

THE UNIVERSITY OF CALGARY

**RETIREMENT PREPARATION: HEALTH PRACTICES AND
HEALTH STATUS AFTER RETIREMENT**

BY

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DEGREE OF MASTER OF SCIENCE**

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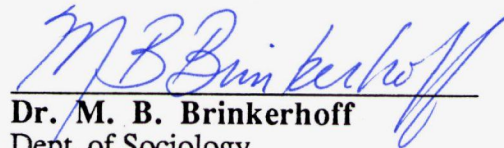
The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled, "Retirement Preparation: Health Practices and Health Status After Retirement" submitted by Steffan Igor Ayora-Diaz in partial fulfillment for the requirements for the degree of Master of Science.



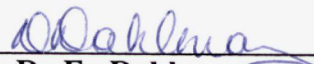
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ABSTRACT

Health practices, which are learned and developed throughout an individual's lifetime, have been found to be related to health status. Health promotion efforts to encourage healthy lifestyles are being addressed to all age groups. Among older persons health practices are encouraged, although secondarily in pre-retirement seminars. Although these seminars have been offered since the 1970s, usually by employers, there is scarce reference in the literature on the effects of these seminars on the health practices of retired employees. This study had two goals: (1) to describe the health practices and health status of a sample of retired employees; and (2) to determine if degree of participation in pre-retirement seminars is related to the practice of health behaviors and health status of retirees. A questionnaire was mailed to all members of an annuitants club of a multinational oil company who were not employed. The response rate was 70% (n=215). Six types of health practices and six dimensions of health were assessed. Three degrees of participation in seminars were identified: none, one and two or more seminars.

The main findings of this study were a) there is a statistically significant relationship between degree of participation in pre-retirement seminars and level of engagement in three domains of health practices ("health monitoring", "dietary practices", and "harmful substance avoidance") and two dimensions of health ("energy level" and "physical ability"). There was no significant relationship between participation in pre-retirement seminars and three other domains of health practices ("exercise", "accident avoidance" and "control of stress") and four other dimensions of health ("pain", "emotional reaction", "social isolation" and "sleep"). b) Those who participated in pre-retirement seminars, especially those who participated in more than one seminar were more likely to engage in more health practices and to have better health status. The practical implications of these findings for both health promotion and future research are discussed.

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TABLE OF CONTENTS

APPROVAL PAGE	ii
ABSTRACT	iii
ACKNOWLEDGEMENTS	iv
TABLE OF CONTENTS	v
LIST OF TABLES	viii
1 INTRODUCTION AND LITERATURE REVIEW	1
I. Introduction	1
II. Literature Review	3
A. Retirement	3
a) Theories of Retirement	3
b) Historical Development of Retirement	4
c) Adjustment to Retirement	6
B. Pre-Retirement Education	9
a) Functions of Pre-Retirement Seminars	10
b) Types of Preparation for Retirement	11
c) Health Promotion in Seminars for Preparation for Retirement	12
d) Participation in Formal Pre-Retirement Seminars	13
e) Pre-Retirement Seminars in Calgary	14
C. Health Behaviors	16
a) Classification of Health Practices	17
b) Health Promotion Models	18
c) Health Practices and Health Status	20
d) The Role of Companies in Health Promotion	21

III. Hypothesis	22
2 RESEARCH METHODS	24
I. Study Design	24
a) Characteristics of the Design	24
b) Sampling Procedures	25
c) Questionnaire Design and Administrations	27
II. Testing of Hypothesis	31
a) Variables	31
b) Statistical Techniques	32
3 RESULTS: DESCRIPTIVE DATA	36
a) Demographic Characteristics of Respondents	36
b) Retirement	37
c) Participation in Pre-Retirement Seminars	38
d) Health Practices	41
e) Self-Reported Health Status and Answers to the Nottingham Health Profile	43
f) Satisfaction with Retirement	45
4 RESULTS: TEST OF HYPOTHESIS	47
5 DISCUSSION AND CONCLUSIONS	58
a) Demographic Characteristics of Respondents	58
b) Characteristics of Retirement	58
c) Pre-Retirement Seminars	59
d) Health Practices	60
e) Health Status	61
f) Statistical Test of Hypothesis	61
g) Implications	63
BIBLIOGRAPHY	67

APPENDIX A	75
Appendix A.1: Cover Letter	75
Appendix A.2: Club's Cover Letter	76
Appendix A.3: Questionnaire	77
Appendix A.4: Follow-Up Letter	85
APPENDIX B	86
Appendix B.1: Tests for Health Practices	86
Appendix B.2: Tests for Health Status	93
APPENDIX C	100
Stratified Analysis	100

LIST OF TABLES

2.1	Behaviors in the Prevention Index and Answers Indicating Compliance	28
3.1	Demographic Characteristics of Respondents	36
3.2	Characteristics of Retirement	37
3.3	Participation in Pre-Retirement Education Programs	38
3.4	Ratings of Information on Health in Company's and other Seminars	39
3.5	Reasons for not Participating in Any Pre-Retirement Seminar	40
3.6	Reasons for not Participating in Seminars after Retirement	41
3.7	Percent of Respondents Who Engage in Health Practices	42
3.8	Percents of Positive Responses to the Nottingham Health Profile	44
4.1	Kruskal-Wallis Analysis of Degree of Participation in Pre-Retirement Seminars and Level of Health Practices	49
4.2	Kruskal-Wallis Tests for the Stratified Analysis of Health Practices by Degree of Participation in Pre- Retirement Seminars	51
4.3	Chi-Square Tests of Independence for the Stratified Analysis of the Relationship Between Exercise and Degree of Participation in Pre-Retirement Seminars	53
4.4	Kruskal-Wallis Tests for Participation in Pre-Retirement Seminars and Scores of the Nottingham Health Profile	54

4.5	Kruskal-Wallis Tests for the Stratified Analysis of Health Status by Degree of Participation in Pre-Retirement Seminars	55
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CHAPTER 1

INTRODUCTION AND LITERATURE REVIEW

I. INTRODUCTION

Canada's population, like that of all post-industrial countries, has been gradually aging over the last century. Among the many concerns an aging population raises is the question of quality of life in old age, particularly as it relates to mental, physical and economic well-being. While advances in medicine have decreased the incidence of infectious diseases, relatively high rates of chronic diseases and disability in older age group persist. Retirement from gainful employment has become an institutionalized and expected event in an aging society. Even though various government and private pension plans have been developed, economic security in retirement remains a concern.

Pre-retirement seminars and programs have been established in recent years to address quality of life issues related to retirement. Their general objective is to facilitate the process of adjustment to retirement by providing individuals with relevant knowledge and skills. Since one of the main concerns of future retirees is their economic future, many pre-retirement seminars focus mainly on financial and legal questions. Evaluation of these programs has been usually concerned with the impact of seminars on the economic success of retirees and their adjustment to retirement. Little or no attention has been given in these reports on the impact of seminars on participants' health and health behaviors. This is not surprising in view of the fact that questions about health have not been raised in respect to pre-retirement programs until very recent years.

It is gradually being recognized that pre-retirement programs can play a role in promoting the mental and physical well-being, as well as the economic well-being, of retirees. Specific topics about health and healthy lifestyles are being included in pre-

retirement seminars. There is, however, little research on the relationships between retirement and health and health behaviors of retirees.

