MEASURING QUALITY OF LIFE
IN CARDIAC SPOUSES

MEASURING QUALITY OF LIFE
IN SPOUSES OF
POST-MYOCARDIAL INFARCTION PATIENTS

By

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ABSTRACT

The purpose of this thesis investigation was to determine the responsiveness and validity of a previously developed evaluative instrument (QL-SP), purported to measure quality of life in spouses of patients who have suffered a myocardial infarction. The 26 questions of the index address emotional concerns, functional limitations, sleep disturbances, and lifestyle changes; they are categorized into the Emotional Function Dimension (EFD), and the Physical and Social Function Dimension (PSFD). Subjects ($n = 39$) completed the QL-SP and a battery of established questionnaires during home visitations, 1 - 2 weeks after the patient member of the pair had been discharged from the hospital, and 8 weeks later. Predicted associations were derived according to standardized consensus methods suggesting how changes in the QL-SP dimensions should correlate with changes in the other indexes.

Scores on the QL-SP between admission to the study and the second visit were improved for both the emotional function ($t = 5.56$, $p < 0.001$), and physical and social function ($t = 6.11$, $p < 0.001$) dimensions. The agreement between predicted and observed relationships, as measured statistically by a Kappa with Cicchetti weights, was significant ($Kw = 0.43$, $p = 0.0012$).

The QL-SP appears to be a responsive and valid measure of quality of life in spouses of MI patients related to their partner's illness. It may be useful in clinical practice as a routine periodic assessment throughout the post-MI convalescent period, and as an evaluation tool for intervention strategies.

Dedicated to

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of the Saskatoon Tri-Hospital Programme

for their introduction to cardiac rehabilitation

and for teaching me to

"Keep my arse in gear!"

I'm trying!!!

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1: INTRODUCTION

1.1 Evaluation of Health

Improved health is the undisputed goal of the medical profession. The effectiveness of any program aimed at the treatment or prevention of disease is measured by the impact of that program upon the health of its recipients (Llewellyn-Thomas et al., 1984). Health practitioners and researchers alike face the challenge of deciding whether health improvement has occurred, and whether such improvement justifies the operational cost of the program (Torrance, Thomas and Sackett, 1972). On a larger scale, these decision makers must consider the optimal allocation of limited resources within the total health service system. Program evaluation principally takes one of two forms: cost-benefit analysis, where programs are compared on the basis of net value of benefits less cost; or, cost-effective analysis where health improvement in nonmonetary units is compared with the cost in dollars (Torrance, Thomas and Sackett, 1972). The latter approach, incorporating emphasis on cost containment and management efficiency, quality care desirability, and increased public participation in health care, has contributed to the quest for more sensitive means of measuring health status (Chambers et al., 1976; Chambers, 1982; Hunt, McEwen and McKenna, 1986).

Traditional indices of health are concerned almost exclusively with either clearly defined end-points (i.e. mortality) or intermediate measurements (i.e. physician visits, hospital admissions) which require formal entry into the health services system (Goldsmith, 1972; Lalonde, 1974; Chambers et al., 1976; Bice, 1976; Sackett et al., 1977). Thus, the effectiveness of patient treatment is generally measured using such objective or "hard" criteria as mortality, recurrence of disease, or clinical indication of spread of disease (Spitzer et al., 1981; Bombardier and Tugwell, 1982; Tugwell and Bombardier, 1982). These existing indexes of mortality and morbidity do not adequately assess the impact of chronic diseases on the patients (Lalonde, 1974; Chambers et al., 1976; Hunt et al., 1980; Hunt, McEwen and McKenna, 1986). The inherent nature of chronic diseases makes a dramatic cure unlikely, so reducing the effects of such conditions becomes paramount. Comprehensive health state descriptions and measures should be sensitive to changes in the social, emotional, and physical well-being implied in the World Health Organization definition of health (Chambers et al., 1976; Sackett et al., 1977; Hunt et al., 1980; Chambers, 1982; Hunt, McEwen and McKenna, 1986). Excessive concern for objective information may result in the misleading neglect of pertinent, "softer" data (Hunt et al., 1980; Hunt, McEwen and McKenna, 1986), concerned with quality of life (i.e. the way a person feels, and how he/she functions in day-to-day activities) (Najman and Levine, 1981; Guyatt, 1985). Objective and subjective perspectives can be equally valid in describing states of health (Hunt, McEwen and McKenna, 1986). An inability to quantify health subjectively means that patients' perspectives are often dismissed. It is currently recognized that perceived health status is an important predictor of the need for, and utilisation of health services, and subsequent health outcomes (Chambers et al., 1976; Hunt et al., 1980; Chambers, 1982; Hunt, McEwen and McKenna, 1986). This realization has prompted attempts to address the imbalance between objective and subjective issues by producing sociomedical indicators to assess both (Balinsky and Bergner, 1975; Siegmann and Elinson, 1977; Hunt et al., 1980; Hunt, McEwen and McKenna, 1986). Indices are thereby able to determine the clinical and laboratory manifestations of disease, as well as quality of life (Sackett et al., 1977).

1.2 Evaluation of Quality of Life

Existing examples of instruments for assessing quality of life: are usually lengthy; require specially-trained personnel to administer; insufficiently attend to social and emotional concerns;

have limited use outside the original setting; and have not always been validated (Sackett et al., 1977; Spitzer et al., 1981). Quality of life instruments developed for the general population (e.g. Kaplan, Bush and Berry, 1976; Bergner et al., 1976), are unlikely to detect clinically important changes if these changes are small (Guyatt, Bombardier and Tugwell, 1986). Disease-specific instruments (e.g. Spitzer et al., 1981; Levine et al., 1984; Guyatt, Townsend and Taylor, 1984), have somewhat limited applicability since different illnesses affect different functions, and different treatments affect different aspects of quality of life impairment (Guyatt, Bombardier and Tugwell, 1986). For these reasons, a new instrument is often required when one wishes to examine a certain subgroup of the population or to measure the effects of a specific treatment.

1.3 Quality of Life Questionnaire Construction

Health status indexes used in clinical practice and/or research have three basic purposes: to discriminate between individuals along a continuum of health, illness or disability; to predict outcome, prognosis or results of some other test; and to evaluate the extent of longitudinal change in an individual or group on the dimension of interest (Kirshner and Guyatt, 1985). The latter purpose is the main focus for those interested in the measurement of quality of life. The following steps are involved in the process of constructing an evaluative index to measure quality of life: selection of the item pool; item reduction; questionnaire format and item scaling; pretesting; determination of reliability and responsiveness; and determination of validity (Sackett et al., 1977; Spitzer et al., 1981; Kirshner and Guyatt, 1985; Guyatt, Bombardier and Tugwell, 1986).

A criterion which is unique to evaluative instruments is the likelihood that patient status on a particular item will change with the application of a given intervention (Guyatt, Bombardier and Tugwell, 1986). Specific items must therefore reflect areas of function and feeling states that are important to the subjects (Kirshner and Guyatt, 1985; Guyatt, 1985; Guyatt, Bombardier and Tugwell, 1986). The item pool is compiled through: personal judgement; utilising the experience of content area experts; polling a group of patients and their spouses; semi-structured interviews with probes or cues; consulting the relevant literature; and examining previously constructed questionnaires designed for the general population or for patients with a related malady (Spitzer et al., 1981; Guyatt, Bombardier and Tugwell, 1986).

This initial list of questions frequently has a far greater number of items than could realistically be included in the final instrument. Questionnaire content then depends on each item's performance in the proposed setting of the use of the index (Kirshner and Guyatt, 1985). By multiplying the frequency of each item (the number of subjects who listed it as a problem), by its mean importance (rated on a Likert scale from 1. Not Very Important,...to 5. Extremely Important), one can select the items with the greatest frequency-importance product (Guyatt, Bombardier and Tugwell, 1986). Item reduction should also consider the potential responsiveness of the items, the specific goals of an intervention, consistency in measurement, and deriving the final score. If items which are very important to a substantial number of subjects are inevitably omitted, one can use the "individualized questions" approach for listing a few functional problem areas per patient (Scott and Huskisson, 1977; Guyatt, Bombardier and Tugwell, 1986). The total number of questions remaining after the item reduction process is a function of respondent burden, and sensitivity. Maximizing the number of items in an index can increase the likelihood of including items that are insensitive to treatment, which in turn contributes to the instrument's random error and may obscure any treatment effects that do occur (Kirshner and Guyatt, 1985). If questionnaire content overlaps with that of established measures, the overall format, time frame, and wording can be borrowed from them (Guyatt, Bombardier and Tugwell, 1986).

For the instrument to be responsive (i.e. able to measure within-person changes over time), response options or item scaling must be selected such that individual items register appropriate changes in score when clinically important improvement or deterioration occurs (Kirshner and Guyatt, 1985). It is reasonable for evaluative indexes to select either Likert scales with 7 - 10 response options, or visual analogue scales (lines, usually 100 mm in length, anchored by the extremes of the item being measured, on which subjects make a mark indicating their status on that item), and to avoid yes-no type of questions (Kirshner and Guyatt, 1985; Guyatt, 1985; Guyatt, Bombardier and Tugwell, 1986). Pretesting is then required to eliminate ambiguities, to delete offensive questions or those beyond correction, and to ensure the use of a full range of response options for each question (Guyatt, Bombardier and Tugwell, 1986).

Reproducibility (precision or reliability) refers to whether replicate administration of an instrument to stable subjects on various occasions, or with various raters, produces the same results (Jette, 1980; Kirshner and Guyatt, 1985; Guyatt, Bombardier and Tugwell, 1986). As previously noted, evaluative instruments are useful in detecting within-person variation over time. Their usefulness depends on responsiveness or power to detect a difference when one is present (Goldsmith, 1972;

Bombardier and Tugwell, 1982 & 1983); that is, the sample size requirements to note a small, medium, or large change in the population can be used as an index of an instrument's responsiveness (Kirshner and Guyatt, 1985). If the power turns out to be too low, requiring an excessive "n" to observe a desired effect at a given level of alpha, then the index is not useful as an evaluative instrument.

Validity defines the meaning of a score or results of a test; it is not absolute, rather it is relative to the domain about which the statements are made (Kaplan, Bush and Berry, 1976; Kaplan, Atkins and Timms, 1984). A measurement instrument is valid to the extent that it actually expresses or quantifies the construct that it purports to measure. There are three basic types of validity (content, criterion, and construct), which subsume almost all forms of validity that have been proposed (Kaplan, Bush and Berry, 1976).

Content validity refers to the representativeness or completeness with which an index covers the important areas of its domain (Kaplan, Bush and Berry, 1976; Jette, 1980; Spitzer et al., 1981; Kirshner and Guyatt, 1985). A measure with content validity will almost certainly exhibit "face validity" which is the general appearance that the items are sensible and related to the construct of interest (Kaplan, Bush and Berry, 1976; Tugwell and Bombardier, 1982; Bombardier and Tugwell, 1982 & 1983).

A proposed measure achieves criterion validity (or empirical or statistical validity) to the extent that it corresponds to some other observation that accurately measures the phenomenon of interest (Kaplan, Bush and Berry, 1976; Torrance, 1976; Jette, 1980; Bombardier and Tugwell, 1982 & 1983). By definition the criterion must be a superior, more accurate measure of the construct if it is to serve as a verifying norm. If the "gold standard" is not superior, as is frequently the case in health status measurement, then failure of correspondence by any new measure may simply represent a defect in the criterion itself, not in the new measure (Kaplan, Bush and Berry, 1976; Jette, 1980).

When "...no criterion or universal content is accepted as entirely adequate to define the quality to be measured" (Cronbach and Meehl, 1955), one must employ the strategy of construct validity; the process of assembling empirical evidence to support the inferences that a particular measure has meaning (Kaplan, Bush and Berry, 1976; Kaplan, Atkins and Timms, 1984; Jette, 1980). In the absence of a gold standard, quality of life measurement instruments need to be reviewed in relation to other measures to see if they behave as one would expect if they are really measuring quality of life (Guyatt, Bombardier and Tugwell, 1986). One makes a number of predicted associations about how the results should correlate with other related dimensions such as performance, psychological, and physiologic measures, and then tests the hypotheses. Since evaluative instruments are primarily designed to detect change, one must show that longitudinal within-subject changes in the quality of life scores, with an intervention, bear the expected relation to changes in the other variables measured (Kirshner and Guyatt, 1985).

1.4 Quality of Life in Cardiac Spouses

There is no doubt that a myocardial infarction exerts significant effects upon the "well" members of the family, in particular the spouse (Mayou, Foster and Williamson, 1978; Davidson, 1979; Stern and Pascale, 1979; Bedsworth and Molen, 1982). Thus, the effect of the MI on the patient cannot be considered in isolation since it has an appreciable impact on the spouse, usually the wife, who may suffer severe physical, psychological, emotional and social distress. Indeed, the level of dysfunction, emotional symptoms, and role tension exhibited by some spouses is equal to or greater than the "patient" member of the pair (Klein, Dean and Bogdonoff, 1967; Olsen, 1970; Mayou, Foster and Williamson, 1978).

