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EFFECT OF NURSE FOLLOW-UP DIETARY INTERVENTION (NFDI) ON DIETARY BEHAVIOUR AND DISEASE RELATED KNOWLEDGE AMONG POST MYOCARDIAL INFARCTION PATIENTS IN HONG KONG: A RANDOMIZED CONTROLLED TRIAL

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MSc in HEALTH CARE (NURSING)
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2009
STATEMENT OF SOURCES

The idea of the present investigation and planning of the experiments resulted from the discussion between the author, Dr. Alice TSANG and Dr. Janet SIT.

I hereby declare that this thesis is my own work and that, to the best of my knowledge and belief, it reproduces no materials previously published or written, nor material that has been accepted for the award of any other degree or diploma, except where due acknowledgement has been made in the text.

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MOK KI FUNG VINCENT
2009
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Abstract

Title: Effect of nurse follow-up dietary intervention (NFDI) on dietary behaviour and disease related knowledge in post Myocardial Infarction patients in Hong Kong: A randomized controlled trial

Aim  The aim of this study was to examine the effects of a nurse led follow-up dietary intervention programme on dietary modification behaviour, knowledge level of myocardial infarction and coronary artery disease, and physiological risk parameters in patients with coronary artery disease in Hong Kong.

Design Methods  A randomized controlled trial was conducted. Coronary artery disease patients with diagnosed myocardial infarction (n=82) who met the sampling criteria in a regional hospital, were randomly assigned to either an intervention group (the Nurse Follow-Up Dietary Intervention – (NFDI) + conventional treatment or control group (the conventional treatment). The knowledge of coronary artery disease risk factors identification, dietary modification behaviour and blood lipid profile were assessed to evaluate the programme effect. Data collection was conducted at the baseline (T1), 1 week post intervention (T2), and 3 months post intervention (T3).

Results  Patients in the intervention group demonstrated a significantly a better dietary modification behaviour in a reduction in high fat and high salt intake and increased consumption of Mediterranean type diet. The majority of these impacts were maintained at 3 months after the intervention. The effects of the programme on the knowledge level of myocardial infarction and lipid profile were not confirmed.

Conclusion  A nurse led follow-up dietary intervention programme does have a positive impact on patients with coronary artery disease. Through participating in the NFDI rehabilitation programme, coronary artery disease patients after myocardial
infarction demonstrated significantly better dietary behaviour and sustained 3 months after the intervention. Although the majority of the lipid profile did not show significant difference between control and intervention group, the increase in cardiac-protective factors-High Density Lipoproteins is an encouraging sign for further studies.

**Relevance to clinical practice**

This study raises the attention of the importance of nurse roles in cardiac rehabilitation. This study might generate momentum and right direction for the development of evidence-based cardiac rehabilitation nursing in Hong Kong.
# Table of Content

<table>
<thead>
<tr>
<th>Chapter One</th>
<th>1 - 7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td>1 - 7</td>
</tr>
<tr>
<td>1.1 Introduction</td>
<td>1 - 5</td>
</tr>
<tr>
<td>1.2 Objectives of the Study</td>
<td>5</td>
</tr>
<tr>
<td>1.3 Hypothesis of the Study</td>
<td>6</td>
</tr>
<tr>
<td>1.4 Research Questions</td>
<td>6</td>
</tr>
<tr>
<td>1.5 Significance of the Study</td>
<td>6 - 7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter Two</th>
<th>8 - 24</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Literature Review</strong></td>
<td>8</td>
</tr>
<tr>
<td>2.1 Coronary Artery Disease (CAD)</td>
<td>8 - 9</td>
</tr>
<tr>
<td>2.2 Cardiac Rehabilitation Programme (CRP)</td>
<td>9 - 12</td>
</tr>
<tr>
<td>2.3 Risk factors of CAD and AMI</td>
<td>12 - 16</td>
</tr>
<tr>
<td>2.4 The role of diet in CAD risk reduction and prevention</td>
<td>16 - 21</td>
</tr>
<tr>
<td>2.5 Dietary Intervention in Cardiac Rehabilitation</td>
<td>21 - 24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter Three</th>
<th>25 - 37</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Method</strong></td>
<td>25</td>
</tr>
<tr>
<td>3.1 Research Design</td>
<td>25</td>
</tr>
<tr>
<td>3.2 Setting</td>
<td>27</td>
</tr>
<tr>
<td>3.3 Sampling</td>
<td>27</td>
</tr>
<tr>
<td>3.3.1 Sampling Method and Subject Selection Criteria</td>
<td>27</td>
</tr>
<tr>
<td>3.3.2 Inclusion Criteria</td>
<td>27 - 28</td>
</tr>
<tr>
<td>3.3.3 Exclusion Criteria</td>
<td>28</td>
</tr>
<tr>
<td>3.3.4 Sample Size Estimation</td>
<td>28 - 29</td>
</tr>
<tr>
<td>3.5 Data Collection Procedure</td>
<td>29 - 31</td>
</tr>
<tr>
<td>3.6 Outcome Measures</td>
<td>31</td>
</tr>
<tr>
<td>3.6.1 Eating Behaviour: The Eating Habit Assessment Scale</td>
<td>31 - 32</td>
</tr>
<tr>
<td>3.6.2 Lipid Profile Analysis</td>
<td>32 - 33</td>
</tr>
<tr>
<td>3.7 Validity and Reliability of Questionnaires</td>
<td>33</td>
</tr>
<tr>
<td>Section</td>
<td>Title</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>3.8</td>
<td>Ethical Considerations</td>
</tr>
<tr>
<td>3.9</td>
<td>Data Analysis</td>
</tr>
<tr>
<td>3.10</td>
<td>Description of Intervention</td>
</tr>
<tr>
<td>3.10.1</td>
<td>Content of NFDI</td>
</tr>
<tr>
<td>3.10.2</td>
<td>Delivery Mode</td>
</tr>
<tr>
<td></td>
<td>(i) A small group session</td>
</tr>
<tr>
<td></td>
<td>(ii) Telephone follow-up</td>
</tr>
<tr>
<td>3.11</td>
<td>Dietary Consultation after MI (Conventional treatment)</td>
</tr>
<tr>
<td></td>
<td><strong>CHAPTER FOUR</strong></td>
</tr>
<tr>
<td>4.1</td>
<td>Demographic and Clinical Characteristic</td>
</tr>
<tr>
<td>4.2</td>
<td>Knowledge level of CAD risk factors</td>
</tr>
<tr>
<td>4.3</td>
<td>Results on Dietary behaviour pattern – High-Fat Consumption</td>
</tr>
<tr>
<td>4.4</td>
<td>Results on Dietary behaviour pattern – High Salt Consumption</td>
</tr>
<tr>
<td>4.5</td>
<td>Results on Dietary behaviour pattern – Mediterranean-type diet</td>
</tr>
<tr>
<td>4.6</td>
<td>Results on CAD Risk factors – Systolic Blood Pressure (SBP)</td>
</tr>
<tr>
<td>4.7</td>
<td>Results on CAD Risk factors – Diastolic Blood Pressure (DBP)</td>
</tr>
<tr>
<td>4.8</td>
<td>Results on CAD Risk factors – Body Mass Index (BMI)</td>
</tr>
<tr>
<td>4.9</td>
<td>Results on CAD Risk factor – Lipid Profile</td>
</tr>
<tr>
<td></td>
<td><strong>CHAPTER FIVE</strong></td>
</tr>
<tr>
<td>5.1</td>
<td>Knowledge Level of CAD risk factors</td>
</tr>
<tr>
<td>5.2</td>
<td>Dietary Behaviour</td>
</tr>
<tr>
<td>5.3</td>
<td>CAD Risk Factors</td>
</tr>
<tr>
<td>5.3.1</td>
<td>Blood Pressure</td>
</tr>
<tr>
<td>5.3.2</td>
<td>Body Mass Index</td>
</tr>
<tr>
<td>5.3.3</td>
<td>Lipid Profile</td>
</tr>
<tr>
<td>5.4</td>
<td>Telephone Follow-Up</td>
</tr>
<tr>
<td>5.5</td>
<td>Implications for Practice</td>
</tr>
<tr>
<td>5.6</td>
<td>Limitations and Recommendations for Future Studies</td>
</tr>
<tr>
<td>Section</td>
<td>Title</td>
</tr>
<tr>
<td>---------</td>
<td>---------------------</td>
</tr>
<tr>
<td>5.7</td>
<td>Conclusion</td>
</tr>
<tr>
<td>REFERENCES</td>
<td></td>
</tr>
<tr>
<td>APPENDIX A</td>
<td></td>
</tr>
<tr>
<td>APPENDIX B</td>
<td></td>
</tr>
<tr>
<td>APPENDIX C</td>
<td></td>
</tr>
<tr>
<td>APPENDIX D</td>
<td></td>
</tr>
<tr>
<td>Table</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>4.1</td>
<td>Demographic and clinical characteristics</td>
</tr>
<tr>
<td>4.2a</td>
<td>Comparison of knowledge level of respective CAD groups</td>
</tr>
<tr>
<td>4.2b</td>
<td>Comparison of knowledge level of CAD within group</td>
</tr>
<tr>
<td>4.3a</td>
<td>Comparison of high fat consumption between groups</td>
</tr>
<tr>
<td>4.3b</td>
<td>Comparison of high fat consumption within group</td>
</tr>
<tr>
<td>4.4a</td>
<td>Comparison of high salt between groups</td>
</tr>
<tr>
<td>4.4b</td>
<td>Comparison high salt consumption within group</td>
</tr>
<tr>
<td>4.5a</td>
<td>Comparison of Mediterranean-type diet consumption between groups</td>
</tr>
<tr>
<td>4.5b</td>
<td>Comparison of Mediterranean-type diet consumption within group</td>
</tr>
<tr>
<td>4.6a</td>
<td>Comparison of CAD risk factor-SEP between groups</td>
</tr>
<tr>
<td>4.6b</td>
<td>Comparison of CAD risk factor-SBP with group</td>
</tr>
<tr>
<td>4.7a</td>
<td>Comparison of CAD risk factor-DBP between group</td>
</tr>
<tr>
<td>4.7b</td>
<td>Comparison of CAD risk factor-DBP within group</td>
</tr>
<tr>
<td>4.8a</td>
<td>Comparison of CAD risk factor-BMI between group</td>
</tr>
<tr>
<td>4.8b</td>
<td>Comparison of CAD risk factor-BMI within group</td>
</tr>
<tr>
<td>4.9a</td>
<td>Comparison of CAD risk factor lipid profile within group</td>
</tr>
<tr>
<td>4.9b</td>
<td>CAD risk factors-Comparison of lipid profile group</td>
</tr>
<tr>
<td>10</td>
<td>Dropout Vs completers on demographic variables</td>
</tr>
</tbody>
</table>
# List of Figures

| Figure 3.1 | The study flow | 26 |
| Figure 4.1 | Subjects allocation and flow chart | 39 |
| Figure 4.2a | Knowledge level comparison | 41 |
| Figure 4.3 | Eating habit comparison (high fat consumption) | 43 |
| Figure 4.4a | Eating habit comparison (high salt consumption) | 44 |
| Figure 4.5 | Eating habit comparison (Mediterranean type diet) | 46 |
| Figure 4.6 | CAD risk factor comparison-SBP | 47 |
| Figure 4.7 | CAD risk factor comparison-DBP | 49 |
| Figure 4.9 | CAD risk factor comparison-HDL | 52 |
CHAPTER ONE

INTRODUCTION

The first chapter presents an overview and rationales of this study, including the background and significance of the selected research topic, objectives of the study, research questions and significance of the study.

1.1 Introduction

Coronary artery disease was reported to be the second leading cause of death between 1961-1998 (Census and Statistics Department, 2000). In 1999, there were 7.1 million deaths caused by coronary artery disease all over the world (WHO, 2002, 2003, as cited by American Heart Association, 2004). In 2000, there were 5,313 deaths caused by cardiac disease in every 100,000 people in Hong Kong. Coronary artery disease is demonstrated by angiographic confirmation of coronary artery lumen narrowing and has clinical manifestations such as angina, unstable angina and myocardial infarction, among which acute myocardial infarction is on an increasing trend in Hong Kong (Lam, Gandek & Chan, 1998). Among the different categories of coronary artery diseases, acute Myocardial Infarction (MI) is one of the major categories reported to be increasing in Hong Kong. Despite great efforts have been put into primary prevention and management, coronary artery disease (CAD) remains the leading health problem and major cause of disability and death in many countries.
In China, as in America, CAD ranks as the leading cause of death, claiming 2.6 million lives per year, more than double the number of Americans who die of CAD each year (Zhao, 2001). Increasing prevalence of major CAD risk factors are a significant public health challenge in China.

Data from a prospective study conducted in 11 Chinese provinces showed that the incidence of CVD increased significantly when low-density lipoprotein (LDL) cholesterol was >2.6 mmol/L, and that nearly 60% of events occurred at what is currently described as a “desirable” level of LDL cholesterol (Liu, Zhao, Qin, Wang, Wu, Zeng, Wang & Wu, 2001). The study suggested that a major step to prevention is to develop national guidelines for treatment of cholesterol based on the distribution of risk levels of the Chinese population.

Secondary prevention is of clinical importance for people with existing coronary artery disease. This was highlighted by the observation in the secondary prevention trial conducted by Roussouw (1990) that cardiovascular events accounted for 75% of the observed mortality in individuals after myocardial infarction. Contemporary cardiac rehabilitation targets at prevention of major morbid and fatal events, such as recurrence of angina pectoris, myocardial infarction, or sudden death associated with coronary artery disease through risk factor identification and modification (McMurray, 1998). Recent studies have shown that coronary artery disease mortality is directly related to serum cholesterol (Criqui, 2000). In line with this, Feher (2003) conducted a review on secondary prevention of coronary heart disease by focusing on the role of lipid lowering agents in delaying the progression of the clinical and angiographic findings in patients with existing coronary heart disease. He concluded the benefit of treating
plasma lipids was one of the key factors in retarding the progression of clinical atherosclerotic disease (Feher, 2003).

Given the proliferation of pharmacological treatment for hyperlipidaemia, lifestyle modification remains the cornerstone of secondary cardiac prevention. The Adult Treatment Panel (ATPIII) guidelines advocate therapeutic lifestyle change in diet and exercise for lipid-related risk reduction in patients with coronary artery disease (Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults, 2001). Previous research studies have examined the relationship of diet and the development of coronary artery disease. But the findings are inconsistent. Small but statistically significant differences in dietary intake may be suggestive, but the extent to which such statistical relationships in the development of coronary artery disease is uncertain (Levy, Rifkind, Dennis & Ernst, 1979). However, the American Heart Association’s Lyon Diet Heart Study (2006), identified the clinical significance of Mediterranean-type diet on cardiovascular health, particularly coronary artery disease. The results broadened our understanding on dietary elements and its relationship with secondary prevention for coronary artery disease. Apart from the commonly understood dietary risk factors such as lipids and lipoproteins (cholesterol), omega-3 fatty acids exert cardioprotective effects in many ways. Their findings on reduction in coronary recurrence rates, even though lipid and lipoprotein risk factors were comparable, clearly pointed to other dietary factor changes (that was omega-3 fatty acids) as major influences in the progression of coronary artery disease.
The scientific advisory committee of the American Heart Association (AHA) has stated that a Mediterranean-type diet has impressive effects on the progression of cardiovascular disease. Significant findings from the Lyon Diet Heart Study have prompted an aggressive pursuit of the benefits of such dietary modifications in other regions of the world (Lorgeril, Martin, Monjaud, Delaye & Mamelle, 1999). If the Lyon diet is also of benefit in non-Mediterranean populations, such as south-Asians, it might provide an economically feasible and realistic method to reduce CAD in these regions. The AHA statement (Etherton, Eckel & Howard, 2001) raised some issues for investigators: geographical and non-measured cultural and social differences in potential target populations; enhanced definition of baseline diets of both trial groups at the beginning of the study; enhanced and continuing analysis of true dietary patterns throughout studies; and an assessment of any changes in combined risk factors during the study. As a result, this study assessed the effects of a nurse follow-up dietary intervention focusing on Mediterranean diet fusion with Cantonese cuisine targeting post MI patients’ dietary behaviour and lipid profile as well as the CAD risk factors identification in Hong Kong.