Given the importance that health promotion has for the prevention and/or amelioration of health problems among the aged, and the lack of literature dealing with this problem, it was considered important to study the relationship between pre-retirement programs and health status and health behaviors of retirees. The main goal of this research is to find if people who do not participate and people who participate at different levels in pre-retirement seminars, also differ in their health status and their levels of engagement in health practices.

The next section, a review of the literature, will present the main concepts, theories as well as research that has been conducted on the areas of retirement, pre-retirement programs, health practices, and health status. Based on this literature review, the hypotheses for this research will be formulated. Chapter 2 deals with the survey method used for this study: its design, the procedures followed to obtain the sample, characteristics of the sample itself and description of the instruments used. Chapter 3 will present a summary description of data obtained, and following it, Chapter 4 will present the test of hypotheses. Finally, Chapter 5 will present the discussion of results and conclusions of this study.

II. LITERATURE REVIEW

A. RETIREMENT

Retirement has been defined by Robert Atchley as:

A condition in which an individual is forced or allowed to be and is employed less than full time (whatever that may mean in his particular job) and in which his income is derived at least in part from a retirement pension earned through prior years of service as job holder. (1976:1)

This condition is named **objective retirement** by Palmore (1985: 3), who added a further distinction within retirement: **subjective retirement**, that is, the individual's assessment of his or her own social status. Palmore also distinguishes among retirees by degree of employment: If individuals work full time, they are not classified as retired; if they work less than full time, they are considered as partially retired; and if they do not work at all, they are defined as fully retired (Palmore et al., 1985:3).

a. Theories of Retirement. Retirement has been approached from different perspectives. When the approach is socio-psychological, it emphasizes stressful life events; if sociological, the emphasis is on social roles and processes. That these two approaches are not mutually exclusive is illustrated by the case of early retirement. Although this form of retirement is often an expected event, it still retains some stressful features, mainly derived from its "off-timing" characteristic (Minkler, 1981: 120).

Among the theories that offer explanations or justifications for retirement there are three that played or still play an influential role. They are:

a) Disengagement theory. Originated from the structural

functionalist approach and developed at the beginning of the 1960s by Cumming and Henry, this theory seeks to show that retirement is a normal process by which elderly individuals voluntarily relinquish their positions and roles in society, thus allowing young people to occupy those positions (Roadburg, 1985: 45).

b) Activity theory. Derived during the 1960s from disengagement theory, this theory

posits that when individuals disengage from their roles, they need to assume new activities that substitute for the old ones (Roadburg, 1985:46). During those years in which this theory was elaborated, conflict stemmed from the fact that society had not yet legitimated the 'retired role.'

c) Continuity theory. Originated at the end of the 1960s and in the early 1970s, this theory states that retired individuals are most likely to engage in activities and roles developed in the years prior to retirement (Roadburg 1985: 151).

Continuity theory has become the most influential approach for the design of both pre-retirement education seminars and health promotion programs (Rosencranz, 1975, *passim*). Continuity theory is most likely to develop and mature as a theory since it is able to incorporate concepts from other, more partial approaches such as those posited by exchange, conflict, gender, subculture and personality theories (Turner, 1987: 118).

Within continuity theory, retirement of any type is a transitional stage in which there are multiple changes. Among them, retirees experience changes in social roles i.e., loss of the work role, and adoption of the retired role; they also experience changes in income and social interaction, and perhaps of residence (Kasl, 1980: 150). These changes account in part for the persistence of stressful features of retirement for some individuals, and emphasize the importance that health promotion programs and pre-retirement education can have for the employees' future well-being and health status.

b. Historical Development of Retirement. Although in all stages of history men have had to give up work at some point in their lives, retirement, as it is understood today, started only one hundred years ago (Atchley, 1976: 15-16). In pre-capitalist societies men retired from work when they were no longer able to perform the activities that their position in the division of labor assigned to them. Then, they often became physically and socially supported by their families and the communities to which they used to belong. Industrial development with a different economic order, brought about the breaking up of the extended family and the traditional community. It became retirement's social and economic

function to reduce the number of people looking for or holding jobs. Retirement pensions were promoted as means to support people who were unable to work, and as a reward for years of service (Atchley, 1985: 184).

According to some analysts (Phillipson, 1982: 16-17; Atchley, 1985: 184), retirement from a work position today is determined not by the individual's physical abilities, but by ups and downs of the economy and by fluctuations in the demand for labor. Retirees are no longer supported by their families and the community (Phillipson, 1982: 9-10). During this same process of socio-economic change, the conditions were set for the appearance of the Welfare State.

In its origin, Welfare State provisions were mainly oriented toward the young unemployed. It nevertheless, provided some economic support for the elderly in the form of pensions. In Canada, private company plans provided pensions for their employees at least as early as 1874 when *Grand Trunk Railway of Canada* granted them to their employees (Stanford, 1986: 294). The state intervened in 1927 with the enactment of the Old Age Pension Act. New acts were later enacted: in 1951, the Old Age Security Act; in 1967, the Guaranteed Income Supplement; and in 1975, the Spouse's Allowance Plan (Roadburg, 1985: 27).

At the present time, Canadian retirees have four different sources for financing their retirement: 1. Private savings, 2. Employer pensions (both public and private), 3. Government pensions, and 4. Welfare programs. However, none of these necessarily prevent retirees from the possibility of falling into poverty after retirement. Moreover, differences remain among social classes, and professionals are more likely to be economically prepared for, and to adjust to retirement (Kilty and Behling, 1986: 529). It is not surprising thus that income before retirement, and expected income after it, shape attitudes toward and adjustment to retirement (Atchley, 1976: 110; 1985: 201; Glamser, 1976: 107).

c. Adjustment to Retirement. An important condition for individuals' adjustment to retirement is society's acceptance and legitimization of the retirement. The social acceptance of retirement has been facilitated in North America by, among other events, the proliferation of a retirement industry which undertakes the role of producer and distributor of books, magazines, and educational films on retirement; the construction of retirement communities; the professionalization of retirement knowledge; and the selling to the population of a healthy image of the retired (Phillipson and Strang, 1983: 9). This process of promotion of the image of retirement is linked to changes in the social, economic and technological structure of North American society (Phillipson and Strang, 1983:10). Surveys during the 1960s showed that about one third of retirees never expected to adjust to retirement. During the 1970s, that figure dropped to approximately ten percent (Atchley, 1985: 201). Nowadays most people expect to retire and actually do it at increasing rates (Slover, 1982: 342).

As mentioned above, at the socio-economic level, retirement policies are determined by economic fluctuations. During economic recessions retirement is either forced or encouraged. It is precisely under these conditions that workers can be more resistant to retire, since they are conscious of the fact that their income will not suffice to keep pace with inflation (Minkler, 1981: 120). However, aging workers can find themselves under pressure from peers, public opinion or the employers to accept retirement (Atchley, 1985: 187).

Factors influencing workers to retire vary. For some individuals, retirement can be a desired goal. This decision is shaped by their specific attitude towards retirement and towards leaving their jobs, by the expected income after retirement, by the incidence of retirement among fellow workers, friends and relatives, and by their spouse's retirement (Atchley, 1976:30-31). Also, retirement can be considered when the alternative is unemployment and/or when the individual's health status does not allow him or her to remain at work (Atchley, 1985: 187).