The acute cardiac event creates an initial distress reaction for the spouse characterized by a sense of numbness, panic, anxiety, and substantially increased physical demands (Skelton and Dominian, 1973; Mayou, Williamson and Foster, 1976; Brea and Dracup, 1978). Feelings of loss, depression, and fear of recurrence, death or permanent disability are common. Psychosomatic complaints of headaches, dizziness, stomach pains and heart symptoms mimic those of the patients (Skelton and Dominian, 1973; Stern and Pascale, 1979); sleep and appetite disturbances are the most frequent symptoms (Skelton and Dominian, 1973). Spousal reaction is also typified by anger, guilt, thoughts of being a "cause", helplessness and loneliness (Adsett and Bruhn, 1968; Gardner and Stewart, 1978; Stern and Pascale, 1979). There are a number of practical concerns that spouses must contend with immediately post-infarction: aspects of admission; foreign and often intimidating surroundings; visiting hours; physical separation; arrangements for dependents and transportation; possible change in work pattern; and extra chores and responsibilities (Mayou, Williamson and Foster, 1976; Mayou, Foster and Williamson, 1978; Brea and Dracup, 1978). Following discharge from hospital, the spouse is frequently over-solicitous, and over-cautious with a great fear of hurting or upsetting the patient (Adsett and Bruhn, 1968; Wishnie, Hackett and Cassem, 1971;

Bilodeau and Hackett, 1971; Davidson, 1979; Stern and Pascale, 1979). A marked inhibition in expression of aggressive, sexual or dependency needs is common, as the spouse attempts to shield the patient from stress lest it precipitate another MI (Adsett and Bruhn, 1968; Wishnie, Hackett and Cassem, 1971; Watts, 1976; Davidson, 1979; Stern and Pascale, 1979). Practical problems of foremost concern over the ensuing months are those of role definition, medication, nutrition, physical limitations, employment status, and sexual activity (Adsett and Bruhn, 1968; Olsen, 1970; Skelton and Dominian, 1973; Davidson, 1979; Papadopoulos et al., 1980). Spouses may continue to experience marked psychological and lifestyle adjustments up to one year or more post-MI (Skelton and Dominian, 1973; Mayou, Foster and Williamson, 1978; Davidson, 1979).

Identifying and measuring these areas of quality of life impairment in spouses of MI patients is important because their attitude, understanding and ability to cope are crucial in comprehensive rehabilitative endeavors (DeLa Mata, 1960; Wenger, 1979; Schlesinger, 1983). A supportive, understanding, empathetic atmosphere provides for a more favorable milieau for recovery (Wishnie, Hackett and Cassem, 1971; Holub, Eklund and Keenan, 1975; McGann, 1976; Gardner and Stewart, 1978; Davidson, 1979). The attitudes of the spouse are of special importance in influencing the nature of the patient's future physical and emotional adaptation, subsequent clinical course and compliance to medication, exercise and lifestyle modification (Adsett and Bruhn, 1968; Mayou, Foster and Williamson, 1978; Stern and Pascale, 1979; Papadopoulos et al., 1980; Andrew et al., 1981). The wife clearly has substantial influence on the rate and extent of convalescence by encouragement or protectiveness, discussing the illness and the future, making plans, and consulting medical personnel (Mayou, Foster and Williamson, 1978).

Common methodological and implementation problems are evident in the research in this area to date: small and self-selected samples; no control groups; inadequate follow-ups; lack of valid and reliable measures; and the emphasis on self-report and interview data. The lack of objective and precise measuring tools is the prominent flaw in the majority of studies on the psychosocial sequelae of the cardiac spouse. This shortcoming provided the impetus for the Quality of Life Questionnaire for Cardiac Spouses (QL-SP), an instrument to identify and measure changes over time in areas of quality of life impairment in spouses of post-MI patients (see Appendix C).

1.5 QL-SP Construction

A list of potential areas of spousal concern was identified from: a review of the literature; consultation with health professionals involved in cardiac rehabilitation; unstructured interviews with spouses and cardiac patients; and a previously established quality of life questionnaire designed for cardiac patients (Guyatt et al., 1986). The resulting 76 items dealt with areas of emotional dysfunction, physical limitations, social problems, sleep disturbances, and lifestyle changes (see Appendix A). Sixty women were interviewed to determine the most frequent and important items. The pattern of spontaneous versus interviewer elicited responses, and early (spouses 0 - 2 months post-MI) versus late (spouses 2 - 12 months post-MI) responses was also examined.

As expected, the top frequency-importance product scores (see Appendix B) were in the areas of emotional dysfunction and lifestyle changes: concern, nutritional habits, worry, exercise patterns, tension, and communication with the patient spouse. The top ranked twenty-five items constitute the framework of the final questionnaire (see Appendix C). Each was represented as a question on its own or in combination with other items intuitively associated with the same construct (i.e. concerned or worried; physically strained or low in energy; apprehensive or frightened). Items that were identified spontaneously were higher in importance in 78.2% (29/37) of the cases ($\bar{X} = 11.92$, $p < 0.01$). The mean importance scores for early versus late did not differ ($\bar{X} = 2.67$, $p > 0.05$).

1.6 Summary and Purpose

Evaluating the extent to which improved health is achieved by the therapeutic interventions of the medical profession, poses a formidable challenge to health practitioners and researchers alike. The growing realization that perceived health status plays an important role in the utilisation of health services, program utility analysis, resource allocation, policy making and health outcomes, has spawned the development of evaluative indexes which assess quality of life issues. The process of construction involves selection of the item pool, item reduction, questionnaire format and item scaling, pretesting, determination of reliability and responsiveness, and determination of validity. A quality of life instrument to specifically identify and measure the needs of spouses of MI patients has been developed in a previous investigation, by satisfying the expectations within each of these steps. The most frequent and most important items constitute the skeleton of the final questionnaire. These 26 questions address the areas of emotional dysfunction, physical limitations, social problems, sleep disturbances, and lifestyle changes. It is possible that the use of this instrument in clinical and research situations may promote an awareness and measurement of spousal concerns, and contribute to a healthier state for both the patient and the spouse. The purpose of this thesis investigation was to establish the responsiveness and validity of the Quality of Life Questionnaire for Cardiac Spouses (QL-SP).

CHAPTER 2: METHODS

2.1 Pretesting

The quality of life questionnaire for cardiac spouses (QL-SP) was pre-tested to correct problems of lack of understanding, embarassing, inappropriate or confusing questions, suboptimal wording or poor choice of response options (Guyatt, Bombardier and Tugwell, 1986). A sample of 10 spouses of MI patients was selected to ensure representation from different disease severities, ages and lifestyles, and to note obvious problems with the questionnaire.

2.2 Validation Procedure

The QL-SP was administered to cardiac spouses 1 - 2 weeks after the patient member of the pair had been discharged from the hospital. The following measures were made concurrently (see Appendix D):

1. Data Information Sheet
    a) spouse
    b) patient

2. Instrumental Activity of Daily Living Index
    a) spouses' evaluation of own activity
    b) spouses' evaluation of patients' activity
    c) patients' evaluation of own activity
3. Beck Depression Index (BDI)
4. State-Trait Anxiety Index (STAI)
5. RAND Global Quality of Well-being Questionnaire
6. Marital Satisfaction
7. Self-Anchoring Scale
    a) spouses' evaluation of own life
    b) patients' evaluation of spouses' life
8. Quality of Life Time Trade-Off.

All measures were repeated on the same subjects 8 weeks following the initial interview. At the repeat administration of the QL-SP, previous responses were presented to the subjects. It has been demonstrated that showing subjects their previous responses decreases the variability in stable subjects without incurring changes in the questionnaire score associated with the response to treatment (Guyatt, Townsend and Taylor, 1984).

2.3 Selection of Instruments

Previous validation studies of quality of life measures have failed to incorporate objective and subjective components of quality of life (Najman and Levine, 1981). The instruments for this validation exercise have been selected to provide a comprehensive measurement of quality of life; they combine objective measures of quality of life including physical environment conditions and activities of daily living, as well as subjective quality of life indicators including anxiety, overall life-satisfaction and global well-being.

The Katz Instrumental Activity of Daily Living Index (Katz et al., 1963) is concerned with self-maintaining functions as well as a person's ability to cope with his/her environment in terms of such adaptive tasks as shopping, housekeeping, and use of transportation (Katz, 1983). It is a standardized measure with demonstrated use in the longitudinal study of illness and effectiveness of care, as a survey instrument, as an objective guide in clinical practice, and as a rehabilitation teaching device (Katz et al., 1963; Katz, 1983). This scale was completed by the spouse for themselves and for the patient, and by the patient for

(a) pre-MI levels of activity, (b) immediately post-MI (1 - 2 weeks), and (c) 8 weeks later, to assess any disruption or change in normal activity patterns.

The BDI (Beck et al., 1961) and the STAI (Spielberger et al., 1970) are self-report outcome measures for depression, and state and trait anxiety respectively. These unidimensional indexes are commonly employed to assess mood-based outcomes in health psychology, and are used widely in clinical, experimental and validation studies (Kendall et al., 1979; Shipley, Butt and Horwitz, 1979; Arena, Blanchard and Andrasik, 1984; Lamping, 1985). They are able to discriminate between individuals with varying degrees of depression and anxiety, and reflect changes in intensity of these effects after an interval of time (Beck et al., 1961; Lamping, 1985). Since depression and anxiety are exhibited frequently by spouses of MI patients (Skelton and Dominian, 1973; Mayou, Foster and Williamson, 1976 & 1978; Stern and Pascale, 1979; Davidson, 1979), these indexes are considered to be valuable in the validation of the cardiac spouse quality of life instrument.

The RAND Quality of Well-being Questionnaire (Stewart et al., 1978) is a global measure considering overall physical, mental and social health. Respondents are asked about general 'health' status or perceptions based on descriptions of familiar behaviors or feelings (e.g. "ability to walk uphill or upstairs" as a measure of physical health; feeling "down in the dumps" as a measure of mental health). This quality of life measure has been extensively tested in terms of reliability and validity for the general population (Ware, Davies-Avery and Donald, 1978; Ware et al., 1980).

The Marital Satisfaction component of the Locke-Wallace Marital Adjustment Test (Locke and Wallace, 1959) provides information regarding satisfaction with the marital relationship and home conditions, aspects of social networks that are crucial to happiness and quality of life (Najman and Levine, 1981). Satisfaction is rated on a 7-point continuum from 'Very Unhappy' to 'Perfectly Happy', with the median representing the degree of happiness which most people feel about their marriage and home situation.

The Self-Anchoring Scale (Cantrill, 1965) is a stable and global assessment of life satisfaction and general sense of well-being (Palmore and Luikart, 1972; Laborde and Powers, 1980). The device employs an eleven-point ladder, the lowest end (point 0) referring to the respondent's own description of the "worst possible life" and the highest end (point 10) to his/her description of the "best possible life". At each interview subjects were asked to place themselves on the ladder in relation to how satisfied or dissatisfied they were with their life at that time. The cardiac patients also completed the scale according to how they thought their spouse would respond, providing insight into the patients' perception of their spouses' quality of life. It has been shown that where agreement is lacking between cardiac patients and their spouses, resultant conflicts can severely delay and hinder rehabilitative efforts (Wishnie, Hackett and Cassem, 1971; McGann, 1976; Davidson, 1979).

The Quality of Life Time Trade-Off (TTO) is a paired comparison technique designed for use in health preference evaluation, planning, resource allocation, and policy analysis (Torrance, 1976). It is designed to provide non-arbitrary, scientifically measured values reflecting the relative desirability of various states of health. Cardiac spouses were presented with a "Caregiver" version of the TTO which asked them to select the most prefered of 2 alternatives: one alternative offered the subject their present situation (in the past two weeks) for a specified length of time, while the other offered a model situation (excellent state of well-being) for a potentially shorter length of time.

2.4 Subjects

The subjects consisted of 42 people (39 females, 3 males) in Oakville, Mississauga and Hamilton whose husband/wife suffered an acute myocardial infarction (see Table 1). All subjects were contacted by phone a few days following the hospital discharge of their patient-spouse. The purpose of the call was threefold: to explain the nature of the study in general terms, to request the respondent's co-operation, and to arrange an appointment time within 2 weeks post-hospital discharge. An understanding of the test procedures and willingness to participate was confirmed by the signing of an informed consent document at the time of the first interview (see Appendix E). Interviews were conducted in the subjects' homes and lasted approximately 60 minutes. Subjects were contacted 8 weeks later for the repeat administration of all measures. Second interviews were also conducted in the subjects' homes and lasted approximately 45 minutes.

2.5 Statistical Analysis

The Quality of Life Questionnaire for Cardiac Spouses (QL-SP) encompasses a number of potential problem areas in spousal adjustment post-MI: feelings, functional limitations, sleep disturbances, and lifestyle changes (see Appendix C). The questions have been intuitively categorized into two major

TABLE 1: SUBJECT CHARACTERISTICS

Age	51.67 ± 10.84 years ($\bar{X}$ ± S.D.)
# of Children	3.15 ± 2.03
Level of Education	1. Grade 6..............1 2. Grade 8..............3 3. Grade 11............16 4. Grade 13............11 5. Technical College....3 6. Some University......2 7. University Degree....3
# Working	1) Full-time 13/39 (33%) 2) Part-time 8/39 (21%) 3) In the home 18/39 (46%)

construct dimensions to assist in the analysis:

1) Emotional Function (EFD)
2) Physical and Social Function (PSFD).

The former includes questions 1, 2, 3, 4, 6, 8, 10, 13, 15, 18, 21, 22, 23, and 25; the latter includes the remaining questions. Each question has response options numbered 1 through 7. The responses selected are summed for a total score for each dimension; the highest possible score for the EFD being 98 (14 questions x 7), and for the PSFD, 84 (12 questions x 7).

A paired t-test of the differences in scores between the first and second administrations of the questionnaire was conducted for both the emotional function, and physical and social function dimensions to examine the responsiveness of the QL-SP.

A number of predicted associations were made according to consensus methods (Fink et al., 1984) about how the results of these dimensions of the QL-SP should correlate with the other indexes (see Table 2). Decisions were based on available empirically-derived data, as well as the judgements and experience of practitioners. Consensus participants qualified for selection on the basis of being representative of their profession, and having power to implement the findings (Fink et al., 1984). An internist, psychotherapist, physiotherapist, and physical educator

TABLE 2: PREDICTED ASSOCIATIONS

INDEX / DIMENSION	EMOTIONAL FUNCTION (EFD)	PHYSICAL AND SOCIAL FUNCTION (PSFD)
KATZ - Spouse (OWN)	I	I
- Spouse (EVAL OF PATIENT)	III	IV
- Patient (OWN)	III	IV
Beck Depression Index	IV	III
STAI - State	IV	III
- Trait	II	I
Time Trade-Off (TTO)	III	III
Marital Satisfaction	II	II
Home Situation	II	I
Self-Anchoring Scale	II	II
RAND - Physical	I	I
- Emotional	IV	III

Legend of 'r' Values

I	0.00 - 0.19
II	0.20 - 0.34
III	0.35 - 0.49
IV	0.50 +

contributed to the decision-making process. High correlations were expected for measures within the same construct. Dynamic Pearson product-moment correlations were calculated; changes in each of the two quality of life dimensions over the eight-week interval were correlated with changes in each of the other variables over the same interval. A Weighted Kappa (Cohen, 1968; Cicchetti and Fleiss, 1977) was used to quantitate the extent of agreement between the predicted and the actual (observed) correlations above and beyond that expected by chance. A Kappa with Cicchetti weights (see Table 3) was selected and calculated according to Cohen's method (Cohen, 1968). Cicchetti weights have a value of 1.00 for perfect agreement along the diagonal of the contingency table. One placement above or below the diagonal has a weighted value of 0.67 and two placements off the diagonal have weighted values of 0.33. It is a standard means of weighting that is somewhat more conservative than alternate weighting systems (e.g. quadratic weights).