Dietary behaviour is a crucial contributor to increase the risk of acute myocardial infarction (Stampfer, Hu, Manson, Rimm & Willett, 2000). Unfortunately, high-quality nutritional counseling services are scarce (Haughton, Story & Keir, 1998). Marcason (2006) studied staffing ratios in pediatric hospitals in the United States and Canada and found that staffing ranged widely from 1:24 to 1:159. There is no validated staffing ratio model that is universally accepted. Every hospital or facility is different, with unique needs and challenges. As a result, dietary interventions are on demand that can make use of other health care providers to
extend the services of nutritionists focusing on cardiac rehabilitation participation. However, there are many barriers to the delivery of nutrition services by public health nurses, such as lack of time, limited training in nutrition, low self-efficacy regarding lifestyle change counseling, and inadequate assessment and intervention materials (Wilt, Hubbard & Thomas, 1990).

Participation in cardiac rehabilitation has been recommended as part of the standard care for coronary artery disease patients. Nursing attention is strongly focused to formulate a comprehensive and practical cardiac rehabilitation programme so as to empower cardiac patients in self-care management for secondary prevention. However, compared with the substantial evidences of positive health outcome from the exercise intervention for cardiac rehabilitation, the effect of dietary intervention in risk reduction for cardiac rehabilitation has not been adequately examined. Currently available evidences have been inconsistent, partly due to the methodological variations or variation in outcome measures. In addition, eating habit and food preference vary among different cultural and socioeconomic groups. Therefore, there is a need to explore an applicable, accessible and culturally relevant dietary intervention for secondary prevention in cardiac rehabilitative patients.

1.2 Objective of the Study

The objective of this randomized controlled trial is to examine the effects of Nurse Follow-up on Dietary Intervention (NFDI) on post MI patients in regard to
their knowledge on Coronary Artery Disease (CAD) risk factors, their dietary modification behaviour and serum lipid level.

1.3 Hypothesis of the Study

The intervention group will have a better knowledge level of CAD risk factors; better dietary behaviour and better blood lipid level than the control group after NFDI.

1.4 Research Questions

(1) Is there any difference in the knowledge level of CAD risk factors between the control group and intervention group?

(2) Is there any difference in the dietary behaviour between the control group and intervention group?

(3) Is there any difference in the blood lipid level between the control group and intervention group?

1.5 Significance of the Study

The significance of this study is to throw light on the effectiveness of a nurse-led cardiac rehabilitative intervention programme on patients with coronary artery disease and suffered from myocardial infarction in Hong Kong. In line with the
shift of direction from a clinician-led model to a client empowerment model, this study will help address the role of rehabilitative nursing on promoting self-care and self-management for coronary artery disease with a focus on dietary modification.

It is hoped that the study can serve as a starting point to raise nurses’ concern and draw their attention to the importance of secondary prevention in cardiac rehabilitation, as well as providing a direction for the development of cardiac rehabilitation nursing in Hong Kong.

This chapter provides a broad overview of this study and its justifications. The next chapter contains a review of the literature on coronary artery disease, cardiac rehabilitation, coronary artery disease risk factors, dietary management and nursing intervention. Chapter 3 addresses the methodological issues of this study, with the results and findings detailed in Chapter 4. Chapter 5 divided into 3 parts. The first part presents a discussion of the results by focusing on the research questions which are examined with reference to past studies and literature. The second part discusses the implications of this study. The third part presents the limitations and recommendations set out for future studies. Eventually, ends up with the conclusion.
CHAPTER TWO

LITERATURE REVIEW

The review of literature in this chapter is divided into 5 parts: (i) the introduction of coronary artery disease (CAD), (ii) cardiac rehabilitation programme (CRP), (iii) risk factors of CAD and acute myocardial infarction (AMI), (iv) the role of diet in CAD risk reduction and prevention, and (v) dietary intervention in cardiac rehabilitation.

2.1 Coronary artery disease (CAD)

Coronary artery disease (CAD) is the narrowing of the coronary arteries because of atherosclerosis that affects the supply of blood and oxygen to the heart (Haslett, Chilvers, Boon, Colledge & Hunter, 2002). There is no question that coronary atherosclerosis is the prerequisite for CAD development. The cause is still unclear, but the epidemiological evidence points to a number of factors that predispose coronary arteries to the development and progression of atherosclerosis.

Coronary artery disease is a major source of mortality and morbidity in Hong Kong. Heart disease has been the second leading cause of death for two decades in Hong Kong (Department of health, 2006a). Among the various types, acute myocardial infarction (AMI) is the major entity constituting the mortality (Department of Health, 2006b).
A territory based Acute Myocardial Infarction (AMI) registry has been audited in 1995-1996 in Hong Kong. From the registry, a total of 3,334 AMI patients were registered in these two years with the incidence rate 51.3 per 100,000 (Census and Statistics Department, 2000). This high prevalence of AMI in the Hong Kong population signifies the increased demand for health services delivery and at the same time elicits huge expenditure in medical and health services.

The multi-faceted etiology of coronary disease has been amply documented and repeatedly emphasized. The American Heart Association statement on “Risk Factors and Coronary Disease” (AHA, 2005) describes the factors known to be associated with the risk of future coronary disease. Many of these risk factors are amenable to change and some (hyperlipidaemia, diabetes, obesity) to dietary modification.

2.2 Cardiac Rehabilitation Programme (CRP)

In the 1930s, patients who had myocardial infarction were advised to observe 6 weeks of bed rest. Chair therapy was introduced in the 1940s. By the early 1950s, 3 to 5 minutes of daily walking was advocated, beginning 4 weeks after the event. Clinicians gradually began to recognize that early ambulation avoided many of the complications of bed rest, including pulmonary embolism. Concerns about the safety of unsupervised exercise remained strong and led to the development of structured physician-supervised rehabilitation programmes that included electrocardiography (ECG) monitoring. In the 1950s, Hellerstein established one of the first Cardiac Rehabilitation (CR) programmes for patients
rerecovering from acute cardiac events. He advocated a multidisciplinary approach to the rehabilitation programme (Singh, Schocken, Williams, 2006).

Cardiac Rehabilitation is much more than simply exercise. It is a medically based programme in which patients are provided with medical evaluation, prescribed exercise regimen, education and counselling on cardiovascular disease (CVD). Individuals who do not have heart disease may also participate in a CR programme to be educated on heart disease prevention and maintenance of a heart healthy lifestyle.

Cardiac Rehabilitation provides both comprehensive and individualized plans of care. Short-term goals include sufficient reconditioning to allow resumption of customary activities, limiting the physiologic and psychological effects of heart disease, decreasing the risk of sudden cardiac arrest or re-infarction, and controlling the symptoms of cardiac disease. Long-term goals include identification and treatment of risk factors, stabilizing or even reversing the atherosclerotic process, and enhancing the psychological status of the patients (Singh, Schocken, Williams, et al. 2006).

A Cardiac Rehabilitation Programme (CRP) is defined by the World Health Organization (2003) as “the sum of activities required to influence favourably the underlying cause of the disease, as well as to ensure the patients the best possible physical, mental and social conditions so that they may, by their own efforts, preserve or resume when lost, as normal a place as possible in the community” (Lau & Young, 2000). CRP should involve interventions not only on the physical
aspect but also the social and psychological aspects and this is perceived ideally as the most effective mode. Although different clinicians adopted different approaches in CRP with some prefers strong psychological components whereas others were supportive to pure education to maximize patient compliance. It remains sceptical to some clinicians if education alone would modify patients’ behaviour successfully because patients might not follow and comply with the advice after listening to the talks (Jones & West, 1995).

The goal of cardiac rehabilitation is to provide the patients and their family with educational opportunities, the ability to take care of themselves at home, and the ability to make positive decisions about their health (Wenger & Hellerstein, 1978). Hospital discharge can be a time of significant patient dissatisfaction, as patients transition to a new environment and are expected to understand and recall complex medications and other instructions despite feeling unwell and being under stress. One mechanism that may improve patient satisfaction and clinical outcomes at the time of discharge is the use of follow-up telephone calls (Dudas, Bookwalter, Kerr & Pantilat, 2002). According to DeBusk and team (1994) telephoning acute myocardial infarction patients after their discharge has shown to increase smoking cessation rates. Therefore, making phone calls is considered one of the elements for promoting NFDI.

Heart-healthy diet is a major topic that is covered in a cardiac rehabilitation programme. Choosing low-fat, low-cholesterol and low-sodium foods and taking in more fresh fruits and vegetables, whole-grain bread and pastas, low-fat dairy products, and lean cuts of meat, fish, and poultry need to be discussed. Basic information about saturated, polyunsaturated and monounsaturated fats need to be
reviewed (Barron & Schnatuz, 2008). Patients are taught to read labels for fat, cholesterol, and sodium content. Visual aids such as the food guide pyramid and using the palm of the hand as a measure for portion control are helpful resources.

Hu & Willett (2002) suggested that participation in cardiac rehabilitation improved the quality of life of clients with coronary heart disease. On the other hand, a multi-faceted cardiac rehabilitation programme for obese CAD patients only resulted in a significant change in HDL, but not in TG, TC, and LDL (Lavie & Milani, 1995). Similarly, one study showed exercise training and intensive dietary intervention reduced the participants’ body weight by 4.5kg at one year time, blood lipids remained unchanged except for TG (Nikolaus, Schlierf, Vogel, Schuler & Wagner, 1991).

Another study in Hong Kong reported a significant improvement in LDL and HDL, but not in TC and TG, among patients participating in a cardiac rehabilitation programme of exercise training plus education on risk factor modification (Yu, Li, Ho & Lau, 2003). Apart from the effect of a cardiac rehabilitation programme on physiological blood result, the influence on diet modification among cardiac rehabilitation patients has not been reported.

2.3 Risk factors of CAD and AMI

Non-modifiable cardiac risk factors include increasing age, male gender, and heredity (Haslett et al., 2002). Symptomatic coronary artery disease appears in people over 40 years old. In the United States of America, about four out of five
people who die of CAD are 65 years or older (Grundy, Pasternak, Greenland, Smith & Fuster, 1999).

Cigarette smoking, dietary habits and serum dyslipidaemia, high blood pressure, physical inactivity and overweight, and diabetes mellitus constitute the major cardiac risk factors but are modifiable (Humes, Dupont, Harris, Hazzard, King, Loriaux, Nabel, Todd & Traber, 2000). A study reported that an insignificant one-year cessation rate of 50% compared to 29% in the usual care group among MI patients attended a coronary lifestyle modification programme (Carlsson, Lindberg, Westin & Israelsson, 1997). In that study patients did not have a particular smoking cessation programme during their hospital stay and were just informed about the effects of smoking as part of general risk factor education.

Another study of Williems, Hunt & Schorling (1997) found that cholesterol level is linked to smoking in African Americans. In the study, smoking more than 10 cigarettes per day was found to be associated with significantly lower level of high density lipoproteins (HDLs) and significantly higher level of total cholesterol (TG) in women. Also, study revealed that men smoke more than 10 cigarettes per day had a significantly higher systolic blood pressure than non-smokers.

Hypertension afflicts nearly 50 million Americans (Humes et al., 2000). Recent evidence shows that hypertension precipitates CAD with an increased stress on vessel walls and an increased oxidant effect, which damages the endothelium and evokes the imbalance between the processes of vessel constriction and dilation,
vascular smooth muscle cell proliferation and antiproliferation, thrombosis and antithrombosis, and fibrinolysis and antifibrinolysis (Pepine, 1998).

Obese or overweight patients with or without known CAD who had normal myocardial perfusion single-photon emission computed tomography were at low cardiac death risk (<1%/year), similar to normal weight patients (Kang, Shaw, Hayes, Hachamovitch, Abidov, Cohen, Friedman, Thomson, Polk, Germano & Berman, 2006). The study showed that Body Mass Index (BMI) was not a suitable indicator for the mortality of CAD. On the other hand, extremes of body mass index were associated with lower long-term survival in patients with significant coronary disease. Revascularization, particularly with coronary bypass, was consistently associated with the best survival across the spectrum of body mass indexes (Turer, Mahaffey, Honeycutt, Honeycutt, Tuttle, Shaw, Sketch Jr., Smith, Califf & Alexander, 2009).

Dyslipidaemia, influenced by dietary fat and cholesterol intakes as well as genetic disposition, is linked to the development and progression of coronary heart disease. Epidemiological studies consistently demonstrated that low concentrations of cholesterol and LDL are inversely correlated with CHD incidence (Gordon & Rifkind, 1989; Ying, Li, Ren & Liu, 2003). It has been reported that CHD risk increases by 2% for each 1% increase in cholesterol among the middle-aged population, and decreased by 1.25% for each 1% decrease in LDL (Durrington, 2003). The underlying mechanism connecting cholesterol and LDL to atherosclerosis is not, as people traditionally think, a simple accumulation in the subendothelial matrix of blood vessels, but the associated modifications including lipolysis, proteolysis, and cholesterol oxides stimulate the endothelial cells to
produce pro-inflammatory molecules and exhibit a cytotoxic effect leading to endothelial damage, the formation of lipid core, plaque rupture, and subsequent thrombotic events (Wim & Mark, 2001). Each increase of 1mg/dl (0.03mmol/L) in the high-density lipoprotein cholesterol (HDL-C) level is associated with a 2-3% reduction in risk of future coronary heart disease (Gordon, Probstfield, Garrison, 1989). A low HDL-C [<40 mg/dl (1.03mmol/L)] counts as a major CHD risk factor, whereas a high HDL-C [>60mg/dl (1.54mmol/L)] is a negative (protective) risk factor (National Heart, Lung and Blood Institute, 2002).

Psychosocial factors such as depression and anxiety strongly influence the course of coronary artery disease. This is because psychosocial risk factors are highly prevalent and are associated with unhealthy lifestyles (Rozanski, Blumenthal, Davidson, Saab & Kubzansky, 2005). Although the efficacy of stand-alone psychosocial interventions remains unclear, both exercise and multifactorial cardiac rehabilitation with psychosocial interventions have demonstrated a reduction in cardiac events. These efforts are part of an emerging field of behavioral cardiology, which is based on the understanding that psychosocial and behavioral risk factors for CAD are not only highly interrelated, but also require a sophisticated health care delivery system to optimize their effectiveness (Rozanski, et al., 2005).

Catherine (1988) highlighted family support enable patients’ family to function with versatility and resourcefulness. She elaborated three perspectives of family support: (1) reciprocity, referring to when individuals within a family are involved in reciprocal relations and assume mutual obligations; (2) advice and feedback, referring to the quality and quantity of communications occurring within a family and emphasizing the importance of significant others providing guidance.
to help an individual to improve his or her handling of a situation; and (3) the emotional involvement among family members, characterized with love, caring, warmth, and compassion, but not hatred, and anxiety or fear.

Extensive research during recent decades has established an inappropriate lifestyle including nutrition among other factors like smoking, physical activity, or psychosocial stress as the major cause of the epidemic occurrence of atherosclerotic cardiovascular disease in Western countries (McGee, Reed, Yano, Kagan & Tillotson, 1984; Kromhout, Menotti, Bloemberg, Aravanis, Blackburn, Buzina, Dontas, Fidanza, Giampaoli & Jansen, 1995). Thus, coronary heart disease (CHD) might be largely preventable by an appropriate lifestyle as defined in great detail while it is common to attempt to modify the risk by drug treatment (Hu, Stampfer, Manson, Grodstein, Colditz, Speizer & Willett, 2000; Stampfer, Hu, Manson, Rimm & Willett, 2000; Hu & Willett, 2002).

A sedentary lifestyle and being overweight are also highly correlated with CAD development and aggression. Studies have shown that not only is there a direct relationship between physical inactivity and CAD incidence (Haapanen, Miilunpalo, Vuori, Oja & Pasanen, 1997), but a dose response relationship between the amount of energy spent on a weekly basis and subsequent cardiac mortality (Paffenbarger, Hyde, Wing, Lee, Tang & Kampert, 1993). The major problem of physical inactivity and being overweight is that they may lead to the development and clustering of metabolic abnormalities including insulin resistance, hypertriglyceridaemia, cholesterol abnormalities, hypertension, a proinflammatory and prothrombotic state in the blood vessels (Wong & Bassin, 2000; Sowers, 2003).
2.4 The role of diet in CAD risk reduction and prevention

Dietary behavior is a crucial contributor to increase the risk of acute myocardial infarction (Stampfer et al., 2000). Unfortunately high-quality nutritional counseling services are scarce (Haughton et al., 1998). Because of public health nutritionists are in very limited supply, dietary consultation by quality nutritionists is not easily accessible for Hong Kong people. As a result, programmes that draw on other health care professionals to extend the service of nutritionists focusing on cardiac rehabilitation are on demand. However, there are many obstacles for the delivery of nutritional services by nurses, such as lack of time, limited training in nutrition, low self-efficacy regarding lifestyle change counseling, and inadequate assessment and intervention materials (Wilt et al., 1990).

