

EVALUATION OF THE EFFECTIVENESS
OF THE
HEART TALK BOOKLET: THE PATIENT'S PERSPECTIVE

by

CATHERINE AQUINO RUSSELL

A thesis
presented to the University of Manitoba
in partial fulfillment of the
requirements for the degree of
Masters of Nursing
in
School of Nursing

Winnipeg, Manitoba

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FOREWARD

The research reported in this thesis is part of a larger descriptive study entitled: Evaluation of the Heart Talk Booklet: Part I - The Patient's Perspective; Part II - The Multidisciplinary Health Care Professionals' Perspective. The study (Part I and Part II) was funded by the Manitoba Heart Foundation and is not as yet completed.

Part I of the large study will consist of a sample of 50 male post myocardial infarction patients. Part II will consist of a sample size of 100 health care professionals. Both samples will be given self-administered questionnaires.

The findings of this study will assist the Manitoba Heart Foundation in:

1. making any required alterations to the booklet;
2. assessing the utilization of the booklet in five Winnipeg hospitals;
3. understanding the effectiveness of the Heart Talk booklet from both the patient's and health care professionals' perspectives.

This research will assist nurses in improving their quality of patient education by increasing the understanding of what a patient requires to facilitate his recovery from myocardial infarction.

ABSTRACT

This descriptive study evaluated the Heart Talk booklet from the patient's perspective. The Heart Talk booklet was developed by the Manitoba Heart Foundation as a patient teaching tool for post myocardial infarction patients. Data were collected from five hospitals within the city of Winnipeg, Manitoba. Self-administered questionnaires were given to 30 male post myocardial infarction patients at two time periods: 1) within 24 hours after arrival at the hospital ward post acute phase of myocardial infarction; 2) 6 to 8 weeks post myocardial infarction when complete physiological recovery had occurred.

The conceptual framework to guide this research was created by synthesizing two theoretical models: Becker's modified Health Belief Model for predicting sick role behaviours, and Coleman's Information Processing Learning Model. Two dependent variables were derived from this framework: 1) level of knowledge or understanding; and 2) alteration of harmful lifestyle behaviours or compliance.

There were significant differences found for both dependent variables between the two testing times. The improvement of the knowledge level of the patients was important on a clinically significant basis and the improvement in the number of positive behaviour changes was

important on a statistically significant basis after the experience of myocardial infarction and after the implementation of the Heart Talk booklet.

The Heart Talk booklet was the only common variable in all five hospitals' teaching programs. It could therefore be suggested that the Heart Talk booklet may have been instrumental in increasing the patients' knowledge and was instrumental in decreasing the patients' harmful lifestyle risk factors. Other confounding variables must be also be considered. However, in light of the high incidence of myocardial infarction, it seems most appropriate to revise the Heart Talk booklet in such a way that it could benefit the patient even more.

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For Mom and Dad

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Chapter I

STATEMENT OF THE PROBLEM

1.1 INTRODUCTION

Today, approximately three million Canadians suffer from some form of heart or blood vessel disease (Canadian Heart Foundation, 1985). The major cause of death among men is coronary heart disease, especially after the age of 40. For women, coronary heart disease becomes the primary cause of death after age 50 (Statistics Canada, 1977). According to Statistics Canada 1983, approximately 48,683 Canadians experience myocardial infarction or heart attack each year. The costs of this disease are enormous, whether they are measured in terms of the high mortality rate, human anxiety and suffering, decreased quality of life of survivors, or economic losses.

Estimates of the economic cost of myocardial infarction (MI) in the United States range around \$60 billion annually (Weilgosz, 1985). Comparable statistics for Canada and Manitoba are not available. However, the high cost of this disease has two implications for health professionals:

1. any intervention effective in improving health status of survivors of MI could have enormous economic and social benefits;

2. any proposed interventions must be evaluated carefully, as the economic cost of unsubstantiated interventions may be equally enormous (Ott, 1983, p. 162).

Thus, from an economic perspective there is great need to evaluate any intervention aimed at improving the health status of post MI patients. In addition, from a social/psychological perspective, it is necessary to decrease the personal (or human) costs of the disease such as: anxiety, suffering and decreased quality of life.

Current efforts at assisting patients with diagnosed cardiovascular disease to make lifestyle changes or adjustments to handle health problems have been mounted in the form of cardiac rehabilitative programs. The intent of these programs is to assist patients who have experienced an MI to return to their normal lives, and to establish changes in lifestyle that will favorably affect prognosis and reduce the risk of the recurrence of another MI. "Patients who have experienced an acute MI are prone to experience another" (Segev, 1981, p. 841). Rehabilitation is enhanced by increasing the patient's knowledge and understanding about cardiovascular disease. However, a problem arises when the prescribed medications and behaviours initiated during hospitalization are, in many cases, neglected after the patient returns home and the interventions stop (Rahe, Ward & Hayes, 1979; Lowenthal & Cleary, 1979).

Although there are differing opinions, many health care professionals who work in this clinical area believe that patient education is an important factor in the recovery of post myocardial infarction patients. There are widely accepted definitions of health education which almost always include emphasis on behaviour as the critical outcome of a health education intervention. For example, Green, Kreuter, Deeds & Partridge stated: "Health education in any combination of learning experiences is designed to facilitate voluntary adaptations of behavior conducive to health" (cited in Parcel & Baranowski, 1981, p. 14). In addition, Redman (1984) stated that teaching makes it possible to prevent, promote, maintain, or modify a number of health-related behaviors.

In 1982, the Manitoba Heart Foundation organized a voluntary multidisciplinary project and developed a tool for health care professionals entitled: "A Post MI Teaching Manual". The disciplines involved in this project included: nursing, dietary, physiotherapy, social work and pharmacy. The purposes of this manual were two-fold:

1. to assist health care professionals with their post MI patient teaching efforts in relation to methodology and content;
2. to create some consistency in what information the post MI patients were being taught.

This manual provided the information which served as the basis for the development of the Heart Talk booklet (HTB). The information contained in this booklet was considered by the multidisciplinary team as being important to assist the patient in his recovery from MI. The HTB was created to be utilized in conjunction with a patient education program. This program was described in the post MI teaching manual for health care professionals. The objectives of the Heart Talk booklet were:

1. standardization of patient education in relation to post myocardial infarction teaching. The rationale was that some hospitals had little patient education materials while others had none;
2. increasing the patient's knowledge in relation to what had happened, helping to alleviate anxieties and to increase support for the patient in his lifestyle once he returned home (Manitoba Heart Foundation, 1981).

The underlying assumption of this multidisciplinary team was that a patient may lack knowledge which in turn may have contributed to his initial MI. This assumption implies the hypothesis that unhealthy lifestyle behaviours are essentially the outcome of a lack of knowledge or information. This hypothesis is not unlike those found in the literature, in that, even though most health educators would agree that what people do about their health is more important than what they know about their health, the central focus of numerous health education programs has been

a change in knowledge (Parcel & Baranowski, 1981). Presumably, this change in knowledge would lead to a change in behaviour. While knowledge alone will not ensure compliance or behaviour change, it is a necessary first step towards compliance because a person cannot use knowledge he does not have to make a decision to change behaviour. Therefore, when utilization of the HTB occurs in patient teaching, attempts are made to alter the patient's unhealthy lifestyle behaviours. This view indicates that the patient is at least in part responsible for his problem and its solution. Segall's (1984) survey of cardiovascular health indicated that: "most respondents shared the belief that it is possible, through personal action such as altering lifestyle risk factors, to exert some control over heart trouble" (p. 27). Thus, one cannot ignore the fact that even though people may contribute to their problem, they also have the power and capability to contribute towards a solution to their problem.

The Heart Talk booklet is being utilized in general hospitals in Winnipeg and Brandon. To date there have only been small, unpublished surveys and evaluations of patient teaching programs within a few of Winnipeg's hospitals. No systematic research focusing solely on the effectiveness of the Heart Talk booklet from the patient's perspective has been conducted.

This research offers a descriptive evaluation of the Heart Talk booklet from the patient's perspective. The booklet attempts to offer the patient alternatives in an effort to assist him to contribute to his recovery from myocardial infarction and to decrease the possible chances of recurrence. This study described the patient's perceptions and opinions of the information within the Heart Talk booklet. The study also attempted to determine the effectiveness of the booklet through examination of the two dependent variables:

1. patient knowledge (or understanding);
2. patient compliance (or alteration of harmful lifestyle behaviours).

In addition, data describing the patient's perceptions of the information contained within the HTB were obtained. The conceptual framework which was utilized to guide this research will be discussed in the next chapter.

In conclusion, the problem considered in this research was the evaluation of a patient teaching tool, the Heart Talk booklet. From a global perspective, evaluation of an intervention aimed at improving health status could help to decrease the great social and economic costs of MI itself because of the high probability of recurrence. From a more focused position (that of the individual himself), the evaluation of this teaching-learning tool could help to:

1. decrease the costs in relation to personal losses, anxiety and suffering, and quality of life of survivors;
2. to uncover the process and information required by a person making choices about his personal lifestyle.

Another question is being studied in a concurrent project: Is there a relationship between what health professionals view as being important for the patient (the information contained within the Heart Talk booklet) and what the patient actually believes is important information to facilitate his recovery from a myocardial infarction? The research reported in this thesis focused only on the patient's perceptions.

Chapter II

CONCEPTUAL FRAMEWORK

2.1 INTRODUCTION

The conceptual framework to be utilized in this research is a synthesis of two theoretical models: The modified Health Belief Model for predicting and explaining sick role behaviors (MHBM) (Becker, 1974) and The Information Processing Learning Model (IPLM) (Coleman, Livingston, Fennessey, Edwards and Kidder, 1973). The investigator chose to synthesize the two models to form one conceptual framework for one major reason: each of the models when standing alone was insufficient to guide the evaluation of a teaching tool for post MI patients. Evidence in support of this conclusion is presented in this chapter.

In the evaluation of a teaching tool's effect on compliance of post MI patients, one must consider not only the cognitive learning process that the patient may undergo (IPLM), but the health care beliefs and experiences that the patient has in relation to his illness. These health care beliefs and experiences may predict or explain his likelihood of compliance and the undertaking of prescribed actions (MHBM).

This chapter will discuss the historical background of the original Health Belief Model, present the modified Health Belief Model for predicting and explaining sick role behaviors, and describe the Information Processing Learning Model. Each model will be considered separately and then the synthesis will be presented.

2.2 HEALTH BELIEF MODEL

The Health Belief Model (HBM) originated in the 1950's and grew out of a set of independent applied research problems which confronted investigators working in public health. It was during this time that the focus of public health was on the prevention and not the treatment of disease. Problems relating to patients' symptoms and their compliance with medical regimens or patient-physician relationships were not considered. At this time, there was widespread failure of people to accept methods of disease prevention or screening tests for early detection of asymptomatic disease (i.e., tuberculosis, papanicolaou and dental disease tests, and rheumatic fever, polio, and influenza immunizations). Also to be noted was that these screening tests and immunizations were either free or at a very low cost (Rosenstock, 1974).

Therefore, a combination of the preceding factors had a determining influence on the development of a theory to explain preventive health behaviour. It had to be oriented

to avoidance of disease as well as consider the potential role of barriers to accepting health services. During this time cost was thought to be a deterring factor which would prevent people from taking precautions. So the model also had to explain people's behaviour when they were being charged little or nothing for the service (Rosenstock, 1974).

The HBM was based on the social psychological perspective of Kurt Lewin. He proposed that an individual existed in a life space composed of regions. These regions were positively valued (positive valence), negatively valued (negative valence) or relatively neutral. He believed that diseases, if they were present in the life space, would be of negative valence and would exert force to move the person away from that region. This movement away from the negative region would not occur if requirements would cause him to enter a region of greater negative valence. Thus, one's activities were conceived as a process of being pulled by positive forces and repelled by negative forces (Rosenstock, 1974).

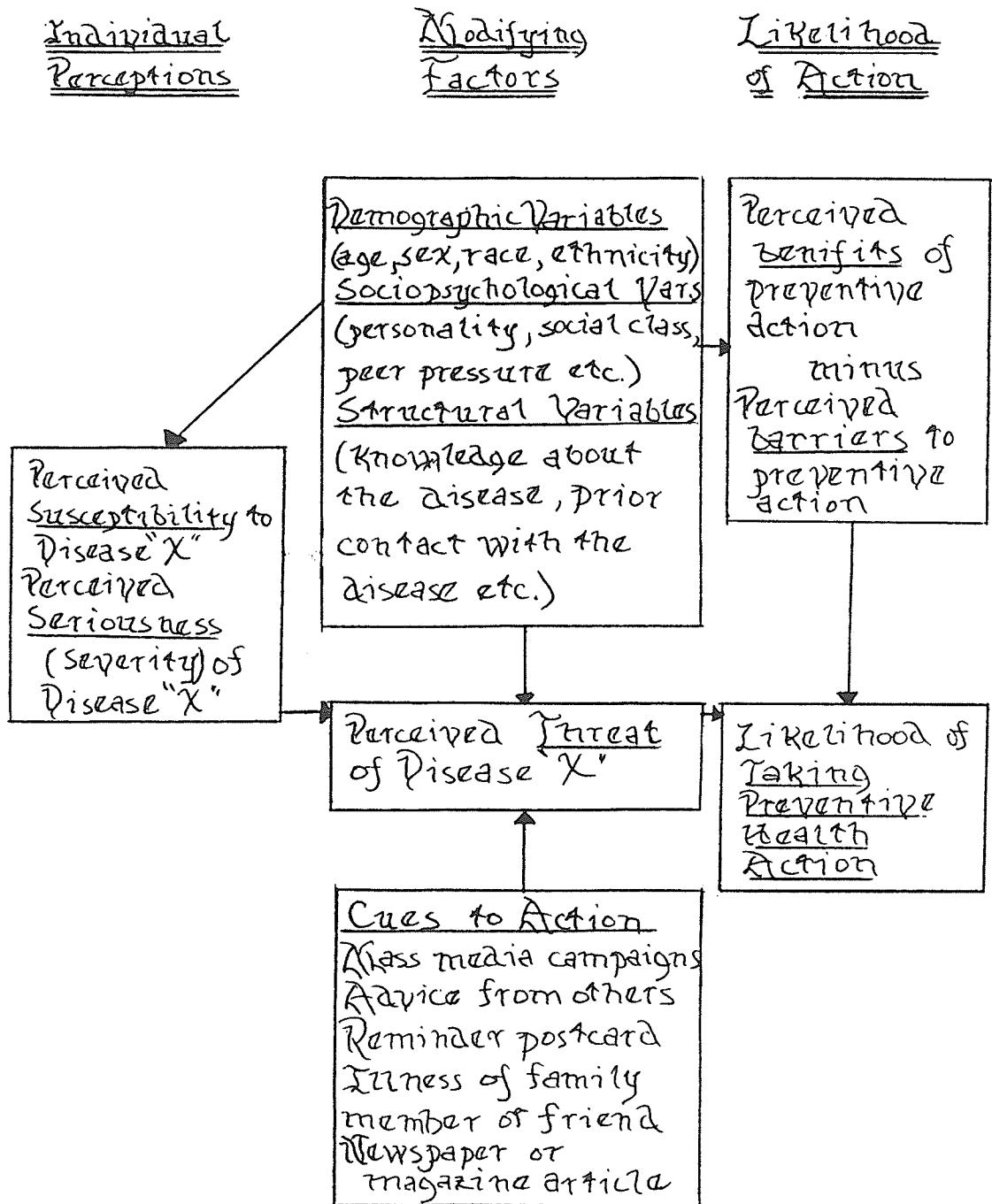
The earliest characteristics of the HBM were derived from Lewin's abstraction. These were that in order for an individual to take action to AVOID a disease he would have to believe that:

1. he was personally susceptible to it;

2. the occurrence of the disease would have at least moderate severity on some components of his life;
3. taking a particular action would be beneficial by reducing its severity;
4. it would not entail overcoming important psychological barriers such as cost, convenience, pain and embarrassment (Rosenstock, 1974).

As seen in Figure 1, the original HBM 'predicts likelihood of taking preventive health action'. 'Perceived susceptibility' refers to the person's subjective risks of contracting the condition. 'Perceived severity' refers to feelings of seriousness of contracting an illness which varies from individual to individual. This variable is said to carry a strong cognitive component which may be partly dependent on knowledge. 'Perceived benefits and barriers' to taking action is seen when one believes that he is susceptible to a disease and he subsequently takes action. This factor is thought to provide a positive force leading to action but does not describe the course of action to be taken. The direction of the action is believed to be influenced by health care beliefs regarding the effectiveness of known available alternatives for reducing the individual's disease threat. Thus, the person's behaviour is thought to depend on how beneficial he believes his various alternatives are. Avoidance may result if the alternatives include barriers which are inconvenient, expensive, unpleasant, painful or upsetting.

Figure 1: Health Belief Model



The previously stated dimensions of the HBM have been studied but usually one variable at a time (Charney, 1967; Gordis, Markowitz & Lilienfield, 1969; Heinzelmann, 1962). Of interest also is the fact that most of the research on the HBM up to 1974 has involved retrospective studies (Rosenstock, 1974). Whereas, a review of HBM research findings since then revealed 18 prospective studies along with 28 retrospective studies (Janz & Becker, 1984). "Summary results provide substantial empirical support for the HBM with findings from prospective studies at least as favorable as those obtained from retrospective research." (Janz & Becker, 1984)

The variable entitled 'cues to action' in the HBM is difficult to test. It is believed that the combined levels of susceptibility and severity provide energy or force to act and the perception of benefits (minus the barriers) provide a preferred path of action for the individual. However, a combination of these could reach considerable levels of intensity without resulting in overt action unless an instigating event occurred to set the process in motion. These events are termed cues in the HBM and might be either internal (i.e., perception of bodily state) or external (i.e., interpersonal interactions or media communication) (Rosenstock, 1974).

The required intensity of a cue that was deemed sufficient to trigger behaviour would vary depending on the

degree or level of susceptibility and severity. It is because most of the hypothesized cues may be fleeting or of little intrinsic significance (eg. a poster urging a chest x-ray) that they may be easily forgotten. The respondents who took a recommended action in the past would probably be more likely to remember preceding events as relevant than those who were exposed and did not take action (Rosenstock, 1974).

Other variables are listed in the HBM. 'Demographic', 'socio-psychological' and 'structural' variables are viewed as relating to both 'individual perceptions' and the 'perceived benefits of preventive actions'. Therefore in reading the diagram of the HBM in Figure 1, one can see that the individual's perceptions of 'perceived seriousness (severity)' of a disease leads to the 'perceived threat of the disease'. This variable is influenced by 'cues to action' and other 'modifying factors' such as: 'demographic', 'socio-psychological' and 'structural' variables. These three variables determine the 'likelihood of action' by aiding in calculation of 'perceived benefits' minus 'barriers'. In addition, the 'perceived threat of the disease' influences the 'likelihood of the individual taking recommended preventive health action' (Rosenstock, 1974).

