild and self-limiting but occasionally can be severe, particularly if the drug is stopped abruptly. (5) the most commonly experienced discontinuation/ withdrawal symptoms are dizziness, numbness and tingling, gastrointestinal disturbances (particularly nausea, and vomiting), headache, sweating, anxiety and sleep disturbances, (6) they should seek advice from their medical practitioner if they experience significant discontinuation/ withdrawal symptoms.

Similarly, depression NICE clinical guideline 23 (2009) mentioned some important techniques to recognize an initial management of depression that can help a patient with MI after discharge. The patients may have often been bothered by feeling down, depressed or hopeless, having little interest or pleasure in doing things, feeling of worthlessness, poor concentration and thoughts of death. For the management of the post discharge period, the patients and their families should ensure that they know how to seek help promptly if required. Such as the potential for increased agitation, anxiety and suicidal ideation early in treatment, actively seek out

these symptoms and review treatment if they develop marked and / or prolonged agitation, the need to be vigilant for mood changes, negativity, hopelessness and suicidal ideation, particularly when starting or changing treatment and at a time of increased stress. If the patient is assessed to be at risk of suicide, consider: providing increased support such as more frequent contact, referral to specialist mental health services.

Risk factor. A risk factor is something that increases the chances of getting a disease. For myocardial infarction, there are some modifiable and non-modifiable risk factors for getting the disease. The majority can be controlled, treated or modified. In addition to the modifiable risk factor, there are some non-modifiable risk factors that cannot be changed or modified, such as age (increased risk with advancing age), gender (a man is at greater risk than a pre-menopausal woman), family history (increased risk with a first-degree blood relative has had MI or CHD before the age of 55 years for a male or 65 years for a female relative) (World Heart Federation, 2013). The modifiable risk factors include hypertension, cholesterol, overweight/obesity, Smoking, lack of physical activity and diabetes.

Hypertension. Hypertension or high blood pressure is defined as blood pressure measurements that repeatedly exceed 140/90mmHg (Smeltzer & Bare, 2004). Babatsikou and Zavitsanou (2010) provided the risk values of hypertension presented by the National American Guidelines for Hypertension. They mentioned that the values of 120-139mm Hg and 80-89 mmHg, for systolic and diastolic blood pressure respectively, are characterized as a precursor stage of hypertension, since these values are associated with increased risk of hypertension development compared

to lower values of arterial pressure. Babatsikou and Zavitsanou (2010) also reviewed a previous study in which they mentioned that patients with hypertension are 2 to 3 times more likely to develop coronary heart disease including angina pectoris, myocardial infarction and sudden death compare to healthy non-hypertensive population group.

Cholesterol. There are four elements of lipid including total cholesterol, low-density lipoprotein cholesterol (LDL-C), high-density lipoprotein cholesterol (HDL-C), and triglycerides that are considered as primary influencing factors for developing heart disease. The American Heart Association (2010) provided the desirable level of cholesterol. Total cholesterol level should be less than 200 mg/ dl, the LDL-C less than 100 mg/dl, the HDL-C not less than 40 mg/dl for men and 50 mg/dl for women and ideally 60mg/dl or higher, the triglyceride less than 150 mg/dl.

Overweight/Obesity. Obesity is an independent predictor of coronary artery disease (Matbew, Francis, Kayalar, & Cane, 2008). Overweight and obesity are determined by measuring weight and height to calculate body mass index (BMI), a numeric value that indicates the relative weight to height. A BMI between 25 and 29.9 is considered as overweight and the BMI ≥ 30 is considered as obesity (Matbew et al., 2008).

Smoking. Smoking is a significant risk factor for myocardial infarction and death. The incidence of smoking caused 71% of MI and 37% of death (Engstrom et al., 2000). The risk is higher by three to four times than that of the non-smoker.

One review study about smoking and its relation to the cardiovascular health

summarized and concluded that both the adverse effects of cigarette smoke and the benefits of smoking cessation on cardiovascular health occur rapidly. The risk of myocardial infarction falls by 50% within a year of cessation (Prasad, Kabir, Dash, & Das, 2009). The adverse effects of cigarette smoke include increased catecholamine, increased blood pressure and heart rate, increased myocardial oxygen demand, impaired oxygen exchange, and increased carboxyhemoglobin that can produce or exacerbate myocardial ischemia (Prasad et al., 2009).

Lack of physical activity. A lack of physical activity has an important role in developing heart disease. The risk of heart disease can be further enhanced by less regular exercise that is combined with over eating or obesity, and high cholesterol (Morton, Fontaine, Hudak, & Gallo, 2005). Regular activity and exercise reduces the risk factor of cardiovascular diseases and the chance of having a heart attack by increasing exercise tolerance, reducing body weight, reducing blood pressure, reducing LDL and total cholesterol, increasing HDL, increasing insulin sensitivity (Myers, 2003).

Diabetes. Diabetes acts as an associated disease with an increased risk of myocardial infarction. Myocardial infarction is two to three times more common among diabetic people and carries a worse prognosis than in the general population (Boras, Pavlic-Renar, Car, & Metelko, 2002). Baal et al. (2011) found that diabetes is common in patients with MI as pair disease prevalence. In patients with MI it is the largest cause of excess mortality among diabetic patients. Hyperglycemia of diabetes fosters dyslipidemia, increases platelet aggregation, and alters red blood cell function which can lead to thrombus formation (Smeltzer & Bare, 2004).

The discharge information about the risk factors include the information about the meaning of the terms risk factor or life-style factor, the risk factor or life-style factor that may have contributed the heart attack, the way of preventing another heart attack risk factor or life-style factor (Gerard & Peterson, 1984; Timmins & Kaliszer, 2003; Uysal & Enc, 2012), and the process of affecting the heart by risk factor (Gerard & Peterson, 1984).

Medication. Medication is an important component for long term care after MI. It should be started in hospital with aspirin, heparin, beta-adrenoceptor blocking agents and possibly nitrates, as well as with appropriate analgesia to reduce pain and anxiety. An Angiotensin-Converting Enzyme (ACE) inhibitor or Angiotensin-Receptor Blocker (ARB) and a statin are also often prescribed shortly after MI, as are other drugs to reduce clotting and minimize blockages. The type and other factors are related to MI influence further medication therapy (Goldmann, 2006).

Medication regimens are associated with improved outcomes. Aspirin should be taken by every patient at the time of discharge unless a true allergy or bleeding tendency is present. Because no prescription is written, aspirin is prone to be inadvertently omitted. Beta-blockers medications have been shown to be effective in preventing death, reinfarction, and ventricular fibrillation in long-term follow-up. ACE inhibitor in doses that have been shown to be beneficial are mandatory in patients with an ejection fraction of less than 40% unless a specific contraindication is present and appears to benefit a wide spectrum of patients with coronary artery disease and preserved left ventricular function (Goldmann, 2006).

For patient safety and to reduce medical errors in the post discharge period it is necessary to prevent recurrence of MI, by supplying patients with detailed information concerning medication. According to the American Society of Consultant Pharmacists (as cited in Elwood et al., 2007), the patient needs to know: “1) what condition the medicine was prescribed to treat; 2) what the medicine is, why it is needed and how it works in the body; 3) why the medicine was selected; 4) the dosage schedule and related instructions about how to take the medicine (before eating, with food, etc.); 5) whether the medicine will work safely with other medicines being taken (both prescription and nonprescription medicines); 6) what to do if doses are missed or delayed; 7) the common adverse effects that may occur and what to do about them; 8) how to monitor whether the medicine is having its intended effect (are lab tests or blood work necessary; if so, how often); 9) serious adverse effects to look out for and what to do if they occur; 10) what action to take when the prescription is about to run out.”

One study reported that after hospital discharge, approximately half of the adults experience a medical error and 19% to 23% suffer an adverse event most commonly from the drug (as cited in Kripalani, Jackson, Schnipper, & Coleman, 2007). To prevent this adverse event in MI patients, nurses should provide the above information.

Dietary information. Poor choice of diet is one of the most common risk factors that contribute to a myocardial infarction. A higher intake of saturated fatty acid (Yamagishi et al., 2013), intake of fried foods, salty snacks and meat (Iqbal et al., 2008) increase the risk of AMI. The selection of right diet will not only help in

healing the heart after an attack but also reduce the risk of further attack (Argyriou et al., 2011).

Based on the American Heart Association Dietary Guideline (AHA, 2007), there are several dietary recommendations for reducing risk, such as: “1) burn at least as many as those taken in; 2) aim for at least 30 minutes of physical activity on most, if not all days. To lose weight, do enough activity to burn more calories than those consumed every day; 3) eat a diet rich in vegetables and fruits; 4) choose whole-grain, high-fiber foods; 5) eat fish at least twice a week; 6) limit the amount of saturated fat, trans fat, and cholesterol; 7) select fat free, 1% fat, and low-fat products; 8) cut back on foods containing partially hydrogenated vegetable oils to reduce trans-fat in diet; 9) cut back on beverages and foods high in calories and low in nutrition such as soft drinks and foods with added sugar; 10) choose and prepare foods with little or no salt” (Nix, 2009).

Moreover, WHO (2007) mentioned some dietary recommendations for prevention of cardiovascular disease. They mentioned that all individuals should be encouraged to reduce total fat and saturated fat intake. The total fat intake should be approximately 30% of calories, saturated fat be less than 10% of calories, trans-fatty acid intake should be reduced as much as possible or eliminated and most dietary fat should be polyunsaturated (up to 10% of calories) or monounsaturated (10-15% of calories). Individuals should also be encouraged to reduce daily salt intake by at least one third, if possible, to <5 g or 90 mmol per day, to eat at least 400 g a day of a range of fruits and vegetables as well as whole grains and pulses.

Physical activity. Physical activity or exercise is an important part of recovery for patients with MI. To return to full normal activities, the patients with MI

need to know about the time to begin or resume their physical activity and the level of activity safe for them. Usually, after an uncomplicated or low risk heart attack, most people are able to return to work within 6 to 8 weeks (as cited in Kovoov et al., 2006). The same study also stated that very low risk patients could return to normal activity in 2 weeks without any adverse effects.

An early mobilization program promotes the patients' self-confidence to be independent in basic self-care at the time of discharge. The rate of progress of mobilization depends on several factors, such as co-morbidity, age, habitual activity, surgical and medical condition and specific medical instructions. In some situations, e.g.- uncomplicated myocardial infarction, cardiac surgery or coronary angioplasty, some stages may be notional and mobilization may be achieved in a single day. This can be compared with complicated conditions in which mobilization may be much slower (National Heart Foundation, 2004).

Before discharge from hospital, the patients with MI need to be advised to walk a short distance daily after which they can gradually increase their activities as part of their daily routine (Antman et al., 2004). The patients with balloon angioplasty can usually return to work as soon as they feel able, generally about a week after leaving hospital since it is often psychological and socioeconomic issues, rather than medical issues, that keep people from returning to work sooner. After a heart attack, angioplasty, or bypass surgery, patients experience depression and as a result are less likely to return to full time work (Soderman, Lisspers, & Sundin, 2003).

Patients with MI who return to work have been shown to benefit and report less physical and mental complaints as well as tending to have a more positive outlook than those who do not return to work (Boudrez & Backer, 2000). Evidence

suggests that, brief advice on physical activity advice is effective in increasing levels of physical activity as well as accelerating functional capacity and lowering subsequent risk of cardiovascular events (Briffa et al., 2006). Briffa et al. (2006) mentioned the physical activity recommendation as: 1) patient should be provided brief, appropriate and written physical activity advice; 2) they should be advised to participate in a short period (up to 12 weeks) of supervised exercise rehabilitation; 3) they should be advised to attainment of daily low to moderate physical activity for at least 30 minutes unless contraindicated. Patients with MI should stop physical activity, if they experience the sign-symptoms of chest pain or symptoms of heart attack (Briffa et al., 2006).

Information on sexual activities is another important aspect of physical activity information. Cooper et al. (2007) reviewed evidence and revealed that: 1) after recovery from MI, sexual activity has no greater risk of triggering a subsequent MI than if they had never had an MI; 2) patients who have made an uncomplicated recovery after their MI can resume sexual activity when they feel comfortable to do so, usually after about 4 weeks; 3) the subject of sexual activity should be raised with patients within the context of cardiac rehabilitation and aftercare; 4) when treating erectile dysfunction, treatment with a PDE5 (phosphodiesterase type 5) inhibitor may be considered in patients who had an MI more than 6months earlier and who are now stable; 5) PDE5 inhibitors must be avoided in patients treated with nitrates and/or nicorandil because this can lead to dangerously low blood pressure.

Moreover, some other studies have mentioned discharge education about physical activity that should include the information about the reason for limitation of activities (Gerard & Peterson, 1984), General guideline for physical

activity after heart attack, the activities that need to be restricted for the patients with MI, the way to recognize the time to increase the level of activities, the time to resume sexual activities (Gerard & Peterson, 1984; Timmins & Kaliszer, 2003; Uysal & Enc, 2012), the time to return to work (Timmins & Kaliszer, 2003; Uysal & Enc, 2012).

Symptom management. The patient with MI may experience different types of chest pain or other clinical signs and symptoms especially during exertion or physical activities. The patients should be informed that if they experience the signs or symptoms of: 1) squeezing, discomfort or typical pain in the centre of the chest or behind the breastbone that may spread to the shoulders, neck, jaw and/or arms; 2) symptoms evocative of previous myocardial ischaemia; 3) dizziness, light-headedness or feeling faint; 4) difficulty breathing; 5) nausea; 6) uncharacteristic excessive sweating; 7) palpitations associated with feeling unwell; 8) undue fatigue; 9) leg ache that curtails function; 10) physical inability to continue physical activity; 11) for patient with diabetes: shakiness, tingling lips, hunger, weakness and palpitations, they should stop physical activity (Briffa et al., 2006).

For management of symptoms of angina, chest pains or discomfort during physical activity, the patient should be informed to carry their nitrate with them when they engage in physical activity. After stopping physical activity and taking immediate rest, if pain/discomfort is not relieved, the patient should be instructed to take nitrate medication (e.g. Anginine or Isordil sublingual tablets placed under tongue or Nitrolingual spray). If the pain/discomfort goes away with rest and one tablet or spray, then inform doctor as soon as possible. If this does not go away with rest and one tablet or spray, the dose of nitrate medication may be repeated 5 minutes after the initial dose. If the symptoms are not relieved completely within 10-

15 minutes by medication and rest, call an ambulance immediately, and rest quietly while waiting for transport or assistance regard this pain/discomfort as a heart attack. The patients may take aspirin (150-300 mg) unless the doctor has advised not to do so. Where an ambulance is not readily available, quickly notify the nearest hospital, health clinic or doctor for advice, it may also be appropriate to arrange for someone to drive the patient to hospital (Briffa et al., 2006).

Miscellaneous. This category carries the widest range of information that is not under the above categories. The information concerns the techniques of taking pulse, different kinds of test regarding the heart after being discharged from the hospital (Gerard & Peterson, 1984; Timmins & Kaliszer, 2003; Uysal & Enc, 2012), the reason for further testing after going home (Gerard & Peterson, 1984), the support services that are available when patients are discharged home, the support services that are available for the patient's family (Timmins & Kaliszer, 2003; Uysal & Enc, 2012), the place where the patient's family can go to learn CPR (Gerard & Peterson, 1984; Uysal & Enc, 2012).

In this study, the researcher explored which contents nurses provide to their patients with MI. Thus, after permission had been granted by the developer of the CPLNI (Appendix F) the above eight content areas of the CPLNI were used as a template to guide the construction of the Cardiac Patient Learning Support Inventory, Nurse Version (CPLSI-Nurse).

Factors Related to Patients' Information Needs and Nurses' Information Support

Factors Related to Patients' Information Needs

Patients' information needs are different from individual patient to patient. There are some factors that may influence their information needs as follows:

Age. Age of patients can contribute to his/her information needs.

Timmins and Kaliszer (2003) conducted a study with 27 MI patients. The researchers divided the patients into five different age groups. They found that the patients' information needs concerning driving, sex and work significantly differed according to almost all age groups except those who were 70 to 79 and 80 to 89. They responded similarly about their information need concerning sex. Smith and Liles (2007) also conducted another study on 20 MI patients to examine the perceptions of their needs for information before being discharged and to discover whether there are significant differences in the needs of certain groups of MI patients. The subjects' age range was 35 to 92 years old. The study found that only five patients whose age was between 53 and 65, identified the additional areas where they would have liked to receive pre-discharge information. Whereas a previous study showed there was no relation between age and information needs (Czar & Engler, 1997).