The process of retirement is experienced in a different way by individuals according to their particular socio-historical context. This results in different perceptions of retirement, and therefore, different possible ways to classify those who retire. Four forms of retirement are commonly distinguished in the literature:

1. Voluntary Retirement. This type of retirement status means that the individual perceives that he or she alone has decided to retire. Among considerations that influence the decision of voluntary retirement are: a) Income. If the individual expects to maintain a good standard of living after retirement he or she will feel encouraged to retire. Otherwise, if the individual expects a substantial reduction of his or her standard of living after retirement, he or she will delay the decision to retire. b) Health. When an individual has good health and can expect an adequate income, he or she may decide to retire, although some would prefer to keep working. The opposite is also true, as when individuals have low health status, they may feel forced to retire. c) Leisure participation, in combination with good health and income can precipitate retirement, but, for some, the fear of inadequate satisfaction from leisure participation can delay the decision to retire (Atchley, 1976: 45-46). It has been said that voluntary retirement has a positive effect on income (Palmore et al., 1985: 78). However, the opposite can also be said: it is good income which results in satisfaction with retirement.

2. Early Retirement. This is a system which allows employees to retire before they become eligible for government pensions. It is usually the employer who provides funds to support the retirees (Atchley, 1976: 41). Changes in financing of retirement, particularly private pension plans, have made retirement more appealing at earlier ages (Kilty and Behling, 1986: 525). However, Palmore reports that three national surveys in the United States showed decreased income and health after early retirement. The fact that professionals are more able to build assets which allow them to maintain a good standard of living may explain, at least in part, the increase of early retirement among them (Palmore, 1985: 35). Other determinants of early retirement are dissatisfaction with work and policies

which encourage early retirement so that the employers can control the characteristics of their labor force when it is necessary to deal with technological change or with consequences of economic recession, such as plant closures, mergers, or production problems (Atchley, 1976: 41-42; 1985: 190). Nevertheless, it can be expected that with the process of acceptance of the idea of retirement in general, and early retirement in particular in the individuals' everyday lives, and the spreading and consolidation of pre-retirement education programs, retirement will continue losing its stressful characteristics, and more people will continue to retire early with less obstacles to adjust in retirement.

3. Mandatory Retirement. This occurs under mandatory retirement rules established either by the company or by law. Mandatory retirement can have negative consequences for the individuals' well-being, both on satisfaction with retirement and on their psychological, economic and social well-being, which in turn can adversely affect health practices (Crowley, 1985: 149; Campione, 1988: S93). Here we can distinguish between mandatory retirement at an arbitrarily determined age, and retirement forced by company policies, which are determined by economic recession or crisis, either at the company level or at a structural level of the national or international economy. In Canada, however, retirement cannot be forced in accordance to the Charter of Rights and Freedoms (Roadburg, 1985: 12). Nevertheless, as Robert Atchley suggests, some companies can force retirement and still make it appear as voluntarily undertaken by the employee (1976: 184).

4. Health Retirement. This occurs when the individual's health status does not allow him or her to maintain the necessary activities for the kind of job he or she is in (Ekerdt et al., 1983:781). Retirement for health reasons is said to act as confounder in the evaluation of the retirees' health status, since it can be considered to have been low before retirement (Ekerdt et al., 1983; Kasl, 1980).

In general terms, research has shown that retirement has a positive effect on an individual's psychological well-being (Herzog, 1982: 80-81; MacBride, 1976: 550), or to

have a minimal if any negative impact (Kasl, 1980: *passim*). It is important to note, however, that in reviews of the literature, old research is compared to new studies, and the former is invalidated on basis of the later. During the process of negation of old studies, it is forgotten that the cohorts from which those results are obtained are different. It is important to note that those different cohorts were exposed to different socio-economic and historical contexts, and these, while shaping their experiences and beliefs, shape and determine their attitudes towards work and retirement too (Foner and Schwab, 1983: 83).

As mentioned above, the emergence of seminars for preparation for retirement has been an important element in the process of social acceptance of retirement, as well as for individual acceptance of the retirement event, and later adjustment to it. The next section deals with the origin, objectives, structure, and effects of pre-retirement seminars.

B. PRE-RETIREMENT EDUCATION PROGRAMS

During the 1960s, the need for better formal programs for pre-retirement education was expressed at about the same time that reports about the negative effects of retirement on the individuals' health status were released. Since then, pre-retirement education through formal programs, such as in the case of courses provided by companies, private and/or community agencies, has been encouraged.

In general terms, it can be said that retirement preparation programs

are designed to help individuals prepare for their retirement. Typically these programs provide information in financial planning, social security and pension benefit coverage, private and public health care programs, leisure activities, physical and mental health maintenance, and family relationships. (Campione, 1988: S91).

Pre-retirement seminars vary according to the model which sustain them. Each model is based on a different theoretical approach. Slover (1982: 345) distinguishes 5 different models: a) the *rational-economic* model with emphasis on achievement and economic drives; b) the *social* model which emphasizes the need to belong; c) the *humanistic-*

existential model with emphasis on the satisfaction of needs for meaning and self-esteem; d) the *complex-systemic* model with emphasis on human complexity, flexibility and individuality; and e) the *crisis-orientation* model which emphasizes mechanisms for coping with the negative features of retirement.

There are combinations of these different models, but an essential feature of the planning of pre-retirement seminars is to adjust it to a life-long approach in which during previous stages of life individuals are encouraged to learn skills which will be used during the retirement stage (Kleiber, 1982: 326). This emphasizes the need for a change in the timing for offering pre-retirement seminars. They should be offered early enough in a person's life to allow him or her time to develop interests, skills and better financial planning (Atchley, 1985: 187). Slover (1982: 347) proposes 45 years of age as a good moment to start receiving this training.

a. Functions of Pre-Retirement Seminars. As Atchley states (1985: 177), it is the need for security that encourages planning for the post-retirement stage. Since post-industrial societies emphasize individualism and independence, pre-retirement education programs are addressed to provide the individual with psychological support and information on social and economic resources for life after retirement and adjustment to it.

With the social, technological and economic development of the last three decades, employers have become aware of their responsibility toward their employees in providing a smoother transition to retirement, as well of the benefits that pre-retirement programs bring to their own businesses. Among those positive functions, the literature mentions that pre-retirement courses create a good public image of the company, improve employer-employee relations, and encourage early retirement of older workers (Palmore, 1982: 330; Research and Forecast, Inc., 1979: 16). Also, pre-retirement seminars reinforce morale and productivity, allow the company to fulfil social responsibilities, recruit and retain dependable employees, induce early retirement among 'non-productive' employees, protect funds in pension plans, allow the company to keep pace with competitors and improve

relations with unions (Research and Forecast, Inc., 1979: 16). Consequently, companies can find incentives to provide these seminars and encourage employee participation in them.

Research and Forecast, Inc. (1979: 63-64) recognize the responsibility of companies to provide such seminars. However, they also state that it is the individual's responsibility to plan his or her own retirement. The function of the seminars, according to them, is to enable individuals to fulfil that goal and to adjust to retirement.