The original HBM has limitations. It does not always prove to be an effective predictor of preventive health behaviour. Haynes' (1979) criticism of the HBM was that

while both prospective and retrospective studies support the predictive value of the model, the prospective studies generally show weaker relationships between each of the components of the model. Changes in compliance behaviours (i.e., taking recommended preventive health action) may precede rather than follow alteration of the patient's health care beliefs. Similarly, others contend that compliance may be a cause and not an effect of the health care beliefs suggested by the model (cited in Dracup, 1982).

It should be noted that the original HBM has a clearcut AVOIDANCE ORIENTATION. In it, diseases are regarded as negatively valent regions to be avoided. This contrasts with the view that some particular state of health might serve as a possible positively valent region which would pull the person towards it (i.e., a maintenance orientation). "It is not known whether the improvement of health in an already healthy person does have some motivating force in influencing action" (Rosenstock, 1974, p. 8). This arises out of the difficulty in operationalizing the meaning of positive health. Thus, the question of whether the avoidance orientation in the HBM is adequate to account for the positive health actions taken by people remains unsolved (Rosenstock, 1974). In other words, there is a difference between illness avoidance and health maintenance.

2.2.1 Research on the Health Belief Model

The following section will discuss the results of research completed on many of the HBM's variables which led Becker (1974) to modify the original HBM to one which predicts and explains sick role behaviours (MHBM).

Becker (1974) stated that:

various elements of the HBM are often associated with individuals' decisions in the areas of 'health' and 'illness' behaviors. There would seem no inherent reason why the same type of attitudinal and motivational formulation should not apply to actions taken by persons diagnosed as ill--that is, to patient compliance with prescribed regimens (p. 8).

A few studies have attempted to evaluate the ability of one or more of the dimensions of the HBM to predict and explain compliance (i.e., actions undertaken by a sick person to overcome a condition versus actions undertaken by a person, who believes he is well, for the purposes of maintaining health and avoiding illness).

Perceived Susceptibility

This concept and measure had to be modified and new dimensions added because in the case of sick role behaviours, the diagnosis of an illness has already occurred. Research has utilized three approaches:

1. examination of the individual's estimate of (or belief in) the diagnosis. Inaccurate perceptions may result from lack of confidence in the doctor or diagnostic procedure; or erroneous health beliefs (Becker, Drachman & Kirscht, 1972);
2. the individual's perception of the recurrence of disease (or resusceptibility) (Becker, 1974);
3. the measurement of the individual's feelings of vulnerability to other diseases (Becker, 1974).

Studies have found a positive correlation between resusceptibility and compliance (Heinzelmann, 1962; Elling, Whittemore & Green, 1960). In addition, it has been found that when there is congruence between patients' and doctors' opinions of illness, this may lead to positive compliance (Becker, Drachman & Kirscht, 1974). Becker (1974) concluded that: "from a review of studies employing this variable, perceived susceptibility has demonstratable explanatory and predictive value in the area of sick role behaviour" (p. 84).

Perceived Severity

This dimension refers to subjective or perceived data. When an individual recognizes vulnerability to a potential threat (i.e., illness) he will not take action unless he holds the accompanying belief that serious physiological and/or social consequences will occur. There is evidence indicating that a negative association exists between the doctor's view of severity and compliance by the patient (i.e., the doctor considers the patient's condition to be quite severe and the patient does not comply with recommended regimens) (Charney, 1967; Davis, 1968; Bonnar, Goldberg & Smith, 1969; Johannsen, Hellmuth & Sorauf, 1966; MacDonald, 1963; Pragoff, 1962).

High rates of compliance have been found in research on both medication therapy and appointment keeping. In addition, the patient's perception of illness is correlated with compliance to a prescribed regimen. For example, the presence of a symptom (such as angina) may lead to positive compliance with taking medications to alleviate the symptom. High and low levels of anxiety have been found to be associated with lack of compliant behaviour (Arnold, 1970; Latiolais & Berry, 1969; Mohler, Wallin & Dreyfus, 1955; Reibel, 1969; Weintraub & Lassagna, 1973).

Becker (1974) stated that the findings of the dimension of perceived severity appear to require interpretation.

However, this variable has shown predictive properties of compliance with recommended regimens in some preventive and all sick role conditions studied (i.e., patients with rheumatic fever and penicillin prophylaxis) (Heinzelmann, 1962). Therefore, one may conclude that 'perceived severity' "should after appropriate refinement and specification of conditions, be included as a basic element of a sociobehavioral model of compliance" (Becker, 1974, p. 85).

Perceived Benefits and Costs

Perception of benefits has shown to be related to the patient's compliance with medication therapy (Elling, et al., 1960; Heinzelmann, 1962). It has also been found that belief in the efficacy of drug therapy and in the doctor's ability to cure illness has a positive correlation with keeping clinic appointments (Becker et al., 1974). However, there have been studies which have found no association between belief in the power of the drug to prevent another attack and compliance (Gordis et al., 1969).

Donabedian & Rosenfeld (1964) identified the reason that elderly patients do not follow doctor's instructions for treatment of their chronic illness as: "being in doubt about the recommended procedures" (cited in Becker, 1974, p. 86). Gabrielson, Levin & Ellinson (1967) found a correlation between faith in the effectiveness of professional care and parent's compliance with obtaining follow-up care for their school age children.

Becker (1974) stated that perceived costs (or barriers) have been measured in many ways. Several variables have been found to be inversely associated with compliance. These include: cost (Donabedian et al., 1964; Albert, 1964), the extent to which new behaviours must be adopted (Davis & Eichhorn, 1963; Gillum & Barsky, 1974; Becker, Drachman & Kirscht, 1972; Elling et al., 1960; Becker et al., 1974, Becker et al., 1972; Johannsen et al., 1966; Francis, Korsch & Morris, 1969; Donabedian et al., 1964; Collette & Ludwig, 1969), complexity (Davis, 1966; Francis, et al., 1969; Weintraub, et al., 1973; Curtis, 1961, Riley, 1966), duration (Charney, 1967; Bergman & Werner, 1963) and side effects (Weintraub et al., 1973; Caldwell, 1970). Accessibility was found to be predictive for follow-up of school referrals (Gabrielson et al, 1967).

All of the research indicated generally reliable and interpretable relationships between compliance and perceptions of susceptibility, severity, benefits and costs. Unfortunately, no single study has provided convincing confirmation of all of the model's variables. However, most of the studies have produced internally consistent findings in the predicted direction. These findings yield relatively strong support for the HBM for predicting sick role behavior (Becker, 1974).

Motivation

The original HBM dealt solely with the negative aspects of health such as individual's behaviour when threatened by disease. However, Becker and his associates (1974) stated that: "it is likely that positive health motivations exist and account for some portion of compliance behaviors" (p. 87). With that, "motivation was defined as differential emotional arousal in individuals caused by some given class of stimuli (i.e., health matters)" (Becker, 1974, p. 86). Motivation has been measured in terms of desire or intention to comply in sick role behaviour studies (Donabedian, et al., 1964; Diamond, Weis & Grynbaum, 1968). Becker, Drachman and Kirscht (1972) found a relationship between administering penicillin and the belief that "people should do what the doctor tells them" (cited in Becker 1974, p. 86). The association between no intention to comply and broken appointments was found in other studies (Albert, 1964; Davis, 1968). Becker et al. (1974) and Baltistella (1971) also reported that compliers were found to have a relationship between seeking aid in the presence of symptoms and worrying about health. On the other hand, this relationship was not found in another study (Gordis et al., 1969). Becker and his associates (1974) found that patients (compliers) who followed recommended regimens were more likely than those patients who did not follow recommended regimens (non-compliers) to be motivated to perform actions

(i.e., giving their child special foods and vitamins). These compliers were also noted as being worried about being good mothers. Thus, the variable 'motivations' was thought by Becker (1974) to be required in a compliance model.

Modifying Factors

Only a few of the many variables which were employed in compliance-related research have shown predictive consistency. These included: demographic, structural, attitudinal, interaction and enabling factors which were either sociobehavioral variables or those which affected sociobehavioral dimensions. Some of these factors have been studied. In relation to patient-practitioner relationships, satisfaction with the initial physician contact led to patient compliance (Francis et al., 1969; Kirscht, Gozzi & Francis, 1968). Non-compliance was evident in cases where:

1. patient expectations were left unmet,
2. the doctor lacked warmth in his manner (Sapolsky, 1965),
3. patients did not receive proper explanations (Mohler et al., 1955, Wilson, 1973).

A positive correlation between compliance and physician continuity was found in other studies (Charney, 1967; Gordis & Markowitz, 1971).

Finally, in relation to demographic and personality variables, non-compliance and medication errors have been found to be associated with extremes of age. This is most likely because the young are more resistant to bad tasting medicine and geriatric patients may be more likely to forget (Blackwell, 1973). There have been no consistent findings indicating relationships between compliance and sex, intelligence, education or marital status (Stimpson, 1974, Becker et al., 1974). It is because of these results that only 'extremes of age' was added to the model of compliance (Becker, et al., 1974).

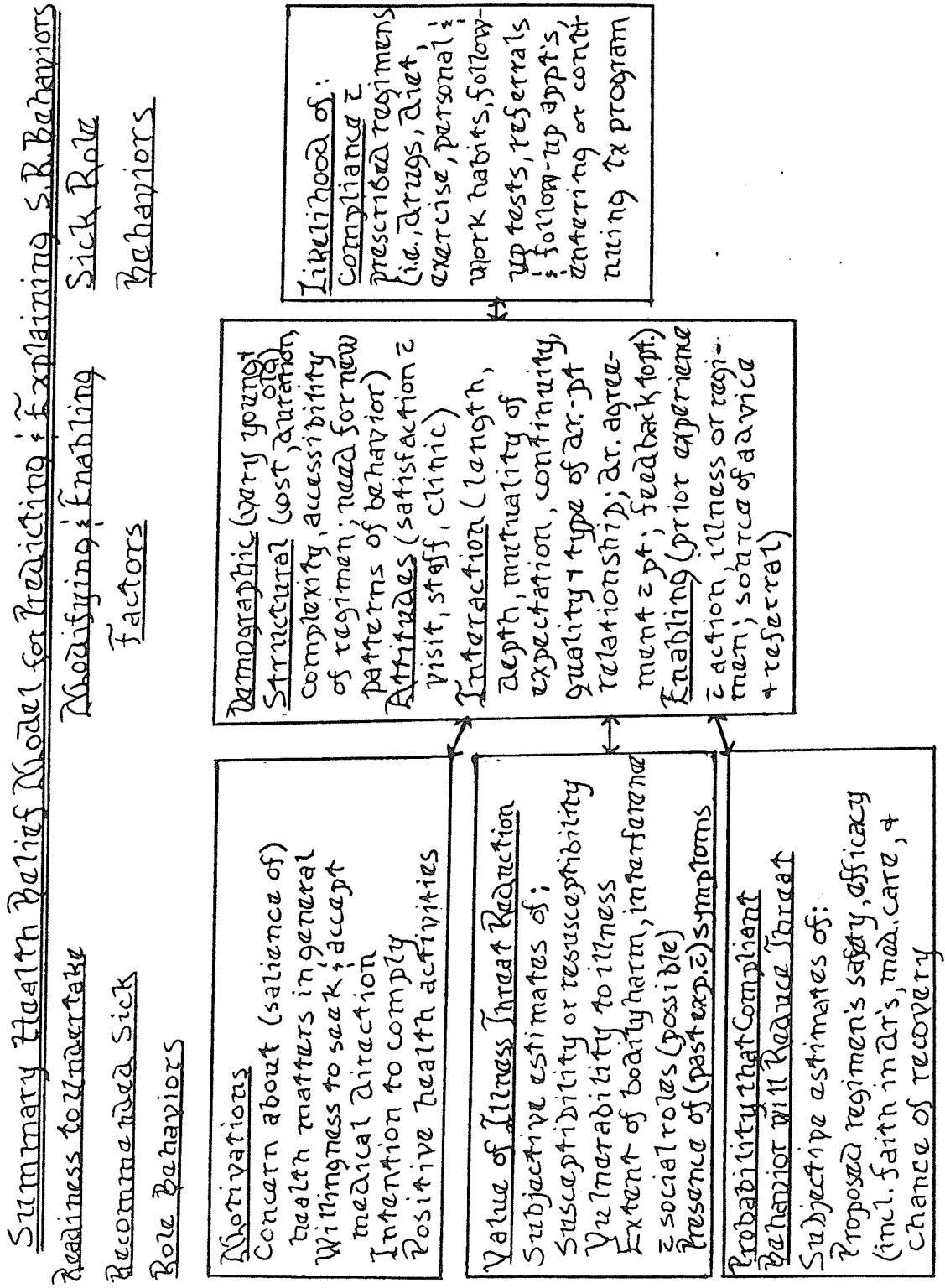
Transition from HBM to MHBM

Therefore, one can see that it was the aforementioned review of literature which prompted and assisted Becker in his construction of the modified HBM for predicting and explaining sick role behaviours (see Figure 2). Sick role behaviours refer to those behaviours that a person who has been diagnosed as ill exhibits to decrease the probability of progressive effect or of recurrence. For example, Heinzelmann (cited in Becker et al., 1974) demonstrated continuous preventive behaviour (of taking penicillin) to be related to the likelihood of having another attack (of rheumatic fever) as well as to personal perceptions of the seriousness of the attack.

Becker's modified Health Belief Model for predicting sick role behaviour (MHBM) is based on the decision-making concepts of valence (or attractiveness of the goal to the individual) and subjective probability (or personal estimate of likelihood of goal attainment). Theoretically, the MHBM shows that a patient's 'likelihood of compliance' depends on variables related to his 'readiness to undertake recommended sick role behaviours'. These include: 'motivational factors', 'value of threat of illness reduction' and the 'probability that compliant behaviour will reduce threat'.

The 'motivations' which determined one's 'readiness to undertake recommended sick role behaviour' were: concerns about (salience of) health matters in general; willingness to seek and accept medical direction; intention to comply and positive health activities. These factors may be demonstrated in the clinical area when people seek and accept assistance from the medical and nursing personnel. For example, when a person arrives at the hospital with a myocardial infarction he accepts the assistance and instructions of the hospital personnel. However, intention to comply or positive health activities may not be evident on the patient's admission for MI. In other words, a linear relationship could take place (i.e., once an individual recognizes or accepts his illness, intention to comply may or may not occur).

Figure 2: Modified Health Belief Model



The second element identified as the 'value of illness threat reduction' included the following subjective estimates of: susceptibility or resusceptibility to illness (including belief in diagnosis); vulnerability to illness in general, extent of bodily harm and possible interference with social roles (at motivating, not inhibiting levels); and the presence of or past experience with symptoms. It has been stated in the literature that previous experience with myocardial infarction may be a potent stimulus to cause change (Sivarajan, 1983). The previous statement may help to explain that people may alter their behaviours if they consider themselves to be susceptible to another myocardial infarction.

The third element in determining one's 'readiness to undertake recommended sick role behavior' is the 'probability that compliant behaviour will reduce the threat'. This variable is judged by subjective estimates of: the proposed regimens safety and efficacy (including faith in doctors and medical care and chance of recovery) (cited in Redman, 1984). This element is depicted in the clinical setting when patients may admit their satisfaction or dissatisfaction with hospital care and the information that they received from the health care professionals. In other words, a patient may be less likely to be compliant if he is not satisfied with his hospital care.

In conjunction with these elements are the 'modifying and enabling factors' which include: demographic variables (the very young and very old are less likely to be compliant), structural variables (cost, duration, complexity, side effects, accessibility of regimen, need for new patterns of behaviour), attitudes (satisfaction with visit, physician, other staff, clinic procedures and facilities), interaction variables (length, depth, continuity, mutuality of expectation, quality and type of doctor-patient relationship, physician agreement with patient, feedback to patient), and enabling variables (prior experience with action, illness or regimen, source of advice and referral) (Redman, 1984).

It is a combination of all the previously discussed elements and variables which may lead to the 'likelihood of compliance or noncompliance with prescribed regimens' such as: drugs, diet, exercise, personal and work habits, follow-up tests, referrals and follow-up appointments, entering or continuing a treatment program (Redman, 1984).

Becker's modified version of the HBM also has limitations. Of significance is the fact that no single research study has been completed utilizing all of the variables in the Health Belief Model for predicting sick role behaviours. In addition, reaching the goal of changing health beliefs may be impossible because of the complexity of beliefs and behaviours and lack of understanding of

factors that contribute to health beliefs or health behaviours. Many studies of health beliefs are performed on a one-time-only basis which creates concern as to whether these beliefs are present only at the time the data are gathered (Redman, 1984).

As one can see by the two-way arrows, each of the variables in this model (Figure 2) are depicted as being related to the other. This was not explained by Becker (1974) however, it would suggest that the relationship is not solely unidirectional but that each variable has a relationship to the other. For example, those variables which are listed under 'readiness to undertake recommended sick role behaviours' influence those under 'modifying and enabling factors' and vice versa, which also demonstrates the complex causal relationships among the variables.

This author thought that there is however, one particular aspect missing in the HBM when considering the evaluation of a teaching tool for post MI patients. This aspect is a cognitive learning component and therefore would necessitate the joining of another model to the MHBM. In other words, when evaluating a teaching tool one must consider the learning process that a patient may undergo. If the objective of the tool is to increase knowledge then one must consider the stage at which the patient has gained and utilized the information. Further explanation of this will occur in a following section which involves synthesis of the

Health Belief Model for predicting and explaining sick role behavior and the Information Processing Learning Model.

2.3 LEARNING MODEL

Since 1966, Coleman, Livingston, Fennessey, Edwards & Kidder have been researching the effect that games have for creating and influencing learning. The weaknesses associated with using games for learning must be acknowledged in order to understand their effectiveness. Coleman and associates (1973) considered it imperative to describe the differences between conventional school learning and learning through games. In order to do this he described two modes of learning which have a basis in social psychology:

1. information processing learning;
2. experiential learning (see Figure 3).

It is the former which constitutes most school learning activities and the latter which characterizes the portion of learning which takes place in everyday life (which Coleman relates to games). In addition, experiential learning could occur from the experience of an MI. Both processes have advantages and disadvantages and neither can be considered as the sole process for human learning.

The information and concepts that Coleman presented can be depicted in a situation of post MI patient education.

