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EDUCATIONAL NEEDS EXPRESSED BY PRESURGERY AND POSTDISCHARGE
CORONARY ARTERY BYPASS GRAFT PATIENTS AND THEIR SIGNIFICANT OTHERS:
A PROBLEM SOLVING APPROACH

by

Rosemary Prince Coombs

Thesis submitted to the School of Graduate Studies,
of the University of Ottawa
in partial fulfillment of the requirements
for the degree of Master of Arts in Education

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ABSTRACT

EDUCATIONAL NEEDS EXPRESSED BY PRESURGERY AND POSTDISCHARGE
CORONARY ARTERY BYPASS GRAFT PATIENTS AND THEIR SIGNIFICANT OTHERS:
A PROBLEM SOLVING APPROACH

The purpose of this cross-sectional study was to identify educational needs expressed during problem solving by patients and their significant others. Two exploratory hypotheses were: (a) educational needs of three out-of-hospital coronary artery bypass graft groups - presurgery (PRE), postdischarge one week (PD1), and postdischarge four weeks (PD4) - are distinct and (b) subjects' educational needs are incongruent with health care professionals' expectations of patient education programs. Program content for cardiac surgery patient education was identified in an extensive review of the literature. Individual, social, environmental, and medical regimen were the main categorizations used. Based on 15 objectives, a hierarchical, four-level grid (GRID) of program content was constructed. A sample of 30 pairs (patients and significant others) included 10 in each of the PRE, PD1, and PD4 groups. The patients' main characteristics were: mostly (86%) male, mean age of 55 years, mean education of 13 years, and had angina and/or a myocardial infarction prior to surgery. The Sickness Impact Profile (SIP) questionnaire was used both as a

brain-storming device to elicit educational needs and as a measure of physical, psychological, social, and work dysfunction. Highest (most problems) SIP scores were in Sleep & Rest, Home Management, and Recreation & Pastimes categories. ANOVA results indicated significant differences between groups in the Home Management, Body Care & Movement, and Recreation & Pastimes categories. Tukey's technique for pairwise comparisons detected differences in these categories between the PRE groups and the PD1 and PD4 groups. Verbal reports of educational needs were obtained from a semi-structured interview which focused on problem solving activities. Each interview was coded by 3 persons. Agreement between two or three out of three coders ranged from 38% to 100% with an overall mean of 66%. Many educational needs were added to the GRID. The three groups had a few distinct profiles of educational needs. Educational needs, problems, and solutions were incongruent with the expectations of specified patient education programs. Educational interventions such as use of videotape, public television, veteran patients, and simulations were proposed.

CHAPTER 1

INTRODUCTION

The process of patient education, whether formal or informal, may be described as a function of the expectations of health care professionals and of the educational needs of the patient and family. The hoped-for result is the facilitation of "voluntary adaptations of behaviour conducive to health" (Green, Kreuter, Deeds, Partridge & Bartlett, 1980, p. 7). Conflict may occur if the expectations are incongruent with the needs. Satisfaction is achieved if the expectations and needs coincide.

Most institutions where heart surgery is performed offer patient education programs (Hart & Frantz, 1977). Canadian and American standards of cardiovascular nursing care include patient education responsibilities (Canadian Council of Cardiovascular Nurses, 1983; American Nurses' Association & American Heart Association, 1975). Numerous textbooks and articles document the objectives and content of education programs for cardiac surgery patients. Little is known, however, as to whether or to what degree the programs meet the educational needs expressed by the patients themselves. The periods immediately prior to and after hospitalization for cardiac surgery, when educational interventions are too frequently absent, are of particular concern. The patient

waiting for admission to hospital may require information as to the sequence of presurgery in-hospital events to relieve real or imagined fears. For postdischarge patients, the first few weeks out of hospital can be fraught with discomfort, indecision, and inability to follow the prescriptions of the health care professionals.

Background of the Study

Research in the education of cardiovascular patients has increased concomitantly with the increased frequency of both coronary artery disease and coronary artery bypass graft (CABG) surgery. CABG surgery, currently, is one of the most frequent operations performed in North America (Hoffman, 1985). Sufficient research has been conducted in patient education to stimulate several comparative reviews; more than half of the studies in these reviews were designed to evaluate patient education programs (Green, Squyres, D'Altroy, & Herbert, 1980; Cohen, 1981; Wilson-Barnett & Osborne, 1983). In 16 evaluative studies of cardiac patient education, program success was measured by knowledge gain, attitude change, and/or behaviour or compliance change (Coombs, 1985; Murdaugh, 1982). Although most results supported patient education programs, some questions may be raised. Is the claim to educational effectiveness of a program justified

when based on success on a single knowledge test? Is it logical or even ethical to test patients after only a few hours of instruction? Is too much expected of a few hours of instruction? Is the level of knowledge predictive of health behaviour? What is the behaviour of patients in the real world situation? What is the impact of patient education on health behaviour? What educational interventions are most effective in yielding acceptable health behaviour?

Few studies have been conducted where patients' were requested to express their learning needs and to assess the adequacy of their educational program. Where these studies have been conducted, they have been characterized by in-hospital data collection (Dodge, 1969; Weiler, 1968) or data collected several months after discharge (Meyer & Latz, 1979; Stanton, Jenkins, Savageau, Harken, & Aucoin, 1984). Patients' families have received only recent attention. Learning needs of significant others and patients during the convalescent in-hospital period were identified by Hewett (1982). Knowledge, concerns, and questions of wives of postdischarge CABG patients were studied by Sikorski (1985). An ongoing study by the Department of Family Health Care Nursing, University of California, includes postdischarge CABG spouses and patients (Gilliss, 1984; Gilliss, Gilliss, Moran, Sparacino & Kenneth, 1985; Gilliss, Sparacino, Gortner & Kenneth, 1985).

Current Status of Patient Education

Patient educators are exhorted to follow principles of teaching and learning (Redman, 1984), to develop behavioural objectives (Sadler, 1984), and to integrate teaching into patient care. Patient education is implicit in the nursing process and nursing theories (Nursing Theories Conference Group [NTCG], 1980). Specific models have been developed to assist in the planning for (PRECEDE model of Green, Kreuter, Deeds, Partridge & Bartlett, 1980), prediction of the reaction to (Health Belief Model of Becker, 1974), explanation of (Chrisman & Kleinman, 1983; Rankin & Duffy, 1983) and analysis of the barriers to (Yoder Wise, 1979) the patient education process. The use of Maslow's (1968) hierarchy of needs was recommended to prioritize patients' needs and problems (Rankin & Duffy, 1983) and to determine appropriate timing of patient instruction (McHatton, 1985). Models and theories have some relevance for patient education. Yet a model or theory is practical only if it is useful. Clinical practitioners have not embraced models wholeheartedly; only Becker's and Green's models have been tested empirically for their applicability.

That the giving of information is insufficient and only the first step in learning is well recognized by educators (Bloom, 1956). Increase in patient knowledge alone is rarely successful in the improvement of health behaviour (Mazzuca, 1982). Yet the major

instructional strategy in patient education is information giving. Discrepancy between patient educators' strategies (usually information giving) and desired outcome (an independent patient who can solve problems as they arise) is the problem in patient education (Monahan, 1980). All too often, the medical management of illness is stressed while social, psychological, and biographical aspects are neglected (Strauss, Fagerhaugh, Suczek & Wiener, 1981).

Patient education has been defined as "...the act or process of providing patients with knowledge, skill, competence, or desirable qualities of behavior" (Harper, 1976, p. 2). An educational need may be a requirement for more knowledge, skill, competence, or a desirable behaviour. Most patient education programs are developed from health care professionals' expectations of patients' needs. For this reason, patients' needs may be unknown and not met (Miller and Shada, 1978). If the goal of patient education programs is to help the patient to learn to cope with illness, convalescence, and return to desirable health behaviour, then the programs should be based on or, at the very least, recognize, the needs identified by patients and their families.

Needs Assessment Studies in Patient Education

4

Needs assessment studies are abundant in the general education literature (Kaufman & English, 1979). Needs assessments are recommended as a necessary step in patient education program development (Adcock, 1980; American Hospital Association, 1978; Green, Lewis & Levine, 1980; Haferkorn, 1971; Harper, 1976; Kucha, 1974; Redman, 1984). Yet the diagnosis of patient educational needs is just beginning to be codified in a systematic and analytic manner. More common is the identification of needs by fiat, by stereotyping patients, and by individual case data (Green, Lewis & Levine, 1980). An exhaustive computer and manual literature search located only a few needs assessment studies in patient education. Rating scales, developed by health care professionals, were the instruments used in most studies. Such scales were administered to hemodialysis patients (Goddard & Powers, 1982), to cancer patients (Brockopp, 1982 and Lauer, Murphy & Powers, 1982), and to myocardial infarction patients (Casey, O'Connell & Price, 1984; Gaspard, 1984; Gerard & Peterson, 1984; Moynihan, 1984). Postoperative cardiac surgery patients rated the importance of their presurgery information (Weiler, 1968). An inventory was used by Hewett (1982) to compare the learning needs of postmyocardial infarction and postsurgery cardiac patients and their significant others.

Semi-structured interviews with open-ended questions were used to determine: educational needs of hypertensive patients (Green, Lewis, & Levine, 1980); cognitive needs of medical and surgical patients (Dodge, 1969); presurgery (Miller & Shada, 1978) and postoperative (Meyer & Latz, 1979) learning needs of heart surgery patients; service, symptom management, and care preference needs of cancer patients and their families (Grobe, Ahmann & Ilstrup, 1982); and psychosocial and physiological needs of preoperative vascular surgery patients (Leech, 1982). Wives of postdischarged CABG surgery patients were interviewed (Sikorski, 1985). Concerns raised during telephone "call-back" by discharged myocardial infarction and heart surgery patients and families were analyzed by Nicklin (1986).

Of the above studies, only two included needs assessments at different phases of illness. Patients at two stages of illness (acute and postdischarge) were studied by Gerard and Peterson (1984). Needs at three phases of illness were identified, retrospectively, in Moynihan's (1984) study. Times of call-back were noted in Nicklin's (1986) study but were not related to specific needs.

Inadequacies in the needs assessments of cardiac surgery patients imply the need for an out-of-hospital approach, for inclusion of patients' families, and for an up-date to the current situation. The most recent study of preoperative cardiac surgery

educational needs was published eight years ago (Miller & Shada, 1978). Although myocardial infarction and cardiac surgery patients were compared in three studies (Gerard & Peterson, 1984; Hewett, 1982; Nicklin, 1986) only Hewett compared the responses of patients and significant others. Studies of out-of-hospital patients and significant others, in their home setting, are rare; one study in which spouses of CABG surgery patients were interviewed was located (Sikorski, 1985). Two recent studies have included reports of telephone contact with patients at home (Gortner, Leavitt, Rankin, Price, Gilliss, & Shin, 1985; Nicklin, 1986). Most studies are conducted when the patient is a resident of or visits a health care facility. No study, using rating scale, inventory, interview, or telephone, was found in which the educational needs of both presurgery and postdischarge cardiac surgery patients and their significant others were identified during out-of-hospital periods.

Needs Assessment by the Problem Solving Approach

Problem identification and problem solution have long been components of the nursing process (Weed, 1969). Although several authors recommend the teaching of independent problem solving to patients (Aiken, 1970; Collins, 1968; Miller, 1985; Monahan, 1980), no instance was found where a problem solving approach was used to identify educational needs of patients. Specifically, no inquiry

was found in which patients were asked to verbalize solutions to problems encountered in out-of hospital situations.

The functional integration of problem solving components, developed by Dionne (1985a, 1985b), was used to formulate interview questions in a problem solving framework for the current study. The questions were meant to identify educational needs during problem solving verbalizations. Educational needs were classified in four major categories, individual, social, environmental, and medical regimen, which according to Bartlett (1982, p. 31) encompass "all influences on health behaviors".

Although a quantitative measure of illness behaviour was sought by administration of the Sickness Impact Profile (SIP) (Gilson, Gilson, Bergner, Bobbitt, Kressel, Pollard & Vesselago, 1975), this instrument was used primarily as a brain storming technique. The focus was on qualitative measurement using a problem solving process approach to determine educational needs. The purpose of an exploratory study, such as the current research, is to become familiar with the phenomenon of interest and to clarify concepts for further research (Wilson, 1985). This qualitative research generated narrative data in the form of verbatim interview in an attempt to grasp the patients' and significant others' view of their educational needs. Qualitative methods were used as a method to sensitize to the CABG patients' out-of-hospital world (Knafl & Howard, 1984). According to Wilson

qualitative analysis has four major purposes: (a) exploration and description, (b) accounting for and illustration of findings, (c) discovery and explanation, and (d) extension of theory. At least the first three apply to the present study.

Purposes of the Study

The purposes of this exploratory study were to:

- (1) identify the educational needs of presurgery and postdischarge CABG patients and their significant others,
- (2) determine the congruence of the expressed educational needs with the documented (in the literature) expectations of health care professionals, and
- (3) propose a methodology of educational interventions which incorporated when, what, and how relevant content should be presented in patient education programs.

To achieve the purposes of the study, four phases were planned. In Phases I and II, expectations of health care professionals for patient education programs were determined and organized into a coding grid (GRID). In Phase III, patients'

educational needs were studied. In Phase IV, a methodology of patient educational interventions was recommended.

Exploratory Hypotheses

Two tentative, exploratory hypotheses were proposed:

(1) Profiles of educational needs of presurgery (PRE), postdischarge one week (PD1), and postdischarge one month (PD4) CABG surgery patients are distinct.

(2) Educational needs of CABG surgery patients and their significant others are not congruent with health care professionals' expectations of patient education programs.

Educational Implications

Typically, patient education programs are presented from a medical-prescriptive, information-dissemination approach (Bartlett, 1982; Monahan, 1980; Mullen, 1980). The programs often are characterized by a single formal intervention (usually lecture-group discussion) complemented by informal incidental teaching. As the overall purpose of patient education is to effect

a change in behaviour, this approach has flaws. Knowledge, although necessary, is not a sufficient condition for behaviour change (Bartlett, 1984). "Something else in addition to information seems important for behaviour change." (Leventhal & Cleary, 1979, p. 299). The medical-prescriptive approach places the patient in a passive role and when verbal exhortations fail to achieve a behaviour change, the gap between the health care professional's expectations and the patient's needs widens.

The findings of this study should provide health care educators with an improved methodology to identify patients' educational needs and suggestions for patient education programs. The desired result of patient education programs, maintenance of desirable health behaviour or change of undesirable health behaviour, then may be achieved.

CHAPTER 2

CONCEPTUAL FRAMEWORK AND REVIEW OF THE LITERATURE

The literature was reviewed to develop the conceptual framework of the study from two approaches: (a) a model of health care professionals' educational expectations and the educational needs of patients and significant others and (b) a problem solving model to identify educational needs. Studies of cardiac patients' educational needs and relevant educational interventions also were reviewed. Finally, the articulation of the research problem is presented.

An Expectation - Needs Model for Patient Education

Patient education is one of the many functions of the health care system. The Health Care System is the structure within which the preventive, diagnostic, and treatment components of health care are offered by professionals to patients. The totality of the health care system is the systematic interconnections between illness, responses to illness, the persons who treat and those who experience illness, and the relevant social institutions (Kleinman, 1980). As an integral component of the health care system, Patient Education Programs offer information and methods to assist patients

to cope with their health care system experiences (Glazer-Waldman, Hall & Weiner, 1985; Rosenberg, 1976) and to improve health-related behaviours (Bartlett, 1979). Patient education may involve a large multidisciplinary team or a single health professional. Patient educators may teach in primary care community agencies, physicians' offices or, as in the setting of this study, in a large tertiary care hospital (Redman, 1984).

Two major dimensions of the health care system, institutional and personal, interrelate to contribute to the patient's health behaviour. The Institutional dimension is represented by the roles and expectations of health care professionals, such as physicians, nurses, physiotherapists, pharmacists, and dietitians, which are described by Kleinman (1980) as the "organized healing professions" (p.53). The Personal dimension is represented by the patient, the significant other and their educational needs. Interaction between the two dimensions contributes to the patient's health/illness behaviour; the goal of patient education is the achievement and/or maintenance of desirable health behaviour. Undesirable health behaviour may require new educational interventions.

The institutional dimension in the health care system is comprised of the roles and expectations that fulfill the goals of the health care system. Health Care Professional Roles represent the statuses of health care professionals and are defined, in the current study, by their behaviours concerning and expectations of

the patient education programs they present. The Expectations of the health care professionals represent the content, and the anticipated outcomes or objectives of an education program. Expectations can be considered "practitioners' explanatory models", which explain etiology, symptoms, pathophysiology, course of illness, and treatment (Kleinman, 1980). Expectations also specify what a role incumbent should and should not do (Getzels & Guba, 1957; Pool, 1980).

The personal dimension is comprised of the patient, the significant other, and their educational needs. The Patient is the person who is ill or is convalescent from illness, who has biologic, physical, psychological, and social characteristics, and who responds in unique ways to the various stages of illness (Guzzeta & Dossey, 1984). The Significant Other is a person close to the patient, who is familiar with the patient's health/illness behaviour, who is aware of the impact of the patient's illness on the family, and who stands by the patient through the various stages of illness. Out-of-hospital periods are of particular concern to the significant other due to his/her assumed responsibility for the patient's care. The significant other often functions with the same, or sometimes less, information than that given the patient. The behaviour of the significant other, whether facilitatory or inhibitory (Sikorski, 1985), is a response to the patient's illness and is based, at least partially, on

interpretation of the information received. Educational needs are:

condition(s) or situation(s) in which something necessary or desirable is required or wanted ... often used to express the deficiencies of an individual or some category of people, either generally or in some set of circumstances. A need may be perceived by the person or persons possessing it (when it may be called a felt need) or by some observer (when it may be called an ascribed need).

(Houle, 1973, p. 233)

Educational needs are generated by: lack of information; lack of skill; faulty attitudes, beliefs or emotions; social, cultural or environmental obstacles; and/or difficult medical regimen requirements (Arsham, 1979; Bartlett, 1982; Dodge, 1969). A "lay explanatory model" focuses on the significance of a need or problem for the patient and significant other (Kleinman, 1980).

The institutional and personal interrelationships and interactions in the patient education process are integrated in a model (see Figure 1). The model is loosely analagous to a social systems model developed for the study of educational administrative and supervisory behaviour (Getzels & Guba, 1957; Getzels, Lipham, & Campbell, 1968). Kleinman's (1980) health care system model for use in anthropological studies provides a conceptual base in the health care system context.

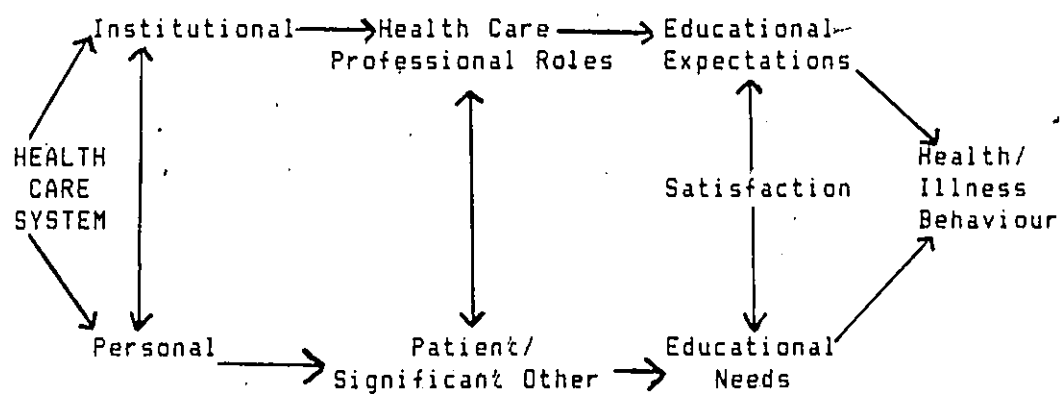


Figure 1. Interrelationships in the Patient Education Process

The institutional dimension is operationally defined (Getzels and Guba, 1957) by the roles which represent position and status in the institution. In the present study, this dimension is expressed by health care professional roles. Patients and significant others comprise the personal dimension. A transactional process resulting in model outcomes (Kleinman, 1980) was added to the Getzels and Guba model by Sergiovanni and Starratt (1971). For patient education, the transactional process represents the integration of both dimensions into a meaningful approach to achieve the outcome of desirable health/illness behaviour.

The degree of satisfaction derived from the interaction of expectations and needs contributes to the patient's health behaviour. Satisfaction is a "function of the congruence of ... expectations with individual needs" (Getzels & Guba, 1957, p. 435). Maximum satisfaction is obtained when the expectations match the needs. The patient's Health/Illness Behaviour is, at least partially, a function of the interaction between the patient and significant other with health care professionals. Health/illness behaviour can be considered as a single continuum ranging from the minimally healthy to the maximally healthy (Bergner & Gilson, 1980). Interaction between the expectation and needs results in the health status experienced or behaviour practiced by the patient at various stages of illness (Bartlett, 1982; Green, Kreuter, Deeds, & Partridge, 1980).

Stages of adaptation to illness have been documented in the psychosocial and nursing literature (Jillings, 1978; McHatton, 1985; Rakoczy, 1977). At different stages of illness, the patient has different educational requirements. Health care professionals are familiar with the anxiety and fear of patients who await surgery (Bartlett, 1984b; Katz, 1984; Mumford, Schlesinger, & Glass, 1982; Rakoczy, 1977). In the meta-analysis by Mumford et al., 24 of the 29 studies were of presurgery educational interventions. Less is documented of the problems experienced by patients immediately following hospitalization for surgery (Gortner, Leavitt, Rankin, Price, Gilliss, & Shinn, 1985; King, 1985; Nicklin, 1986).

Cardiac Patient Education Needs Assessments

The assessment of educational needs of cardiac patients has appeared sporadically in the literature and most frequently since 1980. Educational needs assessments from eleven cardiac studies were tabulated (see Table 1). Eight studies included cardiac surgery patients and/or their significant others (Gerard & Peterson, 1984; Hewett, 1982; Meyer & Latz, 1979; Miller & Shada, 1978; Nicklin, in press; Sikorski, 1985; Stanton et al., 1984; Weiler, 1968). Three studies included only myocardial infarction patients (Casey et al., 1984; Gaspard, 1984; Moynihan, 1984).

Table 1

Assessments of Educational Needs in Eleven Cardiac Studies

	Casey et al. (1984)	Gaspard (1984)	Gerard & Peterson (1984)	Hewett (1982)	Meyer & Latz (1979)*	Miller & Shada (1978)	Moynihan (1984)*	Nicklin (in press)*	Sitowski (1985)*	Stanton et al. (1984)	Weiler (1988)
Instrument Type	RS	RS	RS	RS	SI	SI	RS	TCB	SI	NCQ	RS
Patient Diagnosis	MI	MI	MI/PS	MI/PS	PS	PRE	MI	MI/PS	SO/PS	PS	PRE
<u>Educational Need/Problem</u>											
Cardiac anatomy and physiology	*	*	*	*	*	.	*	.	.	.	.
Disease process	*	.	*	.	.	.	.	.	.	.	.
- atherosclerotic process	.	*	.	*	.	.	.	.	.	.	.
- signs and symptoms of MI	*	*	.	*	.	.	.	.	.	.	.
Risk factors - recognition	*	*	*	.	.	.	*	.	.	.	.
Risk factors - modification	*	.	.	.	.	.	*	.	.	*	.
- smoking	.	*	.	*	.	.	.	.	*	.	.
- dietary fat	.	.	.	*	.	.	.	.	.	.	.
- hypertension	.	.	.	*	.	.	.	.	*	.	.
- obesity	.	*	.	*	.	.	.	.	.	.	.
- sedentary life style	.	.	.	.	.	.	.	.	.	.	.
- stress	*	*	*	*	.	.	.	.	*	.	.
Effects of surgery	.	.	.	.	.	*	.	.	.	.	.
- heart-lung bypass	.	.	.	*	*	*	.	.	.	.	.
- CABG surgery / what is done	.	.	.	.	.	.	.	.	*	.	.
- treatment, not cure	.	.	.	.	.	.	.	.	.	.	.
Diagnostic tests	*	.	*	*	.	.	.	.	.	.	.
Physical preparation for surgery	.	.	.	.	.	*	.	.	.	.	*
Mental preparation for surgery	.	.	.	.	.	*	.	.	.	.	*
Locations of care / reasons	*	.	*	.	.	*	*	.	.	.	*
Early post-op care	.	.	.	.	.	*	.	.	.	.	*
Physical sensations	.	.	.	.	.	*	.	*	*	*	*
Mental sensations	.	.	.	.	.	*	.	*	*	.	*
Chest pain	.	.	*	*	.	*	.	.	.	.	*
- differentiate types	.	*	*	*	.	*	.	.	*	.	.
- causes of	.	.	.	.	.	*	.	.	.	.	.
Diet / nutrition	*	.	*	.	*	.	*	.	*	.	.
- normal	.	.	*	.	.	.	.	.	.	.	.
- low sodium	.	*	.	.	.	.	.	.	*	.	.
- low fat / cholesterol	.	*	.	.	.	.	.	.	.	.	.
- alcohol	*	.	.	.	.	.	.	.	*	.	.
Medications	*	.	*	.	*	.	*	*	*	.	*
- name	.	*	.	*	.	.	.	.	.	.	.
- purpose	.	*	.	*	.	.	.	.	.	.	.
- dose / frequency	.	.	.	*	.	.	.	.	.	.	.
- side effects to expect	.	*	.	*	.	.	.	.	.	.	.
- side effects to report	.	.	*	*	.	.	.	.	.	*	.
- general guidelines	.	.	*	.	*	.	.	.	.	.	.

table continues

Table 1 (continued)

	Casey et al. (1984)	Gaspard (1984)	Gerard & Peterson (1984)	Hewett, (1982)	Meyer & Latz (1979)*	Miller & Shada (1978)	Moynihan (1984)*	Nicklin (in press)*	Sitarski (1985)*	Stanton et al. (1984)	Weiler (1968)
Instrument Type	RS	RS	RS	RS	SI	SI	RS	TCB	SI	MCQ	RS
Patient Diagnosis	MI	MI	MI/PS	MI/PS	PS	PRE	MI	MI/PS	SO/PS	PS	PRE
<u>Educational Need/Problem</u>											
Graduated exercise program	+	+	+	+	+	.	.	.	+	.	.
Self-care activities	.	.	+	.	+	.	+	+	+	.	.
Home activities	+	.	+	+	+	.	+	+	+	.	.
Recreation activities	+	.	+	+	+	.	+	+	+	.	.
Occupation activities	.	.	+	.	+	.	.	.	.	.	.
Physical conditioning activities	.	.	+	+	+	.	.	.	.	+	.
Target pulse / how to take	.	+	+	.	+	.	+	.	.	.	.
Social activities	.	.	.	.	.	.	.	.	.	.	.
- stay close to home	.	.	.	.	.	.	.	.	+	+	.
- gradual resumption	.	.	.	.	.	.	.	.	.	.	.
- sexual relationships	+	+	+	+	.	.	+	.	.	.	.
Family activities/responsibilities	.	.	+	.	.	+	.	.	+	.	.
Incision care	.	.	.	.	+	.	.	.	+	.	.
Reduce edema	.	.	.	.	.	.	.	.	+	.	.
Report signs and symptoms to MD	+	+	+	.	+	.	.	+	.	+	.
Sleep	.	.	.	.	.	.	.	.	+	.	.
Rest	.	.	.	.	.	.	.	.	.	.	.
Clothing	.	.	.	.	.	.	.	.	.	.	.
Emotional reactions	+	.	+	.	.	+	+	+	+	+	.
Make / keep appointments	.	.	.	.	.	.	+	.	.	.	.
Printed information	.	.	.	.	+	.	.	+	+	+	.
Call for help	.	.	.	.	.	.	.	+	.	.	.
Return to work	+	.	.	+	.	.	.	.	+	+	.
Finances	+	.	.	.	.	.	.	.	.	+	.
Preferred education modalities	.	.	.	.	.	.	.	.	.	.	.
- Mode of presentation	.	.	+	+	+	+	+	+	.	+	+
- Methods	.	.	.	.	.	+	.	.	.	.	.
- Time - pre-surgery	.	.	.	.	.	.	.	.	.	.	+
- Time - post-surgery	.	.	.	.	.	.	.	.	.	.	.
- Setting	.	.	.	.	.	.	.	+	+	+	.
- Addressee	.	+	.	+	.	+	.	+	+	+	.
Support organizations	+	.	.	.	.	.	.	.	.	.	.
Discussing MI with others	+	.	.	.	.	.	.	.	.	.	.
What happened with MI	+	.	+	.	.	.	.	.	.	.	.
Congestive heart failure	.	.	+	.	.	.	.	.	.	.	.
CCU procedures/policies/equipment	.	.	+	.	.	.	+	.	.	.	.
Discharge activities	.	.	.	.	.	.	+	.	.	.	.

Note. RS = Rating Scale.

MCQ = Multiple-Choice Questionnaire.

PRE = Pre heart surgery.

SI = Semi-structured interview.

MI = Myocardial infarction.

SO = Significant other.

TCB = Telephone Call-Back.

PS = Post heart surgery.

*Complete list of topics not included in article.

Rating scales to measure the importance of patient education information were used in six studies and semi-structured interviews in three studies. Documentation of telephone "call-back" and a multiple-choice questionnaire, each were used in one study. Topics represented, in at least six studies, were cardiac anatomy and physiology, medications, exercise program, sexual relationships, report of signs and symptoms to a physician, emotional reactions to illness, mode of presentation and addressee of the education program. Five studies were conducted while the patients were still in hospital and four took place at least one month after discharge. Only two studies contained data collected in the first month after discharge from hospital (Nicklin, 1986; Sikorski, 1985). No study included pre-surgery patients, although in two investigations, patients were asked, retrospectively, about their pre-surgery patient education (Miller & Shada, 1978; Weiler, 1968). Although the educational expectations of health care professionals were implicit in the eleven studies, particularly in those with rating scales, they were not specified as such.

A Problem Solving Model to Identify Educational Needs

A problem solving approach is an alternative to the rating scale and question and answer methods of identifying educational needs. Problems may be well-defined or ill-defined. The latter

are more common to real-life (and, hence, to patients) and are characterized by lack of clear formulation, insufficient information, lack of an algorithm (to test the correctness of the solution), more than one correct answer (Frederiksen, 1984) and have no restriction on the knowledge and experience that may be used to problem solve (Bereiter & Scardamalia, 1985). With ill-defined problems, the problem solver must determine the various aspects of the problem, there are disadvantages and advantages to a possible solution, and the solution is dependent on the specific knowledge and experience of the problem solver (Eysenck, 1984). That ill-structured and well-structured problems are solved by essentially the same cognitive processes is contended by Simon (1973).

Problem solving is represented in the medical and nursing literature as a "natural" process with historical roots in the scientific process. Problem solving steps usually are summarized as: (a) problem identification, (b) determination of possible actions and their results, (c) selection of one action, (d) implementation of the action, and (e) evaluation of the action (Collins, 1968; Miller, 1985). Patients can and should be taught to identify and systematically solve their health behaviour problems (Monahan, 1980).

Problem solving behaviour is more precisely defined in information processing theory. Problem solving is the interaction

between the information processor, the task environment of the problem, and the problem space. Humans are information processing systems which attempt to solve the problems of their complex environment. Within the task environment, problem solving behaviour is specified by the definition of moves, goal, and interaction with short term memory. The problem space is the representation of the essential features of the problem in memory. The ease with which a problem is solved is dependent on the problem solver's ability to represent the essential features of the problem in the problem space (Newell & Simon, 1972; Simon, 1978, 1979).

Persons may be asked, as in this study, to identify problems they experienced and to verbalize their solutions. Verbalizations, verbal reports, or verbal protocols are concurrent think aloud or talk aloud reports of heeded information and are the closest reflection of cognitive processes. Reliability of verbalizations has been demonstrated in that they meet the criteria of relevance, consistency, and memory of the information used in problem solving (Ericsson & Simon, 1984).

Protocol analysis is the coding and interpretation of verbal reports. Coding categories must be developed to provide a coding scheme for the verbalizations from a set of protocols. A verbalization may be a literal copy of previously memorized information, it may be a paraphrase of the semantic content of the information, it may be generated from the literal or semantic

information, or it may be recalled or retrieved from information provided at an earlier time. The purpose of protocol analysis is to infer what information was heeded during a cognitive process (as in a patient educational intervention) and which resulted in a verbalization (Ericsson & Simon, 1984).

A model of problem solving processes (see Figure 2) was developed by Dionne (1985a, 1985b). Incorporated in the model are information processing systems (Newell & Simon, 1972) and a typology of information processing components (Sternberg, 1977). The main components of Dionne's model are organizational knowledge, experience, control and evaluation, planning or metacomponents, performance, contextual interpretation, and cognitive restructuration components. Organizational Knowledge components refer to domain-specific content and processes which the individual uses to solve problems. Experience components refer to the ability to adapt to novel situations or to automatize information processing. Control and Evaluation components are the managing and monitoring processes of the task performance. Planning or Metacomponents are the processes used to select the appropriate problem representation and the strategies used in problem solution. Performance components are used in the execution of various problem solving tasks, for example inductive and deductive reasoning, analogical reasoning, selective encoding, selective combination, mapping, application, comparison and justification (Sternberg,

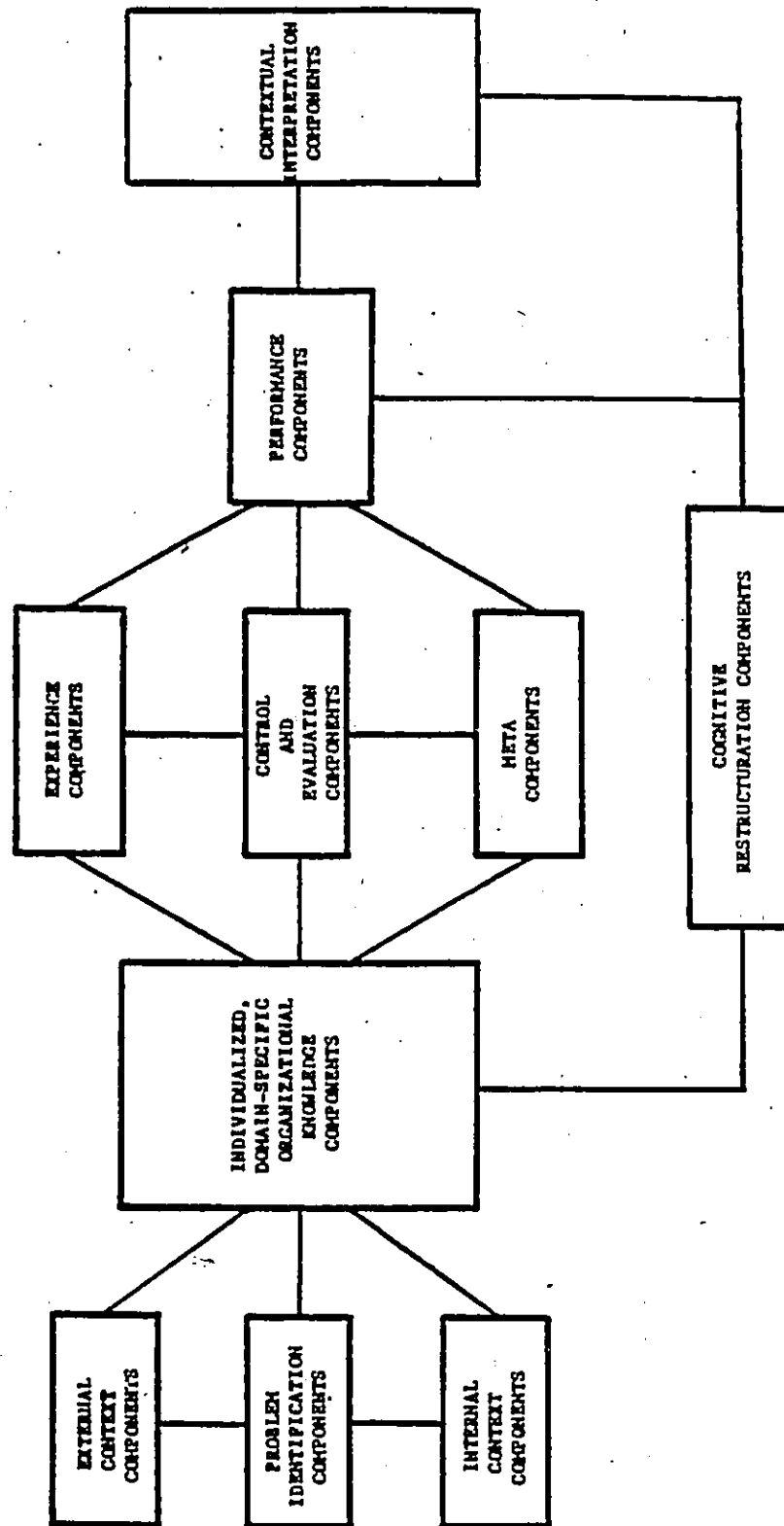


Figure 2. Grid for Component Categories Underlying Information-processing Problem Solving Models (Dionne, 1985a, 1985b)

1985). Contextual interpretation components refer to the communication of the problem solution. Cognitive restructuring components refer to the person's ability to restructure knowledge based on new links and transfers established during problem solving.

The problem solving components of organizational knowledge, experience, contextual interpretation, and cognitive restructuring in Dionne's (1985a, 1985b) model are the most relevant to the problem solving approach of this study. Organizational knowledge is the information relayed through the patient education program to, and as interpreted by, patients and significant others. Experience refers to the patients' ability to adapt to illness and out-of-hospital situations never before experienced. Contextual interpretation is the patients' and significant others' oral expressions, based on knowledge and experience, of how they solved or would recommend solution of problems. Cognitive restructuring refers to the patients' and significant others' use of knowledge and experience to produce new solutions to their problems. Operationalization of these components occurs as the patients and significant others answer questions designed to identify the problem and seek a solution. Through problem solving, patients and their significant others can express their educational needs and solutions.

Patient Educational Interventions

A patient educational intervention is an activity in the patient education process. The goal of an educational intervention is to maximize the satisfaction and congruence between expectations and needs and to maintain desirable or change undesirable health behaviour (Bartlett, 1982). The objective is to increase satisfaction. An educational need can be satisfied by a learning experience provided by an educational intervention (Atwood & Ellis, 1971).

Educational interventions, specific to patients' needs and problems, were extracted from the literature and categorized under the topical headings of individual (physical and psychological), social, environmental, and medical regimen (Bartlett, 1982). Subheadings of the five headings were: (1) Individual physical (a) lack of knowledge and comprehension and (b) lack of skill acquisition; (2) Individual psychological (a) lack of confidence to control condition, (b) forgetfulness, (c) denial, (d) inadequate motivation, (e) repetitive behaviour, (f) psychiatric disturbance, (g) skepticism, (h) anxiety and stress, and (i) embarrassment; (3) Social (a) lack of support, (b) conflicting advice, and (c) poor relations with health care professionals; (4) Environmental (a) inadequate finances and (b) long waiting time; and (5) Medical regimen (a) side effects of drugs, (b) fear of drug addiction, (c)

complex regimen, (d) unpleasant regimen, and (e) side effects of treatment.

The educational needs and/or problems and the suggested educational interventions and/or solutions are:

(1) The individual physical educational needs for knowledge and comprehension can be met by: teaching and information transfer (Arsham, 1979; Bartlett, 1982; Jenkins, 1979; Parrinello, 1983); procedural and sensory information transfer (McHugh, Christman & Johnson, 1982); repetition; use of instructional/audiovisual aids; suggestion of alternative methods; explanation of need for therapy (Bartlett, 1984a); asking questions or inquiry learning (Bartlett, 1981; Hoffman, 1985); simulations (case studies, role playing, sociodrama, computerized models) (Bartlett, 1981); counselling and support (Arsham, 1979; Green, Lewis, & Levine, 1980; Dracup, Meleis, Clark, Clyburn, Shields, & Staley, 1984; Pimm & Feist, 1984); and group lectures (Bartlett, 1979; Green, Werlin, Schauffler & Avery, 1977). The need to acquire skills can be met by demonstration, guided practice, training, and feedback (Arsham, 1979; Bartlett, 1982, 1984a).

(2) The individual psychological educational need of lack of confidence can be met by reassurance, encouragement, attribution, and peer group discussion (Bartlett, 1982; Brown, Glazer, & Higgins, 1983, Green et al. 1977). Forgetfulness can be countered by involvement of family and friends and provision of reminders

(Bartlett, 1982). Denial can be handled by emotional support, exploration of feelings and perceptions, gentle explanations of diagnosis and prognosis, and offers of hope (Bartlett, 1984a). Inadequate motivation may be changed by increased frequency of visits and information of the benefits of therapy and of the dangers if untreated (Bartlett, 1982). Repetitive behaviour (for example, smoking and overeating) may be changed by behaviour modification techniques such as stimulus control, contingency management, recording of behaviour, contracting, goal setting, cuing, modelling, feedback, development of a self-reward system, and guided participation of self-help groups (Bartlett, 1979; Flynn & Giffin, 1984; Green, Werlin, Schauffler, & Avery, 1977; Jenkins, 1979; Leventhal & Cleary, 1979; Upper, Kantor, Kulich, Wurzelmann, & Bigwood, 1984). Psychiatric disturbance requires psychiatric referral, psychotherapy, chemotherapy (Bartlett, 1982) and crisis intervention (Flynn & Giffin, 1984; Pimm & Feist, 1984). Skepticism may be overcome by provision of printed information, referral for a second opinion, and by sharing the medical record with the patient (Bartlett, 1981). Anxiety and stress may be diminished by cognitive control techniques (distraction, imagery, calming self-talk, redefinition of situation, and peer role modelling) (Bartlett, 1984b), relaxation skills (Bartlett, 1984b; Jenkins, 1979), and crisis intervention (Pimm & Feist, 1984). Embarrassment may be diminished by encouragement of normal

activities, careful scheduling of appointments, and taking drugs in private (Bartlett, 1984a). Preoperative anxieties and stress may be reduced by cognitive control techniques such as distraction, imagery, calming self-talk, redefinition of the nature of the operation, and role modelling by peers (in person or on videotape) (Bartlett, 1984b). Adherence difficulties may be lessened by systematic desensitization and relaxation (Jenkins, 1979).

(3) The social need for support may be met by: contact with family and friends, inviting their presence at the next visit, making a home visit, asking the patient to talk to the significant other, use of mass media (Bartlett, 1982) and training the spouse to provide positive encouragement (Bartlett, 1982; Jenkins, 1979). Conflicting advice should be acknowledged (Bartlett, 1984a). Poor relations with health care professionals can be improved by the professional's development of communication skills, improved accessibility and continuity of care (Bartlett, 1982) and frequent feedback (Jenkins, 1979).

(4) The environmental need of insufficient finances can be diminished by: prescription of generic or cheaper drugs, use of free drug samples, referral to a social worker, provision of free care, and referral to community agencies (Bartlett, 1982). Long waiting times can be avoided by efficient management of appointment schedules and by having the nurse see the patient (Bartlett, 1982). Studies on the work patterns of CABG patients have documented the

return to work after surgery. None of the reviewed literature illustrated work-associated problems in the phases of illness considered in this study.

(5) Medical regimen needs such as side effects of drugs can be countered by taking drugs with meals, substitution of different drugs, and reduction of dosage (Bartlett, 1984a). Fear of drug addiction can be lessened by sparing use of drugs, explanation of side effects, or non-drug treatment (Bartlett, 1982). A complex regimen can be simplified (Jenkins, 1979; Surwit, Williams & Shapiro, 1982), by cuing drug-taking to other activities, reduction in drug dose (Bartlett, 1982), repetition and use of printed information (Bartlett, 1984a; Green, Lewis, & Levine, 1980) and efficient organization of the health care system components with which the patient has contact (Bartlett, 1979). The side effects of treatment should be prepared for and an unpleasant regimen should be worked into slowly (Jenkins, 1979).

Many of the educational needs/problems documented above were identified in CABG surgery patients in recent research (Hoffman, 1985; King, 1985; Pimm & Feist, 1984). Interventions appropriate to risk factor modification and decreased cardiac output were listed by Burke, Gabriel, Fischer and Zemke (1986); many of the activities suggested above were included. Proposed interventions have been explained in the literature on general education, on patient education (Bille, 1981; Redman, 1984) and in behavioural

and cognitive psychology. Only recently, though, has the strictly educational theory approach of patient education been expanded to include approaches from behavioural and cognitive psychology (Bartlett, 1982; Green, Kreuter, Deeds, & Partridge, 1980; Redman, 1984). In a redefinition of the scope and features of health education, Green, Kreuter, Deeds, & Partridge (1980) considered the assigned distinction between educational and behavioural strategies as "artificial, unnecessary, and impossible to maintain in practice" (p. 157). An attempt is made, in the current study, to blend educational, behavioural psychology, and cognitive psychology approaches in patient education.