The main function of pre-retirement seminars is to re-enforce previous positive orientations toward retirement (Atchley, 1985: 186). According to Atchley, one of the most important aspects of any pre-retirement seminar is to provide to the future retiree a realistic picture of his or her economic expectations. These programs have to emphasize how to increase income as well as how to minimize expenditures (1985:186-187)

Nevertheless, not all companies offer these programs to their employees as yet, and when they do, not all employees participate in them. One study reports that the main reasons given by representatives of companies for not offering pre-retirement seminars is lack of qualified personnel, and that they are not a priority (Research and Forecast, Inc. 1979: 8).

b. Types of Preparation for Retirement. Ideally, pre-retirement programs offer professional and expert counseling on socio-psychological and financial matters, as well as on health promotion activities. However, preparation for retirement has to be considered as a process, occurring over a period of time. In many instances this education is achieved in part through informal education acquired years before retirement. The source of this education includes popular literature on well-being, aging, and retirement available in paperback books, magazines or newspapers, and information provided by T.V. programs and friends. This education is often complemented with information provided in formally organized seminars (Rosencranz, 1975: 13). However, particular individual and social characteristics are necessary for the conscious engagement in self-learning procedures that

informal preparation for retirement involves (Kleiber, 1982: 323). Although informal preparation may be the main source of learning for most individuals, it is not a very widespread form of learning (Slover, 1982: 343)

Programs for preparation for retirement can be classified in many ways. Atchley (1985: 187) distinguishes two different categories: a) *limited programs* offering explanations of pension plans, timing for retirement, and benefits; and b) *comprehensive programs* which beside these topics, deal with physical and mental health, leisure activities, housing and legal aspects of retirement. This classification coincides with the one provided by Research and Forecast, Inc. (1979: 9-10) which distinguishes between narrow and broad programs. Narrow programs involve teaching of 2-3 topics out of a list of eleven potential topics. A broad program involves teaching all of them. Broad programs are usually provided by large companies which are also more likely to have a social club for retirees. These companies usually employ a wide variety of educational resources in their programs.

c. Health Promotion in Seminars for Preparation for Retirement. Part of a comprehensive preparation for any retirement program is the encouragement of retirees to voluntarily engage in practices oriented towards the achievement or maintenance of good health status. This voluntary engagement is a fundamental part of practicing health behaviors. Chesney (1984: 340) posits that in order to be able to enforce a health behavior, it is necessary that the individual originates the action.

Some companies offer health promotion programs of broad scope, including measures applicable in the work site and during the individuals' leisure time. These educational programs are usually structured around organizational and environmental activities which include the family. However, great variation can be found in the programs. Potentially a part of pre-retirement education programs, health education can be achieved through structured programs offered by the company, or by the same informal means mentioned above. However, as the *Prevention Index '86* (Prevention Research Center, 1986: 8) reports, 49% of adults responded that it was information found in a health book or health

magazine that made them change health habits. Only 34% reported that change in health behaviors followed the advice of a doctor.

Since retirement may be stressful to some individuals, it has been proposed by Tager (1984: 32-33) that the health component of the pre-retirement seminar should focus on ways to avoid or cope with stressful situations. These include, among other things, techniques for relaxation, exercise, and avoidance of toxic substances. He also recommends that this part of the seminars be taught by a health professional, since this would provide authority to what is said.

In practice, health promotion in pre-retirement seminars does not receive as much emphasis as financial planning does. As an example, in its guide for program planners, Bowman (1975: 18) suggests a one hour session dealing with health promotion. In one hour the instructor has to deal with three topics: diet, exercise and health monitoring. The instructor is also supposed to encourage participation of attendants. Despite the limited emphasis on health promotion, in a different context (Great Britain), Phillipson and Strang (1983: 178) found that respondents to their survey reported that information provided in the seminar affected positively their involvement in exercise and control of diet.

d. Participation in Formal Pre-Retirement Seminars. Palmore (1982: 339) reports that when pre-retirement seminars are offered, only about one third of those invited to participate actually do it. He also reports that the main two reasons for not participating are inconvenience (inappropriate schedules of either work or courses), and disinterest. The latter may be originated in turn from the fact that the individual is unaware of the usefulness of the course, and that the individual considers him or herself to be already prepared for retirement. Research and Forecast, Inc. (1979: 45) reports that in a third of surveyed companies, 75 % of future retirees participate in those seminars; another third of the companies reported participation levels below 50 %. The reasons that employers gave for low participation of employees were lack of desire to learn about retirement and fear of

facing it. However, these companies report that interest and participation have been increasing.

Campione (1988: S94) indicates that individuals with health problems, and individuals who belong to the lower and upper income levels are less likely to participate in pre-retirement programs. Also, when individuals are placed under mandatory retirement rules they will be less likely to engage in these programs. Middle income and being married are related to participation in courses on preparation for retirement.

As Atchley states (1985: 186), very few people engage in actual planning for retirement, but most of them manage to adjust to retirement (1985: 186). Kleiber (1982: 319-320) even questions the efficacy of pre-retirement seminars. According to him, pre-retirement seminars at their best increase information seeking, but there is little evidence of persistent effects on attitudes toward, and adjustment to retirement. At their worst, seminars on preparation for retirement are disturbing and upsetting to some individuals. Also Phillipson and Strang (1983: 202) report that after participation in pre-retirement seminars, some individuals worry more about retirement. This, however, may not be a negative effect, since worry may be conducive to the search for more information and better planning.

e. Pre-Retirement Seminars in Calgary. In Calgary, the only survey on pre-retirement planning and counseling was carried out by Charlton and Murphy at the end of the 1970s and released in 1980 (Charlton and Murphy, 1980). This exploratory and descriptive study sought to find how many oil companies were providing pre-retirement seminars to their employees. The authors report that at the time of the survey, the mean number of employees retiring from each company was eight. Twenty two companies had mandatory retirement at age 65, one at 68, another at 71, and one had no mandatory retirement age. All of them had provisions which allowed early retirement, and the youngest age at which it was allowed was 50. Only three out of 25 companies provided pre-retirement seminars. The first of these seminars was started in 1977, and the other two

were started in 1979. However, the most usual way for employees to obtain counseling before retirement was to approach someone in their department of human resources.

The three pre-retirement seminars in Calgary were developed in-house by departments of human resources. In companies with seminars, the future retiree was approached by the company and invited to participate with his or her spouse. The seminars were provided mainly on company time, usually for three days. The minimum age of participants was 55. The usual content of the program at that time was company benefits, finances, legal concerns, health and aging. Some of the three seminars provided additional information on real estate, volunteer activities, lifestyle after retirement, leisure and second careers. However, the main concern of future retirees was finances. The other 22 companies offered information mainly on retirement benefits and options. Of the 22 companies without pre-retirement seminars, eight reported that the very small number of retirees they have each year did not justify the implementation of such programs. Since the survey was addressed to human resources department managers, it did not include information regarding level of employee participation in the seminars, nor did it include information on results of evaluation of such programs.

Diffusion and popularization of knowledge about retirement, its possible negative effects, and their solutions have lead to the design of pre-retirement education programs, and the inclusion of health promotion within them. However, based on the literature, there is still room for improvement in the area of health promotion. Large companies have the advantage of having resources for starting health promotion programs addressed to all employees in addition to their pre-retirement seminars. In these instances, both efforts directed toward health promotion become complementary and have the potential to enforce positive lifestyles.

C. HEALTH BEHAVIORS

The aging of the population and the control of infectious diseases have brought about an increase in the incidence of chronic diseases. The most common cause of mortality and disability is related to cardiovascular disease, e.g., infarcts, strokes, and high blood pressure. Research has shown that these diseases are preventable through changes in lifestyle that include dietary practices, exercise, avoidance of smoking, limits in alcohol intake, reduction of stress, and weight control (Woods and Birren, 1984: 92; Grisso, 1989: 75-76; Lee, 1989: 67).