Coleman's concepts can provide a useful method of assessing the patient's learning. The association of Coleman's concepts to post MI patient education provides an important reason for the utilization of a portion of this learning model in the conceptual framework of this research.

Figure 3: Learning Model

General Approach to Learning Information		Phases over time		
Information Processing Learning	Reception of information through symbolic medium	Understanding the general principle	Particularizing	Acting
Experiential Learning	Acting	Understanding the particular case	Generalizing	Acting in a new circumstance

(Coleman et al 1973).

2.3.1 Information Processing Learning

Coleman describes information processing learning as involving a series of four steps.

1. Reception of Information

Information is transmitted through a symbolic medium such as a lecture or a book which uses words as the symbolic medium. Here information concerning a general principle (or specific example as illustrations of that principle) are transmitted to the person involved.

2. Understanding the General Principle

At this step the information is assimilated and an understanding of the general principle occurs. Thus, one is said to have learned the meaning of the information or assimilated the information as knowledge. At this point knowledge is considered the acquisition of information.

3. Particularizing

This step involves stating in detail what has been learned in the previous two steps. One must be able to infer a particular application from the general principle. This requires some cognitive abilities that allow one to see how a general principle relates to the particular instance (Coleman et al., 1973).

4. Acting

This final step involves moving from the cognitive and symbol processing stage to an area of understanding which involves action. Acting involves the application of the general principle to a particular instance. Finally, it constitutes the use of the information that was received in step 1. It is when this step has been concluded that one is said to have completed information processing learning. For example, making the information that was initially received useful for a particular instance.

This learning process can be related to health education. "Health education is based on the fact that a person's health status is highly dependent on actions taken by the individual independent of or in response to their experience in receiving medical treatment" (Pecock, Gelman & Futins, 1975, p. 198). The post MI patient is taught to decrease harmful modifiable risk factors utilizing such instruments as the Heart Talk booklet. Therefore, if the patient has progressed through the conventional learning phases, one would expect him to take the initiative and alter his behaviour. It can be said that "health education bridges the gap between health information and health practices" (Pecock, et al., 1975, p. 198).

2.3.2 Experiential Learning

This process proceeds in almost the reverse order to the former. It does not use a symbolic medium for the transmission of information but generates the information solely through the sequence of steps and experiences. There are four steps to this process also.

1. Acting

At this step, one carries out an action in a particular instance and immediately sees the resultant effects (similar to classical experimental conditioning). The observed effects of the action may be neither rewarding nor punishing, but provide information regarding the sequence of cause and effect.

2. Understanding the Particular Case

At this step the person is said to have learned the consequences of the action and how to obtain his goals in this particular circumstance.

3. Generalizing

This step involves the ability to see a connection between the actions (step 1) and the effects over a range of circumstances. Thus, gaining experience beyond a particular instance.

4. Acting in a New Circumstance

At this stage the person is said to have completed experiential learning so the experience he has undergone is useful to him for future actions.

These two processes of learning have their own characteristic properties which can be either beneficial or unfavourable.

Information Processing Learning

First, this form of learning can be beneficial because it may enormously reduce the amount of time and effort necessary to learn something new. This mode of learning relies on the shared experiences of others which results in the formation of inferences from a broad range of experiences. Again health education can be exemplified. The information given to patients and the suggestions for lifestyle modifications have been developed through a body of research. It is the patient who benefits from the experiences and suggestions of other post MI patients.

The second property is somewhat of a disadvantage because it depends very heavily upon a symbolic medium (usually language). This process depends on the ability to understand and assimilate language. Health education is delivered through verbal or written communication. The disadvantage would occur if one does not understand the language completely. For example, a person with a different cultural

background may have difficulty understanding the meaning of words.

The weak points of this process may occur between steps 3 and 4 (Particularizing and Acting). This involves the 'application of what is learned'. An individual may not be able to put into words his understanding of the general principle. In this case, it is said that learning is incomplete or that learning has progressed through to step 2 or 3 but not to a point where he can use the information he has received. This major hurdle "is the translation from a symbolic framework of understanding and thinking to a framework involving concrete sequences of action" (Coleman et al., 1973, p. 5).

The final property is that this process requires intrinsic motivation because the action comes at the end, not the beginning of the process. This means that a person's motivation or desire to learn must come from within himself. No incentive for learning occurs until the connection is made between the information that is received and the action. This may be a disadvantage because one might not have the desire to continue learning after steps 1 or 2 and in effect abort the total learning process (Coleman et al., 1973).

Experiential Learning

First, this process of learning is very time consuming for it requires repeated actions in enough circumstances to allow the development of a generalization to occur. "A typical observation of someone who has learned something through this process is that he can not verbalize it, but he can do it" (Coleman et al., 1973, p. 5).

The next property contrasts that of the information processing model. Motivation for this mode of learning is intrinsic. The action occurs at the beginning of the sequence of steps and the need for learning exists from the outset. A person sees the immediate results of his actions. The weakness may occur at step 3 because persons seem to differ in their ability to infer a general principle from a set of experiences.

The final property is that this mode of learning appears to be less easily forgotten than the learning which occurs as a result of information processing learning. The reason for this could be that the associations embedded in memory may constitute concrete actions and events which affect them and not merely associations with abstract symbols.

In conclusion, more knowledge and research is still required in the area of these two processes of learning. In addition, one must consider both modes in the evaluation of any learning that has occurred. Both modes of learning will be considered in this research. However, the concept of

experiential learning is considered an aspect of the MHBM (i.e., previous experience with MI) therefore, the label 'experiential learning' will not be utilized in the context of the remainder of this thesis.

2.4 SYNTHESIS OF MODIFIED HEALTH BELIEF MODEL AND INFORMATION LEARNING MODEL

As stated previously, the main reason for synthesizing these models was because one model alone can not completely represent the patient's health care beliefs and guide the evaluation of a teaching tool for post MI patients.

The conceptual framework for this thesis is depicted in Figure 4. The MHBM assists in predicting and explaining sick role behaviour because of the 'patient's readiness to undertake recommended health actions'. It must be noted that this modified version of the HBM does not contain an element focusing on a cognitive aspect of learning. Although it was previously stated that 'perceived severity' carried a strong cognitive component, no process of learning information was stipulated. It is for this reason that the author chose to integrate the IPLM into the conceptual framework. It was thought that the MHBM already incorporates experiential learning under the heading 'modifying factors (specific to present illness)' because this factor deals with the patient's previous experience with MI. This could constitute experiential learning. Experiential learning

could occur if the person had experienced an MI in the past. If not, the author feels that the patient would undergo experiential learning during this particular time of hospitalization for MI. Thus, the concept of experiential learning is already addressed in the MHBM. However, it is because this research is evaluating a method of health education (patient-teaching tool) that the cognitive aspect of learning must be considered (IPLM).

The IPLM could not be considered alone in the evaluation of a teaching tool. It does not take into account any of the person's health care beliefs or past experiences including: the person's subjective feelings of susceptibility to or seriousness of MI; factors which may modify or enable compliance, such as: age, satisfaction, cost, doctor-patient relationship; and prior experiences (which are all considered in the MHBM). To assist in proving the previous statement two quotations are presented. Redman (1984) stated that:

learning theories in themselves do not present an adequate basis for understanding or managing the many variables associated with learning in social settings... No single theory of learning has yet emerged that is applicable to a wide array of outcomes in the many different settings in which learning occurs (p. 88).

And yet, learning is defined by Gagne as:

a change in human disposition or capability that persists over a period of time and that is not simply ascribable to processes of growth. Learning exhibits itself as a change in behaviour, and the inference of learning is made by comparing what behaviour was possible before the individual was placed in a learning situation and what

behaviour can be exhibited after such treatment (cited in Redman, 1984, p. 88).

In other words, learning theories cannot act alone in explaining why and how people learn. The integration of the IPLM and the MHBM for the purposes of this study's conceptual framework supports the perspective that learning may be exhibited by the performance of behaviours. Compliance can also be considered the performance of behaviours. This strengthens the reasoning for taking learning into consideration when determining alteration of harmful lifestyle behaviours.

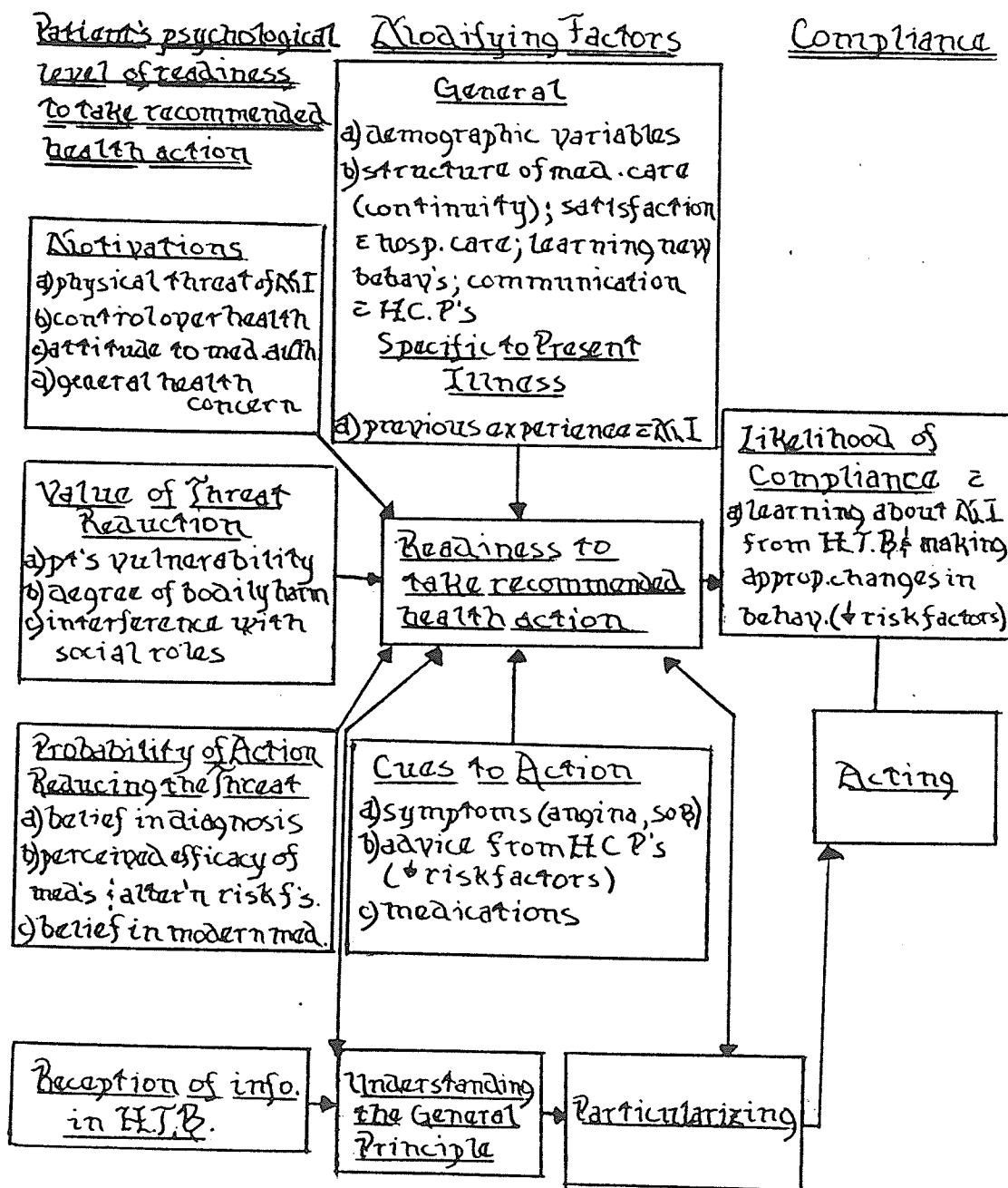
As seen in Figure 4, the MHBM has been depicted and explained with myocardial infarction as the diagnosis and alteration of risk factors as the desired behavioural outcome or compliance. This framework was created by this author with the assistance of the work of Becker and others (1974) who devised a similar one for predicting and explaining sick role behaviour in low-income populations.

The MHBM and IPLM are similar in two ways:

1. motivation is a factor in both;
2. the optimum behavioural outcome of both is acting or compliance.

In order to fully understand the synthesized model, explanation of each of the variables must occur (see Figure 4). The patient's 'psychological level of readiness to take

Figure 4: Conceptual Framework



health action' consists of 'motivations', 'value of threat reduction' and 'probability of action reducing threat'.

'Motivations', for the purpose of this study, refer to the emotional arousal in an individual which is caused by some given class of stimuli and can be represented by: a) physical threat of MI (some feel that the experience of an MI is a potent stimulus to cause behavioural change) (Sivarajan, Newton, Almes, Kempf, Manfield, Bruce, 1983); b) control over health matters (if the patient feels he has some control over his own health he may be more inclined to alter harmful lifestyle behaviours (compliance)); c) attitude toward medical authority (compliance is positively associated with how a person feels about his doctor and how the doctor treats him)(Becker et al, 1974); d) general health concern (suggests that the positive health motivations exist and may account for some degree of health-related behaviour rather than focusing solely on negative aspects of health)(Becker et al., 1974).

The variable entitled 'probability of action reducing threat' is represented by: a) belief in diagnosis, (this may require a time element because it is a normal process for a post MI patient to deny the diagnosis of MI during the acute phase); b) perceived efficacy of medicine (if patient is taking medications) and alteration of lifestyle behaviours (compliance may result if the patient believes that by altering harmful lifestyle behaviours the chances of

having another MI are decreased); c) belief and satisfaction in modern medicine (if the patient is satisfied and believes in modern medicine, it would be more likely that he would comply with suggested medical regimen).

Added to the patient's 'psychological level of readiness to take recommended health action' is an element of the IPLM: 'reception of information in the HTB'. A patient must be psychologically ready to receive the information in the HTB before he can begin the learning process. Psychological readiness comes after the physiological threat subsides somewhat. For example, it has been found that a patient in the acute phase of MI is not ready to learn and does not retain much information that is given to him in the intensive care unit. (Scalzi, 1980). At this time he is more concerned with basic human needs such as alleviation of pain and ability to breath--basically--concern over life and death (Scalzi, 1980).

Learning is more effective when the patient is ready to learn or when he feels a need to know something. Moderate anxiety is beneficial to learning but low or severe levels of anxiety detract from learning (Dugas, 1977). In addition, anxiety and fear have been found to be associated with negative or null findings in studies of the HBM for predicting sick role behaviours (Becker, 1974).

As can be seen, three of the four variables under 'patient's psychological level of readiness' lead via one-way arrows to 'readiness to take recommended health action'. The fourth (reception of information in the HTB) is related to another variable entitled 'understanding the general principle'. This variable is related to 'readiness to take recommended health actions' by a double ended arrow which suggests a two-way association. In other words, 'understanding general principles' is associated with 'readiness to take recommended actions' and the latter is dependent upon the patient's 'understanding of the general principles of MI'. For example, a person may not be motivated (or have the desire) to understand the basic information of MI unless he is ready to take recommended health action or alter his harmful lifestyle behaviours. The decision a patient may make to alter behaviours is dependent upon his understanding of the reasons why alteration is deemed necessary.

'Readiness to take recommended health action' is determined by 'modifying factors' such as: 'general', 'specific to present illness' and 'cues to action'. 'General' modifying factors are represented by: a) demographic variables (age); b) structure of medical care (continuity); satisfaction with hospital care; learning new behaviours and patient communication with health care professionals. All of these variables may influence a

person's 'readiness to comply' or alter any harmful lifestyle risk factors. For example, if a patient is satisfied with his hospital care, he may be more likely to comply with recommended alterations of harmful modifiable risk factors. The modifying factor 'specific to present illness' is represented by 'previous experience with MI' which could also influence a person's 'readiness to take recommended health action'. For example, a person may be more likely to alter risk factors if he has just experienced a second MI. However, if he had already decreased any of the modifiable risk factor behaviours, he may regress to his old ways because any previously altered behaviours "didn't help anyways".

The modifying factor 'cues to action' is represented by: symptoms (i.e., angina, shortness of breath), advice from health care workers (to decrease risk factors) and medications (which the patient may be taking). These variables relate to 'readiness to take recommended health action'. For example, a person may be more compliant in taking prescribed medications if he suffers from symptoms such as angina because the taking of medications may help to alleviate the symptoms.

In addition, this author considered the IPLM step of 'particularizing' to be interdependent with 'readiness to take recommended health action' the general principle' step. That is, in order for a patient to infer a particular

application of the information in the HTB he must be ready to take recommended alterations of lifestyle. This relationship was described as: being able to put into words what one has learned is dependent upon one's 'readiness to take recommended health action'. This latter element results from its relationship with the 'modifying factors' such as: age, satisfaction or previous experience with MI.

The final component of this framework is 'likelihood of compliance' (from MHBM) or 'acting' (from IPLM). Both of which are similar in the view of this author. This variable is represented by learning about MI through the information within the HTB and by making appropriate changes in any harmful lifestyle risk factor behaviours.

The 2 dependent variables included:

1. knowledge level or understanding of the information in the HTB
2. behaviour or alteration of any harmful lifestyle risk factors.

These variables were derived from the conceptual framework. The testing of the dependent variables will be discussed in a following chapter.

The dependent variables were derived from the conceptual framework. For example: a patient could not comply with suggested alteration of harmful lifestyle risk factor

behaviours if he does not have the knowledge base to understand the reasons for the alterations. In other words, one can not expect a person to alter a behaviour if he has no knowledge on which to base his decision.

In conclusion, the psychological readiness of the patient as well as the cognitive learning abilities are taken into consideration in this conceptual framework when determining the patient's readiness to undertake recommended health actions (which is represented by the patient's likelihood of compliance or acting). This conceptual framework attempted to synthesize all aspects for consideration in evaluation of the effectiveness of the Heart Talk booklet from the patient's perspective. Any information that the patient may or may not learn could involve information processing learning. Also, any behaviour change that the patient may or may not make could involve the factors and beliefs which are considered in the MHBM. Therefore, the evaluation of the booklet's content by the patient as being of benefit to him during his recovery from MI appears to require the integration of both the Modified Health Belief Model and the Information Processing Learning Model.

Chapter III

REVIEW OF THE LITERATURE

3.1 INTRODUCTION

Throughout the past two decades a great deal of effort has been made to promote positive lifestyle changes in individuals who suffer from cardiovascular disease. Improving patient knowledge has been an important goal towards greater compliance because many patients are relatively uninformed (Milazzo, 1980; Segall & Roberts, 1980; Wilson-Barnett, 1981). However, in order to judge the effectiveness of any educational program, the ultimate criterion to be identified is sustained behaviour change. The following review of literature has been completed to present the current state of knowledge in relation to:

1. patient education
 - a) cardiac rehabilitation
2. compliance
 - a) knowledge (a necessary component of patient education and compliance)
3. evaluation of patient teaching programs.