Employment status. Employment status can contribute to the information needs of patients' with myocardial infarction. Retired people desired more information than employed people (Smith & Liles, 2007). Although, Czar & Engler (1997) found that there is no relationship between occupation and perceived information needs.

Gender. Gender differences regarding the needs of information exist. In a literature review conducted by Polikandrioti and Babatsikou (2013), they found that male and female patients differed in the contents of information they needed, but they did not report what contents women and men may need differently. Women reported that they preferred to have the information before cardiac intervention (i.e., percutaneous transluminal coronary angioplasty) whereas male patients needed it afterwards. In this same review study, Polikandrioti and Babatsikou found that women preferred to have physicians provided them the information as opposed to men who preferred nurses.

In a longitudinal, prospective study involving 906 patients with acute ischemic coronary events admitted in coronary intensive care units (CICUs) in Canada, Stewart, Abbey, Shnck, Irvine, and Grace (2004) explored gender differences in health information needs and decisional preferences. They found that at 6-month follow up, overall there were no gender differences, except in some certain areas. Women were 1.77 times more likely than men to want information about angina and 1.57 times about blood pressure. Men were 1.32 times more likely to want information about sexual function.

Perceived severity of illness. The patient's perception about the severity of illness can influence the information needs of the patient with myocardial infarction (Polikandrioti & Babatsikou, 2013). Sometimes individuals undergoing angioplasty reported less information needs as they perceived the severity to be less due to their perception about the simplicity of the procedure of PCI. Their perception of simplicity was due to a number of reasons: the short length of time it took; that it is

only performed under a local anesthesia; there were no large visible scars; a short hospitalization period; and some participants experienced nil or minimal pain or stress. (Corones, Coyer & Theobald, 2009).

Perceived risk of survival. The patients' perceived risk related to survival influences the perceived needs regarding symptom recognition, symptoms management and medication (Smith & Liles, 2007; Timmin & Kilzer, 2003; Timmins, 2005). Polikandrioti and Babatsikou (2013), claim that physical activity is the area where the patients place low priority but it may be crucial to their overall well-being.

Income. Patients' income or economic status may influence their information needs. Usually, the continuous treatment of the patients with MI includes spending money for medication and investigation and is related to their financial capacity. The study found that the low income group of patients with MI had a significantly higher 30 days and long term mortality rate in all age groups (Rasmussen et al., 2006). As probability of having financial issues increased the study found that the most common categories of information needs were related to medication (Czar & Engler, 1997; Polikandrioti & Babatsikou, 2013; Smith & Liles, 2007).

Education. The educational level of patients with MI has an impact on their health. One study revealed that patients with low level of education had a significantly higher 30 days and long term mortality rates (Rasmussen et al., 2006). This may be due to the patients with different levels of education having different levels of understanding about the information received. This issue seems to suggest patients' perception of discharge information needs is different.

Stage of recovery. The stage of recovery, particularly the early stage is most important, during which, cardiac patients' learning needs are related to psychological or emotional responses (Polikandrioti & Babatsikou, 2013; Timmins, 2005). Moreover, within 72 hours of their intended discharge, myocardial infarction patient perceived information needs related to medication, disease complication and physical activities (Smith & Liles, 2007).

Previous experience. Previous patients' experience about cardiac event can influence information needs. Coronas, Coyer and Theobald (2009), claimed that initially patients thought their chest pain was a normal indigestion but after the recognition of their actual chest pain they perceived the information need about the signs and symptoms of chest pain related to myocardial infarction.

Marital status. The category of information needs may differ according to patients' marital status. Sexual activity is an important part of married patients' lives. After suffering MI patients may believe that sexual activity overstrains the heart and may lead to another MI or even death. As a consequence they believe that sexual activity is prohibited for them (O'Donovan, 2010). Therefore education regarding sexual activity becomes an important informational issue for patient with MI who are married. However, Czar and Engler (1997) conducted a study to determine the perceived learning needs and their level of importance in 20 patients with angina pectoris and myocardial infarction. They found that there was no correlation between the importance of perceived learning needs and marital status.

Factors Related to Nurses' Information Support

There is no known study available on nurses' information support. Usually people act as they perceive. Nurses' perception about patients' information need may influence their information support for patients with MI. However, there are several studies that have assessed the factors of nurses' performance in relation to different types of patients. Similar factors may influence the nurses' support to patients with MI.

Age. With increasing age, people tend to increase in maturity in all areas including at work. Several studies have shown that age is related to the caring behaviors of nurses. Lange, Thom, and Kline (2008) and Prompahakul (2011) conducted studies to assess the factors related to nurses' behavior in relation to dying patients and found that the senior or older nurses had higher level of caring behavior towards dying patients than younger nurses. So, the age of nurses might influence the support provided to MI patients. However, the previous study (Bailey, 2004) assessed the relationship between nurses' demographic variables and perception of cardiac patients' education need. The study found that there was no significant relationship between the age of nurses and their perception of cardiac patients education need.

Nursing experience. Nursing experience is very important for better performance or better support for the patients. Al-Ahmadi (2008) conducted a study to examine the factors influencing performance of 15 hospital nurses and found that nurses' performance positively related to year of experience. Another study (Prompahakul, 2011) found that longer professional experience resulted in a higher level of nurses' caring behavior for patients. Conversely, Baily (2004) found that the

nurses' perception of cardiac patients education need did not differ with nurses' experience.

Experience as a cardiac nurse. Experience of taking care of specific types of patients may increase the competency in those areas of patients care.

Prompahakul (2011) reviewed literature and concluded that the nurses direct experience in taking care of end of life patients, helps nurses to learn and understand their role in taking care of those patients. This direct experience in taking care of specific type of patients significantly correlated with nursing competency in taking care of those patients. However, Baily (2004) found that there was no relationship between experience as a cardiac nurses and their perception of cardiac patients education need.

Educational level. The performance of nurses may be influenced by their level of education. The individuals with higher educational level usually have more knowledge than the persons with lower level. A nurse's support in providing discharge information to the patient with MI may be influenced by a nurse's knowledge on that topic. Ozdemir and Akdemir (2008) conducted a study to determine the knowledge level of cardiology nurses in relation to sexual and other lifestyle adjustments required by their patients following myocardial infarction and indirectly identified their approach in addressing this issue. The nurses' general knowledge was evaluated based on their answers to 15 relevant questions. Only a negligible percentage of the nurses (0.9%) were able to give an appropriate answer to a maximum of nine out of the 15 knowledge questions, a minority (23.1%) knew one acceptable answer, and some (13%) could answer none. The researcher concluded and reported from the present study findings and nurses' status and comments on

providing education to post-MI patients. The researcher reported that the nurses did not receive any formal education on this issue. Consequently almost all nurses (99.4%) did not educate the patient regarding this issue.

Al-Ahmadi (2008) found that the nurses' performance is related to level of their education.

Training experience. Training is an important method that may improve the nurses' skill and performance of patient care. Prompahakul (2011) found that the trained nurses had better caring behavior than untrained nurses.

Workload. Nurses workload may influence the nurses performance or care of patients. Nurses with less work may perform or provide care better than those who have a high workload. Top (2013) conducted study to measure the influence of 28 organizational variables on nurses performance and found that nurses workload was the most influential factor on the nurses job performance.

Unit of work. A nurse's perception of MI patient information needs can differ according to their working unit. The study found that the nurses who worked in CCU had different perceptions than those who worked in PCCU (Gerard & Peterson, 1984). As a result they may be provided support to MI patients differently. The CCU nurses rated the category of anatomy and physiology as a higher need, whereas the PCCU nurses rated that as the lowest one. Different perceptions may be a reflection of the role and responsibilities of different unit nurses.

Nurses' assessment of patient feeling or needs. Bailey (2004) reviewed previous studies and reported that nurses were either uncertain about or did not understand their clients beliefs regarding their illness, how the patient managed previous illness, the clients' personal preferences about nursing care, their

expectations of nursing care and the care that was perceived to be helpful. They also, did not understand how the client felt about the nursing care delivered to them. The study showed that the majority of nurses were either unaware, or did not understand their patient's feelings or needs. The researcher concluded, in this study, that there was a lack of assessment by the nurses concerning the patients' needs. This situation resulted in dissatisfaction with the quality of health care teaching received from their nurses.

Difficulties in delivering information to the patient. Some difficulties can affect the support information to the patients with MI. The study (Moret, Rochedreux, chevalier, Lombrail, & Gasquet, 2008) explored the difficulties encountered by nurses in delivering information to patients as connected with not knowing enough about the information already provided by the physician, lack of time, practical difficulties, difficulties connected with specific characteristics of certain patients in care, and potential reactions of patients to the information to be delivered.

Summary

Myocardial infarction is the leading cause of death in the world including Bangladesh. After recovery, MI patients commonly suffer from the impact of the disease. Many of them do not understand what has happened to them and how to manage their lives after discharge and how to prevent the recurrence of MI. The provision of information plays an important role in the post discharge period at home. The literature review of patients' information needs of patients with MI includes

information about the disease, symptoms related to disease, treatment and its side effects, impact of disease and its management.

The categories of discharge information needs of patients with MI discussed in this chapter consist of anatomy and physiology, psychological concerns, risk factors, medication, dietary information, physical activity, symptom management and miscellaneous. However, there are several factors that influence the discharge information needs of patients with MI including age, employment status, gender, perceived severity of illness, perceived risk of survival, income, education, stage of recovery, previous experiences, and marital status. On the other hand, the discharge information support of nurses also has been influenced by some factors including the nurses' age, experience, knowledge, unit of work, nurses' assessment of the patient's feelings or needs, and difficulties in delivering information to the patient.

It is vital to adhere to information concerning the patient's perceived needs as part of the post discharge treatment and care plan. Information needs of MI patients must be assessed by the nurses prior to discharge to facilitate effective management in the post discharge period.

CHAPTER 3

RESEARCH METHODOLOGY

A comparative, descriptive study was conducted. This chapter presents the research methodology of this study. It consists of population and setting, sample and sampling, instrumentation, data collection procedure and data analysis of the study.

Population and Setting

Population

The population of this study was patients with myocardial infarction who were admitted to this hospital and all nurses working at the target hospital (NICVD).

Setting

This study was conducted at the National Institute of Cardiovascular Diseases and Hospital, Dhaka which is a tertiary level government hospital in the central part of Bangladesh. It is the only specialized cardiac government hospital in Bangladesh which provides all cardiac care facilities. The patients are referred from all districts of the country with various kinds of cardiac problems. There are two coronary care units, one intensive care unit, one post coronary care unit, seven general wards and thirty cabins (single room for one patient who wants to stay separate from other patients). There are three wards under the cardiac medicine unit and three wards

under cardiac surgery unit for adult patients, one ward for pediatrics and cabins for all types of cardiac patients. There are 47-117 different types of cardiac patients together with all cardiac problems including AMI, unstable angina, non STEMI, old MI, recurrent MI, LVF, ASD and VSD, valvular disease, rheumatic heart disease, ischemic cardiac myopathy (Government of the People's Republic of Bangladesh, 2011) with about 10-20 MI patients admitted daily at this hospital (Hospital Record, 2012). The more serious patients are admitted to CCU and ICU where patients stay for a short period of time (approximately one to two days except those who require a mechanical ventilator). After recovering from the acute state they are referred to PCCU. After one to two days some of them are directly discharged from here but the majority is referred to a general ward or cabin after their general condition improves.

Usually cardiac patients in this hospital are discharged from the general ward or cabin. Each of the general wards has 50-70 beds. In each ward two to seven nurses are on duty during the morning, evening and night shifts. In the morning shift, there are more nurses than other shifts, usually six to seven nurses because of work load, such as attending medical rounds, receiving prescriptions for a new treatment order or discharge order etc. If the patient is going to be discharged, an on-call cardiologist writes the patient discharge certificate with the necessary information that the patient needs to follow. Nurses explain this information in lay terms during the time of the patient's discharge. Sometimes they provide discharge information that they feel it is important that the patient asks questions about this. However this is done without making any plan.

The researcher conveniently selected this hospital to be a target setting because it is the most appropriate place that provides specialized care to this group of

the population. In addition, it is assumed that patients coming from several areas of the country would help make the study more generalizable.

Sample and Sampling

Sample

The samples in this study were all nurses working in PCCU, general wards, cabins and all patients with myocardial infarction at the same places in the target hospital. As the numbers of nurse subjects are limited, they were all included.

For patient participants, the following inclusion criteria were used: (1) confirmed diagnosis of MI by a physician, (2) able to read and understand Bangla language, and (3) be mentally competent and able to participate in the study (4) be declared discharged by a primary physician.

Sample Size

A sample size was estimated using power analysis. The effect size was calculated based on the findings of a previous study: Needs of families who have members admitted to critical care units: Perception of families and nurses, conducted in central Java, Indonesia (Indriyawati, 2004). It was considered closest to the proposed study. In that study, the families' perception mean score was 26.55 ($SD = 2.13$) and the nurses' perception mean score was 25.54 ($SD = 2.64$) yielding an effect size of 0.42 (Appendix D). Most nursing studies reported the effect size in the range of 0.20 to 0.40 (Polit & Beck, 2012). The researcher rounded down the effect size to 0.40 to lessen type II error as this study was conducted in another context. According

to Cohen (1988), using an alpha level of .05, accepted power of .80 and an estimated effect size of 0.40, a minimum sample size of 99 in each group was needed (as cited in Polit & Beck, 2012).

The total number of nurses in the selected areas of the targeted hospital was about 130. So, the researcher recruited all of them to account for the probability of having non-response subjects. The researcher also made an equal sample size in both groups. The sample sizes of each group were planned for 130. Finally, there were 120 nurses who returned the completed questionnaire (response rate were 92.31%).

Sampling

Patients with myocardial infarction admitted during the study period were recruited if they met the inclusion criteria until achieving the total required numbers and all nurses were approached.

Instrumentation

The instruments for this study consisted of two parts to measure subjects' characteristic and the study variables. The first part was a demographic data questionnaire for patients with myocardial infarction and nurses, and the second part was the Modified Cardiac Patient Learning Need Inventory, Patient Version (MCPLNI-Patient) for assessment of myocardial infarction patients' discharge information needs and the Cardiac Patient Learning Support Inventory, Nurse Version

(CPLSI-Nurse) for assessment of nurses' discharge information support to patient with MI.

Part-1 A: Demographic Data Questionnaire for Patient with Myocardial Infarction.

The demographic questionnaire for patients with myocardial infarction consisted of 15 items including age, gender, marital status, level of education, religion, occupation, monthly income, duration of admission, duration as diagnosed of MI, history of previous admission with cardiac problem, family history of MI, reason for the current admission, smoking habits, underlying disease and perceived severity of illness.

Part-1B: Demographic Data Questionnaire for Nurses

The demographic questionnaire for nurses consisted of ten items: age, gender, marital status, religion, years of registration as a nurse, years of working in cardiac unit, degree in nursing profession and experience in teaching of cardiac patients, working unit and special cardiac training.

Part-2 A: Modified Cardiac Patient Learning Need Inventory, Patient Version (MCPLNI-Patient).

In this study, the Cardiac Learning Need Inventory developed by Gerard (CPLNI) (Gerard & Peterson, 1984) was used after modification. The instrument has been widely used with diverse groups. Most of these studies took place in Western countries. Some of the original items might not be appropriate for Asian countries because of their different cultures, religions and demographic factors. In this

study the researcher requested and received permission from the developer to use and modify the CPLNI (Appendix F).

This questionnaire consisted of eight categories of content areas with 38 items, including:

- (1) Anatomy and physiology, 5 items, 1-5
- (2) Psychological concerns, 4 items, 6-9
- (3) Risk factors, 4 items, 10-13
- (4) Medication, 5 items, 14- 18
- (5) Dietary, 5 items, 19-23
- (6) Physical activity, 5 items, 24-28
- (7) Symptom management, 6 items, 29-34
- (8) Miscellaneous, 4 items, 35-38

The MCPLNI-Patient was used to assess the level of discharge information needs of patient with myocardial infarction. Each item was rated on a 5-point Likert-type scale ranging from 1 = not important, 2 = somewhat important, 3 = moderately important, 4 = important, and 5 = very important.