TABLE 3: CICCHETTI WEIGHTS

ROW / COLUMN	1	2	3	4
1	1.00	0.67	0.33	0.00
2	0.67	1.00	0.67	0.33
3	0.33	0.67	1.00	0.67
4	0.00	0.33	0.67	1.00

CHAPTER 3: RESULTS

3.1 Pretesting

The sample of 10 spouses of MI patients selected for pretesting the QL-SP represented various ages and different disease severities (see Table 4). When the questionnaire was administered, the 10 subjects used the full range of response options for each question (see Table 5). The draft quality of life questionnaire was found to be both simple to administer and acceptable to subjects. None of the questions were modified on the basis of the pretesting.

3.2 Subject Characteristics

Initial interviews were conducted with 42 spouses (39 females, 3 males) of cardiac patients 1 - 2 weeks after the patient had been discharged from the hospital. Repeat visits (8 weeks later) were conducted with 39 of these spouses. Three female spouses were lost to follow-up; two due to deterioration in the health of the patient between the first and second sessions (1 death, 1 reinfarction), and one who refused the second visit.

TABLE 4: CHARACTERISTICS OF THE PRETESTING SAMPLE

SUBJECT #	AGE (yrs)	SEX	WEEKS POST-MI
01	61	F	1
02	65	F	1
03	56	M	4
04	54	F	1
05	61	F	6
06	61	F	1
07	35	F	5
08	65	F	1
09	52	F	12
10	47	F	7

TABLE 5: PRETESTING RESPONSE OPTIONS

SUBJECT # / QUESTION #	01	02	03	04	05	06	07	08	09	10
1	4	2	5	4	5	5	5	1	3	1
2	2	5	6	5	4	5	4	7	5	7
3	6	2	4	4	4	6	3	1	6	7
4	6	4	6	5	5	6	5	2	6	7
5	6	3	1	3	3	3	4	1	5	5
6	5	2	7	5	6	4	4	1	5	6
7	3	3	6	5	6	5	5	1	6	6
8	5	6	7	6	7	6	5	2	4	7
9	1	1	1	2	2	2	1	1	3	5
10	6	7	7	6	6	6	4	3	6	7
11	2	3	7	6	4	5	4	4	4	3
12	7	5	7	4	7	5	7	1	6	7
13	6	4	6	5	7	7	6	2	6	7
14	1	1	1	2	1	1	3	1	4	2
15	5	5	7	5	5	7	7	6	4	7
16	1	7	6	2	5	7	7	1	6	4
17	7	4	1	2	3	2	3	1	4	3
18	2	5	1	3	3	2	3	4	2	2
19	1	1	1	2	1	1	3	6	2	2
20	5	2	7	4	1	7	6	4	4	3
21	6	5	7	5	7	7	6	6	4	7
22	6	4	6	3	5	5	3	3	4	5
23	5	5	7	4	6	6	5	5	6	7
24	6	5	7	4	6	6	6	6	5	7
25	2	7	7	3	6	6	4	2	5	4
26	6	6	7	4	6	7	4	4	5	6

The age of the spouses was 51.7 ± 10.8 years (mean ± standard deviation). Thirty-three per cent (13/39) of the subject population were employed full-time, 21% (8/39) maintained part-time employment status, and 46% (18/39) did not work outside of the home. None of the latter group were unemployed as a result of their spouse's heart problem. Ten of the subjects (25.6%) reported a temporary interruption in regular work patterns ranging from one day to five weeks because of the heart attack. At the time of the initial interview, ten subjects (25.6%) had visited their own doctor as a consequence of their spouse's MI. By the second interview, twenty-three subjects (59%) had visited their family physician. Physical complaints included headaches (4), increased blood pressure (5), and non-specific chest pain (6). At the time of testing on both occasions, subjects who were exercising (walking) comprised 59% (23/39) of the sample. Of these, 35% (8/23) had increased their activity pattern at the time of the second interview, 57% (13/23) reported a decrease, and 25% (4/16) had initiated a program of walking. Eleven of the subjects (28%) were smoking; 18% (2/11) had increased the number of cigarettes per day by the second visit, and 36% (4/11) had reduced their consumption (see Table 6).

Descriptive characteristics of the patients are summarized

TABLE 6: SELECT SPOUSAL BEHAVIORS - TIME 1 VS TIME 2

TIME BEHAVIOR	1	2
# WHO STOPPED WORK DUE TO HEART ATTACK	10/21 (48%)	0
# WALKING	23/39 (59%)	1) increased 8/23 2) decreased 13/23 3) initiated 4/16
# SMOKING	10/39 (26%)	11/39 (28%) 1) increased 2/11 2) decreased 4/11
# WHO HAD VISITED FAMILY PHYSICIAN	10/39 (26%)	23/39 (59%)

in Appendix F.

3.3 Responsiveness

At the follow-up visit 8 weeks after the initial interview, scores on the emotional function, and physical and social function were improved in 85% (33/39) and 87% (33/38) of the cases respectively (see Figures 1 and 2). A repeated measures t-test of the differences in scores between admission to the study and the second visit was conducted for both the emotional function ($t = 5.56$, $p < 0.001$), and physical and social function ($t = 6.11$, $p < 0.001$) dimensions. Thus, the responsiveness, or ability of the QL-SP instrument to detect within-person variation over time was demonstrated.

3.4 Validity

Advance predictions about how closely changes in each of the dimensions of the QL-SP should correlate with changes in the other indexes if the QL-SP is really measuring quality of life were generated (see Table 2). Actual Pearson product-moment correlations were calculated (see Table 7). Agreement (Weighted Kappa, $Kw = 0.43$, $p = 0.0012$) between predicted and observed correlations was significant (see Tables 8 and 9).

Fig. 1: CHANGES IN THE EMOTIONAL FUNCTION DIMENSION BETWEEN VISITS

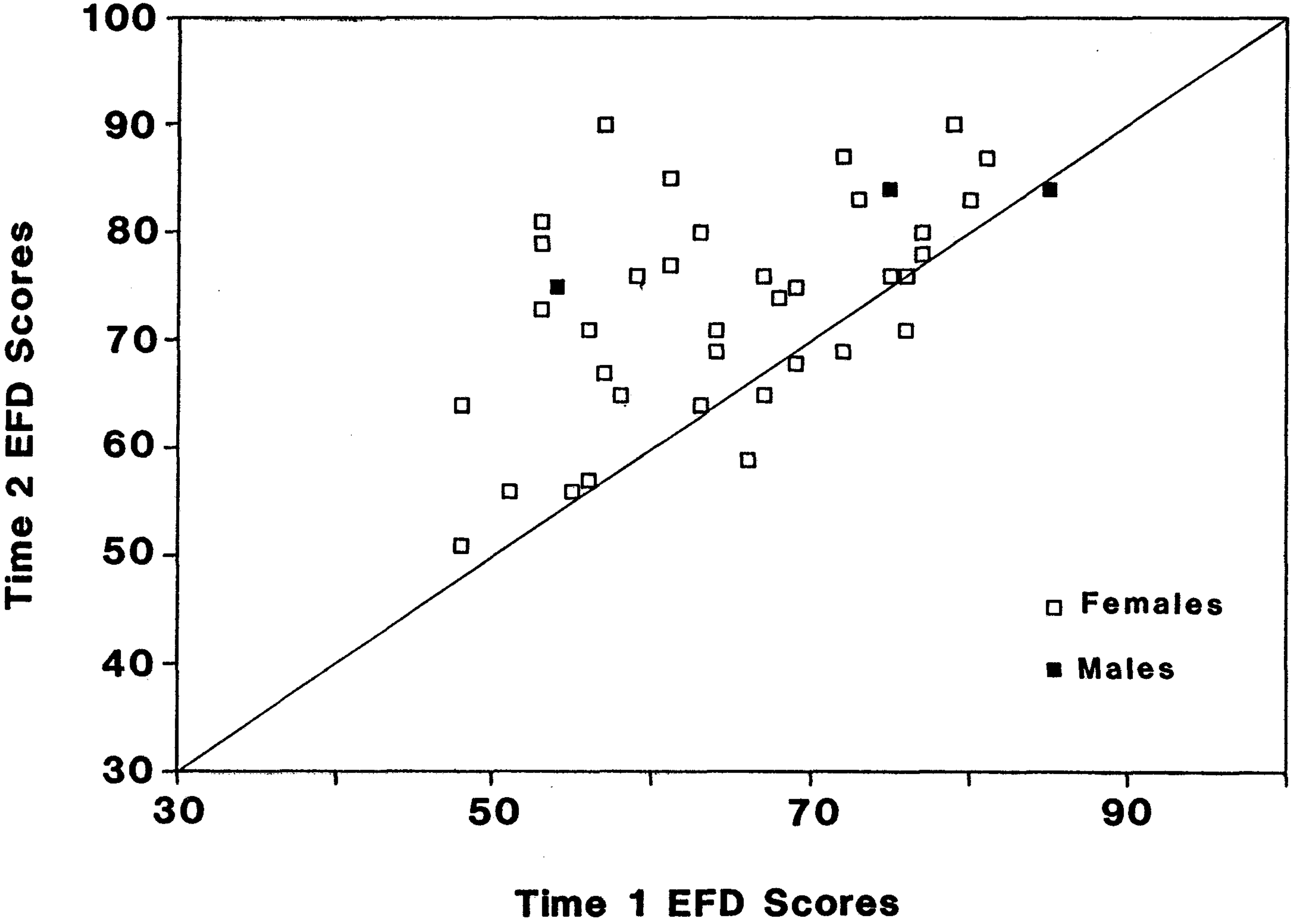

Fig.2: CHANGES IN THE PHYSICAL AND SOCIAL FUNCTION DIMENSION BETWEEN VISITS

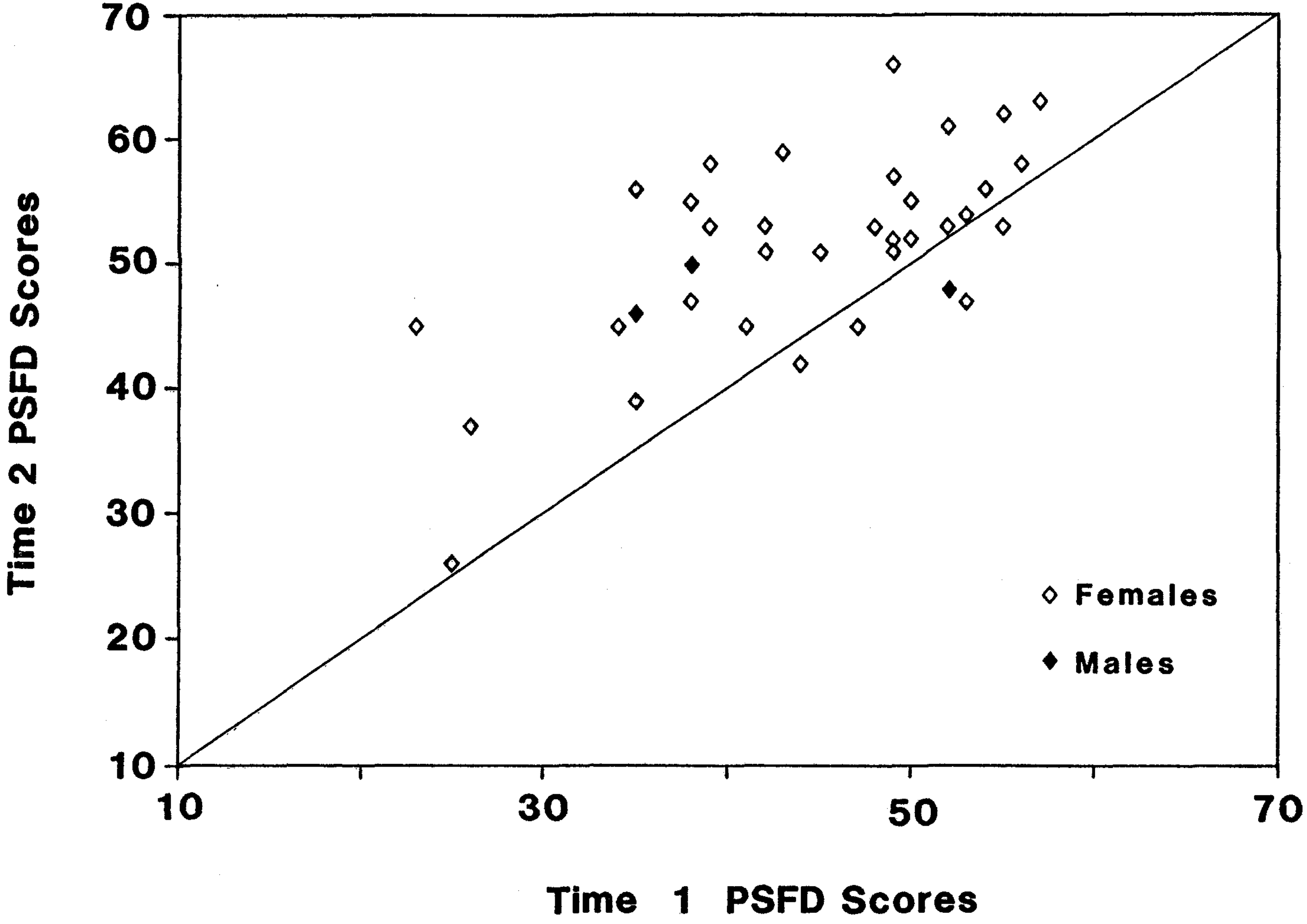

TABLE 7: ACTUAL CORRELATIONS

DIMENSION / INDEX	EMOTIONAL FUNCTION (EFD)	PHYSICAL AND SOCIAL FUNCTION (PSFD)
KATZ - Spouse (OWN)	-0.05	-0.10
- Spouse (EVAL OF PATIENT)	0.23	0.31
- Patient (OWN)	0.33	0.35
Beck Depression Index	-0.36	-0.20
STAI - State	-0.37	-0.13
- Trait	-0.34	-0.09
Time Trade-Off (TTO)	0.24	0.33
Marital Satisfaction	0.04	-0.14
Home Situation	0.26	0.02
Self-Anchoring Scale	0.17	0.03
RAND - Physical	0.01	0.11
- Emotional	0.67	0.51