3.2 PATIENT EDUCATION

"Today, there is considerable evidence that health teaching involves changing of attitudes and values and willingness to take action and these are not altered by mere teaching of facts" (Redman, 1984, p. 28). It is this idea which strengthens the viewpoint that affective versus cognitive components underly behavioural predispositions. In other words, a relationship between lack of information (acting as the cause) and educational programs (acting as the solution) for explaining lifestyle behaviour cannot be justified. However, when learning theories are used in patient education, the occurrence of an effect depends upon the individual's expectation that his behaviour will yield a particular consequence. The person weighs the consequence of a particular behaviour against the potential outcome of alternative behaviours. This proposition can also be viewed as the motivation which is deemed necessary for behaviour changes to occur (Dracup, 1982). Somers (1976) and Schoenrich (1974) have listed two factors which provide the motivation for inclusion of patient education in health care delivery programs. These are:

1. an increase in the emphasis on disease prevention;
2. an increase in the incidence of chronic disease and illness. (cited in Cohen, 1981, p. 11).

"Patient education occurs regularly within the routine care of all patients within the hospital setting. However, past research has shown that formal teaching results in a greater increase in knowledge than informal teaching but currently informal teaching constitutes the bulk of teaching that occurs" (Milazzo, 1980, p. 1079). It is therefore questionable as to whether any increase in the patient's knowledge level occurs. Although Milazzo (1980) did find that despite some methodological weaknesses, the body of research she reviewed provided evidence that patient care should include teaching.

The goal in patient education is seen as being immediate and practical, such as compliance with a regimen. Many kinds of strategies are used to change behaviour and teaching is often intermixed with other strategies (Redman, 1984). Some feel that increasing the patient's understanding of the disease is important due to the fact that in the absence of understanding, patients may formulate their own concepts which may be bizzare and frightening. This formulation may induce unwarranted distress for the patient (Wynn, 1967). Research has been done showing that the effectiveness of patient teaching and the time spent allaying the patient's anxiety can contribute to a smoother recovery for the patient (Dugas, 1977; Devine, 1983).

Some authors perceive patient education to be an integral part of effective care and the more a patient knows about

his condition the more likely he is to successfully cooperate in his treatment (Dodge, 1969). Wilson-Barnett & Osborne's (1983) review of 29 evaluative studies on patient teaching discovered 23 to have found some benefits in patient teaching. It is obvious that patients need information about their condition, treatment and recuperation to enable them to cope and participate in their care. Unfortunately, patients frequently report this need as being unsatisfied and they remain ignorant, anxious and uncertain about what they should do (Wilson-Barnett, 1981). Wynn (1967) found 33% of his convenience sample to be experiencing emotional distress due to lack of information, and Alt (1966) found almost half of the patients he studied still had questions at the time of discharge.

Information giving may not be the same as teaching. Teaching refers to an interactive process whereby learning takes place and may subsequently be used to influence behaviour. In such a case, assessment and fulfillment of the patient's information needs redefines patient teaching. However, it has been found that giving information through patient education helps patients in 2 ways:

1. it alleviates anxiety by reducing the area of unknown experiences, fears and fantasies by providing a realistic account of what will happen;
2. it helps patients to know what is expected of them and how to do things that will improve their experiences and recovery. Through these behaviours their confidence

is increased which can help to promote greater feelings of independence (Wilson-Barnett, 1983 p. 37).

Other research (cited in Wilson-Barnett, 1983) has found information giving through patient teaching to reduce stress and to promote recovery (Johnson, Morrisey & Leventhall, 1973; Johnson, Kirchnoff & Endress, 1975; Johnson, Richev, Fuller & Endress, 1978; Fuller, Endress & Johnson, 1978; Ridgeway & Mathews, 1983). Thus, it would appear that patients gain from receiving more information from education programs. This may result in less anxiety, more participation and a feeling of more control over their lives.

3.2.1 Cardiac Rehabilitation

Myocardial infarction is one of the three most widely researched areas from 1965 to 1984 as seen in major cardiovascular nursing research journals. Gregor (cited in Foster, 1984) stated that patients with cardiovascular disease often require specific and detailed information about diet, medications and activities of daily living to promote the best possible quality of life. It is necessary to delineate the most effective way of transmitting this information to this patient population. Transmission of important information may be accomplished through cardiac rehabilitation programs.

Rehabilitation and prevention programs for patients following a myocardial infarction have become increasingly important. Epidemiological findings indicate a high frequency of coronary disease in modern society (cited in Segev, 1981). The World Health Organization defines cardiac rehabilitation as:

the sum of activity required to ensure patients the best possible physical, mental, and social conditions so that they may by their own efforts regain as normal as possible a place in the community and lead an active productive life (cited in Winslow, 1982, p. 114).

Cardiac Rehabilitation involves increasing the patient's awareness of cardiac risk factors. There are two categories of cardiac risk factors which are thought to be associated with cardiovascular disease: modifiable and non-modifiable. Modifiable risk factors include: elevated serum lipids, cigarette smoking, hypertension, carbohydrate intolerance, high caloric and salt dietary intake, elevated cholesterol blood levels and obesity. Non-modifiable risk factors include: age, sex, race and family history of cardiovascular disease. The modifiable risk factors are those which may be altered by changing lifestyle characteristics whereas, the non-modifiable risk factors cannot be altered.

It can be said that patient education is an essential component in the rehabilitative effort. Rehabilitation implies not only restoration to the optimal level of functioning, but also a directed change in lifestyle

lessening the modifiable cardiac risk factors. In other words, the goal of patient education from a cardiac rehabilitative stance is behaviour change.

3.3 COMPLIANCE

Compliance is a major factor in any patient education effort. Although there are conflicting views on the reasons for compliance or non-compliance. Some research suggests that "the more a patient knows about his condition, the more likely he is to cooperate successfully in his treatment" (Dodge, 1969, p. 502). The adequacy of a patient's understanding depends upon the knowledge that is made available to him. One cannot expect that a patient comply with regimens that he does not understand.

An extensive review of literature demonstrated that a range of 15-93 percent of patients are non-compliant with medical regimens (Marston, 1977). The wide variations in operational definitions of compliance accounted for this great range of compliance rates. The reasons for non-compliance reported by most patients had nothing to do with lack of information or understanding (Talkington, 1978). However, "there are contrasting studies pointing to greater compliance with medical regimens when knowledge is increased, but the effect of patient teaching on mortality and morbidity is not yet documented" (Milazzo, 1980, p. 1081).

Compliance is central to health care, but it still remains problematic to health care providers and health care receivers. The most well established health care regimens are worthless if a patient chooses not to comply with recommendations of the health care system. Non-compliance under certain conditions has positive consequences but in most situations non-compliance produces negative effects for the clients and the health care system in both health and economic matters. This situation could arise if a patient who has suffered an MI does not alter his harmful lifestyle behaviours and consequently suffers another MI. In this event both his own health suffers and a subsequent increase in the amount of health care dollars is required once the patient is hospitalized. Nonetheless, non-compliance is a widespread phenomenon (Dracup et al, 1982). It is necessary to find factors which will determine compliance or non-compliance. Patient characteristics such as age, gender, education, religion, socioeconomic status, ethnicity, attitudes and personalities have not yet been established as reliable indicators of compliance. Other aspects of the illness such as chronicity, severity and latency have also yielded conflicting results but research continues.

Blackwell (1978) suggested other factors which can affect compliance. These include: extremes of age (the very old and very young are thought to be less compliant because the young may be resistant to medications and the old may forget

to take medications); length of time remaining well (the longer the patient remains well after an episode of ill health the more likely he is to be non-compliant); patient-physician relationship; patient's attitude toward medications; and specific instructions and features of the medications (the more complicated the instructions and the more side effects from the medications, the more likely the patient is to be non-compliant). Blackwell also stated that every patient has the potential for being non-compliant, but if a relapse is immediate or severe the patient may be less likely to deviate from his recommended regimen. This last statement can be linked to the conceptual framework within the component 'probability of action reducing threat (perceived efficacy of alteration of risk factors). A person may alter his harmful lifestyle behaviors if he believes that the probability of reducing the threat of another MI will be reduced.

Motivation is perceived to be a necessary component to yield compliance or change in lifestyle. Some feel that the experience of an MI in itself is a potent stimulus to affect change (Sivarajan, et al., 1983). If change is imposed on patients during hospitalization, the opportunity exists to encourage maintenance of these behaviours once the patient returns home. Unfortunately, patients may not have the motivation until well after their return home (Sivarajan et al., 1983). The conceptual framework contained a component

entitled 'motivations' which included: physical threat of MI, control over health, attitude towards medical authority and general health concern. All of these variables may affect a person's motivation to learn about altering harmful lifestyle behaviours. For example, if a person perceives himself as having some control over his own health, he may choose to alter harmful lifestyle behaviours because of his inner motivation.

In contrast to what was previously stated, assisting the patient towards compliance is thought by some to be accomplished by increasing the patient's knowledge and understanding about cardiovascular disease. Linde (1979) and Milazzo (1980) have found that increasing knowledge through patient education has a positive effect on patient compliance although nothing was stated in relation to patient health. Rovario (1984) concluded on the basis of a recent review of the literature, that even a clear understanding does not ensure compliance with major lifestyle changes. Thus, conflicting evidence regarding patient compliance or non-compliance still exists and will continue until the factors which lead to compliance or non-compliance are determined.

3.3.1 Knowledge

Knowledge is a necessary component of both patient education and compliance. McKinlay (1975) stated that the ability of the patient to cooperate with the physician appears dependent upon both the patient's understanding and definition of his condition and on the physician's own knowledge and definition of the patient and his problem. It is not within the context of the present research to delve into the physician's perspective but the patient's perspective will be considered in relation to knowledge level. Studies have been done showing physicians underestimation of patients' level of knowledge (Pratt, Seligman & Reader, 1957; McKinlay, 1975; Segall & Roberts, 1980).

There have been a number of exploratory studies concentrating on determining the knowledge level of patients within two categories:

1. general knowledge level;
2. knowledge level after patient teaching.

Green, Levine and Deeds's (1975) survey of 311 randomly selected hypertensive out-patients showed that 70% of the questions regarding hypertension were answered correctly. They felt that their patients had sufficient knowledge but insufficient motivation to change their behaviour and follow the medical regimen. Therefore, it can be said that more knowledge does not equal increased motivation to change. In

addition, Deberry, Jeffries & Wright (1975) studied a patient teaching program for post MI patients and found that after instruction the patients knew significantly more about their medications.

In contrast, Allendorf and Keegan's (1975) study of 20 patients with stable angina showed that they were all ill-informed about their disease, its etiology and treatment. In addition, Pratt, et al. (1957) administered a multiple choice test for knowledge regarding common disease to 214 persons in a clinic. The average percentage of correct responses was only 55%. They also randomly sampled 50 new patients to assess knowledge of their disease and found that the majority knew almost nothing about their disease. Therefore, it can be seen that there are conflicting results of studies on knowledge levels of patients.

Many evaluative studies in the field of health education have documented the fact that knowledge is rarely a sufficient basis for actions (Redman, 1984; Suchman, 1967). The implications of the previous statement are important. This means that increase in knowledge cannot be regarded as the only factor for altering behaviour and that other methods and viewpoints must be considered. It is for this reason that the researcher chose to integrate two theoretical models into one conceptual framework for this study. The cognitive component cannot stand alone in predicting and explaining compliance. It has been said that

it is not sufficient for a person to believe and know that smoking is a serious health problem; he must also see himself as personally susceptible to any adverse effects (Janz & Becker, 1984). Therefore one must consider these elements of the MHBM. In any case there is still a gap in understanding the extent to which knowledge affects attitudes and to the ways in which both can be used to predict behaviour (Redman, 1984). One could look at the number of people who smoke and who work in the health care field to realize that knowledge about harmful effects of an action does not simply alter behaviour. Yet a major focus in any patient teaching effort is to increase the patient's knowledge level about his condition. Clearly the first question which guided this research is: Does the patient's knowledge level increase after the administration of the HTB?

3.4 EVALUATION OF PATIENT TEACHING PROGRAMS

There have been many studies involving evaluation of teaching programs in general but very few which have focused primarily on the printed materials given to post MI patients during or following teaching sessions. Scalzi (1980) found that:

retention of information during the acute phase of illness (MI) is very limited but the use of printed take-home materials may help to facilitate the instructional process in several ways:

1. it provides a vehicle to insure coverage of essential information;
2. it provides a convenient reference for the patient and family after discharge (p. 852).

Scalzi also found that continued instruction in the follow-up visits appeared to improve knowledge and compliance in the following areas: medication, physical activity, resumption of sexual activity, weight reduction, treatment, and reporting of chest pain and shortness of breath. One cannot conclude whether it was the patients' knowledge or the patients' relationship with the health care professionals which could have promoted compliance. The patients' motivation to learn may have increased once they returned home post critical phase of the MI and post patient teaching efforts. Therefore, a second question posed for this study is: Do behaviours related to lifestyle change post MI and post administration of the HTB?

Other research by Jenkins (1984), who studied 228 patients with confirmed myocardial infarction, found that 80% of patients considered a booklet entitled "Recovering From Your Heart Attack" to be very helpful, while Talkington (1978) found that patients did not comment either favorably or unfavorably on supplemental materials which were distributed to them. Finally, Rahe, Scalzi, and Shine (1975) used a questionnaire to assess the effects of an in-hospital teaching program which included implementation of a

prepared booklet that covered several major physical and psychological problem areas for post MI patients. Significant increases in patients' knowledge about problems surrounding their return home and to work was evident when these factors were evaluated during their hospitalization. Therefore, there are conflicting results in the studies of patient education programs which provided printed materials.

Pecock (1975) pointed out that:

no health education program is complete without some attempt at evaluating what it has achieved. It is not enough to evaluate process alone. Health education is only successful insofar as it changes behaviour of the people being addressed and ultimately benefits their health (p. 200).

Thus, it can be concluded that there are deficiencies and conflicting evidence in what is known about the effectiveness of the written materials that may be given to post MI patients. As well there is disagreement in the relationship between the patient's knowledge and any alteration in lifestyle behaviours. The third question posed to guide this study was: Is there a relationship between increased knowledge and alteration of behaviours?

In this research study the effectiveness of the Heart Talk booklet as a teaching tool is evaluated. As previously stated, evaluation of any patient teaching tool is vital in the discovery of what information a patient requires to facilitate his recovery from MI. In addition, one must consider the goals of patient education (compliance) and the

knowledge level of the patient because knowledge is a necessary component of both patient education and compliance. The previous review of literature assisted in giving direction to the evaluation of the HTB. The questions which were posed to guide the evaluation included:

1. Does the amount of knowledge a person has in relation to his MI change post MI and post administration of the HTB?
2. Do behaviours change post MI and post administration of the HTB?
3. Is there a relationship between increased knowledge and alteration of behaviours?

The effectiveness of the HTB as a teaching tool from the patient's perspective was evaluated. These questions aided the researcher in the development of dependent variables for evaluation. It is thought by this author that evaluation of knowledge and behaviours could help to determine the effectiveness of the HTB. As the literature has stated: the goals for teaching tools appear to be increased knowledge and alteration of behaviours.

Chapter IV METHODOLOGY

4.1 INTRODUCTION

This chapter will describe the research process and methodology utilized in the evaluation of the Heart Talk booklet. Presentation in the following order will occur: design, setting, subjects, ethical considerations, instruments, pilot testing, procedure and data analysis (including hypotheses).

4.2 DESIGN

The design of this study was selected after taking into consideration the needs and goals of the Manitoba Heart Foundation which funded this research. This descriptive, exploratory study elicited an evaluation of the effectiveness of the Heart Talk Booklet from the patient's perspective.

The independent variables considered were:

1. Health Care Beliefs:

The subjects' beliefs were measured by the five questions in Part II of both questionnaires (see

Appendix C and D). These questions related to the MHBM portion of the conceptual framework. Five health care beliefs were operationalized as follows:

- a) 'Control over health' was measured by the question asking whether some parts of the patient's lifestyle were harmful to his heart.
- b) 'Perceived efficacy of altering risk factors' was measured by the question asking whether the chances of having another heart attack would be reduced by altering some unhealthy lifestyle behaviours.
- c) 'Advice from health care professionals' was measured by the question asking whether the patient believed that advice from the health care professionals was too complicated.
- d) 'Satisfaction with hospital care' was measured by the question asking whether the patient felt that he was satisfied with his hospital care.
- e) 'Communication with health care professionals' was measured by the question asking whether the patient believed that he received enough information from the health care professionals in relation to his condition.

2. The Heart Talk Booklet

The Heart Talk Booklet was considered an independent variable because it was utilized as a teaching tool to determine its effect on the dependent variables.

This independent variable related to the cognitive component of the IPLM which composes a portion of the conceptual framework. The Heart Talk booklet contained information required for commencement of the learning process (if learning were to occur).

The dependent variables that were measured included:

1. Knowledge

The subject's knowledge (or understanding) of the material presented in the Heart Talk booklet was measured by a multiple choice knowledge questionnaire (see Part III, Appendix C and D). This dependent variable incorporated the constructs from the IPLM. These constructs included: 'understanding the general principle' and particularizing. It is suggested that if the patient's knowledge level increased then the patient may have successfully progressed through the information learning process (i.e., he understood the general principle and was able to infer a particular application from the general principle by answering the knowledge question correctly).

2. Behaviour

The subject's alteration of selected harmful lifestyle behaviours was measured by the patient's self-reported actions of smoking cessation, alteration of dietary habits (such as, decreasing dietary intake of salt and fat), exercise changes and

medication compliance (or taking medications as prescribed by the physician). This dependent variable incorporated factors from both the MHBM and IPLM (see Part IV, Appendix C and D).

It is thought that a person would not act if he did not have the knowledge on which to base his decision. This knowledge, leading to action, is acquired through the learning process of 'understanding the general principle' and 'particularizing'. However, it is known that knowledge itself does not ensure that a person will alter his harmful lifestyle behaviours. It is at this point where the MHBM fits in. This model purports that in order for a person to make a decision to alter his harmful lifestyle behaviour he must be ready to do so. This 'readiness to undertake recommended behaviours' is related to: the following concepts which constitute the Health Care Belief variable: 'motivational factors' (i.e., control over health); the 'probability that altering his behaviour will reduce the threat of MI' (perceived efficacy of altering risk factors); modifying factors (i.e., satisfaction with hospital care and communication with health care professionals); and 'cues to action' (i.e., advice from health care professionals to decrease risk factors).