Articulation of the Research Problem

The conceptual framework of the study was based on two models: (a) an interrelationship of health care professionals' expectations with patients' and significant others' educational needs and (b) a problem solving approach to use in the determination of educational needs. The problem solving approach of information processing theory was explored to guide the development of interview questions designed to produce verbalizations. Verbalizations of heeded information reflect cognitive processes and, in this case, educational needs. Protocol analysis, a technique for the coding and interpretation of verbal reports, was reviewed. A range of

proposed educational interventions, from educational, behavioural, and cognitive psychological theory and practice, was outlined. The interventions are presented under the schematic categories of individual, social, environmental, and medical regimen (Bartlett, 1982).

Most patient education programs are developed from health care professionals' expectations of patients' educational needs. The programs frequently are hospital-based and, therefore, are offered during periods when anxiety levels are high and/or recovery from serious illness has just begun. Out-of-hospital patients, such as those at home awaiting surgery or in early convalescence from surgery, have limited contact with health care professionals and little, if any, patient education. When contact does occur, it usually is focussed on physical aspects of care. This medical-prescriptive, disease and symptom-oriented approach may miss some educational needs. It is not conducive to learning or to prompting a necessary change in health/illness behaviour. If satisfaction and desirable behaviour change are to be achieved, patients' and significant others' educational needs and health care professionals' expectations must be congruent. Psychological, social, environmental, and medical regimen factors, as well as physical factors, must be considered (Bartlett, 1982).

Patient's health/illness behaviour is, at least partially, a function of the degree of satisfaction derived from the interaction

of educational expectations and needs. Congruence between expectations and needs promotes the maintenance of or change to desirable health behaviour.

Although education programs for cardiac surgery patients historically were among the first offered by health care professionals (Coombs, 1970), they do not escape criticism. Since coronary artery bypass graft surgery, currently, is one of the most frequently performed operations in North America (Hoffman, 1985) and is characterized by its life-threatening nature and lengthy preparation and convalescence, a study of the educational needs of CABG patients is appropriate. Significant others also have educational needs which, although similar to those of the patients, have been neglected by patient education researchers.

A needs assessment is the recommended first step in educational program planning (Bell 1978); patient education programs often do not follow this course (Durbach & Wendick, 1986). The majority of patient education studies are evaluative. Only a few studies have been conducted for the explicit purpose of obtaining patients' opinions of their educational needs; most used rating scales designed by health care investigators. In two studies, on presurgery (Miller & Shada, 1978) and postsurgery (Meyer & Latz, 1979) cardiac patient education, open-ended questions were asked to obtain the patients' description of their educational needs. This approach also was used in a study of the

wives of CABG patients (Sikorski, 1985). Only one study (Pimm & Feist, 1984) included data collection in both the presurgery and postdischarge periods; crisis intervention was the focus of this study. Postdischarge cardiac surgery patients and spouses were monitored by telephone for eight weeks during convalescence at home (Gortner, Leavitt, Rankin, Price, Gilliss, Shinn, 1985). An open-ended question approach was used by Hoffman (1985) in 200 in-depth interviews and 800 questionnaires of "Bypass" veterans. Included in Hoffman's 21 published case studies are descriptions by patients of how they were prepared or unprepared for heart surgery. Hoffman's interviews were conducted between four weeks and fifteen years after heart surgery. None of the above investigators attempted to determine the congruence of the expressed educational needs with the literature recommendations for education programs offered to cardiac surgery patients.

Cognitive psychologists, specializing in information processing theory, consider humans as information processors who attempt to solve the problems in their complex environment. Problem identification and solution have long been components of the nursing process. Recommendations are made that patients be taught independent problem solving. No study was found, however, in which interview questions with a problem solving approach were used to identify patients' and significant others' educational needs.

Current patient education interventions most often use the lecture-group discussion or one-to-one modes of presentation to disseminate information. Many other methods, from simulations to behavioural modification to enlistment of social support to change in the medical regimen, have been suggested and may be more appropriate.

The problem of this study, therefore, is based on three concerns: (a) lack of information about out-of-hospital CABG patients' educational needs in the immediate presurgery and post surgery periods, (b) lack of congruence of those educational needs with health care professionals' expectations, and (c) lack of a satisfactory methodology as to how, when, and what patient education content should be presented.

The major purpose of this exploratory study is to:

identify the educational needs expressed by
presurgery and postdischarge CABG patients and
their significant others.

The exploratory approach was chosen to increase familiarity with the variables of educational expectations and needs; to provide "insight-stimulating" examples; and to develop experimental hypotheses (Selltiz, Wrightsman, & Cook, 1976).

Within the framework of the research problem, four questions emerged:

- (1) What are the educational needs expressed by out-of-hospital presurgery and postdischarge CABG patients and their significant others?
- (2) What are the educational expectations of health care professionals for CABG patients and their significant others?
- (3) Are the educational needs identified by patients and significant others congruent with the expectations of the health care professionals?
- (4) What educational interventions are relevant to the identified needs?

The qualitative approach, implicit in the purpose and research questions, has advantages and limitations. The advantages are flexibility, use of the natural setting as the direct source of data, availability of both process and outcome information, rich descriptive rather than strictly numerical data, and inherent insight-stimulation. Limitations of qualitative research are excessive time consumption, difficult data reduction, limited standardized procedures, restriction to small sample sizes, and preference of many disciplines for the empirical, hypothesis-testing approach of quantitative research (Bogdan &

Biklen, 1982; Knapfl & Howard, 1984).

The research questions prompted two tentative, exploratory hypotheses:

- (1) Profiles of educational needs of presurgery (PRE), postdischarge one week (PD1), and postdischarge four weeks (PD4) CABG surgery patients are distinct.
- (2) Educational needs of CABG surgery patients and their significant others are not congruent with health care professionals' educational expectations of patient education programs.

CHAPTER 3

METHOD

The method of this study is detailed under the topics: population and sample, study design, data collection, and data coding procedures. The purposes of the study were achieved in four phases: (a) determination of expectations of health care professionals for cardiac surgery patient education programs, (b) construction of a coding grid based on the expectations, (c) identification of educational needs as expressed by CABG patients and their significant others, and (d) proposal of educational interventions to meet the identified needs. The first three phases are addressed in this chapter. The fourth phase is discussed in Chapter 5.

Population and Sample

The population of interest was composed of out-of-hospital, first-time CABG surgery patients of a cardiac care facility in a large tertiary care hospital in eastern Canada (hereafter referred to as Heart Institute). Significant others of the patients were included. Three groups of patient and significant other pairs were sought: (a) patients who were four or more days prior to their scheduled date for CABG surgery (presurgery/PRE), (b) CABG

postsurgery patients who had been discharged from hospital for one week (postdischarge one week/PD1), and (c) CABG postsurgery patients who had been discharged from hospital for four weeks (postdischarge four weeks/PD4). During the eleven weeks over which data collection took place, approximately 90 patients were scheduled for and/or had coronary artery bypass graft surgery at the Heart Institute. After the pilot study of six pairs of subjects, the sample was consecutive.

Eligibility Criteria

Eligibility criteria for first-time CABG surgery patients proved easy to meet in the chosen patient population. Criteria of eligibility for the study sample and justification of the criteria are as follows:

- (1) Residence within a 25 mile radius of the Heart Institute was necessitated by the requirement of two visits to each patient and significant other. Time limitations prevented extension of the driving distance beyond the 25-mile limit.

- (2) For presurgery (PRE) patients, the criteria of four or more days prior to surgery and waiting for admission to hospital were specified. The anxieties experienced by such patients were of concern. Urgent patients, who were in hospital to await surgery, and emergency patients, were excluded from the PRE group.

- (3) For postsurgery patients, the criterion of discharge from hospital for one week (PD1) or four weeks (PD4), was specified. Concern about the limited patient education planned for and knowledge of the problems which occur during these periods prompted this criterion.

- (4) PD1 and PD4 patients, who were followed by Heart Institute staff, were specified. This criterion eliminated those patients who returned to other hospitals and,

therefore, did not participate in all patient education programs.

(5) Willingness of one significant other to participate was a criterion because of the brain-storming approach planned for the interview portion of data collection. The significant other could contribute to the interview, particularly when the patient could not recall an event. The significant other was a person who had day-to-day familiarity with the patient's health/illness behaviour and with the impact of CABG surgery on the immediate family.

(6) Patients and significant others who spoke and read English was necessitated by the requirement to read and complete a questionnaire which had been normed in English. The "English only" limitation reduced the number of independent variables in the study and allowed a more valid comparison between the three groups.

(7) Patients and significant others signed an informed consent to participate in the study (see Appendix A). The informed consent was a requirement of the hospital Ethics Committee.

(8) Participation approved by the patient's surgeon was the final eligibility criterion. The intention was to ask for such permission as potential subjects became available. When the investigator met individually with the cardiac surgeons, however, (to establish the content validity of the instruments) approval was given by all surgeons to include all of their patients in the study.

Sampling Procedure

Potential subjects were identified by two methods. The names of presurgery patients with scheduled dates for CABG surgery were obtained at weekly meetings with the scheduling secretary. Computerized files were accessed to locate presurgery patients who met the eligibility criteria. Postdischarge patients' names and demographic data were obtained from a file kept by the Nursing Coordinators. After the pilot study, all eligible patients were

invited to participate. Patients were contacted by phone. The wording of the telephone invitation to participate in the study is presented in Appendix B. Phone calls were placed close to the planned interview date to avoid last minute cancellations, caused by a change in health status or readmission to hospital. When the patient and significant other agreed to join the study, the investigator set a time to meet and deliver the questionnaire. At this first visit, after the self-administration of the questionnaire and the interview were explained, a mutually satisfactory time was set for the second visit, when review of the questionnaire and the interview could take place. Patients and significant others were asked to complete the questionnaire within 24 hours of, and prior to, the interview. The 24 hour limit was imposed so that at the time of the interview, the discussion would be based on the patient's current health status.

A sample of three groups, each group with 10 pairs, to comprise a total of 30 patients and 30 significant others, was sought. Six of the thirty-seven patients (16%) who were invited to join the study refused to participate, three in the PRE group and three in the postdischarge groups. Presurgery reasons for refusal to participate were: "too busy", "didn't want any part of that (the study)", and the spouse felt the patient "was too antagonistic to be interviewed". The spouse of the latter patient suggested participation in the postsurgery period but the patient's prolonged hospitalization extended beyond the data collection period. The

three postdischarge patients' refusals were explained by: failure to return the investigator's phone call (the spouse phoned to explain that the patient did not want to talk to anyone and requested and received psychiatric help), an unanswered door when the investigator arrived for the prearranged interview (a note left in the mailbox and a telephone call also went unanswered), and emotional instability (the patient had completed the questionnaire but began to cry and withdrew from the study before the interview began). One of the seven (a PD1 pair) completed the study but were lost to analysis because of tape recorder malfunction.

Description of the Sample

Ten pairs of patients and significant others were obtained to represent each of three stages of CABG surgical treatment considered in this study: (a) presurgery (PRE), (b) postdischarge one week (PD1), and (c) postdischarge four weeks (PD4). A summary of the characteristics of the patient sample is presented in Table 2. All patients had a diagnosis of coronary artery disease, confirmed by cardiac catheterization. Data from the present study ($n=30$) are compared to that obtained by Coombs (1984) in a study of postdischarge CABG surgery patients ($n=105$). The samples are similar except that the 1984 study had only postdischarge CABG patients and was not restricted by proximity to the Heart Institute. The mean age of the 30 patients in this study was 55.3 years; the mean age of the 105 patients in the 1984 study was 56.5 years. Formal education averaged 13.2 years ($n=30$) compared to

Table 2

Characteristics of Patients Who Participated in the Study

(n=30 pairs)

	Presurgery Group (n=10)	Postdischarge 1 Week Group (n=10)	Postdischarge 4 Weeks Group (n=10)
Age of Patients			
Range (years)	46-62	40-65	36-70
Mean (years)	55.7	54.9	55.3
SD (years)	+5.9	+6.8	+9.0
> 55 years	60%	50%	50%
≤ 55 years	40%	50%	50%
Sex of Patients			
Male	80%	90%	90%
Female	20%	10%	10%
Primary Language			
English	70%	70%	80%
French	20%	30%	20%
Other	10%	-	-
Marital Status			
Married	100%	90%	100%
Single	-	10%	-
Significant Other			
Spouse	80%	80%	100%
Daughter	20%	10%	-
Sister-in-law	-	10%	-
Education			
Range (years)	8-17	6-18	7-23
Mean (years)	12.3	13.3	14.1
SD (years)	+3.5	+3.6	+4.3
> 8 years	80%	90%	90%
≤ 8 years	20%	10%	10%
Work Status			
At Work	30%	-	20%
On Sick Leave	50%	50%	50%
Retired	10%	20%	20%
Unemployed	10%	30%	10%

11.9 years ($n=105$). English was the primary language of 76.7% patients ($n=30$) compared to 72.4% ($n=105$). Patients in both studies ($n=30$ & $n=105$) were conversant in English. The male sex was represented by 26 (87%) patients ($n=30$), comparable to the 86 (82%) in the previous study ($n=105$). In the present study ($n=30$), all patients except one were married and living with their spouses. The sample ($n=30$) was proportionately representative of the age, education, language, and sex variables described by Coombs ($n=105$).

Six patients in each of the three groups (a total of 18/30 or 60%) had had a myocardial infarction (heart attack) prior to surgery. Emergency CABG surgery was performed on 2/10 (20%) of the PD1 patients and 4/10 (40%) of the PD4 patients. On the day of the interviews with the 10 presurgery patients, the average length of time before the scheduled surgery date was 8.4 ± 4.1 days. For the 20 patients in the two postdischarge groups, the average length of postsurgery hospital stay was 9.5 ± 2.3 days. On the day of the interviews of the postsurgery groups, the PD1 patients had been discharged home for a mean time of 7.9, ± 1.4 days and the PD4 patients for 28.9, ± 2.3 days.

Of the 30 significant others, 26 were spouses, 3 were patients' daughters and 1 was the patient's sister-in-law (see Table 2). All but one of the patients were living in the same dwelling with the significant other; one presurgery patient chose her daughter, who lived in the same apartment building, as her significant other.

Design of the Study

Two research designs, cross-sectional or longitudinal, ~~were~~ possible in this exploratory study. A cross-sectional design, with three groups of different subjects, each group studied in the same time period, was chosen for several reasons. The contamination (carry-over effect) from the use of the same instruments with the same subjects, at the different time periods, was avoided. A greater number of subject pairs could be included within the study time frame, thereby increasing the generalizability of the findings and the amount of experiential information obtained. The potential loss of study subjects with a longitudinal design (from prolonged hospitalization, morbidity, or mortality) was avoided. Emergency and urgent patients, excluded from the presurgery group because their condition precluded participation, could be included in the two postdischarge groups; cardiac surgeons expressed particular interest in how these patients fared after discharge.

Three distinct patient and significant other groups, which represented three CABG surgery time points (PRE, PD1, and PD4), were obtained. Planned patient educational interventions are limited at these times. The investigator's experience with the problems patients have during these periods contributed to the specification of the three time periods.

Phases of the Study

The study was conducted in four phases. The first three phases involved the development or use of instruments and active data collection. In the following discussion the instruments are described in relation to the three phases. The fourth phase is discussed in Chapter 5. During Phases I and II, an instrument was developed by the investigator to list the expectations of the health care professionals and to facilitate the coding of data through protocol analysis. In Phase III, two instruments, a questionnaire and a semi-structured interview, were used to identify educational needs expressed by CABG patients and their significant others. A fourth instrument was developed to collect relevant background data during Phase III.

Phase I - Expectations of Health Care Professionals

Phase I of the study included three components: (a) the cardiac surgery patient education program, (b) postdischarge contacts with health care professionals, and (c) a typology of expectations of health care professionals. Each are discussed in turn.

The Cardiac Surgery Patient Education Program

The patient education program offered to all heart surgery patients in the Heart Institute and to the subjects of this study comprises five classes: (a) cardiac catheterization, (b) surgery, (c) predischarge, (d) exercise, and (e) postdischarge.

In the presurgery stage, patients usually have two educational experiences. Prior to cardiac catheterization (a diagnostic X-Ray examination to determine the need for cardiac surgery), a slide-tape audiovisual program is presented. All CABG patients have this examination. Staff from the cardiac catheterization laboratory are present to explain and to answer questions from patients and families. Two lecture-discussion sessions, with slides as a visual aid and each approximately one and one-half hours in length, are offered by the cardiac surgery Nursing Coordinators. The presurgery session is given five times a week and is usually attended by patients and families on the day before the patient's scheduled CABG surgery. The predischage session is held three times a week and patients close to their discharge date attend one session; families also are encouraged to attend. The content of the predischage class is based on the booklet, Recovering Along with Your Heart, a copy of which is given to all patients to read before they attend the class. Type of surgery, exercises, and medications specific to the patient are entered in each patient's booklet. A dietitian discusses nutrition at one of the predischage sessions; for the other two sessions, a ten minute slide-tape audiovisual presentation on nutrition is used. The exercise class is given by a physiotherapist in a 15 minute demonstration of the exercises patients are to perform after discharge. Families are not invited to the exercise class.

Patient education program attendance by patients and their

significant others is documented in Table 3. Only 13/30 (43%) patients and 8/30 (26.7%) significant others attended the cardiac catheterization class. Many patients came from other hospitals on the day of their cardiac catheterization and did not have time to attend this class. The presurgery class was attended by 13/20 (65%) postdischarge (PD1 & PD4) patients and 14/20 (70%) of their significant others. One-to-one presurgery teaching was recalled by 2 patients; only 1 of the 6 emergency surgery patients recalled one-to-one presurgery teaching. The significant others of the 6 emergency surgery patients did not attend the presurgery class. The predischage class was attended by 17/20 (85%) significant others and all but one (19/20 or 95%) postdischarge patient; this patient received one-to-one teaching because of discharge prior to class time. Attendance at the exercise class was recalled by only 14/20 (70%) patients. With the exception of the patients who had emergency surgery, the three groups were similar in patient education program attendance appropriate to their stage of illness.

Contacts with Health Care Professionals

Patients are offered four possibilities of postdischarge contact with health care professionals in addition to the scheduled (two to three weeks postdischarge) visit with the cardiac surgeon.

Possible postdischarge contacts are:

(1) A 24-hour phone number is given to all patients for contact with a Nursing Coordinator to discuss problems and to obtain answers to questions.

Table 3

Patient Education Program Attendance

(n=30 pairs)

CLASS	Presurgery Group (n=10)		Postdischarge 1 Week Group (n=10)		Postdischarge 4 Weeks Group (n=10)	
	PT	SO	PT	SO	PT	SO
Precatheterization	40%	10%	50%	40%	40%	30%
Presurgery	NA	NA	90%	90%	60%	50%
Predischarge	NA	NA	100%	80%	100%	90%
Exercise	NA	NA	70%	NA	70%	NA

Note. PT=Patient. SO=Significant Other. NA=Not Applicable.

(2) Referrals to a community health agency are made for all patients. A nurse from the agency visits the patient sometime in the first weeks after discharge. The study was designed to not interfere with these contacts.

(3) Five to six weeks after discharge, a postdischarge class is held for patients and significant others who live within a short traveling distance. The purpose of the postdischarge class is to determine postsurgery problems and to discuss solutions. Patient and significant other groups meet separately. The time periods selected for the present study were set so that none of the subjects had attended the postdischarge class prior to data collection.

(4) Patients who require nursing care after discharge are referred to visiting nurse agencies such as the Victorian Order of Nurses (VON).

After the date of surgery was set for the 10 presurgery patients in this study, 2 contacted the Heart Institute and 4 contacted their family doctors. Most frequent reasons for these contacts were to renew drugs and to have insurance forms signed. Of the PD1 patients, 6 contacted Heart Institute staff sometime during their first week at home; 5 complained of physical symptoms and 1 had insufficient drugs. Daily visits to 2 PD1 patients were made by the VON, to dress an incision and to assess a patient who had been discharged early. At the time of the interview, none of the PD1 patients had been visited by a public health nurse. Only

3/10 PD4 patients contacted Heart Institute staff in the four weeks since discharge; all 3 contacts were to report physical symptoms. One PD4 patient contacted his endocrinologist to report an abnormal urine sugar. One PD4 patient had been readmitted to hospital (during his second postdischarge week) to evaluate symptoms of angina. One PD4 patient was visited for dressing changes by a VON. All PD4 patients had been visited by a public health nurse. All patient-initiated contacts with health care professionals were to report physical symptoms and/or to have insurance forms signed. There was no indication that any of these contacts contaminated the study findings.

Typology of Expectations of Health Care Professionals

The expectations of health care professionals were sought from literature in which objectives and content of cardiac surgery patient education programs were documented. Two papers (Coombs, 1985; Sikorski, 1980), four cardiovascular nursing and patient education texts (Bille, 1981; Guzzetta & Dossey, 1984; Horvath, 1984; Sadler, 1984), and 19 articles and pamphlets (American Heart Association, 1981; Barbarowicz, Nelson, DeBusk & Haskell, 1980; Beauchamp, 1979; Boisvert, 1976; Christopherson & Pfeiffer, 1980; Cisar & Morphew, 1983; Duncan, Grandbouche & Moody, 1973; Hansen & Lavandero, 1981; Hart & Frantz, 1977; Linde & Janz, 1979; Lovvorn, 1982; Owens, McCann & Hutelmyer, 1978; Seifert, 1981; Shuldham, 1984; Trimiglozzi, 1979; University of Ottawa Heart Institute, Ottawa Civic Hospital, 1983 and 1985; White, Lemon & Albanese,

1980; Winslow & MacVaugh, 1976; Yalof, 1983) were content analyzed. Although several cardiac medical texts were examined, patient education information was either scant or non-existent; therefore, no medical texts were content analyzed.

Consistent with the qualitative nature of this study, the literature was searched for groupings and categories. The content analysis was organized under Bartlett's (1982) four categories, under seven subcategories from a previous study (Coombs, 1984), and under two major content divisions which represented presurgery and postsurgery periods.

Bartlett's four categories are individual, social, environmental, and medical regimen. The category, Individual influences on health behaviour, includes the knowledge (information), skills, attitudes, beliefs, and/or emotions of the patient. Physical and psychological problems of illness are included. For the purpose of this study the Individual category was divided into Individual-physical and Individual-psychological. The Social category includes the influence, relationships, and degree of support of the significant other, family, peers, employers, teachers, and health care professionals. Cultural orientation and socio-economic norms of these persons and of the patient also are included as both impact on health behaviour. The Environmental category, includes the availability and accessibility of health care resources, community support groups, transportation, financial resources, and work status. The Medical Regimen category

includes the complexity and the side effects of the prescribed regimen.

Coombs (1984) seven categories, developed in a study of 105 postdischarge CABG surgery patients, were: physical activity, convalescent care, diet, medications, risk factors, heart disease & heart surgery, and family. These categories were used, when appropriate, as subcategories under Bartlett's four categories. Categories additional to those noted above were established for data which did not fit the predetermined categorization. For example, educational modalities, was an additional category.

Two stages of illness, presurgery and postsurgery, were used as broad divisions to organize the literature content into that appropriate for the presurgery and postsurgery CABG patient. In the content analysis, the categories tended to be all inclusive although some were not mutually exclusive. An attempt to establish mutually exclusive categories was made in the construction of the coding instrument described in Phase II (see below).

Content validity of the content analysis was assured by the choice of literature which specified patient education program content for cardiac surgery patients. Reliability of the content analysis was sought by having a coder insert the literature content into the categories and subcategories; the investigator then checked the coding with the literature. Disagreement was minimal.

Phase II - Construction of the Coding Grid

Expectations determined in the content analysis of the cardiac literature (Phase I) were used in Phase II to construct a grid of CABG patient education program content (GRID). To limit the number of categories, the GRID was organized under 15 behavioural objectives adapted from Sadler (1984). The GRID was developed as a hierarchical structure (or decision tree) with four levels. Each of the 15 objectives had a maximum of three levels of designated codes with specified content; each successive code and its content represented a lower level of complexity and a higher level of specificity. The first two levels of the four-level GRID are presented in Table 4. The complete GRID is presented in Appendix C. The GRID of expectations was used to identify codable educational needs. New or OTHER educational needs, which did not fit any GRID codes, were added to the GRID and underlined (see Appendix C). The content validity of the GRID was established in Phase I. The reliability of the GRID as a coding instrument was determined by intercoder agreement and will be presented and discussed in Chapter 4.

Phase III - Identification of Educational Needs

Four instruments were used in Phase III to record data and determine the educational needs of patients. These instruments were: (a) the Sickness Impact Profile (SIP), (b) an interview schedule, (c) a background data sheet, and (d) the GRID.

Table 4

Summary of CABG Surgery Patient Education Program Coding GRID

Objectives (First Level)

Second Level

IDENTIFY THE EDUCATIONAL NEEDS OF PATIENT AND FAMILY WITH REGARD TO:

- | | |
|--|---|
| 1. normal cardiac anatomy and physiology (structure and function) | A. Normal coronary arteries |
| 2. the disease process and controllable risk factors | A. Atherosclerotic process
B. Risk factors for coronary artery disease |
| 3. the CABG surgical procedure | A. Effects of surgery |
| 4. physical and mental preparation for surgery | A. Diagnostic tests/baseline measurements
B. Physical preparation
C. Mental preparation |
| 5. early postoperative care | A. Locations
B. Early postoperative care |
| 6. postoperative sensations and behaviour | A. Physical sensations
B. Mental sensations |
| 7. the disease process and surgical recovery | A. Chest pain
B. Pace of recovery |
| 8. diet modifications | A. Diet |
| 9. safe self-medication | A. Specific medications
B. General medication guidelines |
| 10. appropriate activity | A. Graduated exercise program
B. Other activities
C. Target pulse
D. Social activities
E. Family activities |
| 11. safe self-care | A. Incision care
B. Reduce venous stasis & graft leg edema
C. Report to physician
D. Sleep
E. Rest
F. Clothing |
| 12. postsurgery emotional reactions | A. Emotional reactions (other than stress) |
| 13. follow-up care | A. Make/keep appointments
B. Printed information
C. Call for help |
| 14. management of work & finances | A. Return to work
B. Finances |
| 15. the preferred modalities of CABG surgery
patient and family education | A. Mode of presentation
B. Methods
C. Time-preoperative
D. Time-postoperative
E. Setting
F. Addressee |

The Sickness Impact Profile

The questionnaire, Sickness Impact Profile (SIP), is a quantitative, behaviourally based measure of health status and functional performance of the individual patient (see Appendix D). It was designed as an outcome measure to evaluate general health levels, treatment regimens, patient progress, and methods of delivery of services (Gilson, Gilson, Bergner, Bobbitt, Kressel, Pollard & Vesselago, 1975). Two published studies were located in which the SIP was used with CABG surgery and myocardial infarction patients, respectively (O'Connor, 1983; Ott et al., 1983). The SIP has been administered to patients at all stages of illness and with diagnoses such as postcardiac arrest, lung disease, osteoarthritis, hyperthyroidism, and speech impairment. Patients in rehabilitation and preventive medicine programs have completed the questionnaire. The SIP was designed as an interviewer-administered or self-administered instrument from which the patients' own perception of health status is obtained. Only one study is known in which the significant other completed the SIP to report a third party's perceptions of the patient's health status. That study's findings plus experiences during the development of the SIP, led the developers to conclude that SIPs completed by a third party are likely to be different from those completed by patients (Bergner, personal communication, October 10, 1985, Appendix E).

The SIP may be used with small groups, individuals, and for large surveys and is considered suitable for the assessment of

health care needs (Bergner & Gilson, 1980). For these reasons and with the approval of the CABG patients' surgeons, the SIP was chosen for use, primarily as a brain-storming technique, in this study. Brain-storming involves group problem solving (Osborn, 1963) with the goal of generating a quantity of original ideas (Mayer, 1983). The SIP, therefore, was used to generate ideas and to remind interviewees of points to discuss. The SIP also provided a consistent "talking-point" for the subjects.

The SIP measures illness-related behavioural dysfunction in 12 categories. With Bartlett's (1982) categories as the main organizing scheme, the 7 SIP categories which fit under the Individual-physical category are Sleep & Rest, Body Care and Movement, Home Management, Mobility, Ambulation, Recreation & Pastimes, and Eating. Under the Individual-psychological category are Emotional Behavior and Alertness Behavior. Under the Social category are Social Interaction and Communication. Under the Environmental category is Work. The Medical Regimen category is not addressed in the SIP. Examples of the statements from the 12 SIP areas are given in Table 5. The SIP contains 136 statements which describe behaviour dysfunctions and are scaled according to the impact or severity of the dysfunction. Respondents are instructed to check any statement that applies to them that day and is related to their health. An overall score, dimension scores, and scores for each of the 12 categories may be calculated. In all score calculations the scale values are summed and expressed as

Table 5

Sickness Impact Profile Categories and Selected Items

Category	Category Title	Selected Items
SR	Sleep & Rest	I sit during much of the day I sleep or nap during the day
EB	Emotional Behaviour	I laugh or cry suddenly I act irritable and impatient with myself, for example, talk badly about myself, swear at myself, blame myself for things that happen
BCM	Body Care & Movement	I make difficult moves with help, for example, getting in and out of cars, bathtubs I am very clumsy in body movements
HM	Home Management	I am not doing any of the maintenance or repair work around the house that I usually do I am not doing any heavy work around the house
M	Mobility	I am getting around only within one building I stay from home only for brief periods of time
SI	Social Interaction	I am doing fewer social activities with groups of people My sexual activity is decreased
A	Ambulation	I walk shorter distances or stop to rest often I walk more slowly
AB	Alertness Behaviour	I have difficulty reasoning and solving problems for example, making plans, making decisions, learning new things I forget a lot, for example, things that happened recently, where I put things, appointments
C	Communication	I often lose control of my voice when I talk, for example, my voice gets louder or softer, trembles, changes unexpectedly I do not speak clearly when I am under stress
W	Work	I am not working at all I often act irritable toward my work associates, for example, snap at them, give sharp answers, criticize easily
RP	Recreation & Pastimes	I am going out for entertainment less often I am not doing any of my usual physical recreation or activities
E	Eating	I am eating much less than usual I am eating special or different food, for example, soft food, bland diet, low-salt, low-fat, low-sugar

percentages.

The SIP was standardized in a series of field tests over a six year research project of instrument development. High levels of reliability were demonstrated by internal consistency of response patterns in each category (overall Cronbach's alpha coefficient was .94), 24 hour test-retest score reproducibility such as test-retest score correlations (.62 to .92 in the 12 categories), and test-retest item agreement (.38 to .64 in the 12 categories) (Pollard, Bobbitt, Bergner, Martin, & Gilson, 1976; Bergner & Gilson, 1980).

Concurrent and construct validity and sensitivity to change across time and to differences between subjects have been demonstrated (Bergner, Bobbitt, Pollard, Martin & Gilson, 1976). Concurrent validity was determined by correlation of the SIP with other health measure instruments (Activities of Daily Living Index, $r=.46$; National Health Interview Survey, $r=.55$), with patients' self assessments of sickness ($r=.63$) and of dysfunction ($r=.69$), with clinicians' assessments of sickness ($r=.40$) and dysfunction ($r=.50$), and with objective clinical laboratory findings (range of $r=.41$ to $-.81$). The multitrait-multimethod technique was used to determine convergent and discriminant validity. A stepwise multiple regression analysis confirmed the satisfactory multitrait-multimethod analysis results (Bergner, Bobbitt, Carter, & Gilson, 1981). Profile scores correlated highly with percent scores (Gilson, Gilson, Bergner, Bobbitt, Kressel, Pollard, &

Vesselago, 1975). No reliability or validity figures are available for administration of the SIP to significant others.

The SIP was self-administered by the CABG patients and their significant others. The established procedures for SIP self-administration were followed (Conn, Bobbitt & Bergner, 1978). With the approval of Bergner (personal correspondence, October 10, 1985, see Appendix E), the SIP was worded in the third person and verb tense, with no change in statement content. This version was used to obtain the significant others' opinions of the patients' health behaviour. The two versions of the SIP were delivered to the patient and significant other. Instructions were reviewed and the request was made to have the SIP completed within the 24 hours prior to the interview. The 24 hour limit was imposed so that, at the time of the interview, the SIP answers would reflect the patient's current health status.

The Interview Schedule

A semistructured interview schedule (See Appendix F) with a problem solving approach was developed by the investigator. The interview included problem solving questions and scenarios which represented the categories - individual, social, environmental, and medical regimen (Bartlett, 1982). Questions were adapted from Bartlett, Dodge (1969), Meyer and Latz (1979), Mullen (1980), Neuman (1982), and Strauss (1975). Content validity of the interview schedule was determined in a review by the cardiac surgeons and nurses responsible for the cardiac surgery patient

education program attended by the subjects. The interview schedule was tested in a pilot study of six patients. Reliability of the SIP portion of the interview schedule was satisfied by the consistency of responses between the patients' comments during the interviews and their checked statements in the SIP questionnaires. Reliability was also sought by having all interviews conducted by the same interviewer and rotation of data collection among the three groups.

The interview schedule contained 19 topics, which were organized into four main sections: (a) followup of the 12 categories of the SIP, (b) 4 sets of questions on the medical regimen category, (c) determination of the patient's major problem, and (d) two problem solving scenarios in which the deficiencies in the patient education program and the components of an ideal patient education program were sought. The semistructured approach allowed the freedom to move to appropriate questions as the discussion unfolded. Although the sequence of the interview schedule was not maintained consistently, all topics in the schedule were addressed before the interviews were concluded.

The patients' completed SIPs, which represented the Individual, Social, and Environmental categories, were reviewed during the interview. Significant others were encouraged to contribute to the discussion but their SIP answers were not reviewed. If the patient had checked more than one statement in a SIP area, the interviewer asked, "Which one of the ones you

checked, do you consider to be your major problem?" This question was an adaptation of one used to identify patients' stressors in Neuman's (1982) Assessment/Intervention tool. Once the major problem was identified or if only one statement was checked, the patient was then asked, "What would you tell a friend to do, if he or she complained of this problem and wanted to prevent, minimize, lessen, or learn to live with it?" The verb appropriate to the topic under discussion was used. The intent of this indirect approach was to avoid direct confrontation and to explore the problem solutions used or recommended by the patient and the significant other.

Four sets of questions represented the Medical Regimen category. The topics of three sets were adapted from Mullen (1980), who had adapted them from Strauss (1975), and included: (a) preventing medical crises and managing them if they should occur, (b) carrying out prescribed regimens, and (c) adjusting to the course of the disease. The fourth set was drawn from Mullen and from Bartlett's (1982) environmental category with focus on the availability of medical care. When a problem was identified, the patient was asked, "What would you tell a friend to do...?" At this point in the interview, Neuman's (1982) question was asked to identify the patient's one major problem.

Two problem scenarios, which represented deficient and ideal patient education program situations were presented in the final portion of the interview. The deficient situation had the subjects

imagine participation in a panel called by a Nursing Coordinator to ask what information was missing from the patient education they had received. Questions adapted from Dodge (1969), such as: "What questions do you have that you haven't had a chance to ask your doctor or nurse yet?" (p.505) and from Meyer and Latz (1979), "Is there anything else you want to know more about?" (p. 1559) were asked. In the ideal situation scenario, the subjects were asked to plan an ideal program either to prepare patients for heart surgery (PRE group) or for discharge after heart surgery (PD1 and PD4 groups).

Background Data

A background data sheet (see Appendix G) was developed to collect demographic, medical, and research data. Most demographic data were obtained from hospital records prior to the first contact with the subject. A brief cardiac medical and surgical history, a list of current medications, patient education history, and health care professional contact history were obtained and recorded as information became available during the contacts with the subjects. Missing data were obtained when the interview was completed. This approach eliminated the administration of a third set of questions and avoided repetition of information provided during the course of the interviews. Occasionally, background data were sought when the patient was tired or needed a change from the emotional demands of the interview questions.

Data Collection Procedure

This section on data collection includes protection of subjects' rights, opportunities for data collection, the setting of and procedures followed during the interviews, and interview transcription and editing.

The proposal for this study was approved by the hospital Departments of Nursing Administration and Nursing Research and the hospital Research Ethics Committee (see Appendix H) and by the Faculty of Education, University of Ottawa. Patients and significant others were guaranteed anonymity and the data they provided were confidential. Study participation was explained orally by telephone contact (see Appendix B) and in the informed consent form (see Appendix A). The consent form was signed by the subjects and witnessed by the investigator. The subjects were given a copy of the consent form. Transcription of the tape-recorded interviews was done by the investigator and two medical dictatypists. At patients' requests, sensitive portions of the interviews were not transcribed. All persons' names were replaced by functional identification (for example, "cardiac surgeon", "spouse", or "Nursing Coordinator"). With the exception of the words, "Heart Institute", the identifier of where the study subjects were sought, hospitals named in the interviews were not identified. A summary of the final report was offered to and sent to all subjects.

Data collection took place during review of patients' medical records and during all contacts with the subjects. Opportunities to collect data began when potential subjects were identified, and continued during the phone call to invite study participation, during the visit to deliver the SIP, during the interview, and even after the interview when a few patients called to add comments they had forgotten to state. The actual interview was the main source of data. A pilot study was conducted after the proposal was granted ethical approval.

The instruments and procedure were tried out in a pilot study of six pairs of subjects. Two pairs represented each of the three (PRE, PD1, PD4) study groups. The tape recorder malfunctioned during one interview. Otherwise, the instruments and procedure were very satisfactory and no changes were necessary to either. Data collection was rotated between the three groups in the pilot study and in the main sample to ensure consistent interviewer technique throughout the data collection from all three groups.

The interview was the investigator's third contact with the subjects. This familiarity plus the choice by all but one pair of subjects to have the interview in their home setting was conducive to a relaxed atmosphere. One pair (PRE group) chose a hospital office for their interview. Each interview was planned to begin with a review of the patient's completed SIP. Then the medical regimen, major problem, and deficient and ideal patient education programs were discussed. Patients and significant others talked at

length. The interviews ranged from one to three hours with an average time of two hours. In most of the interviews, refreshments were offered towards the end or after the interview was completed. The patient and one significant other participated in each interview; on a few occasions other family members stopped by to listen. In one interview, three family members stayed throughout but only the designated significant other contributed to the discussion. Two types of interruptions were most frequent; telephone calls and family pet requirements were dealt with by the significant other.

The investigator asked the questions and followed the sequence of the interview schedule (see Appendix F) unless the patient introduced a topic prior to it being raised or was observed to need a change from the emotional demands of the interview. In the latter situation, background data were collected or a less demanding question was asked. The investigator monitored the patient's reactions and frequently asked, "Is it OK to continue?" All interviews were completed in one session. The patient and significant other were asked to talk aloud to describe their problems and solutions. The interview was tape recorded. In three interviews, patients asked that particular comments not be taped. The recorder was turned off until permission was given to turn it on. Nonaudible events, such as movements, were noted so they could be matched to the interview statements.

The interview protocols were transcribed verbatim by the

investigator and two medical dictatypists. The transcribed protocols were edited to eliminate names and small talk and to organize them into episodes (Ericsson & Simon, 1984) which represented the 19 interview categories. The interview sequence, as it took place, was maintained in the transcriptions but topical headings and lines were added to highlight each of the 19 topics (see Appendix I).

Data Coding Procedure

Coding of the SIP and the interview transcriptions was necessary to reduce the large amount of data collected in this study into a state suitable for analysis.

SIP responses, checked (1) and unchecked (0) statements, formed the raw data from the completed SIPs. These results were analyzed directly through a computer program.

Six interview protocols were summarized for review by judges. A total of 101 scenarios resulted from the summarization. The purpose of the summary scenarios was to abstract interview content so as to shorten the coders' reading time. The interview summaries were submitted to two judges, one a nurse educator and one a non-nurse educator. Each judge had one interview from each of the PRE, PD1, and PD4 groups. The judges were asked for suggestions to improve the summaries and they rated the agreement between the interviews and the summary scenarios. The agreements were scored

on a 7-point scale from +1 (No agreement) to +7 (Excellent agreement). The inter-judge agreement results are reported in Chapter 4. All 30 interviews were summarized according to the judges' suggestions.

The GRID developed in Phases I and II was used in the protocol analysis of the summarized interviews. Three coders: the investigator, a cardiac nurse, and a non-nurse, coded the 30 interview-summaries. The transcribed interviews, the summary scenarios, and a blank column to enter GRID codes and OTHER statements were displayed in columnar format on 8 1/2 x 15 inch sheets (see Appendix I). An average of 15 such sheets represented each pair of subjects (patient and significant other). A coder's instruction sheet (see Appendix J) summarized the rules and responsibilities of coding. The coders had copies of the GRID, the SIP, and the interview schedule. The coders followed the same random order when they coded the interviews as was used by the investigator during the summarizations. In addition, each one of the 19 interview categories was coded for all 30 interviews before coding of the next category. The reason for this category-by-category approach was to decrease the influence of previous categories on the coding of the current category (Ericsson & Simon, 1984). The time to train the coders ranged in hours from three (cardiac nurse) to eight (nurse). Actual coding time ranged in hours from 80 (investigator) to 95 (cardiac nurse) to 150 (nurse). The intercoder agreement is reported in Chapter 4.

Judges and external coders were paid at an hourly rate on a fee-for-service basis.

The data for analysis was composed of results from administration of the Sickness Impact Profile and from the interview protocols. The analysis of the data is presented in Chapter 4.

CHAPTER 4

ANALYSIS OF DATA

Introduction

The phenomenon investigated was the identification of educational needs through problem solving by patients and significant others. Three out-of-hospital stages of coronary artery bypass graft surgery were represented. The data comprised a completed questionnaire and an interview protocol of need identification and problem solving as it took place. The findings served as a basis for the revision of a GRID of educational needs for CABG surgery patient education programs.

The investigative process employed for the collection, organization, analysis, and interpretation of the data included several strategies. Data were collected via qualitative and quantitative research procedures. They included paper and pencil questionnaires and audiotaped interviews as completed by patients and significant others. The research focus was to seek educational needs in the problems stated by the subjects.

Two models provided the theoretical perspective and methodological orientation for the study. The first model, on expectation-needs, centered on the congruence between the

educational expectations held by health care professionals and the educational needs of patients and significant others. This model was developed to illustrate the systematic interconnections between the two (see Figure 1, Chapter 2). The institutional component of the model included the roles and expectations of health care professionals. The personal component included the patient/significant other and their educational needs. The degree of congruence between expectations and needs contributes to the patient's health/illness behaviour. The expectation-needs model served as a guide for the description, explanation, and analysis of the data.

A problem solving model (Dionne, 1985) was used for the identification of educational needs (see Figure 2, Chapter 2). Organizational knowledge, experience, contextual interpretation, and cognitive restructuring were the components of the model most applicable to this study. This model served as a guide in the development of the interview questions and in the approach used when interviewing the patients and significant others.

The patients' and significant others' problems and solutions, which represented educational needs, were identified through the GRID; additional categories were introduced to the GRID when appropriate. Summarization of the findings by educational objectives uncovered the patterns of educational needs of the CABG surgery patient.

Plan for Analysis of Data

The analysis of data was conducted in four phases and included: (a) content analysis of the literature, (b) organization of this content into a coding GRID, (c) identification of educational needs from questionnaire and interview data, and (d) selection of appropriate educational interventions.

In Phase I, the literature on cardiac surgery patient education programs was content analyzed under four main categories (individual, social, environmental, and medical regimen) described by Bartlett (1982) and appropriate subcategories (Coombs, 1984).

In Phase II, a grid of CABG surgery program content (GRID), representative of health care professionals' expectations, was constructed from the data obtained in Phase I. The items of the GRID were organized under 15 educational objectives and were arranged in a four-level, hierarchical, top-down fashion, from general concepts to specific facts (See Appendix C).

In Phase III, the data were collected and analyzed in three steps:

(1) Six interview protocols were summarized and submitted to judges to determine the reliability of the summarization procedure. All 30 interviews were summarized and divided into 19 episodes (Ericsson & Simon, 1984), each representing an interview segment.

(2) The investigator, a cardiac surgery Nursing Coordinator, and a nonnurse coded the interview-summaries; intercoder percentage agreements were determined. Educational needs, problems, and/or solutions were identified and assigned GRID codes; items which did not fit the GRID were considered as OTHER and were located under the most relevant educational objective and second level of the GRID.

(3) The educational needs of patients and significant others were compared to the expectations of health care professionals (in the GRID) to determine the congruence between the two. Patterns or profiles of educational needs, which represented the three groups of subjects, also were obtained.

The Sickness Impact Profile (SIP) questionnaire was used as a brainstorming device to elicit educational needs and as a measure of physical, psychological, social, and work dysfunction. The SIP scores (overall, dimensions, and the 12 categories) were expressed as percentages. Descriptive and parametric statistics were used to compare patients with significant others in each of the three (PRE, PD1, PD4) groups.