The total MCPLNI-Patient score for 38 items had a range from 38 to 190. The modification was done by the researcher. From the original CPLNI, for the category of anatomy and physiology, two items were modified and one item was deleted. The item ‘what causes a heart attack?’ was modified to ‘what are the causes of a heart attack?’ and ‘how my heart heal’ to ‘how long the damaged heart muscle take to heal’ to make it easily understandable. The item ‘why my heartbeat may be irregular or I may have “skipped beat”?’ was deleted according to the suggestion of

Bangladeshi expert. The expert had observed that for Bangladeshi patients, introducing this statement may induce high anxiety.

For the category of psychological concerns, two items were modified and two items were combined with modification. The item ‘the normal psychological response to having a serious illness’ was changed to ‘the normal psychological response to having a heart attack’ and ‘what effect stress has on my heart?’ was changed to ‘what is the effect of stress has on my heart?’. The items ‘what I can do to reduce stress while in the hospital?’ and ‘what I can do to reduce stress when I go home?’ were modified and combined in ‘what I can do to reduce stress in my life?’

In the category of medication information, one item was added as ‘when I should take each of my medications’. For the category dietary information, one item was changed and one was deleted. The item ‘general rules about eating’ was changed to ‘general rules about healthy diet’ and ‘how to adapt the recommended diet to my lifestyle’ was deleted as it did not fit with Bangladeshi culture.

The item ‘general guidelines for physical activity’ was changed to ‘general guidelines for physical activity after heart attack’ from the category physical activity. The category symptom management contains 6 items. Two items ‘the signs and symptoms of angina and a heart attack?’ and ‘when to call the doctor?’ were added from the category miscellaneous information as they will fit the symptom management category. Four new items were added.

For the miscellaneous information category, one item was modified and two items were deleted. The item ‘If any other tests will be done after I leave the hospital?’ was changed to ‘what test and investigation will be done after discharge from hospital?’. The items ‘the signs and symptoms of congestive heart failure’ and

‘where my family can go to learn C.P.R?’ were deleted. The last item, an open-ended question, ‘Please indicate if you need any other information not listed above’ was added to the MCPLNI-Patient to capture other needs that are not listed in any category.

The total and subscale scores were computed by summing all items in those categories, then averaging by the total number of items. Thus, the possible ranges of scores were similar, ranging from 1-5. This can be further categorized in three levels as follows:

Score	Level of Information Needs
1 – 2.33	Low (Least important)
2.34 – 3.66	Moderate (Moderately important)
3.67 – 5.00	High (Highly important)

Part-2 B: Cardiac Patient Learning Support Inventory, Nurse Version (CPLSI-Nurse).

This part was developed to assess nurses’ discharge information support of patients with myocardial infarction. This questionnaire was covered all content areas similar to the MCPLNI-Patient, using a 5- point Likert-type scale, ranging from not support to highly support. The higher score indicates the high level of supported information nurses provided to their patients. For interpretation, the score will be categorized similar to the MCPLNI-Patient.

Score	Level of Information Support
1 – 2.33	Low (Least support)
2.34 – 3.66	Moderate (Moderately support)

3.67 – 5.00

High (Highly support)

The last item of the CPLSI-nurse, an open-ended question, was added as ‘Please indicate if you have given any other information to your patients not listed above’ to capture other discharge information support that are not listed in any category.

Validity and Reliability of the Instruments

The original instrument of the Cardiac Patient Learning Need Inventory (CPLNI) has been assessed for validity and reliability (Galdeano et al., 2012; Turton, 1998; Uysal & Enc, 2012) for use in different cultures and settings. The researcher used the modified version of CPLNI in this study together with the newly developed nurse version. Therefore, validity and reliability test are needed.

Validity of the instruments. The content validity of MCPLNI-Patient and CPLSI-Nurse were analyzed by a panel of three nursing experts. The first expert was from the Faculty of Nursing Prince of Songkla University, Thailand; the second expert was from the critical care unit Songklanagarind Hospital, Thailand, and the third expert was from the National Institute of Cardiovascular Diseases and Hospital, Dhaka, Bangladesh, who had expertise in the related field. They evaluated each item of all subscales of the MCPLNI-Patient and the CPLSI-Nurse for accuracy and relevance. After receiving the experts’ suggestions for the instruments, the necessary changes were made by the researcher in line with the experts’ opinions under supervision of the advisory committee. To reduce the strength of the terms “side effect” and “problems” and possibility of non-adherence with treatment, the item

“what are the side effects of taking each medication?” was changed to “what are the consequences of taking each medication?” and “what to do if I have problems with my medication?” was changed to “what to do if I have undesired consequences from my medication?” according to local expert’s recommendations. Another item “when to call the doctor?” was changed to “when to visit the doctor?” to fit with the cultural practice.

Reliability of the instruments. A pilot study was conducted to test the reliability of the instruments. The internal consistency reliability of the MCPLNI-Patient of the Bangla version was tested among 20 myocardial infarction patients and the CPLSI-Nurse Bangla version was tested among 20 nurses from the National Heart Foundation Hospital & Research Institute, who have the same characteristics as the study sample, using Cronbach’s alpha coefficient. The alpha coefficient of the total scale of the MCPLNI-Patient was .90, and the alpha coefficients of the MCPLNI-Patient subscales were .61, .55, .71, .57, .52, .48, .54, .59, respectively for anatomy and physiology, psychological concerns, risk factors, medication, dietary, physical activity, symptom management and miscellaneous.

The alpha coefficient of the total scale of the CPLSI-Nurse was tested twice. The first time, the alpha coefficient of the total scale of the CPLSI-Nurse was .78 and the subscales were .21, .76, .30, .24, .63, .64, .51 and .67, accordingly, for anatomy and physiology, psychological concerns, risk factors, medication, dietary, physical activity, symptom management and miscellaneous. Even though, the total scale of the CPLSI-Nurse demonstrated a good internal consistency but some of the subscales were poor. For this reason, the researcher decided to interview the samples about their understanding of the items while re-checking the translated instrument for

its accuracy by an expert in translation of instruments. The researcher found that all items were clearly understandable but a small sample size use in the reliability test ($n = 20$) might contribute to restricted variance. Therefore, the researcher computed the alpha coefficient of the CPLSI-Nurse with the actual nurses sample ($n = 120$). As expected, the alpha coefficients of both the total scale and the subscales showed better internal consistency. The alpha coefficient of the total scale of CPLSI-Nurse was .98 and the subscales were .85, .92, .87, .86, .91, .90, .93 and .84 sequentially for anatomy and physiology, psychological concerns, risk factors, medication, dietary, physical activity, symptom management and miscellaneous. The translated instrument was considered as having good internal consistency reliability. For a newly developed instrument (CPLSI-Nurse) the minimum acceptable coefficient value is .70 (Polit & Beck, 2012) and the modified version of CPLNI (MCPLNI-Patient) was considered new after modifications concerning the local context of Bangladesh.

Translation of the Instruments

After validation of the instruments by three experts, the MCPLNI-Patient and the CPLSI-Nurse were translated by three bilingual translators using back translation process. First, the original English version of the instruments was translated into a Bangla version by a bilingual translator. Then, the second translator translated the Bangla version back to an English version without seeing the original one. Lastly, the third bilingual translator clarified and compared the original English version and translated English version to check the consistency and appropriateness of the meaning of the instruments. This process needs to be repeated multiple times until the meaning of the translated instrument is equivalent (Brislin, 1970; Jones, Lee,

Phillips, Zhang, & Jaceldo, 2001 as cited in Lee, Li, Arai & Puntillo, 2009). There were no discrepancies. Then the Bangla version of the instruments was used for data collection.

Data Collection Procedure

The data collection procedure was comprised of two phases:

Preparation phase and implementation phase.

Preparation Phase

After getting written permission from the Faculty of Nursing, Prince of Songkla University, the researcher asked for permission to collect data from the Director of NICVD and Hospital. After obtaining permission from the Director, the researcher met the Nursing superintendent of the nursing department, and then she was introduced to the head nurse of PCCU, wards and cabin followed by the nurses in same place in order to obtain volunteer nurses to participate in the study. The researcher explained the objectives to the head nurse and other nurses and asked permission for data collection. After receiving permission from head nurses, the researcher started data collection.

Implementation Phase

For patients.

1. The researcher was introduced to the potential participants by unit nurses.

2. The participants who met the inclusion criteria, were approached to participate in the study. Then, the researcher gave an explanation about the information concerning the study including informed consent.

3. After receiving the explanations and the participant agreed to participate in the study, the researcher provided the informed consent form before giving out the questionnaire.

4. After signing the informed consent form, the researcher provided the questionnaire to the participants.

5. The researcher explained the questionnaires to ensure they were understood. The researcher allowed time for them to answer all the questions and clarify the questionnaires if necessary.

6. The researcher checked whether the answers to all questions were completed or not. If not completed, the researcher requested the participant to complete the remaining questions as necessary.

7. The researcher used code for each questionnaire to assure the anonymity of the participant.

For nurses.

1. The researcher provided consent forms and questionnaires to the head nurses to distribute to nurses who volunteered to participate in the study.

2. The researcher requested the subjects to complete and return the questionnaire and the consent form to head nurses within one week.

3. After one week, the researcher collected the returned questionnaires from head nurses and checked for completeness.

4. The researcher coded the questionnaires to assure the anonymity of the subjects. Finally, the researcher entered the data into the computer software for data analysis.

Ethical Considerations

Ethical approval was obtained from the Research Ethics Committee, Faculty of Nursing, Prince of Songkla University (PSU), Thailand. After receiving permission from PSU, the researcher obtained permission from the director, nursing superintendent and the head nurses of the study setting to conduct the study. The participants were provided with all relevant information before being asked for a written or verbal consent (Appendix A). Participants were also informed that they had the right to refuse to participate and could withdraw from this study at any time without any conditions being imposed and the identity of the participants would be kept anonymous and the data collection form would be destroyed after entering data into the software program. The participants would be free to ask any questions about the study. The confidentiality of the collected data was maintained throughout the study.

Data Analysis

After data collection, the data were processed and analyzed with analytical computer software. In this study, the data were analyzed by using the following statistical techniques:

1. Demographic data

Descriptive statistics were used for presenting demographic data comprised of frequencies, percentages, means and standard deviations and range.

2. The Patients' discharge information needs and Nurses' information support

Descriptive statistics including frequency, percentage, means (*M*), standard deviation (*SD*), minimum (*Min*), maximum (*Max*) score, median (*Mdn*), and interquartile range (*IQR*) were used to present the scores and the levels of the patients' discharge information needs and nurses' discharge information support regarding myocardial infarction.

Inferential statistics were employed to examine the differences in the patients' information needs and nurses' information support. The independent *t*-test and the Mann-Whitney *U* test were used to compare the mean differences between the two groups. Preliminary data analysis was conducted to test the assumptions of independent *t*-test including normality and homogeneity of variances between two groups. The data set of psychological concerns, miscellaneous and total patients' needs and nurses' support met the assumptions. These data sets were analyzed using the independent *t*-test. However, the data set of anatomy and physiology, risk factors,

medication, dietary, physical activity, and symptom management did not meet the assumptions. Therefore, these data sets were analyzed using the Mann-Whitney U test.

For the open-ended question, the simple content analysis was used to analyze the data.

CHAPTER 4

RESULTS AND DISCUSSION

This comparative, descriptive study was conducted to describe the level of patients' discharge information needs, nurses' discharge information support and compare the patients' discharge information needs and nurses' discharge information support to patients with myocardial infarction in Bangladesh. This chapter presents the results and further discusses of the key major findings.

Results

The results of this study are presented as follows: Participants' characteristics, the level of patients' discharge information needs regarding myocardial infarction, the level of nurses' discharge information support to patients with myocardial infarction and the comparison of patients' discharge information needs and nurses' discharge information support to patients with myocardial infarction in Bangladesh.

Participants' Characteristics

A total of 130 patients with myocardial infarction and 120 nurses were enrolled in the study. The characteristics of each group are presented as follows:

Myocardial infarction patients' characteristics. Table 2 shows the demographic characteristics of the patients in this study. Their age ranged from 24 to 90 years with a mean of 53.61 years ($SD = 11.65$) and the highest number of them had age between 50-59 years (32.3%). A majority of them was male (95.4%), married

(95.4%), and Muslim (89.2%). The educational level was mainly primary school (52.3%). About one-fourth were private employees (23.8%). One-third of the patient (33.1%) had an average monthly income between 10,000 --20,000 Taka. Another one-third (33.1%) had no income.

Table 2

Frequency and Percentage of the Patients Classified by Demographic Characteristics (n = 130)

Demographic Characteristics	<i>n</i>	%
Age (years)		
< 40	11	8.5
40 - 49	37	28.5
50 – 59	42	32.3
60 – 69	25	19.2
70 and higher	15	11.5
<i>M = 53.61, SD = 11.65, Min- Max = 24-90 years</i>		
Gender		
Male	106	95.4
Female	24	18.5
Marital status		
Married	124	95.4
Widowed	6	4.6
Level of education		
Primary school	68	52.3
High school	39	30
College	14	10.8
University	9	6.9
Religion		
Islam	116	89.2
Hindu	14	10.8
Occupation		
Farmer	12	9.2
Government employee	18	13.8
Private employee	31	23.8
Business	24	18.5
Retired	29	22.3
Housewife	16	12.3

Table 2 (Continued)

Demographic Characteristics		
Income per month		
No income	43	33.1
1,000 Tk-- 5,000Tk	8	6.2
5,001Tk--10,000 TK	26	20
10,001 TK--20,000 TK	43	33.1
>20,000 TK	10	7.7

Table 3 presents the health-related characteristics of the patients.

Duration of admission of the patients ranged from 2 to 23 days with a median of 6 days and being diagnosed from 2 days to 13 years with a median of 10 days. Nearly half of the patients (44.6%) had history of previous admission with cardiac problem for 1 to 15 times with a median of 1 time. One-third of them (33.1%) had the family history of ischemic heart disease. Approximately two-thirds of the patients admitted for medical reason or medical interventions. Nearly two-thirds of the patients (63.1%) had smoking habit and among these patients, more than half of them were ex-smokers (59.3%). Nearly two-thirds (64.6%) had underlying disease including DM (31.5%), HTN (45.4%), kidney diseases (3.1%), lung diseases (6.2%) and gallstone (0.8%). Patients perceived their illness as moderately to highly severe ($Mdn = 7.00$, $M = 6.89$, $SD = 1.94$).

Table 3

Frequency and Percentage of the Patients Classified by Health-Related Characteristics (n = 130)

Health-Related Characteristics	n	%
Duration of admission (days)		
<i>Mdn = 6, IQR = 25, Min- Max = 2–23</i>		
Duration of being diagnosed of MI (days)		

Table 3 (Continued)

Health-Related Characteristics	n	%
<i>Mdn = 10, IQR = 85, Min-Max = 2 days–13 years</i>		
History of previous admission with cardiac problem		
No	72	55.4
Yes	58	44.6
<i>Mdn = 1, IQR = 1, Min-Max = 1-15 times</i>		
Family history of ischemic heart disease		
No	87	66.9
Yes	43	33.1
Reason for the current admission		
Medical reason	80	61.5
Surgical reason	50	38.5
Smoking habit		
No	49	37.7
Yes	81	62.3
Types of smoker (<i>n</i> = 81)		
Current smoker	33	40.7
Ex-smoker	48	59.3
Underlying disease		
No	46	35.4
Yes	84	64.6
DM	41	31.5
HTN	59	45.4
Kidney diseases	4	3.1
Lung diseases	8	6.2
Gallstone	1	0.8
Perceived severity of illness		
<i>M = 6.89, SD = 1.94, Mdn = 7.00, IQR = 2, Min- Max = 0-10</i>		

Nurses' characteristics. Table 4 shows the demographic characteristics of the nurses participating in this study. The nurses' age ranged from 30 to 53 years with a mean of 38.89 years ($SD = 5.35$), and more than half had age ranged between 30 and 39 years old (56.7%). Most of the nurses were female (92.5%) and married (91.7%). More than two-thirds (68.3%) were Muslim. The majority of them (63.3%) had been working as a registered nurse for 10 to 20 years with a mean

of 18.27 years ($SD = 5.36$) and more than one-third worked as a cardiac nurse for 6 to 10 years (35%) with a mean of 9.40 years ($SD = 5.65$). The degree in nursing profession was mainly Diploma (75.8%). Only one-fourth of them (25%) had experience in teaching cardiac patients. Forty six percent worked in a cardiac medicine unit. Only about less than one-fourth of nurses (28.3%) had training related to care of cardiac patients. For those who received training, forty one percent had intensive care and coronary care training.