The subject's personal opinion of the Heart Talk booklet as a learning tool was also sought. In addition, the presence of health care professionals for the purpose of

teaching was determined by the questionnaire and descriptively analyzed (see Part V and VI, Appendix C and D).

Two testing times were used for the administration of the questionnaires: T-I(a) and T-I(b) respectively. T-I(a) took place immediately following the patient's arrival at the medical ward from the intensive care unit or the coronary care unit. This gave baseline data on the patient's knowledge level. The literature has suggested that little information given to patients during their time in intensive care or approximately one week post MI is retained due to high anxiety levels (Cassem and Hackett, 1973; Scalzi, 1980).

T-I(b) occurred six to eight weeks post MI at the patient's convenience and in his home once teaching and hospital stay were complete. This period was chosen because total physiological recovery from MI normally occurs within this time period (Manitoba Heart Foundation, 1982).

Demographic data were collected from the patient's chart or through personal interview with the patient after T-I(a).

4.3 SETTING

The data were collected from patients in five hospitals within the City of Winnipeg. These included two large sized (A and B) and three medium sized (C, D, and E) hospitals (according to the number of beds). Each of the five

hospitals had their own teaching programs and all five utilized the Heart Talk booklet in their post MI patient teaching efforts. The only common variable was the HTB as each hospital had a different teaching program for post MI patients.

The intensive care or coronary care units were used as the initial assessment areas for selection of subjects who fit the inclusion criteria for the study. Contact persons were chosen on each unit to act as liaison between patient and researcher in order to decrease any interruption of ward activities, duties or daily routines. The contact person was telephoned daily by the researcher or her assistant (a registered nurse). The contact person was asked whether any patients in the unit would fit the inclusion criteria for the study. This liaison occurred at the most convenient time for the contact person. Questionnaire I(a) was administered once the patient was transferred to the ward. If, by chance, the patient was awaiting a bed on the ward and his name was on the transfer list, the questionnaire was administered in the unit with approval from the contact person.

4.4 SUBJECTS

Inclusion criteria for the sample were as follows:

1. male

Although no studies indicated significant differences in compliant behaviours between men and women, the researcher considered possible differences in patient responses to illness. Also considered were abilities to change such things as stress at work or dietary habits. This was deemed important to decrease the variability of the sample.

2. age 39 to 75 years

This gave a broad age range of subjects who were at risk of MI (Statistics Canada, 1977) and also hastened the data collection process.

3. able to read, write and understand English

This criterion helped to insure informed consent. The Heart Talk booklet is only given to English comprehending patients in each hospital which would affect information processing learning.

4. mental status intact

Some patients may experience confusion from anoxia post MI. This would have compromised comprehension

of the consent form and the questionnaire and thus would not have been ethically sound. Determination of mental status based on ability to participate in the study was done by the contact person prior to allowing the researcher access to the patient. However, if the patient was exhibiting signs of confusion or disorientation, the researcher or her assistant used sound nursing judgement and politely stopped the data collection process.

5. experienced medically confirmed MI

A patient with the diagnosis of angina would not have been a suitable candidate for this research because the literature states that having an MI may be a potent stimulus to cause behavioural change (Sivarajan, et al., 1983). Also, only patients who experience an MI receive the Heart Talk booklet.

6. reside within the City of Winnipeg or suburbs

This enabled the investigator or her assistant access to the subjects for the administration of the second questionnaire.

As stated previously, a larger study is still underway which will consist of a non-randomized sample of 50 patients who meet these criteria. Patients will be selected

proportionately from the intensive care or coronary care units of each of the five hospital settings: 10 patients from each hospital. However, due to slow referral rates and the time constraints for this thesis, a total sample of 30 patients was analyzed for this report. The number of subjects attained from each hospital for this analysis include: 7 from A, 3 from B, 10 from C, 3 from D, and 7 from E. For the study being conducted for the Manitoba Heart Foundation, data collection will continue until a total of 50 subjects have been accrued and analyses will be compared.

4.5 ETHICAL CONSIDERATIONS

Written consent for hospital participation in the study and access to patient records were obtained from the appropriate administrative bodies of all institutions. A letter from the Manitoba Heart Foundation was sent to all hospitals (see Appendix B). In relation to protection of the rights of subjects, this research received approval from the University of Manitoba School of Nursing Ethical Review Committee and the Faculty of Medicine Committee on the Use of Human Subjects in Research.

Consent from all attending physicians for all subjects was obtained prior to patient contact (see Appendix B). Consent from the patients was sought prior to the first testing time by the researcher or her assistant in four of the five hospitals. Hospital A required the contact person

within the hospital to acquire the patient's consent for giving his name to the researcher as a possible subject. This contact was made just prior to transfer to the ward.

The nurse researcher or her assistant introduced herself and asked if the patient felt up to a conversation. If not, the researcher or her assistant questioned whether another time would be more appropriate and made an appointment. The researcher or her assistant briefly discussed the purpose of the study as stated in the consent form, and asked if the patient would be interested in spending approximately 20 minutes of his time filling out a questionnaire. The researcher asked if the patient had any questions, answered them, and then proceeded with the consent form. If the patient felt at any time that he did not want to continue he just had to say so and the process was terminated. The patient was also made aware that he would be contacted to complete a similar questionnaire six to eight weeks post MI at his convenience in his home. In addition the patient was given a duplicate copy of the consent form with a written explanation of the study and the telephone number of the researcher if any questions arose.

The subject was informed that he could withdraw from the study at any time. Once the subject had given his consent, he was assigned a code number to ensure anonymity and confidentiality.

4.6 INSTRUMENTS

The questionnaires were developed by the investigator with guidance from the previous work of Segall (1984) for the purposes of this study. They were based on two conceptual models: The modified Health Belief Model for predicting sick role behaviour (Becker, 1974) and The Information Processing Learning Model (Coleman, et al., 1973). (see Appendix C and D). A combination of multiple choice, open ended and closed ended questions were utilized. As previously discussed the six parts of the questionnaires attempted to determine:

I - Previous Experience with MI

II - Health Care Beliefs

III - Knowledge

IV - Behaviours

V - Presence of Health Care Professionals for the purpose of Patient Education

VI - Patient Opinions of the Heart Talk Booklet

Administration of Questionnaire I(a) occurred at T-I(a) by the investigator or her assistant within the patient's room or a quiet location within the hospital. At T-I(b) questionnaire I(b) was administered by the researcher's assistant who travelled to the subject's home at a

convenient time. (This helped to ensure adequate returns.) The questionnaires were self-administered in the presence of the researcher or her assistant in the event that clarification might be required. Each questionnaire required 20 to 30 minutes of the patient's time. In some instances the patient did not want to do the questionnaire alone or did not have his reading glasses, so the researcher or her assistant asked the questions and circled the patient's responses. This mixture of interviewing and self-administered questionnaires could have contaminated the results; however, the researcher and research assistant attempted to be as unbiased as possible when asking the questions.

4.7 PILOT TESTING

Prior to their implementation in this study, the questionnaires were pilot tested with a convenience sample of 10 patients who were recovering from a myocardial infarction. Alterations and revisions of wording were made on the questionnaires to ensure adequate comprehension.

4.8 PROCEDURE

Written consent was obtained from hospital administration for access to patients and to patient records. The researcher and her assistant became oriented to each hospital prior to collection of data. The investigator or

her assistant telephoned the intensive care or coronary care units of each hospital to inquire as to whether there were any patients who fit the inclusion criteria for the study. If so, determination of when the patient would be transferred to the ward was done and the researcher or her assistant obtained consent from the subject after a full explanation of the study. The researcher and her assistant supervised the completion of the first five patient questionnaires together to ensure consistency in their answering of any of the patients' questions. The research assistant then looked after the rest of the questionnaires.

Records were kept of the date of the patient's MI and of the first testing time. The patient was then contacted by telephone six to eight weeks following MI. The investigator's assistant travelled to the subject's home at a conveniently arranged time for administration of the Questionnaire I(b). This questionnaire took approximately 30 to 60 minutes to complete as the patients seemed more talkative when in their own environment.

4.9 DATA ANALYSIS

Analysis of data collected from both questionnaires was completed using a prepackaged statistical program, SPSS-X. Descriptive statistics were used in the analysis of data obtained from both questionnaires and the personal information form.

The data were analyzed using three methods.

Method (a) Sign Test

For each knowledge and behaviour question a sign test was utilized. Determination was made of whether there was a significant change in the proportion of patients: 1) correctly answering a particular knowledge question and 2) eliciting a particular behaviour before and after the administration of the HTB. The hypotheses tested using this first method included:

1 (a) Null Hypothesis:

The proportion of people eliciting a correct response for a particular knowledge question is equal to the proportion of people eliciting an incorrect response for a particular knowledge question after the administration of the HTB.

1 (a) Alternative Hypothesis:

The proportion of people eliciting a correct response for a particular knowledge question is different than the proportion of people eliciting an incorrect response for a particular knowledge question after the administration of the HTB.

2 (a) Null Hypothesis:

The proportion of people eliciting a positive change in a particular behaviour is equal to the proportion of people eliciting a negative (or no) change in a behaviour after the administration of the HTB.

These hypotheses were derived from the conceptual framework in that the learning process and behavioural outcome (compliant behaviour) may have/have not occurred as a result of the administration of the HTB (the independent variable).

2 (a) Alternative Hypothesis:

The proportion of people eliciting a positive change in a particular behaviour is different than the proportion of people eliciting a negative (or no) change in a particular behaviour after the administration of the HTB.

The sign test was utilized because ordinal data were elicited from two related samples. It was used with each pair of measurements to determine whether one was larger than the other, and if so, which was larger. The assumptions for this test include:

1. The data consisted of a random sample of 30 pairs of measurements (i.e., (K1,BK1)-pre and post knowledge scores; (SMOK,BSMOK)-pre and post behaviour scores, where each pair of measurements was taken from the same subject).
2. The 30 pairs of measurements were independent.
3. The measurement scale was ordinal in that a correct response counted for a score of 1 and an incorrect or unknown response counted for a score of 0 for the knowledge questions. Also, a positive behaviour was given a score of 1 and a negative behaviour or a

behaviour which occurred sometimes was given a score of 0.

Method (b) Wilcoxon Signed Ranks Test and T-Test

Determination of whether there was overall knowledge or behavioural shift due to the HTB was then completed. Total numbers of: 1) correct responses to the knowledge questions and 2) positive behaviours were determined. Then square root transformation, paired t-test and Wilcoxon signed rank test were completed. The hypotheses for this method of analysis included:

1 (b) Null Hypothesis:

The average number of items known is the same before and after the administration of the HTB.

1 (b) Alternative Hypothesis:

The average number of items known is different before and after the administration of the HTB.

2 (b) Null Hypothesis:

The average number of positive behaviours per person is the same before and after administration of the HTB.

2 (b) Alternative Hypothesis:

The average number of positive behaviours per person is different before and after the administration of the HTB.

These hypotheses were derived from the conceptual framework in that the number of items known and the number of altered harmful lifestyle behaviours are consistent with

the IPLM and the MHBM respectively. The knowledge and behavioural outcome are also the dependent upon the independent variable (the Heart Talk booklet).

The Wilcoxon signed ranks test was utilized on the total knowledge and behaviour scores because it requires more information than the sign test and is therefore a more powerful test. This test determines not only whether the members of a pair of observations differ but also the relative magnitude of any difference. The assumptions include:

1. The sample available for analysis was a random sample of 30 values of the difference (i.e., $D = K1 - BK1$; $D = SMOK - BSMOK$). Each pair of measurements was taken on the same subject.
2. The distribution of the population of differences was symmetric that is, the likelihood of a score above or below the population median was the same.
3. The differences were measured on an interval scale.
4. The differences were independent.

Along with the Wilcoxon signed ranks test a paired t-test was completed on the total scores of knowledge and behaviours for both testing times. This test was done in order to compare the means which were obtained by the same subjects for T-I(a) and T-I(b). In this case the scores of T-I(a) were considered to be most likely related to the

scores of T-I(b). The formula was based on the sum of squared differences between the paired scores. A square root transformation was completed. This transformation is used routinely for count data (which are not normal) to induce normality. This produces a score that is likely to be from a normal population. An essential assumption for the paired t-test is that the population be normal. (Neter & Wasserman, 1974; Shelley, 1984).

Method (c) Kendall's Tau Concordance Coefficient

Finally, analysis was completed to determine whether there was any correlation between the total scores of health care beliefs, knowledge, and behaviours. The hypotheses to test these relationships were as follows:

3 (c) Null Hypothesis

If the health care beliefs remain the same, the utilization of the Heart Talk book will not effect the knowledge level and/or the alteration of harmful lifestyle behaviours of patients who have suffered myocardial infarctions.

3 (c) Alternative Hypothesis:

If the health care beliefs remain the same, the utilization of the Heart Talk Booklet will effect the knowledge level and/or the alteration of harmful lifestyle behaviours of patients who have suffered myocardial infarctions.

In relation to health care beliefs, a total score was calculated giving 1 point for each positively held belief and 0 points for each negatively held belief. Kendall's

rank order correlation coefficient 'tau' was utilized for the total scores of health care beliefs, knowledge and behaviours for both testing times. This was a conservative test because it considered all tied pairs as errors. It is a good test to use when there are many ties as was evident in the paired scores of T I(a) and T I(b) (Shelley, 1984). This test was used because it has fewer assumptions than other correlation coefficients (i.e., Pearson's r).

Chapter V

RESULTS

5.1 INTRODUCTION

This study involved a descriptive analysis of the Heart Talk booklet which is a teaching-learning tool for post myocardial infarction patients. Questionnaires were administered at two time points.

The descriptive data for this study will be presented in this chapter in the following order:

1. Demographic Characteristics of the Sample
2. Previous Experience with MI
3. Health Care Beliefs
4. Dependent Variables
 - a) Knowledge or Understanding
 - b) Behaviours or Compliance
5. Presence of Health Care Workers for the Purpose of Patient Education
6. Patient's Opinions of the Heart Talk Booklet.

5.2 DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE

Data were collected from a total of thirty male subjects who ranged in age from 39 to 72 years. The mean age was 56.8 years. Almost sixty percent (n=17) were employed on a full-time basis, 7% (n=2) were part-time, 13% (n=4) were unemployed and 23% (n=7) were retired prior to their MI. It can be noted that ten of the seventeen who were employed retired after having their heart attack. Along with this, 90.3% (n=28) lived with family members as contributing or sole breadwinners. These data may demonstrate the definite losses to the economy caused by MI. In addition, the demographic data were considered components of the conceptual framework under the headings of: 1) 'general modifying factors' and 2) 'value of threat reduction' (interference with social roles). Therefore, one would assume that a male who is sole breadwinner may consider the possible consequences of another MI and possibly alter harmful lifestyle behaviours to decrease the chances of recurrence. Those ten patients who decided to retire post MI may have perceived the effects of their work as negatively influencing their health.

A weight category of either overweight, underweight or normal was calculated for each subject utilizing data obtained from the patient's chart in relation to normal height/weight tables (The S. K. & F. Handbook of Medical Tables, 1964-65). This technique revealed that 63.3% of the

sample population (n=19) were overweight, 3.3% (n=1) were underweight, and 33.3% (n=10) were normal weight. When patients were asked to describe their weight at the first testing time, 53.3% (n=16) said they were overweight, 6.7% (n=2) said they were underweight, and 40% (n=12) said that they were normal weight. Table 1 shows that the results of the second questionnaire indicate that patients describe themselves as having lost weight. There is a slight increase in the number of patients who considered themselves as being normal weight and a decrease in the number of patients who still perceived themselves overweight. Therefore, it appears that patients have attempted to change or alter their weight status between the two testing times, however, some patients may have lost weight but still consider themselves to be overweight. This table also shows that there is some congruence between the patients' perceptions of their own weight status and the calculated measure at the first testing time. Unfortunately a second measurement of the patients weight status was not completed at the second testing time.

Table 1

WEIGHT

Weight	Calculated at T-I(a)	Perceived T-I(a)	Perceived T-I(b)
Over	63.3(19)*	53.3(16)	46.7(14)
Normal	33.3(10)	40%(12)	50(15)
Under	3.3(1)	6.7(2)	3.3(1)

*percent (n)

When asked at T-I(a) to describe their present health, 6.7% (n=2) said poor, 30% (n=9) said fair, 6.7% (n=2) were undecided, 33% (n=10) said good, and 23% (n=7) said very good. The reason for this wide variation in personal perceptions of health status could possibly be explained by the interpretation of this particular question. Some may have thought that the question asked about their health state prior to their MI, while others may have been undergoing some form of denial which is a normal state post MI.

5.3 PREVIOUS EXPERIENCE WITH MI

It was found that 23.3 percent of the sample (n=7) had previously experienced an MI while 76.7% (n=23) had not. This variable was considered in the conceptual framework under 'modifying factors' which postulated that a person who has had previous experience with an MI may or may not be likely to alter behaviours. For example, he may alter modifiable risk factors if he had not been practicing them prior to his MI. In contrast, if he had been practicing a decrease in modifiable risk factors (i.e., decreasing his intake of dietary salt), he may feel a lack of control over his illness (or health) and either continue with modifications or regress. This is also supported by the literature which states that persons who have experienced an MI are likely to experience another (Segev, 1981).

5.4 INDEPENDENT VARIABLE

5.4.1 Health Care Beliefs

Table 2 displays the responses to the five questions which made up the variable entitled health care beliefs. The first question asked whether some parts of the patient's lifestyle were harmful to his heart. Seventy percent (n=21) agreed, 23.3% (n=7) disagreed and 6.7% (n=2) were undecided at the first testing time. When asked the same question at the second testing time the responses were similar except for an increase to 76.7% (n=23) of the patients agreeing

that some part of their lifestyle had harmful implications for their heart. This question was derived from the factor entitled 'motivations' (control over health) which is found in the conceptual framework. It is thought that if a person believes that he has some control over his health (i.e., the ability to alter modifiable risk factors) he may be more inclined to alter his behaviour (compliance).

Patients were asked whether they believed that by altering some unhealthy lifestyle behaviours the chances of another heart attack would be reduced. Eighty percent (n=24) agreed, 6.7% (n=2) disagreed and 13.3% (n=4) were undecided. The same question at T-I(b) elicited 83.3% (n=25), 13.4% (n=4) and 3.3% (n=1) respectively. This indicates that 3 of the 4 patients who were undecided at T-I(a) made a decision at T-I(b) that they could not decrease their chances of suffering another MI by altering their behaviour. This question attempts to relate to the factor in the conceptual framework entitled: 'probability of action reducing threat' (perceived efficacy of altering risk factors). Therefore, the majority of the patients perceived themselves as having some control over their lifestyle. According to the conceptual framework, these patients may also have perceived that the alteration of modifiable risk factors was a viable method to reduce their resusceptibility of having another MI. Of interest to note is that 3 of the 4 patients who were undecided had also previously suffered

an MI and two of these patients disagreed with the question at T-I(b). An explanation for this could be that they felt that they had no control over their fate of suffering or not suffering another MI.