TABLE 8: PREDICTED AND ACTUAL ASSOCIATIONS

DIMENSION / INDEX	EMOTIONAL FUNCTION (EFD)		PHYSICAL AND SOCIAL FUNCTION (PSFD)	
	Predicted	Actual	Predicted	Actual
KATZ - Spouse (OWN)	I	i	I	i
- Spouse (EVAL OF PATIENT)	III	ii	IV	ii
- Patient (OWN)	III	ii	IV	iii
Beck Depression Index	IV	iii	III	ii
STAI - State	IV	iii	III	i
- Trait	II	ii	I	i
Time Trade-Off (TTO)	III	ii	III	ii
Marital Satisfaction	II	i	II	i
Home Situation	II	ii	I	i
Self-Anchoring Scale	II	i	II	i
RAND - Physical	I	i	I	i
- Emotional	IV	iv	III	iv

Legend of 'r' Values

I,i	0.00 - 0.19
II,ii	0.20 - 0.34
III,iii	0.35 - 0.49
IV,iv	0.50 +

TABLE 9: CONTINGENCY TABLE - PREDICTED VS ACTUAL ASSOCIATIONS

PREDICTED ACTUAL	I	II	III	IV	TOTAL
i	6	4	1	0	11
ii	0	2	5	1	8
iii	0	0	0	3	3
iv	0	0	1	1	2
TOTAL	6	6	7	5	24

CHAPTER 4: DISCUSSION

4.1 Introduction

The objective of health care should be to produce the highest obtainable quality of life for the longest duration; effectiveness of comprehensive therapeutic programs for patient populations should be measured by the impact of that program upon the total physical, social and emotional health of the recipients. The importance of direct measurements of quality of life is becoming increasingly recognized as a vital component of assessing treatment effects and benefits (Deyo, 1984; Guyatt, Bombardier and Tugwell, 1986), but the current battery of instruments is somewhat limited.

4.2 Purpose of the Present Investigation

The purpose of this thesis investigation was to determine the responsiveness and validity of an instrument designed to measure quality of life in spouses of patients who have suffered a myocardial infarction. Spouses may experience marked psychological and lifestyle adjustments in response to their husband's/wive's cardiac event (Skelton and Dominian, 1973; Mayou, Foster and Williamson, 1978; Davidson, 1979), and they play an undisputed role in the rate and extent of convalescence of the patient (Adsett and Bruhn, 1968; Mayou, Foster and Williamson, 1978; Stern and Pascale, 1979; Papadopoulos et al., 1980; Andrew et al., 1981). Comprehensive cardiac rehabilitative efforts must therefore focus on the state of the patient and the spouse.

4.3 Measuring Health Status

Fanshel and Bush (1970) have developed a general Health Status Index in which disease and disability items that can impair function are organized into three scales representing different dimensions of daily functioning: mobility, physical activity, and social activity. This system includes a classification of symptoms and problems for each patient at a particular point in time, and considers the transition among states over the course of time (Kaplan, Atkins and Timms, 1984). A sub-component, the Quality of Well-Being Scale (QWB), is one quality of life measure available for quantifying outcomes in chronic disease patients. The QWB was found to correlate with performance and physiological measures used to evaluate Chronic Obstructive Pulmonary Disease (COPD) patients (Kaplan, Atkins and Timms, 1984); it is currently being used in the evaluation of cardiac patients (Oldridge et al., in progress).

Another method of evaluating quality of life in chronic disease patients is the Sickness Impact Profile or SIP, which quantifies physical, psychosocial, and life quality impacts of illness upon daily functioning (Bergner et al., 1976). General health measures such as these are important in that they allow comparison between heterogeneous patient groups.

The general health index approach is criticized as undesirable and not particularly useful as an outcome measure relevant to specific groups (Kaplan, Atkins and Timms, 1984). All chronic illness patients experience some sort of compromise in lifestyle, but the impact on quality of life, manifested by physiological and psychological deficits, may occur in widespread degrees (Laborde and Powers, 1980). Quality of life determination, therefore, requires an instrument that is sensitive to the concerns of the subgroup of the population. Examples of disease-specific instruments exist for chronic illness victims of cancer (Spitzer et al., 1981), end-stage renal disease (Churchill, Morgan and Torrance, 1984; Simmons, Anderson and Kamstra, 1984), osteoarthritis (Laborde and Powers, 1980), lung disease (Guyatt et al., in press), and cardiac disease (Guyatt et al., 1986). Instruments for assessing global health or quality of life have not always been validated (Spitzer et al., 1981). In the absence of a gold standard for the concept of quality of life, the strategy of construct validity must be employed; the process of accumulating evidence that a particular instrument measures what it claims to measure.

4.4 The Quality of Life Instrument (QL-SP)

The questions on the QL-SP are designed specifically to focus on the way that the spouse of the MI victim has been feeling or acting in the past two weeks. The overall format, time frame and wording has been borrowed from the quality of life questionnaire designed for MI patients (Guyatt, Bombardier and Tugwell, 1986). Validating the QL-SP involved the collection of a number of observations and instruments to provide insight as to whether the new instrument (QL-SP) related to the other estimates in a predictable fashion.

4.5 Data Acquisition

Data-gathering methods combined personal interviews and self-administered questionnaires. Obtaining information in this manner allows non-clinicians to economically conduct a survey of a representative sample while ensuring confidentiality (Patrick, Bush and Chen, 1973; Woodward and Chambers, 1986). Measuring health issues through home visits is a highly reliable means (Dahlquist et al., 1984). There are a number of advantages associated with the interview technique: interviews promote interest; they create a rapport and atmosphere that encourages frank answering of questions; interviews allow for the standardizing of explanations and clarification of responses; they allay anxiety; they reduce individual item non-response (Abramson, 1979; Woodward and Chambers, 1986). Moreover, self-administered questionnaires are simple, inexpensive and standardized methods of asking questions that alleviate any possible interview situational influences (Abramson, 1979). Accuracy was enhanced in the present study by administration of the questionnaires in a standard order and neutral manner by a single investigator.

4.6 Responsiveness

Demonstration of reliability and validity is sufficient for concluding that an instrument is useful for descriptive or predictive purposes. The usefulness of an evaluative questionnaire, however, depends on its responsiveness; that is, its ability to detect a difference when one is present (Kirshner and Guyatt, 1985; Guyatt, Bombardier and Tugwell, 1986). Responsiveness is directly proportional to the change in score that reflects a clinically important difference and inversely proportional to the variability in score in stable subjects

(Guyatt, Bombardier and Tugwell, 1986).

Strategies for assessing questionnaire responsiveness include: examining the variability in stable subjects; ensuring that scores improve after the application of an intervention of known efficacy; and examining change scores in those who improved or deteriorated according to other criteria (Kirshner and Guyatt, 1985; Guyatt, Bombardier and Tugwell, 1986). The larger the difference in questionnaire score in subjects whom exhibit real change, the greater the responsiveness; the larger the difference in scores in stable subjects, the lower the responsiveness (Guyatt, Bombardier and Tugwell, 1986).

In the case where there is no recognized stable group of subjects nor is there any therapy of known benefit, one possibility is to administer the questionnaire serially to subjects in whom spontaneous improvement or deterioration is expected (Guyatt, Bombardier and Tugwell, 1986). This method was selected for gaining information regarding the responsiveness of the QL-SP and its subsequent potential for use as an outcome measure in clinical trials. The QL-SP was administered to cardiac spouses soon after the acute MI and 8 weeks later; an interval that permits time for most subjects to adapt to the initial crisis and begin to resolve the situation (Scalzi, 1973). The quality of life instrument was successful in detecting significant within-subject differences between visits for both the Emotional Function Dimension and the Physical and Social Function Dimension; thus the responsiveness was demonstrated.

4.7 Interrelationships Between Indexes From Time 1 to Time 2

4.7.1 Emotional Function Dimension

There was no association between changes in the Emotional Function Dimension (EFD) of the QL-SP and changes in the spouses' own level of physical activity (r = -0.05), marital satisfaction (Locke-Wallace Scale) (r = 0.04), or general life satisfaction (Self-Anchoring Scale) (r = 0.17). There was some association between changes in the EFD and changes in the home situation (Locke-Wallace Scale) (r = 0.26). Small associations between changes in the EFD and marital and life satisfaction scales were anticipated. This slight difference between actual and predicted values may be due to acute circumstances only being reflected in the EFD, and long-term circumstances coming into consideration in the Marital Satisfaction and Self-Anchoring Scales. That is, on-going issues concerning relationships, finances, work, family and other non-health influences may be confounding the scores on the satisfaction scales. Contrary to the QL-SP, these instruments lack a specific time frame and focal point, thereby encompassing a number of concerns quite separate from the acute coronary event.

Moderate associations were observed between changes in the EFD and changes in the Beck Depression Index (BDI) (r = -0.36) and STAI-State (r = -0.37). The negative correlations support the prediction that decreases in depression and state anxiety would correspond to an improved quality of life. Again, the strength of the relationships was slightly less than expected. The STAI-Trait component measures how respondents "generally feel" without reference to a particular time or event, and therefore, should be relatively stable over time. A weak correlation between changes in trait anxiety and emotional function was both anticipated and exhibited (r = -0.34).

The relationship between changes in the Time Trade-Off (TTO) and the EFD (r = 0.24), was weaker than predicted. The administration of the paired comparison technique first, required the cardiac spouse or "caregiver" to evaluate various aspects of their current situation: feeling physically well and energetic, feeling happy and free of worry or frustration, having sufficient time to socialize, getting an adequate amount of undisturbed sleep, and "getting along" with the person being cared for. This was then compared to a model situation or excellent state of well-being. This attempt to focus on the circumstances specific to the heart attack was not completely successful, primarily because the subjects had a tendency to more strongly consider the total time being offered and their subsequent age, rather than the situational factors of the alternatives. For example, a 50 - 59 year-old subject was offered increasing increments of 5 year periods; this subject would add 5, 10, 15, 20, and 25 years to their present age until they were satisfied with the final number. Their present circumstances rarely interfered with this summation process.

Changes in the RAND Emotional function closely paralleled changes in the EFD (r = 0.67). Apparently these two measures were indeed tapping the same dimension. The RAND Physical component has yes/no response options to measure the ability to perform daily activities such as driving, using stairs, doing housework, and lifting. In the case of the caregivers or cardiac spouses, extreme changes in these behaviors are unlikely. Indeed, the mean score for this index was 22.75, with the mode being 24; the highest possible score is 24. This instrument is probably more suited for use with a patient population. There was no relationship between changes in the RAND Physical function and changes in the EFD (r = 0.01). These findings match the advance hypotheses.

Small associations were observed between changes in the EFD and changes in the spouse's evaluation of the patient's activity (r = 0.23), and the patient's evaluation of their own activity (r = 0.33). The relationships were less strong than predicted but match the anticipated direction. That is, as the perception and/or actual physical activity of the patient improves, so does the emotional status of the spouse. Confidence in the patients' ability to perform physical tasks appears to contribute to the spouses' sense of well-being marked by a reduction in feelings such as tension, nervousness, insecurity, and worry.

4.7.2 Physical and Social Dimension

There was no association between changes in the Physical and Social Function Dimension (PSFD) of the QL-SP and changes in the spouses' own level of activity (r = -0.10), or RAND Physical component (r = 0.11). Perhaps this is not surprising since the Katz and the RAND deal with specific activities of daily living (i.e. housework, self-care, using stairs) whereas the PSFD deals with more global lifestyle changes and concerns (i.e. smoking habits, exercise patterns, nutritional habits). These two aspects of functioning are probably measuring distinctly separate dimensions.

There was also no relationship between changes in the PSFD and changes in trait anxiety (r = -0.09) or home situation (r = 0.02). These findings mirror the previously specified hypotheses.

There was no relationship between changes in the PSFD and state anxiety (r = -0.13), and only a weak one between changes in the PSFD and the BDI (r = -0.20), although moderate correlations were expected. It was proposed that reductions in state anxiety and depression would correspond to an increase in physical and social function. Intuitively this makes sense. However, one must consider the role of confounding variables in the social and lifestyle functioning of the spouse; in particular, incentive or resistance to change of habits, physical capacity of the patient, cooperation of other family members, and information received. These factors, among others, may influence the interest and ability of the spouse to alter various patterns of activity, exclusive of the level of anxiety or depression at any given time.

The relationship between changes in the TTO and changes in the PSFD (r = 0.33) was slightly less than predicted. As in the case of the EFD, this is most probably a function of subsequent age desirability, rather than the situational factors of the two alternatives being offered.

There was no association between changes in the PSFD and changes in the spouses' marital satisfaction (r = -0.14) or general life satisfaction (r = 0.03), although small associations were expected. This supports the inference that other confounding variables may influence the responses to these two instruments.