The results of research on healthy lifestyles and health behaviors have lacked consistency. This is due, at least in part, to very heterogeneous definitions of what constitutes health behaviors. These definitions range from the search for treatment within the health care system (Hamburg et al., 1982: 207) to an all inclusive definition which includes any behavior carried out for the purpose of protecting, maintaining or promoting one's own health, whether or not they have been proven to be effective for that purpose (Harris and Guten, 1979: 18; Steele and McBroom, 1972: 385). The most commonly used definition of health behavior is the following one provided by Holstein: health behavior is

any activity undertaken by a person believing himself to be healthy, for the purpose of preventing disease or detecting it in an asymptomatic state (1986:47).

In this study, partly using the all inclusive model suggested by Harris and Guten (1979), the following two criteria suggested by Bausell and Bausell (1987) for identifying health behaviors are followed. A health behavior has to

- (a) be potentially modifiable by individual actions (hence the exclusion of such environmental concerns as air pollution or exposure to industrial toxics), and
- (b) possess at least some credible evidence linking each behavior to mortality and morbidity (p. 463).

Included in this definition is the idea that health behavior is a multi-dimensional concept. Individuals who practice one behavior are also likely to practice other behaviors, and their practice is influenced by social and economic factors (Steele and McBroom, 1972: 392).

Another dimension that will be dealt with in the methods section is the fact that health behaviors can be classified as having an active or passive pattern, e.g., exercise or dieting; a protective dimension, e.g. the practice of accident avoidance behaviors; and finally, an awareness pattern, e.g., the avoidance of harmful substances (Tapp and Goldenthal, 1982: 727).

a. Classification of Health Practices. In the literature on health promotion many practices are defined as health behaviors. Berkman and Breslow's (1983) study lists seven health behaviors which relate to physical health status: physical activity, cigarette smoking, alcohol consumption, obesity, sleeping habits, eating breakfast daily, and snacking between meals. In a different report, an association was found between these seven practices and morbidity and mortality (Berkman and Breslow, 1983: 106). Another study reports an association of these same practices with the prevention of disability (Branch, 1985: *passim*).

From these practices, five have been found to be significantly associated with mortality in the 39-69 age group. They are physical activity, cigarette smoking, alcohol consumption, weight/height ratio, and sleeping habits. Of these five, three have been found to be strongly correlated with morbidity: physical activity, smoking habits, and alcohol consumption (Berkman and Breslow 1983: 54).

A limitation that this list of behaviors has for its use in other studies is that it excludes other practices that are also relevant for the maintenance or promotion of health and which are implicit in the more comprehensive definitions provided above. Bausell and Bausell (1987), based on previous studies started by the Prevention Research Center (1986) in the *Prevention Index '86*, did a study on the internal consistency of health seeking behaviors, and identified 21 different behaviors that can be further divided in 5 different clusters. In their study, exercise was not correlated with other behaviors, although respondents to the Prevention Survey related it to control of stress. These clusters of health behaviors include (a) dietary practices such as consciously controlling the ingestion of salt, fat, sweets, fiber,

cholesterol, and vitamins; (b) the avoidance or prevention of accidents or their consequences by wearing a seat belt, not driving over the speed limit, having smoke detectors at home, not smoking in bed and taking special precautions against accidents at home; (c) health monitoring practices, which include blood pressure checkings, visits to the dentist, and visits to the family doctor; (d) conscious control of stress, including sufficient sleep, and socialization with friends; and (e) harmful substance avoidance, that is, not smoking and limiting alcohol consumption (Bausell and Bausell, 1987: 466). This list of health practices corresponds to the concept of multi-dimensionality of health behaviors mentioned above. It also has the advantage of being more comprehensive than the list provided by the study by Berkman and Breslow (1983).

b. Health Promotion Models. Although health promotion is very important for the enhancement of healthy lifestyles, the implementation of health promotion programs is not the only condition necessary for behavioral change. Many variables influence and determine the adoption and practice of health behaviors.

Among these variables are: a) the presence or absence of social networks for supporting the engagement in health behaviors (Gottlieb and Green, 1984: 103); b) the lower an individual's socio-economic status, the lower the chances that he or she will engage in low-risk health-related practices (Gottlieb and Green, 1984: 99; Cockerham et al., 1986: 11); and c) age. The relationship between social class and health related practices is affected by age (Berkman and Breslow, 1983: 56). In some studies, the elderly have been found to be more compliant with health-related practices (Lavizzo-Mourney, 1989: 5). This may be due to the fact that they reached old age precisely because of their long-life engagement in health practices. The presence of these and other variables which influence the practice of health behaviors have been incorporated in several models of health behaviors.

The evolution of the approaches to health promotion programs planning have been linked to the evolution of models which attempt to explain behavioral change (Green, 1984b: 187). The simpler model assumes that providing information or making it available

would be sufficient to induce change. However, it was later recognized that attitudes and beliefs also play a role in behavioral change and these variables were subsequently added to the model of behavioral change. With these additions the bases for the health belief model were set. This model attempts to explain variation in the adoption of health practices.

The health belief model is mainly based on the assumption that the individual: (a) believes that he or she is susceptible to a disease that can be prevented; (b) believes that the disease can be severe; (c) perceives a particular behavior as effective to prevent that disease; and (d) does not perceive personal or environmental barriers to engaging in the behavior (Harris and Guten, 1979: 19; Green, 1984b: 187-188; Bausell, 1986: 5).

Bausell (1986: 7-17) presents a preventive health behavior model, based on the health belief model, which focuses in the determinants of health practices. The first is cues to action, which can be external (media), internal (symptoms) or self-initiated (study). The second is primary determinants, the central part of the model, which refers to those mental attributes that determine whether or not an individual engages in a particular behavior. They are the perceived characteristics of that particular behavior: efficacy, vulnerability, health value, and the individual characteristics such as internal locus of control, predisposing personality and love of life. The third part of Bausell's model is secondary determinants which are demographic variables such as gender, education, and income.

Some studies have identified profiles of individuals who practice health behaviors. The *Prevention Index '86* (Prevention Research Center, 1986: 3) found, regarding the extensive list of behaviors provided above, that those who practice more behaviors tended to be older, women with higher income and education, self-reported good health and perceive themselves to be in control of their future health. The fewest practices were reported by the 18 to 29 age group.

A study published in Canada (Godin et al., 1988: 261) regarding participation in health promotion programs after retirement, gives a somewhat different profile of persons who practice health behaviors. They are women, with clerical occupations who do not perceive

distance from facilities as a barrier; are members of an athletic facility; have participated in formal exercise programs in the previous five years; and who perceive their current level of activity as low when compared to the average Canadian. Conclusions derived from this study are quite different from those of the *Prevention Index '86*. Whereas the latter seeks to promote health in a universal way, Godin et al. suggest that efforts to promote health should be addressed to those who are more likely to participate in these programs.

The aim of encouraging health-related practices is not only to avoid disease, but also to preserve and promote optimal mental, physical and social functional capacity. This can be done even in the presence of chronic disease or disability if individuals take up healthy lifestyles (Holstein, 1986: 37-39).

c. Health Practices and Health Status. Health behaviors and health status are interrelated. However, due to the complexity of the interrelationship, causal directions are very difficult, if possible at all to establish. It is evident that good health can be conducive to the practice of certain preventive behaviors, while on the other hand, health practices potentially can improve an individual's health status (Belloc and Breslow, 1972: 411). It has been suggested that the relationship between health habits and health status is cumulative, that is, the more health practices, the better the health status (Belloc and Breslow, 1972: 420; Prevention Research Center, 1986: 27).