When asked whether they believed that the advice of the health care professionals was too complicated, 93.3% (n=28) felt that it was not at both testing times. In response to their satisfaction with hospital care, 90% (n=27) were satisfied and 6.6% (n=2) were not and 3.3% (n=1) were undecided at the first testing time. The results of T-I(b) were similar except for an increase to 93.3% (n=28) who were satisfied with their hospital care. The final question referred to whether the patients believed that they received enough information from health care professionals in relation to their condition. The majority (86.7% (n=26)) felt that they received enough information, 10% (n=3) were not told enough, and 1 person (3.3%) was undecided. The results at T-I(b) showed an increase of one person to 93.3% (n=27) received enough information about their condition. The three previous questions relate to the conceptual framework under the heading of 'modifying factors' (satisfaction with hospital care and communication with health care professional's). It is thought that if a patient is satisfied with his hospital care and has good communication with health care professional's, he may be more likely to comply or alter behaviours.

Table 2

BELIEFS

Questions	Agree		Disagree		Undecided	
	T-I(a)	T-I(b)	T-I(a)	T-I(b)	T-I(a)	T-I(b)
Lifestyle Harmful	70(21)*	77(23)	23(7)	20(6)	7(2)	3(1)
Alter Behaviour	80(24)	83(25)	7(2)	14(4)	13(4)	3(1)
Advice Complicated	3(1)	3(1)	94(28)	94(28)	3(1)	3(1)
Satisfied With Care	90(27)	94(28)	7(2)	7(2)	3(1)	---
Enough Info	87(26)	94(28)	10(3)	3(1)	3(1)	3(1)

*approximate percent(n)

These data describing the similarities of answers between the first and second testings may indicate that:

1. the questions were reliable in that the subjects responded in a consistent manner;
2. the health care beliefs of the patients did not change considerably, which would be expected because

beliefs about health matters are not easily alterable.

5.5 DEPENDENT VARIABLES

5.5.1 Knowledge or Understanding

Eleven general questions were developed utilizing the information in the Heart Talk booklet to examine the patient's knowledge level (or understanding) related to MI. The first testing time served as baseline data because the patient had not yet gone through the booklet, or if he had, the literature supports the fact that retention of information at this time would be minimal (Sivarajan, et al., 1983). A total score was calculated for each patient (1 point was given for each correct response). Almost half (46.6% (n=14)) of the sample improved their understanding of their condition and 36.7% (n=11) remained the same. Only 16.7% (n=5) were found to have decreased their understanding. It is interesting to note that of the 11 subjects whose scores remained the same, only 2 of them had previously suffered from myocardial infarctions. In addition, of those whose scores improved, 4 subjects had suffered previous heart attacks. These data may indicate that even patients who have experienced an MI may gain more knowledge from the HTB and the experience of another MI. In other words, a person learns not only by experiential learning but also by information processing learning.

These knowledge questions were related to the conceptual framework by the factors entitled 'understanding the general principle' and 'particularizing'. It is thought that in order for a person to become ready to take recommended health action he must first understand why the alterations are important. It is recognized that knowledge alone does not change behaviour, however knowledge is a vital prerequisite in the process should one choose to alter one's behaviour.

5.5.2 Behaviours

The behaviours considered in this research related to modifiable risk factors such as: smoking, dietary intake of fats and salt, exercise, monitoring of blood pressure, coping with stress, and proper medication regime. A subject was given a positive score of 1 if his response corresponded with a positive behaviour in relation to modifiable risk factors for example, if he did not add salt to his food while cooking. A negative score of 0 was given if his response indicated a negative behaviour for example, if he smoked on a regular basis or if he smoked sometimes.

As demonstrated in Table 3, there were marked behaviour changes (greater than 20% increase) from negative to positive behaviours on the items related to: smoking, trying to stop smoking within the past 3 months, adding salt after food is cooked, adding salt while cooking, decreasing fats in the diet, decreasing stress, taking of medications as per

doctor's orders and taking of medications only when the patient felt the need to do so.

Table 3

BEHAVIOURS

Behaviour	Positive		Negative		Not Applicable	
	T-I(a)	T-I(b)	T-I(a)	T-I(b)	T-I(a)	T-I(b)
*Not Smoke	73(22)x	93(28)	27(8)	6(2)	---	---
*Try Stop	13(4)	13(4)	33(10)	---	54(16)	87(26)
*Salt After Cooked	67(20)	90(27)	33(10)	10(3)	---	---
*Salt When Cook	27(8)	57(17)	73(22)	43(13)	---	---
*Decrease Fats	63(19)	97(29)	37(11)	3(1)	---	---
Exercise	63(19)	70(21)	37(11)	30(9)	---	---
Chest Pain	40(12)	47(14)	30(9)	10(3)	30(9)	43(13)
BP	77(23)	90(27)	23(7)	10(3)	---	---
*Decrease Stress	50(15)	73(22)	50(15)	26(8)	---	---
*Meds per Dr.	50(15)	87(26)	13(4)	13(4)	37(11)	---
*Meds per Self	60(18)	87(26)	3(1)	13(4)	37(11)	---

x - approximate percent(n)

* - marked changes (>20%)

The majority of patients were very aware of their dietary intake of salts and fats and felt that these were achievable methods of reducing their modifiable risk factors.

As seen in Table 3, the behaviours entitled Not Smoke and Try Stop indicated that the same number of patients were trying to stop smoking after their MI. However, there was an increase in the number of persons who had quit smoking. This was considered a marked positive change of behaviour.

The questions involving exercise changes and having blood pressure monitored regularly showed slight alterations in percentages. However, different interpretations of the phrases: enough exercise and regularly monitored could have occurred. Some patients found it difficult to get outside to exercise in the winter weather. Others stated that they were still recovering from their heart attack and did not want to do too much too soon. Yet others did not consider walking to be exercise.

The behaviour entitled: Chest Pain (or knowing what to do when chest pain occurred) remained relatively consistent between T-I(a) and T-I(b). The number of patients listed under the column 'not applicable' were those patients who did not experience chest pain. This behaviour is not considered a modifiable risk factor but the HTB contains information explaining what to do should chest pain occur. Therefore, it was thought that if the patient acquired this knowledge he might be able to use it in the future.

There were some difficulties in the interpretation of the question regarding the taking of medications when the

patient felt the need (meds per self). Nitroglycerine tablets are taken only when angina occurs. This question was not intended to assess the utilization of medication doses which were taken occasionally but to assess compliance with a proper medication routine as prescribed by the doctor.

A number of statistical procedures were completed for three components of the questionnaires: health care beliefs, knowledge and behaviours. A two-tailed p was utilized because the result of any component could have had either a positive or a negative value. For example, in relation to alteration of behaviours, a person may have altered or not altered any harmful lifestyle behaviours because of: a) his previous experience with MI; or b) any pre-existing health care beliefs that he may have had. The conceptual framework can be related to this explanation. If a person does not believe that by changing a harmful lifestyle behaviour the chances of another MI are decreased, then he would probably not be ready to take any recommended action and thus not alter his behaviour. Similarly, if a person does not understand the reasons for altering harmful lifestyle behaviours, he may not be ready to take recommended health action and therefore not make the appropriate behaviour change.

As stated previously, the health care belief questions attempted to relate to the conceptual framework. Therefore, after the descriptive data were reviewed, the total scores

for this health care belief component were calculated for each subject. Each patient was given 1 point for a positively related health care belief. For example, if a person was satisfied with his hospital care or if he believed that by altering his harmful lifestyle behaviour the chance of having another MI would be decreased, he was given 1 point. If he was not satisfied with his hospital care he was given no points.

It is thought that a person with a high score of health care beliefs would be more likely to alter his harmful behaviours. An interesting result was found after completing a Kendall's tau concordance coefficient. A significant negative association was found between the total health care belief score and the total behaviour scores ($t = -.42, p = .0067$). Therefore, the two variables seem to be negatively correlated to one another. For example, a subject with a high health care belief score tallied a low score on the total number of positive behaviours and a subject with a low health care belief score tallied a high score on the number of positive behaviours. However, a possible explanation for this negative correlation could be that one particular subject's scores may have skewed the data. One particular subject scored very highly on the total behaviour score and very low on the total health care belief score. A recalculation of Kendall's tau excluding this one case was completed and no association was found between the total

health care belief score and the total behaviour score. No other associations could be drawn between health care beliefs, knowledge, and behaviours. Therefore, one would not reject the null hypothesis 3(c).

The Sign Test

For each behaviour question the sign test was used to test whether or not a significant change in the proportion of people eliciting the particular behaviour occurred from T-I(a) to T-I(b). The p value of .005 was used as a cut off point because of the number of tests being done and the possibility of an experimental error. More specifically, if a 5% error rate were used for each test completed there would be a much greater chance of making a type I error than only 5%. Therefore, the required 5% level was divided by the number of tests completed to ensure no more than a 5% chance of a type I error. This revealed a p value of .005. As seen in Table 4, a significant change occurred in: trying to stop smoking and decreasing fats in the diet. Adding salt during and after cooking did not show a significant change, however all or almost all of the subjects did alter their behaviour between the two testing times. Therefore, there is evidence to reject null hypothesis 2 (a) and accept the alternative hypothesis 2 (a). Therefore, one would accept that the proportion of people eliciting a positive change for the 'trying to stop smoking' behaviour is different that the proportion of people eliciting a negative (or no) change in the 'trying to stop smoking' behaviour after the administration of the HTB. The same alternative hypothesis would be accepted for the 'decreasing fats in diet' behaviour. For all other behaviours listed one would not reject the null hypotheses.

Table 4

RESULTS OF SIGN TEST

Behaviours	Ties	+ Diff	- Diff	p
Smoke	21	8	1	.039
Try Stop	20	10	0	.002*
Salt After Cooked	23	7	0	.016
Salt When Cooking	19	10	1	.012
Decrease Fats	20	10	0	.002*
Exercise	22	5	3	.727
Chest Pain	12	12	6	.238
BP	24	5	1	.219
Decrease Stress	17	10	3	.092
Meds per Dr.	26	2	2	1.000
Meds per Self	28	1	1	1.000

* - Significance

The sign test was also calculated for the total scores from the knowledge questions and no significant results were found. Therefore, one would not reject the null hypothesis 1 (a): the proportion of persons eliciting a correct response was the same as the proportion of persons eliciting an incorrect response before and after the administration of the HTB.

T-Test and Wilcoxon Matched Pairs Signed Rank Test

In order to answer the question whether there was an overall shift in knowledge due to the booklet (or patient education), scores were calculated for the total number of correct responses to the eleven knowledge questions. A square root transformation was also utilized to induce normality. The results did not indicate a significant difference between the scores from the two testing times after employing a t-test and Wilcoxon signed rank test ($p=.007$; $p=.008$ respectively). Although it was very close and a practical significance could be noted which is worthy of investigation. There is evidence to suggest that this data did not come from a normal population at $\alpha=.05$. (see table 5).

In order to answer the question whether there was an overall behavioural shift due to the booklet (or experience of MI itself), scores were calculated for the total positive behaviours exhibited for both testing times. A square root transformation was then utilized. The t-test and Wilcoxon matched pairs signed ranks test resulted in significant findings ($p=.001$, $p=.003$ respectively). Therefore, it can be said that these findings indicate a significant difference between the scores at the two testing times. There is no evidence that this data came from anything other than a normal population at $\alpha=.05$.

Table 5

SHIFTS IN
BEHAVIOURS AND KNOWLEDGE

Variable T-I(a) vs T-I(b)	Test	P Value
Knowledge	T-Test Wilcoxon	.007 .008
Test for Normality		.013 NN
Behaviours	T-Test Wilcoxon	.001* .003*
Test for Normality		.838 N

* - Significant
N - Normal
NN - Not Normal
alpha = .05

There is no significant evidence to reject null hypothesis 1 (b). Therefore, the accepted null hypothesis is: 1 (b) The average number of items known is the same before and after the administration of the HTB. However, there is significant evidence to reject null hypothesis 2 (b) and accept the alternative hypothesis. Therefore, the accepted hypothesis would be: 2 (b) The average number of positive behaviours is different before and after the administration of the HTB.

5.6 PRESENCE OF HEALTH CARE PROFESSIONALS

The presence of Health Care Professionals for the purpose of patient education was determined in two ways:

1. through chart audit;
2. through patient questioning.

The health care professionals who were considered in this study included: nurse, physiotherapist, pharmacist, social worker and dietitian. This study did not focus directly on the quantity and quality of teaching that was carried out by health care professionals, although it is recognized that this may have decreased the amount of control possible for the way in which the HTB was received and read by the patient.

Table 6

CHART AUDIT
POST MI TEACHING

HCP**	Record	No Record	Total *
Nurse	90%(27)	7%(2)	97%(29)
Physio	83%(25)	14%(4)	97%(29)
Pharm	80%(24)	17%(5)	97%(29)
S.W.	23%(7)	74%(22)	97%(29)
Dietitian	94%(28)	3%(1)	97%(29)

* - Missing data

** - Health Care Professionals

As can be seen in Table 6, nurses, physiotherapists, pharmacists and dietitians recorded their patient teaching on 83 to 94 percent of the charts, whereas, social workers recorded their teaching on only 23% of the charts. A possible explanation for this difference could be that in most of the institutions, social workers must be consulted by either nurses or physicians in order for patient contact to be made, whereas pharmacists and physiotherapists

routinely see post MI patients. When the social worker is consulted it has been determined that the patient has some type of social problem. Another important factor to note is that teaching may have been done by the health care professionals and may not have been recorded on the chart. Unfortunately, it was beyond the scope of this research to evaluate the methodology of teaching for each particular patient by each discipline. However, the one common variable throughout the five hospitals was the HTB.

Table 7

PATIENT RECALL
OF HEALTH CARE PROFESSIONALS' TEACHING EFFORTS

HCP*	Recall	No Recall	Total
Nurse	100%(30)	---	100%(30)
Physio	80%(24)	20%(6)	100%(30)
Pharm	83%(25)	17%(5)	100%(30)
S.W.	30%(9)	70%(21)	100%(30)
Dietitian	97%(29)	3%(1)	100%(30)

* - Health Care Professional

A comparison of Table 6 and Table 7, reveals the consistency in patient recall of health care professionals' interactions for the purpose of patient teaching, and in the actual charting of patient teaching efforts. This is interesting and contradictory to what the literature has stated in relation to patients not being able to remember much about their hospital stay once they return home (Scalzi, 1980). This information obtained from the patients and their charts relates to the conceptual framework under

the headings of: a) 'modifying factors' (communication with health care professional's) and b) 'cues to action' (advice from health care professional's to decrease risk factors). It is thought that these components may assist in determining a patient's readiness to take recommended health action which in turn would mean compliance or alteration of harmful lifestyle risk factors.

5.7 PATIENT OPINIONS OF THE HTB

All patients were given a Heart Talk booklet by the nurses while in the hospital. However, it should be noted that in one particular hospital a patient is required to purchase his own HTB. Out of the total of 30 subjects about 83% (n=25) found that they spent extra time reading the booklet on their own, and almost 87% (n=26) of the sample stated that the HTB was not difficult to understand. It is interesting that the educational level of approximately 57% of the sample (n=17) was less than grade 12 while 43% (n=13) had a level of grade 12 or over. Those with less than grade 12 told the research assistant verbally that they had difficulty with many of the "big words".

When asked whether any information scared them (a somewhat biased question) about 86% (n=26) responded no, while 7% (n=2) responded yes and 7% (n=2) had no recall of any information that may have scared them. The research assistant also discovered that 8 of the 30 subjects had

returned to the hospital with what they thought could be another MI, but it was not. The patients stated that anxiety was associated with these episodes. This feeling could have been related to reading the booklet or to not having had all of the information required to make a decision about whether the experience was the same as their previous MI (Wynn, 1967; Dugas, 1977; Devine, 1983).

The HTB is divided into sections entitled: 'Your Heart', 'Heart Attack', 'Your Hospital Stay', 'Risk Factors', etc. It was thought that if the patient was asked to consider each section separately a more accurate evaluation of the HTB from the patient's perspective could be accrued. As seen in Table 8, most patients responded that the sections in the HTB were easy to understand.

Table 8

PATIENT OPINIONS OF HTB

Section	Easy	Difficult	No Recall
Your Heart	90%(27)	7%(2)	3%(1)
Heart Attack	84%(25)	13%(4)	3%(1)
Hospital Stay	87%(26)	10%(3)	3%(1)
Risk Factors	90%(27)	10%(3)	---
Going Home	94%(28)	3%(1)	3%(1)
Meds.	90%(27)	3%(1)	7%(2)
Physical Activity	97%(29)	3%(1)	---
Increasing Activity	94%(28)	3%(1)	3%(1)
Walking Program	97%(29)	3%(1)	---
Sexual Relations	94%(28)	3%(1)	3%(1)
Return to Work	64%(19)	3%(1)	33%(10)*
Signals & Actions	93%(28)	7%(2)	---

*Not Applicable

Even though patients indicated that the HTB was easy to understand, a large number of them thought that: the text was "too wordy", too much material was contained in a single

paragraph, the explanations which accompanied the diagrams were not informative enough. In other words, the format of the HTB was not as clear and helpful as it could be.

Some patients had some more specific suggestions for improving the HTB. It was stated that the section entitled: 'Your Heart', should contain more detailed diagrams of the heart, its position in the body, how it functions, and how damage has affected the heart. Many patients indicated that their doctor drew more complete diagrams in explanation of their MI; however, this was usually done on scrap paper so that when they wanted to review the diagram it was not available. Also, many of the patients had visited libraries or purchased books in an attempt to understand their conditions more thoroughly.

Several patients were still unclear as to what had happened to them and found the whole experience "hard to believe". These patients desired a step by step description of the occurrence of a heart attack, tying in the pain and symptoms. They thought that the section 'Heart Attack' should contain "less ambiguous phrases than: radiating pain and tightness and should contain examples of familiar aches that a person may have experienced".

The patients thought that the section on 'Stress' (Risk Factors) needed to be more specific with more "how to's" in relation to decreasing stressful life events. Also, patients

stated they needed more examples of: diets, what to use as substitutes, and how to cook differently.