In Phase IV, a methodology and procedure as to when, what, and how relevant content should be presented to CABG patients, was developed as a follow-up to and interpretation of the data analysis. In Chapter 5, educational interventions are proposed to match the educational needs, problems, and solutions identified in

the analysis of data.

Identification of Educational Needs

The educational needs of CABG patients and significant others were identified from the data obtained by the administration of two instruments, the Sickness Impact Profile questionnaire and a semi-structured interview. The quantitative findings from the SIP and the qualitative and quantitative findings from the interview are presented and discussed.

Sickness Impact Profile Questionnaire

The Sickness Impact Profile questionnaire was self-administered by the patients and their significant others. The patients completed the standardized version of the SIP (Department of Health Services, University of Washington, 1977). The significant others' SIP was worded in the third person and verb tense, with no change in statement content. This version was used to obtain the significant other's perception of the patient's health status. A complete copy of the standardized version and the self-administration instructions is located in Appendix D. The subjects were requested to complete their SIPs independently and within 24 hours of the interview so that the results would reflect the patient's health status at the time of the interview. Completion within this time frame also was specified so that SIP

content was used to brain-storm or activate ideas prior to the interview. During the interview the patient followed his/her completed copy of the SIP (again used as a brain-storming device) and reported the statements which were checked in each category. In order to limit interview time, the patient was asked to identify and discuss, using a problem solving approach, only the major problem in the checked statements of each SIP category. The significant other was invited to follow from his/her copy of the SIP and to contribute to the discussion; the significant others' checked statements were not reviewed. The SIPs were not scored, nor were possible scores discussed, at the interview.

General Reaction to the SIP

Several patients in all three groups (PRE, PD1, and PD4) indicated that the SIP was "not appropriate" for them because they were "not that sick". In response, the interviewer agreed but explained that the "questionnaire" (the title, "Sickness Impact Profile", was not named) was being used with two purposes in mind: (a) to guide the discussion and (b) to test its usefulness with cardiac surgery patients at various stages of illness, as had been requested by several cardiac surgeons.

Five patients (two PRE, two PD1, and one PD4) checked only 2 or 3 of the 136 statements in the SIP. In all five situations, however, the topics of the SIP categories were discussed and many educational needs were identified as the interview progressed. The

two PRE patients may have been denying both their coronary artery disease (because they reported many physical problems during the interview) and their need for CABG surgery. The three PD1 and PD4 patients appeared to be very well on the day of the interview. Five significant others (two PRE, two PD1, and one PD4) also checked very few SIP statements. The two PRE significant others appeared intimidated by the SIP, although not by the interview situation. The three PD1 and PD4 significant others were the spouses of the three patients, who had checked few statements. A negative reaction to the implications of the SIP statements may have occurred with some subjects. No subject refused to complete the SIP, however, and all subjects indicated they had read each page (noted by a check mark at the bottom of each page of the SIP).

Several significant others noted aloud their chosen SIP statements and compared their choices to those of the patients. Although this practice was not encouraged because of the extra time it consumed, it was tolerated, particularly if it appeared to make the significant other more comfortable in the interview situation.

Patients' and Significant Others' Individual SIP scores

The individual Sickness Impact Profile scores for each patient and significant other are portrayed in the Appendix Table K. All SIP scores were compiled by a Fortran computer scoring program prepared for the SIP by Ledingham, Department of Health Services, University of Washington (date not given). The scores were

analyzed from two points of view: (a) a visual examination to detect differences and similarities between patients and significant others and between the three groups and (b) comparison of these variables through parametric statistics.

In addition to the low scores from 10 out of 60 (10/60) respondents, the standard deviations for several of the categories were high. This finding indicates wide variability in the respondents' answers and raises questions as to the homogeneity of the groups. Major differences between the patient and significant other, while not reflected in the means, did occur. Such differences were particularly evident in categories such as Sleep & Rest and Emotional Behaviour. The significant other was either not aware of the patient's problems in these areas or overestimated them. More consistency was found between the patient and significant other in the categories of Body Care & Movement and Work; both represent clearly visible situations. —The Home Management category was the highest scoring category for the most subjects (10/30 patients and 9/30 significant others). This finding is reflected consistently in the individual scores. The general impression on visual inspection of individual scores is, as was suggested by Bergner (personal communication, October 10, 1985, — see Appendix E), that the reports of significant others only partially verify the patients' self assessments.

The frequency with which individual SIP statements were

answered, however, does show some pattern of similarity. The item-by-item response data, from which the following comments are drawn, is available, on request, from the investigator. SIP statements, selected by at least 8/30 patients or significant others, are documented in Table 6. In the Communication and Alertness Behaviour categories, SIP statements were chosen by less than 5/30 respondents; these categories therefore, are not included in Table 6. Apart from the statement in the Work category, "I am not working at all", chosen by at least five patients and five significant others in all groups, the most frequent choices suggested a health dysfunction expected at the respective stages of cardiac illness. For example, the statement chosen by 8 PRE patients was, "I walk more slowly"; by 8 PD1 patients and 7 PD1 significant others was, "I am not doing any of the maintenance or repair work that I would usually do in my home or yard"; and by 9 PD4 patients and 8 PD4 significant others was, "I am not doing any heavy work around the house".

Patients' and Significant Others' Mean SIP Scores

Table 7 displays the mean percentage score and standard deviation obtained by patients and significant others in the 12 categories of the Sickness Impact Profile. Data for this table were drawn from Appendix, Table K. Generally, the mean scores of the patients and significant others are similar. The scores, with the exception of the Work category, are low. The high Work score

Table 6

Most Frequently Checked Sickness Impact Profile Items

SIP Category	Number of Subjects Selecting						Most Frequently Selected Item
	PRE		PD1		PD4		
	PT	SO	PT	SO	PT	SO	
	(n=10 in each PT and SO group)						
Sleep & Rest	3	4	4	5	3	4	I sit during much of the day
	3	1	4	3	3	5	I lie down more often during the day in order to rest
	4	2	4	4	6	6	I sleep less at night, for example wake up too early, don't fall asleep for a long time, awaken frequently
	2	2	4	1	4	4	I sleep or nap more during the day
Emotional Behaviour	1	0	3	4	4	3	I keep rubbing or holding areas of my body that hurt or are uncomfortable
Body Care & Movement	2	1	2	2	4	2	I change position frequently
Home Management	5	4	0	0	3	1	I do work around the house only for short periods of time or rest often
	6	5	5	3	7	6	I am doing less of the regular daily work around the house than I would usually do
	0	0	8	7	7	5	I am not doing any of the maintenance or repair work that I would usually do in my home or yard
	2	1	7	7	1	1	I am not doing any of the shopping that I would usually do
	4	5	7	8	9	8	I am not doing heavy work around the house
Mobility	2	4	6	6	4	4	I stay home most of the time
	3	4	1	4	4	5	I stay from home only for brief periods of time
Social Interaction	3	5	3	3	6	5	I am going out less to visit people
	1	0	5	5	2	2	I am not going out to visit people at all
	2	3	1	1	5	6	I am doing fewer social activities with groups of people
	5	3	6	3	3	3	My sexual activity is decreased
Ambulation	3	1	3	3	5	4	I do not walk up or down hills
	8	2	6	6	5	2	I walk more slowly
Work	7	7	7	7	5	5	I am not working at all
Recreation & Pastimes	3	4	1	2	3	3	I do my hobbies and recreation for shorter periods of time
	1	1	3	4	6	7	I am going out for entertainment less often
	0	2	4	3	4	4	I am cutting down on some of my usual inactive recreation and pastimes, for example, watching TV, playing cards, reading
	2	1	2	3	5	4	I am doing more inactive pastimes in place of my other usual activities
	3	2	2	2	6	5	I am cutting down on some of my usual physical recreation or activities
Eating	1	4	3	3	3	2	I am eating much less than usual
	4	3	3	5	4	3	I am eating special or different food, for example, soft food, bland diet, low-salt, low-fat, low-sugar

Note. PRE = Presurgery. PD1 = Postdischarge one week. PD4 = Postdischarge four weeks.
PT = Patient. SO = Significant Other.

Table 7

Mean Percentage Score* and Standard Deviation of the Sickness Impact Profile

SIP Category		Presurgery Group (n=10 pair)		Postdischarge 1 Week Group (n=10 pair)		Postdischarge 4 Weeks Group (n=10 pair)	
		Mean %	SD	Mean %	SD	Mean %	SD
Sleep & Rest	PT	15.4	18.2	21.6	13.4	18.6	9.0
	SO	13.3	13.9	16.1	11.6	28.5	18.7
Emotional Behaviour	PT	3.9	5.5	7.7	12.3	6.6	5.9
	SO	5.9	11.7	8.1	11.7	5.6	4.7
Body Care & Movement	PT	1.0	1.8	5.2	8.2	1.3	1.7
	SO	1.8	2.9	6.1	9.4	2.6	2.3
Home Management	PT	13.9	10.4	33.9	20.6	26.7	9.1
	SO	12.0	11.1	30.9	20.2	19.3	13.3
Mobility	PT	7.7	11.3	14.5	11.3	10.2	10.1
	SO	12.1	14.9	16.5	12.4	8.0	8.7
Social Interaction	PT	7.5	7.4	11.0	8.7	11.9	12.1
	SO	5.6	4.6	10.5	8.9	10.3	8.2
Ambulation	PT	10.0	8.4	10.0	7.3	7.3	5.2
	SO	3.3	4.5	7.6	8.1	6.3	5.1
Alertness Behaviour	PT	4.3	7.7	5.9	10.8	6.0	8.2
	SO	2.8	5.9	2.5	5.0	5.5	7.3
Communication	PT	1.1	3.4	0.0	0.0	4.3	9.7
	SO	1.0	2.9	1.1	3.4	4.4	10.0
Work	PT	57.3	19.5	49.0	32.1	38.7	31.9
	SO	53.5	25.9	49.0	32.1	38.0	33.1
Recreation & Pastimes	PT	9.9	10.1	19.0	15.8	31.6	15.0
	SO	10.6	10.3	20.6	17.9	27.6	16.7
Eating	PT	3.0	3.0	5.3	6.4	4.0	4.4
	SO	3.9	4.4	6.0	6.2	3.7	4.5
Overall SIP Score							
	PT	8.6	4.8	12.5	6.4	10.9	5.0
	SO	7.9	4.8	12.0	6.6	10.3	5.0

Note. PT = Patient. SO = Significant Other
 *Lower scores indicate less problems.

is due to the rated value of the SIP statement, "I am not working at all", which all non-working patients and significant others checked if the patients' non-work status was due to cardiac problems. Because such high Environmental (Work) scores would cause misleading results, they were not included in the statistical analysis (ANOVA). Differences between the PRE, PD1, and PD4 groups are reflected, particularly in the total mean scores. The PD1 group has the highest scores (the most problems); the PRE group has the lowest scores (the least problems). This finding is consistent with clinical experience.

Parametric statistical analyses (ANOVA) of SIP scores were performed by a statistical calculation program developed by Anscombe (1981). One-way ANOVA was used to detect differences among the three groups (PRE, PD1, and PD4). The resulting F ratios are presented in Table 8. Patients and significant others responded similarly to the SIP. Only a few differences were significant at the 0.05 level. Tukey's technique for pairwise comparisons was used to locate the following sources of significant difference between the three groups: (a) in the Home Management category, the PRE patients were significantly different from the PD1 patients ($q(3,27)=4.18$; $p<0.05$), with a similar significant difference for the significant others ($q(3,27)=3.69$; $p<0.05$), and (b) in the Recreation and Pastimes category, the PRE patients were significantly different from the PD4 ($q(3,27)=4.71$; $p<0.05$).

Table 8

One-Way ANOVA to Study the Effects of Time Periods on the
Sickness Impact Profile (SIP) Scores

SIP Category	Patients ($n = 30$) F(2,27)	Significant Others ($n = 30$) F(2,27)
Sleep & Rest	0.446	2.615
Emotional Behaviour	0.483	0.175
Body Care & Movement	1.950	1.469
Home Management	4.488*	3.454*
Mobility	0.888	1.092
Social Interaction	0.527	1.235
Ambulation	0.438	1.196
Alertness Behaviour	0.106	0.676
Communication	1.263	0.840
Work	0.969	0.615
Recreation & Pastimes	5.599*	2.797
Eating	0.515	0.546
Overall	1.158	1.271

Dimension		
Physical	1.435	2.002
Psychosocial	0.591	0.894
Individual-physical	2.386	2.082
Individual-psychological	0.325	0.096
Social	0.687	1.517

Note. * $p < .05$ where $F(2,27; 0.05) = 3.36$.
 $n = 10$ pairs in each time period (Presurgery, Postdischarge 1 week,
 Postdischarge 4 weeks)

A two-way ANOVA was used to determine differences between groups (PRE, PD1, and PD4) and between patients and significant others; the F Ratios are displayed in Table 9. Again, only a few significant differences in the main effects ($p \leq 0.05$) were found, and none were found in the interaction between subjects and the three time periods. Tukey's technique for pairwise comparisons was used to determine the sources of significant differences (see Table 10). Similar to the one-way ANOVA results, the following sources of significant difference were found: (a) in the Home Management category, the PRE patients and significant others were significantly different from the PD1 patients and significant others, and (b) in the Recreation and Pastimes category, the PRE patients and significant others were significantly different from the PD4 patients and significant others. For the Body Care & Movement category and the Physical dimension (includes Ambulation, Mobility and BCM categories) there was a global significant difference not localized by the Tukey technique. In the Body Care & Movement category there were differences approaching significance between the PRE and the PD1 groups, and in the Physical dimension there were differences approaching significance between the PRE and PD1 groups and between the PD1 and PD4 groups. In the Individual-physical dimension, the PRE group was significantly different from the PD4 group.

Table 9

Two-Way ANOVA to Study the Effects of Patients and Significant Others at Three Time Periods on the Sickness Impact Profile (SIP) Scores (n = 60)

SIP Category	Patients and Significant Others Effect F(1,54)	PRE, PD1, PD4 Time Effect F(2,54)	Interaction F(2,54)
Sleep & Rest	0.040	1.804	1.404
Emotional Behaviour	0.036	0.493	0.117
Body Care & Movement	0.465	3.345*	0.009
Home Management	1.029	7.702*	0.171
Mobility	0.205	1.632	0.371
Social Interaction	0.332	1.552	0.035
Ambulation	3.510	0.614	0.905
Alertness Behaviour	0.769	0.398	0.175
Communication	0.045	2.021	0.057
Work	0.037	1.537	0.022
Recreation & Pastimes	0.020	7.917*	0.189
Eating	0.983	0.115	0.079
Overall	0.145	2.428	0.002

Dimension			
Physical	0.001	3.398*	0.017
Psychosocial	0.230	1.409	0.003
Individual-physical	0.043	4.447*	0.000
Individual-psychological	0.149	0.380	0.072
Social	0.194	1.918	0.061

Note *p < .05 where F (1,54 ; 0.05) = 4.03 and F (2,54 ; 0.05) = 3.18.

Table 10

Tukey Technique for Pairwise Comparisons of Three Time Periods on the
Sickness Impact Profile (SIP) for Patients and Significant Others

Category	PRE	Means ^a PD1	PD4	$\sqrt{\text{MSE}/20}$ ^b	Tukey q statistic		
					PD1-PRE	PD4-PRE	PD4-PD1
Body Care and Movement	14.1	55.7	19.4	12.54	3.317	0.423	2.895
Home Management	129.9	324.2	230.2	35.00	5.551*	2.866	2.686
Recreation and Pastimes	102.4	197.9	296.4	34.48	2.770	5.626*	2.857
Dimensions							
Physical	43.7	83.6	45.2	12.28	3.253	0.122	3.131
Individual-Physical	65.1	125.1	99.9	14.29	4.199*	2.435	1.763

Note. * $q(3,54 ; 0.05) = 3.41$

^a All data used in the calculations were percentage scores x 10.

^b MSE = Mean Square Error.

PRE = Presurgery, PD1 = Postdischarge 1 week,

PD4 = Postdischarge 4 weeks.

The educational needs observed with the SIP instrument indicated significant differences between the PRE group and the PD1 and PD4 groups. No significant difference was detected between the PD1 and PD4 groups. Again, clinical evidence would substantiate this finding.

Patients' and Significant Others' SIP Dimension Scores

During development of the SIP, two dimensions, Physical and Psychosocial, were established and validated by factor and cluster analysis. The Physical dimension included Body Care & Movement, Mobility, and Ambulation categories. The Psychosocial dimension included Emotional Behaviour, Social Interaction, Alertness Behaviour, and Communication categories.

The dimensions established for the analysis of the SIP results from this study closely reflect the main organizational scheme - individual, social, environmental, and medical regimen (Bartlett, 1982) used in this study. The Individual-physical dimension was expanded beyond an activity focus and included the categories of Sleep & Rest, Home Management, Recreation & Pastimes, and Eating as well as the three categories in the original Physical dimension. The Individual-psychological and Social dimensions arose from dividing the SIP Psychosocial dimension so that Emotional Behaviour and Alertness Behaviour were included in the former and Social Interaction and Communication in the latter. The Environmental dimension was represented by a single category, Work.

Table 11 illustrates the mean percentage score and standard deviation of the dimensions. Excluding the Work scores, the PD1 patients had the highest Individual-physical dimension score (the most problems), a finding expected in patients only two weeks after cardiac surgery. The Social scores increased directly with the progression from PRE to PD1 to PD4 patients. The highest Social dimension score of the PD4 patients reflected emphasis on social concerns as the patients began to feel better physically. The PRE patients had the lowest scores in all dimensions. The significant others scores generally were lower than those of the patients but exhibited the trends noted above.

The one-way ANOVA on the dimension scores (see Table 8) showed no significance, that is, there were no differences between the three groups (PRE, PD1, and PD4) on any dimension. The two-way ANOVA (see Tables 9 and 10) did show a significant difference between groups in both the Physical and Individual-physical dimensions.

SIP Scores and Patients' Characteristics

Each patient's and significant other's Sickness Impact Profile overall percentage score, their highest scoring SIP category, and selected patient characteristics are displayed in Table 12. The patients' SIP scores are ranked from the highest to the lowest. With few exceptions, the significant others' scores were similar to the patients' scores. The three most frequent high scoring SIP

Table 11

Mean Percentage Score* and Standard Deviation of SIP Dimensions

Dimension (SIP categories)		Presurgery Group (n=10 pairs)		Postdischarge 1 Week Group (n=10 pairs)		Postdischarge 4 Weeks Group (n=10 pairs)	
		Mean %	SD	Mean %	SD	Mean %	SD
Individual-physical							
(Sleep & Rest, Body Care & Movement, Home Management, Mobility, Ambulation, Recreation & Pastimes, Eating)	PT	6.7	5.2	12.7	7.5	10.1	4.3
	SO	6.3	4.8	12.3	8.6	9.8	4.6
Individual-psychological							
(Emotional Behaviour, Alertness Behaviour)	PT	4.1	5.8	6.8	9.8	6.3	6.2
	SO	4.3	7.7	5.2	6.1	5.6	5.6
Social							
(Social Interaction, Communication)	PT	5.4	5.7	7.3	5.8	9.4	9.6
	SO	4.0	3.4	7.4	5.9	8.3	6.6
Environmental							
(Work)	PT	57.3	19.5	49.0	32.1	38.7	31.9
	SO	53.5	25.9	49.0	32.1	38.0	33.1

Physical							
(Body Care & Movement, Mobility, Ambulation)	PT	4.5	4.9	8.2	7.1	4.5	3.1
	SO	4.2	4.2	8.5	7.4	4.5	2.4
Psychosocial							
(Emotional Behaviour, Alertness Behaviour, Social Interaction, Communication)	PT	4.9	5.5	7.1	6.9	8.1	7.1
	SO	4.1	4.9	6.5	5.1	7.2	5.3

Note. PT = Patient. SO = Significant Other.
*Lower scores indicate less problems.

Table 12

Sickness Impact Profile (SIP) Scores and Patient Characteristics

Presurgery Group (n=10 pairs)											
Pair No.	PI	Overall SIP Score	Highest Scoring SIP	Category	Age	Sex	Education Years	Work Status	Surgery Schedule Status	Heart Attack History	Physical Symptoms/Complications/Other illnesses
7	17.4	10.2	M	M	41	F	8	R	EL	Yes	Angina
4	17.2	19.2	HM	RP	40	F	9	U/H	EL	Yes	Angina
8	11.3	7.7	SR	RP	42	M	13	U/H	EL/RE	Yes	Angina
10	17.4	0.9	HM	SR	42	M	17	WF	EL/RE	Yes	Angina
2	6.4	4.1	HM	SI	59	M	8	SL/UP	EL	No	Angina
3	4.3	3.5	SR	RP	47	M	17	WF	EL	No	Angina
4	5.8	4.6	HM	HA	51	M	13	SL	EL	No	Angina
9	5.8	4.0	SI	RP	57	M	14	SL	EL	Yes	Angina
1	4.4	12.3	EB	SR	46	M	12	SL	EL	Yes	Angina
5	3.9	6.9	A	HM	52	F	10	SL	EL	Yes	Angina/Diabetes

Postdischarge One Week Group (n = 10 pairs)											
6	22.5	13.2	HM	M	53	M	15	SL	EL	No	None
10	20.8	24.3	RP	HM	53	M	14	R	EL/RE	Yes	Infection
1	19.7	15.9	HM	HM	58	F	6	U/H	EL	Yes	Postoperative pain
2	13.4	13.2	HM	RP	53	M	16	SL	EL	Yes	Postoperative pain
8	12.8	13.3	M	HM	55	M	17	SL	U/RE	No	None
3	12.2	12.2	SR	M	56	M	18	SL	EL	Yes	Edema/Diabetes
9	9.4	8.7	RP	SR	64	M	15	SL	EL/RE	No	None
4	8.7	7.1	HM	HM	45	M	13	R	U/RE	No	Infection
7	3.4	4.0	--	HM	40	M	10	U	ENERG	Yes	None
5	2.6	2.6	HM	HM	48	M	9	U	ENERG	Yes	None

Postdischarge Four Weeks Group (n = 10 pairs)											
2	18.0	9.7	RP	RP	54	M	17	MP	UR	No	Postoperative pain
3	14.4	14.8	C	SR	34	M	16	SL	ENERG	Yes	Angina
7	14.0	17.1	RP	SR	50	M	23	SL	ENERG	Yes	Postoperative pain
9	12.7	13.4	RP	C	51	F	12	U/H	UR	No	Angina
8	12.9	13.4	RP	RP	51	M	14	SL	UR	No	None
4	8.8	10.3	RP	SR	50	M	15	SL	ENERG	Yes	Diabetes
6	7.7	9.8	SR	SR	57	M	12	SL	ENERG	Yes	Infection
5	7.3	7.6	HM	HM	70	M	7	R	EL	Yes	Diabetes
10	4.1	5.2	SR	RP	64	M	9	R	EL	Yes	Short of breath
1	1.8	0.0	HM	--	58	M	17	MP	UR	No	None

Note.

Short category excluded. Highest score = most problems.

PI = Patient. SR = Significant other.

Sex - M = Male. F = Female.

Work status - R = Retired. SL = Sick leave. U = Unemployed. MP = Working fulltime. WF = Working parttime.

H = Homemaker.

Surgery schedule - EL = Elective. RE = Rescheduled from original date. UR = Urgent. ENERG = Emergency.

SIP categories - A = Abolition. C = Communication. EB = Emotional Behaviour. HM = Home Management.

M = Mobility. RP = Recreation & Pastimes. SR = Sleep & Rest.

categories for both patients and significant others were Sleep & Rest, Home Management, and Recreation & Pastimes. This finding highlights these categories as problem areas for patients with coronary artery disease (the PRE group) and post CABG surgery (the PD1 and PD4 groups). On visual inspection of Table 12, the patient characteristics of age, sex, education, work status, and heart attack history seem to have little relation to the SIP scores. Two characteristics which may relate to SIP scores are "Surgery Schedule Status" and "Physical Symptoms/Complications".

The PRE group data indicated that all 10 patients were scheduled for elective cardiac surgery. Because urgent and emergency patients were excluded from the PRE group, this finding is expected. All PRE patients reported that they had angina, although only one reported that it occurred during the interview. All were on drugs to control angina. The symptom of angina is not unusual for a PRE patient, and is a common indicator for CABG surgery. The PRE group, at the time of the interview, was different from the PD1 and PD4 groups with respect to the surgery schedule and physical symptoms.

The PD1 group had 6 elective patients, and 4 of these 6 had their original surgery dates rescheduled. Urgent or emergency surgery was necessary for 4 PD1 patients. Postsurgery problems were reported by 5 PD1 patients. The PD4 group were the most ill at the time of the operation. Only 2 PD4 patients had had elective

surgery; 8 required urgent or emergency surgery. Post surgery physical symptoms or complications were reported by 6 PD4 patients. Diabetes was not considered a symptom or complication because none of the 4 patients (1 PRE, 1 PD1, and 2 PD4), had any difficulty with diabetic regulation. Although the SIP scores were slightly lower for the PD4 than the PD1 patients, the PD4 scores might have been much lower if the group had had less problems.

The Interview Protocols

Analysis of the interview protocols involved three major steps: (a) concordance between the interview protocols and their summaries, (b) coding of the interview-summaries, and (c) protocol analysis of the interviews. Two formats were used to present the findings: (a) the sequence specified for the 19 categories in the interview schedule (see Appendix F) is used in the presentation of some findings, (b) the sequence of the 15 educational objectives from the GRID (see Appendix C) is used to present other findings.

Reliability of the Interview-Summaries

Six full-length interviews were summarized into 101 scenarios by the investigator. The purpose of the summary scenarios was to abstract the major ideas from the subjects' conversations and to shorten the coders' reading time (each interview averaged 13,000 words). Each of the six interview-summaries were submitted to two judges (both adult educators), a nurse and a nonnurse. The judges rated the concordance between the full-length interviews and the

summary scenarios on a 7-point rating scale which ranged from +1=No agreement to +7=Excellent agreement. The judges' ratings for the 101 scenarios ranged from 4 (Moderate agreement) to 7. The mean ratings were in a satisfactory range from 5.75 to 7 (Good to Excellent agreement). The ratings were examined to determine the differences between judges on each of the 101 scenarios. The results were as follows: 36/101 (36%) ratings did not differ; 50/101 (50%) ratings differed by one point on the scale; 12/101 (12%) differed by two scale points; and 3/101 (3%) differed by three scale points. Thus 86/101 (86%) scenarios received either the same or one scale point difference rating from the two judges. Major criticisms from the judges were that some interview content had been missed and the summaries tended to reflect content which the investigator considered relevant to the purpose of the study. Taking the judges' remarks into account, a revised approach to protocol summarization was employed. The judges' suggestions were incorporated in revisions of the 6 rated summaries and were applied in the summarization of the remaining 24 interviews.

Coding of the Interview-Summaries

All 30 interview-summaries were coded by three persons, the investigator, a cardiac surgery nurse, and a nonnurse. Excerpts from the interviews exemplify the format used by the coders (See Appendix I). The three codings for each scenario in each of the 19 categories of each interview were recorded to determine the

frequencies of the use of GRID and OTHER codes. GRID codes assigned by the coders were tabulated and the frequencies of the codes and percentage agreements between coders were determined. The same procedure was followed with the coding of OTHER data. The resulting 38 tables, one for assigned GRID codes and one for OTHER codes and data from each of the 19 interview categories, were basic to all further analysis. Because the tables were lengthy (totalling approximately 100 pages), only three were included in this report. Appendix Tables L-1 and L-2 on Sleep & Rest, Tables L-35 and L-36 on the Deficient Program, and Tables L-37 and L-38 on the Ideal Program were selected as representative examples and are located in Appendix L. In each case the odd-numbered tables included GRID data and the even-numbered tables comprised the OTHER data. Copies of the full set of 38 tables are available from the investigator, Department of Nursing Research, Ottawa Civic Hospital, and from the thesis adviser, Faculty of Education, University of Ottawa. The number of subject pairs who expressed educational needs and the intercoder agreements were extracted from the 38 tables.

The number of subject pairs who identified needs, problems, and/or solutions. (hereafter referred to as needs) in each interview category is presented in Table 13. All 30 pairs identified needs in the Home Management, Worries and Concerns, Following Rules, Adjust Lifestyle, and Ideal Program categories of the interview.

Table 13

Number of Subject Pairs Who Expressed Needs, Problems,
and/or Solutions in Each Interview Category

Interview Category	Presurgery Group (n=10 pair)	Postdischarge 1 Week Group (n=10 pair)	Postdischarge 4 Weeks Group (n=10 pair)
Sleep & Rest	8	9	9
Emotional Behaviour	5	3	3
Body Care & Movement	3	7	6
Home Management	10	10	10
Mobility	4	7	6
Social Interaction	8	7	7
Ambulation	9	8	9
Alertness Behaviour	4	3	5
Communication	1	0	3
Work	6	0	2
Recreation & Pastimes	7	8	9
Eating	8	7	6
Worries & Concerns	10	10	10
Following Rules	10	10	10
Adjust Lifestyle	10	10	10
Availability of Care	4	9	8
Major Problem	9	9	8
Deficient Program	5	10	7
Ideal Program	10	10	10

The Home Management category received the highest score of the 12 SIP categories (see Table 11) for the largest number of patients (10/30) and significant others (9/30). Home management activities, such as work around the house, shopping, and clothes washing, are hindered by any serious illness. Coronary artery disease and CABG surgery, where low (less than 10 pounds) lifting limits usually apply, is no exception. The large number of subjects who expressed needs in the Worries and Concerns, Following Rules, and Adjust Lifestyle categories is to be expected from persons who await (PRE group) or are recovering from life-threatening surgery (PD1 and PD4 groups). Whereas only 22 pairs identified deficiencies in the patient education program (Deficient Program), all 30 pairs offered suggestions in response to the question on the Ideal Program. This latter finding supports both the use of the brain-storming approach as a "warm-up" device and the positive approach in the final question (on the Ideal Program) of the interview.

Interview categories with the fewest identified needs were Communication and Work. The low number of Communication needs (1 PRE and 3 PD4) may be explained by the fact that oral and written communication is not usually adversely affected by cardiac problems. The low number (4 PRE and 2 PD4) of Work-related needs were expected because only a few patients (4 PRE and 2 PD4 patients) were in paid employment at the time of the interviews.

The intercoder percentage agreement for each of the 19

interview categories for the PRE, PD1, and PD4 groups is displayed in Table 14. Percentage agreements between 2/3 and 3/3 coders ranged from 37.5% to 100.0% for assigned GRID codes and from 37.5% to 91.7% for OTHER coding. The mean percentage and standard deviation of agreement between 2/3 and 3/3 coders for GRID coding was 63.2% and ± 17.4 , 66.0% and ± 13.2 , and 63.5% and ± 11.4 for the PRE, PD1, and PD4 groups, respectively. For OTHER coding, the mean percentage agreement and standard deviation was 69.0% and ± 15.6 , 68.4% and ± 12.9 , and 63.0% and ± 10.8 for the PRE, PD1, and PD4 groups respectively. Slightly better percentage agreement and less variability were reached with OTHER coding than with GRID coding of educational needs. The least variability for both GRID and OTHER coding was found in the PD4 interviews. Although some of the category agreements between 2 or 3 coders are low (50% or less), they are acceptable because of the open-ended nature of the coding and because of the complexity of the GRID. Each coder was free to decide if a summary scenario represented an educational need, problem, or solution and, therefore, warranted assignment of a GRID or OTHER code.

The open-ended coding resulted in many scenarios being coded by only one coder. Although the coders had been instructed to code only that which they felt was an educational need, problem, or solution (see Appendix J), this goal was difficult to achieve. This problem was particularly evident in the Deficient & Ideal

Table 14

Intercoder Percentage Agreement for Each Interview Category

Interview Category	Number of Coders out of 3	Presurgery Group (n=10 pair)		Postdischarge 1 Week Group (n=10 pair)		Postdischarge 4 Weeks Group (n=10 pair)	
		GRID	Other	GRID	Other	GRID	Other
Sleep & Rest	1	46.2	27.6	38.1	24.3	34.1	26.7
	2	28.2	44.8	22.4	37.8	28.2	38.3
	3	25.6	27.6	39.5	37.8	37.6	35.0
Emotional Behaviour	1	22.2	10.5	29.4	22.2	50.0	29.0
	2	29.6	52.6	52.9	16.7	21.4	29.0
	3	48.2	36.8	17.7	61.1	28.6	41.9
Body Care & Movement	1	62.5	62.5	42.4	24.2	30.8	50.0
	2	25.0	37.5	21.2	15.2	30.8	25.0
	3	12.5	--	36.4	60.6	38.4	25.0
Home Management	1	42.6	45.9	34.0	37.1	45.0	32.5
	2	24.1	24.3	32.0	31.4	17.5	51.2
	3	33.3	29.7	34.0	31.4	37.5	16.3
Mobility	1	44.4	30.0	36.7	53.6	27.6	47.1
	2	22.2	20.0	33.3	17.9	34.5	23.5
	3	33.3	50.0	30.0	32.1	37.9	29.4
Social Interaction	1	23.5	37.5	7.7	35.7	18.9	47.2
	2	35.3	18.8	15.4	31.0	37.8	27.8
	3	41.2	43.7	76.9	33.3	43.3	25.0
Ambulation	1	16.1	26.7	29.3	50.0	36.6	50.0
	2	38.7	43.3	31.7	32.1	29.3	32.1
	3	45.2	30.0	39.0	17.9	34.1	17.9
Alertness Behaviour	1	--	8.3	25.0	22.2	47.4	39.1
	2	--	16.7	--	33.3	15.8	21.8
	3	--	75.0	75.0	44.4	36.8	39.1
Communication*	1	--	50.0	--	--	50.0	11.1
	2	--	--	--	--	--	55.6
	3	--	50.0	--	--	50.0	33.3
Work	1	11.1	19.2	--	11.1	13.3	37.5
	2	11.1	30.8	16.7	33.3	13.3	--
	3	77.8	50.0	83.3	55.6	73.3	62.5

(table continues)

Table 14 (continued)

Interview Category	Number of Coders out of 3	Presurgery Group (n=10 pair)		Postdischarge 1 Week Group (n=10 pair)		Postdischarge 4 Weeks Group (n=10 pair)	
		GRID	Other	GRID	Other	GRID	Other
Recreation & Pastimes	1	17.7	24.0	36.4	22.2	50.9	31.1
	2	23.5	12.0	31.8	61.1	22.8	41.0
	3	58.8	64.0	31.8	16.7	26.3	27.9
Eating	1	42.9	29.4	35.5	33.3	45.7	45.4
	2	26.5	58.8	25.8	23.8	31.4	27.3
	3	30.6	11.8	38.7	42.9	22.9	27.3
Worries & Concerns	1	22.2	33.3	42.9	15.4	46.1	32.4
	2	48.2	25.5	23.8	26.9	23.1	27.0
	3	29.6	41.2	33.3	51.7	30.8	40.6
Following Rules	1	40.7	48.7	38.6	48.6	41.3	54.9
	2	32.2	21.6	35.1	31.4	34.8	27.5
	3	27.1	29.7	26.3	20.0	23.9	17.6
Adjust Lifestyle	1	41.4	17.9	50.9	52.4	30.4	43.3
	2	37.9	46.4	20.0	23.8	34.8	23.3
	3	20.7	35.7	29.1	23.8	34.8	33.3
Availability of Care	1	56.6	18.1	42.3	26.0	27.6	25.7
	2	21.7	45.5	15.4	46.0	41.4	48.6
	3	21.7	36.4	42.3	28.0	31.0	25.7
Major Problem	1	42.9	8.3	32.0	21.0	20.0	34.6
	2	42.9	41.7	40.0	31.6	45.0	26.9
	3	14.2	50.0	28.0	47.4	35.0	38.5
Deficient Program	1	23.8	50.0	54.7	36.2	41.7	36.5
	2	47.6	20.8	23.4	37.9	33.3	39.2
	3	28.6	29.2	21.9	25.9	25.0	24.3
Ideal Program	1	39.1	40.9	35.3	34.0	36.5	28.8
	2	38.4	25.0	30.8	28.6	37.6	35.6
	3	22.5	34.1	33.8	37.4	25.8	35.6

Note. *Each of 1, 2, or 3 coders represents the number of coders (out of 3) who chose a particular GRID code for the same patient.
 GRID = fit GRID codes. Other = did not fit GRID codes.
 *Percentages based on < 10 scenarios.

Program categories (see Appendix, Tables L 35-38). Subjects frequently discussed deficiencies in their patient education program and, in the next sentence, made proposals for the Ideal Program. The content of the Deficient and Ideal categories was difficult to separate. Many scenarios were coded by only one coder.

Contrary to the intention of the investigator, the four-level GRID proved complex to use. The purpose of four levels was to allow very specific coding and to eliminate "judgement calls". The GRID was developed from a vast amount of literature content on education programs for cardiac surgery patients. The Cardiac Surgery Discharge Booklet (1983 and 1985), of which all PD1 and PD4 patients had a copy, was included in the GRID content. Actual predischARGE program content, which was offered in the predischARGE class (based on the discharge booklet) was, therefore, reflected in the GRID. The GRID did not reflect, however, the content of the full patient education program, as experienced by patients at all stages of cardiac illness (see description of complete program in Chapter 3). Many patients and significant others discussed their entire experience of cardiac problems and the teaching they received during these experiences. Both the investigator and the nurse coder were familiar with the full patient education program offered to and the types of experiences described by the subjects. The nonnurse coder was not familiar with the program nor with the types of problems experienced at the various stages of cardiac

illness.

Although most duplication in GRID content was eliminated prior to its use by outside coders, the four levels of the GRID made constant referral necessary. Consistency in coding the same topic with the same code for 30 interviews (each with 19 categories) was difficult to maintain. The likelihood of errors in interpretation may have been increased rather than decreased by a GRID with four levels. A two-level GRID (as in Table 4) would have been less complex to use with the large amount of interview data available. In the analysis of the OTHER data (see Appendix, Tables L-2, L-36, and L-38), only the first two levels of the GRID codes were used.

Protocol Analysis to Verify the Exploratory Hypotheses

Hypothesis 1. Substantiation of the first exploratory hypothesis was sought by comparison of the profiles of educational needs of the PRE, PD1, and PD4 groups. The hypothesis was stated:

Profiles of educational needs of presurgery (PRE), postdischarge one week (PD1), and postdischarge four weeks (PD4) CABG surgery patients are distinct.

Summary analysis to verify Hypothesis 1 was conducted on the data from the odd-numbered tables in the set of 38, for example, Tables L-1, L-35, and L-37. The 15 educational objectives (the first level of the GRID), their second levels, and the frequency of their codes from the coded interview summaries were tabulated in

summary tables, one for each objective. Frequencies were recorded for each of the 19 interview categories and for each group of patients. The discussion is presented under the paragraph heading, "Profiles of educational needs", and reflects the scenarios which were coded with GRID codes.

Hypothesis 2. Substantiation of the second exploratory hypothesis was sought by examination of the OTHER data for selection and addition to the GRID. The hypothesis was stated:

Educational needs of CABG surgery patients and their significant others are not congruent with health care professionals' expectations of patient education programs.

Summary data analysis to verify Hypothesis 2 was conducted on the data from the even-numbered tables, for example, Tables L-2, L-36, and L-38. This analysis included extraction from the OTHER data of relevant concepts and facts to add to the GRID. The frequencies of the OTHER data are included in each summary table for each of the 19 interview categories and the three groups of patients. Actual OTHER data were inserted into the GRID (see the underlined portion of the GRID, Appendix C). Highlights are presented under the paragraph heading, "Congruence of needs with expectations", and reflect the subjects' educational needs which did not fit the GRID.

Objective 1 - Cardiac Anatomy and Physiology

The educational needs of the patient and family with regard to normal cardiac anatomy and physiology represented the content of Objective 1. The frequency of educational needs expressed by patients and significant others relative to Objective 1 is summarized in Table 15.

Profile of educational needs. Very few educational needs were expressed relative to normal cardiac anatomy and physiology as stated in the Objective 1 of the GRID. None were found in the first 13 interview categories. Only 10 were located in the remaining 6 categories. No trend was noted, either for any group (PRE, PD1, and PD4) or for any category. The maximum number of educational needs expressed in any one category was 3, by the PRE subjects, during the discussion of the category entitled Following Rules. The infrequent use of Objective 1 content may be explained by (a) the fact that every formal teaching session experienced by the subjects began with cardiac anatomy and physiology and subjects may not have felt the need to discuss such content or (b) the actual content, although possibly of interest, was too technical and not relevant to the subjects' immediate concerns. At only two interviews (1 PRE and 1 PD1) was Objective 1 content suggested for inclusion in the Ideal Program. A profile of educational needs, distinct for each group, was not identified for Objective 1.

Table 15

Frequency of Educational Needs Expressed by Patients
and Significant Others Relative to Objective 1

Objective 1. Identify educational needs in normal anatomy and physiology (structure and function).

Interview Category	A. Normal coronary arteries			OTHER		
	PRE	PD1	PD4	PRE	PD1	PD4
Sleep & Rest	-	-	-	-	-	-
Emotional Behaviour	-	-	-	-	-	-
Body Care & Movement	-	-	-	1	-	-
Home Management	-	-	-	-	-	-
Mobility	-	-	-	-	-	-
Social Interaction	-	-	-	-	-	-
Amputation	-	-	-	-	-	-
Alertness Behaviour	-	-	-	-	-	-
Communication	-	-	-	-	-	-
Work	-	-	-	-	-	-
Recreation & Pastimes	-	-	-	-	-	-
Eating	-	-	-	-	-	-
Worries & Concerns	-	-	-	-	-	-
Following Rules	3	-	-	-	-	-
Adjust. Lifestyle	-	-	2	-	-	-
Availability of Care	-	-	2	-	-	-
Major Problem	-	-	-	-	-	-
Deficient Program	-	-	1	-	-	-
Ideal Program	1	1	-	-	1	-
Total	4	1	5	1	1	-

Note. PRE = Presurgery, PD1 = Postdischarge 1 week,
 PD4 = Postdischarge 4 weeks.

Congruence of needs and expectations. Only 2 educational needs were identified as OTHER. One was under the Ideal Program category, and emerged from a discussion with a PD1 pair on the anatomy of and the effects of surgery on the sternum. The very few needs expressed suggest that the GRID of expectations was either (a) congruent with the educational needs or (b) cardiac anatomy and physiology educational needs were not relevant to the subjects' concerns.

Objective 2 - Atherosclerotic Process and Controllable Risk Factors

Educational needs of the patient and family with regard to the atherosclerotic (coronary artery) disease process and its risk factors comprised the content of Objective 2. The frequency of educational needs expressed by patients and significant others relative to Objective 2 is summarized in Table 16.

Profile of educational needs. Many educational needs from the GRID (Objective 2A and 2B) were expressed relative to the disease process and the risk factors. The majority arose from the interview categories, Following Rules and Adjust Lifestyle. A trend of different profiles for each group is noted. Over the two levels (2A and 2B), the PRE group expressed the most educational needs (90). The PD4 group expressed 80, followed by the PD1 group with 70. The PD1 group may have been more concerned about other topics more closely related to their recent surgical experience. The PD4 group may have a renewed interest in control of their

Table 16

Frequency of Educational Needs Expressed by Patients
and Significant Others Relative to Objective 2

Objective 2. Identify educational needs in the atherosclerotic disease process and controllable risk factors.

Interview Category	A. Athero- sclerotic process			B. Risk Factors for coronary artery disease			OTHER		
	PRE	PD1	PD4	PRE	PD1	PD4	PRE	PD1	PD4
Sleep & Rest	1	-	1	1	2	4	2	-	2
Emotional Behaviour	2	-	-	2	-	-	1	-	-
Body Care & Movement	-	-	-	-	-	-	2	-	-
Home Management	3	1	-	2	-	-	8	3	-
Mobility	5	-	-	-	-	-	-	-	-
Social Interaction	1	-	-	4	-	2	1	-	-
Ambulation	1	-	-	1	-	-	2	-	1
Alertness Behaviour	-	-	-	-	-	1	-	-	-
Communication	-	-	-	-	-	-	-	-	-
Work	1	-	1	4	-	-	5	-	1
Recreation & Pastimes	1	-	-	4	-	-	3	-	-
Eating	-	-	-	15	2	6	6	1	-
Worries & Concerns	-	2	-	2	3	3	2	2	2
Following Rules	2	-	-	16	16	9	19	19	33
Adjust Lifestyle	-	3	5	9	21	12	4	10	10
Availability of Care	2	3	8	1	1	3	2	3	1
Major Problem	-	3	-	1	1	1	2	-	-
Deficient Program	-	2	3	-	1	1	-	1	2
Ideal Program	9	-	10	5	9	10	4	1	2
Total	23	14	28	67	56	52	63	40	54

Note.