Self-ratings of health are often used to assess health status in surveys. In the case of older persons, self-ratings of health have a different meaning than when the same information is obtained from younger individuals. Elderly individuals may report good health status in the presence of symptoms, since they consider that to have particular ailments or symptoms is a normal process of aging. In general terms, their assessment of health status tend to be highly correlated with assessment carried out by physicians (Ouslander and Beck, 1982: 59). One of the important facets of the elderly's everyday lives which acquires great importance when self-rating health, is their functional

capabilities, and this is of great importance when they rate their health (Lavizzo-Mourney, 1989: 2).

d. The Role of Companies in Health Promotion. The health behaviors adopted by an individual are the result of a life-long process of interaction between the individual and the social environment, including such social institutions as the family, the school, the church, the work site, and the State. The working life of individuals extends over a third to one half of their life. Although companies are not the first context for learning health behaviors, they can play an important role in the enhancement of current health practices, and the encouragement of new ones. Companies can use their existing internal communication system, e.g., newsletters, and expand their roles in the promotion of health behaviors (Brennan, 1982: 14).

Health promotion programs in the work site have been reported to enhance job satisfaction and productivity and to decrease absenteeism (Wright, 1982: 967; Dickerson, 1983: 472). Another study supported these findings and also found that participants modified some health behaviors and improved their perception of their own health; as well, the program created among participants the image of a company concerned with the employees' welfare (Spilman, 1986: 289). A comprehensive approach linking efforts of health promotion in pre-retirement seminars with other company health promotion programs can potentially benefit both employers and employees.

III. HYPOTHESIS

As suggested in the literature review, retirement is an ever changing social construct which, through its stressful features, can affect an individual's health-related practices and health status. On the other hand, pre-retirement education programs have the potential to modify the stressful aspects of retirement and facilitate adjustment to retirement. The literature review also suggests that the type of retirement can impact upon participation in pre-retirement seminars. Research on the interrelationship between participation in pre-retirement seminars with later engagement in health preventive behaviors and health status after retirement is scarce. The following general hypothesis is proposed for testing in this study:

Participation in pre-retirement programs has a positive effect on post-retirement levels of health practices and health status.

This hypothesis will be statistically tested using the following null hypotheses:

Ho 1: There is no difference in the median levels of engagement in health behaviors of individuals who participated in pre-retirement seminars when compared to those who did not participate.

Ho 2: There is no difference in the median levels of health status of individuals who participated in pre-retirement seminars when compared to those who did not participate.

Age, gender, education and type of retirement will serve as control variables in the analysis of the hypothesis.

In addition to testing this hypothesis, this study had a descriptive purpose, that is, to describe the health practices, health status and types of retirement of a sample of retired

persons. Descriptive information is potentially of practical value in that it may indicate areas of need for health promotion and program planning.

CHAPTER 2

RESEARCH METHODS

I. STUDY DESIGN

As mentioned in the previous chapter, the goals of this study are to describe the current health practices and health status of the retired employees, and to test statistically whether there is a significant difference in the level of both variables when groups of individuals are compared on the basis of the degree of their participation in pre-retirement seminars. These goals might ideally be pursued in relation to information obtained from a random sample of retired employees before and after they retire. However, due to restrictions of time, resources and access to names of retired employees, this study was carried out on members of a company's retirement club by means of a mail survey.

a. Characteristics of the Design. The research design used in this study corresponds to the pre-experimental design that Campbell and Stanley (1966: 12) call a *static group comparison*, which is represented as:

$$\begin{array}{ccc} X & & O1 \\ \hline & & O2 \end{array}$$

where two groups are compared. **X** is an event (participation in pre-retirement seminars) that occurred in the past to group 1. **O1** and **O2** are observations (measurements) made in the present on both groups on health practices and health status. There are no observations of health status and health practices before **X**. Both **O1** and **O2** are compared for hypothesis testing purposes. In a retrospective study design such as this, there can be no random allocation of subjects to treatment or control groups. Random allocation would control for the effects of confounding factors on the observations.

Strengths and weaknesses. The static group comparison has the advantage of allowing for control of some sources of internal invalidity, i.e., history, testing, instrumentation and

regression. However, this design also has the disadvantage of not allowing for control of other sources of internal invalidity, such as selection and mortality and their interactions. This design also does not control for sources of external invalidity, i.e., interaction between testing and the event, or interaction between selection and the event, reactive arrangements and multiple event interference (Campbell and Stanley, 1966: 8).

In the case of this study, a retrospective design has the advantage that, based on answers to the questionnaire, it is easy to obtain a control group to compare with the group that has participated in pre-retirement seminars. However, a retrospective study also has weaknesses, such as the fact that the individuals who form the control group may not be the ideal ones to establish comparisons. Also, some retrospective studies have the problem of recall bias. However, for this study, due to the relevance of the event of retirement, the retrospective information that is required is not very likely to be forgotten (Cartwright, 1983: 146).

b. Sampling Procedures. This study was carried out on a non-probability (purposive) sample. This sample consisted of members of a social club for retirees of a large multinational oil company in Calgary. All retirees from the company, regardless of educational level, career or type of retirement are invited to belong to this club, which was established at the national level in 1964 (Annuitants Club Handbook, 1987: 3). The Calgary branch was established in 1987.

The objectives of this club are:

- PROMOTE and PRESERVE communication, fellowship and mutual helpfulness among [the company's] annuitants and spouses.
- ESTABLISH and MAINTAIN communication with [the company] in matters of interest to annuitants and spouses.
- PROVIDE annuitants and spouses with opportunities for self-fulfilment through the greater use of their talents in the community.
- ENSURE that annuitants continue a productive relationship with the company.
- FOSTER support for [the company's] goal of a stronger image of public service. (Annuitants Club Handbook, 1987: 5)

The executive committee of this club was interested in the study and provided a list of members names and addresses. For the purposes of this study, the goal was to obtain a sample of retirees who were not gainfully employed. However, the club membership list contained names of persons who had retired from the company, but still work in either another oil company, or in some other part- or full-time job. In addition, some members of the club are widows or widowers of retirees and therefore were not eligible for the study. Many of these persons were not readily identifiable, and the questionnaire had to be sent to them. On the basis of their responses they were subsequently identified and excluded from the analysis.

When this survey was carried out, the club had a membership of 412 annuitants. The list of subjects used for this study consisted of only 366 names and addresses since the researcher asked the president of the club to exclude from the list the names of those members known to be widows and widowers of former employee. This list provided names and addresses of 322 males (88%) and 44 females (12%) subjects. From 366 questionnaires that were sent, 285 were returned; 62 of these respondents were considered non-eligibles (60 were still working full or part time and two were widows of former employees. The number of eligible respondents therefore was 225 representing a **response rate** of 74.0 %. However, 10 individuals returned incomplete questionnaires, thus reducing the number to 215 **useable questionnaires** which is an effective response rate of 70.7%. Although there are no established parameters to judge response rates, Babbie (1986: 221) has indicated that a response rate of 50% is adequate, 60% is good, and 70% and over is very good.