When asked what they would change in the 'Physical Activity' section of the HTB, most patients wanted more practical exercises that could be performed in Manitoban winters. They also thought that the section could contain more realistic exercises. One patient observed that the exercise section was over-simplified and that this set him up for major disappointments. While it is recognized that the booklet can not be all things to all people, this example shows how patients take the information in the booklet at face value and rely on it as a guide.

The 'Medication' section was another area in which the patients also required more information on such things as: side effects, the effect medications have on the heart and how the medications contribute to healing.

Lastly, it is interesting to note that several of the patients had joined the Refit Center and through socialization and encounters with the staff were reassured and able to have their questions answered. Whereas, patients who were not members of the Refit Center still had a great number of concerns at the second testing time. Most patients who participated in this study thought that the research assistant was sent from the Manitoba Heart Foundation in order to answer their questions. This could

indicate a real need for a social support system for post MI patients and their families.

The patients were also asked whether there was enough information in relation to sex and whether the sections referring to 'Returning to Work' and 'Activity Guidelines' were helpful. About 83% (n=25) stated that there was enough information in relation to sex. However, it must be considered that those patients who agreed that there was enough information related to sex may have been embarrassed to answer in any other way. Approximately 64% (n=19) of the sample thought that the booklet was helpful for their return to work, the other 36% (n=11) were retired and/or had no comment about this section. In addition, 90% (n=27) found the activity guidelines helpful but stated that they would have liked more details and explanations of the guidelines on certain activities. For example, a question which was not answered was: Why does one have to wait for 3 to 7 weeks before being able to ride in a car for longer than one hour?

Finally, the patients were asked whether they thought the HTB was a useful learning tool. About 43% (n=13) strongly agreed and 57% (n=17) agreed that it was useful to them. Thus, ALL of the subjects (100%) perceived the booklet as being helpful to them in their recovery from myocardial infarction. In conversation with patients the research assistant found that many patients used the booklet as a resource, reread it and passed it on to friends and

neighbors. In relation to the conceptual framework, one can see the importance of the cognitive learning components in that the patients did perceive the booklet as a useful learning tool. However, one might assume that if ALL of the patients felt that they learned from the booklet, they ALL would have improved in their knowledge scores and this was not the case. Therefore, one can see the importance of not only considering the cognitive component of learning but also considering the aspects of the MHBM in order to explain the likelihood of compliance.

Chapter VI

DISCUSSION

6.1 INTRODUCTION

This chapter will discuss the results of the evaluation of the Heart Talk Booklet from the patient's perspective. The implications of this study will be discussed in four areas including: discussion of findings, relation of findings to conceptual framework, nursing practice, nursing education and nursing research. Nursing research will also contain limitations of this study, suggested modifications for this study and recommendations for future nursing research. Conclusions will then be stated.

6.2 DISCUSSION OF FINDINGS

There has been little research done focusing solely on printed materials for post MI patients. Some of the findings of this study are consistent with the findings of larger studies which examined patient-teaching tools within the context of patient-teaching programs (Scalzi, 1980; Jenkins, 1984). It has been found that the printed materials do provide:

1. a vehicle to ensure adequate coverage of essential information (Scalzi, 1980);
2. a convenient reference booklet for the patient after he is discharged from the hospital (Scalzi, 1980);
3. a helpful tool in recovering from an MI (Jenkins, 1984).

The results of this study have demonstrated the HTB to be a vehicle to ensure adequate coverage of essential learning material for patients because every patient who suffers an MI within the city of Winnipeg receives (or has the opportunity to receive) a HTB. Secondly, it was found that the patients refer to the booklet and share it with family and friends who have suffered from MI. Lastly, all of the thirty subjects of this study stated that the HTB was a useful learning tool for their recovery from MI.

Others have found significant increases in knowledge levels (Scalzi, 1980, Rahe, et al., 1975). The results of this study are congruent with those in that statistically significant evidence of increased total knowledge scores were found between the first and second testing times ($p=.007$; $p=.008$). In addition the descriptive analysis of percentages showed a positive improvement in knowledge level for almost half of the sample population.

Also statistically significant evidence was shown for positive alterations in total behaviour scores. This finding

would suggest that the HTB may have influenced the patients in changing their harmful lifestyle behaviours, although attention must be given to all of the other confounding variables. Variables such as: the experience of an MI itself, the patient's feelings of resusceptibility to another MI, and the health care professionals' interactions may have influenced the patient in his decision to modify any harmful lifestyle behaviours. Evaluation of the behaviour component did descriptively indicate that most of the patients have at least begun to alter some unhealthy lifestyle behaviours. The behaviours which showed significant changes included: 'trying to stop smoking and 'decreasing fats in the diet' ($p=.002$). Other behaviours such as: 'smoking', 'dietary intake of salt' and 'proper medication routine' showed marked percentage increases in positive alterations but no statistically significant evidence was apparent. These findings are important in light of the chances for recurrence of an MI (Segev, 1981). Therefore, the evidence discussed is suggestive that the HTB is effective in increasing the knowledge level of patients and modifying harmful lifestyle behaviours. However, one must consider the fact that the second testing time occurred only 6 to 8 weeks post MI, therefore sustained behaviour change was not evaluated. Again, these results are not entirely conclusive because there was no treatment control group for comparison of the findings. Without a control group one cannot conclude that these alterations are related

directly to the HTB or to the experience of an MI or from an interaction effect of both. In other words, the descriptive design of this study does not carry the weight that an experimental design might. In addition, the combination of five hospitals, five disciplines and many intradisciplinary differences could have affected the results. However, the common variable throughout all of the patient education programs was the Heart Talk booklet.

Finally, in conversation with patients the research assistant found that many patients used the booklet as a resource, reread it and passed it on to friends and neighbors. Therefore, a very important step in the evaluation of this booklet is to revise it in a way that could benefit the patient even more.

A conclusive report will be given to the Manitoba Heart Foundation containing suggested alterations for the HTB. Some of these suggestions include: creating a pocket in the cover for storing any additional material that may be given to the patient from the health care professionals; changing the booklet into more of a self-learning package to decrease the variability of differences in the teaching done by the health care professionals; translating the booklet into different languages in consideration of cultural variations; and adding a glossary of terms to assist with understanding the medical terminology.

6.3 IMPLICATIONS FOR NURSING PRACTICE

This study did not focus solely on nursing. However it is believed that nurses can play an important role in the education of post MI patients because it is the nurse who is with the patient 24 hours per day. The most significant implication of this study for nursing practice revolves around the issue of patient education. In many cases nurses place patient education at the end of a long list of priorities because of time constraints. There may also be other reasons why nurses do not teach patients. Pohl (1965) found that nurses felt that they were unprepared for the role of teacher. In addition, nurses may not identify information giving, which may take place during other forms of care, as teaching (Wilson-Barnett, et al, 1983).

It is known that patients do not retain much information when teaching is attempted while they are in the acute phase of an MI (Scalzi, 1980). However, the patient still requires support and short explanations of his environment and treatment. This research has reinforced the fact that nurses, dietitians and pharmacists may have great impact on patients in relation to patient education as seen by the significant increase in knowledge level and the significant alterations in harmful lifestyle behaviours. Although it is not known if these behaviour changes resulted from the patient having had contact with one health care professional or a combination of all health care professionals.

Wilson-Barnett and associates (1983) suggest some types of teaching which most nurses should employ in their patient care:

1. provide patients with information related to their worries prior to stressful events;
2. prepare patients for their life at home, giving principles for increasing activities and increasing their awareness of their own feelings of fatigue as guidance for how much they should do;
3. help patients to understand their illness and treatment.

Most of the information required for these three types of teaching is contained in the HTB and nurses along with other health care professionals should be made aware of this. It is very important to review the HTB with each patient and ask whether he has any questions. Therefore, the HTB should be promoted as a useful resource tool to be utilized once the patients return home.

The results also demonstrate a definite need for community follow-up programs for post MI patients to aid in assisting the patient once he returns home. During hospitalization the patient is bombarded with information and people prior to being discharged. It is at this time that the patient may not be motivated to learn to alter harmful lifestyle risk factors such as: diet, exercise,

stress and smoking. Whereas once the acute phase of MI is over and the patient returns to his home environment, he may be more interested and motivated to learn about altering any harmful lifestyle risk factors. The research assistant of this study found that she was asked a great many questions when she went to the patients' homes to administer the second questionnaire. The patients also demonstrated a need for a support system to assist them with increasing their awareness of the normal responses during recovery from an MI such as the feelings of anxiety or depression.

In addition, the conceptual framework suggests that nurses need to take into consideration the patient's cognitive learning abilities as well as his health care beliefs when assessing a patient's need for education. It is known that increasing a patient's knowledge does not alter his behaviour but a patient must have the information in order to use it in his decision making processes. Also, a person must not only believe that a risk factor is harmful, he must consider himself susceptible to having another MI.

6.4 APPLICATION OF FINDINGS TO THE CONCEPTUAL FRAMEWORK

The conceptual framework for this study provided guidelines for explanation of the findings. It was not possible to develop linkages between all of the variables because of the lack of a sufficient number of questions for each variable and lack of validity of the questionnaires.

However, the findings did suggest that relationships may exist between some of the components of the model and compliance. The components that were considered in this research included:

1. 'motivations' (control over health)
2. 'probability of action reducing threat' (perceived efficacy of altering risk factors)
3. 'modifying factors' ('general': satisfaction with hospital care, communication with health care professionals; 'specific to present illness': previous experience with MI)
4. 'cues to action' (advice from health care professionals to decrease risk factors)
5. 'knowledge' (Information Processing: understanding the general principle, particularizing).

'Motivations' (or control over health) was measured by the question: Some parts of my lifestyle were harmful to my heart. The results indicated that over 75% of the subjects agreed with the statement. This may indicate that the subjects held the health care belief that they had some control over their health which in turn may explain their alteration of harmful lifestyle behaviours.

Over 80% of patients agreed that by altering harmful lifestyle behaviours the chance of another heart attack would be reduced. This question attempted to portray 'value

of illness threat reduction' and could help to explain the alteration in behaviours. Over 90% of the patients: were satisfied with their care; felt that they received enough information from the health care professionals; and did not consider the advice from the health care professionals too complicated. These findings would suggest that the patients were satisfied with their care and in turn could have led to the significant alteration of harmful lifestyle behaviours.

'Cues to action' (or a stimulus to trigger the decision making process) was considered by the interpersonal interactions of the health care professionals and the patients. These interactions could help to explain the patients' significant alteration of behaviours although it is impossible to determine whether it was one health care professional or a combination of all health care professionals.

Significant increases in knowledge would suggest that the patients successfully progressed through the information learning process because of the significant number of behaviour changes (or acting).

The operationalization of each component of the conceptual framework by the investigator may have been somewhat disadvantageous because of lack of reliability in the dimensions that each question was attempting to represent. However, Janz and Becker (1984) stated: "for the

most part, every investigator has developed a unique approach to operationalizing each variable (it is a testament to the robustness of the model that the dimensions remain predictive despite different measures)" (p. 45). Therefore, the questions utilized in this study may actually suggest indications of or help to explain why the patients significantly altered their behaviours.

In conclusion, each of the variables has been discussed along with the specific questions which attempted to represent them. One of the drawbacks of this conceptual framework was the fact that it was impossible to consider each component of the MHBM separately. One component does not act alone during a time period as would appear on paper. It purports to be a combination of all components acting together over time which produces the ultimate goal of compliance. Thus, it becomes apparent that 'motivations', 'probability of action reducing threat', 'modifying factors', 'cues to action' and 'knowledge' may all help to explain the likelihood of compliance or alteration of harmful lifestyle behaviours.

6.5 IMPLICATIONS FOR NURSING EDUCATION

Nursing education within the classroom occurs before actual nursing practice. It is clear that student nurses should be made aware of the importance of patient education and strategies to evaluate its effectiveness (i.e., increase

in knowledge levels, behaviour changes, and patients' personal opinions about the teaching method). The findings of this study stress the importance of including the Heart Talk booklet in patient teaching efforts. The student should be made aware of the HTB and of the Post MI Teaching Manual which was created to assist health care professionals to improve their patient teaching efforts. Consistency in the education of patients would be enhanced if all nurses (and health care professionals) utilized the manual. The nursing student in the classroom and in the clinical setting has a prime opportunity to learn about and to evaluate the HTB.

6.6 IMPLICATIONS FOR NURSING RESEARCH

The implications for nursing research focus upon evaluation of patient education programs and printed materials which may be given to patients. Program development and evaluation can provide valuable research opportunities for other studies such as this. The purpose of evaluation research is not only to assess the overall impact of a program or teaching tool, but also to provide feedback to the developers which can lead to adjustments or alternatives in the design of the program or written materials.

Based on the results of this study suggestions for further research include:

1. Evaluation of the dependent variables in greater depth by the utilization of the same or another conceptual framework. The questionnaires which were developed for this study posed some difficulties in measurement because of the operationalization and complexity of the conceptual framework. It may be possible that another conceptual framework might offer more usable data with respect to more sophisticated statistical methodologies. This could be accomplished by identification of the factors that affect the dependent variables through a qualitative or quantitative approach.
2. Evaluation of the patient teaching performed by the health care professionals could be accomplished using a questionnaire with proven reliability and validity.
3. Development of an evaluation tool for measuring the content of the Heart Talk booklet and establishing its validity and reliability.
4. Evaluation of patient teaching tools prior to implementation into patient education. This would enable an experimental design to be utilized which would produce more concrete results.

6.6.1 Limitations

The limitations of this study are related to the study design, generalizability of findings, consistency, and reliability of the instruments.

This study does not focus directly on the quality of teaching carried out by the health care personnel although it is recognized that this contributed to a lack of control of the way in which the booklet was received and read by the patient. Similarly, Scalzi's (1980) study pointed to an increase in knowledge and compliance in specific areas post follow-up visit and teaching. Therefore one cannot conclude whether it was the knowledge or the presence of health care professionals that contributed to the patients' motivation to learn and to alter their behaviours.

In designing this study, ethical considerations had to be weighed in that it was not ethically sound to implement an experimental design which would have utilized a control group of subjects who would not have been given the Heart Talk booklet. Thus, the first testing time was selected for the administration of Questionnaire I(a) to acquire baseline data. In this way the patient acted as his own control. This methodology attempted to determine the knowledge gained from the booklet and alteration of any harmful lifestyle behaviours. It would have been desirable to select a hospital for data collection that did not use the HTB. However, all hospitals in Winnipeg and Brandon utilize the booklet in their patient teaching efforts.

It is recognized that behaviour does alter over time and that a one time testing may not reflect any sustained lifestyle changes. In addition the self-reported

questionnaire may not have elicited truthful data in that the subjects may not have answered the questions honestly. This could have influenced the behavioural variable. The patients' answers may have been influenced by the mere presence of the investigator. The patient may have adjusted his answers to fit the study or stated what he perceived would be appropriate. Thus, the Hawthorne Effect could have been operating simply because the patients were participating in a research project.

Generalizability of findings may have been prevented due the characteristics, gender of the subjects, and the sample size. Only males were selected. This was to decrease the variability but it may also have decreased the generalizability. In addition, those subjects who consented may have been more compliant or willing to please than those who did not consent. In addition, cultural differences within the English speaking sample were not addressed. It must be acknowledged that the sample size of 30 is somewhat small and that other factors may have influenced these findings such as: patient's previous experience with MI, or uncontrolled intervening variables (lack of consistency with patient teaching by the five disciplines).

Utilizing five hospitals with five different methods of patient education may have presented some difficulties in interpretation of results but the common variable throughout all of the hospitals' teaching programs was the Heart Talk

booklet. Most evaluation research studies that have been completed in the hospital settings are those which evaluated a program that was created and implemented by the investigator (Devine, 1985). Little research has been done evaluating actual daily or routine patient education utilizing staff nurses in the practice setting. Thus, a positive attribute of this study is the fact that the teaching was completed by the staff of each institution. This factor helped in giving a realistic evaluation of the HTB.

Lack of consistency between the researcher's and her assistant's answers to questions during the administration of both questionnaires may have occurred. However, in order to decrease the chances of this occurring, the investigator and her assistant performed the pilot test together, taking turns and observing each other's responses to various questions that the subjects asked. The instruments themselves do not have established reliability and validity. Interpretation of the instruments was considered after the pilot test and refinement in wording was completed. However, it was not possible to statistically determine the reliability of the instruments.

6.6.2 Suggested Modifications to the Study

The following are suggested modifications for improvement of the quality of this study. First, it would be important to increase the size of the sample because a sample size of 30 subjects increases the chances of greater variability than a larger one might. In other words, the chances of obtaining a type II error increases with a small sample size. This has been taken into consideration. When data are collected from a total of 50 patients, further analyses will be completed and compared with the data from this particular phase of the research.

Second, revision of the questionnaires could be completed taking into consideration the MHBM which has already determined reliable questions for sick role behaviours such as perceived severity, barriers, and susceptibility (Janz & Becker, 1984). The addition of more questions for clarification of such topics as: utilization of HTB as a resource tool should be completed. Determining a more reliable method of evaluating the opinion section of the instrument must be completed to determine suggestions for alterations of the booklet.

Last, this study was descriptive, exploratory in design. This researcher would propose to alter the design to that of an experimental or quasi-experimental design. An experimental design may not be ethically accepted whereas a

quasi-experimental design could utilize two non-randomized control groups which would not need post MI teaching. For example, one control group could be a group of healthy males (depending on the chosen population) who do not have atherosclerosis and therefore may not feel susceptible to the possibility of suffering an MI. It would be expected that the results of testing this sample would indicate no change over time. The second control group could be a group of men who suffer from atherosclerosis but have not experienced an MI (possibly from a hypertension clinic). These patients may believe that they could be susceptible to suffering an MI because they have a symptom (or risk factor). One would expect slight alterations in their responses but not as much as the the responses of the experimental group who would each receive the booklet post MI. This study would permit inferences about the causal effect of the booklet on the dependent variables.

6.6.3 Recommendations for Further Research

There were many areas uncovered in this research which require further exploration. Wisdom and understanding of the relationships between health care beliefs, knowledge and behaviour are still lacking. A tool is required which has both validity and reliability to test each of these variables and which would then allow causal relationships to be measured. These types of studies have been previously

completed with some conclusive results (Becker et al., 1972; Becker, et al., 1974; Becker, et al., 1979; Elling, et al., 1960; Gordis, et al., 1969). In addition, there exists a need to refine and standardize tools used to measure the HBM (Janz & Becker, 1984). Therefore, further research is a necessity.

Second, evaluation research is another important area for study especially just prior to the implementation of teaching programs. It is at this time when experimental designs can be instituted with no threat of ethical disapproval. Evaluation of the new program can be accomplished utilizing a control group (which would receive routine care) and experimental group (which would receive routine care and the new program). Comparison of the two groups could help to assess the efficacy of the program.

