Rural-urban characteristics, resource needs and life-style changes after coronary artery bypass surgery by Margaret Ann McNeil Taulbee

A thesis submitted in partial fulfillment of the requirements for the degree of MASTER OF NURSING
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Abstract:
The purpose of the study was to examine the influence of place of residence on life-style change, lay resource use, and further information needs after coronary artery bypass surgery. Rural and urban residents made up the sample.

A mailed questionnaire, designed by the researcher, was utilized for collection of data. The questionnaire included items measuring change in activity and work, extent of compliance with instructions, knowledge, use of resource persons, and areas of perceived need for further information. The questionnaire was mailed to 150 patients who had their surgery during the past one and one-half years.

There were significant differences between the rural and urban groups on 1) plans to return to work in the future and 2) the type of work done now as compared to before surgery. Further, there was a significant difference for use of the county health nurse as a resource. There were no other significant differences between the groups.

The data was re-examined utilizing four groups, defined on the basis of population and distance from the hospital where surgery was performed. The groups were labelled urban near, rural near, urban far and rural far. When the data was re-analyzed using the four groups, the analysis showed that the rural far group possessed different characteristics than the other three. The areas of difference were in work and activity change, extent of compliance with exercise, and knowledge. The rural far group appeared to be more active, but less knowledgeable, and their compliance with exercise instructions was lower than the other three groups.

It was concluded that the rural far group had different learning needs than the other three groups. Exercise and activity limits and instructions are the areas of need for the rural far group. Furthermore, available resources for the rural far group need to be improved.

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RURAL-URBAN CHARACTERISTICS, RESOURCE NEEDS AND LIFE-STYLE CHANGES AFTER CORONARY ARTERY BYPASS SURGERY

by

MARGARET ANN TAULBEE

A thesis submitted in partial fulfillment
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Approved:

Ruth S. Fridemann
Chairperson, Graduate Committee

Anna M. Shannon
Head, Major Department

Michael P. Malone
Graduate Dean

MONTANA STATE UNIVERSITY
Bozeman, Montana

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TABLE OF CONTENTS

CHAPTER Page

LIST OF TABLES

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CHAPTER I

INTRODUCTION

Coronary artery bypass surgery is becoming a more frequent alternative to medical management of coronary artery disease. "Over 50,000 Americans and 4,000 Canadians have coronary bypass surgery every year (Cromwell et.al., 1980: 34)." Because coronary artery disease develops as a result of detrimental life-styles, the surgery will not affect a "cure" if the patient resumes those same life-styles after surgery.

Patient education is an inherent part of most rehabilitation programs following coronary bypass surgery. The aim of most programs is to prepare the patient for his home care, and to attempt to change his life-style to prevent further development of heart disease. Some of the more important changes in life-style may include increasing exercise levels, eating less saturated fat, maintaining optimal weight, and taking more medications. However, no studies have been done to determine if the education does in fact lead to positive changes in life-style.

Evaluation of the effectiveness of education in promoting life-style changes is difficult to perform. However,

this evaluation is a necessity if education programs are to meet the needs of the population they are developed to serve.

Statement of the Problem

Patient education is considered by most nurses to fall within the realm of nursing responsibility. Health professionals are increasingly recognizing that patients will recover more quickly from an illness or surgery if they are encouraged to assume a greater portion of responsibility for their own care. In order to help patients understand why it is necessary for them to assume this responsibility, they must be taught about bodily needs and functions (Fuerst and Wolff, 1969:52-59). Nurses are often in the position to provide this information, in either a structured or an informal manner.

Although patient education has occurred for several years on the informal level, it is now receiving increasing attention as a formalized function of nursing in many hospitals. In 1974 a national Task Force was established to study the impact and future focus of both hospital- and community-based education. The Task Force found that "a large proportion of patient education is done on an informal

one-to-one basis" by various health professionals, including nurses (Somers, 1976:19). However, the Task Force concluded that much of this education is neither in-depth nor adequately followed up. In addition, both quality and content were found to vary widely.

In response to the public's heightened interest in learning more about their health, hospitals are establishing departments whose sole function is the direction and delivery of patient education. As more people demand this information and departments develop to provide it, evaluation of the programs becomes paramount. However, the Task Force concluded that, in many situations, it is extremely difficult to provide this evaluation (Somers, 1976:56). Despite the difficulty of the evaluation task, it is one that must be undertaken, if patient education programs are to continue to improve.

Patient education programs have thus far been mostly directed at chronic illnesses such as diabetes, hypertension and cardiovascular diseases; at preparation for childbirth; and at preparation for surgery. These programs are generally well-developed and administered to a large population (Somers, 1976:20). Due to the fact that the potential population is large and varied, the programs offer little

opportunity for individualization. However, according to Tobin, et al. (1979:77) "adults need or want to learn such a wide variety of things that it is sometimes difficult to provide group instruction. This variance must be recognized if each learner's needs are to be met."