Table 4

Frequency and Percentage of the Nurses Classified by Demographic Characteristics (n = 120)

Demographic Characteristics	n	%
Age (years) $M = 38.89$, $SD = 5.35$, $Min-Max = 30-53$ years		
30-39	68	56.7
40-49	29	40.8
50 and over	3	2.5
Gender		
Female	111	92.5
Male	9	7.5
Marital status		
Married	110	91.7
Single	8	6.7
Widowed	2	1.6
Religion		
Islam	82	68.3
Hindu	30	25.0
Christianity	7	5.8
Buddhism	1	0.8
Work as a registered nurse (years) $M = 18.27$, $SD = 5.36$, $Min-Max = 8-30$ years		
Less than 10	2	1.7
10-20	76	63.3
20 and over	42	35.0
Work as a cardiac nurse (years) $M = 9.40$, $SD = 5.65$, $Min-Max = 1-24$ years		
1-5	37	30.8
6-10	42	35.0
11-15	22	18.3
16-20	11	9.2

Table 4 (Continued)

Demographic Characteristics	n	%
20 and over	8	6.7
Degree in the nursing profession		
Diploma	91	75.8
BSc	21	17.5
Master	8	6.7
Experience in teaching cardiac patients		
Yes	30	25
No	90	75
Working unit		
Cardiac medicine	55	45.8
Cardiac surgery	29	24.2
PCCU	24	20.0
Cabin (Combined medicine & surgery)	12	10.0
Training related to care of cardiac patients		
Yes	34	28.3
No	86	71.7
Types of cardiac training ($n = 34$)		
Cardiac care management	5	14.7
Intensive care	12	35.3
Intensive care and coronary care	14	41.2
Cardiac nursing	2	5.9
Nursing bridge program	1	2.9

The Level of Patients' Discharge Information Needs Regarding Myocardial Infarction

Patients with MI reported needs for discharge information at a high level with a mean score of 4.40 ($SD = 0.37$) and with the score ranged from 3.42 to 5. The majority of them (97.6%) rated the discharge information needs score at a high level (3.67 – 5.00) (Table 5).

Table 6 shows that patients perceived the discharge information needs of all subscales at high levels: anatomy and physiology of heart ($M = 4.30$, $SD = 0.63$), psychological concern ($M = 4.03$, $SD = 0.61$), risk factors ($M = 4.17$, $SD = 0.60$), medication ($M = 4.82$, $SD = 0.26$), dietary ($M = 4.52$, $SD = 0.34$), physical

activity ($M = 4.27$, $SD = 0.65$), symptom management ($M = 4.80$, $SD = 0.25$), and miscellaneous ($M = 3.99$, $SD = 0.59$). Remarkably, medication information was rated the highest, followed by symptom management, whereas miscellaneous information was rated the lowest.

Table 5

Frequency and Percentage of the Patients Classified by the Level of Patients' Discharge Information Needs of Patients With MI (n = 130)

Level of Information Needs	Possible score	n	%
Low	1 – 2.33	0	0.0
Moderate	2.34 – 3.66	03	2.4
High	3.67 – 5.00	127	97.6

$M = 4.40$, $SD = 0.37$, $Min-Max = 3.42-5.00$

Table 6

Means, Standard Deviation, and the Levels of Patients' Discharge Information Needs of Each Category (n = 130)

Subscales	M	SD	Level
Anatomy & Physiology	4.30	0.63	High
Psychological concerns	4.03	0.61	High
Risk factors	4.17	0.60	High
Medication	4.82	0.26	High
Dietary	4.52	0.34	High
Physical activity	4.27	0.65	High
Symptom management	4.80	0.25	High
Miscellaneous	3.99	0.59	High

Additional Information Needs

From the open ended question ‘Please indicate if you need any other information not listed above’, no one mentioned any additional needed information. All patients said that they already got all necessary information items that they needed to know which mentioned and covered in the MCPLNI

Additional Analysis

In order to investigate any contribution of some factors including age, gender, marital status, education, income per month, previous admission and smoking habit to patients’ discharge information needs the Mann-Whitney *U* test, Kruskal-Wallis test and *t*-test were performed. There were significant differences from the identified factors, except marital status and previous admission (Table 7).

Table 7

Comparisons of Patients’ Discharge Information Needs Between Age Groups, Gender, Marital Status, Among Educational Level and Income per Month, Between Previous Admission and Smoking Habit of Patients With MI (n = 130)

Factors	Patients’ information needs				
	<i>MR/M</i>	<i>SR</i>	<i>Z/X²*/t</i>	<i>p</i>	
Age					
	<60	71.58	6442.50	-2.76	.006***
	>60	51.81	2072.50		
Gender					
	Male	62.44	6619.00	-1.94	.05**
	Female	79.00	1896.00		
Marital status					
	Married	66.41	8235.00	-1.25	.210 ^{NS}
	Widowed	79.00	28.00		
Education					
	Primary school	55.24		13.03*	.005***
	High school	71.04			
	College	87.39			

Table 7 (Continued)

Factors	Patients' information needs			
	<i>MR/M</i>	<i>SR</i>	<i>Z/X²*/t</i>	<i>p</i>
University	84.94			
Income per month				
No income	57.03		10.17*	.04**
1000 TK--5000TK	72.63			
5001TK--10000TK	53.54			
10001TK--20000TK	76.99			
>20000TK	77.90			
Previous admission				
No	4.51 ^M		4.08 ^t	.000***
Yes	4.26		4.06	
Smoking habit				
No	4.45 ^M		1.21 ^t	.23 ^{NS}
Yes	4.37		1.24	

M = Mean, *MR* = Mean Rank, *t* = *t*-test, *Z* = Mann-Whitney *U* test, *X²* = Kruskal-

Wallis test (*), ** *p* < .05, *** *p* < .01, *NS* = not significant

The Level of Nurses' Discharge Information Support to Patients With MI

Nurses reported that they supported to the patients with MI at a moderate level with a mean of 3.60 (*SD* = 0.59) and the score ranged from 2.32 to 5 (*SD* = 0.59). Sixty four nurses, who were the highest number of sample (52.9%), scored their discharge information support to MI patients at a moderate level (2.34 – 3.66) (Table 8).

Table 9 shows the means, standard deviation, and the levels of nurses' discharge information support of each category to patient with MI by nurses. The nurses mentioned that the medication information is the area that they provide highest support (*M* = 4.21, *SD* = 0.60) to the patients with MI followed by dietary information (*M* = 3.80, *SD* = 0.73), and symptom management (*M* = 3.97, *SD* = 0.62). Only these

three categories of information that they rated at high level of support. The rest of other five categories they rated at a moderate level. Among the moderate level of information support categories, the anatomy and physiology was rated at the lowest rank with a mean of 3.10 ($SD = 0.96$), followed by psychological concerns ($M = 3.21$, $SD = 0.98$), risk factors ($M = 3.43$, $SD = 0.92$), physical activity ($M = 3.36$, $SD = 0.84$), and miscellaneous ($M = 3.57$, $SD = 0.77$).

Table 8

Frequency and Percentage of the Nurses Classified by the Level of Nurses' Discharge Information Support to Patients With MI by Nurses (n = 120)

Level of Information Support	Possible score	n	%
Low	1 – 2.33	01	0.8
Moderate	2.34 – 3.66	64	52.9
High	3.67 – 5.00	55	45.7
<i>M = 3.60, SD = 0.59, Min-Max = 2.32-5.00</i>			

Table 9

Means, Standard Deviation, and the Levels of Nurses' Discharge Information Support to Patients With MI by Nurses Categorized by Each Subscale (n = 120)

Subscales	Mean	SD	Level
Anatomy and physiology	3.10	0.96	Moderate
Psychological concerns	3.21	0.98	Moderate
Risk factors	3.43	0.92	Moderate
Medication	4.21	0.60	High
Dietary	3.80	0.73	High
Physical activity	3.36	0.84	Moderate
Symptom management	3.97	0.62	High
Miscellaneous	3.57	0.77	Moderate

Additional Information Support

Nurses were asked ‘Please indicate if you have given any other information to your patients not listed above’, nobody indicated any additional support that they had provided for their patients. They said that all the items were already mentioned and covered the information support to MI patients.

Additional Analysis

The *t*-test and Chi square and Mann-Whitney *U* test were conducted to analyze if there were any contributions from some factors including age, marital status, degree in the nursing profession, training related to care of cardiac patients, working unit to the nurses’ discharge information support. There were significant differences from the identified factors, except age and marital status and training related to care of cardiac patients (Table 10).

Table 10

Means, Standard Deviation, Mean Rank, t-test, Chi Square Test and Mann-Whitney U Test Result of Demographic Variables and Total Score of Discharge Information Support by Nurses (n = 120)

Demographic Variable	Nurses’ information support			
	<i>M*/MR</i>	<i>SD/SR</i>	<i>t/X²/MW</i>	<i>p</i>
Age (years)				
<40	3.58*	.57 ^{SD}	-.861 ^t	.39 ^{NS}
>40	3.67*	.63 ^{SD}		
Marital status				
Married	59.93		1.92 ^{X²}	.38 ^{NS}
Single	59.94			
Widowed	94.25			
Degree in the nursing profession				
Diploma	54.79		11.79 ^{X²}	.003***
BSc	73.36			

Table 10 (Continued)

Demographic Variable	Nurses' information support			
	<i>M</i> */ <i>MR</i>	<i>SD</i> / <i>SR</i>	<i>t</i> / <i>X</i> ² / <i>MW</i>	<i>p</i>
Master	91.75			
Training related to care of cardiac patients				
Yes	63.07	2144.50	-.51 ^{MW}	.61 ^{NS}
No	59.48	5115.50		
Working unit				
Cardiac medicine	68.72		10.16 ^{X²}	.017**
Cardiac surgery	43.40			
PCCU	60.92			
Cabin	63.33			
(Combined medicine & surgery)				

M = Mean (*), *MR* = Mean Rank, *SR* = Sum Rank, *t* = *t*-test, *X*² = Chi square, *MW* =

Mann-Whitney *U* test, *NS* = not significant, ***p* < .05, ****p* < .01

Comparison of the Patients' Discharge Information Needs and Nurses'

Discharge Information Support to Patients With Myocardial Infarction

The mean scores between patients' discharge information needs and nurses' discharge information support were compared by using inferential statistics. The assumptions of the independent *t*-test including normality and homogeneity of variances between two groups were examined. Some variables met the assumptions and some did not. Independent *t*-test was used when the assumptions were met and the Mann-Whitney *U* test was used when the assumptions for independent *t*-test were violated.

Table 11 shows the discrepancies between patients' discharge information needs and nurses' discharge information support in psychological concern, miscellaneous and total patients' needs and nurses' support. In all three variables: psychological concerns ($t = 8.01, p < .001$), miscellaneous ($t = 4.81, p <$

.01), and total patients' needs and nurses' support ($t = 12.76, p < .001$), patients' needs scores were significantly higher than those of nurses' support scores.

Similar to Table 11, Table 12 shows that the patients' needs were significantly higher than the nurses' support. The patients ranked their needs higher than the nurses' support in all categories namely anatomy and physiology ($MR = 166.80$ vs $MR = 80.76, Z = -9.43, p < .001$), risk factors ($MR = 154.64$ vs $MR = 93.93, Z = -6.67, p < .001$), medication ($MR = 165.03$ vs $MR = 82.67, Z = -9.21, p < .001$), dietary ($MR = 163.90$ vs $MR = 83.90, Z = -8.80, p < .001$), physical activity ($MR = 161.37$ vs $MR = 86.64, Z = -8.19, p < .001$), and symptom management ($MR = 173.45$ vs $MR = 73.55, Z = -11.06, p < .001$), respectively.

Patients ranked information needs and nurses ranked information support in 4 categories similarly. Medication information was ranked the first, followed by symptom management the second, dietary information the third and psychological concern in the 7th place. All other categories they ranked differently. Patient prioritized anatomy and physiology as their information need and ranked in fourth place, whereas nurses ranked this category in the last place (Table 13).

Table 11

Comparison of the Mean Scores Between Patients' Discharge Information Needs (n=130) and Nurses' Discharge Information Support (n=120) by t-test

Variables		<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Psychological concerns	Patient	4.04	0.60	8.01	.000**
	Nurse	3.21	0.98		
Miscellaneous	Patient	3.99	0.59	4.81	.007*
	Nurse	3.57	0.77		
Total patients' needs and nurses' support	Patient	4.40	0.37	12.76	.000**
	Nurse	3.60	0.59		

* $p < .01$ ** $p < .001$

Table 12

Comparison Between Patients' Discharge Information Needs (n=130) and Nurses' Discharge Information Support (n = 120) by Mann-Whitney U test

Variables		MR	SR	Z	p
Anatomy and physiology	Patient	166.80	21683.50	-9.43	.000***
	Nurse	80.76	9691.50		
Risk factors	Patient	154.64	20103.50	-6.67	.000***
	Nurse	93.93	11271.50		
Medication	Patient	165.03	21454.50	-9.21	.000***
	Nurse	82.67	9920.50		
Dietary	Patient	163.90	21307.50	-8.80	.000***
	Nurse	83.90	10067.50		
Physical activity	Patient	161.37	20978.00	-8.19	.000***
	Nurse	86.64	10397.00		
Symptom management	Patient	173.45	22549.00	-11.06	.000***
	Nurse	73.55	8826.00		

Notes: MR = Mean rank, SR = Sum rank, *** $p < .001$

Table 13

Discharge Information Needs and Support Categories, Means and Ranks (Ordered by Patient Ranks)

Variables	Patients' need		Nurses' support	
	Mean	Rank	Mean	Rank
Medication	4.82	1	4.21	1
Symptom management	4.80	2	3.97	2
Dietary	4.52	3	3.80	3
Anatomy and physiology	4.30	4	3.10	8
Physical activity	4.27	5	3.36	6
Risk factors	4.17	6	3.43	5
Psychological concerns	4.03	7	3.21	7
Miscellaneous	3.99	8	3.57	4

1 = highest importance and support; 8 = lowest importance and support

Discussion

This present study has highlighted information needs of patients with MI. It indicates that they needed to know and learn before they were discharged home. Along with it, information supported by nurses were reported. The findings shed some lights to improve care provided to this group of Bangladeshi patients. The major findings of the study are discussed to offer logical rationale, elaborate issues that may contribute to the findings, especially methodological issues.

The patients participating in this study had characteristics typical to patients with MI from other parts of the world. They were late middle-aged adults ($M = 53.61$ years, $SD = 11.65$), male (95.4%), and smokers (62.3%) who had underlying disease or co-morbid disease (64.6%), hypertension and diabetes, especially. Aging, male gender, smoking and co-morbidity are well-acknowledged as major risk factors to MI (Morton et al., 2005). One factor that the Bangladeshi patients may be different from patients with MI in Western and European countries was that the majority of them were low (no income - < 10,000 TK/month) to moderate (10,001 – 20,000 TK/month) income groups.

A recent study (Li et al., 2014) found that the individual with low socioeconomic status had the higher risk for cardiovascular events including MI. The fact is that this low socioeconomic status group may have limited knowledge of cardiovascular disease and limited access to health care resources. Raising unemployment rate was also suggested as a contributing factor to the increasing trend

of acute MI occurrence in low socioeconomic countries and Bangladesh has no exception in this regard.

In Bangladesh, most of low income group of patients with MI struggle to afford the essential medicine (Zahan, 2013). This situation may affect their own care and may lead to limit their willingness to seek information. They usually may pay attention mostly with their job. The current study also found that the lower income group perceived comparatively lower discharge information need than the higher income group ($X^2 = 10.17, p = <.05$).

The increasing trend of MI is now a public issue for making awareness among Bangladeshi people to prevent readmission and death. Bangladeshi people may have less knowledge on the disease and its prevention (Rankin & Bhopal, 2001). In this situation mass media e.g. television, local newspaper, radio and internet resources may play an important role for promoting health messages or information (Booth, Bauman, Oldenburg, Owen, & Magnus as cited in Shilton et al., 2001). The information of this source may be insufficient or limited. As a result, the patients with MI participating in this study may be reported their discharge information needs regarding myocardial infarction at a high level (Table 5). This situation flags an urgent need of offering key information in the area of the disease and its prevention by healthcare providers, particularly by nurses.