Diets rich in vegetables and fruits can prevent development of atherosclerosis. Peeled sweeties have high contents of dietary fibers and antioxidant compounds. Diets supplemented with peeled sweeties positively influence plasma lipid metabolism and plasma antioxidant capacity in patients suffering from hypercholesterolemia. As a result, the addition of peeled sweeties to a generally accepted anti-atherosclerotic diet may be beneficial in prevention of atherosclerosis, especially in hypercholesterolaemic patients (Gorinstein, 2004).

A positive interaction between high plasma lipoprotein and unfavorable plasma lipid levels has been reported to result in very high risk for premature coronary artery disease (CAD) (Hopkins, Hunt, Schreiner, Eckfeldt, Borecki, Ellison, Williams & Siegmund, 1998).
A Greek-Mediterranean-type of eating pattern has been associated with complex health effects, including lower risks of both cardiovascular disease and cancer. Initial observations found a remarkably low incidence of coronary artery disease in Greek (Djuric, Vanloon, Radakovich, DiLaura, Heilbrun & Sen, 2008). A Mediterranean exchange list diet was developed to target an increased amount and variety of fruits and vegetables, and an increased relative proportion of monounsaturated fats. Registered dietitians used the exchange lists to plan a diet for each subject that maintained baseline caloric and fat intakes, and subjects were asked to track exchanges consumed from each food category. Telephone counselling by registered dietitians provided subjects with continuing support for making the requested changes. Subjects were able to reach the goals of the Mediterranean diet within 3 months, and they maintained this change to 6 months of study. The control group made few changes in diet (Djuric et al., 2008).

A recent study from He & Song (2006) demonstrated support for current dietary recommendations for fish consumption for the prevention and treatment of CAD. In addition, a study by Lichtenstein and team (2006) suggested that omega-3 fatty acids, both plant and marine-derived, were beneficial for cardiovascular health and should be recommended as part of a healthy diet. Observational studies reported that nut consumption is associated with a reduced CHD risk (Hu & Willett, 2002). A dose-dependent relationship had been reported but controlling for confounders was challenging. The reported cardio-protective effects might be a unique nutrient profile of nuts. Nuts favorably affect lipid and lipoprotein levels. Besides, nuts may displace foods high in saturated fatty acid and cholesterol therefore further favourably affecting plasma lipid and lipoprotein levels. In sum, the ingredients of Mediterranean Diet included fish, nuts as well as omega-3 fatty acids.
Indo-Mediterranean Diet Heart Study suggest that treatment with n-3 fatty acids and antioxidant rich foods such as fish, fruits, vegetables, legumes, and nuts can reduce cardiac events and related mortality in patients with CAD (Singh, Dubnov, Niaz, Ghosh, Singh, Rastogi, Manor, Pella & Berry, 2002). The results showed that such differences in coronary risk could be explained partly by antioxidants in the diet, variations in physical activity, and smoking. An increased consumption of fruits, vegetables and legumes, grains, nuts, and n-3 fatty acids might be associated with a decreased risk of CAD and deaths attributable to coronary disease. Evidence suggests that dietary patterns could well have an effect on the mechanisms of atherosclerotic plaque vulnerability and the progression of thrombosis (Joshipura, Hu & Manson 2001).

Another study from Cheng, Graziani and Diamond (2004) showed that using the Food for Heart Programme could lower the total and low-density lipoprotein cholesterol (LDL-C), body weight and dietary risk for CAD and hypercholesterolaemic patients. However, the programme could not increase the negative (protective) CAD risk markers: high-density lipoprotein cholesterol (HDL-C). The Lyon Diet Heart Study of the American Heart Association (2006) suggested that the increase consumption of Mediterranean food intake could lower 50-70 percent of recurrent heart disease. Based on different diets reviewed, Mediterranean type diet was promoted in the study.

Healthier ways of cooking include roasting, baking, poaching, grilling, broiling, sautéing, or steaming. Keeping a record of what the patient had eaten reinforced the making of good food choices allowed a person to evaluate his or her eating habits honestly (Barron & Schnatuż, 2008).
Tyroler (1984) promoted consumption of low-fat diet, which came to influence current nutritional thought. In his study, reviewed that cholestyramine reduced serum cholesterol by about 10% and mortality by a widely shown relative 24%. Although the results were statistically significant, the absolute reduction was far less impressive: 2% in the placebo and 1.6% in the treated cohort. Weinberg, (2004) stated that Statin trials reduced cholesterol by 30% to 35% and produced incontrovertible evidence of improved CAD end points, although it is increasingly recognized that some of the benefit from statins may exist in non-lipid mechanisms and he further argued the effect of diet and CAD relationships. In spite of the doubt regarding the clinical significance of these results, Tyroler’s study concluded correctly that the lowering of serum cholesterol was essential in the prevention and management of CAD (Tyroler, 1984).

On the contrary, the medical literature contained warnings largely ignored by the profession and related organizations. Rosenman (1993) doubted the casual relationship of diet and serum cholesterol. He suggested that serum cholesterol is not regulated by diet.

In the study of Ammerman, Keyserling, Atwood, Hosking, Zayed and Krasny (2003), they assessed the effectiveness of an intervention programme designed to facilitate dietary counselling for hypercholesterolemia by rural public health nurses. The results showed improvement in self-reported dietary intake was significantly greater in the intervention group, while reduction in blood cholesterol was similar in both groups.
Generally, it is believed that nutrition acts on cardiovascular disease through the development of clinical risk factors, particularly the metabolic syndrome. This concept implies that improvement of risk factors may entirely or at least largely compensate for an inadequate lifestyle. However, the limited success of this approach raises the question of how much nutrition may have an independent effect on cardiovascular disease. By examining the blood lipid profile, CAD risk factors identification and dietary behavior modification of post MI patients, the effectiveness of Nurse-led Follow-Up Dietary Intervention (NFDI) can be evaluated.

2.5 Dietary intervention in Cardiac Rehabilitation

Cardiovascular disease (CVD) remains the number one cause of death in the United States (American Heart Association, 2005). Many of the risk factors associated with CVD are modifiable through lifestyle interventions and can play a major role in reducing the personal, societal and financial burden of the disease.

The goal of cardiac rehabilitation is to restore the functional independence and improve the quality of life of individuals who have experienced a cardiac event by reducing disability, morbidity, and mortality (William, 1999). Nutrition intervention is an integral component of the risk-reduction strategies of these cardiac rehabilitation programmes and is a component of the cardiac rehabilitation programmes practice guidelines developed by the American Association of Cardiovascular and Pulmonary Rehabilitation (William, 1999). Cardiac rehabilitation programmes that included registered dietitians as part of the rehabilitation team offered significantly more nutrition services, one-on-one
nutrition counseling, and cooking demonstrations compared with programmes without registered dietitians (Jonnalagadda, 2005). Integrating nutrition services into cardiac rehabilitation programmes can have a positive impact on patient outcomes. However, there are few registered dietitians practicing in public hospitals in Hong Kong. With limited resources, it is difficult to integrate nutritional services in the cardiac rehabilitation programme. Instead, nurse-led programme are advocated in dietary counseling.

A study from Cavallaro, Dwyer, Houser, Shores, Cañez, Hong, Altman, Helmick & Murphy (2004) pointed out that nutrition in cardiac rehabilitation was highly important. The report reviewed that an ideal role of the Registered Dietitian (RD) in a cardiac rehabilitation programme was one that included education, encompassing one-on-one nutrition counselling, group nutrition classes, guest lectures on nutrition, taste testing, and cooking demonstrations; health monitoring, including tracking weight loss/gain, serum lipid lowering, exercise adherence, and smoking cessation; assessment and programme management, including computerized nutrition assessment and self-care management; and motivational efforts with clients. And that the RDs were qualified to provide nutrition counseling and education. The report also confirmed that registered nurses and exercise physiologists were qualified to provide such services (Cavallaro et al., 2004). In Hong Kong, there were limited RD in the public health care service, nurses often have to take the responsibilities on nutrition counselling and health monitoring. In this study, the effectiveness of a nurse-led follow-up dietary intervention programme by comparing the three outcome variables was examined.
Macaulay, Astonb, Ferrellb, McAllisterb, Winga & Kullera (1997) examined the effect of a dietary intervention and behaviour study on lowering the risk of CAD. The result showed that the participants in the intervention group received nutrition and behaviour modification education able to reduce body weight. Whereas, with reference to the study of Silverman, Wing, Hansen, Kelm, Pasagian-Macaulay, Meilahn & Kuller (1995), the result showed that the intervention group over the six-month follow-up period had significant reductions in body weight, TC and LDLs as compared to the control group. As a result, the study adopted to measure the three outcome variables - knowledge of CAD risk factors identification; dietary behaviour and blood result at 3 months (around 1 week after the intervention) and 6 months after the baseline.

Telephone counselling by registered dietitians provided subjects with continuing support for making the requested changes. Subjects were able to reach the goals of the Mediterranean diet within 3 months, and they maintained this change to 6 months of study (Djuric et al., 2008).

The study by Eakin, Reeves, Lawler, Graves, Oldenburg, Del Mar & Wilkie (2009) targeted a challenging primary care patient sample and, by using telephone-delivered intervention, demonstrated modest improvements in diet and in physical activity. Results suggest that telephone counselling was a feasible means of delivering lifestyle intervention to primary care patients with chronic conditions-patients whose need for ongoing support for lifestyle change is often beyond the capacity of primary healthcare practitioners.
This chapter presents a review of the coronary artery disease with emphasis on its etiological risk factors, recent trends and circumstances in dietary intervention, nursing follow-up procedures in cardiac rehabilitation with focus on its components, the impact of cardiac rehabilitation on CAD patients, the role and importance of diet modification in a cardiac rehabilitation programme with focus on its components and relevant research studies. This review provides contemporary and solid foundation for this study.
CHAPTER THREE

METHOD

This chapter includes research design, setting, sampling, description of “Nurse Follow-up Dietary Intervention” (NFDI), outcome measures, data collection, outcome measures, validity and reliability of the questionnaire, ethical consideration, data analysis and the description of NFDI and conventional intervention in the study.

3.1 Research Design

It is a randomised controlled trial. This study consists of the 3 main properties of an experimental design: (1) a control group, (2) the manipulation of an independent variable, and (3) a random assignment of subjects (Polit & Hungler, 1995). Subjects were randomly assigned, by drawing lots, to either intervention group or control group. The ratio of subjects in the 2 study groups was 1:1. The control group received conventional care which included dietary class currently provided in the cardiac rehabilitation programme and scheduled medical follow-up. The intervention group received the Nurse Follow-up Dietary Intervention (NFDI) in addition to the conventional care.

Subjects were all blinded for group allocation. Outcomes indicators were measured at 3 time points: at baseline (T₀), 1 week after intervention (T₁) and 3 months after intervention (T₂). The detailed design of this study is elaborated in Figure 1:
Post MI Participants who met the inclusion criteria N=82

**Pre-test (T₀)**
1. Knowledge of CAD risk factors
2. Dietary Behaviour
3. Fasting blood lipid level (TG, TC, HDLs, LDLs)

Randomization

Control Group (n=41)
Conventional Treatment
(Dietary Class + Schedule SOPD Follow Up)

Intervention Group (n=41)
NFDI in addition to Conventional Treatment
(Dietary class and schedule SOPD follow-up)

**1 week post intervention**

**Post-test 1 (T₁)**
1. Knowledge of CAD risk factors
2. Dietary Behaviour
3. Fasting blood lipid level (TG, TC, HDLs, LDLs)

**8 weeks**

**3 months post intervention**

**Post-test 2 (T₂)**
1. Knowledge of CAD risk factors
2. Dietary Behaviour
3. Fasting blood lipid level (TG, TC, HDLs, LDLs)

**Figure 3.1** The Study flow
3.2 Setting

This study was conducted in a public hospital in Kowloon Central cluster. In the hospital, there were 2500 admissions of MI patients every year in average. MI patients admitted to admission wards, Coronary Care Unit (CCU) or medical ward following first time or recurrent MI were recruited.

3.3 Sampling

3.3.1 Sampling Method and Subject Selection Criteria:

Subjects were recruited by convenience. Patients with diagnosis of MI, admitted to medical admission wards or the coronary care unit were screened for eligibility of participating in the study. Subjects who met the following criteria were recruited.

3.3.2 Inclusion Criteria

In selecting subjects, the following criteria were used:

1. Clients diagnosed MI (first episode or recurrent MI)
2. Medically stable, absence of angina and haemodynamically stable (with stable blood pressure, heart rate and respiration pattern).
3. Clients with borderline TG/TC/HDL/LDL/ level and are not receiving medications. According to WHO MONICA project (1983), borderline TG level is 1.70-2.33mmol/L, borderline TC level is 5.18-6.22mmol/L, borderline HDL level is 1.00 to 1.50mmol/L and borderline LDLS is 2.58-4.11mmol/L.
4. Client is willing to attend dietary class currently included in the Cardiac Rehabilitation Programme.

5. Hong Kong citizens residing in Hong Kong for more than 7 years to minimize cultural differences. The diet recipes and methods of cooking are designed for Hong Kong Cantonese.

6. To be contactable by telephone after discharge.

7. Able to communicate in Cantonese and English.

3.3.3 Exclusion Criteria

The following post MI patients were excluded from the study:

1. Patients with cognitive impairment including history of psychiatric illness; with Glasgow Coma Scale (GCS) less than 15.

2. Patients on special dietary pattern /with feeding problem (e.g. swallowing problem, on nasogastric feeding, renal patients on renal diet).

3. Patients participated in interventions other than the designated Diet Consultation from the Cardiac Rehabilitation Programme.

3.4 Sample Size Estimation

A required sample size was determined by power, effect size, and significant level (Cohen, 1988; Duffy, Munro & Jacobsen, 2005). Effect size is a measure of the strength of the relationships among variables being studied (Polit & Beck, 2004). Munro (2005a) stressed that the effect size should be derived from previous work if it was present. Power is the capacity of the study to detect differences or relationships that actually exist in the population. According to
Burns & Grove, (2001), power is the capacity to correctly reject a null hypothesis. The minimum acceptable power for a study is 0.80.

Also the effect size (ES) is the extent of the presence of a phenomenon (Burns & Grove, 2001). Extremely small ES may not be clinically significant. Knowing the effect size that would be regarded as clinically important allows us to limit the sample to the size needed to detect that level of ES (Kraemer & Thiemann, 1987). A result is clinically significant if the effect is large enough to alter clinical decisions.

In Luszczynska, Scholz & Sutton’s study (2007) on planning to change diet after MI, the effect size was set at 0.4 with the power 0.74. The study had included 130 patients with 26 (20%) patients dropped out.

For this study, a medium effect size of 0.4 and power of 0.8 were adopted for sample size estimation. Based on the Two-Tailed Test with 5% level of significance, a minimum of 45 subjects were required for each control and experimental group (Burns & Grove, 2001).

3.5 Data Collection Procedure

Post MI patients initially screened by the researcher for eligibility then assessed by a cardiac rehabilitation Advanced Practice Nurse for medical stability. Eligible subjects were approached by the researcher and invited their participation in the study. Study aims, potential risks and benefits, time and procedures involved in the study were explained to the potential subjects. In the process,
subjects were not informed of the research design, hypothesis and their group allocation.

Data collection was conducted at three time points by three independent trained data collectors who were blinded to the study design, hypothesis and subject group allocation. The first data collection (pre-test, T₀) took place within 1 week after the subjects were diagnosed MI and consented to the study. The second data collection (post-test 1, T₁) took place 1 week after the NFDI (which is around 2 months after MI). The third data collection (post-test 2, T₂) was set at 3 months after NFDI (around 5 months after baseline). The data collection time frame made reference to a previous study “The Logan Healthy Living Programme” which was one of the first large-scale Australian studies to evaluate a telephone counseling intervention for physical activity and diet (Eakin et al., 2007). The team focused short-term results from The Logan Healthy Living programme with a telephone counseling intervention for physical activity and diet. Data were collected via telephone at baseline, 4-, 12-, and 18-months using validated measures for physical activity (Active Australia) and diet (ACCV Food Frequency Questionnaire). Eakin’s study confirmed that telephone counseling can be effective in producing modest short-term changes in physical activity and diet in a challenging patient population (Eakin et al., 2007). 12- and 18-month results will determine whether further improvements can be achieved and maintained following an extended intervention. Therefore, similar outcome assessment time frame was adopted in this study.
Data collection included two components: Face to face interview and Anthropometries and blood lipid measurements.