H. L. Miller has identified three characteristics of adult learners. The first characteristic is that a group of adult learners is heterogeneous, or does not have very similar backgrounds. This may mean such things as ethnic, social and economic variations. The second characteristic is that differing past experiences give individuals differing expectations, which may influence the present learning situation. Finally, adults respond in more independent ways than do children, and wish to assist in identifying problems and solutions (Miller, 1964). Concepts of adult learning such as these need to be considered in planning and implementing a patient education program.

The effectiveness of patient teaching thus depends on many different factors. Some of the influencing factors have been identified and investigated; others have not yet been explored. One of the influencing variables which may be of considerable importance but which has not yet been adequately investigated is that of residence, namely whether

the patient lives in a rural or an urban area. In a health care delivery area that serves both a rural and an urban population, this variable could have considerable impact on patient education.

Rural-urban differences are one area of study in the field of sociology. For example, in a study done by Glenn and Hill, they concluded that rural-urban differences in attitudes and behavior do exist, although the importance of these differences should not be exaggeraged (1977:50). According to Kane, (1977:138), people in rural areas seem to have more chronic illness than those in urban areas. In addition, income levels are lower and proportions of elderly are higher in rural areas. Kane concluded that a possible reason for these differences is a greater sense of self-sufficiency among rural people. If a patient education program is serving a population which includes rural people, these differences in attitudes and behaviors could present one more variable to be considered in planning the programs.

Purpose of this Study

The purpose of this study has been to investigate the influence of place of residence upon patient education received during a hospitalization for coronary artery bypass

surgery. The study is a descriptive-survey design, with data obtained by use of a mailed questionnarie. It deals with the influence of the rural-urban variable upon life-style changes after patient education, utilization of lay resource people by the two groups, and further needs for patient education information in the two groups.

Summary

Coronary disease is now, and will undoubtedly continue to be one of the major causes of death in the United States. One form of treatment aimed at lowering the rate of death is the coronary artery bypass surgical procedure. However, even when surgery is performed, the patient must still change those behaviors which caused the disease initially. Failure to change them will result in development of further disease. Patient education has as one of its goals the facilitation of these behavior changes. However, many factors enter into whether the patient has not only learned the information, but also incorporated it into daily life-style changes. Variables such as anxiety, perceived need for change, presence or absence of reinforcement, motivation, and opportunity to define problems and solutions all enter into the learning situation, and have been fairly

well defined by previous research. People who live in rural areas have different past experiences, and even different attitudes than urban dwellers. The variable of place of residence has not been investigated in relation to learning yet. Therefore, this study has attempted to determine its influence on learning and behavior change.

CHAPTER 2

REVIEW OF LITERATURE

The purpose of the review of literature was to: 1) determine the extent and type of studies already done on patient education, with an emphasis on those studies related to coronary disease; 2) clarify what constituted rural and urban differences, especially in attitudes and behavior; and 3) develop a conceptual framework based upon adult learning theory and individual differences in the learning situation.

Patient Education

The topic of patient education has received considerable attention in recent literature. Three main areas of focus were identified during the literature search. One area was the reporting of programs in patient education at various institutions. The second area of focus was the evaluation of various teaching strategies and audiovisual aids. Finally, different means of evaluating program effectiveness were reported. Very few of the publications involved research of the variables acting in the learning

situation. Most simply report the impressions of those involved with the programs.

An in-hospital cardiac patient education program has been described by Woske and Kratzer (1977:25-26). In their program they initially trained the nurses on the cardiac unit to be teachers, and the nurses then taught the patients in groups and individually. A multidisciplinary team planned the program. Audio-visual aids, handouts, and flip-charts were utilized as teaching aids. The program used a post-test for evaluation purposes, with home visits one week and two to four weeks post-discharge. The report of program effectiveness was the statement that no one had ever failed the post-test. Evaluation was not reported on the home visits made.

Duncan, et al. (1973:508-11) have described the establishment of an in-hospital program to teach post-myocardial infarction patients. Content included heart disease, risk factors, diet, activity, and medications. No method of program evaluation was described.

Stockwell and Iada (1976:2205) have described two in-hospital cardiac education programs. The goal of their programs was:

> to educate cardiac patients and their families about the nature of the disease, to help them lead productive lives, and to establish a positive emphasis on health (1976:22).

A cardiac rehabilitation program for postmyocardial and postcardiotomy patients has been reported by Owens, et al. (1978:148-50). Hospitalized cardiac patients were given an education program covering a variety of topics. The education was done in a group setting, with individual needs met on a one-to-one basis. Evaluation was by means of a pre- and post-test, and home visits at three and six months. Significant increases in knowledge, at the .05 level, were found amoung the subjects. In addition, it was found "that patients are capable of learning during the early stages of recovery," that "patients are able to learn in a group," and that "discussion groups appeared to generate a sense of cohesion and reduce anxiety levels among the members (1978:150)."