PRE = Presurgery, PD1 = Postdischarge 1 week,
 PD4 = Postdischarge 4 weeks.

disease as they approach return to normal life. Educational needs in the Risk Factors level (2B) were much more frequent than those in the Atherosclerotic Process level (2A), for all three groups.

Congruence of needs and expectations. Many needs were identified as OTHER and are summarized in Table 16. The pattern noted above was found, with the PRE group expressing the most (63) and the PD1 the least (40). A third level was added to the GRID from the OTHER data; 2C, "Follow the rules related to risk factors". The comparatively high frequency of OTHER data indicated the subjects had many concerns which were not answered. Congruence between expectations and needs was only partial for Objective 2 of the GRID.

Objective 3 - Coronary Artery Bypass Graft Surgical Procedure

Educational needs of the patient and family with regard to the coronary artery bypass graft surgical procedure comprised the content of Objective 3. The frequency of educational needs expressed by patients and significant others relative to Objective 3 is summarized in Table 17.

Profile of educational needs. Most of the educational needs expressed in relation to the CABG surgical procedure were noted during the discussion of the Ideal Program interview category. The frequencies were low for all three groups. The same number of needs (8) were expressed by both the PRE and PD4 groups; the PD1 group had slightly less (5). No distinct profile of educational

Table 17

Frequency of Educational Needs Expressed by Patients
and Significant Others Relative to Objective 3

Objective 3. Identify educational needs in the coronary artery
 bypass graft surgical procedure.

Interview Category	A. Effects of surgery			OTHER		
	PRE	PD1	PD4	PRE	PD1	PD4
Sleep & Rest	-	-	-	-	-	-
Emotional Behaviour	-	-	-	-	-	1
Body Care & Movement	-	-	-	-	-	-
Home Management	-	-	-	-	-	-
Mobility	-	-	-	-	-	-
Social Interaction	-	-	-	1	-	-
Ambulation	-	-	-	-	-	1
Alertness Behaviour	-	-	-	-	-	-
Communication	-	-	-	-	-	-
Work	-	-	-	-	-	-
Recreation & Pastimes	-	-	-	-	-	-
Eating	-	-	-	-	-	-
Worries & Concerns	3	-	1	9	3	2
Following Rules	1	-	1	-	-	1
Adjust Lifestyle	-	-	-	-	-	2
Availability of Care	-	6	-	-	-	-
Major Problem	1	1	-	1	-	-
Deficient Program	-	-	3	-	4	3
Ideal Program	8	5	8	9	5	4
Total	13	12	13	20	12	14

Note.

PRE = Presurgery, PD1 = Postdischarge 1 week,
 PD4 = Postdischarge 4 weeks.

needs emerged for Objective 3. The low frequency of expressed needs may be due to the fact that the patient education program included, in considerable detail, the content of the GRID for Objective 3 and the subjects felt no need to discuss it.

Congruence of needs with expectations. In the OTHER data, the highest frequency of needs (18) were identified in the Ideal Program category. Most of the remaining needs (14) were expressed during the discussion of the Worries & Concerns category. The PRE subjects expressed the most OTHER needs for Objective 3, a finding to be expected from persons awaiting CABG surgery. The GRID of expectations was only partially congruent with the educational needs of the subjects.

Objective 4 - Physical and Mental Preparation for Surgery

Educational needs of the patient and family with regard to the physical and mental preparation for surgery comprised the content of Objective 4. The frequency of educational needs expressed by patients and significant others relative to Objective 4 is summarized in Table 18.

Profile of educational needs. Comparatively few subjects expressed needs in Objective 4A, Diagnostic tests/baseline measurement, although all patients had, by the time of the interviews, experienced almost all the diagnostic tests listed in the GRID. Generally, the needs referred to in 4A were expressed as an "aside" during the interviews. The most comments were made

Table 18
Frequency of Educational Needs Expressed by Patients and Significant Others Relative to Objective 4
Objective 4. Identify educational needs in the physical and mental preparation to surgery

Interview Category	A. Diagnostic tests/baseline measurements			B. Physical preparation			C. Mental preparation			OTHER		
	PRE	PDI	PD4	PRE	PDI	PD4	PRE	PDI	PD4	PRE	PDI	PD4
Sleep & Rest	1	-	-	-	-	-	1	-	-	4	-	-
Emotional Behaviour	1	-	-	-	3	-	5	3	-	11	5	2
Body Care & Movement	-	-	1	-	-	-	-	-	2	-	-	1
Hose Management	-	-	-	-	-	-	-	-	-	10	-	-
Mobility	-	-	-	-	-	-	-	-	-	2	-	-
Social Interaction	-	-	-	-	-	-	2	-	-	18	1	-
Abulation	2	3	1	-	-	-	1	-	-	10	1	-
Alertness Behaviour	-	-	-	-	-	-	-	-	-	9	-	2
Communication	-	-	-	-	-	-	-	-	-	2	-	-
Work	-	-	1	-	-	-	2	-	-	6	-	1
Recreation & Pastimes	-	-	-	-	-	-	-	-	-	3	-	-
Eating	2	-	1	-	-	-	1	-	-	1	1	-
Worries & Concerns	1	-	2	-	-	-	11	3	12	29	9	14
Following Rules	-	1	-	-	-	-	2	1	-	9	2	2
Adjust Lifestyle	3	-	2	-	-	-	1	1	2	16	6	6
Availability of Care	2	9	6	-	1	-	9	8	8	20	23	17
Major Problem	-	-	1	-	-	-	2	-	-	6	2	6
Deficient Program	-	1	4	-	-	-	3	4	8	9	5	15
Ideal Program	3	3	-	5	-	-	15	5	11	24	11	8
Total	15	17	19	5	4	-	55	25	43	189	66	74

Note: PRE = Presurgery, PDI = Postdischarge 1 week, PD4 = Postdischarge 4 weeks.

about the cardiac catheterization experience. No distinct profile emerged from Objective 4A. The minimal number (9) of educational needs expressed in Objective 4B, Physical preparation, may be explained by the fact that all patients either (a) knew that some physical preparation was required or (b) felt it was not worth a mention. By far, the outstanding set of needs in the GRID analysis came from 4C, Mental preparation for surgery. The interview categories of Worries & Concerns, Availability of Care, and Ideal Program were major sources. The PRE group had the most expressed needs (55) with the PD4 group the next most frequent (43). The majority of needs came from 4C1, Visits/explanations, and 4C2, Ask questions (see the GRID, Appendix C). Both the PRE and PD4 groups presented similar profiles with emphasis on the mental preparation for surgery. Even the PD1 group, who during their interviews, were more concerned with their physical status, expressed a comparatively high number (25) of mental preparation needs.

Congruence of needs with expectations. A pattern similar to that noted above was found in the OTHER data from Objective 4. Most dramatic were the 189 needs expressed by the PRE group; needs were expressed in all but one interview category. The majority of OTHER needs were related to mental preparation for surgery. The subjects made very specific suggestions; the GRID content on mental preparation was brief and very general. The GRID was minimally congruent with the expressed needs for Objective 4.

Objective 5 - Early-Postsurgery Care

Educational needs of the patient and family with regard to early postsurgery care comprised the content of Objective 5. The frequency of educational needs expressed by patients and significant others relative to Objective 5 is summarized in Table 19.

Profile of educational needs. Relatively few educational needs were expressed in either Objective 5A, Locations, or 5B, Early postoperative care. Most needs were discussed during the Deficient and Ideal Program categories of the interviews. No distinct group profile emerged as all three groups expressed similar frequencies of needs.

Congruence of needs with expectations. Few (24) educational needs were expressed in OTHER data. The most in any one interview category (5) came from the PRE group and concerned explanations of details of postsurgery care and experiences. The low frequency of nonGRID needs suggests that the patient education program experienced by the postdischarge subjects satisfied their requirements. The program is well known for attention to the detailed explanation of early postsurgery care (Sikorski, 1980). For Objective 5, the GRID of expectations is congruent with the subjects' educational needs.

Objective 6 - Early Postsurgery Sensations and Behaviour

Educational needs of the patient and family with regard to

Table 19

Frequency of Educational Needs Expressed by Patients
and Significant Others Relative to Objective 5

Objective 5. Identify educational needs in early postsurgery care.

Interview Category	A. Locations			B. Early postoperative care			OTHER		
	PRE	PD1	PD4	PRE	PD1	PD4	PRE	PD1	PD4
Sleep & Rest	-	-	-	-	-	-	-	-	1
Emotional Behaviour	-	-	-	-	1	-	-	-	-
Body Care & Movement	-	-	2	-	3	2	-	-	-
Home Management	-	-	-	-	1	-	-	-	-
Mobility	-	-	-	-	-	-	-	-	-
Social Interaction	-	-	2	-	-	1	-	-	-
Ambulation	-	-	-	-	-	2	-	-	1
Alertness Behaviour	-	-	-	-	-	-	1	-	-
Communication	-	-	-	-	-	1	-	-	2
Work	-	-	-	-	-	-	-	-	-
Recreation & Pastimes	-	-	-	-	-	-	-	-	-
Eating	-	-	-	-	-	-	-	-	-
Worries & Concerns	-	-	-	-	-	-	-	1	-
Following Rules	-	-	-	-	1	1	-	1	-
Adjust Lifestyle	-	-	-	-	-	-	-	-	-
Availability of Care	-	-	1	-	4	-	-	2	1
Major Problem	-	-	-	-	-	-	-	-	-
Deficient Program	4	3	-	4	3	1	1	3	2
Ideal Program	7	5	3	8	2	7	5	2	1
Total	11	8	8	12	15	15	7	9	8

Note.

PRE = Presurgery, PD1 = Postdischarge 1 week,
 PD4 = Postdischarge 4 weeks.

early postsurgery sensations and behaviour comprised the content of Objective 6. The frequency of educational needs expressed by patients and significant others relative to Objective 6 is summarized in Table 20.

Profiles of educational needs. Of interest in review of the data for Objective 6 are the frequencies for the two postdischarge groups. Although the frequencies are low, a trend is suggested in that both the PD1 and PD4 groups focused more on physical and mental sensations than did the PRE group. This finding is not surprising as the PRE group had no postsurgery CABG experience.

Congruence of needs with expectations. A similar trend to that noted above was found in the analysis of OTHER data. Again the PD4 group expressed the most (63) educational needs. The 49 needs expressed by the PD1 group and the 13 by the PRE group suggest the GRID had some deficiencies. The GRID was not entirely congruent with the educational needs expressed by the subjects for Objective 6 topics.

Objective 7 - Disease Process and Surgical Recovery

Educational needs of the patient and family with regard to the disease process and surgical recovery comprised the content of Objective 7. The frequency of educational needs expressed by patients and significant others relative to Objective 7 is summarized in Table 21.

Table 20

Frequency of Educational Needs Expressed by Patients
and Significant Others Relative to Objective 6

Objective 6. Identify educational needs in early postsurgery sensations and behaviour.

Interview Category	A. Physical sensations			B. Mental sensations			OTHER		
	PRE	PD1	PD4	PRE	PD1	PD4	PRE	PD1	PD4
Sleep & Rest	-	1	-	-	-	-	1	5	7
Emotional Behaviour	-	2	1	-	1	-	1	5	8
Body Care & Movement	-	-	-	-	-	-	-	16	7
Home Management	-	2	3	-	-	-	1	4	6
Mobility	-	1	-	-	-	-	-	3	5
Social Interaction	-	-	-	-	-	-	-	4	4
Ambulation	-	-	2	-	-	-	-	1	1
Alertness Behaviour	-	-	2	-	2	2	-	3	4
Communication	-	-	1	-	-	-	-	-	4
Work	-	-	-	-	-	-	-	-	-
Recreation & Pastimes	-	-	-	-	-	-	-	-	4
Eating	-	-	-	-	-	-	-	-	-
Worries & Concerns	-	-	1	-	-	1	-	-	1
Following Rules	-	-	1	-	1	-	-	-	-
Adjust Lifestyle	-	-	1	-	-	-	-	-	1
Availability of Care	1	-	-	-	-	1	1	2	1
Major Problem	-	-	3	-	-	-	-	4	4
Deficient Program	-	4	-	-	2	-	7	2	3
Ideal Program	-	3	3	-	-	3	2	-	3
Total	1	12	18	-	6	7	13	49	63

Note. PRE = Presurgery, PD1 = Postdischarge 1 week,
PD4 = Postdischarge 4 weeks.

Table 21

Frequency of Educational Needs Expressed by Patients
and Significant Others Relative to Objective 7

Objective 7. Identify educational needs in the disease process
 and surgical recovery.

Interview Category	A. Chest pain			B. Pace of recovery			OTHER		
	PRE	PD1	PD4	PRE	PD1	PD4	PRE	PD1	PD4
Sleep & Rest	-	-	3	-	-	-	-	-	-
Emotional Behaviour	2	2	5	-	-	-	-	-	4
Body Care & Movement	1	4	1	-	1	-	1	2	2
Home Management	12	5	1	1	1	5	6	3	2
Mobility	-	-	-	-	3	2	2	1	-
Social Interaction	-	1	-	-	-	1	-	-	1
Ambulation	5	1	1	1	4	1	4	-	1
Alertness Behaviour	-	-	-	-	-	2	-	-	-
Communication	-	-	-	-	-	-	-	-	-
Work	1	-	-	-	-	-	-	-	-
Recreation & Pastimes	-	-	1	-	2	7	-	1	3
Eating	1	-	-	-	-	-	-	-	-
Worries & Concerns	-	-	4	-	-	2	1	1	2
Following Rules	1	-	-	-	-	3	-	-	3
Adjust Lifestyle	-	2	1	-	-	-	1	-	1
Availability of Care	2	2	9	-	-	-	1	1	-
Major Problem	-	2	2	-	-	1	-	3	2
Deficient Program	-	2	-	-	1	-	-	-	1
Ideal Program	-	1	2	-	-	2	3	-	2
Total	25	22	30	2	12	26	19	12	24

Note. PRE = Presurgery, PD1 = Postdischarge 1 week,
 PD4 = Postdischarge 4 weeks.

Profiles of educational needs. The main focus of Objective 7 was on chest pain and on the distinction between the chest pain of angina and that from the surgical incision. For Objective 7A, Chest pain, and 7B, Pace of recovery, the PD4 subjects identified the most educational needs, 30 and 26 respectively; the PRE group identified 25 and 2 and the PD1 group 22 and 12 educational needs. Of interest are the 12 noted by the PRE subjects in the Home Management category. Home activities may be tempered for the PRE patients by the possibility of angina. For the postdischarge patients, activities implicit in many of the interview categories were limited by incisional pain and their pace of recovery. Distinct profiles of the three groups emerged from the educational needs identified under Objective 7.

Congruence of needs with expectations. As with the GRID data, the OTHER totals were obtained from a few educational needs stated in many of the interview categories. The totals for the three groups, however, are sufficiently high (19, 12, 24) to state that Objective 7 of the GRID is not entirely congruent with the subjects' needs.

Objective 8 - Diet Modifications

Educational needs of the patient and family with regard to diet modifications comprised the content of Objective 8. The frequency of educational needs expressed by patients and significant others relative to Objective 8 is summarized in Table 22.

Table 22

Frequency of Educational Needs Expressed by Patients
and Significant Others Relative to Objective 8

Objective 8. Identify educational needs in diet modifications.

Interview Category	A. Diet			OTHER		
	PRE	PD1	PD4	PRE	PD1	PD4
Sleep & Rest	-	1	-	-	-	-
Emotional Behaviour	-	-	-	-	-	-
Body Care & Movement	-	1	-	-	-	-
Hose Management	-	-	-	-	-	-
Mobility	-	1	-	-	-	-
Social Interaction	-	-	-	-	1	-
Ambulation	-	-	-	-	-	-
Alertness Behaviour	-	-	-	-	-	-
Communication	-	-	-	-	-	-
Work	-	-	-	-	-	-
Recreation & Pastimes	2	-	1	-	-	-
Eating	29	24	25	8	15	10
Worries & Concerns	-	-	4	2	-	-
Following Rules	4	6	-	1	1	1
Adjust Lifestyle	1	8	5	-	3	-
Availability of Care	-	-	-	-	-	1
Major Problem	-	3	-	-	-	-
Deficient Program	-	3	1	-	3	4
Ideal Program	6	13	19	-	3	8
Total	42	60	45	11	26	24

Note. PRE = Presurgery, PD1 = Postdischarge 1 week,
 PD4 = Postdischarge 4 weeks.

Profiles of educational needs. All groups of patients expressed educational needs under Objective 8. Contrary to what both PD1 and PD4 patients were told (to eat whatever they wanted for the first few weeks postdischarge), these two groups expressed a high frequency (60 and 45, respectively) of educational needs under Objective 8 of the GRID. The PRE subjects also expressed a considerable number of needs (42); this finding may be explained, however, because many PRE patients were adhering to a low fat, low sugar, and/or a low cholesterol diet. Some had had a diet prescribed by their cardiologist; others had put themselves on a diet in preparation for surgery. No distinct profile for any one group emerged. What was evident was that all patients were concerned about the dietary modifications necessary for coronary artery disease.

Congruence of needs with expectations. Although the frequencies of the OTHER needs were lower than those in the GRID for Objective 8, they were still relatively high (11, 26, and 24). Generally, the patients wanted more information than was given during the patient education program and in the discharge booklet. Two pairs (1 PD1 and 1 PD4) had purchased several books on special diets and were following the suggestions therein. The GRID, therefore, was only partially congruent with the educational needs. Whether or not patients were told to "eat what they wanted" seemed to have little consequence. The media emphasis on diet and health

foods may have had some impact on the subjects of this study.

Objective 9 - Safe Self-medication

Educational needs of the patient and family with regard to safe self-medication comprised the content of Objective 9. The frequency of educational needs expressed by patients and significant others relative to Objective 9 is summarized in Table 23.

Profiles of educational needs. Within the GRID for Objective 9A, Specific medications, there was little difference in the total needs expressed by the three groups (62, 61, 60). Differences were observed, however, in the sources of the needs. Most of the PRE groups' needs came from the Sleep & Rest, Home Management, and Ambulation categories. Of particular concern to the PRE patients, were the medications prescribed for the relief of angina, hypertension, and other cardiac problems. The majority of the educational needs expressed by the PD1 and PD4 groups came from 9A1, Analgesics, and 9A9, Sedatives, in the Sleep & Rest, Deficient Program, and Ideal Program categories (see Appendix L-1, 35, 37). The PRE patients presented a profile of medication use compatible with their presurgery cardiovascular problems. Both postdischarge groups were more concerned with medication for the relief of incisional pain and to assist with sleep. Very few GRID needs outlined in 9B, General medication guidelines, were expressed.

Table 23

Frequency of Educational Needs Expressed by Patients
and Significant Others Relative to Objective 9

Objective 9. Identify educational needs in safe self-medication.

Interview Category	A. Specific medications			B. General medication guidelines			OTHER		
	PRE	PD1	PD4	PRE	PD1	PD4	PRE	PD1	PD4
Sleep & Rest	11	12	17	-	-	-	9	3	14
Emotional Behaviour	9	-	-	1	-	-	3	-	-
Body Care & Movement	-	3	-	-	-	-	-	1	-
Home Management	12	2	-	-	-	-	4	-	-
Mobility	-	3	4	-	-	-	-	1	-
Social Interaction	3	2	-	-	-	-	2	3	-
Ambulation	10	-	-	-	-	-	-	-	-
Alertness Behaviour	-	-	1	-	-	-	-	1	-
Communication	-	-	-	-	-	-	-	-	1
Work	5	-	-	-	-	-	1	-	-
Recreation & Pastimes	-	-	-	-	-	-	-	-	-
Eating	-	1	-	-	-	-	-	-	-
Worries & Concerns	1	-	-	-	-	-	-	-	2
Following Rules	5	-	-	-	-	1	-	-	1
Adjust Lifestyle	-	-	-	-	-	1	-	-	-
Availability of Care	-	-	9	-	-	-	-	4	3
Major Problem	-	-	4	-	-	-	-	2	2
Deficient Program	1	20	8	-	2	-	-	6	6
Ideal Program	5	18	17	-	5	2	3	4	12
Total	62	61	60	1	7	4	22	25	41

Note.

PRE = Presurgery, PD1 = Postdischarge 1 week,
 PD4 = Postdischarge 4 weeks.

Congruence of needs with expectations. Although the OTHER data of expressed needs were less than the expressed GRID needs, they were sufficiently high (22, 25, 41) to warrant comment. Sleep & Rest and Ideal Program categories were the source of most nonGRID educational needs for Objective 9. Table L-2 illustrates the subjects' focus on sedative and analgesic drugs in the Sleep & Rest category. The reasons for, actions of, and side effects of prescribed drugs were a concern of the subjects, particularly the PD4 group, which have almost double the number of the PRE and PD1 groups. The GRID was only partially congruent with the subjects' expressed needs.

Objective 10 - Appropriate Activity

Educational needs of the patient and family with regard to appropriate activity comprised the content of Objective 10. The frequency of educational needs expressed by patients and significant others relative to Objective 10 is summarized in Table 24.

Profiles of educational needs. Of the five levels of Objective 10, three (10A, B, and D), were the source of most educational needs. Most GRID needs (293) came from 10B, Other activities, which included self-care, home, recreation, occupation, and physical conditioning activities. Activity needs were expressed in every interview category except "Eating", and most were expressed during discussions which implied some kind of

Table 24
Frequency of Educational Needs Expressed by Patients and Significant Others Relative to Objective 10

Objective 10. Identify educational needs in the appropriate activity.

Interview Category	A. Graduated exercise program			B. Other activities			C. Target pulse			D. Social activities			E. Family activities			OTHER		
	PRE	PD1	PD4	PRE	PD1	PD4	PRE	PD1	PD4	PRE	PD1	PD4	PRE	PD1	PD4	PRE	PD1	PD4
Sleep & Rest	1	1	9	4	12	11	-	-	-	-	2	2	-	1	-	3	7	9
Emotional Behaviour	-	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Body Care & Movement	-	6	-	4	12	12	-	-	-	-	-	-	-	-	-	1	8	2
Home Management	3	6	13	18	25	42	-	-	-	-	-	1	-	-	1	5	15	26
Mobility	-	3	5	3	4	4	-	-	-	3	8	11	-	-	-	4	14	19
Social Interaction	-	-	3	3	-	3	-	-	-	3	18	17	-	-	-	8	21	20
Abulation	1	22	23	8	7	9	-	-	-	-	-	-	-	-	-	14	26	30
Alertness Behaviour	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	1	-	6
Communication	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	1
Work	-	-	-	1	-	4	-	-	-	-	-	-	-	-	-	1	-	-
Recreation & Pastimes	-	2	6	6	13	28	-	-	-	-	3	7	-	-	-	18	14	44
Eating	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Worries & Concerns	-	-	1	1	-	2	-	-	-	1	-	-	1	1	1	5	1	2
Following Rules	6	5	7	4	6	4	3	-	1	-	-	-	-	1	1	4	4	6
Adjust Lifestyle	1	2	4	8	6	2	-	-	-	2	-	-	-	-	-	2	8	2
Availability of Care	-	-	2	1	1	-	-	-	-	-	-	-	-	-	-	1	3	2
Major Problem	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	1	-	2
Deficient Program	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	1	3
Ideal Program	3	6	5	1	2	10	-	-	2	-	-	1	2	2	3	3	5	11
Total	15	55	79	63	92	138	3	-	3	9	31	40	3	7	7	72	129	185

Note. PRE = Presurgery; PD1 = Postdischarge 1 week; PD4 = Postdischarge 4 weeks.
Other activities: Self care, home, recreation, occupation, and physical conditioning.

physical activity. In 10A, 10B & 10D, the PD4 subjects had the greatest number of expressed needs (267); the PD1 subjects had 185; and the PRE subjects had 93. The three distinct profiles which emerge from these findings are compatible with the different clinical states of the PRE, PD1, and PD4 patients. Both the PRE and PD1 patients are less active, the former usually are afraid of precipitation of a heart attack and the latter still have too much postsurgery pain to move too much. The PD4 patients feel better and are at the stage of increasing their activity. The very high frequency of educational needs coded under Objective 10, suggest that the topic represented by this Objective was of primary importance to the subjects.

Congruence of needs with expectations. The OTHER data for the three groups showed less educational needs but with a similar distribution to that noted above and very high frequencies. The PD4 group expressed 185 needs, the PD1 group 129 and the PRE group, 72. Sources of OTHER needs were 17 of the 19 interview categories. The majority arose from the Home Management, Ambulation, and Recreation & Pastimes categories. Generally, the same pattern of decreasing frequencies (PD4, PD1, and PRE) was observed. The GRID was not congruent with expressed educational needs in the topic of appropriate activity.

Objective 11 - Safe Self-care

Educational needs of the patient and family with regard to

safe self-care comprised the content of Objective 11. The frequency of educational needs expressed by patients and significant others relative to Objective 11 is summarized in Table 25.

Profiles of educational needs. Educational needs relative to Objective 11 arose, primarily, from levels, 11D Sleep (45), and 11 E, Rest (85). The PD1 group had the most (81) while the PD4 group had 73 and the PRE group had 31 educational needs. The two postdischarge groups had similar profiles; most of their educational needs arose from discussions on Sleep and Rest (11D & E). The other levels of Objective 11 received few educational needs; most were noted by the two postdischarge groups who are distinct from the PRE group in safe self-care.

Congruence of needs with expectations. The emphasis on Sleep and Rest educational needs noted above was repeated in the OTHER educational needs although almost all interview categories were the sources of some needs. A total of 140 OTHER educational needs were expressed, 122 of which were from the PD1 and PD4 groups. The GRID was minimally congruent with the safe self-care needs of Objective 11.

Objective 12 - Postsurgery emotional reactions

Educational needs of the patient and family with regard to postsurgery emotional reactions comprised the content of Objective 12. The frequency of educational needs expressed by patients and

Table 25

Frequency of Educational Needs Expressed by Patients and Significant Others Relative to Objective II

Objective II. Identify educational needs in safer self-care.

Interview Category	A. Incision care			B. Reduce venous stasis & graft leg edema			C. Report to physician			D. Sleep			E. Rest			F. Clothing			OTHER		
	PRE	PD1	PD4	PRE	PD1	PD4	PRE	PD1	PD4	PRE	PD1	PD4	PRE	PD1	PD4	PRE	PD1	PD4	PRE	PD1	PD4
Sleep & Rest	-	-	1	-	2	1	-	1	2	12	16	11	12	24	20	-	-	-	9	20	26
Emotional Behaviour	-	-	1	-	-	-	-	-	1	1	-	-	1	-	-	-	-	-	1	2	4
Body Care & Movement	-	-	-	2	2	5	-	-	-	-	1	-	1	-	-	-	-	-	3	6	3
Home Management	-	1	4	-	-	-	-	-	-	-	-	-	2	-	3	-	-	-	-	4	2
Mobility	-	2	1	-	-	-	-	1	1	3	-	-	3	-	-	-	-	-	2	4	5
Social Interaction	-	-	-	-	-	-	-	-	-	-	-	-	3	3	-	-	-	-	-	4	-
Abulation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Alertness Behaviour	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1
Communication	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Work	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2	-	1
Recreation & Pastimes	-	-	1	-	1	1	-	-	-	-	-	1	1	-	1	-	-	-	-	-	2
Eating	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	2	-
Worries & Concerns	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Following Rules	-	-	1	-	-	-	-	-	2	-	-	-	-	2	-	-	-	-	-	1	1
Adjust Lifestyle	-	-	-	-	-	-	-	-	-	-	1	-	-	4	1	-	-	-	1	1	-
Availability of Care	-	3	1	-	-	-	-	3	1	-	-	-	-	-	-	-	-	-	-	4	3
Major Problem	-	-	-	-	-	-	1	1	1	-	5	1	-	2	-	-	-	-	-	3	5
Deficient Program	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	3
Ideal Program	-	2	3	-	-	-	-	2	1	-	-	-	-	-	-	-	-	-	-	3	6
Total	-	8	13	2	5	7	1	10	9	20	23	14	35	30	-	-	-	18	55	67	67

Note: PRE = Presurgery, PD1 = Postdischarge 1 week, PD4 = Postdischarge 4 weeks.

significant others relative to Objective 12 is summarized in Table 26.

Profiles of educational needs. Three distinct profiles for the PRE, PD1 and PD4 groups emerged from the analysis of Objective 12 data. Only 4 educational needs were anticipated by the PRE subjects. PD1 subjects expressed 21 and PD4 subjects almost twice that number at 40. As found in the analysis of Objective 4 data, the PRE group were more concerned with the mental preparation for surgery than with the emotional reactions after surgery.

The PD4 group, however, exhibited considerable concern for both the mental preparation for surgery (see Objective 4) and for the emotional reaction to surgery. The PD1 group, may have been more concerned with their physical status or had less time to react to their surgery experience.

Congruence of needs with expectations. The pattern noted above was observed in review of the OTHER data on Objective 12. In discussion of several interview categories, it was the PD4 patients who expressed the most educational needs (67) in relation to Objective 12. The PRE, PD1 and PD4 OTHER educational needs were 5, 42, and 67 respectively. The GRID of expectations was congruent with educational needs for the PRE subjects; items were missing from the GRID for the PD1 and PD4 subjects.

Objective 13 - Follow-up care

Educational needs of the patient and family with regard to

Table 26

Frequency of Educational Needs Expressed by Patients
and Significant Others Relative to Objective 12

Objective 12. Identify educational needs in postsurgery emotional reactions.

Interview Category	A. Emotional reactions (excludes stress)			OTHER		
	PRE	PD1	PD4	PRE	PD1	PD4
Sleep & Rest	-	1	-	-	-	-
Emotional Behaviour	-	1	4	-	3	11
Body Care & Movement	-	-	-	-	-	-
Home Management	-	2	1	-	3	3
Mobility	-	-	-	-	4	3
Social Interaction	-	1	5	1	7	9
Ambulation	-	1	-	-	-	-
Alertness Behaviour	-	2	4	1	5	8
Communication	-	-	-	-	-	-
Work	-	-	-	-	-	-
Recreation & Pastimes	-	1	2	-	3	8
Eating	-	1	-	-	-	-
Worries & Concerns	-	2	4	-	3	5
Following Rules	1	2	2	-	2	1
Adjust Lifestyle	-	1	2	1	5	5
Availability of Care	-	2	-	1	1	-
Major Problem	-	1	2	-	3	2
Deficient Program	-	1	-	-	2	1
Ideal Program	3	2	14	1	1	11
Total	4	21	40	5	42	67

Note. PRE = Presurgery, PD1 = Postdischarge 1 week,
 PD4 = Postdischarge 4 weeks.

follow-up care comprised the content of Objective 13. The frequency of educational needs expressed by patients and significant others relative to Objective 13 is summarized in Table 27.

Profiles of educational needs. The PD4 subjects expressed the most (43) educational needs for Objective 13 of the GRID, while the PD1 group expressed less (29) and the PRE group the least, only 5. As expected, follow-up care was not a concern of PRE subjects at the time of their interview. For the PD1 and PD4 groups, however, follow-up care is expected and should be of interest. Observations confirmed the expectations. Of some prominence were the 8 educational needs expressed by the PD4 patients in the Ideal Program discussion (see Appendix, Table L-37). The source of these needs was the discharge booklet, which all postdischarge patients received. The distinction between the PD1 and PD4 groups for Objective 13 (i.e. 43 and 29) may be due to the fact that the PD4 group had more time to experience follow-up care.

Congruence of needs with expectations. The pattern of educational needs noted in the GRID for Objective 13 was repeated in the OTHER educational needs (PRE=3, PD1=21 and PD4=36). The source of most OTHER needs were from PD4 responses to the Ideal Program category (9) and the Deficient Program category (12) during which specific suggestions were made to improve follow-up care (see Appendix Tables L-38 and L-36, respectively). The GRID was only

Table 27
Frequency of Educational Needs Expressed by Patients and Significant Others Relative to Objective 13

Objective 13. Identify educational needs in follow-up care.

Interview Category	A. Make/keep appointments			B. Printed Information			C. Call for help			OTHER		
	PRE	PD1	PD4	PRE	PD1	PD4	PRE	PD1	PD4	PRE	PD1	PD4
Sleep & Rest	-	-	-	-	1	2	-	-	-	-	1	-
Emotional Behaviour	-	-	1	-	-	-	1	-	-	1	-	1
Body Care & Movement	-	-	-	-	-	-	-	-	-	-	-	-
Hose Management	-	1	2	-	4	2	-	-	-	-	1	1 ⁸
Mobility	-	2	-	-	1	-	-	-	-	-	1	2
Social Interaction	-	-	-	-	1	-	-	-	-	-	1	1
Abulation	-	-	-	-	2	2	-	-	-	-	-	1
Alertness Behaviour	-	-	-	-	-	-	-	-	-	-	-	-
Communication	-	-	-	-	-	-	-	-	-	-	-	-
Work	-	-	1	-	-	-	-	-	-	-	-	-
Recreation & Pastimes	-	-	-	-	-	1	-	-	-	-	-	-
Eating	-	-	-	-	-	-	-	-	-	-	1	1
Worries & Concerns	-	-	2	-	1	1	-	-	2	-	-	2
Following Rules	4	-	2	-	3	4	-	-	-	-	-	-
Adjust Lifestyle	-	-	-	-	-	-	-	-	-	-	-	1
Availability of Care	-	1	4	-	2	1	-	1	-	1	5	5
Major Problem	-	-	1	-	-	1	-	-	-	-	1	-
Deficient Program	-	-	1	-	3	2	-	-	-	-	6	12
Ideal Program	-	3	2	-	2	8	-	1	1	1	4	9
Total	4	7	16	-	20	24	1	2	3	3	21	36

Note. PRE = Presurgery, PD1 = Postdischarge 1 week, PD4 = Postdischarge 4 weeks.

partially congruent with the educational needs of the subjects.

Objective 14 - Management of Work and Finances

Educational needs of the patient and family with regard to management of work and finances comprised the content of Objective 14. The frequency of educational needs expressed by patients and significant others relative to Objective 14 is summarized in Table 28.

Profiles of educational needs. The profiles of educational needs of the PD1 and PD4 groups were similar (14 and 20 respectively) for Objective 14A, Return to work, and 14B, Finances. Sources of most comments were the Work and Worries & Concerns interview categories. The slightly lower number (9) of educational needs expressed by the PRE patients suggests that for these patients, the topic of work and finances was of less importance prior to surgery. No distinct profile emerged.

Congruence of needs with expectations. Contrary to the findings noted above, all groups expressed a similar number of needs in the analysis of OTHER data. For Objective 14, most needs arose from the Work category. For this reason, 14C, Work status (see Appendix C), was added to the GRID. On the topic of Work, the GRID was only partially congruent with the educational needs expressed by the PRE, PD1, and PD4 subjects.

Objective 15 - Modalities of Patient Education

Educational needs of the patient and family with regard to

Table 28

Frequency of Educational Needs Expressed by Patients
and Significant Others Relative to Objective 14

Objective 14. Identify educational needs in management of work and finances.

Interview Category	A. Return to work			B. Finances			OTHER		
	PRE	PD1	PD4	PRE	PD1	PD4	PRE	PD1	PD4
Sleep & Rest	-	-	-	-	-	-	1	1	-
Emotional Behaviour	-	-	-	-	-	-	-	-	-
Body Care & Movement	-	-	-	-	-	-	-	-	-
Home Management	-	-	-	-	-	-	2	-	-
Mobility	-	1	1	-	-	-	-	-	-
Social Interaction	-	-	-	-	-	-	1	-	1
Ambulation	-	-	-	-	-	-	-	-	-
Alertness Behaviour	-	-	-	-	-	-	-	-	2
Communication	-	-	-	-	-	-	-	-	-
Work	4	6	7	-	-	-	11	9	5
Recreation & Pastimes	-	-	-	-	-	-	-	-	-
Eating	-	-	-	-	-	-	-	-	-
Worries & Concerns	-	1	1	-	2	6	-	2	4
Following Rules	-	-	-	-	-	-	-	1	-
Adjust Lifestyle	-	1	-	-	-	-	-	-	-
Availability of Care	-	-	2	1	-	-	-	-	1
Major Problem	2	2	1	-	-	1	2	1	3
Deficient Program	-	-	-	1	-	-	-	-	1
Ideal Program	-	1	1	1	-	-	1	2	1
Total	6	12	13	3	2	7	18	16	18

Note. PRE = Presurgery, PD1 = Postdischarge 1 week,
 PD4 = Postdischarge 4 weeks.

modalities of patient education comprised the content of Objective 15. The frequency of educational needs expressed by patients and significant others relative to Objective 15 is summarized in Table 29.

Profiles of educational needs. The findings from Objective 15, on the topic of preferred educational modalities, is central to the purpose of this study. Within the 6 levels (A to F), the main source of the observations came from discussions during the Ideal Program category of the interview. Contrary to the findings from the other 14 objectives, the PRE group emerged as the one with the most educational needs (93). The PD1 and PD4 groups expressed slightly less (84 and 74) educational needs. The highest frequency for the PRE group is to be expected as they had not experienced the two main patient education programs. Even with such experience, the postdischarge patients reiterated many educational modalities which fit the GRID. Of particular importance (50, 28, 34 educational needs) were comments made with regard to Objective 15B, Methods, which included methods of presentation such as slides, video, printed, and veteran patient (see Appendix C, Objective 15B). Of the many educational needs which were expressed, the large number from the PRE group, suggest that group's distinctness from the PD1 and PD4 groups.

Congruence of needs with expectations. Although less PRE patients expressed OTHER needs for Objective 15, the large number

Table 29

Frequency of Educational Needs Expressed by Patients and Significant Others Relative to Objective 15

Objective 15. Identify educational needs in the preferred modalities of CABG surgery patient and family education.

Interview Category	A. Mode of presentation			B. Methods			C. Time- preoperative			D. Time- postoperative			E. Setting			F. Addresser			OTHER		
	PRE	PD1	PD4	PRE	PD1	PD4	PRE	PD1	PD4	PRE	PD1	PD4	PRE	PD1	PD4	PRE	PD1	PD4	PRE	PD1	PD4
Sleep & Rest	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Emotional Behaviour	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	1	3	-
Body Care & Movement	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Home Management	-	1	2	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	1	2	3
Mobility	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Social Interaction	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Abilitation	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alertness Behaviour	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Communication	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Work	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Recreation & Pastimes	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eating	-	2	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-
Worries & Concerns	-	3	-	-	5	2	-	-	-	-	-	-	-	1	1	-	-	-	3	3	1
Following Rules	2	6	4	-	5	6	1	-	-	-	-	-	-	-	-	-	-	1	4	4	2
Adjust Lifestyle	1	2	-	-	3	3	3	-	2	-	1	-	-	-	-	-	-	3	9	2	-
Availability of Care	2	2	-	-	2	2	-	-	1	-	-	-	-	-	-	-	-	6	2	-	-
Major Problems	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Deficient Program	-	6	2	-	6	-	7	1	2	-	1	2	-	-	-	-	1	2	2	6	23
Ideal Program	8	11	6	-	21	14	19	13	4	5	1	1	4	1	-	-	12	10	6	32	49
Total	13	34	16	-	50	28	34	14	6	7	1	2	7	1	1	-	14	13	10	59	96

Note. PRE = Presurgery, PD1 = Postdischarge 1 week, PD4 = Postdischarge 4 weeks.

of expressed needs for all groups (PRE=59, PD1=96 and PD4=85) suggest that the GRID was not congruent with expressed educational needs for modalities of patient education programs. All patients had experienced at least one patient education session. Perhaps this experience increased their ability to comment and suggest improvements. That the many suggestions of the patients and significant others were valuable will be explicated in Chapter 5.

Summary of the Analysis

As the main purpose of the study was the identification of educational needs, the data analysis concentrated on this determination and on the verification of the two exploratory hypotheses. Quantitative and qualitative methods of data collection were employed. Quantitative data from the Sickness Impact Profile questionnaire and qualitative and quantitative data from the interview protocols were analyzed.

Exploratory hypothesis 1, that profiles of educational needs of PRE, PD1, and PD4 CABG surgery groups are distinct, was only partially substantiated in the examination of educational needs, coded as GRID. In only 5 of the 15 educational objectives, did distinct profiles of GRID educational needs emerge. Exploratory hypothesis 2, that educational needs of CABG surgery patients and their significant others are not congruent with the expectations of

the health care professionals was substantiated in the examination of educational needs, coded as OTHER. In 14 of the 15 educational objectives, the OTHER needs were at least partially incongruent with the expectations.

Unplanned Events which Impacted on the Study

No research project with human subjects can be free of contamination from unplanned events. Two such events occurred during the data collection of this study. Both had ramifications for the data contributed by the subjects; educational needs which arose because of these events were included in the additions to the GRID (see Appendix C).

The Public Broadcasting System (PBS) aired a television documentary on the personal story of a media reporter, who had suffered a heart attack. The program traced the reporter's experiences of cardiac catheterization, CABG surgery, surgical convalescence, and participation in an exercise program. Almost half of the 20 postdischarge patients in this study had seen or heard of the documentary. Some subjects cited it as an example of what should be shown to patients; others felt that some of the details, such as the picture of the open chest with the nonbeating heart, should be omitted.

The second event was the media publicity surrounding the

public acknowledgement by a patient that he had contracted Acquired Immune Deficiency Syndrome (AIDS) from a blood transfusion administered during his hospitalization for CABG surgery in 1983. Several patients expressed concern at the "quality" of their blood transfusions.

CHAPTER 5

DISCUSSION AND CONCLUSIONS

In this chapter, the findings of the study are summarized, conclusions are drawn, implications for patient education are stated, a methodology of educational interventions is proposed, and recommendations for future research are suggested. Recall that the purposes were to:

- (1) identify the educational needs of presurgery and postdischarge CABG patients and their significant others,
- (2) determine the congruence of the expressed educational needs with the documented (in the literature) expectations of health care professionals, and
- (3) propose a methodology of educational interventions which incorporated when, what, and how relevant content should be presented in patient education programs.

Summary Findings and Conclusions

The summary of the findings is focused on the two main sources of data: a) the quantitative values obtained from the Sickness Impact Profile questionnaire and b) the qualitative and quantitative findings obtained from the interview protocols.

Summary Findings and Conclusions from the Sickness Impact Profile

Major differences were observed between some patients and their significant others, particularly in SIP categories such as Sleep & Rest and Emotional Behaviour. More consistency was found in more clearly visible categories such as Body Care & Movement and Ambulation. Generally, the mean category scores of the patients were similar to those of the significant others. Mean scores, however, did reflect a few differences between the three groups (PRE, PD1, PD4) of subjects. The overall mean scores, though not significantly different, were lowest for the PRE group and highest for the PD1 group with the PD4 group scores falling in between the two. The PRE group was significantly different from the PD1 group in the Home Management category and significantly different from the PD4 group in the Recreation & Pastimes category. In both categories, the PRE group had lower scores (fewer problems) than the postdischarge groups, a finding compatible with the clinical status of CABG patients at these time periods. As discrimination (significant differences) between groups was only detected in 2 of

the 12 SIP categories, the SIP may be considered insensitive to differences between the three groups of this study. The findings from the use of the SIP by other investigators (O'Connor, 1983; Ott et al., 1983) of cardiac patients, though not really comparable to this study because the investigators used repeated measures and longer time frames, are of interest. O'Connor found significant differences in the categories of Recreation & Pastimes and Work between presurgery and three-month, postsurgery CABG patients. Ott et al. found changes in scores between study entry, three months, and 6 months in post myocardial infarction patients. In the present study, the seven-week span of the three time periods may have been too short or the sample size (10 pairs or 20 subjects) for each time period too small for group differences to be detected by the SIP. However, for presurgery and postsurgery CABG patients, the SIP categories of Sleep & Rest, Home Management, and Recreation & Pastimes, particularly, were found to reflect the actual clinical status of the patients.

Summary Findings and Conclusions from the Interview Protocols

Although all 19 categories of the interview schedule yielded educational needs from at least 1 pair of subjects, all 30 pairs expressed educational needs in the Home Management, Worries & Concerns, Following Rules, Adjusting Lifestyle, and Ideal Program categories. The first four categories represent areas of problems and needs common to CABG patients. The high level of contribution

to the Ideal Program category, supports the brain-storming approach used to prepare the subjects for participation in the interview.

The relatively low intercoder percentage agreements obtained from GRID coding highlight the problems of coding by the GRID (see Chapter 4). The GRID did not prove to be as useful a coding instrument as had been expected. The use of three coders for every interview, however, was of value. The cardiac nurse coder was chosen to reduce the bias of the investigator, also a cardiac nurse. The different perspective brought by the nonnurse coder, did produce information, which had not been noted in the literature or by the two nurse coders. The coding procedure may provide an explanation for the low intercoder agreement in GRID coding when compared to OTHER coding. The first was based on a four-level coding agreement while the second was based on a two-level GRID scheme.

Summary data reported in Chapter 4 and recorded in Tables 15 to 29, were further summarized into two tables, one with frequencies of expressed educational needs for the 15 educational objectives represented in the GRID and one with the frequencies for the 19 categories of the interview schedule.