There was a strong correlation between changes in the PSFD and changes in the RAND Emotional component (r = 0.51). This was the only case where the actual relationship exceeded the predicted. This may seem contrary to the earlier observation that certain emotional characteristics (anxiety and depression) did not influence the physical and social functioning of the spouse. The RAND questionnaire quantifies the extent and severity of 'normal' feelings (i.e. downhearted, blue, nervous, calm) in a two-week time frame, with a wide range of response options. It is much more specific and applicable to the acute MI event, and less threatening for the respondents than the BDI and the STAI (based on verbal feedback). Thus the apparent discrepancy in the relationship between emotional function and physical and social function may be explained by the sensitivity of the measures involved. This is further supported by the similar correlation (r = 0.47) found between changes in the EFD and changes in the PSFD. The questions on the RAND Emotional component and the EFD are similar in relation to content, wording, response options, time frame, and relationship to the PSFD.

Strong associations were expected between changes in the PSFD and changes in the spouses' evaluation of the patient's activity, and the patient's evaluation of their own activity; it was agreed that as the perception and/or actual physical activity of the patient improved, so would the physical and social functioning of the spouse. The observed correlations were moderate (r = 0.31 and r = 0.35 respectively), and are consistent with the relationships seen with changes in the EFD.

The importance of the wives' perceptions of their husbands' capabilities, not only on their own well-being but that of the patient as well, should not be underestimated. Different perceptions or degrees of maladjustment between marriage partners have been shown to impede the recovery process (Wishnie, Hackett and Cassem, 1971; McGann, 1976; Davidson, 1979; Bedsworth and Molen, 1982). Recent findings indicate that wives' perceptions about their husbands' cardiac and physical efficacy can be substantially lower than those of their husbands, reflecting the wives' doubts about their husbands' capacity for physical effort. This was the case prior to early post acute myocardial infarction exercise testing (Taylor et al., 1984). Following the test, wives who personally experienced the strenuousness of the top workload achieved by their husbands, registered a sharp rise in their perceptions to more closely match those of their husband. The combined perception of patients and their wives concerning the patient's cardiac capabilities proved to be the most consistent predictor of patients' cardiovascular functioning at follow-up testing at 11 or 26 weeks. This supports the practice of direct participation in altering wives' perceptions of their husbands' capabilities. Participation in early post-MI treadmill testing proved to be an effective means for reassuring spouses about the capacity of their partners to resume physical activities with safety. Further means of enhancing wives' perceptions through participation in the rehabilitation process should be pursued. Greater confidence in the patients' cardiac and physical capabilities may contribute to a more favorable quality of life in the spouses.

4.8 Subject Features

The original sample size of 42 spouses for the initial interview decreased to 39 for the second visit. The 93% follow-up rate is excellent considering that a single refusal for the second visit and medical reasons (1 death, 1 reinfarction) necessitated the subject losses; no subjects withdrew because of difficulties with the assessment methods.

The percentage of subjects (25.6%) that visited their own doctor in response to their partners' MI at the time of the first visit, is consistent with previous reports which made similar observations at varying times post MI (Skelton and Dominian, 1973; Mayou, Foster and Williamson, 1978). Similarly, the physical complaints or symptoms tended to mimic those of the patients and correspond to those already documented (Skelton and Dominian, 1973; Mayou, Foster and Williamson, 1978; Stern and Pascale, 1979). At the time of the second interview, 59% of the spouses had visited their own doctor, indicating a substantial heightened awareness of health concerns. The subjects' statements during the second interview that they were making substantial efforts to increase activity patterns and decrease the number of cigarettes per day corroborates this suggestion. Orzeck and Staniloff (1987) have also noted the heightened priority in prognostic and preventative action in the early stage of convalescence following an MI. They found, however, that the patient is the primary focus of those actions and that spouses may deny their own needs. This study seems to indicate otherwise.

The small sample of male spouses (n = 3) involved in this study does not lend itself to definite conclusions about the capacity of the QL-SP to measure their quality of life. However, there did not seem to be any irrelevant or inappropriate questions, nor did the gentlemen express any additional issues or concerns. Their range of response options and the mean differences on the EFD ($\bar{X} = 9.7$) and PSFD ($\bar{X} = 6.3$) were similar to the female spouses ($\bar{X} = 8.5$ and $\bar{X} = 7.0$ respectively); statistical support of this was not attempted due to the small number of male subjects.

At the time of the second interview, 10/39 (26%) of the patients were attending a cardiac rehabilitation program; all but one of these spouses were participating as well. Goals of these programs include patient education, and promotion of prudent health habits including sensible nutrition, cessation of smoking, stress management, and safe physical activity. The mean differences in scores on the EFD and the PSFD between visits were examined for those attending a rehabilitation program as opposed to those who were not. Mean EFD score differences between the two groups were insignificant ($t = 0.31$, $p > 0.05$). However, those attending a rehabilitation program showed substantially more improvement in the PSFD ($t = 2.07$, $p < 0.05$). This may infer that program goals are being satisfied; moreover, lack of exposure to some sort of cardiac rehabilitation, for whatever reason, may mean that the information and encouragement which is necessary for the modification of lifestyle habits is not readily provided. It also seems to support entry and participation in rehabilitation activities for both the patient and the spouse soon after acute myocardial infarction.

4.9 Advantages of the QL-SP

Existing examples of instruments for assessing quality of life: are usually lengthy; require specially-trained personnel to administer; frequently attend exclusively to physical function; have limited use outside the original setting; and have not always been validated (Sackett et al., 1977; Spitzer et al., 1981). These shortcomings have been addressed in the development of the QL-SP. The QL-SP is simple, short and easy to understand. The contents are compatible with the literature and dimensions identified empirically from cardiac patients, spouses, and health professionals. It provides a comprehensive picture of perceived quality of life, encompassing social and emotional health and function, as well as physical. It is neither embarrassing nor offensive to those interviewed, and can be quickly and effectively administered by non-clinicians. The quantitative scores for each dimension are expressed in an easily interpretable way with no sophisticated mathematical or computing skills required. The questionnaire is sensitive to health status within subjects over time, and is able to detect changes in quality of life. Its use is not restricted by factors such as age, sex, occupation and severity of chronic heart disease. In addition to these advantages, the present investigation has demonstrated that the QL-SP is a valid measure of quality of life.

The content validity of the QL-SP has been established; the questions are representative of post-MI spousal concerns identified in the literature, by health professionals, and those deduced from unstructured interviews with spouses and cardiac patients. The face validity, the general appearance that the items are sensible, is satisfactory based on a review of the content of each of the questions in relation to known aspects of quality of life from the above sources. The strategy of construct validity employed in this study has successfully demonstrated that changes in each of the dimensions of the QL-SP correlate as expected with changes in the other indexes. Thus, the statistically significant correlations indicate that the QL-SP is valid in measuring aspects of the quality of life of spouses of post-MI patients related to their partner's cardiac event. Future studies are needed to determine whether the QL-SP will yield information of major clinical value.

4.10 Applications of the QL-SP

The QL-SP measures areas of physical, social and emotional function which are susceptible to change, and is highly responsive to those changes. Consequently, it is acceptable for routine, periodic assessment of cardiac spouses throughout the post-MI convalescent phase. It may be useful in clinical controlled trials and as a follow-up measure for clinical practice. The index can also be useful in health care or hospital service evaluation and in determining the effectiveness of interventions. In combination with other measures, the effects of new procedures on quality of life as well as on the clinical and laboratory manifestations of disease can be examined. The growing realization that therapeutic programs should be tested and evaluated in relation to benefit for both the patient and the spouse makes the QL-SP a valuable measurement tool for researchers and clinicians alike.

4.11 CONCLUSIONS

1) The QL-SP successfully satisfies the characteristics of a valuable instrument for widespread use. It is credible, feasible, responsive, statistically valid and offers numerous advantages over existing instruments.

2) The statistical correlations between the QL-SP and other health status variables studied are strong enough to conclude that the instrument is a valid measure of quality of life, and weak enough to indicate that it may contribute unique information over existing instruments for researchers and clinicians in the field of

cardiac rehabilitation.

CHAPTER 5: SUMMARY AND RECOMMENDATIONS

5.1 Introduction

The purpose of this chapter is to summarize the present thesis investigation and to propose recommendations for future study.

5.2 Summary

Evaluating the extent to which therapeutic strategies improve health poses a formidable challenge to health practitioners and researchers. The growing importance of perceived health status, and subjective issues has spawned the development of evaluative indexes which address quality of life (defined as the way a person feels, and how he/she functions in day-to-day activities). A quality of life instrument specifically identifying and measuring the needs of spouses of patients who have sustained a myocardial infarction was developed in a previous study. The twenty-six questions of the index encompass a number of potential problem areas in spousal adjustment post-MI: feelings, functional limitations, sleep disturbances, and lifestyle changes. The questions are intuitively categorized into two major construct dimensions: the Emotional Function Dimension (EFD), and the Physical and Social Function Dimension (PSFD). The purpose of this thesis was to establish the responsiveness and validity of the Quality of Life Questionnaire for Cardiac Spouses (QL-SP).

The strategy of construct validity was employed; the process of assembling empirical evidence to support the inferences that a particular measure has meaning (Kaplan, Bush and Berry, 1976; Kaplan, Atkins and Timms, 1984; Jette, 1980). A series of questionnaires (interview and self-report formats) measuring various physical and psychosocial issues related to quality of life, were selected to be administered in conjunction with the QL-SP on two occasions. Predicted associations were derived according to standardized consensus methods (Fink et al., 1984), suggesting how changes in the QL-SP dimensions should correlate with changes in the other indexes if the QL-SP is really measuring quality of life.

Thirty-nine subjects (36 females, 3 males) in Oakville, Mississauga, and Hamilton completed the battery of tests 1 - 2 weeks after the patient member of the pair had been discharged from the hospital, and 8 weeks later. Initial and follow-up interview sessions were conducted in the subjects' homes, and lasted approximately 60 and 45 minutes respectively.

A paired t-test of the differences in scores between admission to the study and the second visit was conducted for both the emotional function ($t = 5.56$, $p < 0.001$), and physical and social function ($t = 6.11$, $p < 0.001$) dimensions. Thus, the responsiveness of the QL-SP was demonstrated.

A Kappa with Cicchetti weights (Cohen, 1968; Cicchetti and Fleiss, 1977) was used to quantify the extent of agreement between the predicted and the actual correlations. The agreement between predicted and observed relationships was significant (Weighted Kappa, $K_w = 0.43$, $p = 0.0012$). Thus, the validity of the QL-SP in measuring aspects of the quality of life of spouses of post-MI patients was demonstrated.

5.3 Recommendations

The QL-SP appears to be a responsive and valid measure of the quality of life of spouses of MI patients related to their partner's illness. Consequently, it may be useful in clinical practice as a routine periodic assessment of cardiac spouses throughout the post-MI convalescent period. This assessment may be performed by the family physician, cardiac specialist or rehabilitation program personnel with equal effectiveness. Health care and hospital services could benefit from use of the QL-SP as a source of feedback and evaluation. In particular, the QL-SP is useful for existing support programs such as those focusing strictly on post-MI education (e.g. the Heart-to-Heart Program offered by the Heart and Stroke Foundation), and combined exercise and education programs (e.g. the Chedoke-McMaster Hospitals "MacTurtle" Cardiac Rehabilitation Program). Future research efforts may address the evaluation of current rehabilitation procedures, and new intervention strategies that are proposed. Acceptability of the QL-SP as a measure of quality of life for other cardiac spouses (i.e. of post-Aortocoronary Bypass Graft patients, male spouses) may also be examined.

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APPENDICES

APPENDIX A: ORIGINAL SPOUSE QUALITY OF LIFE QUESTIONNAIRE

Date of Interview: ______________
1. Date of Birth (D/M/Y): ______________
2. Date of husbands'/wifes' MI: ______________
3. Is your husband/wife attending a cardiac rehabilitation program?
    1. YES
    2. NO
4. Are you presently working outside the home at a paying/volunteer job?
    1. YES (full-time)
    2. YES (part-time)
    3. NO   4b) Did you stop work because of your husbands'/wifes' MI?
        1. YES   2. NO
5. What (is)(was) your occupation? ______________
70. Have you been to your doctor since your husbands'/wifes' heart attack? If so, why?

____

HAVE YOU EVER, SINCE YOUR HUSBANDS'/WIFES' HEART ATTACK, HAD ANY OF THE FOLLOWING FEELINGS BECAUSE OF YOUR HUSBANDS'/WIFES' HEART PROBLEM?