There are also reports of post-hospitalization programs for health education. One such program was reported by Kelsey and Beamer (1973:512-14) and describes the establishment of myocardial infarction groups for pre- and post-myocardial infarction patients. The program built on the education begun in the hospital. The authors state

"prevention is the long-range goal and education is essential to prevention (1973:513)."

Boisoert (1976:26-7) has described a post-hospital group teaching program for post-coronary artery bypass patients. She found that ". . . patients were more receptive to information after their return home (1976:27)."

A frequently cited study dealing with two different teaching strategies was reported by Lindeman (1973:515-21). She discussed the results of her studies in pre-operative patient education. In the first study, she examined the effects of structured and unstructured pre-operative teaching. Her findings demonstrated that structured teaching significantly improved the ability of the subjects to deep breathe and cough post-operatively. It was also shown that the structured teaching decreased the mean length of the hospital stay. In her second study, she explored the effects of group and individual instruction on the pre-operative patients. Group instruction was found to be equally as effective and more efficient than individual instruction.

Different types of teaching aids have also been studied. A report that discusses the use, construction, and advantages of flipcharts as one audiovisual tool in patient

education was published by Wortman (1978:16-18+). Another article by Cartwright (1978:18-20) discussed the establishment and use of closed circuit television in a hospital for patient and staff education. The use of heart models and a mock-up of the recovery room as aids in pre-operative teaching of the cardiovascular patient has been described by DeVillier (1973:522-25).

A study of two teaching formats--structured and unstructured--for teaching post-myocardial infarction patients showed that patients learn nearly as well in either format, contrary to the Lindeman findings. Although the knowledge test scores in the group that received structured teaching were slightly higher, the difference was not statistically significant. Also in this study the authors concluded that

> one means of establishing the effectiveness of the teaching might be the collection of data on how well the patient follows his doctor's orders when he gets home (Bille, 1977:55).

Therefore, they studied the correlation between compliance and knowledge. However, the correlation was not statistically significant. Apparently compliance with the treatment regimen is not significantly related to the amount of knowledge possessed by the patient about his disease.

Because there are so many variables that may affect compliance, studies have been done by at least ten researchers to determine the amount that each variable contributes to non-compliant behavior. According to Marston (1977), demographic variables such as age, sex, socio-economic status, education, race, religion, and marital status are rarely predictive of compliance. Due to the complexity of the issue of compliance, the study by Bille may have involved intervening variables in the knowledge-compliance relationship.

It was recognized by this investigator that the Bille (1977) study had been unable to show an association between knowledge and compliance. Therefore it was decided not to attempt to study that association in this study. Instead, the influence of the affective domain, that is attitudes and values, was chosen to test in association with knowledge and with compliance in a group of rural and a group of urban residents.

In a study by Linde and Janz (1979:282-86), the effectiveness of the teaching program was evaluated on the basis of knowledge and compliance in a group of cardiac patients. Knowledge and compliance were measured pre-operatively, post-operatively, and post-discharge. It was found that

knowledge was significantly increased from the pre-operative to the post-operative tests, and remained stable through two post-discharge tests. Compliance was also reported to be higher than in previous untaught groups of cardiac patients. No attempt was made to assess the correlation between knowledge and compliance as in the Bille study. The researchers concluded that "a comprehensive patient education program has a positive influence on patient knowledge and compliance (1979:286)."

Another method of evaluating program effectiveness was reported concerning a post-hospital teaching/support program "basically designed to meet the health education needs of cardiac patients and their families following hospitalization (Jessop, 1976:18)." This program was evaluated by 1) comparing readmission rates within the first eight weeks post-discharge both before and after the program was begun; 2) measuring the attainment of program oriented goals; and 3) patient self-evaluations. The findings were that patient satisfaction increased with the ability to care for themselves, as well as that the readmission rate was reduced after institution of the program.

One method of program evaluation gaining in popularity is evaluation which includes measures of cost effectiveness.

It is claimed that health education can reduce the problem of broken appointments, reduce unpaid bills, reduce malpractice suits, gain community support for hospital programs, improve and speed diagnosis, improve patient compliance, and reduce morbidity and mortality (Green, 1976:57-61). From the perspective of hospital and health services administrations, there appear to be several benefits of health education, some of them strictly monetary.

Rural and Urban Differences

In spite of all the recent literature on patient education, there is a noticeable lack of studies concerned with the individual differences in the learner. One potential difference that may or may not influence the learner's acceptance and incorporation of the educational material into his life-style is the values associated with place of residence, specifically a rural or an urban area.

Rural-urban differences are one area of study in the field of sociology. In the past four to five years there have been arguments about whether real differences do in fact exist between rural and urban populations. Another difficulty in this area is operationally defining rural and urban, and then measuring the attitudes and values

associated with each group. In past years, only farmers were considered rural, and all others were urban. Due to the decreases in the number of farmers in recent years, this may be a less functional definition at present.