The frequencies of educational needs relative to the 15 educational objectives are summarized in Table 30 from the GRID and OTHER coding and for the PRE, PD1, and PD4 groups. These frequencies were converted to percentages and are represented in

Table 30

Summary of the Frequency of Educational Needs Expressed by
Patients and Significant Others Relative to the 15 Objectives.

Topic of Objective	Coded as GRID				Coded as OTHER			
	PRE	PD1	PD4	Total	PRE	PD1	PD4	Total
1. Cardiac Anatomy & Physiology	4	1	5	10	1	1	-	2
2. Atherosclerosis & Risk Factors	90	70	80	240	63	40	54	157
3. CABG Procedure	13	12	13	38	20	12	14	46
4. Preparation for CABG	75	46	62	183	189	66	74	329
5. Early Postsurgery Care	23	23	23	69	7	9	8	24
6. Early Postsurgery Sensations/Behaviour	1	18	25	44	13	49	63	125
7. Disease Process/Surgical Recovery	27	34	56	117	19	12	24	55
8. Diet Modifications	42	60	45	147	11	26	24	61
9. Safe Self-medication	63	68	64	195	22	25	41	88
10. Appropriate Activity	93	185	267	545	72	129	185	386
11. Safe Self-care	31	81	73	185	18	55	67	140
12. Postsurgery Emotions	4	21	40	65	5	42	67	114
13. Follow-up Care	5	29	43	77	3	21	36	60
14. Work and Finances	9	14	20	43	18	16	18	52
15. Educational Modalities	93	84	74	251	59	96	85	240
Total	573	746	890	2209	520	599	760	1879

Note.

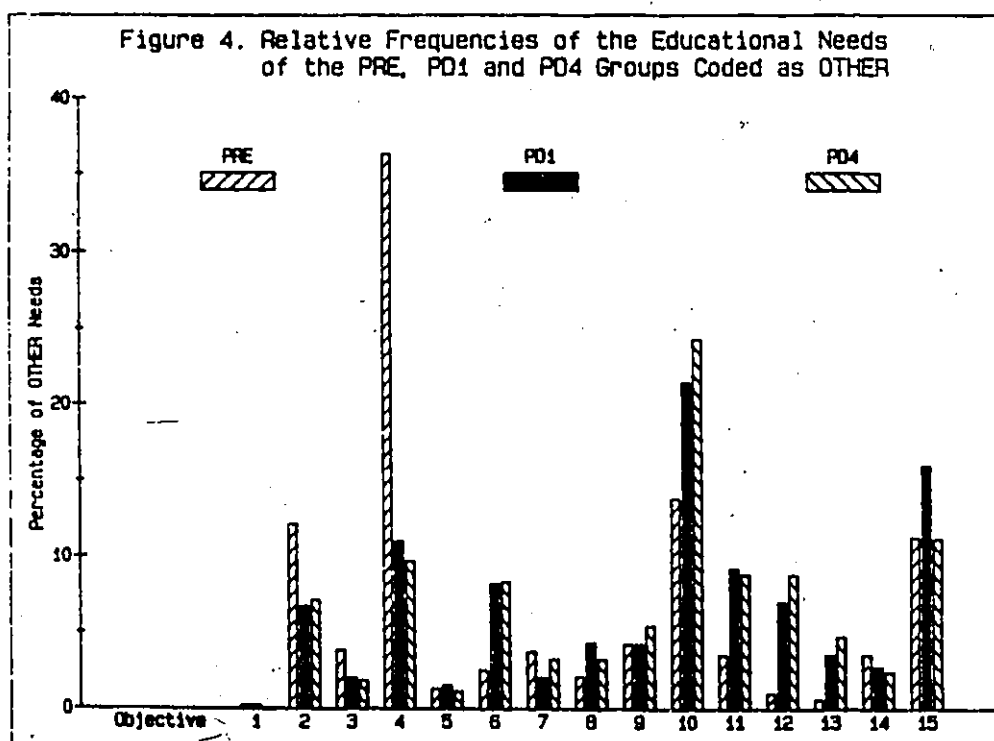
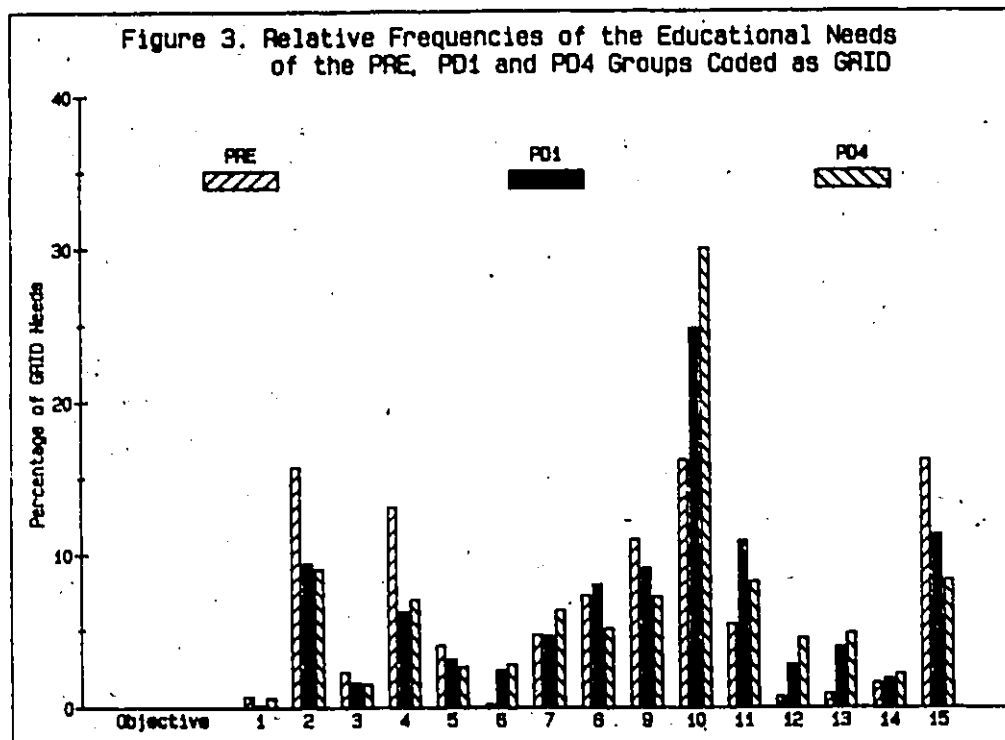
PRE = Presurgery. PD1 = Postdischarge 1 week.
 PD4 = Postdischarge 4 weeks.
 CABG = Coronary artery bypass graft.

Figure 3 (GRID) and Figure 4 (OTHER). These summaries are examined from three perspectives: (a) the educational objectives and interview categories with the most and the least frequently expressed educational needs, (b) the determination of the distinctness of the profiles of educational needs of the three groups, and (c) the congruence of educational needs with the expectations of the health care professionals.

Most and Least Frequently Expressed Educational Needs

Maintenance of the appropriate activity level (Objective 10) had the highest percentage of expressed educational needs in both GRID and OTHER coding for all three groups. Assuming that the relative frequency of expressed needs reflects the subjects' priorities in educational needs, the practice of appropriate activity was the topic of greatest interest to all groups. That the patient education, experienced by the study subjects, placed a strong emphasis on a graded activity program, was reflected in the large number (545 or 24.7%) of expressed needs in GRID coding. That the same program lacked components on the activity topic, is reflected in the large number (386 or 20.5%) of OTHER educational needs which were expressed.

Educational objective 1 (normal cardiac anatomy and physiology) generated only a few educational needs in both GRID and OTHER coding for all three groups. It is worth noting that all patient education sessions, offered to the subjects of this study,



either began with or included an anatomy and physiology component. Objective 2, however, on atherosclerosis (that is, abnormal cardiac anatomy and physiology) and its risk factors, was one of the three objectives (2, 10, & 15) with the greatest number of expressed needs. Subjects were interested in what was wrong with them and what they could do about it. These observations suggest that time now spent teaching normal anatomy and physiology might be better spent with a focus on the pathophysiology of cardiac disease.

Educational modalities, the topic of objective 15, had the second largest frequency of expressed educational needs for GRID coding and the third largest for OTHER coding (see Table 30). The subjects' interest in patient education also was documented by the high frequencies in the interview categories of Deficient Program and Ideal Program (see Table 31). The Ideal Program interview category produced the largest number of expressed educational needs of the 19 interview categories for both GRID and OTHER coding for all three groups.

Identification of the highest relative frequencies for each objective summarizes the major GRID-coded educational needs and reflects the clinical status of the three groups (see Figure 3). The PRE group had the highest relative frequencies of educational needs in the objectives dealing with atherosclerosis & risk factors, preparation for CABG, early postsurgery care, safe self-medication, and educational modalities. The PD1 group had the

Table 31

Summary of the Frequency of Educational Needs Expressed by Patients
and Significant Others Relative to the 19 Interview Categories

Interview Category	Coded as GRID				Coded as OTHER			
	PRE	PD1	PD4	Total	PRE	PD1	PD4	Total
1. Sleep & Rest	39	76	85	200	29	37	60	126
2. Emotional Behaviour	27	17	14	58	19	18	31	68
3. Body Care & Movement	8	33	26	67	8	33	16	57
4. Home Management	54	53	80	187	37	35	43	115
5. Mobility	9	30	29	68	10	28	34	72
6. Social Interaction	17	26	37	80	32	42	36	110
7. Ambulation	31	41	41	113	30	28	40	98
8. Alertness Behaviour	-	4	19	23	12	9	23	44
9. Communication	-	-	4	4	2	-	9	11
10. Work	18	6	15	39	26	9	8	43
11. Recreation & Pastimes	17	22	57	96	25	18	61	104
12. Eating	49	31	35	115	17	21	11	49
13. Worries & Concerns	27	21	52	100	51	26	37	114
14. Following Rules	59	57	46	162	37	35	51	123
15. Adjust Lifestyle	29	55	46	130	28	42	30	100
16. Availability of Care	23	52	58	133	33	50	35	118
17. Major Problem	7	25	20	52	12	19	26	57
18. Deficient Program	21	64	48	133	24	58	74	156
19. Ideal Program	138	133	178	449	88	91	135	314
Total	573	746	890	2209	520	599	760	1879

Note.

PRE = Presurgery. PD1 = Postdischarge 1 week.
PD4 = Postdischarge 4 weeks.

highest relative frequencies in the objectives dealing with diet modifications and safe self-care. The PD4 group had the highest relative frequency in the objective dealing with appropriate activity.

Distinctness of Profiles of Educational Needs

The distinctness of the profiles of educational needs of the PRE, PD1, and PD4 groups (Hypothesis 1) was sought by review of the frequencies (Tables 30 and 31) and their graphical representation (Figure 3) of GRID coding. A minimum difference of 5% was required to represent a profile difference.

The PRE group had the highest percentage (by at least 5%) of all three groups for objectives 2, 4, and 15 (atherosclerosis and risk factors, preparation for CABG surgery, and educational modalities). The PRE group differed from the PD1 and PD4 groups with the lowest relative frequency (16.2%) for the objective of appropriate activity. In the interview categories (see Table 31), the PRE group was 6.2% higher than PD1 group in the Ideal Program category. The PRE group was distinct from the PD1 and PD4 groups in four educational objectives and one interview category.

The PD1 group differed from the PRE group with at least a 5% difference in relative frequencies of educational needs in objectives 2, 4, 10, 11, and 15 (atherosclerosis & risk factors, preparation for CABG, appropriate activity, safe self-care, and educational modalities). The PD1 group was very similar to the PD4

group in all but objective 10, appropriate activity, with a 5.2% lower frequency of educational needs. In the interview, the PD1 group was distinct from the PRE group with higher relative frequencies in the Ideal Program category.

The PD4 group ranked highest (30%), by at least 5%, of all three groups for objective 10, appropriate activity. For the other 14 objectives, the PD4 group percentages were the same or similar to those of the PD1 group but were at least 5% different from the PRE group on objectives 2, 4, and 15 (atherosclerosis & risk factors, preparation for CABG, and educational modalities). The PD4 group provided a profile of educational needs different from both groups in only one objective (appropriate activity). The PD4 group was not distinct from any other group in any of the interview categories.

All three groups had less than 5% differences between them in the relative frequencies of 10 of the 15 objectives (1, 3, 5, 6, 7, 8, 9, 12, 13, and 14). Hypothesis 1, that the profiles of educational needs of the PRE, PD1, and PD4 groups are distinct, was only partially supported. Although the relative frequencies showed some dramatic differences between some objectives, the most common pattern was of educational needs similar for the three groups.

Congruence of Needs with Expectations

The frequencies for OTHER educational needs in Tables 30 and 31 and their graphical representation in Figure 4 were examined.

It became apparent that the OTHER coding also should be examined as a proportion of the total (GRID and OTHER) responses for each educational objective. Results are reported in Table 32. The large percentages for all three groups in objectives 6 and 12, postsurgery sensations, behaviour, and emotions, suggests emphasis is needed on these topics. That finding and the relatively high percentages for 14 of the 15 objectives (excepting objective 1, cardiac anatomy and physiology) illustrate the discrepancy between expectations and needs. It seems clear that the subjects of this study found their patient education program lacked components which they considered essential. Hypothesis 2, that the patient education program delivered by health care professionals was not congruent with the educational needs of the patients and their significant others, was verified.

Implications

It became progressively clear, that patients, given the opportunity, have much to contribute to the development of patient education programs. Many sought additional information outside that offered in the programs they attended. Many had assumed a personal responsibility for their health. Most persons are aware, because of the media emphasis on the transplantation of human and/or artificial hearts, that the repair or replacement of the

Table 32

Comparison of OTHER Educational Needs and Total Educational Needs
Expressed by Patients and Significant Others

Topic of Objective	PRE		PD1		PD4	
	f	%	f	%	f	%
1. Cardiac Anatomy & Physiology	5	20	2	50	5	0
2. Atherosclerosis & Risk Factors	153	41	110	36	134	40
3. CABG Procedure	33	61	24	50	27	52
4. Preparation for CABG	264	72	112	59	136	54
5. Early Postsurgery Care	30	23	32	28	31	26
6. Early Postsurgery Sensations/Behaviour	14	93	67	73	88	72
7. Disease Process/Surgical Recovery	46	41	46	26	80	30
8. Diet Modifications	53	21	86	30	69	35
9. Safe Self-medication	85	26	93	30	105	39
10. Appropriate Activity	165	44	314	41	452	41
11. Safe Self-care	49	37	136	40	140	48
12. Postsurgery Emotions	9	56	63	67	107	63
13. Follow-up Care	8	38	50	42	79	46
14. Work and Finances	27	67	30	53	38	47
15. Educational Modalities	152	39	180	53	159	53
Total	1093	48	1345	45	1650	46

Note. PRE = presurgery, PD1 = postdischarge 1 week, and PD4 = postdischarge four weeks groups.
 CABG = coronary artery bypass graft.
 *f = Frequency expressed as total raw frequency of GRID and OTHER educational needs. % = OTHER educational needs as a percentage of the total frequency of GRID and OTHER educational needs.

arteriosclerotic-damaged heart is possible. The public also is aware that they, themselves, have a role to play in the reduction of cardiovascular risk factors. Of the 11 studies, reviewed in Chapter 2, in which the educational needs of cardiac patients and/or their significant others were assessed, only three used a semi-structured interview. The most recently located study of educational needs (Chan, 1985) adds to the list of those which used forced-answer instruments to determine educational needs. The educational needs, so freely expressed by the patients and significant others in the present study, suggest that a personal approach by health care professionals is crucial to gain congruence of educational needs with expectations. A personal approach to identify educational needs, though initially costly in terms of personnel and time, should justify the high cost of CABG surgery, increase the effectiveness of patient education, and improve the long-term health status of the patients.

A Methodology of Educational Interventions

The final purpose of this study was to propose a methodology of educational interventions - the what?, when?, and how? of education for the CABG patient. Some of the findings which provide answers to these questions are discussed.

(1) What content should be taught? The original GRID was developed from the literature on the education of cardiac surgery patients. Thus, it represented prescribed content for patient education programs and the expectations of the health care professionals. The GRID was used to guide the protocol analysis of the interview data. Throughout the analysis of the data, as the OTHER educational needs were identified, the GRID was expanded to incorporate those OTHER educational needs mentioned most frequently by the patients and their significant others. Occasionally, even though only one subject mentioned an OTHER educational need, it was added because of its relevance. The GRID in Appendix C, thus, is a combination of the original instrument and the OTHER educational needs identified in the study. The OTHER needs are underlined in the GRID to distinguish them from the original GRID based on the review of the literature.

Examination of the GRID highlights the major findings of the study. The first educational objective of the GRID (normal cardiac anatomy and physiology) has only a few OTHER educational needs added; the topic of objective 1 was barely mentioned in the interviews. Objectives 3 and 5, (CABG surgical procedure and early postsurgery care) seemed most complete in their original content, although a low number of GRID-coded needs were expressed. To the other 12 objectives, many OTHER educational needs were added to the second, third, and fourth levels of the GRID. Patient educators

may find the extent of the revised GRID overwhelming. The GRID, however, is presented as a guideline for teaching content. The patient educator is responsible to determine which content is appropriate for and specific to the particular patient.

(2) When should the teaching be done? Almost all the patient education experienced by the subjects, at the time of data collection, had been offered during their actual time in hospital. Many subjects, however, indicated their willingness to attend programs at times other than during hospitalization and in both the presurgery and postdischarge periods.

Presurgery patients, all of whom were interviewed prior to hospitalization and at least four days before CABG surgery, had many questions. The questions ranged from where they should go for admission to details of the surgical procedure and care. Frequently, these questions were voiced during the investigator's initial contact to invite participation in the study. Although all knew that a presurgery class was held (the day before surgery), all but 2 of the 10 wanted their questions answered prior to that time. Significant others, particularly, requested earlier receipt of information. A preadmission presurgery session is recommended. Several suggested that it be timed to coincide with, or closely follow the first visit to see the surgeon, when the explanation of the type of surgery is given and the date of surgery is set.

Postdischarge patients (PD1 and PD4 groups), although

appreciative of the predischARGE class, indicated that, immediate postdischarge follow-up was just as important, as most problems occur in the first four weeks at home. Both telephone contact and home visits were suggested. Some PD4 patients advised contact with a patient educator at the time of the first postdischarge visit to the surgeon (usually held about two weeks postdischarge). Others specified that the public health nurse should visit within the first three days postdischarge.

(3) How should the teaching be done? Subjects referred to two programs, which they had experienced; both were categorized as excellent. The cardiac catheterization slide-tape class, part of the existing patient education program, received high commendation; consistency of approach and accuracy of detail were noted. The current predischARGE sessions, usually attended about a week after surgery and on the day before discharge, vary with the assigned patient educator and focus on review of the discharge booklet. Many subjects, particularly when the pair of patient and significant other had attended different predischARGE sessions, felt the program content should be more consistent. Some suggested that the time could be better spent on content which is not included in the discharge booklet. Subjects placed emphasis on pictorial presentations. The PBS program or any "live" video approach was recommended, particularly because the visual "moving" display gives an accurate indication of what patients should and

should not do. Some subjects suggested the use of simulation of the situation of the postdischarge patient at home. Many felt the use of veteran patients would be a valuable addition to both the presurgery and postsurgery program.

In summary, the four phases of the study, from Phase 1, Determination of Expectations to Phase 2, Conceptual Framework and GRID of Expectations, Phase 3, Identification of Educational Needs, and Phase 4, Proposed Methodology of Educational Interventions, are presented in a flow chart format in Figure 5.

Limitations of the Study

The limitations of this study have been noted throughout Chapters 3 to 5 and are summarized here as follows:

(1) The GRID developed from the review of cardiac surgery literature on patient education, though thorough in the details included, proved unwieldy as a coding instrument. A two-level summary of the GRID (as in Table 4), rather than the four-level GRID (see Appendix C), would have expedited the analysis.

(2) No urgent or emergency surgery patients were included in the PRE group of this study. Although difficult to implement, a study of the educational needs of the patient, who has little time to prepare for surgery, is needed.

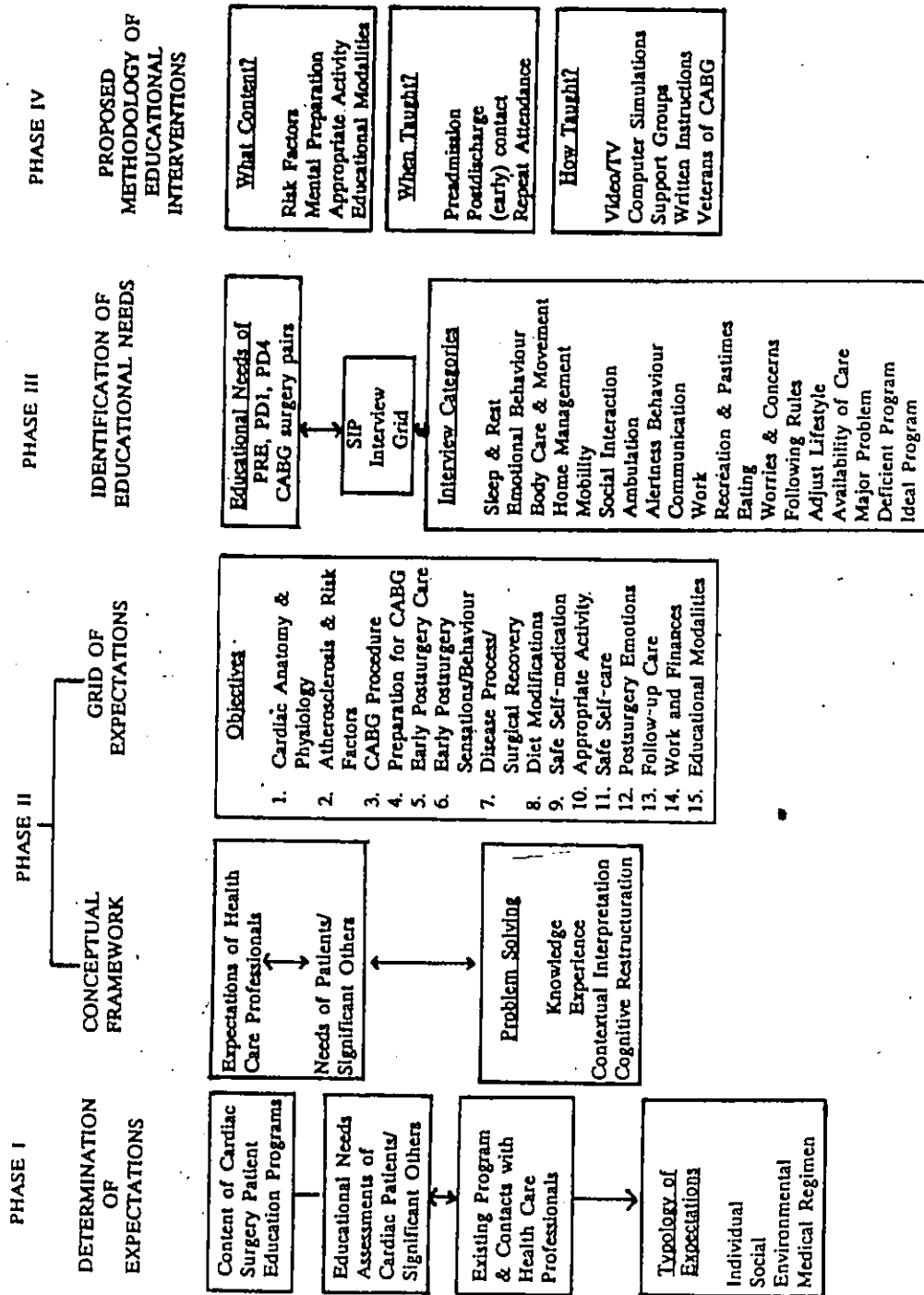


FIGURE 5 - PHASES OF THE STUDY

(3) The lack of a control group might be considered a limitation of this study. Ethically, however, a group, which had not been offered any patient education, was not feasible because of the long existence of patient education programs in the setting of the study.

Recommendations for Future Research

Recommendations for future research in patient education arise from the findings of this study and are as follows:

(1) A replication of this study should be considered to confirm the success of the interview-protocol analysis approach for the identification of educational needs. Two format changes are advised: (a) although the large number of urgent and emergency patients in the PD4 group (8 out of 10) compared to the PD1 group (4 out of 10) with none in the PRE group did not seem to have a great affect on the findings and conclusions, a matched-pair design would avoid the potential bias of groups with different surgical experiences; (b) the time frame of this study (7 weeks between the three groups) was short. A fourth group, approximately six months after surgery, was suggested by one patient. The reasons given were that, at six months postsurgery, patients are expected to be well and both the family and medical concern for the patient's status are minimal; the PD4 patient wondered what educational needs

might still be present at six months. The book, Change of Heart The Bypass Experience, by Hoffman (1985) supports this suggestion; problems experienced as long as 4 years after a "bypass" were documented. Comparison with other studies, which use longer time frames, would be possible with the addition of a six month postdischarge group.

(2) The subjects of this study were CABG patients and their significant others; that choice was made because of the investigator's experience in the cardiovascular specialty. A similar approach to the identification of educational needs could be used with patients from other medical specialties. Although the time required to analyze the data from this study was excessive, future research could benefit from the methodology developed for the present study. Additional studies might provide information as to the most common type of educational needs applicable to all persons who require patient education.

(3) In all studies of educational needs (see Chapter 2) where more than one time period was considered, repeated measures (the same subjects studied at different time periods) were used. The advantage of repeated measures is the finding of evolution across time; the disadvantage is the bias from the learning effect of administration of the same instruments. Of comparative value to the present study (which did not use repeated measures) would be one of the same patients at the PRE, PD1, and PD4 time periods.

(4) Simulated situations on videotape could be developed to assist persons to cope with events which occur when they do not have easy access to advice from health care professionals. Such simulations could be prepared in collaboration with veteran patients. The procedure used in the present study could be adapted to produce a simulation on patient education which would reflect educational needs.

REFERENCES

- Adcock, M. (1980). The rationale and application of a needs assessment in patient education. In W. D. Squyres (Ed.). Patient education: An inquiry into the state of the art (pp. 37-44). New York: Springer.
- Aiken H. L. (1970). Patient problems are problems in learning. American Journal of Nursing, 70(9), 1916-1918.
- American Heart Association, (1981). Coronary artery bypass graft surgery. (Publ. # 50-047-A). Dallas: American Heart Association National Center.
- American Hospital Association. (1978). Media handbook: A guide to selecting, producing, and using media for patient education. Chicago: American Hospital Association.
- American Nurses' Association & American Heart Association. (1975). Standards of cardiovascular nursing practice. Kansas: American Nurses' Association.
- Anscombe, F. J. (1981). Computing in statistical science through APL. New York: Springer-Verlag.
- Arsham, G. M. (1979). Strategies panel: behavioral diagnosis for patient education. In P. LaVigne (Ed.), Patient education in the primary care setting: 1979 proceedings (pp.41-43). Minneapolis: University of Minnesota.
- Atwood, H. & Ellis, A. (1971). Concept of need: An analysis for adult education. Adult Leadership, 19(1), 212-218.
- Barbarowicz, P., Nelson, M., DeBusk, R. F. & Haskell, W. L. (1980). A comparison of in-hospital education approaches for coronary bypass patients. Heart & Lung, 9, 127-133.
- Bartlett, E. E. (1979). Strategies Panel: There's a lot more to patient education than patient teaching. In P. La Vigne (Ed.), Patient education in the primary care setting: 1979 proceedings (pp. 45-46). Minneapolis: University of Minnesota.
- Bartlett, E. E. (1981). A review of previous case studies. Physician's Patient Education Newsletter, 4, 5-6.

- Bartlett, E. E. (1982). Behavioral diagnosis: A practical approach to patient education. Patient Counselling and Health Education, 4(1), 29-35.
- Bartlett, E. E. (1984a). Effective approaches to patient education for the busy pediatrician. Pediatrics, 74, Supplement, 920-923.
- Bartlett, E. E. (1984b). What are the elements of effective pre-operative education. Patient Education Newsletter, 7(2), 11 and 10.
- Beauchamp, P. S. (1979). Educating patient and family for CV surgery. AORN Journal, 29(5), 860-862.
- Becker, M. H. (1974). The health belief model and personal behavior. Thorofare, NJ: Slack.
- Bell, D. F. (1978). Assessing educational needs: Advantages and disadvantages of eighteen techniques. Nurse Educator, Sept./Oct. 1978, 15-21.
- Bereiter, C. & Scardamalia, M. (1985). Cognitive coping strategies and the problem of "inert knowledge". In S. F. Chipman, J. W. Segal, R. Glaser (Eds.), Thinking and learning skills Research and open questions (Vol 2) (pp. 65-80). Hillsdale, NJ: Lawrence Erlbaum.
- Bergner, M., Bobbitt, R. A., Pollard, W. E., Martin, D. P., & Gilson, B. S. (1976). The Sickness Impact Profile: Validation of a health status measure. Medical Care, 14, 146-155.
- Bergner, M. & Bobbitt, R. A. with Carter, W. B. & Gilson, B. S. (1981). The Sickness Impact Profile: Development and final revision of a health status measure. Medical Care, 19(8), 787-805.
- Bergner, M. & Gilson, B. S. (1980). 6. The Sickness Impact Profile: The relevance of social science to medicine. In L. Eisenberg & A. Kleinman (Eds.), The relevance of social science to medicine (pp. 135-150). Dordrecht, Holland: D. Riedel.
- Bille, D. A. (Ed.) (1981). Practical approaches to patient teaching. Boston: Little, Brown.
- Bloom, B. S. (Ed.) (1956). Taxonomy of educational objectives. Handbook I: Cognitive domain. New York: David McKay.

- Bogdan, R. C. & Bicklin, S. K. (1982). Qualitative research for education. An introduction to theory and methods. Boston: Allyn and Bacon.
- Boisvert, C. (1976). Convalescence following cardiac surgery. The Canadian Nurse, 72(11), 26-27.
- Brockopp, D. Y. (1982). Cancer patients' perceptions of five psychosocial needs. Oncology Nursing Forum, 9(4), 31-35.
- Brown, D. G., Glazer, H., & Higgins, M. (1983). Group intervention: A psychosocial & educational approach to open heart surgery patients & their families. Social Work & Health Care, 9(2), 47-59.
- Burke, L. J., Gabriel, L. M., Fischer, L. E., & Zemke, S. L. (1986). Nursing diagnoses, indicators, and interventions in an outpatient cardiac rehabilitation program. Heart & Lung, 15(1), 70-76.
- Canadian Council of Cardiovascular Nurses. (1983). Standards of cardiovascular nursing practice. Ottawa, Ontario.
- Casey, E., O'Connell, J. K. & Price, J. H. (1984). Perceptions of educational needs for patients after myocardial infarction. Patient Education and Counselling, 6(2), 77-82.
- Chan, V. (1985). Learning needs of patients after myocardial infarction: The extent to which the various content areas for cardiac teaching are perceived as important and realistic to learn predischarge and early convalescence. Unpublished master's thesis. Department of Nursing, University of Toronto, Toronto, Ontario.
- Chrisman, N. J. & Kleinman, A. (1983). Popular health care, social networks, and cultural meanings: The orientation of medical anthropology. In D. Mechanic (Ed.), Handbook of health, health care, & the health professions (pp.569-590). New York: Free Press.
- Christopherson, B. & Pfeiffer, C. (1980). Varying the timing of information to alter preoperative anxiety and postoperative recovery in cardiac surgery patients. Heart & Lung, 9, 854-861.
- Cisar, N. S. & Morpew, S. F. (1983). Preoperative teaching: aortocoronary bypass patients. Focus on Critical Care, 10(1), 21-25.

Cohen, S. A. (1981). Patient education: a review of the literature. Journal of Advanced Nursing, 6, 11-18.

Collins, R. D. (1968). Problem solving: a tool for patients, too. American Journal of Nursing, 68, 1483-1485.

Conn, J., Bobbitt, R., & Bergner, M. (1978). Administration procedures and interviewer training for the Sickness Impact Profile. Unpublished manuscript, University of Washington, Department of Health Services, Seattle, Washington.

Coombs, R. P. (1970). Active-care hospital nurse expands her role. The Canadian Nurse, 66, 23-29.

Coombs, R. P. (1985, June and October). Development of test instruments for the measurement of knowledge and behaviour of coronary artery bypass graft patients after discharge from hospital. Paper presented at the XII Interamerican Congress of Cardiology (June), Vancouver, British Columbia, Canada and at the Canadian Council of Cardiovascular Nurses Annual Meeting and Scientific Sessions, (October), Halifax, Nova Scotia, Canada.

Department of Health Services, University of Washington. (1977). Sickness Impact Profile. Seattle, WA: Author.

Dionne, J.-P. (1985a, May). Information processing framework for diagnostic and intervention components in problem solving activities. Paper presented at the meeting of the Canadian Society for Studies in Education, Montreal, Quebec, Canada.

Dionne, J.-P. (1985b, June). Components of cognitive processes in solving ill-defined problems. Paper presented at the Fifth Annual Conference on Teaching and Learning in Higher Education, Ottawa, Ontario, Canada.

Dodge, J. S. (1969). Factors related to patients' perceptions of their cognitive needs. Nursing Research, 18, (6), 502-513.

Dodge, J. S. (1972). What patients should be told: Patients' and nurses' beliefs. American Journal of Nursing, 72(10), 1852-1854.

Dracup, K., Meleis, A. J., Clark, S., Clyburn, A., Shields, L., & Staley, M. (1984). Group counselling in cardiac rehabilitation: Effect on compliance. Patient Education and Counselling, 6(4), 169-177.

- Duncan, J. M., Grandbouche, A., & Moody G. C. (1973). A program for the teaching of cardiovascular patients. Heart & Lung, 2(4), 508-511.
- Durbach, E. & Wendick, P. (1986). No frills patient education. The Canadian Nurse/L'infirmiere Canadienne, 82(4), 21-23.
- Ericsson, K. A. & Simon, H. A. (1984). Protocol analysis Verbal reports as data. Cambridge, MA: Michigan Institute of Technology.
- Eysenck, M. W. (1984). A handbook of cognitive psychology. Hillsdale, NJ: Lawrence Erlbaum.
- Flynn, J. B., & Giffin, P. A. (1984). Health promotion in acute care settings. Nursing Clinics of North America, 19(2), 239-50.
- Frederiksen, N. (1984). Implications of cognitive theory for instruction in problem solving. Review of Educational Research, 54(3), 363-407.
- Gaspard, G. L. (1984). Needs assessment in cardiac rehabilitation. Canadian Bulletin of Cardiovascular Nursing, 8(2), 8-10.
- Gerard, P. S. & Peterson, L. M. (1984). Learning needs of cardiac patients. Cardiovascular Nursing, 20(2), 7-11.
- Getzels, J. W. & Guba, E. G. (1957). Social behavior and the administrative process. School Review, 65, 423-441.
- Getzels, J. W., Lipham, J. M., & Campbell, R. F. (1968). Educational administration as a social process Theory, research, practice. New York: Harper & Row.
- Gilliss, C. (1984). Reducing family stress during and after coronary artery bypass surgery. Nursing Clinics of North America, 19(1), 103-111.
- Gilliss, C. L., Sparacino, P. S. A., Gortner, S. R. & Kenneth, H. Y. (1985). Events leading to the treatment of coronary artery disease: Implications for nursing care. Heart & Lung, 14(4), 350-356.
- Gilson, B. S., Gilson, J., Bergner, M., Bobbitt, R. A., Kressel, S., Pollard, W. E. & Vesselago, M. (1975). The Sickness Impact Profile: Development of an outcome measure of health care. American Journal of Public Health, 65 (12), 1304-1310.

- Glazer-Waldman, H., Hall, K., & Weiner, M. F. (1985). Patient education in a public hospital. Nursing Research, 34(3), 184-185.
- Goddard, H. A. & Powers, M. J. (1982). Educational needs of patients undergoing hemodialysis: A comparison of patient and nurse perceptions. Dialysis & Transplantation, 11(7), 578-583.
- Gortner, S. R., Gilliss, C. L., Moran, J. A., Sparacino, P., & Kenneth, H. (1985). Expected and realized benefits from coronary bypass surgery in relation to severity of illness. Cardio-vascular Nursing, 21(3), 13-18.
- Gortner, S. R., Leavitt, M. B., Rankin, S. H., Price, M. J., Gilliss, C. L., Shinn, J. A. (1985, November). Summary: After cardiac surgery: Monitoring recovery by telephone. Paper presented at the American Heart Association Scientific Sessions on Cardiac Surgery, Washington, DC.
- Green, L. W., Kreuter, M. W., Deeds, S. G., Partridge, K. B. with the assistance of Edward Bartlett. (1980). Health education planning: A diagnostic approach. Palo Alto, CA: Mayfield.
- Green, L. W., Lewis, F. M. & Levine, D. M. (1980). Balancing statistical data and clinician judgements in the diagnosis of patient educational needs. Journal of Community Health, 6, 79-91.
- Green, L. W., Squyres, W. D., D'Altroy, L. H. & Herbert, B. (1980). What do recent evaluations of patient education tell us? In W. D. Squyres. (Ed.), Patient education: An inquiry into the state of the art (pp. 11-36). New York: Springer.
- Green, L. W., Werlin, S. H., Schauffler, H. H., & Avery, C. H. (1977). Research and demonstration issues in self-care: Measuring the decline of mediocrism. Health Education Monographs, 5(2), 161-189.
- Grobe, M. E., Ahmann, D. L. & Ilstrup, D. M. (1982). Needs assessment for advanced cancer patients and their families. Oncology Nursing Forum, 9(4), 26-30.
- Guzzetta, C. E. and Dossey, B. M. (1984). Cardiovascular nursing: Bodymind tapestry. St. Louis: C.V. Mosby.

- Haferkorn, V. (1971). Assessing individual learning needs as a basis for patient teaching. Nursing Clinics of North America, 6(1), 199-209.
- Hansen, M., & Lavandero, R. (1981). A multidisciplinary education program for patients undergoing cardiovascular surgery. Quality Review Bulletin, May, 1981, 19-24.
- Harper, L. (1976). Developing and evaluating a patient education program. In Patient Education (Publication no. 20-1633, pp. 1-18). New York: National League for Nursing.
- Hart, L. K. & Frantz, R. (1977). Characteristics of post-operative patient education programs for open-heart surgery patients in the United States. Heart & Lung, 6, 137-142.
- Hewett, M. P. (1982). Perceived learning needs of post-myocardial infarction patients, post-open-heart surgical patients and their significant others. Unpublished master's thesis, College of Nursing, University of Utah.
- Hoffman, N. Y. (1985). Change of heart - The bypass experience. New York: Harcourt Brace Jovanovich.
- Horvath T. P. (1984). Care of the adult cardiac surgery patient. Toronto: John Wiley & Sons.
- Houle, C. O. (1973). The design of education. San Francisco: Jossey-Bass.
- Jenkins, C. D. (1979). An approach to the diagnosis and treatment of problems of health-related behavior. International Journal of Health Education, 22 (Suppl.), 1-24.
- Jillings, R. C. (1978). Phases of recovery from open-heart surgery. Heart & Lung, 7(6), 987-994.
- Katz, N. A. (1984). Discussing coronary artery surgery with the patient. American Family Physician, 29(1), 123-31.
- Kaufman, R. & English, F. W. (1979). Needs assessment Concept and application. Englewood Cliffs, NJ: Educational Technology.
- Keon, W. J. & Coombs, R. K. (1980). Psychological preparation of the cardiac surgery patient. In Proceedings of the Foundation of Thanatology Cardiovascular Symposium (pp. 137-146). New York: Columbia University.

- King, K. B. (1985). Measurement of coping strategies, concerns, and emotional responses in patients undergoing coronary artery bypass grafting. Heart & Lung, 14(6), 579-586.
- Kleinman, A. (1980). Patients and healers in the context of culture. Berkeley, CA : University of California Press.
- Knafl, K. A., & Howard, M. J. (1984). Interpreting and reporting qualitative research. Research in Nursing and Health, 7(1), 17-24.
- Kucha, D. (1974). The health education of patients: assessing their needs. Supervisor Nurse, 5, 26-35.
- Lauer, P., Murphy, S. P., & Powers, M. J. (1982). Learning needs of cancer patients: a comparison of nurse and patient perceptions. Nursing Research, 31(1), 11-16.
- Ledingham, R. B. (date not given). Sickness Impact Profile (SIP) Computer Scoring Program. Department of Health Services, University of Washington, Seattle, Washington.
- Leech, J. E. (1982). Psychosocial and physiologic needs of patients with arterial occlusive disease during the preoperative phase of hospitalization. Heart & Lung, 11(5), 442-449.
- Leventhal, H. & Cleary, P. D. (1979). Behavioral modification of risk factors: Technology or science?. In M. L. Pollock, & D. H. Schmidt (Eds.), Heart disease and rehabilitation (pp. 297-313). Boston: Houghton Mifflin.
- Linde, J. B. & Janz, N. M. (1979). Effect of a teaching program on knowledge and compliance of cardiac patients. Nursing Research, 28, 282-286.
- Lovvorn, J. (1982). Coronary artery bypass surgery: Helping patients cope with post-op problems. American Journal of Nursing, 82, 1073-1075.
- Maslow, A. (1968). Toward a psychology of being. (2nd ed.). Princeton: Van Nostrand.
- Mayer, R. E. (1983). Thinking, problem solving, cognition. San Francisco: W.H. Freeman.
- Mazzuca, S. A. (1982). Does patient education in chronic disease have therapeutic value? Journal of Chronic Diseases, 35, 521-529.

- McHatton, M. (1985). A theory for timely teaching. American Journal of Nursing, 85(7), 798-800.
- McHugh, N. G., Christman, N. J., & Johnson, J. E. (1982). Preparatory information: What helps and why. American Journal of Nursing, 82(5), 780-782.
- Meyer, S. R. M., & Latz, P. A. (1979). What open heart surgery patients want to know. American Journal of Nursing, 79(9), 1558-1560.
- Miller, P. & Shada E. A. (1978). Preoperative information and recovery of open-heart surgery patients. Heart & Lung, 7(3), 486-493.
- Miller, A. (1985). When is the time ripe for teaching? American Journal of Nursing, 85(7), 801-804.
- Monahan, J. (1980). The unperceived problem in patient education. In P. Lavigne (Ed.). Patient education in the primary care setting: 1979 proceedings (pp. 9-12). Minneapolis: University of Minnesota.
- Moynihan, M. (1984). Assessing the educational needs of post-myocardial infarction patients. Nursing Clinics of North America, 19(3), 441-447.
- Mullen, P. D. (1980). The (already) activated patient: An alternative to medicocentrism. In W. D. Squyres (Ed.). Patient education: An inquiry into the state of the art (pp. 281-298). New York: Springer.
- Mumford, E., Schlesinger, H. J., & Glass, G. V. (1982). The effects of psychological intervention on recovery from surgery and heart attacks: an analysis of the literature. American Journal of Public Health, 72(2), 141-151.
- Murdaugh, C. (1982). Using research in practice. Focus on AACN, 9(3), 11-14.
- Neuman, B. (1982). The Neuman systems model Application to nursing education and practice. Norwalk, CT: Appleton-Century-Crofts.
- Newell, A. & Simon, H. A. (1972). Human problem solving. Englewood Cliffs, NJ: Prentice-Hall.

- Nicklin, W. McK. (in press). A descriptive study of expressed concerns (via telephone) of discharged patients and families post myocardial infarction and cardiac surgery. Unpublished manuscript, Ottawa Civic Hospital, Ottawa, Ontario.
- Nicklin, W. McK. (1986). Postdischarge concerns of cardiac patients as presented via a telephone callback system. Heart & Lung, 15(3), 268-272.
- Nursing Theories Conference Group [NTCG], (1980). Nursing theories The base for professional nursing practice. Englewood Cliffs, NJ: Prentice-Hall.
- O'Connor, A. M. (1983). Factors related to the early phase of rehabilitation following aortocoronary bypass surgery. Research in Nursing and Health, 6, 107-116.
- Osborn, A. F. (1963). Applied imagination. New York: Scribner.
- Ott, C. R., Sivarajan, E. S., Newton, K. M., Almes, M. J., Bruce, R. A., Bergner, M. & Gilson, B. S. (1983). A controlled randomized study of early cardiac rehabilitation: The sickness impact profile as an assessment tool. Heart & Lung, 12(2), 162-170.
- Owens J. F., McCann S. C., & Hutelmyer, C. M. (1978). Cardiac rehabilitation, a patient education program. Nursing Research, 27, (3), 148-150.
- Parrinello, K. (1983). Patients' evaluation of a teaching booklet for arterial bypass surgery. Patient Education & Counselling, 5(4), 183-188.
- Pimm, J. B. & Feist, J. R. (1984). Psychological risks of coronary bypass surgery. New York: Plenum.
- Pollard, W. E., Bobbitt, R. A., Bergner, M., Martin, D. P., & Gilson, B. S. (1976). The Sickness Impact Profile: Reliability of a health status measure. Medical Care, 14, 57-67.
- Pool, J. J. (1980). Expected and actual knowledge of hospital patients. Patient Counselling & Health Education, 1-2, 111-117.
- Rakoczy, M. (1977). The thoughts and feelings of patients in the waiting period prior to cardiac surgery: A descriptive study. Heart & Lung, 6(2), 280-287.