A valid concern with this sample is that it may provide a biased sample compared to a random sample of all retired employees in the community. To begin with, the sample represents retirees from one of the largest oil companies based in Calgary. This suggests that they may have had access to health promotion programs provided by the company, as well as to physical facilities for the promotion of health preventive behaviors. This implies

that this sample may be different from retirees from other oil companies, specially smaller ones that lack these resources. Also, it is estimated that about 25-35% of retirees from this company have chosen not to belong to the club. Since it is legitimate to suspect that similar motives can determine participation in both pre-retirement seminars and a social club, it is possible to infer that respondents to this survey differ from retirees who do not belong to the club. Therefore, the results of this survey cannot be readily generalized to other retirees, even from the same company. Only further research on similar groups will determine the generalizability of this study's findings.

c. Questionnaire Design and Administration. The information for this study was obtained by means of a structured questionnaire. Most of the questions were drawn from previous studies or existing scales; some were designed specifically for this study. They covered five areas: background characteristics, retirement from the company, participation in retirement seminars, health practices and health status. Questions about participation in pre-retirement seminars were adapted from a study by Rosencranz (1985). The scales used to measure health practices and health status are described in the following paragraphs.

Health practices were measured by the *Prevention Index*, a 21 item scale of self-reported practice of preventive health and safety behaviors developed by the Prevention Research Center (1986). The behaviors were included in the Index according to the following criteria:

- 1) a documented relationship between health behaviors and disease or disability;
- 2) behaviors that are relevant to the entire adult population;
- 3) behaviors that can be controlled or affected by individuals.

These behaviors are categorized in Table 2.1 in five clusters: control of stress, health monitoring, accident avoidance, dietary practices, harmful substance avoidance and exercise. Currently accepted standards of practices or adequate compliance are also indicated in Table 2.1.

TABLE 2.1
Behaviors in the Prevention Index and Answers
Indicating Compliance

Cluster	Indicator of Compliance
1. Control of Stress	
a) Conscious control of stress	Take specific steps
b) Hours of sleep at night	7-8
c) Socialize with friends	At least once a week
2. Health Monitoring	
a) Blood pressure readings	At least once a year
b) Dental checkups	At least once a year
c) Medical checkups	At least once a year
3. Accident Avoidance	
a) Use seat belt	Always
b) Drive under speed limit	Almost always
c) Have smoke detector	Yes
d) Smoke in bed	No
e) Avoid home accidents	Take specific steps
4. Dietary Practices	
a) Control salt ingestion	Try a lot
b) Control fat ingestion	Try a lot
c) Eat enough fiber	Try a lot
d) Avoid high cholesterol	Try a lot
e) Get enough vitamins	Try a lot
f) Avoid too much sweets	Try a lot
5. Harmful Substance Avoidance	
a) Smoke	No
b) Alcohol intake	At most two drinks a day
6. Aerobic Exercise	At least three times a week

Source: Bausell and Bausell (1987:466). Item 2 c) added for this study.

The Health Prevention Index is formed by adding the number of compliant actions associated with the different behaviors in each cluster. The authors of this index, based on its multi-dimensionality, warn against the use of a general score. It is worth mentioning that this index has been used mainly for descriptive purposes (Prevention Research Center, 1986), and, in one study, for the purpose of determining correlation among all the behaviors in the Index (Bausell and Bausell, 1987). The authors of this index suggest it can also be used to compare different groups' health practices. This is the use that this

index has in this study. Nevertheless, this index has not been used before for this purpose, resulting on a lack of estimates of validity and reliability.

Health status was measured by means of the Nottingham Health Profile (McDowell and Newell, 1987). This instrument consists of 38 statements to which the respondent is asked to answer if in general terms each statement applies to him or her. There are only two possible answers: yes or no. These 38 statements are indicators of the following six dimensions of physical, psychological and social health: a) pain, measured by 8 indicators; b) emotional reaction, 9 indicators; c) physical ability, 8 indicators; d) social isolation, measured by 5 indicators; e) sleep, 5 indicators; and f) energy level, measured by 3 indicators (McDowell and Newell, 1987: 287-288).

Questions in this instrument ask about extreme situations and severe symptoms. This is justified on the grounds that it is easier to measure deviations from 'normality' than it is to define or measure normality itself (Hunt and McEwen, 1980: 234). Other advantages of this instrument are its brevity, its easy application, and its simple analysis of responses (Hunt, McEwen and McKenna, 1985: 185).

For the Nottingham Health Profile, as well as for the Prevention Index, there are several dimensions being measured, and simple addition of responses in a general score would give a misleading image of an individual's or group's health. Authors of the Nottingham Health Profile recommend that indicators within each dimension be weighted so that the maximum score for each cluster adds up to one hundred. Individuals with higher scores for any index are considered to be more severely affected (Hunt and McKenna, 1980: 285; Hunt et al., 1985: 186).

The Nottingham Health Profile has a reported test-retest reliability of 0.75 to 0.88 (Hunt, McKenna and Williams, 1981: 299; Hunt et al., 1985). Its validity has also been tested in relation to various scales and it has been found to be highly correlated with other more complex scales and measures for the same variables this profile measures (McDowell

and Newell, 1987: 290; Hunt, McKenna, McEwen, Beckett, Williams and Papp, 1980: *Passim*).

The design of the questionnaire followed some of Dillman's (1983) recommendations, specially in regard to the length of the questionnaire. The questionnaire was pre-tested on a non-random sample of 5 retired individuals who also commented on the format and content of the questionnaire. Some modifications were made to the questionnaire based on their feedback.

Questionnaires were mailed on November 10, 1988. They were self-administered by respondents, who had to mail the questionnaires back. Each envelop contained a questionnaire, a cover letter written by the researcher in which anonymity and confidentiality were guaranteed, a cover letter in support of the study written by the president of the club, and a pre-stamped envelope for returning the questionnaire. A follow-up notice, urging members to return their questionnaires, was included in the newsletter that the club released on December 5, 1988. The last questionnaire was received on January 15, 1989.

The advantages of sending and receiving the questionnaires by mail, compared to face-to-face interviews are:

1. It is economical in terms of money and time.
2. It guarantees anonymity and voluntariness of responses.
3. It is easy to reach geographically disperse subjects.

The use of mailed questionnaires also has some disadvantages (Woodward Chambers & Smith, 1982: 37-38; Dillman, 1983: 369; Babbie, 1986: 232-233). The most relevant ones for this study are: non-respondents tend to be of lower socioeconomic status and therefore may be under-represented in the final analysis; questionnaires have to be short; missing and ambiguous answers are difficult to interpret and impossible to clarify; and they may be answered by someone other than the actual target.

II. TESTING OF HYPOTHESIS

a. **Variables.** In this study there are three main categories of variables for testing the hypotheses: 1) the independent variable: participation in pre-retirement seminars; 2) two dependent variables: level of engagement in health behaviors, and level of health status; and 3) four control variables: type of retirement, age, gender, and level of education. Although the adjectives 'dependent' and 'independent' have been used for these tests, they are not intended to imply a causal relationship.

1. Independent variable. For the measurement of participation in pre-retirement seminars, a numerical score was constructed by adding the responses to questions regarding participation in the company's or any other seminars. Since very few respondents participated in more than one seminar beside the one provided by the company, three groups were formed for analysis:

1. Those who did not participate in pre-retirement seminars.
2. Those who participated in one seminar, either provided by the company or any other agency.
3. Those who participated in at least two seminars, the one provided by the company and at least one more provided by some other agency.

2. Dependent variables. The two dependent variables were operationalized as follows:

- a) Health practices. This variable was measured by responses to the Prevention Index. Answers denoting a positive health practice were added as units and five clusters of behaviors were formed following Bausell and Bausell (1987) study. Exercise was not included in any cluster and was tested as a single practice.