The high level of patients reported discharge information needs also may be related to their perception about the severity of illness at a moderate to high level ($M = 6.89, SD = 1.94$) (Table 3). The perception of severity of illness can

influence the information needs of the patients with myocardial infarction (Polikandrioti & Babatsikou, 2013).

The patients' discharge information needs may be influenced by some other factors (Table 7). This present study found that patients who were < 60 years old and had female gender responded their higher level of discharge information needs compared with those > 60 years old and being male ($Z = -2.76, p = < .01$; $Z = -1.94, p = .05$, respectively). Opposite to this present study, Timmins and Kaliszer (2003) and Smith and Liles (2007) found that older patients reported more information needs than younger patients did. These may be due to the fact that the MI occurrence is high in the young age group in Bangladesh. For gender difference, female patients reporting higher level of information needs was not surprising. Generally, women tend to be attentive to their health. Previous studies showed that females made much more use of health service than men did (Gerristen & Deville, 2009; Keene & Li, 2005)

In this study, according to the rank order, the highest discharge information need perceived by patients was the medication information ($M = 4.82, SD = 0.34$). The symptom management category was ranked as the second ($M = 4.80, SD = 0.25$), followed by dietary information ($M = 4.52, SD = 0.34$). The three least but still high in the level of importance were miscellaneous information ($M = 3.99, SD = 0.59$), psychological concerns ($M = 4.04, SD = 0.61$), risk factors ($M = 4.17, SD = 0.60$) according to lowest to highest rank order (Table 6).

The medication information ranked highest place may reflect the patients' desire to adhere with their treatments and to avoid future problems (Chan, 1990). As a result, they may want to understand all necessary information related to

medication being taken. They may also concern about money to get medications. Unlike other countries, in Bangladesh patients must pay for most of their medication bills as there is inadequate health care coverage, particularly for the poor. The Health Bulletin report of the Bangladesh government which indicated 42% of health facilities paid by government and 64% paid by the private sector (Government of the People's Republic of Bangladesh, 2011). As a consequence, they may want to know all information related to medication and consequences of not taking it. In many of the previous studies, medication information was ranked in one of the top three areas of information need by the patients with MI (Bailey, 2004; Chan, 1990; Gerard & Peterson, 1984; Karlik & Yarcheski, 1987).

Symptom management is the second important category of information need rated by the patients. This information may be related to perceived risk for survival (Smith & Liles, 2007; Timmins & Kaliszer, 2003). When symptoms occur to patients with MI, they think they will die. As a result, they may want to know if there will be similar symptoms occurred after discharge, how they will manage at home. Patients of some studies also rated this category at one of the top two ranks in importance (Timmins & Kaliszer, 2003; Turton, 1998).

Dietary information was the category of information that patients placed third priority of importance. Whereas in the original study (Gerard & Peterson, 1984), patients placed least importance on it. This difference may be because nowadays the society places more emphasis on diet management. As the effects of globalization, there is an increased consumption of unhealthy diet specifically the energy-dense diet with unhealthy fat, oil, sodium, and sugars. This may result in

increasing cardiovascular disease trends (Hu, 2008). Patients are subjected to advertisements about heart disease and its causes including unhealthy diet pattern. So that patients of this study may manage their post discharge life through the knowledge of heart healthy diet.

Another reason for giving priority on diet may be because they have some background knowledge about the effects of diet on MI. Chan (1990) reported that the background knowledge may increase interest in the topics. There are some sources of getting background information about diet. They may get information from media, their relatives or family member with same disease or during their previous admission. In this present study some MI patients had family history of MI (33.1%), some had previous admission with same disease (44.6%) (Table 3). They may have previous knowledge on it. Thus, they feel interest in this subject. In most of the previous studies, patients placed this category comparatively in lower place (Czar and Engler, 1997; Karlik and Yarcheski, 1987; Turton, 1998; Timmins and Kaliszer, 2003).

Anatomy and physiology was considered as an important area of concern in previous studies (Karlik & Yarcheski, 1987; Czar & Engler, 1997; Jaworski, 2005). If the patients want to truly understand their disease, they must start with understanding the process of the MI and what damage has been done to the heart muscle (Jaworski, 2005). In this present study, patients ranked this category relatively in lower place than the previous studies. This difference may be due to the educational level of the patients. More than half of the patients of the present study

(52.3%) had primary school education. They may not be able to realize the importance of anatomy and physiology.

There are numerous risk factors for developing MI in Bangladesh. Rapid urbanization may increase the risk of tobacco use, obesity, unhealthy dietary intake, and a decline of physical activities or increased the occupational health risk including sedentariness (Goyal & Yusuf, 2006). Regular activity and exercise reduces the risk of cardiovascular disease and the chance of heart attack (Myers, 2003). It is observed that the media provides more emphasis on the risk factor to inform public awareness (Jaworski, 2005). For this regard, the discharge information about risk factors and physical activity are important areas for patients with MI. In reality, in this present study, the patients reported their information needs in these two areas relatively low. This finding is inconsistent with the previous studies (Gerard & Peterson, 1984; Karlik & Yarcheski, 1987; Turton, 1998), where the risk factor was considered as the most important learning need by the patients with MI. It may be a result of less awareness of the benefits of exercise together with unavailability of place for exercise and having low income.

Zahan (2013) recently conducted a secondary source review in order to determine the cardiovascular situation in Bangladesh as well as an ethnographic study to identify the current status of cardiac rehabilitation in Bangladesh. Interestingly, a part of the finding out of Zahan's study showed that 17.4 million adult people have low physical activity level and female are more inactive. In addition, urban populations were reported to have less activity than rural population. These findings

provide support to the present study that generally, Bangladeshi people are already physically inactive.

Patient placed psychological concerns and miscellaneous information in the least three importance of information needs similar to those found in Timmins and Kaliszer's study (2003) and Turton's study (1998). This result shows that patients did not take into account the psychological problems as serious as physical problems.

For nurses' characteristics, the nurses participated in this study could be good representatives of Bangladeshi nurses. They were young to middle-age adults with a mean age of 38.39 years, female (92.5%), Muslim (68.3%), and had diploma in nursing certificate (75.8%). These characteristics were mostly comparable to those reported in previous studies (Hossain, 2008; Islam, 2010; Latif, 2010). It was noted that although more than two-thirds of the nurses (69.2%) had working experience as a cardiac nurse for more than 5 years, only one-fourth (28.3%) of them had training related to care of cardiac patients. These findings revealed that although nurses are working in the specialized hospital but it is in primitive stage of prepared specialized nurses.

In this present study, nurses rated discharge information support regarding myocardial infarction at a moderate level ($M = 3.60$, $SD = 0.59$) (Table 8). More than half of them supported at moderate level (52.9%). Five out of eight categories of information support were rated at a moderate level, except medication, dietary and symptom management (Table 9). Some factors may contribute to this finding. Firstly, these may be due to the working environment in Bangladesh health care system. The shortage of nursing staff and the limited working time available for

direct patient care may be related to their moderate level of information support. The shortages of nurses in Bangladesh, making a nurse: patient ratio to be 1:15-20 (Fardaus as cited in Latif, 2010). For this, it may be difficult for nurses to prioritize this educational kind of care to their patients. In addition, in government hospital of Bangladesh nurses spent only 5.3% of their working time in direct contact of the patients (Hadley & Roques, 2007). So, it is too short time to arrange educational session for MI patient except routine care.

Secondly, the education and training of nurses and supplies of educational resources for MI patients may be lacking. In this study, the majority of nurses were educated only at diploma level and had no training related to cardiac care or intensive care (Table 4). The researcher further found that the lower education of nurses (diploma), the lower the information being given or supported to their patients as compared to those received bachelor degree and master's degree ($X^2 = 11.79$, $p < .01$) but there was no significant difference between the nurses' information support of those who had training or had no training related to care of cardiac patients (Table 10). This finding was somewhat surprising. One plausible reason is that training courses being offered may contain inadequate information for guiding nursing practice. Further exploration of the contents of the existing training courses is recommended.

Nurses ranked medication information most supported to their patients ($M = 4.21$, $SD = 0.60$), followed by symptom management ($M = 3.97$, $SD = 0.62$) and dietary information ($M = 3.80$, $SD = 0.73$). This finding is not surprising. Nurses spend most of their time to administer medication during their working hours. Karlik

and Yarcheski (1987) reviewed previous study in which the researcher investigated the responsibilities of different level of personnel in intensive care units. The activity of administering drug was ranked the highest among 16 specific functions performed by registered nurses. Similar reason may drive the nurses in present study to rank the medication information as the most supported information to their patients. There may be another reason for placing medication support at the top rank. Nurses are aware about the life saving implication related to medication (Karlik & Yarcheski, 1987). In addition, most of the nurses in this present study were working in cardiac medicine units (45.8%), where the patients are treated specially by medicine. After further analyzing the data, it was found that the nurses of cardiac medicine unit provided the higher support to their patients as compared to those working in cardiac surgery, PCCU and cabin ($X^2 = 10.16, p < .05$) (Table 10).

Symptom management was ranked as the second highest information supported by nurses. This may be related to the urgency of the patients' condition. When symptoms occur to MI patients, they need an immediate management, otherwise the patients may die. Similarly, in previous studies, nurses reported this category as highest learning need for patients with MI (Timmins & Kaliszer, 2003; Turton, 1998). The prime importance of this category may be due to its relation with the patients' survival (Chan, 1990).

Dietary information was the third rank in order. Socio-economic transition is the new emerged situation in Bangladesh driving people tend to eat outside their home. The dietary pattern has been changed specially, in increasing high intake of processed foods (Islam & Majumder, 2013), which may increase a risk for

getting another MI. More importantly, MI is well-acknowledged as a disease of unhealthy dietary behavior. Together, these may make the nurses to provide high support regarding dietary information to MI patients. This result is different from other studies where nurses ranked the dietary information in lower place (Gerard & Peterson, 1984; Karlik & Yarcheski, 1987; Timmins & Kaliszer, 2003; Turton, 1998). It is noteworthy that these studies were considered outdated. Nowadays, it is well-accepted that dietary modification is very important in reducing risk factors of coronary artery diseases.

Nurses ranked miscellaneous information in the fourth place in order. Specifically, for the items ‘when does patient can return to work?’, ‘what tests and investigations will be done after discharge from hospital?’ and ‘the reason for further testing (e.g. lab, EKG etc) after patient go home?’, they provided support highly (Appendix F). These information are of importance and are ones of ‘frequently ask questions’ by patients in general, not limited to patients with MI.

Risk factors, another important category of information that nurses ranked comparatively in lower place. Either nurses are not aware about the importance of risk factors or they have insufficient knowledge in this area. Additional analysis finding supports that knowledge may play a role here. The nurses who had higher degree in nursing (BSc and master) provided relatively higher support to the patients than nurses who had lower degree ($X^2 = 11.79, p < .01$) (Table 10). However, the nurses in Turton’s study (1998) reported this category of information as the most important learning needs for patients with MI.

Physical activity information support ranked in relatively lower place. Even though evidence suggested that the physical activity information can help the patient to adjust to their normal life as well as prevent unexpected occurrence (Briffa et al., 2006), after heart attack patients may restrict their activities because of fear from having another heart attack. This issue may increase the importance the items ‘the general guidelines for physical activities after heart attack’, ‘what are patient’s physical activity restrictions, if any?’, and ‘how to tell if the patient can increase his/her activity?’ as the necessary information to resume normal activity in life. This finding of lower support regarding physical activity may be due to lack of knowledge in this important area.

In addition, the item from physical activity category ‘when can patient engage in sexual activity?’, nurses rated low score because they may be feeling uneasy to discuss such type of information to their patients, particularly those with their different sex. In this present study, most of the patients were male (95.4%) and nurses were female (92.5%). Moreover, from Muslim culture, it is forbidden to bring sexual issue in open discussion with others of different sex.

Nurses reported the psychological concerns as the 7th rank of their supported information. This may be due to the nurses focused more on the management of physical symptoms. The shortage of nurses may contribute to their high work load. As a result, they may prioritize and pay more attention to life saving aspect of the patients rather than psychological aspects. This is a common phenomenon among nurses working with critical patients where more concerns are placed on physical tasks (Price, 2004).

Anatomy and physiology is the category of information that nurses rated in lowest place similar to previous studies (Gerard & Peterson, 1984; Karlik & Yarcheski, 1987; Timmins & Kaliszer, 2003). There may be the same reason to have the lack of specific knowledge on this area as those previous studies. Additionally, nurses may think that this information is less important to their patients and it may also be difficult to make the patients understand.

Comparing whether there were discrepancies between the two groups, MI patients and nurses, it was found that overall patients' discharge information needs and nurses' discharge information support was significantly different ($t = 12.76, p < .001$) (Table 11). The differences were also found in all categories (Table 11 and 12). The patients rated higher scores than the nurses did. In other words, MI patients indicated the information they needed significantly higher than the information the nurses reported to support them. This finding flags that a provision of patients' needs assessment is highly needed to offer important information for MI patients according to their needs before discharge.

In spite of the score discrepancies, MI patients and nurses in this study rated their information needs and support in nearly the same rank orders, except those of anatomy and physiology (4th and 8th) and miscellaneous (8th and 4th). For the top three ranks, the score on medication, symptom management, and dietary were rated at the same rank orders for both groups (Table 13). For these areas, the patients mentioned their most needed areas of learning information. This finding would be helpful for nurses to make an effective cardiac teaching plan for patients with MI

before discharge from hospital. Thus, there would be effective learning taking place for patients as the law of adult learning theory (Ausubel as cited in Novak, 2011).

The top three areas of concern by patients with MI and nurses were not consistent with most of the previous studies. Only one study (Timmins & Kaliszer, 2003) in which the patients and nurses ranked the medication and symptom management as the top two categories similar to the current study. In some studies, only the medication information was prioritized by both parties (Gerard & Peterson, 1984; Karlik & Yarcheski, 1987) and symptom management in Turton's study (1998) was placed in the top two areas of discharge information. None of known study reported the dietary information ranked in the top three category of information by both groups.

For the lower three ranks, the score on physical activity, risk factors and psychological concerns were also rated at the nearly same rank order by both groups. All three categories patients rated at high level, whereas, nurses rated moderate level (Table 6 and 9). This gap has a strong implication for assessing the needs of patients before providing any information to them.

All eight categories of information are considered as important areas of learning needs of patients with MI for managing their post discharge life effectively. In the present study, patients also rated all categories at high levels. Thus, the findings provide recommendation for training nurses on the details of cardiac teaching.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

This chapter presents the conclusion of the study based on the research findings, the strengths and limitations, and the implications and recommendations of the study for clinical practice, nursing education and nursing research.

Conclusion

A comparative, descriptive study was conducted to identify the level of patients' discharge information needs regarding myocardial infarction and the level of nurses' information support to patients with myocardial infarction and to compare patients' discharge information needs and nurses' discharge information support. The total 120 nurses and 130 patients were recruited from National Institute of Cardiovascular Diseases and Hospital. Data were collected between October 2013 and January 2014. Both groups of participants, patients and nurses were asked to respond to a set of self-reported questionnaires. All questionnaires originally developed in English language were back translated to Bangla language. The Modified Cardiac Patient Learning Need Inventory, Patient Version (MCPLNI-Patient) measuring patients' discharge information needs was tested among 20 myocardial infarction patients for its reliability and yielded a Cronbach's alpha coefficient of .90 and the

Cardiac Patient Learning Support Inventory, Nurse Version (CPLSI-Nurse)

measuring nurses' information support was tested with 20 nurses and yielded an alpha coefficient of .98.

Data were analyzed by descriptive statistics including frequency, percentage, mean (*M*), standard deviation (*SD*), minimum (*Min*), maximum (*Max*) score, median (*Mdn*), and interquartile range (*IQR*) and the inferential statistics including the independent *t*-test and the Mann-Whitney *U* test.

The age of the patients samples ranged from 24 to 90 years old (*M* = 53.61 years). The majority of them were male, married and Muslim. More than half of the patients had primary school education. About one-fourth was private employees. One-third of the patients had an average monthly income between 10,000 --20,000 Taka and another one-third had no income. Duration of admission of the patients ranged from 2 to 23 days (*Mdn* = 6 days) and being diagnosed from 2 days to 13 years (*Mdn* = 10 days). Nearly half of the patients had history of previous admission with cardiac problem for 1 to 15 times. One-third of them had the family history of the same disease. Nearly two-thirds of them had smoking habit and among these patients, more than half of them were ex-smokers. Nearly two-thirds had underlying disease including DM, HTN, kidney diseases, lung diseases and gallstone. Patients perceived their illness as moderately to highly severe (*Mdn* = 7.00).