- Rankin, S. H. & Duffy, K. L. (1983). Patient education: Issues, principles and guidelines. Philadelphia: J.B. Lippincott.
- Raymond, M., Conklin, C., Schaeffer, J., Newstadt, G., Matloff, J.M. & Gray, R.J. (1984). Coping with transient dysfunction after coronary bypass surgery. Heart & Lung, 13, 531-539.
- Redman, B. K. (1984). The process of patient education. (5th ed.). Toronto: C.V. Mosby.
- Rosenberg, S.G. (1976). Patient education: An educator's view. In D. L. Sackett & R. B. Haynes (Eds.), Compliance with therapeutic regimes (pp. 93-99). Baltimore: Johns Hopkins University Press.
- Sadler, D. (1984). Secondary interventions: Care of the person undergoing heart surgery. In D. Sadler, Nursing for Cardiovascular Health (pp. 295-337). Norwalk, CT: Appleton-Century-Crofts.
- Seifert, P.C. (1981). An OR nurse's guide to coronary artery bypass. AORN Journal, 33(6) 1049-1066.
- Selltiz, C., Wrightsman, L. S., & Cook, S. W. (1976). Research methods in social relations (3rd ed.). New York: Holt, Rinehart and Winston.
- Sergiovanni, T. J. & Starratt, R. J. (1971). Emerging patterns of supervision: Human perspectives. Toronto: McGraw-Hill.
- Shuldhass, C. (1984). Coronary artery surgery. Nursing, 25(2), 748-752.
- Sikorski, J. (1980, October). Teaching the cardiac surgery patient. Paper presented at the Joint Annual Scientific Sessions of the Canadian Heart Foundation, the Canadian Cardiovascular Society and the Canadian Council of Cardiovascular Nurses, Winnipeg, Manitoba.
- Sikorski, J. M. (1985). Knowledge, concerns, and questions of wives of convalescent coronary artery bypass graft surgery patients. Journal of Cardiac Rehabilitation, 5, 74-85.
- Simon, H. A. (1973). The structure of ill-structured problems. Artificial Intelligence, 4, 181-201.

- Simon, H. A. (1978). Information processing theory of human problem solving. In W. K. Estes (Ed.), Handbook of Learning and Cognitive Processes: Vol 5. Human, Information Processes (pp. 271-295). Hillsdale NJ: Lawrence Erlbaum.
- Simon, H. A. (1979). Models of Thought. New Haven, CT: Yale University Press.
- Simon, H. A. (1980). Problem solving and education. In D. T. Tuma & F. Reif. (Eds.) Problem solving and education: Issues in teaching and research. Hillsdale, NJ: Lawrence Erlbaum.
- Sivarajan, E. S., Newton, K. M., Almes, M. J., Kempf, T. M., Mansfield, L. W. & Bruce, R. A. (1983). Limited effects of outpatient teaching and counselling after myocardial infarction: A controlled study. Heart & Lung, 12(1), 65-73.
- Stanton, B. A., Jenkins, C. D., Savageau, J. A., Harken, D. E., & Aucoin, R., (1984). Perceived adequacy of patient education and fears and adjustments after cardiac surgery. Heart & Lung, 13(5) 525-31.
- Sternberg, R. J. (1977). Intelligence, information processing, and analogical reasoning. Hillsdale, NJ: Lawrence Erlbaum.
- Sternberg, R. J. (1984). Toward a triarchic theory of human intelligence. The Behavioral and Brain Sciences, 7, 269-315.
- Sternberg, R. J. (1985). Beyond I.Q. A triarchic theory of human intelligence. Cambridge, MA: Cambridge University.
- Strauss, A. L., Fagerhaugh, S., Suczek, B., & Wiener, C. (1981). Patients' work in the technologized hospital. Nursing Outlook, 29, 404-412.
- Strauss, A. L. (1975). Chronic illness and the quality of life. St. Louis: C.V. Mosby.
- Surwit, R. S, Williams, R. B., & Shapiro, D. (1982). Behavioral approaches to cardiovascular disease. New York: Academic Press.
- Trimiglozzi, B. (1979). The perioperative role in cardiac surgery. ADRN Journal, 29 (5), 856-859.
- University of Ottawa Heart Institute, Ottawa Civic Hospital. (1983 and 1985). Recovering along with your heart Cardiac surgery discharge booklet. Ottawa: Ottawa Civic Hospital.

Upper, D., Kantor, L. E., Kulich, R. J., Wurzelmann, H., & Bigwood, G. F. (1984). Behavioral medicine: Broadening the interface between medicine and behavioral science. Postgraduate Medicine, 75, (3): 155-157, 160, 163, 166-167.

Weed, L. (1969). Medical records, medical education, and patient care: The problem oriented record as a basic tool. Cleveland: Case Western Reserve University.

Weiler, M. C. (1968). Postoperative patients evaluate preoperative instruction. American Journal of Nursing, 68(7), 1465-1468.

White, C. W., Lemon, D. K., Albanese, M. A. (1980). Efficacy of health education efforts in hospitalized patients with serious cardiovascular illness: Can teaching succeed? Patient Counselling and Health Education, 2(4), 189-196.

Wilson-Barnett, J. & Osborne, J. (1983). Studies evaluating patient teaching: Implications for practice. International Journal of Nursing Studies, 20(1), 33-44.

Wilson, H. S. (1985). Research in Nursing. Menlo-Park, CA: Addison-Wesley.

Winslow, E. H. & MacVaugh H. (1976). Coronary artery surgery: Operative technique and patient education. Nursing Clinics of North America, 11(2), 371-83.

Yalof, I. L. (1983). Open heart surgery: a guidebook for patients & families. New York: Random House.

Yoder Wise, P. S. (1979). Barriers (or enhancers) to adult patient education. The Journal of Continuing Education in Nursing, 10(6), 11-16.

APPENDIX A

Patient Consent for Research Study

Ottawa Civic Hospital

NAME OF STUDY: Educational Needs Expressed by Presurgery and Postdischarge Coronary Artery Bypass Graft Patients and Their Significant Other: A Problem Solving Approach

INVESTIGATOR: Mrs. Rosemary Coombs

PATIENT'S NAME: _____

WIFE/HUSBAND/COMPANION'S NAME: _____

I, _____, patient _____ wife/husband/companion _____, agree to participate in the study named above. The purpose of the study is to identify the educational needs of heart surgery patients before/after they are in hospital for surgery. We understand that participation will take about one to one and one-half hours of our time. Our interview with Mrs. Coombs will be tape recorded and later transcribed onto paper.

If we have questions about medical care, Mrs. Coombs will not be able to answer them but will relay them to the appropriate staff member at the Heart Institute or we will call ourselves.

Any information about us, as gathered from the questionnaire and during the interview, will be kept strictly confidential to the researcher and our names will not appear on the transcription of our interview.

We understand we are free to withdraw from the study at any time and that a withdrawal will not affect continued treatment.

We understand that the study findings may be presented, distributed, and published but our names and identifying information will not be revealed.

DATE: _____

PATIENT : _____

SPOUSE/COMPANION: _____

WITNESS: _____

APPENDIX B

Telephone Conversation to Explain Study and Invite Subject Participation

Hello, Mr./Mrs. _____. My name is Mrs. Rosemary Coombs. Your heart surgeon, Dr. _____, has given me your name as a possible participant in a study I am doing. The study is about what patients need to know before they have (PRE)/after they have had (PD1/PD4) heart surgery. If it is convenient now, I would like to take a few minutes to explain the study. May I tell you about the study or would you prefer I call back at another time?

The purpose of the study is to identify the educational needs of heart surgery patients before and after they are in hospital for surgery. If you are willing to join the study, it would take about one and one-half hours of your time. Your time will be spent completing a questionnaire (it is written in English), and answering some questions (also in English) during an interview. I will deliver the questionnaire to your home. It should be completed before we meet the following day for the interview, because at this time I will review your answers to the questionnaire. Then I will ask some other questions. I will use a tape recorder to record my questions and your answers. The information on the tapes will be transcribed onto paper after our talk. The tapes will be kept until the study is completed but will only be available for the purposes of the study. Your identity will be kept confidential and will not be noted on the paper. I may make a few hand written notes while we are talking. The person closest to you (wife/husband/companion) is also

asked to join the interview. Our interview may take place either in the Heart Institute or in your home, whichever you prefer. If you come to the Heart Institute, your parking and travel costs will be paid.

. Do you have any questions?... Are you willing to join in this study? Will your wife/husband/companion join us?

(If patient and significant other agree). Good. Would you like me to come to your home or should I arrange a room in the Heart Institute? What day and time are suitable for you and your spouse/companion? When I deliver the questionnaire, I will ask you to read and sign a consent form which will contain much of the information I have just told you. You will have a copy of the consent form to keep. Thank you for agreeing to join my study. I look forward to meeting you.

APPENDIX C

Patient Education Program ~~in~~ CABG Surgery Coding Grid (GRID)

Note. Underlined content in the GRID are educational needs which were coded as OTHER because they did not fit the original GRID codes. The original coding GRID is not underlined.

APPENDIX C

Patient Education Program in CABG Surgery Coding Grid (GRID)

Presurgery

Objective 1 Identify the educational needs of the CABG patient and family with regard to normal cardiac anatomy and physiology (structure & function).	A. Normal coronary arteries	1. Structure	a) 3 main arteries - Right, Left Circumflex, Left Anterior Descending
		2. Function	a) oxygenated blood to the heart muscle b) amount of blood dependent on rate & pumping action
		B. Heart C. Sternum	1. Size 1. Structure

Objective 2 Identify the educational needs of the CABG patient and family with regard to the disease process and controllable risk factors.	A. Atherosclerotic process	1. Plaque formation	a) happens over a long period
		2. Obstruction	a) extent and effect of damage
		3. Decreased blood supply	a) poor circulation in legs a) pains "all over" are confusing b) cause dizziness, fatigue
		4. Pain (angina/heart attack)	a) dental b) fear
		5. Shortness of breath	a) smoking, eating b) cholesterol
		6. Emotional effect	a) reduce/stop smoking b) reduces heart oxygenation c) increases risk of heart attack/sudden death d) reversal of dangers with cessation e) control need with gas, sints, alternate activities, less alcohol, avoidance of smoking situations
		7. Reversibility of atherosclerosis	g) benefits of not smoking (longer life span, no cough, lessen need for 2nd bypass, lung damage, less cost to health care system)
		8. Causes	h) addictive i) use "stop smoking" groups/city bylaws/signs j) tell self to stop
		9. Effect on physical function/strength	a) history of fat intake b) role of blood lipids & dietary fat in atherosclerosis
	B. Risk factors for coronary artery disease	1. Smoking	
		2. Dietary fat	

Objective 2
continued

3. Hypertension

- a) periodic monitoring of blood pressure
- b) effect of sodium (salt)
- c) symptoms (dizziness, headache, blurred vision, edema)

4. Obesity

- a) diet history
- b) modification of eating habits (eat less)
- c) benefits of weight reduction
- d) programs available for weight reduction

5. Sedentary life style

- a) advantages of exercise
- b) aerobic not isometric exercises

6. Stress

- a) role of stress in coronary artery disease
- b) Type A behaviour characteristics
- c) sources of stress (job, waiting for surgery)
- d) reduce stress by progressive relaxation
 - e) meditation
 - f) biofeedback
 - g) group therapy; psychiatry
 - h) exercise
 - i) self hypnosis
 - j) yoga
 - k) support groups, self-help
 - l) small units of work
 - m) planned recreation & pastimes
 - n) responsibility redistribution
 - o) talking about problems
 - p) mind control
 - q) driving
 - r) worry-free environment

- s) effect of stress on sleep, family relations, work

7. Uncontrollable risk factors

- a) sex
- b) age
- c) diabetes
- d) heredity

C. Follow prescribed rules
1. Listen
Relating to risk factors

- a) do not smoke, drink alcohol, eat fats

D. Determine risk
1. Annual checkup

Objective 3

Identify the educational needs of the CABG patient & family with regard to the CABG surgical procedure

A. Effects of surgery

1. Role of heart lung bypass machine
2. CABG surgery

- a) use of leg, arm veins as grafts
- b) deep veins take over
- c) occasionally use internal mammary artery
- d) coronary arteries not removed
- e) surgery is on heart surface, not interior
- f) grafts reroute blood supply
- g) improved blood supply to heart muscle
- h) sternal incision, permanent wire sutures
- i) location of wires
- j) incision is secure so can cough, move
- k) stop/restart heart
- l) length of operation
- m) time of incision and bone healing
- n) effect of operation on leg

3. Only a treatment; not a cure

- a) usual results, risks & effects

mortality rate

- b) aid treatment by following rules

- a) forget you are a heart patient

B. Reasons for CABG

1. Lifestyle improved, life prolonged

Objective 4

Identify the educational needs of the CABG patient & family with regard to physical & mental preparation for surgery

A. Diagnostic tests for baseline measurements

1. ECG
2. Blood Work
3. Chest X-Ray
4. Pulmonary function
5. Urine
6. Stress test (treadmill)
7. Cardiac catheterization (angiogram)
8. Radioactive scans (e.g. thallium)
9. Percutaneous transluminal coronary angioplasty (PTCA)

- a) purpose
- b) preparation, nervousness normal
- c) what will happen, tell before and during
- d) what patient can do to help
- e) tell results of tests
- f) tell risks

B. Physical preparation

1. Skin preparation
 - a) bathe/showers
 - b) special soap
 - c) shave hair
2. Stomach & bowel preparation
 - a) NPO (Nothing by mouth)
 - b) enema or suppository
3. Care of valuables, personal articles
4. Activities
 - a) avoid overexertion
 - b) walk more
5. timetable of who, what, when

Objective 4
continued

C. Mental preparation

1. Visits/explanations/information/
support from

- a) nurse
- b) surgeon
- c) anaesthetist
- d) clergy
- e) cardiologist
- f) general practitioner
- g) veteran patient
- h) psychologist
- i) family

- 2. Ask questions, write questions down
- 3. Verbalize problems, fears
- 4. Nervousness, worries, preoccupation normal
- 5. Positive attitude/self help
- 6. Relationship with health care professional
- 7. Tell of mental reaction, behaviour change, impatient, irritable
- 8. Read books on heart surgery
- 9. Distract self, keep busy
- 10. How to handle lengthy presurgery wait
- 11. Content, time of presurgery class

Objective 5

Identify the educational needs of the CABG patient & family with regard to early post-surgery care

A. Locations

- 1. Operating room, Recovery room, Intensive care unit, ward, Admitting department

- 2. Waiting room

- a) length of stay
- b) sights (rounds) and sounds (call system)
- c) map, pictures, tour
- d) bed utilization, early discharge

- a) visiting times
- b) phone calls, surgeon's explanation
- c) who may visit

B. Early post-surgery care

- 1. Endotracheal tube

- a) location
- b) unable to talk
- c) how to communicate
- d) hand restraints
- e) suction
- f) voice raspy
- g) choking

- 2. Respiratory care

- a) ventilator (respirator)
- b) incentive spirometer
- c) deep breathing & coughing
- d) splint incision with pillow (teddy)

- 3. ECG monitor

- a) lines
- b) alarms

Objective 5
continued

- 4. Tubes (intravenous, arterial, urinary, chest)
 - a) location
 - b) purpose
 - c) normality
 - d) removal
- a) possibility of ALOS contact
- a) purpose
- b) frequency
- a) location
- b) dressings
- a) one-to-one nursing
- a) self-care on ward

Objective 6

Identify the educational needs of the CABG patient & family with regard to post-surgery sensations & behaviour

- A. Physical sensations
 - 1. Pain (neck, shoulders, arms, axilla, spine, on movement, cough, sneeze, etc.)
 - a) take analgesic so can cough, move
 - b) rub chest, hold pad to chest
 - c) change position frequently
 - d) pattern
 - e) how to limit (keep still, lie down)
 - 2. Weakness
 - 3. Fever
 - 4. Stiffness, sore sitting
 - 5. Shortness of breath
 - 6. Fatigue, lack of energy
 - 7. Palpitations, bounding of heart
 - 8. Dizziness
 - 9. Burning incision
 - 10. Leg aches
 - 11. Nausea
- a) how serious?, how long?

B. Mental sensations

- 1. Vivid dreams
- 2. Confusion, disorientation
- 3. Hallucinations
- 4. Unable to concentrate

Postsurgery

Objective 7

Identify the educational needs of the CABG patient & family with regard to the disease process & surgical recovery

A. Chest pain

1. Differentiate the pain of

- a) ischemia (angina)
- b) necrosis (heart attack)
- c) sternal incision
- d) muscular pains in chest, shoulders, back

2. Situations which cause ischemia

a) exercise (lifting)

b) stress

c) anger

d) fear

e) heavy meals

f) too cold or too hot

g) humid weather

h) sexual intercourse

i) housework

j) bus, car rides

k) inclines

l) wind

3. Relief of pain

a) use NTB every 5 minutes, up to 3 times, for ischemic pain

b) reach emergency medical care

c) use analgesics, heat, rubs for incisional, muscular pain

d) do active range of joint muscle exercises to decrease muscular tension

e) careful positioning, movement

f) limit activity, angina-provoking activities if ischemic pain

4. Duration of pain

B. Pace of recovery

1. Individual, focus on self

2. Length dependent on condition, age, positive thinking

3. Improvement between 7-10 days postdischarge

4. First month difficult

Objective 8

Identify the educational needs of the CABG patient & family with regard to diet modifications

A. Diet

1. Normal/well-balanced (e.g. Canada's Food Guide)

- a) components of foods
- b) increase fruit
- c) increase vegetables
- d) increase carbohydrates
- e) may have poor appetite/family can bring food to hospital/becomes less active, of drugs
- f) try 3 small meals with snacks in between
- g) alcohol in moderation
- h) foods to counter constipation
- i) oral iron (Ferrous Sulphate)
- j) less sugar, no added salt, less fats
- k) less carbohydrates
- l) more fluids
- m) what to eat in restaurants?
- n) give specific food plan, recipes, menus
- o) avoid junk food
- p) do not tell effect of food on body
- q) foods high in potassium
- r) follow Fleischman's, Pridikin diets

2. Low sodium
3. Low saturated fat
4. Diabetic

- a) list of foods permitted
- b) food preparation
- c) where to purchase
- d) list of foods restricted
- e) effect on condition (e.g. low salt/edema)
- f) follow diet with someone else

Objective 9

Identify the educational needs of the CABG patient & family with regard to safe self-medication

A. Specific medications

1. Analgesics (pain killers)
2. Antiarrhythmics
3. Anticoagulants
4. Antihypertensives
5. Beta-blockers
6. Cathartics
7. Diuretics
8. Electrolyte supplement
9. Sedatives, tranquilizers
10. Vasodilators
11. Antiinflammatory
12. Oral hypoglycemic
13. Antibiotics

- a) names (generic, trade)
- b) purpose
- c) dose
- d) frequency
- e) side effects to expect (nausea, insomnia, decreased sexual activity, confusion, weakness, irritable, hallucinations)
- f) side effects to report to physician
- g) special considerations (e.g. pulse-taking, with or without food)
- h) minimize/avoid use of analgesics, sedatives, tranquilizers - danger of habituation, addiction

Objective 9
continued

B. General medication
guidelines

1. Possible interactions

- a) drugs to avoid
- b) when to avoid alcohol

2. Written drug schedule

- a) organize around meals
- b) use pill box

3. Shelf life of medications

- c) spread out hours between pills to decrease nausea

4. Take all prescribed medications

- d) missed doses

5. Ask physician re use of non-prescription drugs

6. Keep in convenient place

7. Keep prescriptions filled

8. Compare costs

Objective 10

Identify the educational needs of the CABG patient & family with regard to appropriate activity

A. Graduated exercise program

1. Type (walk, move legs, arms & shoulders)

2. Frequency

3. Location

4. Purpose

5. Conditions

6. Duration

7. Limitations

8. Distance

9. Speed/timing

10. Practice before discharge

11. Update at 1-2 weeks/how when to increase

- a) inside in bad weather

- a) to tire self

- b) do with someone

- b) exercises on floor/bed

- c) walk on flat/incline

- a) shortness of breath

- c

- a) stop for rest

B. Other activities

1. Self-care

2. Home

3. Recreation/hobbies

4. Occupation

5. Physical Conditioning (other than 10A)

- a) By energy requirements (use list of METS)
- b) Gradual increase by stage of convalescence, healing sternum/short duration

- c) Lifting, pulling, pushing weight limits

- d) Energy saving techniques/no overexertion

- e) Mix sedentary & movement activities

- f) Join cardiac rehabilitation, YM-YMCA "participation" program

- g) Get help

- h) Disciplining self to stay active

- i) Avoid "automatic" activities

- j) limited by fatigue, shortness of breath, season

- k) Avoid involvement

Objective 10
continued

C. Target pulse

How to take

2. When to take
3. Maximum beats per minute

- a) Rent kit to measure distance/heart rate
- b) Digital monitors

D. Social activities

1. Stay close to home for first month after surgery

- a) avoid long car rides
- b) avoid long distance travel

2. Resume gradually

- a) no visitors for first few days/ until comfortable, stronger, less tired
- b) visitors at home (can lie down)
- c) visiting others, church, force self
- d) space visiting, appointments
- e) set tolerable time limit/short talks
- f) set spokesperson to terminate visit
- g) pleasant topics only

3. Sexual relationships

- a) intercourse only one part of sexuality
- b) intercourse requires 5 MEIs energy expenditure (or equivalent to 2 flights of stairs without shortness of breath)
- c) be well rested
- d) stop if discomfort
- e) take analgesic 30 minutes before
- f) have MIB handy
- g) no heavy meal or alcohol before
- h) patient to use least strenuous position, passive sex
- i) activity decreased because of drugs
- j) fear of strain

E. Family activities

1. Attend all teaching programs/talk to physician

2. How to reach emergency care
3. Learn CPR
4. Conserve energy/physical & mental coping
5. Take breaks/relax
6. Get sufficient sleep
7. Enjoy time with patient/go not nag
8. Stay with patient for 2 weeks to help, support, motivate, listen, share
9. Keep environment stress free

Objective 11

Identify the educational needs of the CABG patient & family with regard to safe self-care

- A. Incision care
- 1. Bath or shower
 - a) OK when sutures cut & no drainage
 - b) warm not hot
 - c) mild soap
 - d) try "dry run" in bathtub
 - e) sit on stool to shower
 - f) take shower instead of bath
 - 2. Lotion
 - 3. Dry heat, hot compresses
 - 4. Lifting limits (see also 10B1-5c)
 - 5. Cautious driving to avoid chest trauma or no driving for 6 weeks
 - 6. Avoid cough, sneeze, stretch
 - 7. Cover to collect clear drainage
 - 8. If no drainage leave open
- a) calamine, lanolin for itchiness

B. Reduce venous stasis & graft leg edema

- 1. No lengthy standing or sitting
- 2. Wear elastic stockings, panty hose
- 3. Elevate leg when possible, sitting interrupts circulation
- 4. Exercise leg to relieve edema

C. Report to physician

- 1. Signs of incisional infection (pus, swollen, red)
- 2. Unusual dizziness
- 3. Unusual headache
- 4. Fever >101 F, chills
- 5. Angina, other pain
- 6. Sustained shortness of breath
- 7. Flu-like symptoms, inflammation in chest
- 8. Sustained fatigue
- 9. Sustained weakness
- 10. Sudden weight gain (fluid retention) circumference of calves, edema of legs need for low salt diet
- 11. Sustained fast (>120) heart rate
- 12. Sustained irregular heart rate
- 13. Insomnia, ask for stronger sedative
- 14. Constipation
- 15. "Crying jags"
- 16. Decreased sexual activity
- 17. How to know when symptoms are serious?
- 18. Need for "iron" pills

Objective 11
continued

D. Sleep

1. Retire early
2. Get 8 to 10 hours
3. Return to previous sleep pattern, bed
4. Deprivation

a) walk, read when can't sleep
 b) avoid caffeine
 c) find comfortable position, on back
 d) use to wake up for last sleep
 e) longer walks will increase sleep

5. Disturbances

a) sleep alone
 b) avoid heavy blankets

E. Rest (during the day)

1. Amount
2. Frequency
3. After meals
4. After exercise/activity
5. Reclining position, change position
6. Elevate legs
7. Avoid daytime sleep
8. TV

a) when tired, if pain

a) hobbies, read, TV

F. Clothing

1. Dress in street clothes
2. Women to wear bra if pendulous breasts
if bra not uncomfortable

G. Daily Schedule

1. Plan meals, walks, rest, sleep

Objective 12

Identify the educational needs of the CABG surgery patient & family with regard to postsurgery emotional reactions

A. Emotional reactions (other than stress)

1. Identify feelings about surgery experience

a) relief
 b) anger/frustration
 c) fear of death, fatalistic
 d) fear of chest pain, heart attack
 e) fear of incision opening
 f) fear of changes in heart beat
 g) lack of confidence in heart, insecure
 h) nervous of little "quirks" feelings
 i) frustrated at not able to do things
 j) needs reassurance as to quality of transfusions
 k) afraid of need for repeat surgery
 l) recurrence of blockages
 m) panic in first 3 days at home

2. Anticipate depression, lack of interest, boredom, lack of motivation due to

a) emotional letdown (less anxiety, fear)
 b) hormonal shift
 c) slower than expected recovery

Objective 12
continued

3. May be irritable, emotionally labile
have sudden frights, impatient, restless

4. May be a change in

a) how patient treats, reacts to others
b) how others react to, treat the patient

5. Lack of concentration, reacts slowly
forgetful, angry loss

6. Felt abandoned

1. Use self-help groups to

a) discuss how to alter risk factors
b) discuss problems
c) share solutions
d) separate patient/significant other
e) hold in patient's language

B. Care of emotional
reactions

2. Keep hands, mind occupied
mind, self control

3. Have counsellor/nursing coordinator
available

a) very important in first 3 weeks

4. Develop a positive, self-help attitude
safe time

5. Change lifestyle, priorities

Objective 13

Identify the
educational
needs of the
CABG patient
& family with
regard to
follow-up care

A. Make/keep appointments

1. Surgeon
2. Cardiologist
3. Family doctor
4. Public health nurse
5. Victorian Order Nurse
6. Psychologist
7. Nursing Coordinator
8. Physiotherapist

a) schedule early in postdischarge period

a) visit early in postdischarge period

a) phone once a week for 3 weeks

B. Printed information

1. Predischage program (booklet to patients)

a) follow book
b) add pages for daily schedule
c) have more progress report pages
d) clarify, specify diet
e) have booklet watch experience
f) add index

2. Telephone numbers

3. Purchase books on diet, heart attack
4. Have book on Heart Institute
5. Get books from Heart Foundation

a) describe job functions

OBJECTIVE 13.
(continued)

C. Call for help

1. Nurse Coordinator/Clinical Nurse Specialist
2. Emergency Department
3. Surgeon
4. Heart Institute
5. Family doctor
6. Call arrives at home
7. Someone with time to talk
8. Pharmacy/pharmacist

Objective 14

Identify the educational needs of the CABG patient with regard to management of work & finances

A. Return to work after surgery

1. Follow physician's advice as to when/if
2. Resume gradually - part-time to full-time
3. Factors which delay/contraindicate
 - a) heavy lifting
 - b) employer's attitude
 - c) employer's liability
4. Identify resources
 - a) vocational counselling
 - b) vocational rehabilitation
5. Help with forms

B. Finances

1. Identify resources
 - a) adequate supplemental income
 - b) paid sick leave
 - c) information re insurance plans
2. Effect on life
3. Learn to cope on reduced income

C. Work Status

1. Retired
2. Sick leave
3. No paid employment
4. At work
 - a) will return
 - b) will not return
5. Homemaker
 - a) parttime
 - b) fulltime
 - c) more flexible, shorter hours

Objective 15

Identify the preferred modalities of CABG patient & family education

A. Mode of Presentation

1. One-to-one
2. Group discussion
3. Panel discussion
4. Lecture
5. Team approach and roles of each

- a) small numbers
- a) social worker
- b) nurse
- c) dietitian
- d) physiotherapist
- e) pharmacist
- f) psychologist
- g) surgeon
- h) someone to answer questions
- i) counsellor

B. IV program

B. Methods

1. Printed (pamphlet, book, magazine)
2. Pictures, posters
3. Film, video
4. Slides
5. Tapes
6. Models
7. Printed teaching plan
8. Printed lists
9. Veteran patient/spouse (to use or not)
10. Diagrams
11. Television, newspaper, radio
12. Support group/buddy system
13. Watch own procedures (e.g. angiogram)
14. Computer visualization
15. Written instructions

a) of permitted and forbidden activities

a) explain, ask if want to see

a) personalize inserts

a) use free time

a) give chart/plan to patient

C. Time-presurgery

1. Before admission (more impact)
2. 3-5 days before surgery
3. Day before surgery
4. Attend after emergency surgery
5. Inform of time
6. After surgery date set/before decision

Objective 15
continued

D. Time-posturgery

1. Over several days
2. Before admission
3. On admission
4. 48 hours pre-discharge
5. After discharge
6. When patient feels ready
7. Teach diet later
8. Allow return attendance

a) one week to 3-6 months

E. Setting

1. Ambulatory care
2. Hospital
3. Community
4. Place to sit/ no interruptions

a) use volunteers

F. Addressee

1. Patient & significant other
2. Significant other
3. Patient
4. Patient & family

a) how much to do for patient

G. Approach

1. Simple/human/no technicalities
2. No ridicule or naming
3. No blood
4. More listening time
5. More specific details/important things
6. Introduce patients to each other
7. Have small numbers
8. Allow questions, repetition
9. Allow option to attend
10. Consider effects of suggestions
11. Avoid repetition/maintain continuity
12. Keep short
13. Divide presentation
14. Offer in French and English
15. Make easily available to all who should attend

APPENDIX D

Sickness Impact Profile (SIP) Questionnaire

THE FOLLOWING INSTRUCTIONS ARE FOR THE SELF-ADMINISTERED QUESTIONNAIRE.

PLEASE READ THE ENTIRE INTRODUCTION BEFORE YOU READ THE QUESTIONNAIRE. IT IS VERY IMPORTANT THAT EVERYONE TAKING THE QUESTIONNAIRE FOLLOWS THE SAME INSTRUCTIONS.

INTRODUCTION TO RESPONDENT

You have certain activities that you do in carrying on your life. Sometimes you do all of these activities. Other times, because of your state of health, you don't do these activities in the usual way: you may cut some out; you may do some for shorter lengths of time; you may do some in different ways. These changes in your activities might be recent or longstanding. We are interested in learning about any changes that describe you today and are related to your state of health.

The questionnaire booklet lists statements that people have told us describe them when they are not completely well. Whether or not you consider yourself sick, there may be some statements that will stand out because they describe you today and are related to your state of health. As you read the questionnaire, think of yourself today. When you read a statement that you are sure describes you and is related to your health, place a check on the line to the right of the statement. For example:

I am not driving my car _____ ☒ (026-031)

If you have not been driving for some time because of your health, and are still not driving today, you should respond to this statement.

On the other hand, if you never drive or are not driving today because your car is being repaired, the statement, "I am not driving my car" is not related to your health and you should not check it. If you simply are driving less, or are driving shorter distances, and feel that the statement only partially describes you, do not check it. In all of these cases you would leave the line to the right of the statement blank. For example:

I am not driving my car _____ (026-031)

Remember that we want you to check this statement only if you are sure it describes you today and is related to your state of health.

Read the introduction to each group of statements and then consider the statements in the order listed. While some of the statements may not apply to you, we ask that you please read all of them. Check those that describe you as you go along. Some of the statements will differ only in a few words, so please read each one carefully. While you may go back change a response, your first answer is usually the best. Please do not read ahead in the booklet.

* Once you have started the questionnaire, it is very important that you complete it within one day (24 hours).

If you find it hard to keep your mind on the statements, take a short break and then continue. When you have read all of the statements on a page, put a check in the BOX in the lower right-hand corner. If you have any questions, please refer back to these instructions.

Please do not discuss the statements with anyone, including family members, while doing the questionnaire.

Now turn to the questionnaire booklet and read the statements. Remember we are interested in the recent or longstanding changes in your activities that are related to your health.

(SR-0499)

PLEASE RESPOND TO (CHECK) ONLY THOSE STATEMENTS THAT YOU ARE SURE
DESCRIBE YOU TODAY AND ARE RELATED TO YOUR STATE OF HEALTH.

1. I spend much of the day lying down in order to rest _____ (070-083)
2. I sit during much of the day _____ (062-049)
3. I am sleeping or dozing most of the time - day and night _____ (063-104)
4. I lie down more often during the day in order to rest _____ (066-058)
5. I sit around half-asleep _____ (065-084)
6. I sleep less at night, for example, wake up too early,
don't fall asleep for a long time, awaken frequently _____ (069-061)
7. I sleep or nap more during the day _____ (071-060)

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE

☒

(EB-0705)

PLEASE RESPOND TO (CHECK) ONLY THOSE STATEMENTS THAT YOU ARE SURE
DESCRIBE YOU TODAY AND ARE RELATED TO YOUR STATE OF HEALTH.

1. I say how bad or useless I am, for example, that I am
a burden on others _____ (274-087)
2. I laugh or cry suddenly _____ (272-068)
3. I often moan and groan in pain or discomfort _____ (269-069)
4. I have attempted suicide _____ (281-132)
5. I act nervous or restless _____ (284-046)
6. I keep rubbing or holding areas of my body that hurt or
are uncomfortable _____ (262-062)
7. I act irritable and impatient with myself, for example,
talk badly about myself, swear at myself, blame myself
for things that happen _____ (273-078)
8. I talk about the future in a hopeless way _____ (283-089)
9. I get sudden frights _____ (278-074)

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE

☐

(BCM-2003)

PLEASE RESPOND TO (CHECK) ONLY THOSE STATEMENTS THAT YOU ARE SURE
DESCRIBE YOU TODAY AND ARE RELATED TO YOUR STATE OF HEALTH.

1. I make difficult moves with help, for example, getting into or out of cars, bathtubs _____ (168-084)
2. I do not move into or out of bed or chair by myself but am moved by a person or mechanical aid _____ (170-121)
3. I stand only for short periods of time _____ (155-072)
4. I do not maintain balance _____ (146-098)
5. I move my hands or fingers with some limitation or difficulty _____ (152-064)
6. I stand up only with someone's help _____ (165-100)
7. I kneel, stoop, or bend down only by holding on to something _____ (171-064)
8. I am in a restricted position all the time _____ (158-125)
9. I am very clumsy in body movements _____ (148-058)
10. I get in and out of bed or chairs by grasping something for support or using a cane or walker _____ (169-082)
11. I stay lying down most of the time _____ (162-113)
12. I change position frequently _____ (147-030)
13. I hold on to something to move myself around in bed _____ (143-086)
14. I do not bathe myself completely, for example, require assistance with bathing _____ (310-089)
15. I do not bathe myself at all, but am bathed by someone else _____ (312-115)
16. I use bedpan with assistance _____ (292-114)
17. I have trouble getting shoes, socks, or stockings on _____ (305-057)
18. I do not have control of my bladder _____ (290-124)

(CONTINUED FROM PAGE 198)

19. I do not fasten my clothing, for example, require assistance with buttons, zippers, shoelaces _____ (298-074)
20. I spend most of the time partly undressed or in pajamas _____ (302-074)
21. I do not have control of my bowels _____ (295-128)
22. I dress myself, but do so very slowly _____ (300-043)
23. I get dressed only with someone's help _____ (297-088)

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE

☐

(HM-0668)



THIS GROUP OF STATEMENTS HAS TO DO WITH ANY WORK YOU USUALLY DO IN CARING FOR YOUR HOME OR YARD. CONSIDERING JUST THOSE THINGS THAT YOU DO, PLEASE RESPOND TO (CHECK) ONLY THOSE STATEMENTS THAT YOU ARE SURE DESCRIBE YOU TODAY AND ARE RELATED TO YOUR STATE OF HEALTH

1. I do work around the house only for short periods of time or rest often _____ (117-054)
2. I am doing less of the regular daily work around the house than I would usually do _____ (119-044)
3. I am not doing any of the regular daily work around the house that I would usually do _____ (120-086)
4. I am not doing any of the maintenance or repair work that I would usually do in my home or yard _____ (001-062)
5. I am not doing any of the shopping that I would usually do _____ (106-071)
6. I am not doing any of the house cleaning that I would usually do _____ (116-077)
7. I have difficulty doing handwork, for example, turning faucets, using kitchen gadgets, sewing, carpentry _____ (107-069)
8. I am not doing any of the clothes washing that I would usually do _____ (111-077)
9. I am not doing heavy work around the house _____ (115-044)
10. I have given up taking care of personal or household business affairs, for example, paying bills, banking, working on budget _____ (105-084)

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE

☐

(M-0719)

PLEASE RESPOND TO (CHECK) ONLY THOSE STATEMENTS THAT YOU ARE SURE
DESCRIBE YOU TODAY AND ARE RELATED TO YOUR STATE OF HEALTH.

-
- | | |
|--|-----------------|
| 1. I am getting around only within one building | _____ (134-086) |
| 2. I stay within one room | _____ (128-106) |
| 3. I am staying in bed more | _____ (130-081) |
| 4. I am staying in bed most of the time | _____ (131-109) |
| 5. I am not now using public transportation | _____ (140-041) |
| 6. I stay home most of the time | _____ (133-066) |
| 7. I am only going to places with restrooms nearby | _____ (125-056) |
| 8. I am not going into town | _____ (124-048) |
| 9. I stay away from home only for brief periods of time | _____ (139-054) |
| 10. I do not get around in the dark or in unlit places
without someone's help | _____ (121-072) |

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE

☐

(SI-1450)

PLEASE RESPOND TO (CHECK) ONLY THOSE STATEMENTS THAT YOU ARE SURE DESCRIBE YOU TODAY AND ARE RELATED TO YOUR STATE OF HEALTH.

-
- | | |
|---|-----------------|
| 1. I am going out less to visit people | _____ (028-044) |
| 2. I am not going out to visit people at all | _____ (029-101) |
| 3. I show less interest in other people's problems, for example, don't listen when they tell me about their problems, don't offer to help | _____ (003-067) |
| 4. I often act irritable toward those around me, for example, snap at people, give sharp answers, criticize easily | _____ (015-084) |
| 5. I show less affection | _____ (007-052) |
| 6. I am doing fewer social activities with groups of people | _____ (012-036) |
| 7. I am cutting down the length of visits with friends | _____ (027-043) |
| 8. I am avoiding social visits from others | _____ (034-080) |
| 9. My sexual activity is decreased | _____ (039-051) |
| 10. I often express concern over what might be happening to my health | _____ (018-052) |
| 11. I talk less with those around me | _____ (002-056) |
| 12. I make many demands, for example, insist that people do things for me, tell them how to do things | _____ (038-088) |
| 13. I stay alone much of the time | _____ (023-086) |
| 14. I act disagreeable to family members, for example, I act spiteful, I am stubborn | _____ (249-088) |
| 15. I have frequent outbursts of anger at family members, for example, strike at them, scream, throw things at them | _____ (240-119) |
| 16. I isolate myself as much as I can from the rest of the family | _____ (237-102) |

(CONTINUED FROM PAGE 202)

17. I am paying less attention to the children - _____ (238-064)
18. I refuse contact with family members, for example, turn
away from them _____ (256-115)
19. I am not doing the things I usually do to take care of
my children or family _____ (242-079)
20. I am not joking with family members as I usually do _____ (255-043)

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE

☐

(A-0842.)

PLEASE RESPOND TO (CHECK) ONLY THOSE STATEMENTS THAT YOU ARE SURE
DESCRIBE YOU TODAY AND ARE RELATED TO YOUR STATE OF HEALTH.

-
- | | |
|---|-----------------|
| 1. I walk shorter distances or stop to rest often | _____ (050-048) |
| 2. I do not walk up or down hills | _____ (046-056) |
| 3. I use stairs only with mechanical support, for example,
handrail, cane, crutches | _____ (042-067) |
| 4. I walk up or down stairs only with assistance from
someone else | _____ (044-076) |
| 5. I get around in a wheelchair | _____ (057-096) |
| 6. I do not walk at all | _____ (052-105) |
| 7. I walk by myself but with some difficulty, for
example, limp, wobble, stumble, have stiff leg | _____ (049-055) |
| 8. I walk only with help from someone | _____ (053-088) |
| 9. I go up and down stairs more slowly, for example,
one step at a time, stop often | _____ (040-054) |
| 10. I do not use stairs at all | _____ (041-083) |
| 11. I get around only by using a walker, crutches,
cane, walls, or furniture | _____ (047-079) |
| 12. I walk more slowly | _____ (051-035) |

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE

☐

(AB-0777)

PLEASE RESPOND TO (CHECK) ONLY THOSE STATEMENTS THAT YOU ARE SURE DESCRIBE YOU TODAY AND ARE RELATED TO YOUR STATE OF HEALTH.

-
1. I am confused and start several actions at a time _____ (223-090)
 2. I have more minor accidents, for example, drop things, trip and fall, bump into things _____ (234-075)
 3. I react slowly to things that are said or done _____ (228-059)
 4. I do not finish things I start. _____ (227-067)
 5. I have difficulty reasoning and solving problems, for example, making plans, making decisions, learning new things _____ (224-084)
 6. I sometimes behave as if I were confused or disoriented in place or time, for example, where I am, who is around, directions, what day it is. _____ (231-113)
 7. I forget a lot, for example, things that happened recently, where I put things, appointments _____ (222-078)
 8. I do not keep my attention on any activity for long _____ (220-067)
 9. I make more mistakes than usual _____ (225-064)
 10. I have difficulty doing activities involving concentration and thinking _____ (217-080)

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE

☐

(C-0725)

PLEASE RESPOND TO (CHECK) ONLY THOSE STATEMENTS THAT YOU ARE SURE
DESCRIBE YOU TODAY AND ARE RELATED TO YOUR STATE OF HEALTH.

1. I am having trouble writing or typing _____ (191-070)
2. I communicate mostly by gestures, for example,
moving head, pointing, sign language _____ (177-102)
3. My speech is understood only by a few people
who know me well _____ (179-093)
4. I often lose control of my voice when I talk,
for example, my voice gets louder or softer,
trembles, changes unexpectedly _____ (197-083)
5. I don't write except to sign my name _____ (188-083)
6. I carry on a conversation only when very close
to the other person or looking at him _____ (178-067)
7. I have difficulty speaking, for example, get
stuck, stutter, stammer, slur my words _____ (176-076)
8. I am understood with difficulty _____ (200-087)
9. I do not speak clearly when I am under stress _____ (201-064)

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE

☐

THE NEXT GROUP OF STATEMENTS HAS TO DO WITH ANY WORK YOU USUALLY DO-OTHER THAN MANAGING YOUR HOME. BY THIS WE MEAN ANYTHING THAT YOU REGARD AS WORK THAT YOU DO ON A REGULAR BASIS.

DO YOU USUALLY DO WORK OTHER THAN
MANAGING YOUR HOME?

YES

NO



IF YOU ANSWERED YES, GO ON TO THE NEXT PAGE.



IF YOU ANSWERED NO:

ARE YOU RETIRED?

YES

NO

IF YOU ARE RETIRED, WAS YOUR
RETIREMENT RELATED TO YOUR HEALTH?

YES

NO

IF YOU ARE NOT RETIRED, BUT ARE
NOT WORKING, IS THIS RELATED TO
YOUR HEALTH?

YES

NO



NOW SKIP THE NEXT PAGE.

(W-0515)

IF YOU ARE NOT WORKING AND IT IS NOT BECAUSE OF
YOUR HEALTH, PLEASE SKIP THIS PAGE.

NOW CONSIDER THE WORK YOU DO AND RESPOND TO (CHECK) ONLY THOSE
STATEMENTS THAT YOU ARE SURE DESCRIBE YOU TODAY AND ARE RELATED
TO YOUR STATE OF HEALTH. (IF TODAY IS A SATURDAY OR SUNDAY OR
SOME OTHER DAY THAT YOU WOULD USUALLY HAVE OFF, PLEASE RESPOND
AS IF TODAY WERE A WORKING DAY.)