Despite the controversy, some common characteristics of different rural societies have been identified. "Rural" usually means low population density, and greater distances between people and the goods and services they require. In addition, there are some demographic similarities. There are exceptions, but generally

> . . . rural areas have proportionally more poverty, and populations with lower educational attainments, higher unemployment rates, more unskilled and semi-skilled workers, less diversity of occupations, fewer professionals, and more elderly people than metropolitan areas (Blake, 1978:26).

Glenn and Hill in a study of rural-urban differences in attitudes and behavior, concluded that rural-urban differences in attitudes and behavior do exist, although the importance of these differences should not be exaggerated (1977:50). It was found that farmers, as a whole, are

> . . . relatively prejudiced, ethnocentric, isolationist, intolerant of deviance, opposed to civil liberties, distrustful of people, traditionally religious, ascetic, work-oriented, Puritanical, uninformed, and favorable to early marriage and high fertility (1977:39, 41).

In addition to attitudinal and value differences, some differences in disease patterns have been noted between rural and urban residents. These are not entirely separate from attitudinal differences however. According to Kane (1977:138), people in rural areas have a higher incidence of chronic disease and less acute illness than those in urban areas. In addition, there is a higher proportion of elderly in rural areas, and income levels are lower there. Kane states that

> . . . the findings are consistent with the greater sense of self-sufficiency usually found among rural people. They seem to be less readily disabled by illness and less prone to seek medical care for many conditions (1977:138).

People in rural areas generally place a high value on self-reliance, an attitude which may also account for the differences in types and incidences of disease.

Ellenbogen and Lowe (1968:300-12) report differences in health care "styles" between rural and urban areas. Health care "syles" were measured by the acceptance of eight health practices, such as the reported use of chest x-rays, physical examinations, and preventive dental examinations. "The findings indicated significant differences between the overall patterns of use of the eight practices and place of residence (1968:300)." Age and income were used as control

variables, constituting the dimension "opportunity." The findings revealed an association between residence and use for both the young and old age groups. There was also an association between the low-income group and place of residence, but none was found for those with high income. When an additional analysis controlled for age and income simultaneously, no association was found between young and old adult males with high income, and place of residence. However, there was an association between young males with low income, and place of residence. Elderly adult males with low income showed no rural-urban differences in use of the eight practices.

As reported by van Es and Brown (1974:373-88), the status of rural-urban differences was examined conceptualizing the rural-urban variable into three usages. The first was ecological, relating to place of residence. The second usage was occupation, dicotomized into farm or non-farm. The third usage was sociocultural, and was conceptualized using attitudes and behaviors in rural and urban cultures. They attempted to separate the effects of the first two usages, and to independently assess their impact on the sociocultural usage. The dependent variables included "measures of political attitudes, knowledge and behavior;

volunteer organization participation; and job attachment (1974:375)." The findings indicated that:

> 1) socioeconomic status generally accounted for more of the variation in the dependent variables than either occupation or residence; and 2) when the effect of socioeconomic status is removed, behavioral items were more often related to either occupation or residence than were attitudinal items (1974:375).

The authors suggest that mass culture could resonably be expected to have leveled the differences in attitudes between rural and urban residents. However, behavior could be more influenced due to specific physical constraints, for example, size of place of residence making opportunity for certain behaviors either more or less likely.

The impact of a rural environment on values was studied by England et al. (1979:119-36). They state that although historically it was thought that a rural environment comprised a set of values unique to it, recently it has been suggested that this influence of a rural environment on values has either declined or disappeared. After a review of previous literature, they conclude that "there are still some value differences between rural inhabitants and urbanites which are attributable to the rural environment (1979: 122)." An attempt was made to develop a model which conceptualized rural values as the dependent variable, and the

population and economic aspects of the rural environment as independent variables. Population was measured by community size and population density, and occupation was measured by employment in either agriculture or nonagricultural extraction, such as mining. The results indicate "that a rural environment does result in a greater importance of kindness, physical development, honesty, religion, and self-control (1979:129)." In addition, and contrary to previous studies "intellectualism, social skills, status, and creativity are also more valued as rurality increases (1979:129)."

From the literature it is evident that a concensus of opinion concerning the influence of a rural environment on the development of certain values does not exist at present. However, differences in age, income, and to some extent education, do seem to exist and it is uncertain how greatly these variables may influence values. This was noted by Fischer when he stated that

> urban dwellers differ from rural ones on a variety of characteristics which in turn affect social attitudes, among them, age, stage in the life-cycle, religion, race, region, and social class factors, especially education (1975:422).

Adult Learning Theory

In the education field, theories of adult learning are a relatively new concept. From approximately 1959 to 1964

publications focusing on adult education, as separate from the education of children, became more prevalent. However, even in the preceding 20 year period, there is no concensus about the need for, or utility of, a separate theory of learning for adults. Some researchers maintain that all people learn in the same manner, therefore negating the need for a theory of adult education. Others claim that adults have different needs, a different self-concept, and different past experiences than children. Therefore, there is a need for a separate theory, according to the latter group.