Patients' discharge information needs was at a high level. The information needs of all eight categories were also high. According to their rank of information needs, medication was rated the highest followed by symptom management, dietary information, anatomy and physiology, physical activity information, risk factors, psychological concerns and miscellaneous.

The nurses' discharge information support total score was at a moderate level. Among eight categories, medication information, dietary information and symptom management were at a high level. Other five categories were moderate level of support to MI patients. According to their rank of information support, medication was the highest information support followed by symptom management, dietary information, miscellaneous, risk factors, physical activity, psychological concern and anatomy and physiology.

The total score of patients' discharge information needs was significantly higher than the nurses' discharge information support. There were also significant differences in all other eight categories of patients' information needs and nurses' information support indicated that MI patients' information needs were significantly higher than the information the nurses reported to support them.

Strengths and Limitations

Some strengths of this study were identified. This study was the first comparative, descriptive study exploring patients' discharge information needs and nurses' discharge information support regarding myocardial infarction in Bangladesh. The findings of this study provide a foundation for developing intervention for this group of patients in Bangladesh.

This study was conducted at a tertiary level specialized hospital where only cardiac patients coming from all districts of Bangladesh were treated and nurses

who worked at this hospital were considered to be nurse specialists in providing care to their patients. In other words, the generalizability of the study findings in the context of government hospital of Bangladesh was high.

Similar to any research studies, this study has some limitations. A non-probability, convenience sampling used to recruit the patient participants of the desired sample size may contribute to unintentional sampling bias. Although the study findings are generalizable to government hospital, its limitation is to other private hospitals. This study only focused on the patients' information needs and nurses' information support but it did not measure how much information patients actually received from nurses. For this reason, the findings should be interpreted with caution. Lastly, in this study, the data were collected for only one time. The results reflected only on immediate before discharge information needs of the patients. Their need might be changed at post discharge period. Thus, future study may explore their needs at follow-ups to capture this change.

Implication and Recommendations

The findings of this study provide supporting evidence on the level of patients' discharge information needs and nurses' discharge information support regarding myocardial infarction in Bangladesh. The findings of this study may imply and recommend for further improvement in many areas of the nursing profession as follows:

Clinical Practice

In this study patients indicated that their discharge information needs were high in all categories. However, nurses cannot always support the patients according to their needs due to shortage of nurses. In order to improve this situation, the nurses can make and utilize a simple check-list to guide them to pay attention on the areas of discharge information needs that the patients most likely to know. This can be helpful to all MI patients to get minimum amount of information prior to hospital discharge.

For quality improvement to meet the patients' information needs, a formal educational program should be arranged by individualizing and prioritizing their needs based upon the research findings. It is very important for effective teaching and learning if both parties make a common ground for the educational items. The findings of this study may have positive implication for effective cardiac teaching to patients with MI by developing educational materials for patients with MI.

Nursing Education

The findings of this study can be utilized by nursing educators to emphasize the role of nurses and nursing students to meet the discharge information needs of patients with MI. Nurse Educators should emphasize the importance of understanding these needs and encourage / coach nursing students to provide discharge information according to the priority of the patients' needs.

In addition, through the specialized in-service education course of cardiac nurses on patients' education, nurses need to develop their knowledge and skill in patients teaching. It would be helpful for MI patient to meet their information needs regarding MI. So that, this would be beneficial for minimizing the discrepancies between patients' information needs and nurses' information support regarding myocardial infarction.

Nursing Research

The result of this study would be used as a source of information for further research. Based on the current research findings, the researcher would like to recommend in the following areas:

1. An experimental research is recommended by providing educational program to find the effective way to educate the patients with MI.
2. A longitudinal research study is recommended to examine the post discharge information needs of the patients with MI.
3. Further research also needed to identify the amount of information actually received by the patients from nurses.

REFERENCES

- Aghakhani, N., Sharif, F., Klsdemvaton, K., Rahbar, N., Eghtedar, S., Motlagh, V. S. (2011). The reduction in anxiety and depression by education of patients with myocardial infarction. *Iranian Cardiovascular Research Journal*, 5, 66-68.
- Ahmed, N. (2013). Blood supply of the heart. Retrieved from <http://www.fastbleep.com/medical notes/heart lungs-blood/1/90/572>.
- Al-Ahmadi, H. (2008). Factor affecting performance of hospital nurses in Riyadh Region, Soudi Arabia. *International Journal of Health Care Quality Assurance*, 22, 40-54.
- Alsen, P., Brink, E., Brandstrom, Y., Karlson, B. W., & Persson, L. (2010). Fatigue after myocardial infarction: Relationships with indices of emotional distress, and sociodemographic and clinical variables. *International Journal of Nursing Practice*, 16, 326-334.
- American Heart Association. (2010). Level of Cholesterol. Retrieved from http://www.heart.org/HEARTORG/GettingHealthy/FatsAndOils/Fats101/Levels-of-Cholesterol_UCM_305051_Article.jsp
- American Heart Association. (2014). Understand your risk of heart attack. Retrieved from http://www.heart.org/HEARTORG/Conditions/HeartAttack/UnderstandYourRiskofHeartAttack/Understand-Your-Risk-of-Heart-Attack_UCM_002040_Article.jsp
- Antman, E. M., Anbe, D. T., Armstrong, P. W., Bates, E. R., Green, L. A., Hand, M.,...Ornato, J. P. (2004). ACC/AHA guidelines for the management of patient with ST-elevation myocardial infarction- executive summary: a report of the American College of Cardiology/ American Heart Association Task Force on Practice Guideline (Writing Committee to Revise the 1999 Guideline for Management of Patient with Acute Myocardial Infarction. *Circulation*, 110, 588-636.
- Argyriou, G., Kadda, O., Vasilopoulos, G., Kologianni, A., Kapedohos, T., Kyritsi, E., & Marvaki, C. (2011). Dietary habits and quitting smoking after an acute myocardial infarction. *Health Science Journal*, 5, 269-279.
- Asgar, M. A. (2010). *Stress and coping of patients with myocardial infarction in Bangladesh*. Unpublished Master's Thesis, Prince of Songkla University, Thailand.
- Assimilation Theory. (2011): [General], [What is assimilation theory?], [What is the practical meaning of assimilation theory?], [Criticisms]. Retrieved from <http://teorije-ucenja.zesoi.fer.hr/>.

- Baal, P. H. V., Engelfriet, P. M., Boshuizen, H. C., Kassteele, J. V. D., Schellevis, F. G., Hoogenveen, R. T. (2011). Co-occurrence of diabetes, myocardial infarction, stroke, and cancer: quantifying age patterns in the Dutch population using health survey data. *Population Health Metrics*, 9, 1-9.
- Babatsikou, F., & Zavitsanou, A. (2010). Epidemiology of hypertension in the elderly. *Health Science Journal*, 4, 24-30.
- Bailey, J. (2004). *Patients and nurses' perceptions of the cardiac patient's learning needs*. Master's Thesis. The Florida State University School of Nursing.
- Boras, J., Pavlic-Renar, I., Car, N., Metelko, Z. (2002). Diabetes and coronary heart disease. *Diabetologia Croatica*, 31, 199-208.
- Boudrez, H., & Backer, G. D. (2000). Recent finding on return to work after an acute myocardial infarction or coronary artery bypass grafting. *Acute Cardiology*, 55, 341-349.
- Bridin, C. (2003). The nurses role in patient education: incongruent perception among nurses and patients in a general hospital in Northern Ireland. *Cardiovascular Nursing*, retrieved from <http://www.fac.org.ar/tcvc/llave/tl009/tl009.PDF>
- Briffa, T., Allan, R., Maiorana, A., Oldenburg, B., Sannel, N., Stubbs, A.,... Vickers, R. (2006). *National heart foundation of Australia physical activity recommendations for people with cardiovascular disease*. Sydney (Australia): National Heart Foundation of Australia.
- Browne, L. (2010). Continuing education: Acute myocardial infarction. *Cardiology*, 18, 41-42.
- Burg, M. M., Barefoot, J., Berkman, L., Catellier, D. J., Czajkowski, S., Saab, P., ... Taylor, C. B. (2005). Low perceived social support and post-myocardial infarction prognosis in the enhancing recovery in coronary heart disease clinical trial: The effects of treatment. *Psychometric Medicine*, 67, 879-888.
- Campbell-Scherer, D. L., & Green, L. A. (2009). ACC/AHA Guideline update for the management of ST-segment elevation myocardial infarction. *American Academy of Family Physicians*, 79, 1080-1086.
- Chan, V. (1990). Content areas for cardiac teaching: patients' perception of the importance of teaching content after myocardial infarction. *Journal of Advanced Nursing*, 15, 1139-1145.
- Cherrington, C. C., Moser, D. K., Lennie, T. A., & Kennedy, C. W. (2004). Illness representation after acute myocardial infarction: Impact on in-hospital recovery. *American Journal of Critical Care*, 13, 136-145.

- Chronic disease: An emergency priority in Bangladesh. (2009, June). *Chronic Disease News*. Retrieved from http://www.icddrb.org/what-we-do/publications/cat_view/52-publications/10042-icddrb-periodicals/10079-chronic-disease-news/10288-vol-1-issue-1-english-2009
- Cooper, A., Skinner, J., Nherera, L., Feder, G., Ritchie, G., Kathoria, M.,... White, A. (2007). *Clinical guidelines and evidence review for post myocardial infarction: Secondary prevention in primary and secondary care for patients following a myocardial infarction*. London: National Collaborating Centre for Primary Care and Royal College of General Practitioners.
- Corones, K., Coyer, F. M., & Theobald, K. A. (2009). Exploring the information needs of patients who have undergone PCI. *Research and Development, 4*, 123-130.
- Crilley, J. G., & Farrer, M. (2001). Impact of first myocardial infarction on self-perceived health status. *The Quarterly Journal of Medicine, 94*, 13-18.
- Czar, M. L., & Engler, M. M. (1997). Perceived learning needs of patient with coronary artery disease using a questionnaire assessment tool. *Heart & Lung, 26*, 109-117.
- Das, P., Ghafur, S., Bhattacharjee, B., Dey, A., Mollah, A., Kamal, S., Murshed, A. (2011). Profile of young acute myocardial infarction in Chittagong Medical College Hospital, Chittagong. *Cardiovascular Journal, 4*, 53-57.
- Delmar, C., Jakobsen, C., Forup, L., & Pedersen, B. D. (2012). The existential significance of social support: Patient's experiences after MI. *British Journal of Cardiac Nursing, 7*, 83-90.
- Ellwood, M., Lichtenfeld, L., Parker, R. M., Tuncer, D., Solis, P., Fusco-Walker, S. J.,... Rosvold-Brenholtz, H. (2007). *Enhancing prescription medicine adherence: A national action plan*. USA: National Council on Patient Information and education. Retrieved from http://www.talkaboutrx.org/documents/enhancing_prescription_medicine_adherence.pdf.
- Engstrom, G., Tyden, P., Berglund, G., Hansen, O., Hedblad, B., & Janzon, L. (2000). Incidence of myocardial infarction in women: A cohort study of risk factors and modifiers of effect. *Journal of Epidemiology and Community Health, 54*, 104-107.
- Galdeano, L. E., Furuya, R. K., Rodrigues, M. A., Dantas, R. A., and Rossi, L. A. (2012). Reliability of the cardiac patient learning needs inventory (CPLNI) for use in Portugal. *Journal of Clinical Nursing, 21*, 1-9, doi: 10.1111/j.1365-2702.2012.04158. x. Blackwell.

- Garvey, N., & Noonan, B. (2011). Providing individualized education to patients post myocardial infarction: A literature review. *British Journal of Nursing, 6*, 73-79.
- Gerard, P.S., & Peterson, L. M. (1984). Learning needs of cardiac patients. *Cardiovascular Nursing, 20*, 7-11.
- Gerristen, A. A. A., & Deville, W. L. (2009). Gender differences in health and health care utilization in various ethnic groups in the Netherlands: A cross-sectional study. *BMC Public Health, 9*, 109. doi: 10.1186/1471-2458-9-109.
- Goldmann, D. (2006). *Medical management following myocardial infarction*. Philadelphia: Independence Mall West.
- Government of the People's Republic of Bangladesh. (2011). *Health Bulletin*. Ministry of health and family welfare. Management information system, directorate of general health services (DGHS). Dhaka, Bangladesh.
- Goyal, A., & Yusuf, S. (2006). The burden of cardiovascular disease in the Indian subcontinent. *Indian Journal of Medical Research, 124*, 235-244.
- Green, L. A., Dickinson, W. P., Nease, D. E., Schellbase, K. G., Campos-Outcalt, D., Schoof, B. K., Jeffcott -Pera, M. (2009). AAFP guideline for the detection and management of post-myocardial infarction depression. *Annals of Family Medicine, 7*, 71-79.
- Hadley, M. B., & Roques, A. (2007). Nursing in Bangladesh: Rhetoric and reality. *Social Science and Medicine, 64*, 1153-1165.
- Hanssen, T. A., Nordrehaug, J. E., Eide, G. E., Bjelland, I., & Rokne, B. (2009). Anxiety and depression after acute myocardial infarction: An 18-month follow-up study with repeated measures and comparison with a reference population. *European Journal of Cardiovascular Prevention and Rehabilitation, 16*, 651-659.
- Hochman, J. S., & Califf, R. M. (2002). Acute myocardial infarction. In E. M. Antman (Eds.), *Cardiovascular therapeutics* (2nd ed., pp. 280-282). Philadelphia: W. B. Saunders Company.
- Hossain, D. (2008). *Nurses' satisfaction on job performance provided in public and private hospital*. Unpublished Master's Thesis, Northern University, Dhaka, Bangladesh.
- Hu, F. B. (2008). Globalization of food patterns and cardiovascular disease risk. *Circulation, 118*, 1913-1919.

- Indriyawati, N. (2004). *Needs of family who have members admitted to critical care unit: Perception of families and nurses in Central Java, Indonesia*. Unpublished Master's Thesis. Prince of Songkla University, Thailand.
- Iqbal, R., Anand, S., Ounpuu, S., Islam, S., Zhang, X., Rangarajan, S.,... Yusuf, S. (2008). Dietary patterns and the risk of acute myocardial infarction in 52 countries: Result of the INTERHEART study. *Journal of the American Heart Association, 118*, 1929-1937.
- Islam, A.K.M., & Majumder, A. A. S. (2013). Coronary artery disease in Bangladesh: A review. *Indian Heart Journal, 65*, 424-435.
- Islam, M. S. (2010). *Nurses' knowledge, attitude, and practice regarding pressure ulcer prevention for hospitalized patients at Rajshahi medical college hospital in Bangladesh*. Unpublished Master's Thesis. Prince of Songkla University, Thailand.
- Jaworski, C. A. (2005). *In-patient education: Are patients' perceived learning needs met following first MI?*. Master's Thesis. Medical College of Ohio, United States.
- Karlik, B. A., & Yarcheski, A. (1987). Learning needs of cardiac patients: A partial replication study. *Heart & Lung: The Journal of Critical Care, 16*, 544-551.
- Keene, J., & Li, X. (2005). Age and gender differences in health service utilization. *Journal of Public Health, 27*, 74-79.
- Khan, J. J., Albarran, J. W., Lopez, V., & Chair, S. Y. (2010). Gender difference on chest pain perception associated with acute myocardial infarction in Chinese patients: A questionnaire survey. *Journal of Clinical Nursing, 19*, 2720-2729.
- Koelling, T. M., Johnson, M. L., Cody, R. J., & Aaronson, K. D. (2005). Discharge education improves clinical outcomes in patients with chronic heart failure. *Circulation, 111*, 179-185.
- Kolansky, D. M. (2009). Acute coronary syndrome: Morbidity, mortality, and pharmaco-economic burden. *The American Journal of Managed Care, 15*, S36-S41.
- Kovoor, P., Lee, A. K.Y., Carrozzi, F., Wiseman, V., Byth, K., Zecchin, R.,...Denniss, A. R. (2006). Return to full normal activities including work at two weeks after acute myocardial infarction. *American Journal of Cardiology, 97*, 952-958.
- Kripalani, S., Jackson, A. T., Schnipper, J. L., & Coleman, E. A. (2007). Promoting effective transitions of care at hospital discharge: A review of key issues for hospitalists. *Journal of Hospital Medicine, 2*, 314-323.