-
1. I am not working at all _____ (100-361)
(IF YOU CHECKED THIS STATEMENT, SKIP TO THE NEXT PAGE.)
-
2. I am doing part of my job at home _____ (094-037)
3. I am not accomplishing as much as usual at work _____ (096-055)
4. I often act irritable toward my work associates,
for example, snap at them, give sharp answers,
criticize easily _____ (088-080)
5. I am working shorter hours _____ (095-043)
6. I am doing only light work _____ (086-050)
7. I work only for short periods of time or take
frequent rests _____ (090-061)
8. I am working at my usual job but with some changes,
for example, using different tools or special aids,
trading some tasks with other workers _____ (092-034)
9. I do not do my job as carefully and accurately as usual _____ (097-062)

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE ☐

(RP-0422)

THIS GROUP OF STATEMENTS HAS TO DO WITH ACTIVITIES YOU USUALLY DO IN YOUR FREE TIME. THESE ACTIVITIES ARE THINGS THAT YOU MIGHT DO FOR RELAXATION, TO PASS THE TIME, OR FOR ENTERTAINMENT. PLEASE RESPOND TO (CHECK) ONLY THOSE STATEMENTS THAT YOU ARE SURE DESCRIBE YOU TODAY AND ARE RELATED TO YOUR STATE OF HEALTH.



-
1. I do my hobbies and recreation for shorter periods of time _____ (215-039)
 2. I am going out for entertainment less often _____ (214-036)
 3. I am cutting down on some of my usual inactive recreation and pastimes, for example, watching TV, playing cards, reading _____ (207-059)
 4. I am not doing any of my usual inactive recreation and pastimes, for example, watching TV, playing cards, reading _____ (208-084)
 5. I am doing more inactive pastimes in place of my other usual activities _____ (211-051)
 6. I am doing fewer community activities _____ (216-033)
 7. I am cutting down on some of my usual physical recreation or activities _____ (210-043)
 8. I am not doing any of my usual physical recreation or activities _____ (209-077)

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE

☐

(E-0705)

PLEASE RESPOND TO (CHECK) ONLY THOSE STATEMENTS THAT YOU ARE SURE
DESCRIBE YOU TODAY AND ARE RELATED TO YOUR STATE OF HEALTH.

1. I am eating much less than usual _____ (085-037)
2. I feed myself but only by using specially prepared
food or utensils _____ (073-077)
3. I am eating special or different food, for example,
soft food, bland diet, low-salt, low-fat, low-sugar _____ (081-043)
4. I eat no food at all but am taking fluids _____ (077-104)
5. I just pick or nibble at my food _____ (083-059)
6. I am drinking less fluids _____ (080-036)
7. I feed myself with help from someone else _____ (074-099)
8. I do not feed myself at all, but must be fed _____ (075-117)
9. I am eating no food at all, nutrition is taken
through tubes or intravenous fluids _____ (076-133)

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE

☐

NOW, PLEASE REVIEW THE QUESTIONNAIRE TO BE CERTAIN YOU HAVE FILLED OUT ALL THE INFORMATION. LOOK OVER THE BOXES ON EACH PAGE TO MAKE SURE EACH ONE IS CHECKED SHOWING THAT YOU HAVE READ ALL OF THE STATEMENTS. IF YOU FIND A BOX WITHOUT A CHECK, THEN READ THE STATEMENTS ON THAT PAGE.

APPENDIX E

Letter of Approval to Use the Sickness Impact Profile



School of Public Health and Community Medicine

Community Medicine Program
Department of Health Services, SC-37
(206) 543-7952

October 10, 1985

Rosemary Coombs, R. N., M. N.
2083 Black Friars Road
Ottawa, Ontario
K2A 3K6
Canada

Dears Mrs. Coombs:

This letter is to grant you permission to use the SIP in your thesis study of patients who are undergoing coronary artery bypass grafts.

I do not know of any studies that have used the SIP with patients similar to this, but my information on ongoing research is very poor. At the present time, neither I nor anyone else seem to have an organized file of ongoing or completed research using quality of life instruments. Currently, the only way to obtain information of this sort is to do a library search on health status or quality of life and to review all of the published material which is listed under those two rubrics.

In our development of the Sickness Impact Profile, we tested administration of the SIP to a significant other and a clinician asking that it be completed as the patient would. In addition, a study of patients who had survived cardiac arrest administered the SIP to a significant other when a respondent could not complete it. Our own experience, under controlled experimental conditions, led us to the conclusion that SIPs completed by significant others and clinicians were different from each other and different from the patient. The experience of those who administered the SIP to cardiac arrest patients indicated that those completed by significant others seemed to be somewhat different from those completed by the patient him or herself. In short, SIPs completed by significant others are likely to be different from those completed by patients but we do not know why they are different and whether they are reliable or valid.

To: Rosemary Coombs, R.N., M.N.
October 10, 1985

Page Two

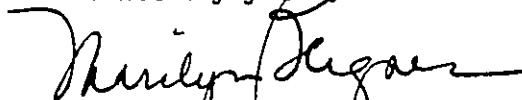
You are certainly free to administer the SIP to a significant other but you do so at the risk of obtaining information considerably different from that which you would obtain from a patient and information which is unknown in terms of reliability and validity. I would certainly not expect that any of these data would be similar to that obtained from SIPs as originally developed and, I would not expect that you would use these in the same way as the SIP completed by the patient.

The only statement in the SIP that is phrased so that its time reference could be construed to be more than "today" is the item, "I have attempted suicide". This item has been retained in that format because during the testing of the SIP, it was the most sensitive item for patients who had clear mental health illnesses. We believe, in fact, that people who did respond to this item may have both seriously contemplated suicide and attempted suicide. Their concept of today may be somewhat longer than the twenty-four hour period that would strictly be today. Nonetheless, the item is sensitive. I believe that if you were to change the item to "I have contemplated suicide", you would lose the sensitivity and you would clearly change the scoring and potential comparability of that particular category of the SIP and the overall instrument. (I should note that we have never had a subject object to the item, no matter how ill he or she was.)

I do not understand your concern about the item that mentions public transportation. If your patients are hospitalized, then clearly they are not using public transportation and one would assume that they would respond positively to that item.

I am including a copy of the Fortran Program which you may find useful in programming your own information.

Sincerely yours



Marilyn Bergner, Ph.D.
Professor

MB:gk

Enclosure

APPENDIX F

Interview Schedule

Thank you for completing the questionnaires which I left the other day. (To patient) I would like to review the items that you checked. (To significant other) You may follow along with us but I will not review your answers.

(Interviewer reviews the 12 categories in the sequence of the Sickness Impact Profile: SR, EB, BCM, HM, M, SI, A, AB, C, W, RP, and E. The following technique is used):

Begin with the first page, (Sleep & Rest) - which one, of the ones you checked on this page, do you consider to be your major problem? What would you tell a friend to do, if he or she complained of this problem and wanted to prevent, minimize, lessen it or learn to live with it?

(If no items are checked, proceed to the next category, Emotional Behavior, and repeat the two questions, etc.).

Key to SIP Categories:Individual Physical

SR =Sleep & Rest
 BCM=Body Care & Movement
 HM =Home Management
 M =Mobility
 A =Ambulation
 RP =Recreation & Pastimes
 E =Eating

Individual Psychological

EB=Emotional Behavior
 AB=Alertness Behavior

Social

SI =Social Interaction
 C =Communication

Environmental

W = Work

Medical Regimen (adapted from Bartlett, 1982; Mullen, 1980; Strauss, 1975)

(Several possible questions are noted below; only those appropriate to the patient's situation were asked).

(Worries and Concerns - Preventing medical crises and managing them if they should occur)

There are worries or concerns that one must have when one has a heart problem. How does one cope with these worries and concerns?

What type of explanation or support might help a friend cope with these worries and concerns?

With your experience, what would you tell one of your best friends, who has just learned he has to have heart surgery in the near future? (PRE)/ who is recovering from heart surgery? (PD1/PD4)

If you were responding to a friend's request as to how to cope with worries and concerns, what would you suggest to him/her?

(Following Prescribed Rules - Carrying out prescribed regimens)

Almost everyone, who has a heart problem has been told to do some things and to avoid other things, such as taking medicines and avoiding certain foods. Suppose a friend of yours, at the same stage as you are, has been told to follow certain prescribed rules. If you were asked by him/her for information as to the help he could expect from others in how to cope with the prescribed rules,

what would you tell him?

What would be most useful, In your opinion, for him/her to help follow the prescribed rules?

(Adjusting Lifestyle/Living Patterns to Coronary Artery Disease (CAD) - Adjusting to the course of the disease)

Suppose a friend of yours has just been told that he has coronary artery disease.

What would you suggest to help to adjust his/her living patterns to the heart problem?

What resources would you like to see made available to help persons to adjust living patterns to heart disease?

(Problems Communicating with Health Care Professionals - Availability of preventive/rehabilitative care)

Stories of troubles in contacting and communicating with doctors and nurses abound.

What problems have you had in getting medical care? (for example, waiting time, clinic appointments, phone calls)

What problems have you had in getting answers to your questions?

What do you think should be available to offer you better health care?

In what form should it be available?

(Major Problem)

Of all the problems you have mentioned today, which one do you consider to be the major problem? (Neuman, 1982)

(Deficient Program and Ideal Program)

Finally, I ask you to place yourself in each of these two situations:

(Deficient Program) - The Nursing Coordinator from the Heart Institute has phoned to ask you to join in a panel of patients who are going to have (PRE)/ have had (PD1/PD4) heart surgery. You agree to join the group which will meet tomorrow. She has asked you to think of information that you feel was missing from what you were told once you knew you were going to have heart surgery (PRE)/ from what you were told after surgery or what was in the discharge booklet you were given after surgery (PD1/PD4). This is an opportunity to say what was lacking, as far as you are concerned, from the program for heart surgery patients. You might think of answers to the question, "Is there anything else you want to know more about?" (Meyer & Latz, 1979). What would you say when it is your turn tomorrow?



(Ideal Program)- Suppose you were part of a group who was asked to develop a program to prepare patients for heart surgery (PRE)/for discharge from hospital after heart surgery (PD1/PD4). You are one of the planning members of that team. You want this to be an ideal program for patients before (PRE)/ after (PD1/PD4) heart surgery.

To prepare the ideal program, think of answers to these questions:

What do you think should be included in the program?

(in the booklet you were given after heart surgery?)

What information and resources should be mentioned?

What should be told to the family?

When and where should such a program be presented?

Who should present the program?

How do you think it should be presented?

Thank you very much for your help in my study. Would like a copy of the final report?

APPENDIX 6

Demographic, Medical and Research Data Sheet

Completed Study _____ Group _____ Code _____
 Withdrew from Study _____ 1)Preop, 2)DiscE, 3)Discl
 Lost to Study _____
 Date of Study _____ Send copy of report

Location of Study _____

Problems during Study _____

Hospital # _____ Surgeon _____

Name of patient _____

Name of significant other _____

Mailing Address _____

Phone # () _____

Sex _____ Date of Birth _____ Age _____

Primary Language Spoken - English _____, French _____, Other _____

Occupation _____ Date _____ last _____ employed

Years of formal education _____

Month Day Year

Date told of need for surgery _____

Date of surgical admission _____

Date of surgery _____

Date of surgical discharge _____

Date/hospital of readmission _____

Reason for readmission _____

Length of readmission stay _____

Length of hospitalization - presurgery _____ postsurgery _____

Notes/Comments

Medical/Surgical History

Cardiac problem -1)Heart attack____,2)Angina____,3)Other_____

_____Time since problem began_____

Month Year

Hospitals where received treatment for problem_____

Date of cardiac catheterization _____

Current Medications

<u>Name</u>	<u>Dose</u>	<u>Frequency</u>

Patient Education History

<u>Classes</u>	<u>Pt</u>	<u>Pt+S/O</u>	<u>S/O</u>	<u>Year</u>	<u>Month</u>	<u>Day</u>
Post MI						
Post MI Family						
Postdischarge MI						
Cardiac catheter						
Presurgery						
Predischarge surgery						
Exercise						
Diet						
Postdischarge surgery						
Other						

Note. Pt=Patient. S/O=Significant Other. MI=myocardial infarction.

Health Care Provider Contact History

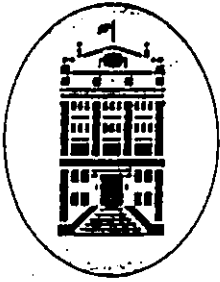
<u>Provider</u>	<u>When</u>	<u>P</u>	<u>V</u>	<u>Reason</u>
Family Physician-Preop				
	-DiscE			
	-DiscL			
Cardiologist	-Preop			
	-DiscE			
	-DiscL			
Cardiac Surgeon	-Preop			
	-DiscE			
	-DiscL			
Nursing	-Preop			
Coordinator	-DiscE			
	-DiscL			
Public Health	-Preop			
Nurse	-DiscE			
	-DiscL			
Victorian Order	-Preop			
Nurse	-DiscE			
	-DiscL			
Veteran patient	-Preop			
	-DiscE			
	-DiscL			
Other	-Preop			
	-DiscE			
	-DiscL			

Note. DiscE=Discharge Early, DiscL=Discharge Late, P=phone, V=visit

September 26, 1985

APPENDIX H

Letters of Approval of the Research Protocol



**Ottawa
Civic Hospital**

1053 Carling Ave.
Ottawa, Ontario
Canada K1Y 4E9
(613) 725-4395

Raphael Saginur, M.D.
Chairman,
Research Ethics Committee
Department of Research
Station #63
O.C.H.

September 25, 1985

Ms. Rosemary Coombs,
Division of Nursing
Ottawa Civic Hospital

Re: Project #743 - Educational needs expressed by
prehospital and posthospital coronary
artery bypass graft patients: An
information processing solving
approach.

Dear Ms. Coombs:

Your protocol was considered at the September 19th Research
Ethics Committee meeting and was given full ethical
approval.

We wish you every success with its performance.

Yours sincerely,


Raphael Saginur, M.D.

RS:lp

OTTAWA CIVIC HOSPITAL
DIVISION OF PATIENT CARE

APPROVAL FORM FOR RESEARCH AND EVALUATION STUDIES

Educational Needs Expressed by Prehospital and Posthospital
Coronary Artery Bypass Graft Patients: An Information Processing
Title of Study Problem Solving Approach

Research ✓ Evaluation _____

Activity Director Mrs. Rosemary Coombs

Title Principal Investigator

Department Graduate Student Collaborators _____

Name to Contact for Information Mrs. Rosemary Coombs

Telephone Extension 729-3705

It is recommended this action on this study be for:

✓ Approval

Approval with the following conditions:

Deferred in order to:

Disapproval because of:

Kerry Marshall
Kerry Marshall,
Vice President, Patient Care

Heather Ogilvie
Heather Ogilvie,
Director of Nursing Research

APPENDIX I

Excerpts from the Interview Protocols

Note. Seven excerpts from the interview protocols are included in Appendix I. Each is identified with its own code. Codes beginning with #1=presurgery, with #2=postdischarge one week, and with #3= postdischarge four week subjects. I=interviewer. P=patient. S=significant other. Numbers in the protocols and summary scenario columns refer to the item by the same number in the Sickness Impact Profile category under discussion (see Appendix D). ()=words not used in the interview. Inserted for the convenience of the coders.

Interview Protocol #1-005

PSI	Summary	Scenario	GRID/OTHER
Subjects 1-005, patient is 12 days preoperative. Patient lives at home with spouse and 3 sons (young adult, working and at University). P. was full of questions on first contact (see below). Spouse was busy on I.'s arrival and had not completed the SIP. The reason given was that he was not a doctor. I. explained the purpose of the family member completing the SIP and P. asked S. to do it and he did complete it. When the interview was almost finished, S. left to go to the store. As I. was leaving, S. came to the doorway with an old edition encyclopedia with a picture of the heart. He had many questions, "Is the heart opened up for this surgery? Are there any books on this operation? Why use the vein, wouldn't it be easier to use a plastic tube? Where do they put the bypass? How long will it take? P. & S. were referred, by the I., to attend the presurgery class on the next Saturday it was held. During the I.'s phone call to request subject participation, the I. had barely introduced herself, when P. asked, "Am I getting transfusions?", "I know they test the blood and are careful but all this publicity about AIDS has made me nervous". "I am a diabetic on pills. Because of this will I have more complications? How long will I be in the OR? Is it longer for more grafts?" I. suggested P. should ask these questions of the surgeon. When she refused, I. offered to ask them for her and have the surgeon call her, but P. refused "Don't want to bother him". The I.'s offer was repeated at the time of the interview and again refused. P. and S., however, did attend the presurgery class several days prior to the P.'s admission for surgery. P. (began talking even before tape recorder was plugged in)...it was just I couldn't seem to get enough rest and I was just getting too tired. 1. Full time work is hard. (Asks for signature of consents) 8. What is this all about? I. We are trying to find out what patients want to know, what they need to be told and this questionnaire just stimulates ideas.	S	Asked questions <u>after</u> interview: - Is heart opened? - Why use vein + not a plastic tube? - Where are bypasses put? - How long will it take?	3 A 2a) 3 A 2 b) 3 A 2 (where) 3 A 2 (how long)
P	Questions asked at phone call: - Am I getting transfusions? - Will my diabetes cause problems? - How long in OR? - Is it longer for more grafts? Suggested that I call surgeon, but refused - did not want to bother the surgeon	I	5B5 (AIDS) 5B10 (diabetic) 3A2 (how long) 4C1b (P refused)
P	Tells of quitting work because could not get enough rest and was getting tired	P	14 A 1
(SICKNESS IMPACT PROFILE) (P. did not check any statements, almost as if denying illness. She did talk a lot, however, on the topics of the SIP categories as they came up) P. This questionnaire, according to me, I am not disabled to the extent that I have to be looked after. I am disabled to the extent that I cannot... my lifestyle has changed since my heart attack. I. The preoperative patients may not mark too much in the questionnaire, but that is OK. It is really a basis for discussion and each page I go through with you, if you marked anything, we discuss that. I am looking for ideas of what patients want to know. You have already asked questions..	P	Refers to SIP as if it did not apply to her. Denies disability but admits to change in lifestyle since M.I.	
I. On page one (Sleep & Rest), if you didn't mark any that's fine... P. There is nothing there. I sleep good. If I have a coffee before, say 10 o'clock, I think that is just an excuse, that I can't sleep.	P	Did not select any statements. Thinks coffee might prevent her from sleeping	11 D 5 (sleeps well unless has coffee)
I. And the next one (Emotional Behaviour) P. There is nothing there either because I'm here alone all day. I putter around. I don't rush to do anything. I just take my time and rest when necessary or when I feel like it.	P	Did not select any statements .. because alone all day and rests as necessary	10 B 2a) 11 E 1

Interview Protocol # 1-010

PSI Summary Scenario GRID/OTHER

I. So there have been no problems, since the time in the Heart Institute in getting answers to questions. Was there anything beforehand? P. No. I. Things moved the way you wanted them too. P. There wasn't a lot of time taken up between the time I had the stress test and I had the angiogram, and seeing Dr. X (surgeon), 2-3 weeks and I'm sure, if the situation had demanded it, it probably would have happened a hell of a lot sooner. I. You felt, that did you? P. Yes.	P P	No problems Time-not long between. If situation demanded would have had surgery sooner.	3 A 2 j) (know CAD can be treated) 4 A 7 e) (not so bad) 4 C 1 f) (to alley fears) 3 A 3
<u>Worries and Concerns</u> I. Last question along this line, most people who have the diagnosis of coronary artery disease have some worries and concerns, whatever goes on, what advice and what support could health care professionals give people with regards to this? You kind of answered a little bit in some of the things you said. Is there anything more to highlight? P. I think the big thing is that today most of these things can be dealt with. The situation 15 years ago, for example... S. The angiogram wasn't nearly as bad as you had anticipated. I heard you say that on the phone to someone one day. You know someone going to have one and you said it's not a painful process. You had anticipated it might be. P. Well, again this is just part of the unknown. Unless somebody explains to you what's going to happen to allay your fears. You stem and fret, maybe you're going to get hurt. At the end of the angiogram, I would have another tomorrow if I had to without worrying about it. I didn't find it uncomfortable at all, but back to the question, I think reassuring people...if you talk to them, the health professionals, as a whole.. I think, if they can reassure people that there are cures, not cures, but measures that can be taken to correct or alleviate the problem or symptom, I think that is the biggest thing. The most important thing... people are thrown.. that science and technology is where it was 10 or 15 years ago. There have been so many strides made in the last few years.	I P S P P	Advice re. worries & concerns... Knows that "these things" (coronary disease) can be dealt with Angiogram not as bad as expected Need explanations to allay fears Reassure people that there are measures to alleviate the problem better than 15 yrs ago	3 A 4 (get it done)
<u>MAJOR PROBLEM</u> I. This question is just a short one. Of all the things we have discussed, for you what would you say would be your major problem right now? P. Getting the operation over with. (Laughs) (S. That's right). One thought that goes through my mind, is that I think I am lucky that they caught me before I had any kind of atherosclerotic damage. If they could get some people at that point rather than after they have all that scar tissue, that sort of thing, you'd be away to the races..	I P	Major problem now....? Getting the operation over Considers self lucky he was "caught" before he had heart muscle damage.	3 A 4 (get it done)
<u>DEFICIENT PROGRAM</u> I. My last question really has to do with what you think is missing from what you have been told already. You answered a lot of that. One of the things, I am not trying to put words in your mouth, but it seems to me that you had some concern about the angiogram, you didn't know what you were getting into until you got into it. Is that correct? P. I knew more about it probably than most because a very good friend of mine at work, a lawyer	I P	Anything missing from program? (did not attend cardiac catheter class) Friend who had heart surgery	4 A 7 15 B 9

Interview Protocol # 2-024

these veins or those arteries when they get all clogged up?

I. Cholesterol you mean?

P. The cholesterol...

I. Plaques.

P. Plaques form inside the artery. That doesn't happen overnight.

I. No, it doesn't.

IDEAL PROGRAM

I. Maybe you could contribute to this one too. If you were invited to help plan an ideal program for what is called the "predischARGE" class, what would you say should be included? P. I'll go back to what I finished saying, diet, I would leave that absolutely and positively alone. I wouldn't put a lot of chemical terms in because the person that's in there is taking a lot of chemicals to start with, all these pills that you have to take, which are necessary, but I'd take that away from the patient's mind for that period of time, and I suggested 6-8 weeks, and let him get back on his feet as far as that is concerned, and then hit him with the diet. You might suggest diet in a subliminal way, stating that, "Hey we're going to get back at you and we're going to talk about diet but we don't want to talk about it to you now because you're not feeling too well."

S. My input to that question is a suggestion, is that the family member who is going to care for that patient should be definitely attending the same class as the patient so that you both know what that person has been told, and what care is required. Not having attended the class, I can't say what I thought was missing.

I. (to S.) OK. But what would you think is important to include in it, in addition to P.'s suggestion about the diet?

S. I don't really know except that I think that the person that is caring for P. should be well informed.

P. (laughs) You got back to that!

S. I do because it was the most important thing to me. I felt... I didn't really know what to expect or anything because it had been done so well prior to the operation. So I think it should just as... well, even more important to me because the operation and everything, the procedures are all contained in the hospital with the doctors, and I seen a person on the outside or the spouse or the person caring for that patient is not included anyway. There is nothing you can do about it. Coming out, to me, that's the most important thing, and that person should be well informed about what to expect, and different things like that, and about the drugs, and about the care that you can give. That say sound like I expect a full nursing course, I don't mean that but that's what I think would be most important.

I. What kind of information about the drugs?

S. Just how they... any reaction to these... what they're supposed to do. Because, when you give a mixture of drugs like that, I would like to know just what's involved.

P. Further to what S. is saying about those drugs, I asked the question, too, at the time because I take about five drugs, some people take eight or ten. How? I wasn't reassured that these drugs were compatible with each other. I'm sure there's lots of research gone into this and it'll say, this drug, this drug, they're all compatible, and that's what you take, and put them in your mouth and get them down there, and let them go through your system. But for

PSF	Summary Scenario	GAID/OTHER
P	Cholesterol plaques do not form overnight	2 A 1
I	Ideal program for predischARGE class ...?	8 A 1 a) (minimal reference to)
P	Leave out diet and its' chemical terms because person is taking a lot of chemicals (pills)	8 A 2, 3 and 15 D 6 (in 6-8 wks)
S	Talk about diet in 6-8 weeks and warn of that possibility	15 F 1
S	Family member who will care for P. should attend same class, so both know what has been said and the care required.	
S	... because didn't know what to expect - in-hospital, the person caring for the P. is not included ...	9 A, B
I	Discharge ... should be well informed about what to expect - e.g. drugs, care to give .. kind of information re drugs?	9 A 11 b) a)
S	- reaction to drugs? - action of drugs? - compatibility of drugs?	9 B 1

Interview Protocol # 2-026

Summary Scenario	PSI	GRID/OTHER
DEFICIENT PROGRAM AND IDEAL PROGRAM I. O.K. Now these last two have to do specifically with the classes you attended, or some patients call them meetings. You got to the one before surgery? P. Yes. B. And the one after. I. And the one before the cardiac catheterization, the angiogram, and that's it? Nothing else? P. And then the... little one for the exercise before you leave the hospital. I. O.K. Now you have answered this in part, through answers to other questions, but is there anything else you feel was missing from those classes that you feel you wanted to know? .. Things that happened, that you wished you had been told about. P. Well, the class before the catheterization was fine. I got full benefit out of that. I think that was very good but the class before the operation, I don't remember it. I think it's a waste of time. My mind wasn't on it. I was in a very impatient, unattentive mood. I don't remember it. I. You got bored during the pre-operative class? P. I was in a very, very impatient type of mood. Very impatient. I just got impatient. I don't remember what I was told. I don't remember anything. I picked up since, I assume that's where I got it, but I think if they concentrated the important things and told you on a one on one basis, without dragging it out in a big meeting because for my experience it was absolutely useless. I don't remember. I. What are the important things? P. What to anticipate when you wake up? I think now that you're not supposed to cross your legs. The things you weren't... But when I woke up, first of all when you wake up you're not fully oriented but still there are certain things. I should be made aware of this confounded nausea that these pills are giving me. Maybe I could have put up better with it. I didn't know what it was. So all the time I was in the hospital and I feel this very, very sickening nausea, I don't want to say anything for fear that it's something that's happening to me for fear that they will keep me in longer. That could have been a bad reaction. I could have been suffering from something that I needed to be kept in there, but I hid it from them because I didn't want to stay in there. I. You didn't tell anybody, about that? P. No, not in there because I didn't want to be kept in there because it was unpleasant. So maybe if they approached the patient. You know when you wake up, naturally you don't feel 100%, the things that are going to bother you the most they could point them out, without asking a big issue of it, but ask you aware of it. And at least you're aware that this is the way I'm supposed to feel. I could have been hiding something serious, because I wanted to get out. I couldn't stand it. I couldn't get comfortable. I couldn't get sleep. This is in the hospital because of the going and going. I don't blame anybody for that but had I been... This is what I should have been told before. How I was going to feel physically and have a little mental preparation and as to you going through you're after operation convalescence, a little more human, I call it "be nice to the people". You can come into a patient and say, "you have to take these pills now or taken these pills now, here". If you happen to hit the patient when he is not just in the right mood, some of these react. But you can't react... wrongfully at a nice person, I don't think. I. What would you say was missing from the discharge program, the one you got before you came home. Anything that was missing? Anything you could add?	PS (Attended classes before catheterization, surgery, & discharge. P. attended exercise class) .. anything missing? Catheter class was fine. Does not remember pre-surgery class.. was impatient, inattentive I P .. has picked up (info) since. Concentrate on important things. Do on 1-to-1. What are important things? What to anticipate when wake up (after surgery). Be aware of nausea from pills so could better put up with it. (did not want to tell for fear he'd be kept longer) P .. things that will bother P the most as P aware this is how he is to feel. Could not get comfortable or sleep in hospital. Tell P how would feel physically. Have mental preparation (be nice) I .. anything missing from discharge program	15 B 4, 5a) (Cath class OK) Does not remember pre-surgery class 15 G (concentrate on important things) Should know 5 B (when wake up) 6 A 7 (from pills) 4 C (things which bother most) 6 A, B 6 A 4 C 1

Interview Protocol # 3-045

PSI Summary Scenario GRID/OTHER

Subjects 3-045, 29 days postdischarge from emergency surgery. P. had a heart attack 6 months ago, a PTCA after that, and another PTCA on the day of surgery. Patient lives in a single dwelling with spouse. S. works, so interview was on a Saturday morning. P. is visited every two days by a Victorian-Order Nurse because of a leg incision with delayed healing. P. is small and wiry. We sat at the living room table for the interview, S. at one end, I. on one side and P. on the couch facing the I. There were no interruptions to the interview. Coffee and biscuits were served when the interview was completed.			
(SICKNESS IMPACT PROFILE)			
I. The first one, (Sleep & Rest) which one did you ..?			
P. I averted numbers 4 and 7.			
I. Which one would be the major one?			
P. I sleep sore or nap during the daytime (7), that is what I noticed before... in any case, before the sickness. I was working.			
S. I averted number 1.			
I. Can you tell us a little bit about that sleeping in the daytime?			
P. It was recommended, when you came back out of the hospital that you, after the walk in the morning or in the afternoon, we are supposed to lay down and rest, and in the beginning it was nice, I would sleep, I would be tired enough to sleep after the walk, but now I will sit down and read, but I hardly will go to sleep, therefore I sleep better at night.			
I. What you're saying is that since you stopped having the sleep during the day, you sleep better at night?			
P. Yes.			
I. Do you take a sleeping pill?			
P. Not anymore, no. I used to.			
I. And when did you stop?			
P. About 10 days ago I guess.			
I. What was the name of the pill, do you remember?			
P. Sure I remember. (Shows bottle).			
I. You are still on all of these?			
P. I don't take the sleeping pill (Ativan), and I take less pain killers. At the beginning I would take a pain killer about every 4 hours, like I did with all the medication, now I take a pain killer at night before I go to bed and that's all.			
I. And that helps you sleep.			
P. The sleeping pill and the pain killer, after 2 weeks I started to take one half sleeping pill at night instead of a whole one. Since about one week ago I stopped taking sleeping pills at all. I take one pain killer.			
I. Your husband was telling me yesterday how good this book (Discharge booklet - P. and W. had compared it to the PTCA booklet and the post-MI booklet and found this much better and thorough) was.			
S. It is, I agree with him.			
I. What would you advise a friend with regards to sleeping and resting at this stage of post surgery as you are now?			

11 E 4

11 E 7 (no sleep during day)

10 B 3 g)

(it's already)

9 A 9 a) d)

(stopped)

9 A 1 b) d)

9 A 9 c)

13 3 1

Sleeps or naps more during the day

.. Tell me about daytime sleeping?

Recalls it was recommended to rest after walks

Used to sleep

Now just sits and reads

No sleep during day .. sleeps better at night

Stopped sleeping pill (Ativan) 10 days ago

Takes a pain killer at night

After 14 days, cut sleeping pill in half - did this for 7 days

Found discharge booklet very good

Advice to a friend ... ?

APPENDIX J

Instructions to Coders

1. Each Summary Scenario or change of topic within a summary scenario should be coded according to the GRID (developed from literature on the content of cardiac surgery patient education programs). Code in the space to the right of the Summary Scenario.

For example:

OBJECTIVE number - 1, 2, 3, to 15

Content category - capital letter A, B, C, etc.

Subcategory - number 1, 2, 3, etc.

Subcategory details - small letter a), b), c), etc.

1 A 1 a) is a possible code.

The GRID is organized under 15 OBJECTIVES and into two major divisions, Presurgery and Postsurgery Program Content. Both divisions may be used, wherever appropriate and relevant. For example, a postsurgery objective may be used to code a scenario from a presurgery patient, IF the discussion is on a postsurgery topic. All groups (PRE, PD1, and PD4) referred to both presurgery and postsurgery time periods.

Enter your chosen code in the column to the right of the Summary Scenarios. If none of the GRID codes fit the summary statement,

there are two possible decisions :

(a) Not Applicable (NA) (is not an educational need, problem, or solution relevant to the purpose of this study)

(b) OTHER (an educational need, problem, or solution which does not fit the available GRID codes). If you choose to code OTHER, then record the objective, the content category, and/or the subcategories which you feel are most appropriate. State briefly, in either yours or the subjects' words, the content of OTHER. Insert the OTHER abbreviated statements in (brackets). Use the same letter or number for every OTHER (that is, do not try to keep track of the numbers/letters assigned to OTHER), following the sequence of the GRID numbers and letters.

DO NOT code the interviewer's questions or comments. Insert OTHER whenever necessary; any of the 4 levels of the decision tree of the GRID could have an OTHER. If you have entered a code for a summary scenario, do not enter it again IN THE SAME scenario. For coding of medications, enter only 9A??, unless you are sure of the code. See coding exemplified in the interview of patient #2-022.

2. The interview protocols were summarized, CATEGORY BY CATEGORY (that is, all discussion from all interviews on the particular category was summarized before proceeding to the next category), in random order. Code the interviews in the same random sequence, as follows:

1-007, 2-028, 3-042, 1-010, 2-023, 3-044, 1-005, 2-024, 3-043,
 1-006, 2-020, 3-041, 1-008, 2-025, 3-047, 1-002, 2-026, 3-045,
 1-001, 2-030, 3-049, 1-009, 2-027, 3-040, 1-004, 2-022, 3-046,
 1-003, 2-029, 3-048. (Subjects #2-021 were excluded from the study
 because of transcription problems).

3. You will find a few ???s, which means that the taped conversation of the interview was unintelligible and, therefore, was not transcribed. An X in the Summary Scenario column means there was no response checked in the category statements of the SIP (Sickness Impact Profile), the questionnaire used in the first portion of each interview). Other abbreviations/terminology are:

HI=Heart Institute, CABG=coronary artery bypass graft surgery, CAD=coronary artery disease, MI=myocardial infarction (heart attack), NTG and Nitro=Nitroglycerine (drug commonly used to relieve angina), ECG=electrocardiogram, PTCA=percutaneous transluminal coronary angioplasty (nonsurgical procedure done to relieve obstruction of the coronary arteries), NC=Nursing Coordinator, PHN=Public Health Nurse, VON=Victorian Order Nurse, S=significant other, I=interviewer, P=patient, W=wife, H=husband, D=daughter, HCP=Health Care Professional.

4. READ THE GRID THROUGHOUT, BEFORE STARTING TO CODE.

Table K
Patient and Significant Other Individual Sickness Impact Profile (SIP) Percentage Scores*

SIP Category	Presurgery Patient and Significant Other Number										Mean	SD
	1	2	3	4	5	6	7	8	9	10		
Sleep & Rest	PT 0.0 SO 38.1	11.6 0.0	23.6 12.0	22.0 34.1	0.0 0.0	0.0 0.0	22.0 28.5	62.3 12.2	0.0 0.0	12.2 9.8	15.4 13.3	10.2 13.9
Emotional Behaviour	PT 8.8 SO 28.8	0.0 0.0	0.0 0.0	17.0 29.9	0.0 0.0	0.0 0.0	6.5 0.0	6.5 0.0	0.0 0.0	0.0 0.0	3.9 5.9	5.5 11.7
Body Care & Movement	PT 0.0 SO 9.3	0.0 0.0	0.0 0.0	3.6 3.6	0.0 0.0	0.0 0.0	5.1 3.6	1.5 1.5	0.0 0.0	0.0 0.0	1.0 1.8	1.8 2.9
Home Management	PT 0.0 SO 0.0	13.2 0.0	21.3 21.3	31.9 31.9	0.0 21.3	14.7 21.3	22.2 11.5	21.3 13.2	0.0 0.0	14.7 0.0	13.9 12.0	10.4 11.1
Mobility	PT 0.0 SO 9.2	0.0 0.0	0.0 7.5	29.1 41.0	0.0 9.2	0.0 5.7	29.1 41.0	11.3 0.0	7.5 7.5	0.0 0.0	7.7 12.1	11.3 14.9
Social Interaction	PT 0.0 SO 13.1	0.0 3.6	3.5 2.5	20.3 9.0	0.0 3.5	0.0 0.0	20.7 3.0	8.5 12.1	9.0 9.0	9.3 0.0	7.5 5.8	7.4 4.6
Abulation	PT 0.0 SO 0.0	4.2 0.0	16.5 5.7	17.2 10.8	4.2 4.2	4.2 0.0	26.2 0.0	16.3 12.1	0.0 0.0	10.8 0.0	10.0 3.3	8.4 4.5
Alertness Behaviour	PT 0.0 SO 0.0	0.0 0.0	0.0 0.0	10.0 17.9	0.0 0.0	0.0 0.0	24.8 0.0	8.2 10.0	0.0 0.0	0.0 0.0	4.3 2.8	7.7 5.9
Communication	PT 0.0 SO 0.0	0.0 0.0	0.0 0.0	11.4 9.7	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	1.1 1.0	3.4 2.9
Work	PT 70.0 SO 70.0	70.0 70.0	26.2 22.1	70.0 70.0	70.0 70.0	70.0 70.0	70.0 70.0	22.7 22.7	70.0 70.0	34.6 0.0	57.3 53.5	19.5 25.9
Recreation & Pastimes	PT 0.0 SO 0.0	0.0 0.0	12.1 22.3	0.0 23.2	0.0 0.0	10.2 9.2	17.8 9.2	19.4 28.0	7.8 14.0	31.5 0.0	9.9 10.6	10.1 10.3
Eating	PT 6.1 SO 5.2	6.1 0.0	0.0 0.0	5.2 11.3	0.0 5.2	6.1 11.3	0.0 0.0	0.0 0.0	0.0 0.0	6.1 6.1	3.0 3.9	3.0 4.4
Overall Score	PT 4.6 SO 12.3	6.4 4.1	6.3 5.5	17.2 19.2	3.9 6.9	5.8 6.6	17.6 10.2	11.3 7.7	5.8 6.0	7.4 0.9	8.6 7.9	4.8 4.8
Dimension Scores												
Physical	PT 0.0 SO 7.1	1.0 0.0	3.9 2.9	12.0 12.9	1.0 2.8	1.0 1.2	14.9 10.3	7.0 3.7	1.5 1.5	2.6 0.0	4.5 4.2	4.9 4.2
Psychosocial	PT 1.7 SO 10.7	1.4 1.4	1.4 1.0	15.7 15.0	0.0 1.4	0.0 0.0	14.7 1.2	8.4 6.9	3.6 3.6	3.7 0.0	4.9 4.1	5.5 4.9

(table continues)

Table K: (continued)

SIP Category	Postdischarge One week Patient and Significant Other Number										Mean	SD
	1	2	3	4	5	6	7	8	9	10		
Sleep & Rest	PT 12.0 SD 16.6	33.5 22.0	29.1 9.8	11.6 11.6	22.0 22.0	50.3 9.8	0.0 0.0	24.2 12.2	11.6 11.6	22.0 45.7	21.6 16.1	13.4 11.6
Emotional Behaviour	PT 40.0 SD 18.4	0.0 18.6	0.0 0.0	0.0 0.0	0.0 0.0	9.6 0.0	0.0 0.0	0.0 0.0	8.8 8.8	18.6 35.6	7.7 8.1	12.3 11.7
Body Care & Movement	PT 3.6 SD 3.6	2.8 5.0	2.1 5.7	2.1 2.1	0.0 0.0	8.6 4.4	0.0 0.0	0.0 0.0	3.6 7.8	28.7 32.3	5.2 6.1	8.2 9.1
Home Management	PT 69.0 SD 56.1	46.0 26.5	15.9 6.6	39.4 39.4	22.2 22.2	57.5 26.5	0.0 6.6	33.1 45.7	10.6 10.6	45.7 68.7	33.9 30.9	20.6 20.2
Mobility	PT 0.0 SD 7.5	15.9 23.4	23.6 21.6	21.6 21.6	0.0 0.0	21.1 27.8	0.0 0.0	33.5 41.0	7.5 7.5	21.6 14.9	14.5 16.3	11.3 12.4
Social Interaction	PT 15.9 SD 8.8	6.0 19.0	9.3 20.3	10.5 7.0	0.0 0.0	30.3 7.0	0.0 0.0	10.5 17.1	7.0 0.0	20.0 25.5	11.0 10.5	8.7 8.9
Ambulation	PT 4.2 SD 9.9	9.9 4.2	16.3 10.6	17.2 4.2	0.0 0.0	13.1 6.7	0.0 0.0	12.4 6.7	4.2 4.2	22.8 29.5	10.0 7.6	7.3 8.0
Alertness Behaviour	PT 18.4 SD 10.0	0.0 0.0	7.6 0.0	0.0 0.0	0.0 0.0	33.5 14.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	5.9 2.5	10.8 5.0
Communication	PT 0.0 SD 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 11.4	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 1.1	0.0 3.4
Work	PT 70.0 SD 70.0	70.0 70.0	70.0 70.0	0.0 0.0	0.0 0.0	70.0 70.0	70.0 70.0	70.0 70.0	70.0 70.0	0.0 0.0	49.0 49.0	32.1 32.1
Recreation & Pastimes	PT 22.5 SD 22.5	30.3 30.3	18.2 18.2	14.0 14.0	0.0 0.0	14.0 22.5	0.0 0.0	18.7 40.0	14.0 0.0	58.3 58.3	19.0 20.6	15.8 17.9
Eating	PT 19.7 SD 19.7	5.1 6.1	6.1 6.1	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	10.4 10.4	11.3 11.3	5.3 6.0	6.4 6.2
Overall Score	PT 18.7 SD 15.9	13.4 15.2	12.7 12.2	8.7 7.1	2.6 2.6	22.5 13.2	3.6 4.0	12.8 15.3	9.4 8.7	20.8 26.3	12.5 12.0	6.4 6.6
Dimension Scores												
Physical	PT 3.0 SD 5.9	7.1 8.5	9.8 10.1	9.6 6.5	0.0 0.0	12.2 9.7	0.0 0.0	9.7 9.8	4.5 6.9	25.8 28.1	8.2 8.3	7.1 7.4
Psychosocial	PT 17.9 SD 9.2	2.4 11.1	5.3 8.1	4.2 2.8	0.0 0.0	21.0 8.1	0.0 0.0	4.2 6.8	4.5 1.7	11.5 17.0	7.1 6.3	6.9 5.1

(table continues)

Table K (continued)

SIP Category	Postdischarge, Four Weeks Patient and Significant Other Number										Mean	SD
	1	2	3	4	5	6	7	8	9	10		
Sleep & Rest	PT 0.0	22.0	22.0	12.2	12.2	23.6	34.1	12.0	23.8	23.6	18.6	9.0
	SO	0.0	22.0	62.3	22.0	28.3	62.3	12.0	28.9	23.6	28.5	18.7
Emotional Behaviour	PT	0.0	12.3	10.5	0.0	8.8	8.8	8.8	17.0	0.0	6.6	5.9
	SO	0.0	0.0	8.8	0.0	8.8	8.8	8.8	12.3	0.0	5.6	4.7
Body Care & Movement	PT	0.0	5.1	3.6	1.5	0.0	0.0	1.5	0.0	1.5	1.3	1.7
	SO	0.0	0.0	5.0	5.1	0.0	4.4	1.5	5.3	0.0	2.6	2.3
Home Management	PT	13.2	28.7	28.7	21.3	39.4	15.9	34.0	42.1	22.5	26.7	9.1
	SO	0.0	9.3	22.5	13.2	50.9	15.9	30.5	24.7	13.2	19.3	13.3
Mobility	PT	0.0	28.0	7.5	0.0	16.7	0.0	7.5	21.6	0.0	10.2	10.1
	SO	0.0	18.7	16.7	7.5	0.0	16.7	22.4	0.0	0.0	8.0	8.7
Social Interaction	PT	0.0	44.0	12.1	8.6	3.0	13.0	8.5	17.8	12.0	11.9	12.0
	SO	0.0	24.8	18.7	5.5	0.0	19.0	8.5	14.0	9.0	10.3	8.1
Ambulation	PT	0.0	6.7	0.0	4.2	16.5	10.6	10.8	13.1	6.7	7.3	5.2
	SO	0.0	0.0	10.6	6.7	16.5	0.0	6.7	9.9	8.7	6.3	5.0
Alertness Behaviour	PT	0.0	0.0	21.1	0.0	0.0	20.3	8.6	10.3	0.0	6.0	8.2
	SO	0.0	0.0	0.0	0.0	10.0	18.3	8.6	18.3	0.0	5.5	7.3
Communication	PT	0.0	11.4	31.7	0.0	0.0	0.0	0.0	0.0	0.0	4.3	9.7
	SO	0.0	0.0	0.0	11.4	0.0	0.0	0.0	32.6	0.0	4.4	10.0
Work	PT	18.1	19.0	70.0	70.0	0.0	70.0	70.0	0.0	0.0	38.7	31.9
	SO	0.0	29.7	70.0	70.0	0.0	70.0	70.0	0.0	0.0	38.0	33.1
Recreation & Pastimes	PT	0.0	48.6	30.3	30.8	24.2	47.9	41.9	49.8	20.6	31.6	15.0
	SO	0.0	30.3	52.8	8.5	19.4	52.6	41.9	17.8	30.8	27.6	16.7
Eating	PT	0.0	5.2	11.3	0.0	0.0	11.3	6.1	6.1	0.0	4.0	4.4
	SO	0.0	5.2	0.0	0.0	0.0	6.1	6.1	14.5	0.0	3.7	20.1
Overall Score	PT	1.8	18.0	16.4	8.8	7.3	16.0	12.9	13.7	6.1	10.9	5.0
	SO	0.0	9.7	16.8	10.3	7.6	17.1	13.4	13.4	5.2	10.3	5.0
Dimension Scores												
Physical	PT	0.0	10.1	3.5	1.8	2.3	1.0	4.9	7.4	2.4	4.5	3.1
	SO	0.0	3.4	8.7	5.9	3.9	3.8	6.9	5.3	1.6	4.5	2.4
Psychosocial	PT	0.0	22.1	17.6	3.4	1.2	1.7	6.9	12.5	4.8	8.1	7.1
	SO	0.0	9.8	9.1	6.2	1.2	13.1	6.9	18.3	3.6	7.2	5.3

Note. PT = Patient. SO = Significant Other.
 -Lower scores indicate less problems.