In conclusion, it can be said that research is often an opportunistic process and when any idea or problem which requires a solution or evaluation arises, nurses should reach out and attempt to explain it through the research process.

6.7 CONCLUSIONS

This study attempted to evaluate the effectiveness of the Heart Talk Booklet from the patient's perspective by utilizing a framework of two integrated conceptual models. Previous experience with myocardial infarction, health care beliefs, information processing learning (knowledge and understanding), and finally acting or compliance (behaviours) were assessed through two questionnaires. There were significant differences between the two testing times for the dependent variables of knowledge and behaviours. These findings indicate, although not conclusively, that the HTB has an effect on patient compliance.

The descriptive findings of this study could provide useful guidelines for those who wish to do further research in the evaluation of a teaching-learning tool. The qualitative findings also demonstrated slight differences in what health care professionals deemed important for the post MI patient (the information in the HTB) and what the patient himself felt was important to facilitate his recovery process. These findings are practically significant because conflicts and frustrations which may arise between the patient and health care professionals may interfere with the learning process. The need for mutual goal setting becomes evident. As was previously discussed, a study involving the comparison between the patient's and the health care

professionals' perceptions regarding which information is important for post MI patients is currently under investigation by this researcher.

In conclusion, this evaluation of a patient teaching tool found clinically significant increases in knowledge levels of patients and statistically significant alteration of harmful lifestyle behaviours post administration. The conceptual framework helped to guide the evaluation and to assist in explanation of compliant behaviours. The patients who participated in this evaluation provided valuable opinions of the information which is contained within the Heart Talk booklet. They also supplied suggestions for alteration of some of the booklet's contents. In light of the high incidence of myocardial infarction, it seems most appropriate to revise the Heart Talk booklet in such a way that it could benefit the post MI patient even more.

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Appendix A
PERSONAL INFORMATION

Personal Information

No. _____

1. age:
2. height:
3. weight:
4. Patient's current employment status: full-time,
employed part-time, unemployed, retired.
5. Address:

Telephone Number:

6. Years of formal education:
7. Do you live alone? YES/NO
8. If you live alone how long have you lived this way?
9. How would you describe your present health?
poor fair undecided good very good

Chart Information (pertaining to patient teaching)

1. Date of myocardial infarction:
2. List of the health professionals who taught the
patient:
3. Dates of patient/health care worker interactions:

4. Form of documentation on patient teaching efforts:

1) special record

2) progress notes

3) nurses' notes

4) other

5) no record

5. Date of discharge:

Appendix B
CONSENT FORMS

PATIENT CONSENT

With my signature, I, _____, agree to take part in a study titled "Evaluation of Heart Talk Booklet". It studies the effectiveness of the Heart Talk booklet which was developed by the Manitoba Heart Foundation. I will have been introduced to the booklet as part of the hospital's normal post heart attack teaching program. It is because I am recovering from a heart attack that I will be asked to complete a questionnaire which will take approximately 20 minutes. I understand that the only the researcher or her assistant will have access to my records for the purpose of this study. Another questionnaire of the same length will either be brought to my home for answering or be mailed to me 6 to 8 weeks after my discharge from hospital. I will just have to answer the questions and give it to the researcher or mail it back as postage will be included. I realize that participating in this study may help to increase my understanding about my heart attack and that I am entitled to a copy of this form if I so desire. I also understand that there may not be any direct benefit to me but it may benefit other patients in the future. The study

is being conducted by Catherine Aquino Russell, a student in the Masters of Nursing Program at the University of Manitoba who may be reached at _____ or _____ should any questions arise.

Participation will be totally voluntary and will in no way interfere with my care at the hospital. I realize that I may withdraw from the study at any time by simply telling the investigator or her assistant. My refusal to participate will in no way affect my treatment at the hospital. The information I provide will be strictly confidential because no identification will be associated with the information I provide.

Date: _____ Signature: _____

Date: _____ Signature: _____

If you would like a copy of a summary of the results of this study please indicate below:

YES _____

Address: _____

NO _____

PHYSICIAN CONSENT

Winnipeg, Manitoba
R

October 25, 1985

Dear Doctor:

I have received funding from the Manitoba Heart Foundation for evaluation of a booklet entitled "Heart Talk". It is a patient teaching tool for post myocardial infarction patients.

My research proposal has passed through the Ethical Review Committee at the University of Manitoba School of Nursing and is awaiting approval from the Medical Ethical Review Committee. It was decided in a Medical Department meeting at St. Boniface that your consent for utilization of some of your post myocardial infarction patients be sought from you individually. The study involves two 20 minute questionnaires to be administered at two time periods: (1) upon patient's arrival to ward after acute phase; (2) six to eight weeks post myocardial infarction.

If you do not wish to have your patients included in this study or if you would like to give consent on each individual patient please notify the Medical Department office--Jerry Warthe--at 237-2314 within 10 days.

Thank you in advance for your cooperation. It is thought by the Manitoba Heart Foundation and myself, a nurse researcher, that this is a valuable piece of research.

Sincerely,

Catherine Aquino Russell
RN, BScN

PHYSICIAN CONSENT

Winnipeg, Manitoba
R

November 4, 1985

Dear Doctor:

I have received funding from the Manitoba Heart Foundation for evaluation of a booklet entitled "Heart Talk". It is a patient teaching tool for post myocardial infarction patients.

My research proposal has passed through both the Ethical Review Committee at the University of Manitoba School of Nursing and the Medical Ethical Review Committee at the University of Manitoba. It was decided by the Medical Department of the Misericordia Hospital that your consent for utilization of some of your post myocardial infarction patients be sought from you individually. The study involves two 20 minute questionnaires to be administered at two time periods: (1) upon patient's arrival to ward after acute phase; (2) six to eight weeks post myocardial infarction.

Would you please indicate below as to whether or not you will grant permission for your patient's inclusion into this study. Your patient will also be given the option of his participation.

Thank you in advance for your cooperation. It is thought by the Manitoba Heart Foundation and myself, a nurse researcher, that this is a valuable piece of research.

Sincerely,

Catherine Aquino Russell
RN, BScN

Date _____ Signature _____

Permission granted _____

Permission denied _____

LETTER TO ADMINISTRATION FOR CONSENT**MANITOBA HEART FOUNDATION**

an affiliate of the Canadian Heart Foundation



301 Canada Building, 352 Donald Street, Winnipeg, Manitoba, R3B 2H8, tel. (204) 942-0195

This letter is to serve as an introduction for Catherine Aquino, a graduate student in the Masters of Nursing Program, University of Manitoba.

Catherine has been contracted to do evaluation research for the Manitoba Heart Foundation on the utilization and effectiveness of the Heart Talk booklet. This booklet is currently being used in all the hospitals in Winnipeg and is a component of the Post M.I. teaching program. Her research would evaluate Heart Talk from the perspectives of the patient and from the multiple-disciplines associated with Post M.I. care. A copy of an abstract describing the study is attached. Her research proposal has been passed by the Ethical Review Committee of the University of Manitoba and her Faculty Adviser is Dr. Lesley Degner.

Catherine will be in contact with you in the near future to request your involvement and to answer any questions that you might have. We would hope to start the evaluation as soon as possible, not only in light of our program planning for the fall but in order to make the manual as beneficial to your patients as possible.

Sincerely,

Karen J. Johnston, B.Sc.N.,
Director of Education.

KJJ/jw
Enclosure

If you agreed with #1 (Part II), which aspects were harmful?

2. I believe that by altering some unhealthy lifestyle behaviours the chance of another heart attack will be reduced.

Strongly Agree Undecided Disagree Strongly
Agree Disagree

3. The advice of the health care workers in the hospital is too complicated and difficult to follow.

Strongly Agree Undecided Disagree Strongly
Agree Disagree

4. I am not satisfied with my present hospital care.

Strongly Agree Undecided Disagree Strongly
Agree Disagree

5. I feel that I do not get enough information about my condition from the hospital workers.

Strongly Agree Undecided Disagree Strongly
Agree Disagree

PART III

Circle the answer that you believe is correct.

1. Angina is caused by narrowing of the arteries of the heart due to atherosclerosis or plaque.
TRUE/FALSE/DON'T KNOW
2. Heart attack, coronary thrombosis, myocardial infarction, M.I., and coronary all mean different types of heart conditions. TRUE/FALSE/DON'T KNOW
3. Everyone recovers the same way after a heart attack.
TRUE/FALSE/DON'T KNOW
4. It usually takes 6 to 8 weeks for a scar to form on the heart where the blood supply was cut off.
TRUE/FALSE/DON'T KNOW
5. It is important for the healing process of the heart to slowly increase physical activity.
TRUE/FALSE/DON'T KNOW
6. Smoking makes less oxygen available to your heart and the rest of your body. TRUE/FALSE/DON'T KNOW
7. These are all ways to lower high blood pressure: stop smoking, decrease salt intake, decrease stress, and lose weight (if necessary). TRUE/FALSE/DON'T KNOW
8. The first 2 to 3 days after hospital discharge are difficult for all family members. TRUE/FALSE/DON'T KNOW
9. The emergency system phone number is 911.
TRUE/FALSE/DON'T KNOW

10. If I was experiencing chest discomfort radiating to my neck and/or arm I would: (check off 2)
- stop, sit down, lie down ____
- take a nitro tablet ____
- not stop, keep doing what I was doing ____
- walk around and hope the pain would go away ____

11. Please circle the emergency system telephone number?

119

911

999

111

PART IV

1. Check off which of the following statements describes your use of tobacco.

I have never smoked. _____

I used to smoke occasionally. _____

I used to smoke daily. _____

I now smoke occasionally. _____

I now smoke daily. _____

2. If you have stopped smoking, please check off which applies to you. (you may check off more than one)

I stopped smoking cigarettes over a year ago. _____

I stopped smoking cigarettes recently. _____

I stopped smoking a pipe or cigar over a year ago.

I stopped smoking a pipe or cigar recently. _____

3. If you now smoke occasionally or daily please indicate which applies to you. (you may check more than one)

I now smoke: cigarettes _____

a pipe _____

cigars _____

4. If you now smoke cigarettes, how many do you smoke each day?

5 or less _____

6 - 10 _____

11 - 15 _____

16 - 20 _____

21 - 25 _____

26 or more _____

5. Has your smoking changed over the last 2 months?
(check all that apply to you)

Smoking more now _____

Smoking less now _____

Switched to a stronger brand _____

Switched to a milder brand _____

No change _____

6. Have you tried to stop in the last 2 months? YES/NO
7. Do you add salt to your food after it is cooked?
YES/NO/SOMETIMES
8. Do you (or your wife) add salt to your food when
preparing meals? YES/NO/SOMETIMES
9. Do you ever try to cut down on fats in your diet?
YES/NO/SOMETIMES
10. Do you get regular exercise? ie: swimming, walking
YES/NO/SOMETIMES
11. Did you ever experience chest discomfort before this
admission? YES/NO/SOMETIMES If so what do you do to
relieve it?
12. Do you have your blood pressure checked regularly?
YES/NO
13. Do you have trouble with your weight? YES/NO
14. Are you overweight or underweight? (Please circle the
word which best describes you.)
Greatly/Slightly Ideal Slightly/Greatly
Overweight Underweight
15. Is your job is stressful? YES/NO/SOMETIMES
16. Do you use any of these or other ways to lower
stress: doing one thing at a time, talking out the
problem, or relaxation techniques? YES/NO/SOMETIMES

Answer #17 and #18 only if you are presently taking heart
pills (for example for high blood pressure or chest pain).

17. I take my heart medications at the times suggested by my doctor and pharmacist? YES/NO/SOMETIMES
18. I take my heart medications only when I think (feel) that I need them? YES/NO/SOMETIMES

PART V

1. Did any of the following people come to visit you in the hospital to teach you about your heart attack?
- | | |
|-----------------|---------------------|
| nurse | YES/NO/I DON'T KNOW |
| physiotherapist | YES/NO/I DON'T KNOW |
| pharmacist | YES/NO/I DON'T KNOW |
| social worker | YES/NO/I DON'T KNOW |
| dietitian | YES/NO/I DON'T KNOW |

PART IV

1. Were you given a Heart Talk booklet during this admission? YES/NO/I DON'T KNOW

If you agreed with #1 (Part II), which aspects were harmful?

2. I believe that by altering some unhealthy lifestyle behaviours the chance of another heart attack will be reduced.

Strongly Agree Undecided Disagree Strongly
Agree Disagree

3. The advice of the health care workers in the hospital was too complicated and difficult to follow.

Strongly Agree Undecided Disagree Strongly
Agree Disagree

4. I was not satisfied with my hospital care.

Strongly Agree Undecided Disagree Strongly
Agree Disagree

5. I feel that I did not get enough information about my condition from the health care workers when I was in the hospital.

Strongly Agree Undecided Disagree Strongly
Agree Disagree

PART III

Circle the answer that you believe is correct.

1. Angina is caused by narrowing of the arteries of the heart due to atherosclerosis or plaque.
TRUE/FALSE/DON'T KNOW
2. Heart attack, coronary thrombosis, myocardial infarction, M.I., and coronary all mean different types of heart conditions. TRUE/FALSE/DON'T KNOW
3. Everyone recovers the same way after a heart attack.
TRUE/FALSE/DON'T KNOW
4. It usually takes 6 to 8 weeks for a scar to form on the heart where the blood supply was cut off.
TRUE/FALSE/DON'T KNOW
5. It is important for the healing process of the heart to slowly increase physical activity.
TRUE/FALSE/DON'T KNOW
6. Smoking makes less oxygen available to your heart and the rest of your body. TRUE/FALSE/DON'T KNOW
7. These are all ways to lower high blood pressure: stop smoking, decrease salt intake, decrease stress, and lose weight (if necessary). TRUE/FALSE/DON'T KNOW
8. The first 2 to 3 days after hospital discharge are difficult for all family members. TRUE/FALSE/DON'T KNOW
9. The emergency system phone number is 911.
TRUE/FALSE/DON'T KNOW

10. If I was experiencing chest pain radiating to my neck and/or arm I would:

stop, sit down, lie down ____

take a nitro tablet ____

not stop, keep doing what I was doing ____

walk around and hope the pain would go away ____

11. The emergency system telephone number is:

119

911

999

111

PART IV

1. Did you use the space provided in the booklet to write in your plans to: (see booklet pages: 20, 23, 34)

reduce intake of saturated fats YES/NO/UNDECIDED

manage stressful situations YES/NO/UNDECIDED

build up activity levels YES/NO/UNDECIDED

2. Check off which of the following statements describes your use of tobacco.

I have never smoked. _____

I used to smoke occasionally. _____

I used to smoke daily. _____

I now smoke occasionally. _____

I now smoke daily. _____

3. If you have stopped smoking, please check off which applies to you. (you may check off more than one)

I stopped smoking cigarettes over a year ago. _____

I stopped smoking cigarettes recently. _____

I stopped smoking a pipe or cigar over a year ago.

I stopped smoking a pipe or cigar recently. _____

4. If you now smoke occasionally or daily please indicate which applies to you (you may check more than one)

I now smoke: cigarettes _____

a pipe _____

cigars _____

5. If you now smoke cigarettes, how many do you smoke each day?

5 or less _____

6 - 10 _____

11 - 15 _____

16 - 20 _____

21 - 25 _____

26 or more _____

6. Has your smoking changed over the last 2 months?
(check all that apply to you)

Smoking more now _____

Smoking less now _____

Switched to a stronger brand _____

Switched to a milder brand _____

No change _____

7. Have you tried to stop in the last 2 months? YES/NO
8. Do you add salt to your food after it is cooked?
YES/NO/SOMETIMES
9. Do you (or your wife) add salt to your food when
preparing meals? YES/NO/SOMETIMES
10. Have you tried to cut down on fats in your diet?
YES/NO/SOMETIMES
11. Do you get regular exercise? ie: swimming, walking
YES/NO/SOMETIMES
12. Have you changed your exercise pattern since you came
home from the hospital? YES/NO How?
13. Do you ever experience chest discomfort?
YES/NO/SOMETIMES If so what do you do to relieve it?
14. Do you have your blood pressure checked regularly?
YES/NO/SOMETIMES
15. My job is stressful. YES/NO/SOMETIMES
16. Do you use any of these ways or others to reduce
stress: doing one thing at a time, talking out a
problem or relaxation techniques? YES/NO/SOMETIMES
17. Do you have trouble with your weight? YES/NO
18. Are you overweight or underweight? (Please circle the
word which best describes you.)

Greatly/Slightly Ideal Slightly/Greatly

Overweight

Underweight

Please answer #19 and #20 only if you are taking heart pills.

19. I take my heart pills (for example for high blood pressure or chest pain) at the times suggested by my doctor and pharmacist? YES/NO/SOMETIMES

20. I take my heart medications only when I think (feel) that I need them? YES/NO/SOMETIMES

PART V

1. Did any of the following people come to visit you in the hospital to teach you about your heart attack?

nurse YES/NO/I DON' T KNOW

physiotherapist YES/NO/I DON' T KNOW

pharmacist YES/NO/I DON' T KNOW

social worker YES/NO/I DON' T KNOW

dietitian YES/NO/I DON' T KNOW

2. Have you seen your doctor since your discharge?

YES/NO

3. Have you seen any other health professionals since your discharge? YES/NO Who?

4. What was discussed?

PART VI

1. Were you given a Heart Talk booklet in the hospital?

YES/NO/I DON' T KNOW

2. Did you find it necessary to spend extra time reading the Heart Talk Booklet? YES/NO/UNDECIDED

Risk Factors

Difficult Somewhat Undecided Easy Very
 to Difficult Easy
 Understand

Going Home

Difficult Somewhat Undecided Easy Very
 to Difficult Easy
 Understand

Medications

Difficult Somewhat Undecided Easy Very
 to Difficult Easy
 Understand

Physical Activity

Difficult Somewhat Undecided Easy Very
 to Difficult Easy
 Understand

Increasing Activity

Difficult Somewhat Undecided Easy Very
 to Difficult Easy
 Understand

Walking Program

Difficult Somewhat Undecided Easy Very
 to Difficult Easy
 Understand

5. There was enough information in relation to sex to help decrease anxiety associated with beginning sexual activity again after my heart attack.

Strongly Agree Undecided Disagree Strongly
Agree Disagree

6. I found the booklet's helpful hints useful with my return back to work.

Strongly Agree Undecided Disagree Strongly
Agree Disagree

7. I found the activity guidelines in the booklet were helpful to me.

Strongly Agree Undecided Disagree Strongly
Agree Disagree

8. I found the Heart Talk booklet to be a useful learning tool.

Strongly Agree Undecided Disagree Strongly
Agree Disagree