- Lange, M., Thom, B., & Kline, N. (2008). Assessing nurses' attitude toward death and caring for dying patients in a comprehensive cancer center. *Oncology Nursing Forum*, *35*, 955-959.
- Latif, M. A. (2010). *Relationship between organizational climate and nurses' job satisfaction in Bangladesh*. Unpublished Master's Thesis, Prince of Songkla University, Thailand.
- Lee, C-C., Li, D., Arai, S., Puntillo, K. (2009). Ensuring cross-cultural equivalence in translation of research consents and clinical documents: A systematic process for translating English to Chinese. *J Transcult Nurs*, *20*, 77-82.
- Li, Y., Rukshin, I., Pan, F., Sen, S., Islam, M., Yousif, A., & Rukshin, V. (2014). The impact of the 2008-2009 economic recession on acute myocardial infarction occurrences in various socioeconomic areas of Raritan Bay region, New Jersey. *North American Journal of Medical Science*, *6*, 215-218.
- Liao, S., & Lo, C. (2006). Applying the theory of uncertainty to care an individual recently diagnosed with myocardial infarction. *Tzu Chi Nursing Journal*, *5*, 115-125.
- Litjeroos, M., Snellman, I. M., & Ekstedt, M. H. (2011). A qualitative study on the role of patient-nurse communication in acute cardiac care. *Journal of Nursing Education and Practice*, *1*, 17-24.
- Maloney, L. R., & Weiss, M. (2008). Patients' perceptions of hospital discharge information content. *Clinical Nursing Research*, *104*, 1-20.
- Martinez, L. G., & Bucher, L. (2007). Nursing management: Coronary artery disease and acute coronary syndrome. In S. L. Lewis, M. M. Heitkemper, S. R. Dirksen, P.G. O'Brien, & L. Bucher (Eds.), *Medical surgical nursing: Assessment and management of clinical problems* (7th ed., pp. 784-820). St. Louis, MO: Mosby Elsevier.
- Mathew, B., Francis, L., Kayalar, A., Cone, J. (2008). Obesity: Effect on cardiovascular disease and its diagnosis. *Journal of American Board of Family Medicine*, *21*, 562-568.
- McCann, C.J., & Menown, I. B. (2008). New anticoagulant strategies in ST elevation myocardial infarction: Trials and clinical implication. *Vascular Health and Risk Management*, *4*, 305-313.
- McCormick, K. M. (2002). A concept analysis of uncertainty in illness. *Journal of Nursing Scholarship*, *34*, 127-131.

- Miranda, S. V., & Tarapanoff, K. M. A. (2008). Information needs and information competencies: A case study of the off-site supervision of financial institution in Brazil. *Information Research*, *13*, 344.
- Moret, L., Rochedreux, A., Chevalier, S., Lombrail, P., & Gasquet, I. (2008). Medical information delivered to patient: Discrepancies concerning role as perceived by physicians and nurses set against patient satisfaction. *Patient Education and Counseling*, *70*, 94-101.
- Morton, P. G., Fontaine, Hudak, C. M., & Gallo, B. M. (2005). *Critical care nursing: A holistic approach* (8th Ed., pp. 422-445). Philadelphia, PA: Lippincott Williams & Wilkins.
- Myers, J. (2003). Exercise and cardiovascular health. *Circulation*, *107*, e2-e5.
- National Heart Foundation. (2004). Recommended framework '04 for cardiac rehabilitation. National Heart Foundation of Australia and Australian Cardiac Rehabilitation Association, retrieved from the [http://www.heartfoundation.org.au/Site Collection Documents/Recommended-framework.pdf](http://www.heartfoundation.org.au/Site%20Collection%20Documents/Recommended-framework.pdf)
- NICE clinical guideline 22 (2007). Anxiety (amended): Management of anxiety (panic disorder, with or without agoraphobia, and generalized anxiety disorder) in adult in primary, secondary and community care. London: National Institute for Health and Clinical Excellence.
- NICE clinical guideline 23 (2009). Depression: Treatment and management of depression in adults, including adult with a chronic physical health problem. London: National Institute for Health and Clinical Excellence.
- Nix, S. (2009). *Williams' basic nutrition & diet therapy* (13th Ed.). Philadelphia, PA: Mosby Elsevier.
- Novak, J. D. (2011). A theory of education: Meaningful learning underlies the constructive integration of thinking, feeling, and acting leading to empowerment for commitment and responsibility. *Meaningful Learning Review*, *1*, 1-14.
- O'Donovan, K. (2010). Continuing education: Helping patients cope after MI. *2*, 33-34. Retrieved from <http://inmo.ie/MagazineArticle/PrintArticle.8258>.
- Ormandy, P. (2011). Defining information need in health-assimilating complex theories derived from information science. *Health Expectations*, *14*, 92-104.
- Ozdemir, L., & Akdemir, N. (2008). Nurses' knowledge and practice involving patients' resuming sexual activity following myocardial infarction: Implications for training. *Australian Journal of Advanced Nursing*, *26*, 42-52.

- Pokorney, S. D., Rodriguez, J. F., Ortiz, J. T., Lee, D. C., Bonow, R. O., & Wu, E. (2012). Infarct healing is a dynamic process following acute myocardial infarction. *Journal of Cardiovascular Magnetic Resonance, 14*, 1-7.
- Polikandrioti, M., & Babatsikou, F. (2013). Information to coronary disease patients. *Health Science Journal, 7*, 3-10.
- Polit, D. F., & Beck, C. T. (2012). *Nursing research: Generating and assessing evidence for nursing practice* (9th ed.). New York, NY: Lippincott Williams & Wilkins.
- Prasad, D. S., Kabir, Z., Dash, A. K., Das, B. C. (2009). Smoking and cardiovascular health: A review of the epidemiology, pathogenesis, prevention and control of tobacco. *Indian Journal of Medical Science, 63*, 520-533.
- Price, A. M. (2004). Intensive care nurses' experiences of assessing and dealing with patients' psychological needs. *British Association of Critical Care Nurses, Nursing in Critical Care, 9*, 134-142.
- Prompahakul, C. (2011). *Factors relating to nurses' caring behaviors for dying patient in Southern Thailand*. Unpublished Master Thesis, Prince of Songkla University, Thailand.
- Rankin, J., & Bhopal, R. (2001). Understanding of heart disease and diabetes in a South Asian community: cross-sectional study testing the 'snowball' sample method. *Public Health, 115*, 253-260
- Rasmussen, J. N., Rasmussen, S., Gislason, G. H., Buch, P., Abildstrom, S. Z., Kober, L.,...Madsen, M. (2006). Mortality after myocardial infarction according to income and education. *J Epidemiol Community Health, 60*, 351-356.
- Roger, L. V., Go, S. A., Lloyd-Jones, M. D., Adoms, J. R., Berry, D. J., Brown, M. T.,...Wylie-Rosett, J. (2011). Heart disease and stroke statistic-2011 update: A report from the American Heart Association. *Circulation, 123*, e18-e209. Doi:10.1161/CIR.0b013e3182009701
- Rogers, A. M., Ramanath, V. S., Grzybowski, M., Riba. A. L., Jani, S. M., Mehta, R.,...Eagle, K. A. (2007). The association between guideline based treatment instructions at the point of discharge and lower 1-year mortality in Medicare patients after acute myocardial infarction: The American College of Cardiology's Guidelines Applied in Practice (GAP) initiative in Michigan. *American Heart Journal, 154*, 461-469.
- Ruz, M. E. A., Lennie, T. A., & Moser, D. K. (2011). Effects of B-blocker and anxiety on complication rates after acute myocardial infarction. *American Journal of Critical Care, 20*, 67-73.

- Scott, J. T., & Thompson, D. R. (2003). Assessing the information needs of post-myocardial infarction patient: A systematic review. *Patient Education and Counseling, 50*, 167-177.
- Shilton, T., Abernethy, P., Alikinson, R., Bauman, A., Brown, W., Naughton, G.,...Wright, C. (2001). Promoting physical activity-ten recommendations. *National Heart Foundation of Australia, 554*, 1-11.
- Smeltzer, S. C., & Bare, B. G. (2004). *Brunners & Suddarth's textbook of medical-surgical nursing* (10th ed.). Philadelphia, PA: Lippincott Williams & Wilkins.
- Smith, J., & Liles, C. (2007). Information needs before hospital discharge of myocardial infarction patient: A comparative, descriptive study. *Journal of Clinical Nursing, 16*, 662-671.
- Smith, M. J., & Liehr, P. R. (2014). Understanding middle range theory by moving up and down the ladder of abstraction. In M. J. Smith, & P. R. Liehr (Eds.), *Middle range theory for nursing* (3rd ed., pp. 15-34). New York: Springer Publishing Company, LLC.
- Soderman, E., Lisspers, J., & Sundin, O. (2003). Depression as a predictor of return to work in patients with coronary artery disease. *Social Science and Medicine, 56*, 193-202.
- Strik, J. J. M. H., Denollet, J., Lousberg, R., Honig, A. (2003). Comparing symptoms of depression and anxiety as predictors of cardiac events and increased health care consumption after myocardial infarction. *Journal of the American College of Cardiology, 42*, 1801-1807.
- Stewart, D. E., Abbey, S. E., Shnck, Z. M., Irvine, J., Grace, S. L. (2004). Gender differences in health care information needs and decision preferences in patients recovering from an acute ischemic coronary events. *Psychosomatic Medicine, 66*, 42-48.
- Thygesen, K., Alpert, J. S., Jaffe, A. S., Simoons, M. L., Chaitman, B. R., White, H. D.,...Mendis, S. (2012). The universal definition of myocardial infarction. *Journal of the American College of Cardiology, 60*, 1-18.
- Thygesen, K., Alpert, J. S., White, H. D. (2007). Universal definition of myocardial infarction. *European Heart Journal, 28*, 2525-2538.
- Timmins, F. (2006). Exploring the concept of information need. *International Journal of Nursing Practice, 12*, 375-381.
- Timmins, F., & Kaliszer, M. (2003). Information needs of myocardial infarction patients. *European Journal of Cardiovascular Nursing, 2*, 57-65.

- Top, M. (2013). Organizational variables on nurses' job performance in Turkey: Nursing assessment. *Iranian Journal of Public Health*, 42, 261-271.
- Turton, J. (1998). Importance of information following myocardial infarction: A study of the self-perceived information needs of patients and their spouse/partner compared with the perceptions of nursing staff. *Journal of Advanced Nursing*, 27, 770-778.
- Uysal, H., & Enc, N. (2012). A Turkish version of the cardiac patients' learning needs inventory; patient questionnaire (TR-CPLNI): reliability-validity assessment. *International Journal of Caring Science*, 5, 264-279.
- Waxman, S., Ishibashi, F., & Muller, J, E. (2006). Detection and treatment of vulnerable plaques and vulnerable patients: Novel approaches to prevention of coronary events. *Circulation*, 114, 2390-2411
- World Heart Federation. (2013). *Cardiovascular disease risk factors fact sheet*. Retrieved from [http://www.world-heart-federation.org/fileadmin/user-upload/documents/fact-sheets/2012/PressBackgrounder April 2012 Risk Factor.pdf](http://www.world-heart-federation.org/fileadmin/user-upload/documents/fact-sheets/2012/PressBackgrounder%20April%202012%20Risk%20Factor.pdf).
- World Health Organization. (2007). *Prevention of cardiovascular disease: Pocket guidelines for assessment and management of cardiovascular risk*. Retrieved from http://ish-world.com/downloads/activities/PocketGL_ENGLISH_AFR-D-E_rev1.pdf
- World Health Organization. (2011). *Cardiovascular disease*. Retrieved from <http://www.who.int/mediacentre/factsheets/fs317/en/index.html>
- World Health Organization. (2012). *Health at a glance: Asia/Pacific 2012, OECD Publishing*. Retrieved from <http://dx.doi.org/10.1787/9789264183902-en>
- Yamagishi, K., Iso, H., Kokubo, Y., Saito, I., Yatsuya, H., Ishihara, J.,...Tsugane, S. (2013). Dietary intake of saturated fatty acid and incident of stroke and coronary heart disease in Japanese communities: The JPHC study. *European Heart Journal*, 34, 1225-1232.
- Yusuf, S., Hawken, S., Ounpuu, S., Dans, T., Avezum, A., Lanas, F.,...Lisheng, L. (2004). Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): Case-control study. *Lancet*, 364, 937-952.
- Zahan, R. (2013). *Exercise-based cardiac rehabilitation program: Status in Bangladesh*. A Master's Thesis, The Institute of Sport Science and Sport. Friedrich-Alexander University Erlangen-Nuremberg.

APPENDIX A
Informed Consent Form
(For Patient)

Dear participant,

My name is Robina Sultana. I am a senior staff nurse at NICVD and Hospital, Bangladesh, and currently a student of master's degree in International program of Master of Nursing Science at Prince of Songkla University, Thailand. I am conducting a research study with the title "Patients' discharge information needs and nurses' discharge information support regarding myocardial infarction in Bangladesh".

The purpose of the study is to find the differences between patients' discharge information needs and nurses' discharge information support regarding myocardial infarction. Although the study will not benefit you directly, the research findings would be helpful for further development of the cardiac educational program as well as improve quality of care for patients with myocardial infarction before discharge. You are asked to participate in the study because you are a patient with myocardial infarction.

The Research Ethics Committee, Faculty of Nursing, Prince of Songkla University, Thailand, has approved this study and its procedures. If you decide to participate in this study, you will be asked about your personal information and your information needs by giving your opinions on the given questionnaires. This may take approximately 20-30 minutes.

Your participation in this study is entirely voluntary and you may refuse to complete the study. You have the right to withdraw at any time without any reason. Your signature and returning the questionnaire indicate that you understand and wish to be involved and agreed to participate in this study. There will be no compensation in participating in the study. Your decision to participate or not participate will not create any harm to you or the hospital. Your information will be always kept confidential by using the code number instead of a name and confidentiality will be maintained all the time. The completed form will be destroyed after entering your data into a software program.

You have the opportunity to ask any questions and get satisfactory answers about this research study. If you have any questions , complaints, or comments about your participation in this study, please contact Faculty of Nursing , Prince of Songkla University , Hat Yai , Thailand, or to Robina Sultana, Mobile no: 0865970789 (Thailand), 008801670668484 (Bangladesh), or E. Mail : robinasultana79@gmail.com. If you agree to participate in this study, please sign your name. Thank you for your co-operation.

.....
Name of the subject	Signature of subject	Date
Robina Sultana
Name of researcher	Signature of Researcher	Date

Informed Consent Form
(For Nurse)

Dear participant,

My name is Robina Sultana. I am a senior staff nurse at NICVD and Hospital, Bangladesh, and currently a student of master's degree in the International program of Master of Nursing Science at Prince of Songkla University, Thailand. I am conducting a research study with the title "Patients' discharge information needs and nurses' discharge information support regarding myocardial infarction in Bangladesh".

The purpose of the study is to find the differences between patients' discharge information needs and nurses' discharge information support regarding myocardial infarction. Although the study will not benefit you directly, the research findings would be helpful for further development of the cardiac educational program as well as improve quality of care for patients with myocardial infarction before discharge. You are asked to participate in the study because you have experience in caring for patients with MI.

The Research Ethics Committee, Faculty of Nursing, Prince of Songkla University, Thailand, has approved this study and its procedures. If you decide to participate in this study, you will be asked about your personal information and your practice of providing information to support the needs of patients with MI before they are discharged from the hospital. This may take approximately 20-30 minutes. And you are allowed to return the questionnaires to the researcher within one week.

Your participation in this study is entirely voluntary and you may refuse to complete the study. You have the right to withdraw at any time without any reason. Your signature and returning the questionnaires indicate that you understand and are willing to be involved in this study. There will be no compensation in participating in the study. Your decision to participate or not participate will not create any harm or have any effect on your nursing career. Your information will be always kept confidential by using the code number instead of a name and confidentiality will be maintained all the time. The completed form will be destroyed after entering your data into a software program.