6. Angry
7. Disappointed
8. Guilty
9. Ashamed
10. Apprehensive
11. Tense
12. Nervous
13. Anxious
14. Worried
15. Concerned
16. Confused
17. Questionning
18. Uninformed
19. Helpless
20. Hopeless
21. Discouraged
22. Sad
23. Depressed
24. Frightened
25. Frustrated
26. Inadequate

27. Isolated
28. Bad-tempered/Irritable
29. Alone or Lonely
30. Tearful
31. Sorry for yourself
32. Upset
33. Unattractive
34. Insecure
35. Lost interest in things
36. Like you've let people down
37. Low in energy
38. Out of control
39. Mentally strained
40. Physically strained
41. Emotionally strained
42. Restricted in your life
43. Unsure of yourself
44. As if you have too little freedom
45. As if you have too much responsibility
46. Overprotective
47. Overwhelmed
71. Numbness
72. Panic-stricken
73. As if you wanted to die
74. Down in the dumps

HAVE YOU BEEN LIMITED IN THE FOLLOWING AS A RESULT OF YOUR HUSBANDS'/WIFES' HEART DISEASE?
48. Doing hobbies
49. Doing household chores
50. Doing your usual social activities
51. Sexual activity
52. Doing sports
53. Travelling
54. Contact with family members
55. Contact with friends
76. Going out without your husband/wife

HAVE YOU EVER HAD PROBLEMS WITH ANY OF THE FOLLOWING AS A RESULT OF YOUR HUSBANDS'/WIFES' HEART PROBLEMS?
56. Trouble getting to sleep at night
57. Getting a good nights sleep
58. Waking up during the night
75. Watching your husband/wife while (s)he's sleeping

AS A RESULT OF YOUR HUSBANDS'/WIFES' HEART ATTACK, HAVE YOU CHANGED ANY OF THE FOLLOWING:
59. Appetite

60. Nutritional habits
61. Weight
62. Exercise patterns
63. Smoking habits
69. Household chores
64. Role in the family - family responsibilites
65. Employment a) cut working hours
    b) seek employment
66. Goals concerning your job (or school or domestic chores)
67. Communication with your spouse
68. Communication with your family members

APPENDIX B: FREQUENCY-IMPORTANCE PRODUCT SCORES

1.	Concerned	107
2.	Nutritional Habits	100
3.	Worried	78
4.	Exercise Patterns	75
5.	Tense	58
6.	Communication with Spouse	56
7.	Apprehensive	56
8.	Anxious	54
9.	Frustrated	51
10.	Questionning	46
11.	Frightened	46
12.	Upset	45
13.	Tearful	43
14.	Sexual Activity	42
15.	Emotionally Strained	42
16.	Nervous	41
17.	Uninformed	40
18.	Doing usual Social Activities	37
19.	Depressed	36
20.	Sad	36
21.	Low in Energy	34
22.	Overprotective	34
23.	Watching Spouse Sleep	34
24.	Physically Strained	33
25.	Change in Weight	33
26.	Smoking Habits	32
27.	Helpless	31
28.	Alone/Lonely	29
29.	Travelling	28
30.	Disappointed	27
31.	Mentally Strained	24
32.	Isolated	24
33.	Insecure	23
34.	Restricted in Life	23
35.	Discouraged	22
36.	Panic-striken	21
37.	Household Chores	19
40.	Bad-tempered/Irritable	18
41.	Contact with Friends	18
42.	Going Out Without Spouse	18
43.	Trouble Getting to Sleep	18
44.	Waking Up during Night	18
45.	Angry	17

46. Too Much Responsibility	17
47. Getting Good Nights Sleep	17
48. Communication with Family	17
49. Overwhelmed	16
50. Down in the Dumps	16
51. Confused	15
52. Guilty	15
53. Unsure of Yourself	14
54. Hopeless	10
55. Inadequate	10
56. Sorry for Yourself	10
57. Numbness	10
58. Role in the Family	10
59. Employment	
a) cut working hours	10
b) seek employment	0
60. Lost Interest in Things	10
61. Unattractive	8
62. Doing Hobbies	8
63. Contact with Family	8
64. Appetite	8
65. Goals concerning Job	8
66. Out of Control	7
67. Ashamed	4
68. Too Little Freedom	4
69. Doing Household Chores	4
70. Doing Sports	4
71. Like You've Let People Down	3
72. As if You Wanted to Die	1

APPENDIX C: QUALITY OF LIFE QUESTIONNAIRE FOR CARDIAC SPOUSES (QL-SP)

1. The options for the first question are on the blue card. How often during the past two weeks have you felt concerned or worried? Please indicate how often you have felt concerned or worried by choosing one of the following options:

1 ALL OF THE TIME
2 MOST OF THE TIME
3 A GOOD BIT OF THE TIME
4 SOME OF THE TIME
5 A LITTLE OF THE TIME
6 HARDLY ANY OF THE TIME
7 NONE OF THE TIME

2. The options for the next question are on the blue card. How often during the past two weeks have you felt questionning or uninformed? Please indicate how often you have felt questionning or uninformed by choosing one of the options.

3. The options for the next question are on the blue card. How often during the past two weeks have you felt tense or upset? Please indicate how often you have felt tense or upset by choosing one of the options.

4. The options for the next question are on the blue card. In general, how much of the time during the last two weeks did you feel sad or depressed? Please indicate how much of the time you have felt sad or depressed by choosing one of the options.

5. The options for the next question are on the yellow card. In the last two weeks, how much of the time did you devote to nutritional habits or concerns? Please indicate how much of the time you devoted to nutritional habits or concerns by choosing one of the following options:

1 NONE OF THE TIME
2 A LITTLE OF THE TIME
3 SOME OF THE TIME
4 A GOOD BIT OF THE TIME
5 MOST OF THE TIME
6 ALMOST ALL OF THE TIME
7 ALL OF THE TIME

6. The options for the next question are on the blue card. How

often during the last two weeks did you feel nervous or anxious? Please indicate how often you have felt nervous or anxious by choosing one of the options.

7. The options for the next question are on the blue card. How often during the last two weeks have you had trouble getting a good nights sleep, or found yourself watching your husband while he's sleeping? Please indicate how often you have had trouble getting a good nights sleep, or watched your husband sleep by choosing one of the options.

8. The options for the next question are on the blue card. How often during the past two weeks have you felt disappointed or discouraged? Please indicate how often you have felt disappointed or discouraged by choosing one of the options.

9. The options for the next question are on the yellow card. In the last two weeks, how much of the time did you devote to changing exercise patterns? Please indicate how much of the time you devoted to changing exercise patterns by choosing one of the options.

10. The options for the next question are on the blue card. How often during the last two weeks have you felt frustrated or angry? Please indicate how often you have felt frustrated or angry by choosing one of the options.

11. The options for the next question are on the blue card. How often during the past two weeks did you feel physically strained or low in energy? Please indicate how often you have felt physically strained or low in energy by choosing one of the options.

12. The options for the next question are on the pink card. During the last two weeks how much have you been limited in travelling as a result of your husband's heart problem? Please indicate how much you have been limited in travelling by choosing one of the following options:

1 EXTREMELY LIMITED
2 VERY LIMITED
3 LIMITED QUITE A BIT
4 MODERATELY LIMITED
5 SOMEWHAT LIMITED
6 LIMITED A LITTLE
7 NOT LIMITED AT ALL

13. The options for the next question are on the blue card. How often during the last two weeks have you felt tearful, or like

crying? Please indicate how often you have felt tearful or like crying by choosing one of the options.

14. The options for the next question are on the yellow card. In the last two weeks, how much of the time did you devote to being concerned about or changing smoking habits? Please indicate how much time you devoted to being concerned about or changing smoking habits by choosing one of the options.

15. The options for the next question are on the blue card. How often during the past two weeks have you felt isolated, alone or lonely? Please indicate how often you have felt isolated, alone or lonely by choosing one of the options.

16. The options for the next question are on the blue card. How often during the last two weeks have you felt your husband's heart problem limited or interfered with sexual activity? Please indicate how often you have felt that your husband's heart problem has limited or interfered with sexual activity by choosing one of the options.

17. The options for the next question are on the yellow card. In the last two weeks, how much of the time did you devote to being concerned about, or changing your weight? Please indicate how much of the time you devoted to being concerned about or changing your weight by choosing one of the options.

18. The options for the next question are on the yellow card. In the last two weeks, how much of the time did you feel emotionally strained? Please indicate how much of the time you have felt emotionally strained by choosing one of the options.

19. The options for the next question are on the yellow card. In the last two weeks, how much of the time did you blame yourself for things, or feel guilty? Please indicate how much of the time you have blamed yourself for things or felt guilty by choosing one of the options.

20. The options for the next question are on the pink card. During the last two weeks, how much have you been limited in your usual social activities? Please indicate how much you have been limited in your usual social activities by choosing one of the options.

21. The options for the next question are on the blue card. How often during the past two weeks have you felt helpless or insecure? Please indicate how often you have felt helpless or insecure by choosing one of the options.

22. The options for the next question are on the gray card. How happy, satisfied, or pleased have you been with your personal life during the past two weeks? Please indicate how happy, satisfied or pleased you have been by choosing one of the following options:

1 VERY DISSATISFIED, UNHAPPY MOST OF THE TIME
2 GENERALLY DISSATISFIED, UNHAPPY
3 SOMEWHAT DISSATISFIED, UNHAPPY
4 GENERALLY SATISFIED, PLEASED
5 HAPPY MOST OF THE TIME
6 VERY HAPPY MOST OF THE TIME
7 EXTREMELY HAPPY, COULD NOT HAVE BEEN MORE SATISFIED OR PLEASED

23. The options for the next question are on the blue card. How often during the past two weeks did you feel apprehensive or frightened? Please indicate how often you have felt apprehensive or frightened by choosing one of the options.

24. The options for the next question are on the pink card. In general during the last two weeks, how much have you been restricted or limited as a result of your husband's heart problem? Please indicate how much you have been restricted or limited by choosing one of the options.

25. The options for the next question are on the blue card. How often during the last two weeks have you felt overprotective? Please indicate how often you have felt overprotective by choosing one of the options.

26. The options for the final question are on the gray card. How happy, satisfied or pleased have you been with your communication with your spouse and family during the past two weeks? Please indicate how happy, satisfied or pleased you have been with communication by choosing one of the options.

That's the end! Thanks very much for answering the questions.

APPENDIX D: VALIDATION INSTRUMENTS

DATA INFORMATION SHEET - SPOUSE

NAME ______________________________ I.D.# __________

1) Date of Birth (D/M/Y) _________________

2) What is the highest level of education that you have completed?
    1. Grade 6
    2. Grade 8
    3. Grade 11
    4. Grade 13
    5. Technical College
    6. Some University
    7. University Degree
    8. Other (described)

3) Are you presently working outside the home at a paying/volunteer job?
    1. YES (i) Full-time
        (ii) Part-time
    2. NO.....Did you stop work because of your spouses' heart attack?
        a) YES
        b) NO

4) What is/was your occupation? _______________________
    1. Professional
    2. Administrative
    3. Office, Proprietor
    4. Clerical and Sales
    5. Skilled workers, foreman, tradesman
    6. Metal processors, machinery workers, factory workers
    7. Semi-skilled and unskilled workers

Do you plan to work in the future? Time 1 ______
Time 2 ______

5) How many children do you have and what are their ages?

____

How many are presently living at home and what are their ages?

Time 1 ____

Time 2 ______________________________

Are there any other people living with you (i.e. parents, boarders)?

Time 1 ______________________________
Time 2 ______________________________

6) What are your hobbies?

____

What physical activities or recreational sports do you engage in?

Time 1 ______________________________
Time 2 ______________________________

7) Have you been to your doctor since your spouses' heart attack? If so, how many times? Why?

Time 1 ______________________________
Time 2 ______________________________

8) How often are you walking per week now? Time 1 _____
Time 2 _____

How many minutes, on average, per walk? Time 1 _____
Time 2 _____

9) Are you smoking now? Time 1 _____
Time 2 _____

How many cigarettes per day? Time 1 _____
Time 2 _____

DATA INFORMATION SHEET - PATIENT

NAME ______________________ I.D.# __________

1) Date of Birth (D/M/Y) ________________

2) Date of MI (D/M/Y) ________________

3) How many days were you in-hospital? __________

4) Are you attending a rehabilitation program?
Time 1 ________
Time 2 ________

5) What is the highest level of education that you have completed?

1. Grade 6
2. Grade 8
3. Grade 11
4. Grade 13
5. Technical College
6. Some University
7. University Degree
8. Other (described)

6) Are you presently working outside the home at a paying/volunteer job?

1. YES
2. NO...Why not?
    a) retired
    b) unemployed
    c) chest pain
    d) doctor's advice
    e) employer's advice
    f) union's advice

Do you plan to return to work in the future?
Time 1 ________
Time 2 ________

Does working or not working make a difference in your income? __________

7) What is/was your occupation? ________________

1. Professional
2. Administrative

3. Office, Proprietor
4. Clerical and Sales
5. Skilled workers, foreman, tradesman
6. Metal processors, machinery workers, factory workers
7. Semi-skilled and unskilled workers

8) How often are you walking/week now? Time 1 _____
Time 2 _____

How many minutes, on average/walk? Time 1 _____
Time 2 _____

9) Are you smoking now? Time 1 _______
Time 2 _______

How many cigarettes per day? Time 1 _______
Time 2 _______

10) CHEST PAIN Time 1 _______
Time 2 _______

0 None
1 Walking briskly on level ground or up a slight incline
2 At an ordinary pace with others of your age on level ground
3 At your own pace on level ground
4 Walking less than 2 blocks (100 yards)
5 At rest

11) SHORTNESS OF BREATH Time 1 _______
Time 2 _______

0 None
1 Walking briskly on level ground or up a slight incline
2 At an ordinary pace with others of your age on level ground
3 At your own pace on level ground
4 Walking less than 2 blocks (100 yards)
5 At rest

KATZ - <u>SPOUSE'S EVALUATION OF OWN LEVEL OF ACTIVITY</u>

II.	1 am not doing	2 am doing some	3 am doing regularly	0 N/A
1. Help with household chores	____	____	____	____
2. Visit friends	____	____	____	____
3. Visit relatives	____	____	____	____
4. Entertain friends at home	____	____	____	____
5. Dress and take care of myself	____	____	____	____
6. Help with the family budgeting	____	____	____	____
7. Remember to do important things on time	____	____	____	____
8. Get along with family members	____	____	____	____
9. Go to parties and other social activities	____	____	____	____
10. Get along with neighbours	____	____	____	____
11. Help with family shopping	____	____	____	____
12. Help in the care and training of children	____	____	____	____
13. Go to church	____	____	____	____
14. Take up hobbies	____	____	____	____
15. Work	____	____	____	____
16. Support the family	____	____	____	____

KATZ - SPOUSE'S EVALUATION OF OWN LEVEL OF ACTIVITY

I.		1	2	3	0
		often	sometimes	almost never	N/A
1.	Work in and around the house				
2.	Work in garden or yard				
3.	Work on hobby				
4.	Listen to radio				
5.	Watch T.V.				
6.	Write letters				
7.	Go to movies				
8.	Attend lectures, theatre				
9.	Attend club, lodge, other meetings				
10.	Shop				
11.	Take part in community or church work				
12.	Bowl, or other sports				
13.	Play cards or table games				
14.	Take rides				
15.	Visit friends				
16.	Entertain friends				
17.	Sew, crochet, or knit				
18.	Read				
19.	Go to library				
20.	Just sit and think				
21.	Take courses at home				
22.	Go to school				
23.	Other (what?)				