1. Face-to-face interview using a structured questionnaire

The questionnaire collected data on demographic characteristics, clinical condition, knowledge on CAD risk factors, current lifestyle habits and dietary behaviour (Appendix C).

2. Anthropometrics and blood lipid measurements

Measurements on blood pressure, body weight, body height and body mass index were conducted by trained data collectors according to the standardized protocol set by the researcher.

Overnight fasting blood samples were collected for lipid measurements. Subjects were scheduled to have their blood samples collected in the cardiac rehabilitation clinic by the Cardiac Advanced Practice Nurse and analysed at the medical laboratory of the study hospital.

3.6 Outcome Measures

3.6.1 Eating Behaviour: The Eating Habit Assessment Scale (Sit, Yip, Ko, Gun & Lee, 2007)

Eating behaviour was measured by using the modified Eating Habit Assessment Scale (UCHCHS, 2004). The modified Eating Habit Assessment Scale consisted of:
A. Daily dietary habit

There were six questions on daily dietary habit including frequency of dining out in the past week and the most frequent cooking method used in the past week.

B. Dietary habit in relation to cardiovascular disease

In this session, there are twenty-eight questions on dietary consumption frequency specifically related to cardiovascular disease. Among the twenty-eight questions, fifteen questions were on consumption of high-fat food, four questions on high-salt food and nine questions on consumption of Mediterranean-type food consumption under the American Heart Association 2008 dietary guidelines. Subjects were asked to rate each item on a 4-point ordinal scale, ranging from 0 to 4 (with 0 = less than one time per month and 4 = more than 4 times per weeks). Summative score of each food category was calculated. The higher the score indicates the higher frequency of consumption.

The validity of this Eating Habit Assessment Scale has been examined for its application in Hong Kong Chinese by an expert panel including a cardiologist, a community nurse specializing in cardiac care and two nutritionists. The reported CVI score was 0.97. The reported internal consistency ranged from 0.66 to 0.83.

3.6.2 Lipid Profile Analysis

Blood tests of total cholesterol, total triglycerides, high-density lipoproteins, low-density lipoproteins level were determined by automated enzymatic methods at the medical laboratory of the study hospital. The automated enzymatic method is
an established method for the direct measurement of total cholesterol (TC), HDL and triglycerides, either from plasma or serum samples. There are also methods available for the direct measurement of the LDL subfraction, but it is still frequently estimated from TC, HDL and fasting triglycerides by the Friedewald formula (Friedewald, Levy & Fredrickson, 1972).

3.7 Validity and Reliability of Questionnaires

Validity and reliability tests of the whole set of structured questionnaires used in this study were examined. One experienced cardiac rehabilitation advanced practice nurse, one associate consultant/consultant in cardiology and one registered dietitian were invited to form an expert panel for examining the content validity of the instrument. The panel was invited to rate the validity of each item in the questionnaire on a 4-point scale, i.e. very relevant, somewhat relevant, somewhat irrelevant and irrelevant.

Test-retest reliability was done by ten post MI Chinese patients. They were recruited by convenience. The ten patients were asked to complete the questionnaire and repeat the same questionnaire one week later.

3.8 Ethical Considerations

Ethical approval was obtained from The Hong Kong Polytechnic University Human Subjects Ethics Committee and Research Committee of the Kowloon Central Cluster of the Hospital Authority of Hong Kong. Verbal explanation together with a cover letter describing the nature, purpose, potential risks and
benefits of the study were provided to all potential subjects during recruitment.

Subjects were recruited on voluntary basis, privacy, confidentiality and anonymity were assured. Those agreed to participate were asked to sign a written informed consent (Appendix A & Appendix B). Subjects were informed that they could withdraw from the study at anytime without any penalty. The data collected were kept in a locked cabinet accessible only by the researcher and project supervisors. The raw data would be destroyed 6 months after completion of the study.

3.9 Data Analysis

All data collected were entered into computers and used SPSS version 16 for data analysis. The level of statistical significance was set as 0.05 (two-tailed test). Descriptive statistics were used for summarising demographics, clinical data and the outcome variables. Mean and standard deviations were reported for continuous data. Frequency and percentage were reported for nominal data. Baseline characteristics in the intervention and control groups were compared using inferential statistics. Normality was examined by Kolmogorov-Smirnov test.

Non-parametric tests were performed as current data did not fit normality requirement. Therefore, for examining differences between groups, Mann-Whitney U test was performed for ordinal data and Chi-square test was performed for nominal data. For examining changes within group over the 3 time-points, Friedman test was performed for continuous data. Intention-to-treat analysis was used. In this study, missing values of the drop-out cases were replaced by their corresponding baseline data.
3.10  Description of Intervention

3.10.1  Content of Nurse Follow-up Dietary Intervention (NFDI)

Cantonese Fusion diet adopted to Mediterranean Dietary guidelines (from American Heart Association, 2008)-(called C-MEDI Diet hereon)

C-MEDI diet was developed to target an increased amount and variety of fruits and vegetables, roots, nuts and beans as well as the promotion of the use of olive oil instead of other cooking oil. The diet aimed to increase relative proportion of monounsaturated fats intake. The researcher collaborated with a registered dietitian to make recommendation on Cantonese fusion diet recipes for subjects in the intervention. The recommended Mediterranean-type food and cooking method have taken into the consideration of accessibility, affordability and common food preference of local people in Hong Kong. As a result, a Cantonese fusion diet adapted to Mediterranean Dietary guidelines had been developed to maintain a balanced caloric and monounsaturated fats intake for the intervention group.

3.10.2  Delivery Mode

(i) A small group session on C-MEDI diet

Ten to fifteen subjects of the intervention group were invited to attend a 30-minute C-MEDI introduction session conducted by a researcher in a seminar room of the study hospital. These subjects had attended dietary class and received general dietary advice from the registered dietitian. After the introduction of the C-MEDI, CAD risk factors, individual subject’s concerns and questions were addressed. Before departure, copy of C-MEDI booklet that contained information on risk factors of coronary artery disease and healthy eating practice following Mediterranean
Dietary guidelines and Cantonese fusion Mediterranean diet recipes was distributed to the subjects (Appendix D).

(ii) Telephone follow-up

A dietary log book included in the C-MEDI diet package was given to the subjects. The log book was designed for the subjects to record their food intake and cooking methods which they could consult to refresh memory at telephone follow up. The subjects received one phone call by a registered nurse with background in cardiac rehabilitation every other week for eight weeks. A total of four calls were made during the intervention period. The telephone follow up provided reinforcement on diet modification and client empowerment on CAD risk factors identification.

In addition, advices on dietary intake and cooking methods, assistance in goal setting and developing a personalized plan for modifying diet were offered. Evaluation and adjustment was made on goal setting if the subjects failed to achieve the designated goal. The duration of each phone call was limited to no more then fifteen minutes for each call.

3.11 Dietary Consultation after MI (Conventional treatment)

Post MI patients were confirmed to have a borderline HDLs/LDLs/TC/TG, they would be referred to Cardiac Rehabilitation specialists. These patients would then be invited to join the cardiac rehabilitation programme, and were referred to the dietary class conducted by registered dietitian.
This chapter discusses the method used in this study. A randomised controlled trial was used. Aided with literature review, the dependent variables including knowledge of CAD risk factors, dietary behaviour and the physiological risk factors-lipid profile were selected in order to understand the effect of the proposed intervention.
CHAPTER FOUR

RESULTS

Eighty-two post MI patients were recruited from December 2008 to March 2009 to participate in the study. Forty-one subjects were allocated to the control and intervention group respectively at random. Results of the study are divided into three time points according to the data collection time, which were within 1 week after MI (Pre-Test)-T(0), 1 week after intervention Post Test 1- T(1) and 3 months after intervention Post Test 2-T(2). During the study, four subjects in the control group dropped out at T(1) for failure to attend blood taking and regular follow up. Besides, two subjects in the intervention group were not contactable by phone and with incomplete NFDI dropped out at T(1). At T(2), seven subjects dropped out in the control group and four dropped out in the intervention group for similar reasons, contributing to the respective total dropout rates of 26.8% and 14.6%. The allocation and flow of subjects are described in Figure 4.1. The results were presented to address the research question.
Within 1 week post MI
$T_{(0)}$

N = 82 $T_{(0)}$

Control group (n=41)         Intervention group (n=41)

(8 weeks NFDI) Intervention

after 1 week
Control group (n=37)         Intervention group (n=39)

intervention
(4 dropouts=9%)              (2 Dropouts=5%)

$T_{(1)}$

Control group (n=30)         Intervention group (n=35)

after 3 months
(7 Dropouts=8%)              (4 Dropouts=10%)

intervention
$T_{(2)}$

(Total dropout rate= 26.8%)  (Total dropout rate=14.6%)

Figure 4.1 Subjects Allocation and Flow chart

4.1 Demographic and Clinical Characteristics

The demographic variables were examined by chi-square test and t-test. No significant difference was found between the control and intervention groups. (Table 4.1).
N=82

<table>
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<th>Intervention (n=41)f(%)</th>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 60</td>
<td>17(41.5)</td>
<td>15(36.6)</td>
<td>0.631</td>
<td>0.729</td>
</tr>
<tr>
<td>60-69</td>
<td>16(39)</td>
<td>15(36.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥70</td>
<td>8(19.5)</td>
<td>11(26.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>26(87.8)</td>
<td>35(85.4)</td>
<td>0.105</td>
<td>0.746</td>
</tr>
<tr>
<td>Married but live separate/single/live separate/divorced/deceased</td>
<td>5(12.2)</td>
<td>6(14.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Education Status</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No education</td>
<td>8(19.5)</td>
<td>9(22.0)</td>
<td>0.445</td>
<td>0.801</td>
</tr>
<tr>
<td>Primary</td>
<td>11(26.8)</td>
<td>13(31.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary or above</td>
<td>22(53.7)</td>
<td>19(46.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Occupation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housewife</td>
<td>10(24.4)</td>
<td>10(24.4)</td>
<td>0.802</td>
<td>0.849</td>
</tr>
<tr>
<td>Paid work</td>
<td>15(36.6)</td>
<td>18(43.9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>6(14.6)</td>
<td>6(14.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retired</td>
<td>10(24.4)</td>
<td>7(17.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Smoking history</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>15(36.6)</td>
<td>14(34.1)</td>
<td>0.285</td>
<td>0.867</td>
</tr>
<tr>
<td>Yes</td>
<td>18(43.9)</td>
<td>17(41.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quit</td>
<td>8(19.5)</td>
<td>10(24.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Alcohol History</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>31(75.6)</td>
<td>28(68.3)</td>
<td>0.581</td>
<td>0.748</td>
</tr>
<tr>
<td>Yes</td>
<td>1(2.4)</td>
<td>1(2.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quit</td>
<td>9(22.0)</td>
<td>12(29.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Regular Exercise History</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>28(68.3)</td>
<td>28(68.3)</td>
<td>0</td>
<td>1.000</td>
</tr>
<tr>
<td>Yes</td>
<td>13(31.7)</td>
<td>13(31.7)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Mean (SD)
Table 4.1   Demographic and clinical characteristics

Research Question 1: Is there any difference in the knowledge level of CAD risk factors between the control group and the intervention group?

4.2   Knowledge level of CAD risk factors

From the results on knowledge level between the control and intervention groups, there was no significant difference at the baseline $T_0$, $T_1$ and $T_2$ (Table 4.2a). A graphical illustration is in Figure 4.2a.

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Intervention</th>
<th>Mann-Whitney U Test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge level $T_0$</td>
<td>74.22(20.23)</td>
<td>67.48(23.47)</td>
<td>622.5</td>
<td>0.41</td>
</tr>
<tr>
<td>Knowledge level $T_1$</td>
<td>76.54(19.2)</td>
<td>82.11(8.23)</td>
<td>783.0</td>
<td>0.58</td>
</tr>
<tr>
<td>Knowledge level $T_2$</td>
<td>78.16(14.59)</td>
<td>79.09(7.29)</td>
<td>812.0</td>
<td>0.79</td>
</tr>
</tbody>
</table>

*=Mean (SD)

Table 4.2a   Comparison of Knowledge Level of Respective CAD Groups (N=82)

![Knowledge Level Comparison](image)

Figure 4.2a   Knowledge Level Comparison
In view of the difference of knowledge level within the same group, Friedman Test was conducted. It showed that there was significant difference with p-value <0.001 in the intervention group. However, in the control group there was a p-value of 0.091 which was regarded as not significant (Table 4.2b).

<table>
<thead>
<tr>
<th>Friedman Test</th>
<th>Mean</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>4.79</td>
<td>2</td>
<td>0.091</td>
</tr>
<tr>
<td>Intervention</td>
<td>24.79</td>
<td>2</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Table 4.2b Comparison of Knowledge Level of CAD Within Group (N=82)

Research Question 2: Is there any difference in the dietary behaviour between the control group and the intervention group?

4.3 Results on Dietary behaviour pattern - High-Fat Consumption

For dietary behaviour comparison which focuses on high fat consumption, high salt consumption and Mediterranean type diet consumption, there was no significant difference between the two groups at baseline and T(1) but significant difference was found at T(2) (p=0.12, 0.159 and 0.017 respectively). Descriptive statistics showed that three months after the NFDI, the intervention group saw a decrease in high fat intake with a mean score of 25.39 whereas the control group could not sustain a decreasing trend with a mean score of 28.48 (Table 4.3a). Graphically is presented in Figure 4.3.
<table>
<thead>
<tr>
<th></th>
<th>Control Mean (SD)*</th>
<th>Intervention Mean (SD)*</th>
<th>Mann-Whitney U Test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>High fat total T₀</td>
<td>30.17(7.61)</td>
<td>32.31(6.84)</td>
<td>673.5</td>
<td>0.120</td>
</tr>
<tr>
<td>High fat total T₁</td>
<td>26.68(7.48)</td>
<td>26.54(6.73)</td>
<td>689.0</td>
<td>0.159</td>
</tr>
<tr>
<td>High fat total T₂</td>
<td>28.48(7.11)</td>
<td>25.39(6.53)</td>
<td>583.0</td>
<td>0.017</td>
</tr>
</tbody>
</table>

*=Mean (SD)

Table 4.3a Comparison of High Fat Consumption Between Groups (N=82)

Figure 4.3 Eating Habit Comparison (High Fat Consumption)
As shown in Table 4.3b, significant differences within group were found in the intervention group and the control group.

<table>
<thead>
<tr>
<th>Friedman Test</th>
<th>Mean</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>8.29</td>
<td>2</td>
<td>0.016</td>
</tr>
<tr>
<td>Intervention</td>
<td>54.23</td>
<td>2</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Table 4.3b Comparison of High Fat Consumption Within Group (N=82)

4.4 Results on Dietary behaviour pattern - High Salt Consumption

The result on high salt consumption showed that there was no significant difference at baseline between the control and intervention groups. At $T_{(1)}$ and $T_{(2)}$ significant differences between groups were found ($p<0.001$)(Table 4.4a). Graphically presented in Figure 4.4a.

Figure 4.4a Eating Habit Comparison (High Salt Consumption)
### Table 4.4a  Comparison of High Salt Consumption Between Groups (N=82)

<table>
<thead>
<tr>
<th></th>
<th>Control Mean (SD)</th>
<th>Intervention Mean (SD)</th>
<th>Mann-Whitney U Test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>High salt total T₀</td>
<td>10.41(2.39)</td>
<td>10.24(1.79)</td>
<td>762</td>
<td>0.460</td>
</tr>
<tr>
<td>High salt total T₁</td>
<td>9.80(2.46)</td>
<td>7.88(1.93)</td>
<td>423</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>High salt total T₂</td>
<td>9.68(2.36)</td>
<td>7.90(2.14)</td>
<td>449</td>
<td>&lt;.0001</td>
</tr>
</tbody>
</table>

*=Mean (SD)

As shown in Table 4.4b, significant differences within group were found in the intervention group and the control group.