Knowles has been prominent in the promotion of adult learning theory, or andragogy, as compared to pedagogy or the learning theory applied to children. Knowles maintained that there are four crucial assumptions about the characteristics of adult learners that are different than the assumptions about child learners. These are as follows: 1) the adult's self-concept moves from one of dependence to one of self-direction; 2) the adult has a vast reservoir of past experiences that serve as a resource for present learning; 3) the adult's readiness to learn is primarily oriented to the developmental tasks of his social roles; and 4) the adult's time perspective centers on the immediate application of knowledge to current problems (1970:39).

In addition, Knowles posited three assumptions about teaching and learning as applied to adults. The first assumption was that adults can learn, that intellectual power does not decline with age. The second assumption was that learning is an internal process, in which the individual's motivation is related to the extent that he feels the need to learn and perceives that a personal goal can be met through learning. The final assumption was that there are certain conditions that are more conducive to learning than others. These conditions include: 1) that the learner feels a need to learn; 2) that the learning environment is comfortable and free from anxiety and distrust; 3) that the learners feel that the goals of the experience are their goals; 4) that the learners are involved in the planning and implementation of the learning experience; 5) that the learners actively take part in the learning process; 6) that use is made of the previous experiences of the learner and present learning is related to past experience; and 7) that the learners feel that they are making progress toward their goals (1970:49-53).

According to Gibb, there are six principles for adult learning, drawn from several diverse learning theories, and that can be applied to an understanding of the ways in which

adults learn. They are as follows: 1) "learning must be problem centered," and the problem must be the learner's and not the teacher's; 2) "learning must be experience centered;" 3) "the experience must be meaningful to the learner;" 4) "the learner must be free to look at the experience," meaning that the learning climate must be permissive and supportive; 5) "the goals must be set and the search organized by the learner;" and 6) "the learner must have feedback about progress toward goals (Gibb, 1960:58-61)."

Knox also stated many of the preceding principles of adult learning, characteristics of adult learners, and conditions for optimal learning. In addition, he reported on several studies that tested learning abilities of adults. In general, he concluded that ability to learn stayed the same or decreased only slightly with age, especially if intellectual stimulation continued through adulthood. In addition, he concluded that the level of formal education was more strongly associated with learning ability than was age (1977:412-25).

In studies involving short-term memory in adults, Knox reports that short-term memory is relatively stable through most of adulthood, provided that the material to be remembered is in moderate amounts, is meaningful to the learner,

and adequate opportunity for acquisition is provided. Older adults do appear to experience some memory deficits, possibly because they have a greater accumulation of prior knowledge, causing interference with remembering new information (1977:466).

In addition, Knox reports that previous studies have shown that adults require more practice to master new skills, especially verbal materials. This practice is one form of reinforcement. Other forms of reinforcement for adult learning include praise of achievement, learning objectives that are matched to learner needs, and providing opportunities for application of learning activities (1977: 466).

The adult's prior experiences can both positively and negatively influence present learning. Occasionally, it is necessary to unlearn old materials before learning new ones, thus negatively influencing new learning. However, past experience can be helpful in understanding the new material if a connection can be seen between the two (Knox, 1977:466).

As can be seen from these examples from the literature, adult education is much less concerned with the content of programs than with the process of learning. The characteristics and needs of individual learners determine the

content, and guide the process of learning. However, content can vary greatly within and between programs, but process should be based heavily on the foregoing characteristics.

> No matter what specific research is used, teaching of adults involves understanding that adults have different bases of motivation and various past experiences and are generally independent in selecting and participating in learning activities (Tobin, et al., 1979:84).

The wide variation among adult learners is an important concept to bear in mind when implementing or planning an educational program for adults.

Conceptual Framework

The conceptual framwork for the study was based upon the theories of adult learning, network theory, and the concepts related to compliance with a prescribed treatment regimen. From the review of the literature, many concepts of adult learning theory have been identified previously.

The National Association for Public School Adult Education has identified several characteristics of all adult learners. Those which are most pertinent to this study are that adults tend to be more rigid in their thinking and less likely to adopt new ways of doing things. In addition, adults have had more and varied experiences than children, which, as noted previously, can have either positive or

negative effects on the new learning experience. Because of these varied experiences, adults tend to be a more heterogeneous group, due to a wider variety of backgrounds and educational levels (1966). One final principle of learning theory, related to both adults and children, is that anxiety can interfere with learning, especially when it is extreme (Redman, 1968:12).