KATZ - <u>SPOUSE'S EVALUATION OF PATIENT'S LEVEL OF ACTIVITY</u>

III.		1 did not expect him to be doing	2 expected him to be doing some	3 expected him to be doing regularly	0 N/A
1.	Helps with household chores	____	____	____	____
2.	Visits his friends	____	____	____	____
3.	Visits his relatives	____	____	____	____
4.	Entertains friends at home	____	____	____	____
5.	Dresses and takes care of himself	____	____	____	____
6.	Helps with the family budgeting	____	____	____	____
7.	Remembers to do important things on time	____	____	____	____
8.	Gets along with family members	____	____	____	____
9.	Goes to parties and other social activities	____	____	____	____
10.	Gets along with neighbours	____	____	____	____
11.	Helps with family shopping	____	____	____	____
12.	Helps in the care and training of children	____	____	____	____
13.	Goes to church	____	____	____	____
14.	Takes up hobbies	____	____	____	____
15.	Works	____	____	____	____
16.	Supports the family	____	____	____	____

KATZ - SPOUSE'S EVALUATION OF PATIENT'S LEVEL OF ACTIVITY

I.		1 often	2 sometimes	3 almost never	0 N/A
1.	Work in and around the house	____	____	____	____
2.	Work in the garden or yard	____	____	____	____
3.	Work on some hobby	____	____	____	____
4.	Listen to the radio	____	____	____	____
5.	Watch television	____	____	____	____
6.	Write letters	____	____	____	____
7.	Go to the movies	____	____	____	____
8.	Attend lectures, theatre	____	____	____	____
9.	Attend club, lodge, other meetings	____	____	____	____
10.	Shop	____	____	____	____
11.	Take part in community or church work	____	____	____	____
12.	Bowl or other sports	____	____	____	____
13.	Play cards or other table games	____	____	____	____
14.	Take rides	____	____	____	____
15.	Visit friends	____	____	____	____
16.	Entertain friends	____	____	____	____
17.	Sew, crochet or knit	____	____	____	____
18.	Read	____	____	____	____
19.	Go to the library	____	____	____	____
20.	Just sit and think	____	____	____	____
21.	Take courses at home	____	____	____	____
22.	Go to school	____	____	____	____
23.	Other (what?)	____	____	____	____

KATZ - PATIENT'S EVALUATION OF OWN LEVEL OF ACTIVITY

II.		1	2	3	0
		am not doing	am doing some	am doing regularly	N/A
1.	Help with household chores	____	____	____	____
2.	Visit friends	____	____	____	____
3.	Visit relatives	____	____	____	____
4.	Entertain friends at home	____	____	____	____
5.	Dress and take care of myself	____	____	____	____
6.	Help with the family budgeting	____	____	____	____
7.	Remember to do important things on time	____	____	____	____
8.	Get along with family members	____	____	____	____
9.	Go to parties and other social activities	____	____	____	____
10.	Get along with neighbours	____	____	____	____
11.	Help with family shopping	____	____	____	____
12.	Help in the care and training of children	____	____	____	____
13.	Go to church	____	____	____	____
14.	Take up hobbies	____	____	____	____
15.	Work	____	____	____	____
16.	Support the family	____	____	____	____

KATZ - PATIENT'S EVALUATION OF OWN LEVEL OF ACTIVITY

I.		1 often	2 sometimes	3 almost never	0 N/A
1.	Work in and around the house	____	____	____	____
2.	Work in garden or yard	____	____	____	____
3.	Work on hobby	____	____	____	____
4.	Listen to radio	____	____	____	____
5.	Watch T.V.	____	____	____	____
6.	Write letters	____	____	____	____
7.	Go to movies	____	____	____	____
8.	Attend lectures, theatre	____	____	____	____
9.	Attend club, lodge, other meetings	____	____	____	____
10.	Shop	____	____	____	____
11.	Take part in community or church work	____	____	____	____
12.	Bowl, or other sports	____	____	____	____
13.	Play cards or table games	____	____	____	____
14.	Take rides	____	____	____	____
15.	Visit friends	____	____	____	____
16.	Entertain friends	____	____	____	____
17.	Sew, crochet, or knit	____	____	____	____
18.	Read	____	____	____	____
19.	Go to library	____	____	____	____
20.	Just sit and think	____	____	____	____
21.	Take courses at home	____	____	____	____
22.	Go to school	____	____	____	____
23.	Other (what?)	____	____	____	____

BECK DEPRESSION INDEX

INSTRUCTIONS: On this questionnaire are groups of statements. Please read the entire group of statements of each category. Then pick out the one statement in that group which best describes the way you feel today, that is, right now! Circle the number beside the statement you have chosen. If several statements in the group seem to apply equally well, circle each one.

A. (Sadness)
3 I am so sad or unhappy that I can't stand it.
2 I am blue or sad all the time and I can't snap out of it.
1 I feel sad or blue.
0 I do not feel sad.

B. (Pessimism)
3 I feel that the future is hopeless and that things cannot improve.
2 I feel I have nothing to look forward to.
1 I feel discouraged about the future.
0 I am not particularly pessimistic or discouraged about the future.

C. (Sense of Failure)
3 I feel I am a complete failure as a person (parent, husband, wife).
2 As I look back on my life, all I can see is a lot of failures.
1 I feel I have failed more than the average person.
0 I do not feel like a failure.

D. (Dissatisfaction)
3 I am dissatisfied with everything.
2 I don't get satisfaction out of anything anymore.
1 I don't enjoy things the way I used to.
0 I am not particularly dissatisfied.

E. (Guilt)
3 I feel as though I am very bad or worthless.
2 I feel quite guilty.
1 I feel bad or unworthy a good part of the time.
0 I don't feel particularly guilty.

F. (Self-Dislike)
3 I hate myself.
2 I am disgusted with myself.
1 I am disappointed in myself.
0 I don't feel disappointed in myself.

G. (Self-Harm)
3 I would kill myself if I had the chance.
2 I have definite plans about committing suicide.
1 I feel I would be better off dead.
0 I don't have any thoughts of harming myself.

H. (Social Withdrawal)
3 I have lost all of my interest in other people and don't care about them at all.
2 I have lost most interest in other people and have little feeling for them.
1 I am less interested in other people than I used to be.
0 I have not lost interest in other people.

I. (Indecisiveness)
3 I can't make any decisions at all anymore.
2 I have great difficulty in making decisions.
1 I try to put off making decisions.
0 I make decisions about as well as ever.

J. (Self-Image Change)
3 I feel that I am ugly or repulsive-looking.
2 I feel that there are permanent changes in my appearance and they make me look unattractive.
1 I am worried that I am looking old or unattractive.
0 I don't feel that I look any worse than I used to.

K. (Work Difficulty)
3 I can't do any work at all.
2 I have to push myself very hard to do anything.
1 It takes extra effort to get started at doing something.
0 I can work about as well as before.

L. (Fatigability)
3 I get too tired to do anything.
2 I get tired from doing anything.
1 I get tired more easily than I used to.
0 I don't get any more tired than usual.

M. (Anorexia)
3 I have no appetite at all anymore.
2 My appetite is much worse now.
1 My appetite is not as good as it used to be.
0 My appetite is no worse than usual.

STATE ANXIETY INDEX

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you feel right now, that is, at this moment. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

		Not at All	Somewhat	Moderately So	Very Much So
1.	I feel calm	(1)	(2)	(3)	(4)
2.	I feel secure	(1)	(2)	(3)	(4)
3.	I am tense	(1)	(2)	(3)	(4)
4.	I am regretful	(1)	(2)	(3)	(4)
5.	I feel at ease	(1)	(2)	(3)	(4)
6.	I feel upset	(1)	(2)	(3)	(4)
7.	I am presently worrying over possible misfortunes	(1)	(2)	(3)	(4)
8.	I feel rested	(1)	(2)	(3)	(4)
9.	I feel anxious	(1)	(2)	(3)	(4)
10.	I feel comfortable	(1)	(2)	(3)	(4)
11.	I feel self-confident	(1)	(2)	(3)	(4)
12.	I feel nervous	(1)	(2)	(3)	(4)
13.	I am jittery	(1)	(2)	(3)	(4)
14.	I feel "high strung"	(1)	(2)	(3)	(4)
15.	I am relaxed	(1)	(2)	(3)	(4)
16.	I feel content	(1)	(2)	(3)	(4)
17.	I am worried	(1)	(2)	(3)	(4)
18.	I feel over-excited and "rattled"	(1)	(2)	(3)	(4)
19.	I feel joyful	(1)	(2)	(3)	(4)
20.	I feel pleasant	(1)	(2)	(3)	(4)

TRAIT ANXIETY INDEX

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you generally feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

	Almost Never	Sometimes	Often	Almost Always
21. I feel pleasant................................	(1)	(2)	(3)	(4)
22. I tire quickly.................................	(1)	(2)	(3)	(4)
23. I feel like crying.............................	(1)	(2)	(3)	(4)
24. I wish I could be as happy as others seem to be.	(1)	(2)	(3)	(4)
25. I am losing out on things because I can't make up my mind soon enough..........................	(1)	(2)	(3)	(4)
26. I feel rested..................................	(1)	(2)	(3)	(4)
27. I am "calm, cool, and collected"................	(1)	(2)	(3)	(4)
28. I feel that difficulties are piling up so that I cannot overcome them..........................	(1)	(2)	(3)	(4)
29. I worry too much over something that really doesn't matter.................................	(1)	(2)	(3)	(4)
30. I am happy.....................................	(1)	(2)	(3)	(4)
31. I am inclined to take things hard..............	(1)	(2)	(3)	(4)
32. I lack self-confidence..........................	(1)	(2)	(3)	(4)
33. I feel secure..................................	(1)	(2)	(3)	(4)
34. I try to avoid facing a crisis or difficulty....	(1)	(2)	(3)	(4)
35. I feel blue....................................	(1)	(2)	(3)	(4)
36. I am content...................................	(1)	(2)	(3)	(4)
37. Some unimportant thought runs through my mind and bothers me................................	(1)	(2)	(3)	(4)
38. I take disappointments keenly that I can't put them out of my mind...........................	(1)	(2)	(3)	(4)
39. I am a steady person...........................	(1)	(2)	(3)	(4)
40. I get in a state of tension or turmoil as I think over my recent concerns and interests.....	(1)	(2)	(3)	(4)

RAND FUNCTIONAL STATUS INSTRUMENT -- CARDIAC SPOUSES VERSION

1) During the last two weeks, have you been unable to drive a car because of your health?

1 YES
2 NO, BECAUSE OF MY HEALTH
3 NO, FOR SOME OTHER REASON

2) During the last two weeks, did you have to stay indoors most or all of the day because of your health?

1 YES
2 NO, NOT LIMITED

3) During the last two weeks, were you in bed or a chair for most or all of the day because of your health?

1 YES
2 NO, NOT LIMITED

4) During the last two weeks, did you have any trouble either walking several blocks or climbing a few flights of stairs because of your health?

1 YES
2 NO, NOT LIMITED

5) During the last two weeks, did you have trouble bending, lifting, or stooping because of your health?

1 YES
2 NO, NOT LIMITED

6) During the last two weeks, were you unable to do certain kinds or amounts or work, housework, or schoolwork because of your health?

1 YES

2 NO, NOT LIMITED

7) During the last two weeks, did your health keep you from working at a job, doing work around the house, or going to school?

1 YES
2 NO, NOT LIMITED

8) During the last two weeks, could you do hard activities at home, heavy work like scrubbing floors, or lifting or moving heavy furniture?

1 YES
2 YES, BUT ONLY SLOWLY
3 NO, I CAN'T DO THIS

9) During the last two weeks, could you do moderate work at home like moving a chair or table, or pushing a vacuum cleaner?

1 YES
2 YES, BUT ONLY SLOWLY
3 NO, I CAN'T DO THIS

10) During the last two weeks, could you do light work around the house like dusting and washing dishes?

1 YES
2 YES, BUT ONLY SLOWLY
3 NO, I CAN'T DO THIS

11) During the last two weeks, if you wanted to, could you run a short distance?

1 YES
2 YES, BUT ONLY SLOWLY
3 NO, I CAN'T DO THIS

12) During the last two weeks, could you walk uphill or up stairs?

1 YES
2 YES, BUT ONLY SLOWLY
3 NO, I CAN'T DO THIS

13) How much of the time, during the past two weeks, have you been a very nervous person?

1 ALL OF THE TIME
2 MOST OF THE TIME
3 A GOOD BIT OF THE TIME
4 SOME OF THE TIME
5 A LITTLE OF THE TIME
6 NONE OF THE TIME

14) How much of the time, during the past two weeks, have you felt downhearted and blue?

1 ALL OF THE TIME
2 MOST OF THE TIME
3 A GOOD BIT OF THE TIME
4 SOME OF THE TIME
5 A LITTLE OF THE TIME
6 NONE OF THE TIME

15) How often, during the past two weeks, have you felt so down in the dumps that nothing could cheer you up?

1 ALWAYS
2 VERY OFTEN
3 FAIRLY OFTEN
4 SOMETIMES
5 ALMOST NEVER
6 NEVER

16) How much of the time, during the past two weeks, have you felt calm and peaceful?

1 ALL OF THE TIME
2 MOST OF THE TIME
3 A GOOD BIT OF THE TIME
4 SOME OF THE TIME
5 A LITTLE OF THE TIME
6 NONE OF THE TIME

17) How happy, satisfied or pleased have you been with your personal life during the past two weeks?

1 EXTREMELY HAPPY, COULD NOT HAVE BEEN MORE SATISFIED OR PLEASED
2 VERY HAPPY MOST OF THE TIME
3 GENERALLY SATISFIED, PLEASED
4 SOMETIMES FAIRLY SATISFIED, SOMETIMES FAIRLY UNHAPPY
5 GENERALLY DISSATISFIED, UNHAPPY
6 VERY DISSATISFIED, UNHAPPY MOST OF THE TIME

MARITAL SATISFACTION

1. Below is a line which represents the degree of happiness you have in your married life. The middle point "happy" represents the amount of happiness which most people feel about their marriage. In general, how happy would you say you are with your marriage? (Circle the mark which best describes the way you feel.)

*	*	*	*	*	*	*
Very Unhappy			Happy			Perfectly Happy

HOME SITUATION

2. Below is a line which represents the degree of happiness, everything considered, of your present home situation. The middle point "happy" represents the amount of happiness which most people feel about their home situation. In general, how happy are you with your present home situation? (Circle the mark which best describes the way you feel.)