### Table 4.4b Comparison of High Salt Consumption Within Group (N=82)

<table>
<thead>
<tr>
<th>Friedman Test</th>
<th>Mean</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>14.18</td>
<td>2</td>
<td>0.001</td>
</tr>
<tr>
<td>Intervention</td>
<td>48.91</td>
<td>2</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

4.5  Results on Dietary behaviour pattern- Mediterranean-type diet

In comparing the result on Mediterranean-type diet consumption between the control group and intervention group, there was no significant difference at the baseline (p=0.113). At T₁ and T₂, there was significant difference between both groups (p<0.001) (Table 4.5a). Graphically presented in Figure 4.5.
<table>
<thead>
<tr>
<th></th>
<th>Control Mean (SD)</th>
<th>Intervention Mean (SD)</th>
<th>Mann-Whitney U Test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medi total T₀</td>
<td>14.14 (2.95)</td>
<td>15.34 (3.29)</td>
<td>670.5</td>
<td>0.113</td>
</tr>
<tr>
<td>Medi total T₁</td>
<td>15.78 (3.38)</td>
<td>21.41 (3.56)</td>
<td>214.5</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Medi total T₂</td>
<td>15.51 (3.35)</td>
<td>21.92 (4.07)</td>
<td>201.0</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

*Mean (SD)

Table 4.5a Comparison of Mediterranean-type Diet consumption Between Groups (N=82)

![Mean score chart](image)

**Figure 4.5 Eating Habit Comparison (Mediterranean Type Diet)**

As seen in Table 4.5b, comparison within group on Mediterranean diet consumption showed significant difference with p-value <0.001 in both control and intervention groups. The mean scores were 36.99 in the control group and 56.61 in the intervention group (Table 4.5b).

<table>
<thead>
<tr>
<th>Friedman Test</th>
<th>Mean</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>36.99</td>
<td>2</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Intervention</td>
<td>56.61</td>
<td>2</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Table 4.5b Comparison of Mediterranean-type Diet consumption Within Group (N=82)
4.6 Results on CAD Risk factors - Systolic Blood Pressure (SBP)

Systolic blood pressure is one of the risk factors of coronary artery disease. At the baseline comparison, there was no significant difference between the control and intervention groups with p-value=0.222. The mean score of the control group was 139.61 while the intervention group scored 143.46. Following intervention, there was significant difference with p-value <0.001 and mean score of the control group was 148.13. However, the intervention group had a lower mean score of 136.10. Three months after intervention, the control and intervention groups scored 142.51 and 141.27 respectively with p-value=0.813 which showed no significant difference between the two groups (Table 4.6a). Graphically presented in Figure 4.6.

![SBP Graph](image)

**Figure 4.6** CAD Risk Factor Comparison – SBP
### Table 4.6a  Comparison of CAD Risk Factor - SBP Between Groups (N=82)

<table>
<thead>
<tr>
<th></th>
<th>Control Mean (SD)*</th>
<th>Intervention Mean (SD)*</th>
<th>Mann-Whitney U Test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBP T₀</td>
<td>139.61(13.56)</td>
<td>143.46(15.73)</td>
<td>709.5</td>
<td>0.222</td>
</tr>
<tr>
<td>SBP T₁</td>
<td>148.13(13.32)</td>
<td>136.10(13.41)</td>
<td>430.0</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>SBP T₂</td>
<td>142.51(15.10)</td>
<td>141.27(13.73)</td>
<td>815.0</td>
<td>0.813</td>
</tr>
</tbody>
</table>

*=Mean (SD);  SBP=Systolic blood pressure

For comparison within the same group, both the control and intervention groups showed significant difference with p-value<0.001 under Friedman Test (Table 4.6b).

### Table 4.6b  Comparison of CAD Risk Factor - SBP Within Group (N=82)

<table>
<thead>
<tr>
<th>Friedman Test</th>
<th>Mean</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>21.11</td>
<td>2</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Intervention</td>
<td>13.52</td>
<td>2</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

### 4.7  Results on CAD Risk factors - Diastolic Blood Pressure (DBP)

Diastolic blood pressure is another risk factor of CAD. For comparison between the control and intervention groups, there was no significant difference at baseline with p-value=0.132. The mean score of the control group was 71.02 and the intervention group was 68.02. However, following NFDI, there was significant difference between the control and intervention groups with p-value=0.002 and mean scores were 71.95 for the control and 66.15 for the intervention group 3 months after intervention, the p-value was 0.126 which
showed no significant difference between the two groups (Table 4.7a). Graph presented in Figure 4.7.

**Figure 4.7** CAD Risk Factor Comparison - DBP

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Intervention</th>
<th>Mann-Whitney U Test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBP T₀</td>
<td>71.02(9.54)</td>
<td>68.02(9.10)</td>
<td>680.5</td>
<td>0.132</td>
</tr>
<tr>
<td>DBP T₁</td>
<td>71.95(8.69)</td>
<td>66.15(7.59)</td>
<td>505.0</td>
<td>0.002</td>
</tr>
<tr>
<td>DBP T₂</td>
<td>68.85(9.67)</td>
<td>65.61(7.43)</td>
<td>676.0</td>
<td>0.126</td>
</tr>
</tbody>
</table>

*=Mean (SD); DBP=Diastolic blood pressure

**Table 4.7a Comparison of CAD Risk Factor - DBP Between Groups (N=82)**
For comparison within group, there was no significant difference within both the control and intervention groups. The P-values were 0.093 for the control and 0.182 for the intervention group (Table 4.7b).

<table>
<thead>
<tr>
<th>Friedman Test</th>
<th>Mean</th>
<th>df/</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>4.75</td>
<td>2</td>
<td>0.093</td>
</tr>
<tr>
<td>Intervention</td>
<td>3.41</td>
<td>2</td>
<td>0.182</td>
</tr>
</tbody>
</table>

Table 4.7b  Comparison of CAD Risk Factor - DBP Within Group (N=82)

4.8 Results on CAD Risk factors – Body Mass Index (BMI)

The results on Body Mass Index between the control and intervention groups showed no significant differences for all the three time points (Table 4.8a). For comparison within the same group, no significant difference was noted (Table 4.8b).

<table>
<thead>
<tr>
<th></th>
<th>Control Mean(SD)*</th>
<th>Intervention Mean(SD)*</th>
<th>Mann-Whitney U Test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI T0</td>
<td>23.95(3.07)</td>
<td>23.41(2.59)</td>
<td>7370</td>
<td>0.330</td>
</tr>
<tr>
<td>BMI T1</td>
<td>23.83(3.02)</td>
<td>23.29(2.52)</td>
<td>745.5</td>
<td>0.375</td>
</tr>
<tr>
<td>BMI T2</td>
<td>23.73(2.84)</td>
<td>23.17(2.22)</td>
<td>744.5</td>
<td>0.368</td>
</tr>
</tbody>
</table>

*=Mean (SD); BMI=Body Mass Index

Table 4.8a  Comparison of CAD Risk Factor - BMI Between Groups (N=82)

<table>
<thead>
<tr>
<th>Friedman Test</th>
<th>Mean</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>4.20</td>
<td>2</td>
<td>0.122</td>
</tr>
<tr>
<td>Intervention</td>
<td>5.05</td>
<td>2</td>
<td>0.080</td>
</tr>
</tbody>
</table>

Table 4.8b  Comparison of CAD Risk Factor - BMI Within Group (N=82)
Research Question 3: Is there any difference in blood lipid level between the control group and the intervention group?

4.9 Results on CAD Risk factor – Lipid Profile

One of the key risk factors for MI and CAD is lipid profile. Lipid profile includes triglyceride (TG), total cholesterol (TC), high-density lipoprotein cholesterol (HDL) and low-density lipoprotein cholesterol (LDL). There were no significant differences between the control and intervention groups on TG, TC and HDL for all the three time points. On the other hand, LDL showed significant differences at the baseline, T(1) and T(2). The p-values were <0.001, 0.003 and 0.002 respectively for the three time points (Table 4.9a).

<table>
<thead>
<tr>
<th></th>
<th>Control Mean (SD)</th>
<th>Intervention Mean (SD)</th>
<th>Mann-Whitney U Test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TG T0</td>
<td>2.10(0.37)</td>
<td>2.04(0.41)</td>
<td>773.0</td>
<td>0.528</td>
</tr>
<tr>
<td>TG T1</td>
<td>2.09(0.39)</td>
<td>2.00(0.37)</td>
<td>715.5</td>
<td>0.244</td>
</tr>
<tr>
<td>TG T2</td>
<td>2.12(0.36)</td>
<td>1.99(0.36)</td>
<td>699.0</td>
<td>0.188</td>
</tr>
<tr>
<td>TC T0</td>
<td>5.72(0.64)</td>
<td>5.62(0.56)</td>
<td>775.5</td>
<td>0.540</td>
</tr>
<tr>
<td>TC T1</td>
<td>5.65(0.66)</td>
<td>5.51(0.52)</td>
<td>747.0</td>
<td>0.380</td>
</tr>
<tr>
<td>TC T2</td>
<td>5.64(0.59)</td>
<td>5.50(0.48)</td>
<td>713.5</td>
<td>0.237</td>
</tr>
<tr>
<td>HDL T0</td>
<td>1.01(0.28)</td>
<td>0.96(0.24)</td>
<td>767.5</td>
<td>0.494</td>
</tr>
<tr>
<td>HDL T1</td>
<td>0.92(0.23)</td>
<td>1.01(0.19)</td>
<td>595.5</td>
<td>0.210</td>
</tr>
<tr>
<td>HDL T2</td>
<td>0.95(0.24)</td>
<td>1.02(0.18)</td>
<td>6930.0</td>
<td>0.166</td>
</tr>
<tr>
<td>LDL T0</td>
<td>3.51(0.45)</td>
<td>3.83(0.34)</td>
<td>455.0</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>LDL T1</td>
<td>3.51(0.49)</td>
<td>3.75(0.30)</td>
<td>518.5</td>
<td>0.003</td>
</tr>
<tr>
<td>LDL T2</td>
<td>3.63(0.54)</td>
<td>3.83(0.29)</td>
<td>508.5</td>
<td>0.002</td>
</tr>
</tbody>
</table>

*=Mean (SD) TG=Triglyceride TC=Total Cholesterol HDL=High Density Lipoprotein cholesterol LDL=Low Density Lipoprotein cholesterol

Table 4.9a Comparison of CAD Risk Factor Lipid Profile Within Group (N=82)
For comparison within the same group using the Friedman test, it showed no significant difference in TG. However, there were statistical differences in TC with p-value=0.016 for the control group and <0.001 for the intervention group.

Although the HDL did not show a significant difference at the three time points, there was an increase in HDL after intervention and 3 months after intervention for both the control and intervention groups (Figure 4.9).

![Figure 4.9 CAD Risk Factor Comparison - HDL](image-url)
Also, the level of LDL in the intervention group had statistical difference with p-value=0.004. Nevertheless, there were no significant differences in LDL of the control group. Although there were no significant differences in the HDL level of both the control and intervention groups within the same group, an increasing level of HDL was noted (Table 4.9b).

<table>
<thead>
<tr>
<th>Friedman Test</th>
<th>Mean</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control TG</td>
<td>0.42</td>
<td>2</td>
<td>0.812</td>
</tr>
<tr>
<td>Intervention TG</td>
<td>2.36</td>
<td>2</td>
<td>0.307</td>
</tr>
<tr>
<td>Control TC</td>
<td>8.25</td>
<td>2</td>
<td>0.016</td>
</tr>
<tr>
<td>Intervention TC</td>
<td>14.78</td>
<td>2</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Control HDL</td>
<td>6.67</td>
<td>2</td>
<td>0.360</td>
</tr>
<tr>
<td>Intervention HDL</td>
<td>5.38</td>
<td>2</td>
<td>0.068</td>
</tr>
<tr>
<td>Control LDL</td>
<td>6.37</td>
<td>2</td>
<td>0.041</td>
</tr>
<tr>
<td>Intervention LDL</td>
<td>11.05</td>
<td>2</td>
<td>0.004</td>
</tr>
</tbody>
</table>

Table 4.9b CAD Risk Factors - Comparison of Lipid Profile Within Group (N=82)

In table 4.10, there were no significant differences of demographic variables between the dropout and the completers.
<table>
<thead>
<tr>
<th></th>
<th>Dropout (n=17)</th>
<th>Completers (n=65)</th>
<th>$x^2$</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>13(76.5)</td>
<td>41(63.1)</td>
<td>1.075</td>
<td>0.300</td>
</tr>
<tr>
<td>Female</td>
<td>4(23.5)</td>
<td>24(36.9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 60</td>
<td>8(47.1)</td>
<td>24(36.9)</td>
<td>0.756</td>
<td>0.685</td>
</tr>
<tr>
<td>60-69</td>
<td>5(29.4)</td>
<td>26(40.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥70</td>
<td>4(23.5)</td>
<td>15(23.1)</td>
<td></td>
<td></td>
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<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>13(76.5)</td>
<td>58(89.2)</td>
<td>1.890</td>
<td>0.169</td>
</tr>
<tr>
<td>Married but live separate/live</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>separate/divorced/deceased</td>
<td>4(23.5)</td>
<td>7(10.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Education Status</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No education</td>
<td>7(41.2)</td>
<td>10(15.4)</td>
<td>6.606</td>
<td>0.037</td>
</tr>
<tr>
<td>Primary</td>
<td>2(11.8)</td>
<td>22(33.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary or above</td>
<td>8(47.1)</td>
<td>33(50.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Occupational</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housewife</td>
<td>4(23.5)</td>
<td>16(24.6)</td>
<td>6.081</td>
<td>0.108</td>
</tr>
<tr>
<td>Paid work</td>
<td>3(17.6)</td>
<td>30(46.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>4(23.5)</td>
<td>8(12.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retired</td>
<td>6(35.3)</td>
<td>11(16.9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Smoking history</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>6(35.3)</td>
<td>23(35.4)</td>
<td>5.454</td>
<td>0.065</td>
</tr>
<tr>
<td>Yes</td>
<td>4(23.5)</td>
<td>31(47.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quit</td>
<td>7(41.2)</td>
<td>11(16.9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Alcohol History</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>10(58.8)</td>
<td>49(75.4)</td>
<td>3.066</td>
<td>0.216</td>
</tr>
<tr>
<td>Yes</td>
<td>0</td>
<td>2(3.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quit</td>
<td>7(41.2)</td>
<td>14(21.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Regular Exercise History</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>11(64.7)</td>
<td>45(69.2)</td>
<td>0.127</td>
<td>0.721</td>
</tr>
<tr>
<td>Yes</td>
<td>6(35.3)</td>
<td>20(30.8)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

=Mean (SD)

Table 4.10  Dropout Vs Completers on Demographic Variables
The results reported in this chapter reveal that Nurse Follow-Up Dietary Intervention (NFDI) has positive impacts on dietary modification. Despite that there was no significant difference of the knowledge level of CAD risk factors and lipid profile between the control and intervention groups, patients in the intervention group demonstrated significantly better dietary behaviour on high fat, high salt and Mediterranean type diet intake. The majority of these positive effects were maintained at three months follow-up.
CHAPTER FIVE

DISCUSSION

This chapter goes through the discussion section. With referencing from lots of different kinds of studies and literature, the following headlines including knowledge of CAD risk factors, dietary behaviour on Cantonese – Mediterranean type food, CAD risk indicators – blood pressure, BMI, lipid profile, telephone follow-up were compared. Also, implication for practice, limitations and recommendations for future studies were included. Sum up with the conclusion ends this chapter.

5.1 Knowledge Level of CAD risk factors

Despite there was no significant difference on the knowledge level of CAD risk factors between the intervention and control groups, results on the Cantonese-Mediterranean type dietary behaviour showed that the intervention group was better than the control group. This might be due to the holding of small group discussion and the effect of telephone follow-up. Group discussion provides chances for information exchange and clarification of issues while telephone follow-up may serve monitoring and reinforcement purposes.

5.2 Dietary behaviour (Cantonese-Mediterranean type of dietary behaviour)

The Adult Treatment Panel (ATPIII) guidelines advocate therapeutic lifestyle change in diet and exercise for lipid-related risk reduction in patients with coronary
heart disease (Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults, 2001). This study focused on the effect of NFDI on dietary behaviour change and the CAD physiological risk factor-lipid profile among post MI patients.