Table L-1

Assigned GRID Codes in the Sleep and Rest Category

Assigned GRID Code	Presurgery Group n=10	Postdischarge 1 Week Group n=10	Postdischarge 4 Weeks Group n=10	Total n=30*
2A3	2	-	-	1
2A4	-	-	1	1
2B1a)	-	2	-	1
2B6c)	-	3	-	1
2B6d)	-	-	3	1
2B6i)	-	-	1	1
2B6j)	-	-	3	1
2B6l)	1	-	2	2
4A7	2	-	-	1
4C4	3	-	-	1
7A1d)	-	-	1	1
7A3b)	-	-	1	1
7A3c)	-	-	2	1
8A1g)	-	3	-	1
9A1a)	-	1,3	3	3
9A1b)	-	2,2	1,2	4
9A1c)	-	1	-	1
9A1d)	-	-	3	1
9A1e)	3	-	-	1
9A4e)	3	-	-	1
9A4b)	3	-	-	1
9A5e)	1	-	-	1
9A5b)	2	-	-	1
9A5f)	1	-	-	1
9A7c)	-	2	-	1
9A9a)	-	3	3,2,3,1	5
9A9b)	1,2	2,3,1	3,3,2,1	9
9A9c)	-	1	3,3,2,3	5
9A9d)	-	1	3	2
9A9e)	2	-	-	1
9A10b)	2	-	-	1
9A10	1	-	-	1
10A1	1	1	2,1,1,1,3	7
10A2	-	-	1,3	2

(table continues)

Table L-1 (continued)

Assigned GRID Code	Presurgery Group n=10	Postdischarge 1 Week Group n=10	Postdischarge 4 Weeks Group n=10	Total n=30
10A6	-	-	1,2	2
10B1	1,1	1	-	3
10B1a)	-	1	1	2
10B1e)	-	1,2,1	1,1,2,2	7
10B1d)	-	1	-	1
10B2	1	-	-	1
10B2a)	-	-	3	1
10B2b)	-	-	2,1	2
10B2d)	-	1	1	2
10B2e)	-	1	-	1
10B3	-	2,1,1	-	3
10B5	-	1	1	2
10B5a)	1	-	1	2
10D2b)	-	3,3	1	3
10D2d)	-	-	1	1
10E6	-	1	-	1
11A3	-	-	2	1
11B3	-	2,2	1	3
11C7	-	-	3	1
11C10	-	3	-	1
11C13	-	-	1	1
11D1	-	1,3,2	-	3
11D2	-	3,1	-	2
11D3	-	1,1	2	3
11D4	3,3,2,3	3,3,3	3,2,3,2,3,2	13
11D5	1,1,1	3,3,3,2,1,3	3,3,2,2	13
11E	1,2	1	-	3
11E1	3,2,2	2,1,1,3,3,3,2,3	3,3,3,3,1,3	17
11E2	2,3,3,1	3,2,3,3,3,3,3,2	2,1,2,3,3,1,2	20
11E3	-	1,2,1	1	4
11E4	-	3	3,1	3
11E5	1,1,1	1	2,2	6
11E6	-	1	2,3	3
12A6	-	3	-	1
13B1	-	2	3,3	3
15B1	-	-	1	1

(table continues)

Table L-1 (continued).

Assigned GRID Code	Presurgery Group n=10	Postdischarge 1 Week Group n=10	Postdischarge 4 Weeks Group n=10	Total n=30*
Codes chosen by:	no. %	no. %	no. %	no. %
1/3 coders	18 46.2	29 38.1	29 34.1	68 35.4
2/3 coders	11 28.2	17 22.4	24 28.2	52 27.1
3/3 coders	10 25.6	30 39.5	32 37.6	72 37.5
Total	39 100.0	76 100.0	85 99.9	192 100.0

Note. GRID=coding scheme. Each of 1, 2, or 3 represents the number of coders (out of three) who chose a particular GRID code for the same patient.

*26/30 patients (8 PRE, 9 PD1, & 9 PD4) discussed Sleep and Rest problems.

Table L-2

Categorization of OTHER Responses in the Sleep and Rest Category

Objective	Expressed Need/Problem/ Solution	Presurgery Group n=10	Postdischarge 1 Week Group n=10	Postdischarge 4 Weeks Group n=10
2B	Nervousness/stress disturbs sleep	2	-	2
	Because not smoking does not get up at night	1	-	-
	Mind control	-	-	3
4C	Tired waiting for surgery	2	-	-
	Discussed no sleep with doctor	2	-	-
	Self help/positive attitude	3	-	-
	Worries re children, illness	2	-	-
5B	Hospital routines disturbed sleep	-	-	1
6A	Was tired before diagnosis	1	-	-
	Heart pounding	-	3	-
	Heavy legs (edema)	-	2	-
	Decreased energy	-	1	-
	Jumps during sleep	-	1	-
	Ankle pain	-	2	-
	Gets sore sitting in bed	-	-	1
	Stomach cramps	-	-	2
	Leg pain	-	-	2
	Tired by walks, company	-	-	2
	Run down	-	-	1
	Sore sitting	-	-	1
	Neck pain	-	-	3
9A	Minimize/avoid using analgesics	-	-	3
	Minimize/avoid using sedatives	1,1,2,2	3	3,2,2
	Discontinue/reduce drug	-	-	3,3
	Habit forming/withdrawal problems	2,3	3	3,3,2,3
	Drugs cause nausea	3	-	-
	Drugs cause less sleep/ early waking	1	3	-
	Aversion to nonessential drugs	1	-	3,2
	Disturbed sleep since off drug	-	-	2
	Halved dose of sedative	-	-	1

(table continues)

2

Table L-2 (continued)

Objective	Expressed Need/Problem/ Solution	Presurgery Group n=10	Postdischarge 1 Week Group n=10	Postdischarge 4 Weeks Group n=10
10A	Walk to tire self	-	-	1,3
10B	Disciplines self/stays active	1	2	1
	Read, TV, hobby, play pool	2	3,2	2,2,2,3,2
	Walking is a tranquilizer	1	-	-
	Restricted by edema	-	3	-
	Sit but keep mind busy	-	3	-
10E	Spouse wakened by patient jumping	-	1	-
	Physical/mental coping of spouse	-	1	1
11C	Measures weight, calves	-	3	-
	Ask for stronger sedative	-	-	3
11D	Walk when cannot sleep	2,2	-	3,2,1
	Read	2	2	1,2,1
	Mind control	2,3	-	1,2
	Avoid caffeine	3	-	-
	Music	2	-	-
	Stay in bed	-	2	-
	Get comfortable	-	2	-
	Sleep alone	-	3	3
	Stay in bed so spouse sleeps	-	2,1	-
	Try different bed	-	1	-
	Nap to make up lost sleep	-	-	3
	Get up	-	-	2
	Avoid heavy blankets	-	-	2
	Needs less sleep	-	-	2
	Do not worry	-	-	1
	Work pressure disturbs sleep	-	-	1
	Sleep patterns change with pills	-	-	1
11E	Don't worry/cope with stress	3	-	1
	Rest when tired	3	1	2
	Avoid daytime sleep	-	2,3	2,3
	Read	-	2,3	2,3
	Television	-	2,3	3
	Hobby	-	2	-
	Sleep during day	-	1	-
	Rest when neck discomfort	-	-	3

(table continues)

Table L-2 (continued)

Objective	Expressed Need/Problem/ Solution	Presurgery Group n=10	Postdischarge 1 Week Group n=10	Postdischarge 4 Weeks Group n=10
11G	Rests included in daily schedule	-	3,3,2	3
13C	Call surgeon	-	1	-
14C	Work-flexible hours	3	-	-
	Unemployed	-	2	-
15B	Took out books on mind control & body awareness	-	-	2
OTHER responses identified by:		no. %	no. %	no. %
	1/3 coders	8 27.6	9 24.3	16 26.7
	2/3 coders	13 44.8	14 37.8	23 38.3
	3/3 coders	8 27.6	14 37.8	21 35.0
Total		29 100.0	37 99.9	60 100.0

Note. GRID=Coding scheme. Each of 1, 2, or 3 represents the number of coders (out of three) who chose a new code for the same patient.

*26/30 patients (8 PRE, 9 PD1, & 9 PD4) discussed Sleep and Rest problems.

Table L-35

Assigned GRID Codes in the Deficient Program Category

Assigned GRID Code	Presurgery Group n=10	Postdischarge 1 Week Group n=10	Postdischarge 4 Weeks Group n=10	Total n=30
1A3	-	-	1	1
2A1	-	-	2	1
2A2	-	1,1	3	3
2A4	-	-	2	1
2B1	-	1	-	1
2B3c)	-	-	2	1
3A1	-	-	3	1
3A2a)	-	-	1	1
3A2b)	-	-	1	1
4A4	-	-	3	1
4A7	-	-	1	1
4A7b)	-	-	2	1
4A7d)	-	-	2	1
4A8	-	3	-	1
4C1	1	1,3,1	1	5
4C1a)	-	1	1	2
4C1b)	-	-	1,2	2
4C1c)	2	-	-	1
4C2	-	-	1,3	2
4C2a)	-	-	1	1
4C2b)	-	-	2	1
4C4	3	-	-	1
5A1a)	2	2	-	2
5A1b)	-	1	-	1
5A2a)	2	-	-	1
5A2b)	2	3	-	2
5A2c)	2	-	-	1
5B	-	2	-	1
5B1	2	-	-	1
5B2a)	3	1	-	2
5B4	2	-	-	1
5B4b)	1	-	-	1
5B9	-	-	2	1
5B10	-	1	-	1
6A	-	1,1	-	2
6A1	-	1	-	1
6A4	-	3	-	1
6B	-	1,1	-	2

(table continues)

Table L-35 (continued)

Assigned GRID Code	Presurgery Group n=10	Postdischarge 1 Week Group n=10	Postdischarge 4 Weeks Group n=10	Total n=30*
7A1c)	-	1	-	1
7A2a)	-	1	-	1
7B1	-	1	-	1
8A	-	-	2	1
8A1a)	-	2	-	1
8A2d)	-	1	-	1
8A3d)	-	1	-	1
9A1a)	-	1,2	1	3
9A1b)	-	1	2	2
9A1c)	-	1	-	1
9A1d)	-	1,3	-	2
9A2a)	-	-	1	1
9A3a)	-	2	1	2
9A3b)	-	2	-	1
9A3e)	-	-	2	1
9A5b)	-	2	-	1
9A5g)	-	2	-	1
9A7a)	-	1	-	1
9A7b)	-	1	-	1
9A7g)	-	2	-	1
9A8	-	-	1	1
9A9a)	-	1	-	1
9A9c)	3	-	-	1
9A9d)	-	1	-	1
9A10a)	-	-	2,2	2
9A11b)	-	2	-	1
9A11c)	-	1	-	1
9A11d)	-	1	-	1
9A11e)	-	3	-	1
9A11g)	-	3	-	1
9B2	-	3	-	1
9B4	-	2	-	1
10B5a)	-	1	-	1
10E1	-	1	-	1
10E3	-	-	1	1
11C12	-	2	-	1
11D5	-	-	1	1
12A1b)	-	2	-	1
13A4	-	-	2	1
13B1	-	1,3,3	1,3	5
14B1b)	3	-	-	1

(table continues)

Table L-35 (continued)

Assigned GRID Code	Presurgery Group n=10	Postdischarge 1 Week Group n=10	Postdischarge 4 Weeks Group n=10	Total n=30*
15A1	-	3,3	3	3
15A2	-	1	-	1
15A5c)	-	2,1	2	3
15A5d)	-	1	-	1
15B1	-	-	2	1
15B4	3,1	-	3,3,3	5
15B6	-	-	1	1
15B9	2,1,3,1	-	3	5
15B10	-	-	1	1
15C1	2	-	-	1
15D4	-	-	3	1
15D5	-	3	3	2
15F1	-	2	1	2
15F2	2	-	-	1
15F4	-	3	1	2

Codes chosen by:	no.	%	no.	%	no.	%	no.	%
1/3 coders	5	23.8	35	54.7	20	41.7	60	45.1
2/3 coders	10	47.6	15	23.4	16	33.3	41	30.8
3/3 coders	6	28.6	14	21.9	12	25.0	32	24.1
Total	21	100.0	64	100.0	48	100.0	133	100.0

Note. GRID=coding scheme. Each of 1, 2, or 3 represents the number of coders (out of three) who chose a particular GRID code for the same patient.

*22/30 patients (5 PRE, 10 PD1, & 7 PD4) discussed Deficient Program.

Table L-36

Categorization of OTHER Responses in the Deficient Program

Objective	Expressed Need/Problem/ Solution	PRE Group n=10	PD1 Group n=10	PD4 Group n=10
2A	How much to tell patient depends on knowledge of patient and illness	-	-	1
	Questions if clot was beyond his control	-	-	1
2B	Show effect of smoking on lungs	-	1	-
3A	Realistic expectation of effects/risks	-	1	-
	Time of incision and bone healing	-	2	-
	Effect of operation on leg	-	3	-
	Length of operation	-	1	-
	Give odds, pros, and cons of surgery	-	-	2
	Explain more re leg incision	-	-	1
	Internal mammary grafts last longer than vein grafts	-	-	2
4A	Expected all kinds of pain which did not happen/tell people that Percutaneous transluminal coronary angioplasty (PTCA)	1	-	-
	Tell the day before and at PTCA	-	-	2, 1
4C	Lack of information at previous surgery and was uptight	3	-	-
	Hear a lot and build own ideas	1	-	-
	Can talk to people but still need surgery	1	-	-
	Cardiologist explained	1, 1	1	3
	What is preoperative class about?	2	-	-
	Less embarrassed if in same position	2	-	-
	Point out things which will bother patient the most	-	1	-
	Bored at presurgery class	-	1	-
	Shocked by discharge, 2 days early, because of bed shortage	-	3	-
	Afraid to walk presurgery	-	2	-
	Expected to be told what would happen	-	-	1
	Surgeon visited for 30 seconds	-	-	2
	Cardiologist spoke to patient/not spouse	-	-	1
	Glad did not know all before surgery	-	-	1
	Waited 4 days to talk to cardiologist	-	-	3
	Get questions answered when in hospital	-	-	3
	Expects information to be volunteered	-	-	2
	Write questions down as they occur	-	-	2

(table continues)

Table L-36 (continued)

Objective	Expressed Need/Problem/ Solution	PRE Group n=10	PD1 Group n=10	PD4 Group n=10
4C	Accepts procedures when knows about them	-	-	1
cont'd	If facing surgery, have it done	-	-	2
	Encouraged by veteran patients	-	-	1
	Follow doctor's orders/don't worry	3	-	-
5A	Location of admitting department	3	-	-
	Surgeon will talk to spouse after surgery	-	2	-
	Both promised calls were late/ spouse upset	-	3	-
5B	Too much done (wires, stitches out, lung problem) just prior to discharge	-	1	-
	Expected 1-1 nursing in ICU (did not get it)	-	-	2
	Procedures followed by doctors/nurses	-	-	2
6A	Told would feel fine but doesn't	1	-	-
	Too much pain to walk	2	-	-
	Pain restricts exercise	1	-	-
	Unprepared for pain	3	-	-
	Felt OK presurgery, now feels terrible	3	-	-
	Nausea from pills	3	-	-
	Tired at discharge class	1	-	-
	Are palpitations serious? How long will they last?	-	3	-
	How long should symptoms last?	-	3	-
	Not told of urinary frequency at night	-	-	2
	Dizziness not explained in discharge book	-	-	2
	Incision sensitive, numb	-	-	2
7A	Uncertain if pain is from graft attachment	-	-	1
8A	Too soon for technical terms and effect of food on body/turned off food	-	2	-
	Eat what you want for 1 month	-	2	-
	People already know about diet	-	1	-
	No specific food plan given	-	-	3
	Give foods high in potassium	-	-	1
	Discharge class had too much on nutrition	-	-	3
	Plan a program of diet tips	-	-	2
9A	Uses eye drops for glaucoma	-	2	-
	Cannot name pills but knows frequency	-	1	-
	Too many pills given out	-	-	2
	Explain name and purpose of pills	-	-	3
	Questions if should be taking pill now	-	-	1

Table L-36 (continued)

Objective	Expressed Need/Problem/ Solution	PRE Group n=10	PD1 Group n=10	PD4 Group n=10
9A	Should know side effects of medication	-	-	2
cont'd	More on side effects in discharge book	-	-	3
9B	Need help to do a drug schedule	-	2	-
	Do drug schedule like walking program	-	2	-
	Use pill box	-	1	-
	Keep pills labelled	-	1	-
	Spread out hours between pills to decrease nausea	-	-	2
10A	Need practice of exercises in hospital	-	1	-
	Only practised one exercise in hospital	-	1	-
10D	Sex decreased because of drugs	-	-	1
	"Passive sex" not explained	-	-	3
10E	More doctor/family contact	1	-	3
	Spouse frightened, anxious when patient first came home	-	2	-
11A	How long for incision to heal?	-	-	2
11C	If know too much, might not report it	-	-	1
	How to know when serious?	-	-	1
12A	Will never believe another doctor/nurse	-	2	-
	Had rushed discharge	-	3	-
	First 3 weeks were deadly	-	-	2
13A	Public health nurse visit too late	-	-	3
	One month postdischarge is too long to wait for visit to surgeon	-	-	3
	Lack of advice	-	-	1
	Have Nursing Coordinator call patients once/week for 3 weeks	-	-	2
13B	Add written schedule to current pages	-	2	-
	Drug sheets not completed	-	2	-
	Home Care record missing from book	-	1	-
	Should mark blocks of coronary arteries in discharge book	-	3	-
	Discharge booklet not true on sex	-	-	1
	Describe Nursing Coordinator's job	-	-	1
	Give more pages for progress report	-	-	3
	Clarify, specify diet in discharge book	-	-	2
	Discharge class same as book, bored	-	-	3,2
13C	When to call doctor?	-	2	-
	VON called doctor for patient	-	2	-
	Called to report nausea	-	-	2
	Called about potassium which was suggested but not prescribed	-	-	2

(table continues)

Table L-36 (continued)

Objective	Expressed Need/Problem/ Solution	PRE Group n=10	PD1 Group n=10	PD4 Group n=10
14B	Does Nursing Coordinator help with insurance forms?	-	-	1
15A	Instructions given without consideration of effect/show benefits	2	-	-
	Include pharmacist in team teaching	-	2	-
	Include surgeon in team teaching	-	1	-
	Expected one to one teaching	-	3	-
	Too many (60) attended the class	-	2	-
	1 1/2 hours is too long at 1830 hours	-	2	-
	Found class repetitive	-	3	-
	Dietician not at class	-	-	1
15B	Need more contact with veteran patients	1	-	-
	Does not remember presurgery class/was impatient and inattentive	-	2,3	-
	Have French only sessions/translation doubled class time	-	1,1,2	-
	Delete pictures of doctors	-	-	2
	Show TV movie	-	-	2
	Explain slides	-	-	1
	Ask patients if want to see slides	-	-	1
	Slides and projector set-up poor	-	-	3
	Teacher should identify self	-	-	1
	Need more than Canada's Food Guide	-	-	1
	Slides are fixed/with video can see things happen	-	-	2
15C	What time is the presurgery class?	1	-	-
	Current class times are bad if working	2	-	-
	Should have evening class for presurgery patients	1	-	-
	Nothing applied in presurgery meeting	-	-	1
	Predischarge class at 1000 h is OK/accommodates all	-	-	3
	Would attend preadmission class if held	-	-	2
15D	Hold 5-6 weeks after discharge	-	2	-
	Too tired and sore, not ready for class	-	3	-
	Class only 15-20 minutes long	-	-	3
	Already knew all in discharge class	-	-	1
	Too long/ too much in discharge class	-	-	2
15E	Select staff by human relation skills	-	3	-
	Do not argue around patients	-	3	-
	Do not conduct union business on duty	-	3	-

(table continues)

Table L-36 (continued)

Objective	Expressed Need/Problem/ Solution	PRE Group n=10	PD1 Group n=10	PD4 Group n=10	
15F	Communication problem/ spouse not invited to class	3	-	-	
	Only those living at home should attend	-	2	-	
15G	Need to practice (e.g. exercises)	-	1	-	
	Use simple terms	-	1	-	
	Concentrate on important things	-	1	-	
	Expected full explanations	-	2	-	
	Keep it short	-	1	-	
	Keep the human touch	-	3	-	
	Do not give a lot of technicalities	-	-	3	
	Need continuity	-	-	1	
	Allow questions	-	-	3	
OTHER responses identified by:		no.	%	no.	%
	1/3 coders	12	50.0	21	36.2
	2/3 coders	5	20.8	22	37.9
	3/3 coders	7	29.2	15	25.9
	Total	24	100.0	58	100.0

Note. GRID=Coding scheme. Each of 1,2, or 3 represents the number of coders (out of three) who chose a new code for the same patient.

*22/30 patients (5 PRE, 10 PD1, & 7 PD4) discussed Deficiencies in Program.

Table L-37 (APPENDIX)

Assigned GRID Codes in the Ideal Program Category

Assigned GRID Code	Presurgery Group n=10	Postdischarge 1 Week Group n=10	Postdischarge 4 Weeks Group n=10	Total n=30*
1A1a)	2	-	-	1
1A2	-	3	-	1
2A	2,1	-	-	2
2A1	2,2	-	3,1	4
2A2	3,2,2	-	1,3,1	6
2A3	1	-	3,1	3
2A4	1	-	1,1,2	4
2B	-	-	2	1
2B1	-	1	-	1
2B1a)	-	3	-	1
2B1c)	-	1,2	-	2
2B1g)	-	1,2	-	2
2B2	-	1	-	1
2B2a)	1	-	-	1
2B2b)	3	-	-	1
2B2c)	1	-	-	1
2B3	-	1	-	1
2B3a)	-	-	2	1
2B4a)	-	-	1	1
2B4b)	1,1	-	1	3
2B4c)	-	-	3	1
2B5	-	1	-	1
2B5a)	-	-	1	1
2B6a)	-	-	2	1
2B6b)	-	-	1	1
2B6c)	-	-	2	1
2B7d)	-	-	3	1
3A1	2,1	2	3	4
3A2	2,2,1	1,1	3,2,2	8
3A2c)	-	-	2	1
3A2d)	-	-	2	1
3A2f)	2	3	-	2
3A2g)	-	-	1	1
3A2h)	-	1	-	1
3A3	2,3	-	1	3
4A1a)	-	3	-	1
4A6	3	-	-	1
4A7	3	-	-	1
4A7b)	-	1	-	1
4A7c)	1	2	-	2

(table continues).

Table L-37 (continued)

Assigned GRID Code	Presurgery Group n=10	Postdischarge 1 Week Group n=10	Postdischarge 4 Weeks Group n=10	Total n=30*
4B	2	-	-	1
4B1	1	-	-	1
4B1c)	1	-	-	1
4B2	1	-	-	1
4B3	1	-	-	1
4C1	1,1,1,1,2,1	-	1	7
4C1a)	-	1,1	2	3
4C1b)	2,3,1	1,2	2,1,3,2,2	10
4C2	3,3,1,1	-	1,3	6
4C2a)	-	1	-	1
4C2b)	2	-	-	1
4C4	3	-	1,1	3
5A1a)	2,2	3	-	3
5A1b)	1	1,2	-	3
5A1c)	-	1	-	1
5A2	2	-	-	1
5A2a)	2	-	3	2
5A2b)	2	3	3	3
5A2c)	2	-	3	2
5B	2	1	-	2
5B1	1,2	-	1	3
5B1a)	-	-	3	1
5B1b)	-	-	1	1
5B2a)	3	-	-	1
5B4	3,2	-	-	2
5B7	1,1	-	3	3
5B7a)	-	-	2	1
5B7b)	-	-	2	1
5B8a)	-	2	2	2
6A	-	1	1	2
6A1	-	2	1	2
6A2	-	-	3	1
6A4	-	2	-	1
6B1	-	-	2	1
6B2	-	-	3	1
6B3	-	-	3	1
7A1	-	-	3,2	2
7A1d)	-	1	-	1
7B1	-	-	3	1
7B2	-	-	1	1
8A1	-	3	1,1	3
8A1a)	3	1,3	-	3
8A1c)	-	3	2	2

(table continues)

Table L-37 (continued)

Assigned GRID Code	Presurgery Group n=10	Postdischarge 1 Week Group n=10	Postdischarge 4 Weeks Group n=10	Total n=30*
8A1g)	-	2	1	2
8A2	-	1,1	1,2	4
8A2a)	3	2	-	2
8A2b)	-	1	-	1
8A2d)	2	1,2	2	4
8A3	1	1	2	3
8A3d)	-	1	2	2
8A4a)	2	-	-	1
8A4d)	2	-	-	1
9A	-	2	-	1
9A1a)	-	-	2	1
9A1b)	-	3	-	1
9A1c)	-	-	2	1
9A2a)	-	-	2	1
9A2b)	-	-	2	1
9A3a)	1	3,2	3	4
9A3b)	-	3,3	2	3
9A5a)	1	-	-	1
9A5b)	-	2	1	2
9A5d)	1	-	-	1
9A7a)	-	3	2	2
9A7b)	-	3	2	2
9A8a)	-	-	2	1
9A8b)	-	-	2	1
9A9a)	-	2	-	1
9A9b)	-	3,2	1,2	4
9A9d)	-	1	-	1
9A9e)	-	1,1	2	3
9A9f)	-	-	2	1
9A10a)	1	2	2	3
9A10b)	-	2	2	2
9A10d)	1	-	-	1
9A10g)	-	1	-	1
9B	-	2	-	1
9B1	-	2	-	1
9B1a)	-	3	-	1
9B2	-	3,2	-	2
9B4	-	-	1,1	2
10A	1,2,3	-	1	4
10A1	-	1,3,2	3	4
10A2	-	-	2,1	2
10A3	-	1,2	-	2
10A5	-	2	-	1

(table continues)

Table L-37 (continued)

Assigned GRID Code	Presurgery Group n=10	Postdischarge 1 Week Group n=10	Postdischarge 4 Weeks Group n=10	Total n=30
10A6	-	-	2	1
10B1	-	-	1	1
10B1a)	2	-	-	1
10B1b)	-	-	1	1
10B1c)	-	3	3,2,1	4
10B3c)	-	3	-	1
10B2	-	-	1	1
10B2a)	-	-	2	1
10B2c)	-	-	1	1
10B5	-	-	1	1
10B5f)	-	-	2	1
10C1	-	-	2	1
10C3	-	-	3	1
10D2c)	-	-	2	1
10E1	2,2	2,1	1	5
10E3	-	-	3	1
10E5	-	-	2	1
11A4	-	2	1,1,1	4
11A5	-	3	-	1
11C1	-	2	3	2
11C14	-	1	-	1
12A	1	-	-	1
12A1	-	-	1	1
12A1c)	2	-	1	2
12A1d)	-	-	2,1	2
12A2	2	-	2	2
12A2a)	-	-	1	1
12A3	-	2	2,3	3
12A4a)	-	3	3	2
12A5a)	-	-	1	1
12A5b)	-	-	3,3	2
12A5c)	-	-	3,3	2
13A1	-	2,3	1	3
13A4	-	2	3	2
13B1	-	3,3	3,3,3,1,3,3,1	9
13B2	-	-	3	1
13C1	-	2	1	2
14A1	-	2	-	1
14A2	-	-	1	1
14B1b)	2	-	-	1
15A1	1	2,3,3	-	4
15A2	1,1,3	1	1,2	6

(table continues)

Table L-37 (continued)

Assigned GRID Code	Presurgery Group n=10	Postdischarge 1 Week Group n=10	Postdischarge 4 Weeks Group n=10	Total n=30*
15A4	2,2	1,2	-	4
15A5	2	2	-	2
15A5b)	-	1,3,2	-	3
15A5c)	-	1	1,1,1	4
15A5d)	-	-	3	2
15B1	1,1	1,2	2,2,3	7
15B2	1,1	3,1	3	5
15B3	3,3,1,2,3	3,3	1,1,2	10
15B4	2,3	2,3,3,3	2,2,3,2,3	11
15B5	2	-	-	1
15B6	-	-	2	1
15B7	-	-	1	1
15B8	1	-	-	1
15B9	2,2,3,3,3	3,3	1,3,2	10
15B10	2,1,1	3,1	2,2	7
15C	2,1,2	1,1	2	6
15C1	2,3,3,2,3	2	2,2	8
15C2	1,1	3	2	4
15C3	2,2,2	-	1	4
15D	1	-	2,1,2	4
15D4	-	3	2	2
15E2	2	-	-	1
15F1	2,1,3	1,1,2	1,1	8
15F2	3,1,2	1,3	-	5
15F3	1,3	-	3	3
15F4	3,1,3,3	3,1,3,3,3	2,1,1	12

Codes chosen by:	no.	%	no.	%	no.	%	no.	%
1/3 coders	54	39.1	47	35.3	65	36.5	166	37.0
2/3 coders	53	38.4	41	30.8	67	37.6	161	35.9
3/3 coders	31	22.5	45	33.8	46	25.8	122	27.1
Total	138	100.0	133	99.9	178	100.0	449	100.0

Note. GRID=coding scheme. Each of 1, 2, or 3 represents the number of coders (out of three) who chose a particular GRID code for the same patient.
 *30/30 patients (10 PRE, 10 PD1, & 10 PD4) discussed the Ideal Program.

Table L-38 (APPENDIX)

Categorization of OTHER Responses in the Ideal Program Category

Objective	Expressed Need/Problem/ Solution	PRE Group n=10	PD1 Group n=10	PD4 Group n=10
1B	Anatomy of sternum	-	2	-
2A	Scar tissue	1	-	-
	Effect of cholesterol on blood vessels	2	-	-
	Symptoms of coronary artery disease	-	-	2
2B	Cost of smoking to health care system	-	1	-
2C	Follow the rules which relate to risk factors	2, 1	-	1
3A	Length of surgery	1	-	-
	Be aware of what is normal	1	-	-
	Surgery only option	1	-	-
	Needs surgery so will have it	1	-	-
	General feeling about operation and how serious, no specifics	3	-	-
	Quote mortality rate	1	-	-
	Do not tell what happens on operating table	3	-	-
	Realistic expectation of effects, risks	3	1	3
	Use of saw to open sternum	-	1	-
	In the operating room how many people, what people do, stopping of heart?	-	1	-
	How is chest opened?	-	1	-
	Sternal bone heals like a broken leg	-	3	-
	Is quality of life improved or is life prolonged?	-	-	2
	If knew life prolonged would take care of self	-	-	2
3B	Reasons for coronary artery bypass graft	1	-	3
4A	Tell risks of cardiac catheterization, puts it in perspective	1	-	-
	Observed monitor during cardiac catheterization	-	-	1
4B	Some want to know all	1	-	-
	Need timetable of preoperative events	1	-	-
	Who does what?	2	-	-
4C	Ask God's help	3	-	-
	Family support	1	-	-
	Take it as it comes	2	-	-
	"Go in a bit blind"	1	-	-
	Some want to know it all	1	-	-
	Concerned not scared	2	-	-

(table continues)

Table L-38 (continued)

Objective	Expressed Need/Problem/ Solution	PRE Group n=10	PD1 Group n=10	PD4 Group n=10
4C	Confident	3, 1	-	-
cont'd	Positive self-talk	3	-	-
	If knows, won't be frightened	2	-	-
	Fear of needles	1	-	-
	Cardiologist	3, 2, 1	3	1, 2
	Tell only the essentials	2	-	-
	Expectations on discharge	2	-	1
	Wanted surgery sooner	1	-	-
	Look up problem in books	1	-	-
	Waiting period	1	-	-
	Need an education team	1	-	-
	No details of actual surgery	-	3	-
	More details cause more apprehension	-	2	-
	Pharmacist at local pharmacy explained about sleeping and pain pills	-	1	-
	Felt secure	-	3	-
	Volunteers were very helpful	-	3	-
	Why kept in hospital before surgery?	-	2	-
	How are surgeries scheduled?	-	2	-
	Surgeon gave confidence	-	2	-
	A little "tight" during television (PBS) movie on heart surgery	-	3	1
	Friend support is valuable	-	1	-
	Was warned about hallucinations	-	-	1
	Doctors' visits are too short	-	-	1
	Write down questions	-	-	3
5A	Where to go for admission to hospital?	2	-	-
	Explain doctors' rounds	-	3	-
	Explain hospital emergency call numbers (e.g. 777, 999)	-	2	-
5B	What to expect when awake?	2	-	-
	What happens 2-3 days after surgery?	2	-	-
	Choking on endotracheal tube	1	-	-
	Acquired Immune Deficiency Syndrome (AIDS)	3	-	-
	Self-care	-	-	2
6A	Expect fatigue	1	-	-
	Much pain	2	-	-
	Not hungry because of pills	-	-	2
	Tired	-	-	1
	Tightness, pressure, choking, tingling	-	-	2
6B	Behaviour change	-	-	2
7A	What is "normal" pain?	-	-	3

(table continues)

Table L-38 (continued)

Objective	Expressed Need/Problem/ Solution	PRE Group n=10	PD1 Group n=10	PD4 Group n=10
7B	How long before can do things?	1,3	-	-
	Give time frame of preoperative events	1	-	-
	Up one day, down the next	-	-	2
8A	Are onions permitted?	-	1	-
	Give recipes	-	1	-
	Minimal reference to diet	-	2	-
	Need specific guide for diet	-	-	3
	Less emphasis on nutrition	-	-	3,2
	Hospital food more appealing	-	-	3
	Need to know foods to avoid	-	-	1
	Give diet in separate session	-	-	2
	Give out menu before and review in class	-	-	2
	Be more specific	-	-	3
9A	Effect of anaesthetic on thirst, wakeup time, head, memory	3	-	-
	Drug trial	2	-	-
	Is an antacid bad for the heart?	-	2	-
	Reaction to and action of drugs	3	-	-
	Habit-forming, minimize/avoid use	-	2	-
	Not taking any sedative because sleeping well	-	2	-
	Make patient irritable	-	2	-
	What to do if medication problems?	-	-	2
	What medication side effects?	-	-	3,2
	Hallucinations are due to drugs	-	-	1
	Action of drugs	-	-	1
	Reasons for prescribing drugs	-	-	3
	Anti-inflammatory drug	-	-	2
	Use meals to remind of pill-taking	-	-	3
	What to do if sleep in and miss a dose	-	-	2
9B	Varying cost of drugs	-	-	3
	If forget a dose, ignore it	-	-	1
	Have to eat because of pills	-	-	3
10A	Need demonstration <u>and</u> practice of exercises	-	2	-
	Start practice before discharge (exercise)	-	3	-
	Found floor exercises difficult	-	1	-
	Update 1-2 weeks postdischarge by Rehabilitation staff	-	-	3
	Increase at 8-10 days postdischarge	-	-	1
	Suggests Heart Institute rent kits to measure distance and heart rate	-	-	2

(table continues)

Table L-38 (continued)

Objective	Expressed Need/Problem/ Solution	PRE Group n=10	PD1 Group n=10	PD4 Group n=10
10A	Need two sets of exercises	-	-	2
cont'd	- for beginners and advanced	-	-	1
10B	Need to know how to increase exercise	-	-	3
	Occupational therapy	-	-	1
	How to discipline self to stay active	-	-	3
10C	Cooked family's meals after discharge	-	-	1
	Took own pulse but not taught to	-	-	3
	Need digital monitors	-	-	1
10D	First meal out was difficult	-	-	3
10E	No time when all can go to class	3	-	-
	Mental and physical coping of spouse	1	1	-
	Share patient's problems	1	-	-
	More doctor-family contact	-	1	-
11A	Cover incision to collect clear drainage	-	1	-
	Clear drainage is part of healing process	-	2	-
	No need for sponge bath if can get out of tub	-	-	1
	Worried about possible collision when skiing	-	-	1
	Hot compresses, ointment, bandage	-	-	3
	Better to leave incision open	-	-	3
11B	Use panty hose as support stockings	-	-	2
11C	Has to watch for infection	-	-	1
11D	If sleeps well, feels better	-	1	-
12A	Anxiety	2	-	-
	Panicky first 3 days at home, panic	-	3	2
	Psychological impact of surgery	-	-	1
	How to handle emotional problems and worries	-	-	2
	Meet with other patients at 3-6 months	-	-	1
	How to handle emotional reactions	-	-	1
	Will still have fears at 6 months	-	-	1
	Fear of recurrence of blockages	-	-	2
	Restless	-	-	2
	Didn't want to think of others' needs	-	-	2
	How long will effects of surgery last?	-	-	1
	General fear	-	-	1
13A	Secretary said visit would take 1 1/2 hrs	-	3	-
	Have Public Health Nurse come 3 days postdischarge, 14 days is too long	-	3	-
	More frequent follow-ups	-	-	1
	Physiotherapist	-	-	2

(table continues)

Table L-38 (continued)

Objective	Expressed Need/Problem/ Solution	PRE Group n=10	PD1 Group n=10	PD4 Group n=10
13B	Time of follow-up surgical visit in booklet is different from experience	-	-	2
	Get literature from Heart Foundation	-	-	3
	Pharmacy phone number	-	-	2
	Add an index to discharge book	-	-	3
	Some side effects were written in book	-	-	2
13C	Someone with time to talk	1	-	-
	Quick response	-	1	-
	Pharmacy for more pills	-	3	-
	Heart Institute	-	-	1
	Local pharmacist explained drugs	-	-	2
14A	Discharge booklet says return to work in 3-6 months / Why so long?	-	3	-
14B	Get doctor's signature on form	1	-	-
	Concerned re cost of drugs (Asasantine versus ASA and Persantin)	-	-	1
14C	Difference between doctor and book on time to return to work	-	2	-
15A	Find out on own (i.e. no veteran patient)	2	-	-
	Offer class in three parts	3	-	-
	Need someone just to answer questions	2	-	-
	Give classes before trouble begins	3	-	-
	Role of pharmacist, Nursing Coordinator	-	1, 1	3
	Bilingual	-	3	-
	More doctor contact	-	3	-
	All surgeons' names on directory	-	3	-
	Satisfied with present program	-	3	-
	Pharmacist did not explain action of drugs	-	3	-
	Counsellor (psychologist/psychiatrist not necessary)	-	3	-
	Need a French-speaking Nursing Coordinator	-	3	-
	More about operation for family	-	2	-
	Spouse enjoyed presurgery class and felt prepared	-	2	-
	Allow questions	-	-	2
	Make smaller to facilitate questions	-	-	3
	Have commentary by Nursing Coordinator	-	-	3
	Hold question period	-	-	2
	Surgeon told patient how to care for leg	-	-	1
	Hold class to accomodate patient, spouse	-	-	2

(table continues)

Table L-38 (continued)

Objective	Expressed Need/Problem/ Solution	PRE Group n=10	PD1 Group n=10	PD4 Group n=10
15B	Use television and computer visualization	-	-	3
	Audiovisual	3	-	-
	Too complicated	3	-	-
	Video	3,3	-	3,2
	Booklet is a waste of time	3	-	-
	With schematics	1	-	-
	Use free television time	2	-	-
	In French / lack of French / French audio	-	3,1,3	-
	Friendly, personable staff	-	1	-
	Uses own diet books	-	1	-
	Catheterization class fine, very good	-	2,1	-
	Use television to teach no smoking	-	3	-
	Angiogram class given 3 weeks before/ gave "more time to digest"	-	2	-
	Written instructions from pharmacist	-	1	2
	Have a veteran spouse	-	-	3
	Look for another patient to talk to	-	-	3
	Do a film on convalescence	-	-	3
	Mark heart diagram where arteries are clogged	-	-	3
	Give a chart/plan of foods permitted and restricted	-	-	3
	Video of exercises	-	-	2
	Have pamphlets available in waiting room	-	-	3
	Show procedure	-	-	2
	Report 98% success rate	-	-	3
	Screen volunteers	-	-	1
	Booklet on heart surgery and procedure for patient	-	-	3
	Saw television program (PBS) on heart surgery	-	3	3,2,2
	Diagrams of angioplasty	-	-	1
	Video better than slides	-	-	2
15C	Know time of presurgery class	1	-	-
	Have class right after surgery date is set	3,3,1	-	-
	Wants to know all that happens	2	-	-
	Surgery explained by cardiologist after angiogram	3	-	-
	Before decision for surgery	3	-	-
	Tell at presurgery class what to expect when patient comes home	-	3	-

(table continues)

Table L-38 (continued)

Objective	Expressed Need/Problem/ Solution	PRE Group n=10	PD1 Group n=10	PD4 Group n=10
15C cont'd	Allow emergency patients to attend presurgery class after surgery	-	2	3
	Tell at presurgery class about stair climbing after discharge	-	1	-
	Too much going on (day before surgery) to concentrate	-	2	-
	More impact if have to come in for preadmission class	-	2	-
	Preoperative class interrupted for blood to be taken	-	2	-
	See movie 2 weeks before operation	-	3	-
	Tell spouses presurgery how patient will be after	-	3	-
	Spouse frightened after presurgery class (patient not frightened)	-	-	1
	Leave class as is/ prepared for what to expect	-	-	1
	Include what to expect on discharge	-	-	3
	Explain class contents so people can choose whether to attend	-	-	3
	Hold 7-10 days before surgery	-	-	2
15D	Will ask questions after	1	-	-
	Hold class after surgery	3	-	-
	Give exercise class early in morning	-	2	-
	Give discharge class in afternoon	-	2	-
	Teach diet in 6-8 weeks	-	3	-
	1 1/2 hour length is fine	-	2	-
	6:30 p.m. is perfect time for class	-	1	-
	Missed it/ Return to see and hear discharge class?	-	3	-
	Delay attendance until patients feel better	-	3	-
	After 5th day have veteran patient come and tell what to expect in next 3 weeks	-	-	2
	Hold 1 week after surgery	-	-	2
	Meet at 3-6 months, after life is normal	-	-	1,3
	1 1/2 hr. class length is OK	-	-	2
15E	Need some place to sit	2	-	-
	Volunteers were nice/ friendly staff	-	3,1	-
	Have no interruptions	-	1	-
15F	Have someone free to talk to family	3	-	-
	Person near you all the time at home	-	3	-
	Some want to see and others do not	-	1	-

(table continues)

Table L-38 (continued)

Objective	Expressed Need/Problem/ Solution	PRE Group n=10	PD1 Group n=10	PD4 Group n=10
15F	Daughter (9 yrs) was too young for class	-	1	-
cont'd	No children at class, exclude <14 years	-	1	3
	Have spouse attend after emergency surgery	-	-	3,3
	Involve spouse in exercise class	-	-	2,2
15G	Answer questions simply/smoothly, honestly	3	-	-
	Introduce patients to each other	3	-	-
	Avoid too much technical talk (eg. 1A1a) in GRID; keep simple	1,3,1	-	1
	Teacher should identify self	-	-	1
	10-15 minutes in length, short classes	3	-	3,3
	Put people at ease	2	-	-
	Wants to know in plain English	2	-	-
	No ridicule	3	-	-
	Do not scare people	1	-	-
	Be nice	-	2	-
	No blood	-	3	3
	Nursing Coordinator did not want to give operation details	-	3	-
	Allow questions	-	-	1,3
	Allow repetition	-	-	2
	Know patient's history	-	-	2
	Update content	-	-	1
	Use layman's language	-	-	1
	Allow option to attend	-	1,1	2,3

OTHER responses identified by:	no.	%	no.	%	no.	%
1/3 coders	36	40.9	31	34.0	39	28.8
2/3 coders	22	25.0	26	28.6	48	35.6
3/3 coders	30	34.1	34	37.4	48	35.6
Total	88	100	91	100	135	100

Note. GRID=Coding scheme. Each of 1,2, or 3 represents the number of coders (out of three) who chose a new code for the same patient.

*30/30 patients (10 PRE, 10 PD1, & 10 PD4) discussed the Ideal Program.

PRE = Presurgery, PD1 = Postdischarge 1 week, PD4 = Postdischarge 4 weeks.