*	*	*	*	*	*	*
Very Unhappy			Happy			Perfectly Happy

SELF-ANCHORING SCALE

10 9 8 7 6 5 4 3 2 1 0

best possible life for you	worst possible life for you

High	Middle	Low
(7,8,9,10)	(4,5,6)	(0,1,2,3)

Above is a ladder which represents life in general, all things considered.

Please circle the number which best describes the way you feel about your life.

TTO - CAREGIVER

5 ALMOST ALWAYS
4 MOST OF THE TIME
3 HALF OF THE TIME
2 SOME OF THE TIME
1 RARELY

YOUR SITUATION

_____ Feel physically well and energetic
_____ Feel happy and free of worry or frustration
_____ Have sufficient time to socialize with family & friends
_____ Get an adequate amount of undisturbed sleep
_____ Get along with the person being cared for

VERSUS

A MODEL SITUATION

Almost Always...feel physically well and energetic
...feel happy and free of worry
...have sufficient time to socialize with family & friends
...get an adequate amount of undisturbed sleep
...get along well with the person being cared for

QUALITY OF LIFE - TTO

This questionnaire is to determine how your caregiving activities affect your overall life - that is, a general feeling of well-being.
These next questions well ask you to think about your present state of well-being using the responses you just gave, compared to a model state of well-being. I will be asking you to make some choices in some imaginary situations, based on feeling as you do in your present situation or being in an excellent state of well-being as described by the model situation.

In order to help you make these choices, we'll use this board.

Choice # 1:
__ years in your present state of well-being as you've described it -- that is, for __ years you would feel the way you do now, not getting any better or worse except for the normal aging process.

VERSUS

Choice # 2:
__ years in an excellent state of well-being as described in the model situation -- that is, feeling very well except for the normal aging process.

APPENDIX E: INFORMED CONSENT FOR THE McMASTER CARDIAC SPOUSES' STUDY

This form is a consent to participate in the McMaster Cardiac Spouses' Study. The study is designed to find out how the heart attack affects the husband or wife of the patient.

ALL PARTICIPANTS

You will be asked to complete a series of questionnaires on entrance to the study and 8 weeks later. The results of these questionnaires will remain completely confidential, and will not be released to anyone without your written consent.

CONSENT

The requirements for participation in the Cardiac Spouse Study have been explained to me. I understand that I am free to withdraw from the Study at any time, even after signing this consent form. I also understand that if the results of the study are published, no names will be included in order to maintain complete confidentiality.

NAME ______________________________

SIGNATURE ______________________________

WITNESS ______________________________

DATED, this ________ day of ______________ , 19 ___ .

APPENDIX F: PATIENT CHARACTERISTICS

1) CARDIAC PATIENT INFORMATION

Age	54.49 ± 11.51 years ($\bar{X}$ ± S.D.)
Days in-hospital	13.85 ± 7.88
Level of Education	1. Grade 6..............1 2. Grade 8.............14 3. Grade 11............11 4. Grade 13.............6 5. Technical College....2 6. Some University......1 7. University Degree....4

2) SELECT PATIENT BEHAVIORS - TIME 1 VS TIME 2

TIME BEHAVIOR	1	2
# ATTENDING A REHAB. PROGRAM	3/39 (8.0%)	10/39 (26%)
# WORKING	0	2/39 P.T. (5.0%) 9/39 F.T. (23%)
# WALKING	35/39 (90%)	36/39 (92%) 1) increased 18/39 2) decreased 14/39
# SMOKING	7/39 (18%)	11/39 (28%) 1) increased 11/11 2) decreased 0/11

3) MEDICAL SYMPTOMS - TIME 1 VS TIME 2

TIME SYMPTOM	1	2
CHEST PAIN	0. None...............35 1. Walking briskly on level ground or up slight incline......2 2. At ordinary pace on level ground.....1 3. At own pace on level ground........0 4. Walking < 2 blocks...0 5. At rest.............1	0. 30 1. 5 2. 1 3. 2 4. 0 5. 1
SHORTNESS OF BREATH	0. 28 1. 2 2. 2 3. 1 4. 1 5. 5	0. 33 1. 3 2. 0 3. 2 4. 0 5. 1

APPENDIX G: RAW DATA SCORES

KATZ - Spouse (OWN)

Subject	Before	Time 1	Time 2
001	84	64	62
002	64	64	78
003	83	83	86
004	87	87	86
005	81	80	90
006	70	59	79
007	66	62	74
008			52
009	66	56	71
010	83	70	74
011	72	71	74
012	76	58	81
013	82	66	70
014	82	80	88
015	65	59	58
016	59	58	70
017	68	51	60
018	69	69	73
020	86	79	83
021	74	57	78
022	85	81	95
023	87	67	69
024	89	87	76
025	71	69	75
026	75	75	62
027	89	89	86
028	65	66	79
029	65	50	77
030	78	71	56
032	74	64	66
033	64	49	56
034	76	74	
035	83	75	77
037	65	57	71
038	66	42	69
039	73	61	77
040	72	63	69
041	82	80	85
042	58	58	95

KATZ - Spouse (EVALUATION OF PATIENT)

Subject	Before	Time 1	Time 2
001	73	51	63
002	74	60	80
003	73	65	81
004	74	70	72
005	77	72	79
006	40	39	64
007	60	52	70
008			60
009	63	43	58
010	69	47	62
011	60	60	71
012	69	40	54
013	82	56	66
014	80	60	71
015	49	41	35
016	52	52	55
017	64	43	57
018	63	59	65
020	87	73	72
021	68	62	59
022	86	85	89
023	71	41	59
024			73
025			57
026	70	70	48
027	69	78	83
028			62
029	64	49	49
030	79	80	63
032	85	76	66
033	51	47	51
034	49	49	
035	84	50	59
037	64	49	64
038	67	32	57
039	77	51	65
040			57
041	75	56	58
042	34	34	75

KATZ - Patient (OWN)

Subject	Before	Time 1	Time 2
001	80	59	62
002	86	48	93
003	79	52	78
004	79	77	66
005	79	62	85
006	78	71	72
007	67	64	80
008	42	42	52
009	63	52	52
010	64	61	74
011	68	68	
012	72	70	72
013	77	76	76
014	68	50	64
015	45	38	27
016	66	49	76
017	82	60	67
018	62	59	60
020	76	82	97
021	66	39	57
022	69	54	64
023	76	55	63
024	81	64	82
025	65	52	67
026	45	30	40
027	85	71	82
028	78		57
029	46	31	39
030		69	57
032	83	55	68
033	52	46	56
034	58	46	59
035	40	22	60
037	76	46	68
038	81	64	64
039	81	57	67
040	63	53	57
041	59	41	43
042	74	65	62

BECK DEPRESSION INDEX (BDI)

Subject	Time 1	Time 2
001	1	5
002	1	0
003	1	1
004	0	0
005	2	0
006	5	4
007	0	0
008	12	10
009	9	8
010	0	0
011	0	1
012	7	3
013	1	3
014	0	0
015	1	1
016	0	3
017	3	3
018	5	9
020	2	0
021	1	0
022	0	0
023	3	3
024	1	3
025	0	0
026	1	0
027	1	1
028	0	0
029	0	5
030	0	6
032	2	1
033	4	1
034	2	6
035	0	0
037	1	0
038	5	4
039	2	1
040	6	7
041	5	5
042	2	3

STATE ANXIETY INDEX

Subject	Time 1	Time 2
001	37	48
002	52	44
003	45	41
004	46	37
005	43	20
006	53	60
007	44	44
008		59
009	46	58
010	51	46
011	41	31
012	52	44
013	55	57
014	37	26
015	46	46
016	44	51
017	53	50
018	46	42
020	52	43
021	37	39
022	36	34
023	55	47
024	40	42
025	42	34
026	44	40
027	26	26
028	44	31
029	31	47
030	42	51
032	46	48
033	48	47
034	42	43
035	50	36
037	46	20
038	49	50
039	41	43
040	51	48
041	59	51
042	45	46

TRAIT ANXIETY INDEX

Subject	Time 1	Time 2
001	44	47
002	47	35
003	37	38
004	47	43
005	38	25
006	51	48
007	42	40
008		56
009	64	64
010	41	41
011	40	37
012	54	44
013	47	56
014	39	36
015	37	38
016	48	50
017	44	44
018	48	49
020	47	35
021	32	40
022	36	35
023	47	41
024	42	41
025	46	29
026	34	29
027	37	32
028	25	32
029	37	48
030		35
032	41	43
033	52	52
034	39	42
035	38	39
037	42	36
038	44	49
039	35	37
040	51	51
041	51	53
042	41	44

RAND - PHYSICAL FUNCTION

Subject	Time 1	Time 2
001	23	22
002	24	24
003	24	22
004	23	23
005	23	24
006	21	23
007	24	24
009	24	24
010	24	24
011	24	18
012	24	24
013	24	24
014	23	24
015	21	19
016	20	18
017	23	23
018	23	22
020	24	24
021	21	19
022	24	24
023	21	23
024	24	24
025	24	24
026	24	24
027	20	21
028	24	22
029	23	24
030	23	24
032	24	24
033	17	19
034	18	19
035	23	22
037	24	23
038	24	24
039	24	24
040	22	24
041	24	24
042	24	24

RAND - EMOTIONAL FUNCTION

Subject	Time 1	Time 2
001	18	24
002	17	25
003	24	26
004	25	27
005	19	30
006	21	25
007	19	26
009	18	17
010	19	24
011	22	13
012	22	23
013	15	16
014	27	30
015	27	25
016	22	16
017	17	22
018	18	21
020	16	25
021	27	26
022	28	25
023	23	28
024	25	25
025	26	28
026	24	27
027	27	28
028	21	26
029	23	21
030	27	21
032	11	25
033	16	25
034	24	20
035	18	28
037	24	29
038	19	23
039	23	26
040	25	22
041	17	17
042	23	18

MARITAL SATISFACTION

Subject	Time 1	Time 2
001	5	5
002	4	7
003	4	4
004	7	6
005	6	7
006	4	5
007	6	5
008	4	4
009	6	4
010	6	5
011	5	3
012	4	4
013	7	7
014	7	7
015	6	6
016	4	6
017	6	4
018	1	1
020	6	5
021	6	6
022	6	6
023	7	7
024	6	6
025	7	7
026	7	6
027	7	7
028	4	4
029	4	4
030	7	4
032	7	7
033	7	4
034	7	7
035	7	7
037	7	7
038	4	6
039	7	6
040	3	4
041	4	4
042	4	3

HOME SITUATION

Subject	Time 1	Time 2
001	6	4
002	4	7
003	4	4
004	6	6
005	6	7
006	4	4
007	5	5
008	4	4
009	6	3
010	5	5
011	5	3
012	4	4
013	6	6
014	7	7
015	6	5
016	4	5
017	3	5
018	2	1
020	6	5
021	6	6
022	5	5
023	7	6
024	6	5
025	7	6
026	4	6
027	7	6
028	4	4
029	4	4
030	7	4
032	4	4
033	7	4
034	7	4
035	7	4
037	7	7
038	4	6
039	7	6
040	6	5
041	3	3
042	4	3

SELF-ANCHORING SCALE

Subject	Time 1	Time 2
001	7	5
002	8	9
003	9	9
004	9	8
005	9	10
006	7	6
007	7	7
008	7	7
009	5	5
010	9	8
011	10	6
012	5	7
013	10	10
014	9	10
015	8	8
016	7	7
017	8	8
018	3	2
020	6	7
021	8	7
022	8	8
023	10	10
024	7	7
025	8	10
026	9	9
027	10	9
028	8	7
029	7	7
030	10	5
032	6	6
033	9	8
034	9	9
035	10	8
037	10	10
038	9	9
039	7	8
040	8	7
041	5	7
042	7	6

TIME TRADE-OFF (TTO)

Subject	Time 1	Time 2
001	15/30	15/30
002	20/20	16/20
003	25/25	20/25
004	20/40	30/40
005	30/30	30/30
006	20/20	20/20
007	30/40	40/40
008	12/15	3/15
009	10/30	20/30
010	20/40	35/40
011	5/25	25/25
012	30/30	30/30
013	35/40	30/40
014	30/30	30/30
015	25/25	15/25
016	20/30	30/30
017	20/30	25/30
018	20/30	15/30
020	30/30	30/30
021	15/15	15/15
022	30/30	30/30
023	15/15	15/15
024	25/25	25/25
025	25/30	30/30
026	25/25	25/25
027	20/20	20/20
028	20/20	12/20
029	20/20	16/20
030	25/25	25/25
032	20/40	35/40
033	20/20	20/20
034	20/20	12/20
035	25/25	25/25
037	10/25	25/25
038	3/15	12/15
039	40/40	40/40
040	25/25	25/25
041	16/20	12/20
042	20/20	12/20

EMOTIONAL FUNCTION DIMENSION (EFD)

Subject	Time 1	Time 2
001	53	73
002	54	75
003	69	75
004	75	76
005	57	90
006	67	76
007	53	79
008	48	51
009	56	71
010	61	77
011	68	74
012	56	57
013	57	67
014	81	87
015	63	64
016	76	71
017	59	76
018	67	65
020	53	81
021	80	83
022	76	76
023	72	87
024	75	84
025	77	78
026	64	69
027	73	83
028	63	80
029	69	68
030	85	84
032	48	64
033	55	56
034	66	59
035	58	65
037	61	85
038	64	71
039	79	90
040	72	69
041	51	56
042	77	80

PHYSICAL AND SOCIAL FUNCTION DIMENSION (PSFD)

Subject	Time 1	Time 2
001	39	53
002	35	46
003	50	52
004	57	63
005	56	58
006	49	52
007	49	66
008	48	53
009	42	53
010	39	58
011	50	55
012	35	39
013	42	51
014	43	59
015	47	45
016	53	54
017	35	56
018	49	51
020	52	61
021	49	51
022	49	57
023	38	55
024	38	50
025	52	53
026	45	51
027	55	62
028	55	53
029	25	26
030	52	48
032	34	45
033	26	37
034	46	
035	23	45
037	42	53
038	38	47
039	54	56
040	53	47
041	44	42
042	41	45