You have the opportunity to ask any questions and get satisfactory answers about this research study. If you have any questions, complaints, or comments about your participation in this study, please communicate to Faculty of Nursing, Prince of Songkla University, Hat Yai, Thailand, or to Robina Sultana, Mobile no: 0865970789 (Thailand), 008801670668484 (Bangladesh), or E. Mail : robinasultana79@gmail.com. If you agree to participate in this study, please sign your name. Thank you for your co-operation.

.....
Name of the subject	Signature of subject	Date
Robina Sultana
Name of researcher	Signature of Researcher	Date

APPENDIX B

Questionnaire for Myocardial Infarction Patients (Form-1)

ID:.....

(Patient)

This Instrument consists of two parts. Part 1 comprises demographic data questionnaire for patients with myocardial infarction, part 2 comprises of discharge information needs questionnaire.

Part 1: Demographic Data Questionnaire for the patient

1. What is your age in years?years

2. Gender

1. Male

2. Female

3. Marital status

1. Married

2. Single

3. Divorced

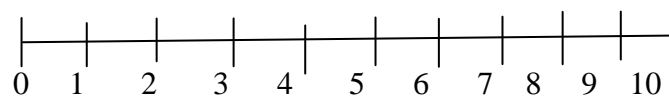
4. Widowed

4.....

5.....

14.....

15. How severe your illness to you? Rate the degree of severity in scale from 0 to 10.



Not severe

Most severe

Part 2: Modified Cardiac Patient Learning Need Inventory, Patient Version (MCPLNI-Patient).

Instruction: According to the degree of importance from 1 (= not important) to 5 (= very important). The more important information means the more needed information.

Please rate each of the statements to show how important the following discharge information needs are for you. One column for each statement.

Degree of importance

I need to know	Not important	Somewhat important	Moderately important	Important	Very important
<i>Anatomy & Physiology of heart (the function of the heart)</i>					
1. Why do I have chest pain?	1	2	3	4	5
2. What does my heart look like and how it works?	1	2	3	4	5
3.					
4.					
5.					
<i>Psychological concern</i>					
6. The normal psychological response to having a heart attack.	1	2	3	4	5
7.					
8.					
9.					
<i>Risk factor</i>					
10. What does the term 'risk factors' mean?	1	2	3	4	5
11.					
12.					
13.					
<i>Medication information</i>					
14. The general rules about taking medications	1	2	3	4	5
15.					
16.					
17.					
18.					

I need to know	Not important	Somewhat important	Moderately important	Important	Very important
<i>Dietary information</i>					
19. The general rules about healthy diet	1	2	3	4	5
20.					
21.					
22.					
23.					
<i>Physical activity information</i>					
24. Why am I not able to do as much physically as I was before I had my heart attack?					
25.					
26.					
27.					
28.					
<i>Symptom management</i>					
29. What are the different causes and varieties of chest pain?	1	2	3	4	5
30.					
31.					
32.					
33.					
34.					
<i>Miscellaneous information</i>					
35. How to take my pulse?	1	2	3	4	5
36.					
37.					
38. When can I return to work?	1	2	3	4	5

Please indicate if you need any other information not listed above.

.....

.....

.....

.....

Thank you for your cooperation

APPENDIX C

Questionnaire for Nurses (Form-2)

ID.....
(Nurse)

This Instrument consists of two parts. Part 1 comprises demographic data for nurses, and part 2 comprises of discharge information needs questionnaire.

Part 1: Demographic Data Questionnaire for the nurses

1. What is your age in years?years
2. What is your gender?

<input type="checkbox"/> 1. Male	<input type="checkbox"/> 2. Female
----------------------------------	------------------------------------
- 3.....
4. What is your religion?

<input type="checkbox"/> 1. Islam	<input type="checkbox"/> 2. Hindu
<input type="checkbox"/> 3. Christian	<input type="checkbox"/> 4. Buddhism
<input type="checkbox"/> 5. Others	
- 5.....
- 6.....
- 7.....
- 8.....
- 9.....
10. Do you have any special cardiac training?

<input type="checkbox"/> 1. No	<input type="checkbox"/> 2. Yes
--------------------------------	---------------------------------

Part 2: Cardiac Patient Learning Support Inventory, Nurse Version (CPLSI-Nurse).

Instruction: The following statements are contents you may provide to your patients with MI before they discharge home. Please read each statement carefully and rate the degree of support you, as a nurse, has supported your patients, from 1 (= not supported) to 5 (= highly supported) by circling the number indicated. The more supported information means the more information you have provided to them.

Degree of support

Information you support to patients	Not supported	Somewhat supported	Moderately supported	Supported	Highly supported
<i>Anatomy & Physiology of heart (the function of the heart)</i>					
1. Why does patient have chest pain?	1	2	3	4	5
2. What the patient's heart looks like and how it works?	1	2	3	4	5
3.					
4.					
5.					
<i>Psychological concerns</i>					
6.The normal psychological response to having a heart attack?	1	2	3	4	5
7.					
8.					
9.					
<i>Risk factor</i>					
10. What the term 'risk factor' means?	1	2	3	4	5
11.					
12.					
13.					
<i>Medication information</i>					
14. The general rules about taking medications	1	2	3	4	5

Information you support to patients	Not supported	Somewhat supported	Moderately supported	Supported	Highly supported
15.					
16.					
17.					
18.					
<i>Dietary information</i>					
19. The general rules about healthy diet	1	2	3	4	5
20.					
21.					
22.					
23.					
<i>Physical activity information</i>					
24. Why is patient not able to do as much physically as he/she was before he/she had his/her heart attack?	1	2	3	4	5
25.					
26.					
27.					
28.					
<i>Symptom management</i>					
29. What are the different causes and varieties of chest pain?	1	2	3	4	5
34.					
<i>Miscellaneous information</i>					
35. How to take the patient's pulse?	1	2	3	4	5
36.					
37.					
38. When does patient can return to work ?	1	2	3	4	5

Please indicate if you have given any other information to your patients not listed above

.....
.....
.....

Thank you for your cooperation

APPENDIX D

Effect Size Calculation

$$ES = \frac{M2 - M1}{Pooled\ SD}$$

ES= Effect size

M1=Mean score of nurses perception

M2=Mean score of families perception

SD=Standard Deviation

SD1=Standard Deviation of nurses perception

SD2=Standard Deviation of families perception

$$\begin{aligned} \text{Pooled SD} &= \frac{\sqrt{(SD1)^2 + (SD2)^2}}{2} \\ &= \sqrt{(2.13)^2 + (2.64)^2 / 2} \\ &= \sqrt{4.54 + 6.97 / 2} \\ &= \sqrt{\frac{11.51}{2}} \\ &= \sqrt{5.75} \\ &= 2.4 \end{aligned}$$

$$\begin{aligned} \text{Effect size} &= \frac{M2 - M1}{Pooled\ SD} \\ &= \frac{26.55 - 25.54}{2.4} \\ &= \frac{1.01}{2.4} = 0.42 \end{aligned}$$

APPENDIX E

PERMISSION FOR USE OF THE INSTRUMENT

To: Peggy Gerard <Psgerald@purduecal.edu>

Date: Fri, May 24, 2013 at 9:39 AM

Subject: To get original Cardiac Patient Learning Needs Inventory (CPLNI) with permission for use this tool in study

Mailed-by: gmail.com

Dear Madam (Prof. Dr. Peggy S. Gerard),

Good morning. This letter is asked your kindly permission of using the Cardiac Patient Learning Need Inventory for my master degree study in Nursing. I am Robina Sultana, from Bangladesh. Now I am studying at Prince of Songkla University in Thailand. Currently I am conducting a research study titled "Patients' Discharge Information Need and Nurses' Discharge Information Support regarding Myocardial Infarction in Bangladesh". I may revise some items of your tool to fit with situations in Bangladesh as well.

Hopefully, I will be really grateful if you can help me by sending your original tool and grant me the permission. I am looking forward to hearing from you. Thank you so much.

Sincerely

Robina Sultana

Masters student

Prince of Songkla University

From: Peggy Gerard <Psgerald@purduecal.edu>

To: "robinasultana79@gmail.com" <robinasultana79@gmail.com>

Date: Mon, Jun 10, 2013 at 11:35 PM

Subject: Permission to use CPLNI

Mailed-by: purduecal.edu

Dear Robina:

Thank you for your interest in my research on “Learning Needs of Cardiac Patients.” I’ve enclosed a copy of the CPLNI as you requested. You have my permission to duplicate this tool and revise it if necessary to use in your study. Information on the reliability and validity of these tools is provided in my article in Cardiovascular Nursing and in an article by Karlik in Heart & Lung.

If you decide to use this instrument, I ask that you send me a summary of the results of your study including demographic information on your sample and results of reliability/validity statistics you obtain. In addition, I would like to receive a copy of any changes you make to the survey instrument. If you have any questions you may call me at (219) 989-2821 or write me at Purdue University using the address listed on the bottom this sheet.

I wish you success with your research study.

Yours truly,

Dr. Gerard

Peggy S. Gerard, PhD, RN

Dean and Professor

School of Nursing

Purdue University Calumet

Hammond, IN 46323

(219)989-2818 phone

(219)989-2848 fax

3 attachments — [Download all attachments](#)

[Cardio Vascular Nursing Learning Needs of Cardiac Patients.pdf](#)

762K [View](#) [Download](#)

[Heart and Lung Learning Needs of Cardiac Patients.pdf](#)

1010K [View](#) [Download](#)

[CARDIAC PATIENTS LEARNING NEEDS INVENTORY_05.doc](#)

108K [View](#) [Download](#)

APPENDIX F

Additional Items Analysis

Table 14

The Difference of Mean Scores of MI Patients' Discharge Information Needs (n = 130) and Nurses (n = 120) Discharge Information Support

Items of discharge information needs	<i>M</i>	Items of discharge information support	<i>M</i>	<i>Mean Diff.</i>
<i>Anatomy and physiology</i>		<i>Anatomy and physiology</i>		
1. Why do I have the chest pain?	4.41	1. Why does patient have chest pain?	3.35	1.06
2. What does my heart look like and how it works?	3.78	2. What the patient's heart looks like and how it works?	2.65	1.13
3. What are the causes of a heart attack?	4.57	3. What are the causes of a heart attack?	3.47	1.1
4. What happens when someone has a heart attack?	4.08	4. What happens when someone has a heart attack?	3.25	.83
5. How long does the damaged heart muscle take to heal?	4.66	5. How long does the damaged heart muscle take to heal?	2.78	1.88
<i>Psychological concerns</i>		<i>Psychological concerns</i>		
6. The normal psychological response to having a heart attack.	3.62	6. The normal psychological response to having a heart attack?	3.04	.58
7. The importance to talk to someone about my fears, feeling and thoughts.	3.64	7. The importance to talk to someone about the patient's fears, feelings and thoughts.	3.01	.63

Table 14 (Continued)

Items of discharge information needs	<i>M</i>	Items of discharge information support	<i>M</i>	<i>Mean Diff.</i>
8. What is the effect of stress has on heart?	4.15	8. What is the effect of stress has on the patient's heart?	3.20	.95
9. What can I do to reduce stress in my life?	4.75	9. What can patient does to reduce stress in his/her life?	3.61	1.14
<i>Risk factors</i>		<i>Risk factor</i>		
10. What does the term 'risk factor' mean?	2.98	10. What the term 'risk factor' means?	2.73	.25
11. Which risk factors may have contributed to the onset of my heart attack?	4.40	11. Which risk factors may have contributed to the onset of the patient's heart disease?	3.50	.90
12. What can I do to decrease my chances of having another heart attack?	4.82	12. What the patient can do to decrease his/her chances of having another heart attack	3.93	.89
13. How do these risk factors affect my heart?	4.50	13. How these risk factors affect patient's heart?	3.56	.94
<i>Medication information</i>		<i>Medication information</i>		
14. The general rules about taking medications	4.86	14. The general rules about taking medications	4.65	.21
15. Why am I taking each of my medication?	4.70	15. Why is patient taking each of his/her medications?	4.29	.41
16. When should I take each of my medication?	4.99	16. When patient should take each of his/her medications?	4.63	.36
17. What are the consequences of taking each medication?	4.58	17. What are the consequences of taking each medication?	3.77	.81
18. What to do if I have undesired consequences from my medication?	4.96	18. What to do if the patient has undesired consequences from his/her medication?	3.74	1.22

Table 14 (Continued)

Items of discharge information needs	<i>M</i>	Items of discharge information support	<i>M</i>	<i>Mean Diff</i>
<i>Dietary information</i>		<i>Dietary information</i>		
19. The general rules about healthy diet	4.65	19. The general rules about healthy diet	4.26	.39
20. How does diet affect my heart disease?	4.62	20. How does diet affect the patient's heart disease?	3.79	.83
21. What do the words cholesterol and triglycerides mean?	3.50	21. What do the words cholesterol and triglycerides mean?	2.77	.73
22. What foods contain cholesterol and triglycerides?	4.90	22. What foods contain cholesterol and triglycerides?	3.85	1.05
23. What are my diet restrictions, if any ?	4.98	23. What are patient's diet restrictions, if any ?	4.38	.60
<i>Physical activity information</i>		<i>Physical activity information</i>		
24. Why am I not able to do as much physically as I was before I had my heart attack?	3.85	24. Why is patient not able to do as much physically as he/she was before he/she had his/her heart attack?	3.12	.73
25. The general guidelines for physical activities after heart attack	4.46	25. The general guidelines for physical activities after heart attack	3.36	1.1
26. What are my physical activity restrictions, if any?	4.73	26. What are patient's physical activity restriction, if any?	3.99	.74
27. How to tell if I can increase my activity?	4.45	27. How to tell if the patient can increase his/her activity?	3.18	1.27
28. When can I engage in sexual activity?	3.87	28. When can patient engage in sexual activity?	3.18	.69
<i>Symptom management</i>		<i>Symptom management</i>		
29. What are the different causes and varieties of chest pain?	4.51	29. What are the different causes and varieties of chest pain?	3.44	1.07

Table 14 (Continued)

Items of discharge information needs	M	Items of discharge information support	M	Mean Diff
30. What to do if I have chest pain?	4.84	30. What to do if the patient have chest pain?	4.23	.61
31. What are the signs and symptoms of angina and a heart attack?	4.73	31. What are the signs and symptoms of angina and a heart attack?	3.35	1.38
32. When to visit the doctor?	4.89	32. When to visit the doctor?	4.43	.46
33. In what sort of cases can I most likely to have chest pain?	4.89	33. In what sort of cases can patient most likely to have chest pain?	3.82	1.07
34. When and how to use Nitroglycerin spray and tablets?	4.94	34. When and how to use Nitroglycerin spray and tablets?	4.56	.38
<i>Miscellaneous information</i>		<i>Miscellaneous information</i>		
35. How to take my pulse?	3.18	35. How to take the patient's pulse?	2.74	.44
36. What tests and investigations will be done after discharge from hospital?	4.40	36. What tests and investigations will be done after discharge from hospital?	3.73	.67
37. The reason for further testing (e.g. lab, EKG etc) after I go home?	4.22	37. The reason for further testing (e.g. lab, EKG etc) after patient go home?	3.81	.41
38. When can I return to work?	4.18	38. When does patient can return to work?	4.03	.15

APPENDIX G

List of Experts

Three experts who validated the content validity of MCPLNI-Patient and CPLSI-Nurse questionnaire were:

1. Assist. Prof. Dr. Ploenpit Thaniwattananon
Faculty of Nursing Prince of Songkla University, Thailand
2. Miss. Uma Jantawises, APN, RN
Critical Care Unit, Songklanagarind Hospital, Thailand
3. Assist. Prof. Dr. Kazol Kumar Karmaker
National Institute of Cardiovascular Diseases and Hospital, Dhaka,
Bangladesh

APPENDIX G

VITAE

Name Robina Sultana

Student ID 5510420025

Educational attainment

Degree	Name of institution	Year of graduation
Bachelor of Nursing Science	College of Nursing, University of Dhaka, Bangladesh	2006

Scholarship Awards during Enrollment

2012-2013 Scholarship for the Degree of Master of Nursing Science (International Program), Faculty of Nursing, Prince of Songkla University, Hat Yai, Thailand, Funded by the Ministry of Health and Family Welfare, Government of the People's Republic of Bangladesh

Work position and Address

Senior Staff nurse

National Institute of Cardiovascular Diseases and Hospital, Sher-e-Bangla Nagar, Dhaka 1207, Bangladesh. Cell phone +8801670668484.

Email: robinasultana79@gmail.com