In applying the above learning concepts to the present study, it would appear that the differences in values evidenced by rural and urban peoples may be significant in a teaching program at a hospital which serves both rural and urban clients. Given the differing environmental and sociocultural influences, rural residents may have not only a lower educational level, but also a very different background of experience than urban residents. Finally, the experience of being hospitalized for a major surgery such as coronary artery bypass grafting is undoubtedly a very stressful and anxiety-producing event. In addition to the anxiety felt pre-operatively, there is the anxiety produced in attempting to confront and change life-styles (Owens, et al., 1978:148). All of these factors operate in the learning situation following the surgery, but may be intensified in a group of rural residents whose value systems may not be

congruent with the health care professional who develops the teaching plan.

A second concept, that of compliance with a treatment regimen, also is a factor in this study. Compliance is not easily predicted, due to the number of variables which may influence compliant behavior. However, the likelihood of non-compliance increases when medications are ordered at frequent intervals, when multiple medications are ordered, or when the medication is ordered at inconvenient times in the person's normal routine (Hussar, 1980:48-53). These difficulties can be applied to other portions of the treatment regimen, as noted by Davis (1967:269):

> Changes in personal habits, such as smoking, drinking, and rest seemed to be the most difficult choice to make. Implicit in the notion of a "difficult regimen" is the drive toward dissonance reduction. To reduce the dissonance, an individual will choose to comply with those regimens which necessitate the least amount of change in his life.

These types of difficult changes are often necessary after coronary artery bypass surgery, if the individual is to avoid the development of further heart disease. As Stockwill and Iada note "health educators are just beginning to realize the problems involved in changing an adult's lifestyle (1976:22)."

Hart and Frantz (1977) also speak about the importance of several variables in the issue of compliance. They report that elderly persons, those in lower socioeconomic groups, and those with little education appear to be the least likely to comply. In addition, they state that "restrictions which cause change in life-patterns and patient judements lead to higher rates of noncompliance (1977:138)." The demographic variables of age, income and education do appear to be significantly different in rural and urban areas.

As Hart and Frantz state "health education is more difficult when it must modify deep-rooted habits of work patterns and life style (1977:137)." Based on assumed differences in values and attitudes in rural and urban people, patient education would then logically be more difficult to achieve with rural patients, not only because of their different values, but also because of the lack of opportunity for reinforcement of the health teaching.

The final concept utilized in this study is drawn from network theory. A study by Croog et.al (1972), investigated the roles of friends, family, and institutions in providing support to urban males following a first myocardial infarction. They concluded that, for the sample in their study,

both friends and family networks were utilized to a much greater degree than community agencies in providing support. Hospital and medical services were utilized for immediate care, but only minimal contact was reported after discharge from the hospital.

A study by Salloway and Dillon (1973) defined family and friend networks as "the normal set of interactions which a person has in his daily affairs (1973:132)." The study compared the effects of family and friend networks on health care utilization. It was concluded that family networks tend to delay the access to medical care, whereas friend networks tend to encourage the seeking of medical care.

From the review of the literature on networks and on family interaction in rural and urban areas, there is no definite concensus regarding the extent and strength of networks in relation to place of residence. Therefore, in the study an attempt was made to measure what differences did exist in the use of these networks operationalized as "lay resource person," and the relationship to rural or urban place of residence.

Summary

Research on patient education has focused primarily on such areas as content of various programs, the effectiveness

of different teaching strategies, and on methods of evaluation. No studies have been done to establish whether different cultural groups have different needs and responses to patient education. Two such cultural groups are rural and urban residents. Based on the literature regarding rural and urban differences, these two groups may be significantly different, indicating the need for different content or methods to enable them to make the changes in life-style that are necessary after coronary artery bypass surgery. According to adult learning theory, individual goals and needs are important considerations when teaching adults. In addition, varying backgrounds and experiences may seriously affect learning in adults. Based upon these concepts, it would seem likely that place of residence could be a significant variable in patient education, if the education were to successfully facilitate changes in life-style.

CHAPTER 3

METHODOLOGY

The purpose of the study was to investigate the influence of rural and urban differences on the patient education directed at changing life-styles after coronary artery bypass surgery. The purpose of the study was to answer the following questions:

1. What are the differences in life-style changes between rural and urban residents following patient education after coronary artery bypass surgery?
2. What are the differences between rural and urban residents in seeking answers to health-related questions from lay resource people?
3. What are the differences between rural and urban residents in the expression of need for further information to aid in home care after coronary artery bypass surgery?

In this chapter, the methodology of the study is presented in the following order: research design, operational definitions of terms, population and method of sampling, procedures for developing and pretesting the instrument for

data collection, overview of the method of data analysis, and chapter summary.

Research Design

The study was a descriptive-survey design. The author believed that some relationships probably did exist between place of residence and life-style changes after surgery, making it necessary to utilize the descriptive-survey design. Some of the variables, especially rural and urban, had been explored through previous research, making an exploratory design inappropriate. A structured questionnaire was chosen, due to the high cost and extensive amount of time required for an interview for collection of the data.