First of all, according to the study findings on dietary behaviour, high-fat diet, high-salt diet and Cantonese-Mediterranean type diet had been focused. Considering the effect of the NFDI on altering dietary behaviour, by comparing the results of high-fat, high-salt and Cantonese-Mediterranean type diet between the control and intervention groups, there were no significant differences in the baseline. On the contrary, there were significant differences between the control and intervention groups and the time 2 of high fat diet intake and time 1 and 2 on high salt and Cantonese-Mediterranean type diet. It is believed the better response of the intervention group to dietary modification on high fat and high salt and Cantonese-Mediterranean type diet is attributable to the effects of NFDI.

Djuric and team (2008) studied the effects of Greek-Mediterranean-type of eating pattern on health, including lower risks of both cardiovascular disease and cancer. However, there were culture differences between East Asians and Westerners. Food preferences and accessibility and availability of food items in the market had to be considered. The strength of this study was the adoption of Cantonese fusion diet adapted to Mediterranean Dietary guidelines (C-MEDI) which was carefully estimated and considered for the participant. C-MEDI diet was a tailor-made fusion recipe designed by a professional registered dietitian after lots of discussion with a professional cardiac rehabilitation specialist. C-MEDI diet is based on Cantonese cuisine and fusion with the Mediterranean diet with reference to the
guidelines of the American Heart Association, 2008. Suggested recipes and cooking methods were contained in the booklet for the intervention group. The C-MEDI diet was specifically tailor-made and was identical for all the Hong Kong Chinese participants. The problem of cultural differences did not exist.

National Institutes of Health (NIH)-sponsored Lipid Research Clinics Coronary Primary Prevention Trial (LRC-CPPT, 1984) promoted the low-fat diet; the result suggested that with lower serum cholesterol, the mortality rate will be relatively lower. This study focused on low-fat and low-salt Mediterranean intake which was similar with the low-fat diet. However, further studies may be needed to understand the relationship between mortality and low-fat diet among post MI patients.

Weinberg (2004) stated that the medical use of statins produced strong evidence of improving CAD. Likewise, this study seeks ways to improve CAD, by exploring on participants in borderline lipid profile but not having statins.

5.3 CAD risk indicators
5.3.1 Blood Pressure

Studies (Pepine, 1998; Humes et al., 2000) showed that hypertension had adverse effects on vessel walls and an increased oxidant effect, which damages the endothelium and evokes the imbalance between the processes of vessel constriction and dilation, vascular smooth muscle cell proliferation and antiproliferation, thrombosis and antithrombosis, and fibrinolysis and antifibrinolysis. According to results of this study, there were significant differences in systolic blood pressure (SBP) and diastolic blood pressure (DBP) at $T_{(1)}$ which was around 1-2 weeks after
NFDI. The intervention group had a lower SBP and DBP whereas the control group did not showed any improvement. This may be due to the diet modification on low salt consumption. The control and intervention group both consumed less high-salt intake but the intervention group consumed less than the control group in a greater proportion. Thus, it may explain why the intervention group had a lower SBP and DBP than the control group.

5.3.2 Body Mass Index (BMI)

The study showed that BMI was not a suitable indicator for CAD mortality (Kang et al., 2006). Compared to the result of this study, there were no significant differences between both the control and intervention groups which were similar to Kang et al. (2006) study. Kang’s study (2006) focused on the mortality of CAD among obese patients. Further study on relationship of BMI and the mortality rate among post MI patients may be indicated.

5.3.3 Lipid Profile

The study of Ammerman, Keyserling, Atwood, Hosking, Zayed and Krasny (2003), their study objective was to assess the effectiveness of an intervention programme designed to facilitate dietary counselling for hypercholesterolemia, their results showed reduction in blood cholesterol was similar in both groups. In this study, Triglycerides (TG), Total cholesterol (TC), High density lipoproteins (HDL) and Low density lipoproteins (LDL) were investigated. Different from the result of Ammerman et al. (2003), there were no significant differences between both the control and intervention groups on TC, TG, LDL and HDL. Although there were no statistical significant differences after the NFDI, one encouraging result was the
increasing trend of HDL which is a cardio-protective factor. The intervention group increased of HDL whereas the control group decreased without NFDI. To sum up, the NFDI may contribute favourably to the increase of HDL, probably due to the increase intake of C-MEDI diet by the intervention group.

Another study in Hong Kong by Yu et al. (2003) reported a significant improvement in LDL and HDL, but not in TC and TG, among patients participating in a cardiac rehabilitation programme of exercise training plus education on risk factor modification. Also a multi-faceted cardiac rehabilitation programme for obese CAD patients only resulted in a significant change in HDL, but not in TG, TC, and LDL (Lavie & Milani, 1995). According to studies by Lavie & Milani (1995) and Yu et al. (2003), there might have existed the problem of low dietary adherence, but is beyond explanation as these studies did not present dietary information. From this point of view, C-MEDI diet recipes for the intervention groups were added in this study so as to measure the effectiveness on their dietary behaviour as well as their blood lipid profile.

Similar to studies by Lavie & Milani (1995) and Yu et al. (2003), patients taking lipid lowering drugs (Statins) were excluded in this study. Subjects with drug given would affect the result of lipid profile. Excluding these patients aimed to focus the effectiveness of NFDI on subjects’ dietary behaviour and lipid profile. The difference in lipid reduction effect between the medication-involved studies and those studies paid little or no attention to medication management suggests the importance of the cooperation of lifestyle change with active initiation of lipid-lowering treatment as well as the associated strategies for facilitating adherence, so as to achieve a satisfying lipid modification effect.
5.4 Telephone Follow-up

Hospital discharge can be a time of significant patient dissatisfaction, as patients’ transition to a new environment and are expected to understand and recall complex medication and other instruction despite feeling unwell and being under stress.

It has been confirmed by DeBusk, Miller, Superko et al. (1994) and Dudas, Bookwalter, Kerr & Pantilat (2002) that the use of follow-up telephone calls may improve patient satisfaction and clinical outcomes at the time of discharge. The telephone follow-up therefore was a crucial channel for delivering an intervention. It also acted as a tool for the evaluation and reinforcement of the programme. Results from Eakin et al. (2007) suggest that telephone counseling could be effective in producing modest short-term changes in physical activity and diet in a challenging patient population. Therefore, this study adopted telephone follow-up as mean to reinforce the intervention especially on diet modification. Though the time frame for data collection were different in this study as compared with that of Eakin’s (2007), there was significant difference seen in some CAD risk factors and diet modification in the study group.

In all, study results showed significant effect in diet modification and some CAD risk factors within a shorter time period compare with other studies. However, the effectiveness of NFDI was only partly confirmed, in particular, in the area of the reduction of lipid profile and the improvement of CAD knowledge level of post MI patients.
5.5 Implications for Practice

A nurse-led cardiac rehabilitation programme with nurse follow-up focusing on dietary modification and physiological data-lipid profile (NFDI) might be an effective programme in modifying cardiac physiological parameters and improving dietary behaviour in cooking and eating habits. Results may provide evidence on nurses’ contributions to promoting the recovery and preventive process of CAD patients, also the significant role they can play in the domain of cardiac rehabilitation and secondary prevention.

Nurses form the largest proportion of health care workforce in health care system globally as well as in Hong Kong. Nurses are unique and in a good position for assuming the responsibilities of cardiac rehabilitative care because staff having most of the contact time and chances with patients and their family were nurses. However, nurses in Hong Kong are often occupied by different kinds of complicated jobs in clinical practice. It limits nurse to go beyond the brief discharge instruction to meet the more complex and continuous rehabilitative care needs of patients in their daily practice. Guo & Yan (2002) identified that lack of knowledge and recognition for nurses to take on the responsibility of cardiac rehabilitation care are reasons for nurses’ failure to take on the cardiac rehabilitative care nurses’ role.

Patient education is an essential component of rehabilitation nursing. Patient education and professional follow-up care is a crucial element of cardiac rehabilitation. This study demonstrated the importance on improving dietary behaviour and modifying physiological risk parameters in post MI patients. And the need for nursing education intervention was an inevitable ingredient in cardiac
rehabilitation care. The initiation of patients is a key factor on patients’ empowerment as well as the recovery for patients. Changing patients’ health behaviour is vital and effective.

5.6 Limitations and Recommendations for future studies

Jolliffe et al. (2004) commented the longest follow-up time of cardiac rehabilitation studies is 19 years. Monitoring patients’ health behaviour on diet, physical exercise pattern and smoking and medication was suggested to be in 6 months, 1-year and 2-year after intervention (Mills et al., 1985). Due to the time limitation, the follow-up time of this study was limited to 3 months after the intervention completed.

Longer follow up time would influence the subsequent health outcomes such as cardiac physiological risks, recurrence of heart attack, and quality of life. More longitudinal studies may be required to address the lasting effect of the intervention.

Family participation and support is also important in rehabilitation process. This study did not assess the change in the perceived family support of the rehabilitation participants. This is another area of future research, as literature indicates that family members, especially partners, also suffer a high level of psychological morbidity after their spouse or beloved ones develop a heart problem (Shanfield, 1990).

The sample size was not large enough was a drawback due to the Influenza epidemic in the past few months. Though the sample size was small, the effect size
was still sufficient (ranging from 0.33-0.65). In addition, changes in hospital policy and clinical protocol of medication were beyond the control of the researcher and add difficulties for subject recruitment. The use of lowering-lipid treatment on MI patients was executed on compulsory basis regardless of the lipid profile of patients aiming in lowering the CAD risk as much as possible in the acute phase of the illness. Despite sudden change of departmental policy affected recruitment of subjects, excluding the number of dropouts, the sample size was acceptable.

The Hawthorne effect might have happened in this study. The positive change in the intervention group could have resulted from the different intensity of professional contacts between the two groups. Also, for participants’ self-reported information, social desirable responses could not be totally excluded. In order to minimize the possible effect of these limitations, a post-intervention data collection at 3 months interval had been scheduled. The researcher also included the collection of physiological parameters (blood result) for providing data to reflect the outcome.

5.7 Conclusion

This study has demonstrated that nurse follow-up intervention does have positive bearings on patients with coronary artery disease. Through participating in the NFDI rehabilitation programme, post myocardial infarction CAD patients demonstrated significantly better dietary behaviour which sustained for 3 months after intervention. Although most of the cardiac physiological risks, including TC, TG, LDL and HDL, did not show significant difference between the control and intervention group, increase in the cardio-protective factor - HDL - is an encouraging sign which merits further study. Professional follow-up support through telephone
contact is an effective means for providing cardiac rehabilitation and secondary prevention for CAD patients.

Similar nurse follow-up intervention programmes in Hong Kong are limited. This study raises the attention of the importance of nurse roles in cardiac rehabilitation. It is hoped that this study can generate momentum and set the direction for development of evidence-based cardiac rehabilitation nursing in Hong Kong.
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Treatment of High Blood Cholesterol in Adults. Summary of the second report of the


CONSENT TO PARTICIPATE IN RESEARCH

The Hong Kong Polytechnic University
Faculty of Health and Social Sciences
School of Nursing

Effect of nurse follow-up dietary intervention on dietary behaviour and disease related knowledge in post Myocardial Infarction patients: A randomized controlled trial

As in 2002, acute myocardial infarction has become the third killer among Hong Kong people. Other than medical regime, dietary modification is noted to be effective in reducing recurrent of the disease. Hence, dietary consultation has included in the treatment program of post myocardial infarction patients.

This study is a collaboration study between Hong Kong Polytechnic University and Queen Elizabeth Hospital aims to examine the effect of a Nurse Follow up Intervention (NFDI) on knowledge of coronary artery disease, dietary modification and cholesterol level of persons following acute myocardial infarction. The study results would help to develop a better Cardiac Rehabilitation Program specific for Hong Kong Chinese.

If agree to participate in the study, you are required to complete a questionnaire which would take less than 30 minutes and be contacted for follow up. Please be assured that all personal information provided will be kept confidential and will be destroyed afterwards. Please be reminded that this research contains no financial interest between parties. And that you could withdraw from the study at any time with no influence on the treatment and service you are receiving.

For further enquiry, please feel free to contact
Mr. Mok Ki Fung Vincent (Tel.: 2958  .
Dr. Tsang Sau Mui Alice (Tel.: 2766 6424)
Dr. Sit Wing Hung Janet (Tel.: 2766 6549)&
Research Ethics Committee (Kowloon Central/Kowloon East)(Tel: 2958 6623)

Thank you for your attention!
Effect of nurse follow up dietary intervention on dietary behaviour and disease related knowledge in post Myocardial Infarction patients: A randomized controlled trial

I ________________________, agreed to take part in the study. The study aims to understand the knowledge of coronary artery disease, dietary behaviour and cholesterol level in patients who suffered from acute myocardial infarction, before and after dietary intervention.

I understand the purposes and the contents of the study and have been given a chance for asking questions regarding the study.

During the study, I know that I could ask questions and have the right to withdraw at any time with no changes with my current treatment regimen.

All information provided will be kept confidential and anonymous. And the data will only be used in the report of this study.

_____________________                     ______________________
Signature of Participant                       Signature of Investigator

_____________________                     ______________________
Date                                                       Date
香港理工大學醫療社會科學院護理學院

飲食更進干預對改善心肌梗塞患者飲食習慣與疾病相關知識的效果

自 2002 年起，急性心肌梗塞是香港第三號殺手，這可能和香港人的飲食習慣有關。改善飲食習慣有助對心肌梗塞病情及減少復發機會。

故此，希望透過瞭解急性心肌梗塞病人，在接受飲食治療前後對心血管病知識，飲食習慣及膽固醇數值上差異，研究結果將有助證明飲食治療對閣下改善治療閣下心肌梗塞病的效果。

此研究為香港理工大學及伊利沙伯醫院共同合作的項目。在此，研究小組希望閣下同意參與及回答問卷。完成此問卷需時約 30 分鐘。閣下提供所有資料是絕對保密的。於研究結束後，這些資料會被消毀。此項研究屬自願性質並不涉及任何金錢利益，閣下可以拒絕或隨時中止參與這項研究，而閣下在住院期間所需的照料和看護並不會因此而受到影響。

若對此項研究有任何查詢，請致電研究小組：

莫奇峰先生 (電話: 2958)
曾秀梅博士(電話: 2766 6424) 或
薜詠紅博士(電話: 2766 6549) 或
九龍中及九龍東聯網臨床研究倫理委員會 (電話 : 2958 6623)

謝謝!
香港理工大學醫療社會科學院護理學院

心肌梗塞病人在接受飲食治療前後，心血管病知識、飲食習慣及膽固醇數值上差異

本人 ___________________________ 茲同意參加此項研究。此研究旨在調查。心肌梗塞病者，在接受飲食治療前後，對心血管病知識、飲食習慣及膽固醇數值上的效果。

本人已得知此研究的目的並給予了詢問的機會和問題的解答。本人明白參與完全屬自願性質。本人可詢問詳情，並有權隨時撤回此項同意，而無須作任何解釋或受懲罰及利益損失。

本人所提供有的資料純作此項研究用途，並會受到絕對保密！

_________________________                              _______________________
參與者簽名                              研究員簽名

_________________________                              _______________________
日期                              日期
急性心肌梗塞病人在接受饮食治疗前后的血糖及胆固醇数值的差异的问卷调查

Case no:

甲. 个人资料
1. 年龄        ________ 岁
2. 性别
   □ 男       □ 女
3. 婚姻状况
   □ 已婚       □ 分居       □ 离婚
   □ 已婚，但仍配偶同住 □ 未婚       □ 墓偶
4. 居住情况
   □ 独居       □ 与配偶同住
   □ 与朋友同住 □ 其他（请注明：______）
5. 教育程度
   □ 未接受正规教育 □ 中学 (中五)
   □ 小学       □ 高中 (中三)       □ 学士程度
   □ 初中 (中三) □ 高级文凭       □ 学士程度或以上
6. 工作性质
   □ 家庭主妇       □ 劳动性行业
   □ 专业人员       □ 失业
   □ 文职人员       □ 退休（退休前职业：______）
7. 经医生证明之病历
   □ 无       □ 糖尿病       □ 高血压       □ 中风
   □ 高血脂       □ 心脏病       □ 肾病       □ 其他：______
8. 有否做任何外科手术
   □ 有（请注明名称及年份：______）       □ 否
9. 现在有否需要长期服食经医生处方的药物
   (如有，请注明名称、剂量、每日服用次数)
   1.________________________
   2.________________________
   3.________________________
   4.________________________
10. 有否吸烟的习性
    □ 有（请注明数量：______）       □ 己戒
    (请注明已戒掉时期为：______)
    □ 从没吸过
11. 有否饮酒的习性
    □ 有（请注明份量：______）
    (请注明酒量：______)
    □ 己戒
    (请注明已戒掉时期为：______)
    □ 从未喝酒
乙. 對引致心血管病危機的認識，
請在你認為正確的答案上畫上 □ 号