Definition of Terms

Western Montana Region: the area comprised of Mineral, Granite, Ravali, Missoula, Deer Lodge, Silverbow, Clark, Broadwater, Meagher, Sweet Grass, Jefferson, and Flathead counties.

Rural: towns or villages, incorporated or unincorporated, having populations of less than 5,000 and located in the Western Montana region. In addition, those living on farms

or ranches outside of the towns were included in the definition.

Urban: those communities having a population greater than 20,001 and located in the Western Montana region.

Small town: those communities having a population of 5,000 to 20,000 and located in the Western Montana region.

Patient Education: the formalized, structured presentation of information to a person hospitalized at a hospital in Western Montana, for coronary artery bypass surgery. The education of interest was that presented after the surgery, in preparation for discharge and care at home.

Life-style Changes: changes in activity, diet, workplace, and use of medications made as a result of undergoing coronary artery bypass surgery and the attendant education.

Rural Resudent: one whose place of residence, for at least 10 months of each year, is in a rural area as defined.

Urban Resident:	one whose place of residence, for at least 10 months of each year, is in an urban area as defined.
Small town Resident:	one whose place of residence, for at least 10 months of each year, is in a small town as defined.
Lay Resource Person:	person with no formalized medical training who is sought out by members of the community for advice concerning health and illness.

Sample and Setting

It was originally intended to utilize a sample consisting of 100 residents from one urban community in Montana who had undergone coronary artery bypass surgery within the past two years as an urban sample. The rural portion of the sample was also to have consisted of 100 residents from towns of 5,000 population or less in the Western Montana region who had undergone the same surgery within the past two years. However, in order to obtain a sample of this size it would have been necessary to go back much further than two years. Such a procedure would have introduced another intervening variable related to time and forgetting as a function of time, confounding any possible conclusions.

In addition, the patient education program would have become much more variable, also as a result of time.

Taking the above factors into consideration, the investigator decided to use the entire population of persons having had coronary artery bypass surgery at one urban hospital in Montana from January 1, 1979 through the second week in February, 1980. All of the patients had their surgery performed by two cardiac surgeons in a joint practice. The population consisted of 150 persons, 61 from towns of greater than 20,001 population, 26 from towns of 5,000 to 20,000 population, and 63 from towns with less than 5,000 population.

By selecting the above population, it is recognized that any generalizations are limited, and that the study merely defines population parameters. However, this concession had to be made in order to eliminate any further intervening variables.

Data Collection Method

Data were obtained by the use of a mailed, self-administered questionnaire. The participants anonymously completed and returned the questionnaire in a stamped, self-addressed envelope that was provided. They were presumed to

have given their consent to be a participant by completing and returning the questionnaire.

The cover letter (See Appendix) that was attached to the questionnaire simply stated that participation was desired to attempt to study improvements needed in the education program. An attempt was made to write it in language which all the the respondents could understand. The participants were assured that they would remain completely anonymous. Respondents were asked to return the questionnaire within two weeks. The participants were told that the questionnaire took approximately 20 minutes to complete.

The questionnaire (See Appendix) was constructed by the researcher, with the exception of questions 23-26, 28-36, 38-40, and 47, which were modified somewhat from a questionnaire developed by Garrity (1978). Before developing the questions, meetings were held with the various professionals involved in the patient education program. The professionals included the clinical director of the coronary care unit, a physical therapist, a registered dietician, and a pharmacist. In addition, all printed material that is given to patients was reviewed. The information obtained was used in the construction of the questionnaire. Extensive instructions were included with

many of the questions in an attempt to aid the participants in answering them.

After the initial questionnaire was developed, it was reviewed by one of the cardiac surgeons, a patient who had undergone coronary artery bypass, and a registered nurse who is the patient educator who developed the education program. Based upon their input, several major changes were made. The revised questionnaire was again reviewed by the cardiac surgeon, and pilot-tested on two patients who fit the requirements of the sample. No major changes were necessary at that time, and the questionnaire was printed and mailed. The pilot study showed the questionnaire to be easily understood, regardless of educational level, and that it took about 20 mintues to complete.

No follow-up of non-respondents was conducted, because the anonymity of the participants made it difficult unless new questionnaires or reminder postcards were mailed to all subjects. Despite the lack of follow-up, 90 completed questionnaires, or 60%, were returned.

The primary independent variable, rural-urban differences, was operationalized by population of place of residence. Question number 45 requested information regarding

the population of the community in which the respondent resided.

The three dependent variables were operationalized. The first related to life-style changes, and was operationalized by the use of several questions testing knowledge, compliance, and work and activity changes. Questions numbered 7 through 12 tested knowledge, 13 through 19 tested compliance, and 28 through 37 tested work and activity changes. The second dependent variable was health education needs, operationalized by question 22 regarding topics on which more information was desired. The final dependent variable related to use of lay resource persons and was measured by questions 20, 21, and 27 which were concerned with the types of persons providing information about health.

Other variables of interest included anxiety over state of health, satisfaction with teaching and perceived state of health. Satisfaction with hospital teaching was operationalized with six Likert-type scales questioning the respondents level of satisfaction. Questions numbered one through six measured satisfaction. Anxiety and perceived state of health were also operationalized with Likert-type scales. Questions 38, 39, and 40 measured anxiety, and perceived state of health was measured by questions 23 through 26.

Demographic data was solicited by questions 41 through 44, 46 and 47.

The questionnaire has content validity, due to the pretests that were administered. After the pilot study the subjects were interviewed for any possible suggestions. In addition, there was considerable input from several experts closely associated with the teaching in the hospital.

Data Analysis

The analysis of the data was primarily by means of descriptive statistics and non-parametric measures of association such as Chi square and Cramer's V. In addition, percentages of response on several items were compared between the groups. Data are presented in tables, and narrative form in the following chapter.

Summary

The purpose of the study was to determine the influence of place of residence on patient education received and life-style changes made after coronary artery bypass surgery. Three research questions were developed.

A questionnaire for collection of data was developed by the researcher, with some questions revised from an existing questionnaire. A pilot test was performed.

The questionnaire was mailed to 150 former coronary artery bypass surgery patients. The subjects had their surgery no more than one and one-half years ago, and the entire population which fit the criteria was included. The subjects remained anonymous, and agreed to participate by returning the questionnaire. No attempt was made to recontact those who did not respond.

CHAPTER 4

DATA ANALYSIS

The purpose of the study was to determine whether there were differences between rural and urban people in types of life-style change made after coronary artery bypass surgery. In addition, the study attempted to determine what differences existed between rural and urban people in the use of lay resource persons, and in the expression of needs for further information related to their home care after coronary artery bypass surgery. The study attempted to answer the following three questions:

1. What are the differences in life-style changes following patient education after coronary artery bypass surgery between a group of rural residents and a group of urbanites?
2. What are the differences between rural and urban residents in seeking answers to health-related questions from lay resource people?
3. What are the differences between rural and urban residents in the expression of need for further information to aid in home care after coronary artery bypass surgery?

The analysis of the data in this chapter is presented in the following order:

1. The demographic data are presented for each group.
2. The data related to changes in life-style are presented for each group.
3. The data relating to use of lay resource persons for health information are presented for both groups.
4. The data pertaining to the needs for further information are presented for both groups.
5. Data are summarized for the rural-urban variable.
6. Date related to the three research questions are presented, conceptualizing the independent variable in terms of both population and distance from the treatment center.
7. The data for the population/distance variable are summarized.
8. Other variables of interest are presented.
9. The chapter is summarized.

Demographic Data

In this section, some of the characteristics of the entire group are explained first, then demographic data are presented for each group individually. Age ranged from 40

to 73, with the mean for the whole group being 58.7 years, with a standard deviation of 8.6 years. There were 90 respondents, 72 male and 18 female. The length of time since the surgery ranged from 2 to 18 months, with the mean being 8.5 months. The standard deviation was 4.1 months. Education ranged from 21 respondents with an eighth grade education or less, to 7 with more than four years of college completed. Fifteen respondents had had some high school, and 21 had completed high school. Twenty-three had had some college.

Fourteen lived on farms or ranches, 9 in towns of less that 500, 15 in towns from 500-5,000 population, 19 in towns from 5,001-20,000 population, and 33 in cities from 20,001-40,000 population. Seventeen respondents live in the community where the surgery was performed. Mileage away from that community for the remaining 73 respondents ranged from three miles to 350 miles, with the mean being 99.1 miles away, and the standard deviation being 62.0 miles.

Income was reported as remaining the same after surgery for 56.6 percent of the respondents. It reportedly dropped a little for 20.5 percent, and dropped a lot for 10.8 percent. Conversely, 10.8 percent stated their income was up a little, and 1.2 percent said it was up a lot.

When the original research questions were developed, the author intended to study only the discrete categories of rural and urban residents. However, after the data were collected, a third group fitting neither the rural nor the urban group, was found. This group was included in the data analysis, and termed "small town" residents, because the populations of the communities was between 5,000-20,000. In summary, according to the definitions, there were 38 rural respondents, 19 small town and 33 urban respondents.

When the demographic data for the three groups are compared, they are essentially similar on most of the items. There were 27 males and 11 females in the rural group, 15 males and 4 females in the small town group, and 30 males and 3 females in the urban group.

The mean age for the rural respondents was 58.6 years, with a standard deviation of 9.3 years. For the small town group the mean age was 54.4 years, with a standard deviation of 9.1 years. The mean age for the urbanites was 58.3, and the standard deviation was 7.2 years.

The mean length of time since surgery was 8.6 months for the rural group, and the standard deviation was 4.3 months. The small town group showed a mean of 9.4 months, with a standard deviation of 3.9 months. For the urbanites