1. 你認為心血管病可不可以預防  
   □ 可以  □ 不可以 (轉答下一部份-運動習慣)

2. 你認為心血管病怎樣可以預防? (可選多項答案)
   □ 運動  □ 飲食  □ 物理治療
   □ 食藥  □ 宗教療法 (例如: 拜神,祈禱等)

3. 你認為以下因素會增加患心血管病的機會 (請回答每一項,在適當地方加 □ 号)

<table>
<thead>
<tr>
<th>因素</th>
<th>會</th>
<th>不會</th>
<th>不知道</th>
</tr>
</thead>
<tbody>
<tr>
<td>飲酒</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>吸煙</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>哮喘</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>高血壓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>糖尿病</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>高膽固醇</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>癲癇 (發羊角)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>肥胖</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>曾經中風</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>冠心病</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>尿道炎</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>暫時性腦缺血</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>頭部血管狹窄</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>年紀大</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>老人痴呆</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>男性</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>有家族病史</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>缺乏運動</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>高血脂</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>心律不齊</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>遺傳</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
丙. 運動習慣

1. 你有沒有定期運動? 如有,維持了多久?
   □ 有, ____ 月/年* (劃去不適用)
   □ 沒有

2. 你每星期的運動次數是:
   □ 每星期5次或以上
   □ 每星期3至4次
   □ 每星期1至2次
   □ 2至4星期1次
   □ 少於10分鐘
   □ 沒有運動

3. 每次運動時間有多長?
   □ 10至20分鐘
   □ 21至30分鐘
   □ 30分鐘以上
   □ 沒有運動

4. 你進行運動的類別是:(可選多種)
   □ 游泳
   □ 單車
   □ 其他: _______
   □ 健身運動/健身舞
   □ 球類
   □ 沒有運動
   □ 運動
   □ 其他: _______
   □ 喝茶
   □ 其他: _______

5. 過去6個月,你有沒有改變運動習慣?
   □ 有(增加/減少* 劃去不適用*原因: _______
   □ 沒有

6. 你於假日的經常消遣活動是:
   (可選多項)
   □ 睇電視
   □ 睇電影
   □ 睇書/雜誌
   □ 其他: _______
   □ 行街
   □ 行山
   □ 到餐廳/酒樓吃飯
   □ 其他: _______
   □ 郊遊
   □ 運動
   □ 其他: _______
   □ 打麻雀

丁. 日常飲食習慣

1. 平日大部份時間膳食的安排
   □ 自己負責
   □ 由家人負責
   □ 出外進食
   □ 其他: _______

2. 假期或特別日子的膳食安排
   (出生或結婚紀念日)
   □ 自己負責
   □ 由家人負責
   □ 出外進食
   □ 其他: _______

3. 喜慶節日,你會否增加進食應節食品
   (如新年,中秋,生日等)
   □ 時常
   □ 十分經常
   □ 有時
   □ 從不

4. 一星期內,你外出進食的次數
   □ 每週1-3次
   □ 每週4-6次
   □ 每日1次或以上
   □ 從不

5. 請問你有沒有定時定量吃早,午,晚三餐的習慣
   □ 時常
   □ 十分經常
   □ 有時
   □ 從不

6. 在過去一個星期,你常用的烹調方式有那幾種
   (請以1表示為首選,至7為最少選用的方法)
   □ 炒
   □ 熊/烙/焗
   □ 炸
   □ 煎
   □ 蒸
   □ 蒸
   □ 其他: 請註明: _______
II. 食物種類攝取量
每日，你進食以下五類食物多少份？
A) 白飯、粥、麵、麵包
   (1份=半碗飯/麥皮) 份
B) 肉類、家禽、魚類及蛋類
   (1份=60-90克，如手掌大，瘦肉，雞肉，魚肉或鴨蛋2隻) 份
C) 奶類、乳酪或芝士
   (1份=1杯奶/麥皮/麵；或1塊厚切麵包或2塊薄麪包) 份
D) 水果
   (1份=1個水果或3/4杯果汁或1/4杯乾果腩或1/2杯罐頭水果) 份
E) 蔬菜
   (1份=半碗已熟的蔬菜或1碗生吃蔬菜或3/4杯蔬菜汁) 份

III. 心臟血管病變相關飲食習慣

<table>
<thead>
<tr>
<th></th>
<th>每月少於 2-3次</th>
<th>每月2-3次</th>
<th>每星期1-2次</th>
<th>每星期3-4次</th>
<th>每星期4次以上</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.高脂肪食物</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.香腸，午餐肉，五花腩</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>b. 豬腳，豬腳，豬皮，牛腩</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>c. 用半肥瘦豬肉，豬骨，全雞，(連皮)煲老火湯</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>d. 煎炸食物，如油條，煎豬扒，炸春卷，煎蛋，炸豆腐等</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>e. 中式酒樓點心，如咸水角，排骨，燒賣，叉燒酥，鳳爪等</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>f. 西式快餐店食物，如炸雞翼，薯條，蘋果批，肉醬意粉等</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>g. 全脂牛奶，全脂芝士，煉奶，淡奶，雪糕，</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. 用油炒菜</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. 即食麵，油麵，炒粉</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>j. 西餅，蛋糕</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>k. 高脂肪小食，如果仁，薯條，蝦條等</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>l. 高脂肪糖果，如朱古力，椰子糖，扭肥糖等</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>m. 沙津醬，白汁，咖喱汁，花生醬，鶏汁</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>n. 腸，牛肚，豬腰等</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o. 有肉餡的餐包，如腸仔包，午餐肉飽吞拿魚包等</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

2. 鹹的食物
### 3. 地中海飲食

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 以橄欖油代替其他食油煮食</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>b. 食用水溶性纖維食品 (如燕麥片,蓮藕)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>c. 家禽或深海魚類</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>d. 五穀類食品(如鷄米,薏米)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>e. 新鮮蔬菜</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>f. 根莖類 (如紅蘿蔔,薯仔)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>每月少於一次</th>
<th>每月2-3次</th>
<th>每星期1-2次</th>
<th>每星期3-4次</th>
<th>每星期4次以上</th>
</tr>
</thead>
<tbody>
<tr>
<td>h. 雞蛋</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>i. 水果</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

4. 在地中海飲食方面,你感到有什麼困難或問題呢？
戊. 體格檢查

参考數值

1) 身高: __________ 米
2) 體重: __________ kg
3) BMI: __________
4) 血壓: __________ mmHg
5) 三酯甘油: __________ mmol/L borderline: 1.7-2.31 mmol/L
6) 胆固醇: __________ mmol/L borderline: 5.18-6.22 mmol/L
7) 高密度脂蛋白 (HDL): __________ mmol/L borderline: 1.03-1.52 mmol/L
8) 低密度脂蛋白 (LDL): __________ mmol/L borderline: 3.34-4.12 mmol/L
9) 血糖: __________ mmol/L fasting borderline: 5.6-6.9 mmol/L

10) Clinical conditions of this MI episode

   Medical Diagnosis ________________

   Co-existing illness ________________

   Hospital length of stay ________________

   Given any streptokinases Y/N

     (any complications?) i.e. hypotension Y/N

     Ventricular tachycardia Y/N

     Ventricular Fibrillation Y/N

   History of Intra Aortic Balloon Pump Machine insertion? Y/N

   History of Intubation? Y/N  Duration of intubation _______ days

   History of Cardioversions _________ How many times? _________

   History of Resusciations _________ How many times? _________

   Coronary angiography result:

   ● Left main coronary artery stenosis ≥ 50%
   ● Left anterior descending artery stenosis ≥ 50%
   ● Left circumflex artery stenosis ≥ 50%
   ● Right coronary artery stenosis ≥ 50%
   ● Mild coronary artery disease

   Echocardiogram: __________

   Ejection Fraction: __________
要降低膽固醇及血糖
從地中海飲食開始
<table>
<thead>
<tr>
<th>目錄</th>
<th>頁數</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 我為何會心臟病發呢？</td>
<td>3</td>
</tr>
<tr>
<td>2. 什麼是好膽固醇?什麼是壞膽固醇？</td>
<td>4 - 5</td>
</tr>
<tr>
<td>3. 什麼是糖尿病？</td>
<td>6</td>
</tr>
<tr>
<td>4. 請問需要戒口嗎？</td>
<td>7</td>
</tr>
<tr>
<td>5a.何謂地中海飲食？</td>
<td>8</td>
</tr>
<tr>
<td>5b.地中海飲食 · · 吃什麼？</td>
<td>9</td>
</tr>
<tr>
<td>5c.食物金字塔建議份量</td>
<td>10</td>
</tr>
<tr>
<td>6. 保持身心健康的重要</td>
<td>11</td>
</tr>
</tbody>
</table>
1. 我为何会心臟病發作呢？
人的心臟是由肌肉構成，而心肌收縮將血液泵到全身，而心肌自身所需的血液是由冠狀動脈供應的。當這條重要血管因脂肪積聚而收窄及硬化，血液不能供給心臟肌肉，造成心臟局部肌肉壞死而導致。

患者主要會覺得胸口疼痛，常伸展到手臂、頸部、背部，又會覺得呼吸困難及焦慮。

冠心病的成因由多種因素綜合所致，包括吸煙、年老、肥胖、高脂肪高糖的飲食習慣、情緒波動、精神緊張、缺乏運動、高血壓、糖尿病、高膽固醇。
2. 什麼是好膽固醇？什麼是壞膽固醇？

膽固醇可分高密度膽固醇（HDL-好膽固醇），低密度膽固醇（LDL-壞膽固醇）。

好膽固醇，能把血液內的膽固醇送到肝臟排泄，減低患冠心病機會，保護心臟；反之，壞膽固醇會阻塞血管，令血管變得狹窄，並引發冠心病和中風。

根據美國心臟協會建議：

<table>
<thead>
<tr>
<th>低密度脂蛋白膽固醇水平(壞膽固醇)</th>
<th>&lt; 100 mg/dL</th>
<th>&lt;2.58mmol/L</th>
<th>理想</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-129 mg/dL</td>
<td>2.58–3.33mmol/L</td>
<td>較理想/良好</td>
<td></td>
</tr>
<tr>
<td>130-159 mg/dL</td>
<td>3.36–4.11mmol/L</td>
<td>邊界高</td>
<td></td>
</tr>
<tr>
<td>160-189 mg/dL</td>
<td>4.13–4.88mmol/L</td>
<td>高</td>
<td></td>
</tr>
<tr>
<td>190mg/dL 及以上</td>
<td>≥4.91mmol/L</td>
<td>非非常高</td>
<td></td>
</tr>
</tbody>
</table>

(美國心臟協會, 2008)
### 高密度脂蛋白膽固醇 (好膽固醇)

<table>
<thead>
<tr>
<th>值</th>
<th>卖固醇 (mmol/L)</th>
<th>等级</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤40 mg/dL</td>
<td>&lt;1.03</td>
<td>低</td>
</tr>
<tr>
<td>&gt;60 mg/dL</td>
<td>≥1.55</td>
<td>高</td>
</tr>
</tbody>
</table>

(美國心臟協會, 2008)

而高密度脂蛋白膽固醇水平，如果達到 60 mg/dL 或更高，一定程度上可以防止心臟病的發生。

### 三甘油脂水平可分以下幾類

<table>
<thead>
<tr>
<th>值</th>
<th>卖固醇 (mmol/L)</th>
<th>等级</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 150 mg/dL</td>
<td>&lt;1.69</td>
<td>正常</td>
</tr>
<tr>
<td>150-199 mg/dL</td>
<td>1.69–2.25</td>
<td>邊界高</td>
</tr>
<tr>
<td>200-499 mg/dL</td>
<td>2.26–5.63</td>
<td>高</td>
</tr>
<tr>
<td>≥500 mg/dL</td>
<td>≥5.64</td>
<td>非常高</td>
</tr>
</tbody>
</table>

(美國心臟協會, 2008)

三甘油脂，是脂肪的一種存在形式，高三甘油脂會令壞膽固醇及總膽固醇升高，好膽固醇降低。
3. 什麼是糖尿病？

根據世界衛生組織 1999 的定義，若然空肚血糖度數超過或等於 7 mmol/L (126 mg/dL)，或飲用 75 克葡萄糖水兩小時後，血糖度數超過或等於 11.1 mmol/L (200 mg/dL)，都顯示已患上了糖尿病。
(世界衛生組織，1999)

糖尿病是心臟病發作的主要危險因素之一，降低血糖水平，對降低心臟病發作危險具有巨大的作用。

如血糖控制不當，會引致許多併發症，例如：血糖過高會引致急性酮酸中毒。而血糖過低，併發症就有心血管疾病，腦中風。

所以保持正常血糖值，能促進心臟作的機會。
要保持理想的膽固醇值及血糖值，就需稍作戒口:

- 例如忌煎炸食物、少喝濃湯、中式酒樓點心、獻汁、少吃高脂燉品（例如：雪蛤膏、燉豬腦）。
- 而烹調方法，以蒸、白灼最佳，避免用調味料。
- 較多油的食物，建議先洗去面層的油份，戒吃甜食及零食。（例如：糖水、朱古力、薯片、汽水）
- 少吃紅肉。（如牛肉、羊肉等）
5a. 何謂地中海飲食

地中海飲食是地中海國家人民文化、社會、土地、環境與烹飪各項遺產極重要的一環，可減少心血管病，延年益壽。

地中海飲食簡介：

- 以橄欖油為日常食用油。
- 以大量食用蔬果、豆類、穀類、堅果、水溶性纖維，例如：燕麥片、根莖類（蓮藕以及蕃薯）、乾果。
- 家禽類和魚類（深海魚肉）為主要肉食來源較少食紅肉*。
- 適量飲用紅酒（每日半杯約 120ml 至一杯 240ml）或在料理中加入紅酒烹調*。
- 如果不能喝紅酒綠茶也有類似的保健功效*。

(資料來源: * Journal of the American College of Nutrition 1999;18:137-143,
^台灣行政院衛生署)
5b. 地中海飲食·····吃什麼？
根據美國心臟協會建議：

- 以**橄欖油**代替其他日常用油作烹調之用，但記住不可以用高温煮炸，這會失去橄欖油的保健作用。
- 橄欖油含有一種單元不飽和脂肪酸，有助於降低血液中低密度脂蛋白膽固醇（壞膽固醇）的水平。其他選擇包括菜籽油、花生油。
- 盡量以**白肉**代替紅肉。（例如吃家禽、魚類、代替牛羊肉）
- 而每星期吃雞蛋**不應多過4隻**。
- 每日要吃水果2個。（避免吃過多糖份水果，例如：香蕉、榴槤、提子）
- 而**蔬菜、根莖類**（例如:蓮藕、甘筍）方面，則多吃無妨。
- **五穀類食品**如糙米、薏米。
- 多吃**水溶性纖維**，例如：燕麥片、藻類（海帶）、豆類、麥皮。

* 而份量請根據**食物金字塔**每日攝取量建議為
5c. 食物金字塔建議份量

吃最少
脂肪、油及糖類

吃適量
奶酸乳品及芝士類（每日1-2杯）
瘦肉、家禽類、魚類、豆類及蛋類（每天3-7兩）

吃多些
蔬菜及瓜類（每日最少6-8兩）
水果類（每天2-3個）

吃最多
穀類、麵包、飯、粉麵（每日3-6碗）
6. 保持身心健康的重要

心臟病患者除了在飲食上要注意均衡飲食外，身心健康都不可以忽視的。而減輕壓力多學習放鬆，保持身心健康更有助於預防心臟病。

一些人發現打太極拳等運動，也可以令人得到放鬆。

本小冊子提供了簡單的心臟病預防方法，希望你在出院後認真地學習和實踐手冊的內容，為你的早日康復而努力！
7. 附錄一 （各類食物膽固醇含量參考值）

美國心臟學會建議，我們每天空食膽固醇的份量應少於300毫克。以下是一個常見食物膽固醇含量表，可供參考：

食物膽固醇含量表:

<table>
<thead>
<tr>
<th>蛋類</th>
<th>膽固醇（毫克）</th>
</tr>
</thead>
<tbody>
<tr>
<td>雞蛋黃</td>
<td>266</td>
</tr>
<tr>
<td>鴨蛋黃</td>
<td>74</td>
</tr>
<tr>
<td>鴨黃</td>
<td>619</td>
</tr>
<tr>
<td>蛋白</td>
<td>0</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>肉類</th>
<th>膽固醇（毫克）</th>
</tr>
</thead>
<tbody>
<tr>
<td>豬腦</td>
<td>(100克或2兩半) 2530</td>
</tr>
<tr>
<td>牛腦</td>
<td>(100克或2兩半) 2054</td>
</tr>
<tr>
<td>豬腰</td>
<td>(100克或2兩半) 480</td>
</tr>
<tr>
<td>牛腰</td>
<td>(100克或2兩半) 387</td>
</tr>
<tr>
<td>豬肝</td>
<td>(100克或2兩半) 368</td>
</tr>
<tr>
<td>羊肝</td>
<td>(100克或2兩半) 323</td>
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<tr>
<td>羊肉（肥）</td>
<td>(100克或2兩半) 138</td>
</tr>
<tr>
<td>臘腸</td>
<td>(100克或2兩半) 150</td>
</tr>
<tr>
<td>肥牛肉</td>
<td>(100克或2兩半) 99</td>
</tr>
<tr>
<td>排骨</td>
<td>(100克或2兩半) 105</td>
</tr>
<tr>
<td>火腿</td>
<td>(100克或2兩半) 62</td>
</tr>
<tr>
<td>雞脾肉</td>
<td>(100克或2兩半) 95</td>
</tr>
<tr>
<td>瘦肉</td>
<td>(100克或2兩半) 77</td>
</tr>
<tr>
<td></td>
<td>膽固醇（毫克）</td>
</tr>
<tr>
<td>----------------</td>
<td>---------------</td>
</tr>
<tr>
<td><strong>海産類</strong></td>
<td></td>
</tr>
<tr>
<td>墨魚 (100克或2兩半)</td>
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</tr>
<tr>
<td>鮮魷魚 (100克或2兩半)</td>
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<tr>
<td>龍蝦 (100克或2兩半)</td>
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<tr>
<td>蟹肉 (100克或2兩半)</td>
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<tr>
<td>蝦 (100克或2兩半)</td>
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<tr>
<td>罐頭鮑魚 (100克或2兩半)</td>
<td>103-170</td>
</tr>
<tr>
<td>一般魚類 (100克或2兩半)</td>
<td>80</td>
</tr>
<tr>
<td><strong>奶類及乳類</strong></td>
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</tr>
<tr>
<td>奶油 (100克)</td>
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<tr>
<td>芝士 (100克)</td>
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<tr>
<td>牛油 (100克)</td>
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<td>牛奶 (100克)</td>
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<tr>
<td><strong>油類</strong></td>
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<tr>
<td>雞油 (100克或2兩半)</td>
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<td>豬油 (100克或2兩半)</td>
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<tr>
<td><strong>點心</strong></td>
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<tr>
<td>燒賣 (1件)</td>
<td>6</td>
</tr>
<tr>
<td>山竹牛肉 (1件)</td>
<td>20</td>
</tr>
<tr>
<td>食物</td>
<td>份数</td>
</tr>
<tr>
<td>-------------</td>
<td>------</td>
</tr>
<tr>
<td>排骨</td>
<td>1</td>
</tr>
<tr>
<td>蝦餃</td>
<td>1</td>
</tr>
<tr>
<td>春卷</td>
<td>1/2</td>
</tr>
<tr>
<td>芋角</td>
<td>1</td>
</tr>
<tr>
<td>牛肉腸粉</td>
<td>1</td>
</tr>
<tr>
<td>雞扒</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>快餐店食物</th>
<th>胆固醇（毫克）</th>
</tr>
</thead>
<tbody>
<tr>
<td>漢堡飽</td>
<td>37</td>
</tr>
<tr>
<td>巨無霸</td>
<td>100</td>
</tr>
<tr>
<td>魚柳飽</td>
<td>50</td>
</tr>
<tr>
<td>豬柳蛋漢堡</td>
<td>270</td>
</tr>
<tr>
<td>奶昔（士多啤梨）</td>
<td>10</td>
</tr>
<tr>
<td>炸雞翼</td>
<td>104.4</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>其他</th>
<th>胆固醇（毫克）</th>
</tr>
</thead>
<tbody>
<tr>
<td>水果，蔬菜，五穀類</td>
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</tbody>
</table>

資料來源：
(美國心臟協會，2008)
(科研製藥，2008)
9. 附錄二

(地中海飲食參考食譜)

以下各項全日可以任擇

1. 地中海蕃茄湯

材料:
紅蕃茄（中）4 顆、通心粉 20 克、西芹 2 支、洋蔥半個、水 1200CC。

做法:
1. 紅蕃茄切小塊狀，西芹及洋蔥切小段。
2. 通心粉過冷河，約煮 7 分鐘，撈起備用。
4. 鍋中放入水，煮至水滾，將紅蕃茄塊、西芹段、以中火煮 30 分鐘。
5. 加入通心粉拌勻後，即可熄火，趁熱食用，可加少量低鈉鹽調味。

2. 西蘭花炒草菇

材料:
西蘭花一棵、草菇 1/2 罐（切半）、蒜頭（切粒）1 粒、薑一片。

做法:
1. 西蘭花花蕾細小，容易有蟲，所以用鹽水浸 15 分鐘才可清洗乾淨。
2. 燒半鍋水，加鹽、糖及油，將西蘭花、草菇飛水，取出隔水。
3. 燒一湯匙植物油，爆香蒜蓉及薑片，放下草菇炒至剛熟，加入西蘭花轉猛火快炒及加少量低鈉海鹽，拌勻便成。
3. 炒好菜後冚蓋，馬上熄火，焗約一分鐘，便成。
3. 炒蓮藕片

材料:
蓮藕半條、紅蘿蔔及西芹隨意、蔥 2 條。

做法:
1. 蓮藕刨皮，切薄片；紅蘿蔔、西芹分別切片；蔥切度。
2. 燒熱鍋，放下藕片、紅蘿蔦、西芹、蔥度，快手炒，落鹽、糖各 1/4 茶匙調味便可。

4. 芹菜豆腐冬菇湯

材料:
芹菜 1 棵、豆腐 2 件、新鮮冬菇 1 兩、水 1000cc。

做法:
1. 冬菇用清水浸軟，去蒂，備用，蒂留用。
2. 芹菜去葉，切條，備用。
3. 煲滾 1000cc 水，放入冬菇蒂煲滾，下豆腐及冬菇煲約 20 分鐘，灑上芹菜，加低鈉鹽調味即成。
5. 麥皮

甜味:
脱脂牛奶 2 杯、代糖適量、麥片 4 大匙。

做法:
1. 牛奶以小火加溫、避免焦底，並放下代糖溶化後再加入麥片調勻即可食用。

鹹味:
麥片 4 大匙、水 4 飯碗半、紅蘿蔔絲 1 湯匙、青豆粒 1 湯匙、低鈉鹽少量。

做法:
1. 將紅蘿蔔絲、青豆粒等放進水中煮滾後再放下麥片煮 8 - 12 分鐘。加蓋再燜 5 分鐘後，即可食用。

6. 糙米粥

材料:
糙米 2/3 飯碗、水 6 飯碗、粟米粒 1/4 碗。

做法:
1. 糙米和粟米混合洗淨。
2. 清水先煮滾再放下糙米和粟米一起用小火熬煮，約 1 小時半即可，要注意翻攪。
3. 最後加少量低鈉海鹽即成。
7. **番茄甘筍蘋果汁**

材料:
蕃茄二個、甘筍半條、蘋果半個、乳酸飲料 1 小瓶、開水 100 克、蜜糖 2 匙。

做法:
1. 將蕃茄、甘筍和蘋果洗乾淨，然後切成小塊。
2. 將所有材料放入攪拌機，快速打成果汁即成。

8. **金菇豆腐**

材料:
豆腐 1 盒、金菇 1 包、西蘭花 1 個、紅椒 1 隻。

獻汁:
水 75 毫升、糖 1 茶匙、低鈉海鹽 1/4 茶匙、生抽 1/2 茶匙、生粉 1 茶匙、胡椒粉及麻油少許。

做法:
1. 金菇去根，紅椒切粒。
2. 豆腐開成 5 件，隔水蒸 5 分鐘。
3. 西蘭花放入滾水拖至軟身，取出，切粒。
4. 燒 1 湯匙植物油，將金菇、豆腐及紅椒同炒，再下獻汁，煮濃，排西蘭花上。
9. 雪耳紅棗粥

材料:
米半杯、水 10 杯、雪耳 2 朵、元肉 2 湯匙、去核紅棗 10 粒、冰糖適量。

做法:
1. 米洗淨，水燒滾，將米加入滾水內煲 30 分鐘。
2. 雪耳浸軟，洗淨，撕成細朵。
3. 元肉及紅棗沖淨，候用。
4. 將雪耳、元肉及紅棗加入粥內，續煲 30 分鐘。最後加冰糖調味。

以下各項全日只可揀一

1. 海皇蒸蛋

材料:
帶子 50 克、魚肉 50 克、紅蘿蔔粒 2 湯匙、洋蔥粒 2 湯匙、青豆 2 湯匙、薑 1 片、雞蛋 3 隻（將兩隻雞蛋蛋黃去掉，只留蛋白）

做法:
1. 將蛋及少量低鈉海鹽攪勻，隔水中火蒸至熟透。
2. 將帶切粒，用少許低鈉海鹽和胡椒粉調味，醃五分鐘拖水備用。
3. 將紅蘿蔔及青豆拖水。
4. 鑊內燒 1 湯匙植物油，爆香薑，然後加入其他配料，炒至熟透，淋蒸蛋上。
2. 蕃茄燜斑球

材料:

石斑肉 10 両、蕃茄二至三個、蒜頭 1 粒(剁茸) 薑 1 片。

醃料:

低鈉海鹽半茶匙、薑汁 1 湯匙、胡椒粉少許。

1. 斑肉洗淨，抹乾水分，切件，加入醃料拌勻醃 10 分鐘。

2. 番茄洗淨，切粒。

3. 斑肉與生粉拌勻；燒熱油，下斑肉煎至兩面約 7 成熟，盛起。

4. 燒熱一湯匙植物油，下薑片及蒜茸炒片刻，加入蕃茄粒炒 3 分鐘，加入調味料，如茄汁 2 湯匙，低鈉海鹽及糖半茶匙，最後加入斑肉，快炒至熟透便成。

3. 檸檬汁龍利柳

材料:

龍利柳 4 件、乾蔥 (剁碎) 1 粒、檸檬 (磨皮榨汁) 1 個、檸檬 (切薄片) 1 個、白酒 200 毫升、百里香 1 湯匙。

做法:

1. 用少量低鈉海鹽及胡椒粉將龍利柳醃好，用水煮熟盛起。

2. 用少許油爆香乾蔥碎，灑入白酒煮滾。

3. 加入檸檬汁及皮，慢火煮稠，然後加入檸檬片煮 1-2 分鐘。

5. 最後加入少量調味料，如糖低鈉海鹽等煮熟，再加入龍利柳煮熟，即先把魚柳盛碟，再淋上汁料，便成。
4. 白飯魚粟米粒煎蛋

材料:
白飯魚 80 克、雞蛋 2 隻(將其中一隻蛋黃不要) 、粟米粒 1/2 碗、洋蔥 1/2 個、蔥少許、植物油 2 茶匙。

做法:
1. 將雞蛋打勻，加入少許低鈉海鹽及胡椒粉調味，以及洋蔥、蔥切粒。
2. 白飯魚在熱水中出水後，加入少量胡椒撈好。
3. 在蛋漿中，加入白飯魚、粟米粒、洋蔥粒及蔥粒，拌勻。
4. 下油，下蛋漿煎至金黃色，最後上碟後切件。

5. 蕃茄炒蛋

材料:
蕃茄二個、蛋二隻(其中一隻不要蛋黃) 、蔥二條切粒、薑 1 片、蒜頭 1 粒。

做法:
1. 將雞蛋打勻，加入少許低鈉海鹽及胡椒粉調味。
2. 蕃茄切小件，蔥粒加入蛋漿內。
3. 加入一茶匙植物油，燒紅後加入蛋漿煮熟後盛起。
4. 以一茶匙植物油起鍋，加入蒜茸及薑爆香，然後加入蕃茄件炒，再加入水半碗。
5. 炒至熟後加入調味料，如茄汁 3 湯匙生抽及糖各 2 茶匙。
6. 最後將蛋餅加入醬汁內，煮半分鐘熄火，然後加數滴喼汁可盛起。
6. **生滚鸡粥**

材料:

米半杯水 3 公升、鸡 1/2 隻 (去皮)、粟米半碗、薑絲 2 湯匙、蔥絲 2 湯匙、
鹽及胡椒粉適量。

做法:

1. 米洗淨，水燒滾，將米放滾水內，改用中火煲 50 分鐘。

2. 雞洗淨斬件，拌入調味料、薑汁 1 湯匙、生抽 1/2 湯匙、鹽 1/2 匙、生粉
   1 湯匙、麻油及胡椒粉少許。

3. 冬菇浸透，切條。

4. 粥煮好後，將雞件及冬菇放下粥內，慢火滾 15 分鐘。

5. 調味，洒下薑絲及蔥絲即成。

7. **雞肉沙律**

材料:

雞絲 (灼熟切絲)160 克、生菜半個、青蘋果 1/2、橙 1/2 個、橄欖油 2 茶匙、
醋 1/2 茶匙。

做法:

1. 生菜洗淨切小片，青蘋果洗淨切粒，橙去皮切小塊。

2. 在沙律大碗中，放入雞絲、生菜、青蘋果粒及橙肉，再加醋及橄欖油，
   拌勻。

3. 可加入脫脂沙律醬少許。

115
8. 雞肉磨菇意大利粉

材料:
雞胸肉 2 件、鹽適量、黑胡椒碎適量、洋蔥(切條) 1/2 個、磨菇(切片)五粒、白酒 50 毫升、清雞湯 100 毫升、意大利黑醋 2 湯匙、糖 1 茶匙、意大利粉 1/3 包。

做法:
1. 雞胸肉加入鹽及黑胡椒碎醃片刻。
2. 平底鑊中燒 1 茶匙植物油，放雞胸肉於中火，每面煎 5-7 分鐘至金黃透，取起備用。
3. 原鑊加入洋蔥粒及磨菇片炒香。
4. 趁熱灑入白酒煮乾，拌入意大利黑醋、糖及雞湯，煮至濃。
5. 把意大利麪條煮熟，瀝乾水份，最後把麪條與汁料拌勻，上碟。

9. 檸檬魚

材料:
鱸魚 1 條、蔥少許、蒜頭 6 粒、薑二片、檸檬一個。

做法:
1. 鱸魚洗淨，攤開魚身放在盤上入鍋內蒸 8 分鐘備用。
2. 蒜頭切成細末，加入糖檸檬汁後混合拌勻。最後淋在蒸好的魚上，加入薑片，再繼續蒸 2 分鐘取出，灑上少量生抽調味即可。
註:（出外用餐時）

若出外用餐，應選清湯而忌選含過高脂肪的忌廉湯。

若食物會淋上醬料，可向侍者要求將醬料放在碟旁來蘸食物吃，可以減少吃下的醬料份量。

有「營」食肆運動是由衞生署聯同食環署和多個專業團體及學術組織策動的一項大型健康促進計劃，透過參與計劃，食肆員工掌握食物營養的基本知識和健康烹調的技巧，繼而提供更多蔬果和少油鹽糖的菜式，讓廣大市民外出用膳時有更多健康味美的飲食選擇。

衞生署聯同295間食肆，推行為期一個月的有「營」食肆運動先導計劃，營造有利良好的飲食環境，對付與不良飲食習慣有關的肥胖問題及慢性疾病（如癌症、心腦血管病及糖尿病等）。這項先導計劃將於七月三十日展開，共有25間中式食肆和超過270間快餐店參加。他們將提供更多美味，並以蔬果及少油鹽糖為主的菜式讓顧客選用。參與計劃的食肆須參考衞生署的指引，提供兩類較健康的菜式。
「蔬果之選」標誌

蔬果之選

代表菜式的材料全屬蔬果類，蔬果類是肉類的兩倍或以上。

「3 少之選」標誌

3 少之選

代表菜式以較少脂肪或油分、鹽分及糖分烹調或製作，符合「3 少之選」的要求。參與的食肆會利用衞生署所提供的宣傳物資，明確在餐牌上標示較健康的菜式，並向客人作出宣傳及推廣。