- b) Health status. This variable was measured by means of the

Nottingham Health Profile whose index is divided into six different clusters of indicators measuring 6 different components of health. Responses in each cluster were added using a weighted value following recommendations for its use in Hunt and McEwan (1980: 239).

3. Control variables. The four control variables in this study were operationalized as follows:

- a) Type of retirement. For purposes of analysis there are three types of retirement: **I.** Early retirement. This was categorized as either retirement before the age of 65 or at 65 years or older; **II.** Health retirement. This type of retirement was assessed by answers to the question if health problems determined their retirement. Responses were categorized as "Yes" or "No." **III.** Voluntary retirement. The attempt to assess this type of retirement was unsuccessful. Therefore, this category was not used in the analysis.
- b) Age. Four groups were formed for analysis: 55-60; 61-65; 66-70 and >70. One respondent who was aged 54 was included in the youngest category.
- c) Gender. This variable was assessed with reported gender.
- d) Education. Three groups were formed for analysis:
 - a group with secondary education or less; a group with some post-secondary education, and a group with at least a Bachelor degree.

b. Statistical Techniques. Questionnaire responses were manually coded and entered into the computer's main frame of the University of Calgary. Initial histograms, frequency

distributions, tables and statistical analyses were obtained using Minitab following the instructions provided in *Minitab Manual* (Ryan, Joiner and Ryan, 1985).

1. Level of measurement of variables. The independent variable has three levels represented by degrees of participation in seminars. The level of measurement of this variable is of an ordinal nature. The dependent variables are subdivided in several clusters of indicators, each having a score representing low to high levels of practices. These scores are ordinal; the score for exercise, which is either practiced or not, is a nominal measure. In regard to the control variables, measurements of type of retirement and gender are nominal, while measures of age and education are ordinal.

3. Statistical procedures for hypothesis testing. Testing the hypothesis implies comparing median responses on the dependent variables of the different groups in the independent variable. If the sample had been randomly obtained from the general population, a normal distribution of responses could have been expected. However, as it will be shown below, the biased character of this sample was reflected in mostly skewed distributions. These distributions as well as the non-random character of the sample make statistical tests for differences between means unreliable, thus ruling out the use of parametric techniques.

Since the independent variable has three groups for comparison, the ideal parametric procedure for the statistical test of hypothesis one would have been the one-way analysis of variance. The nonparametric procedure equivalent to this test is the Kruskal Wallis one-way analysis of variance by ranks (Siegel, 1956: 184-185; Daniel, 1978:125). It does not have the assumption of normality and its Asymptotic Relative Efficiency ranges from 0.955 to 1.000 when the distributions have identical shapes and differ only in their location measures (Gibbons, 1976:193; Daniel, 1978: 204).

Since significant Kruskal-Wallis tests only suggest that at least one of the medians being compared is different, the next step is to carry out Mann-Whitney "U"-tests for the relevant comparisons between groups (Siegel, 1956: 116; Gibbons, 1976: 182; Leach, 1979: 161). In the actual testing of the hypothesis, a Kruskal-Wallis test for two groups

was carried out for two reasons: first, the Minitab package does not handle missing data when doing Mann-Whitney tests, and second, the Kruskal-Wallis test for two groups is reportedly identical to the Mann-Whitney test (Gibbons, 1976: 174-175; Daniel, 1978: 200; Leach, 1979: 156).

For all Kruskal-Wallis tests, the P -value was obtained from the chi-square distribution with $k - 1$ degrees of freedom (Gibbons, 1976: 178). Since this study has mainly descriptive purposes, and statistically significant results are not generalizable to the universe of retirees, qualifications of the P -value such as 'highly' or 'moderately' significant will be avoided. However, P -values greater than 0.05 will be considered statistically non-significant for the sample itself.

A chi-square test was used to test for independence between participation in pre-retirement seminars and aerobic exercise. This test assumes that if both variables are dependent, changes in one variable will be associated with changes in the other variable (Daniel, 1978: 163). In this study, the tables have a $r \times k$ format (2×3), which is an extension of a 2×2 table (Siegel, 1956: 175). The P -value for each test was obtained from the chi-square distribution with $(k - 1)(r - 1)$ degrees of freedom.

One of the rules for the use of chi-square tests is that no more than 20 percent of expected frequencies in the cells have values of less than 5, and no cell has an expected frequency of less than 1. In tables which do not fulfil that assumption, the recommendation of collapsing variables has been followed only to the extent that no meaningful information is lost (Siegel, 1956: 178; Daniel, 1978: 168).

To introduce control variables into the analyses it was decided to carry out a stratified analysis. Its assumptions are: a) sufficient numbers in each strata, and b) it is possible to have an appropriate categorization within each variable (Kleinbaum et al., 1982: 321). During the analysis, control variables were further collapsed into two groups in the following way:

1. Age: <65 and ≥ 65 .

2. Education: $<$ Bachelor degree and \geq Bachelor degree.

Gender and type of retirement cannot be further collapsed.

CHAPTER 3

RESULTS: DESCRIPTIVE DATA

This chapter provides information about the demographic characteristics of the respondents, and the nature of their retirement, participation in pre-retirement seminars, health practices, health status and satisfaction with retirement.

a. Demographic Characteristics of Respondents

The distribution of respondents according to relevant demographic variables is shown in Table 3.1. Percentages provided are in relation to the total number of respondents (n=215). The most striking findings are: 1) about two thirds of respondents are younger than 65; 2) less than one fifth are females; 3) almost one half of respondents have an educational level equal or higher to a Bachelor degree; and, 5) four fifths are married.

TABLE 3.1
Demographic Characteristics of Respondents

	Number*	Percent**
1. Age		
55 to 60	71	33.2
61 to 65	62	29.0
66 to 70	41	19.2
70 or +	40	18.7
2. Gender		
Male	184	85.6
Female	31	14.4
3. Education		
1-12 years	51	23.7
Some Post-Secondary	66	30.7
Bachelor degree or higher	98	45.6
4. Marital Status		
Married/Common law	178	82.8
Divorced/separated	8	3.7
Widow/widower	12	5.6
Never married	17	7.9

* Total respondents may not total 215 due to missing data.

** Percents may not add to one hundred due to rounding error.

b. Retirement

Table 3.2 shows the distributions of responses to questions regarding the respondents' year of retirement, present work status, and type of retirement. The findings are: 1) about 80% of the respondents have retired in the last nine years, that is, since 1980; 2) a little more than four fifths are not seeking or wanting employment; 3) two thirds of respondents do not engage in voluntary work; 4) less than one tenth retired at the company's age limit; and, 5) about one seventh retired with some degree of health problem. In regard to a question about whether or not they retired under the company's incentive program, about two thirds (64.2%) answered positively. Of those who retired under the incentive program, 73.9% reported they would have chosen to remain at work if the program had not been in place.

TABLE 3.2
Characteristics of Retirement

	Number*	Percent**
1. Year of Retirement		
1987 to 1988	18	8.7
1984 to 1986	69	33.2
1980 to 1983	80	38.5
Before 1980	41	19.7
2. Early Retirement		
Yes	200	93.7
No	14	6.5
3. Health Retirement		
Yes	31	14.5
No	183	85.5
4. Relation to Work		
Seeking work	6	3.3
Want work not seeking	25	13.7
Neither	152	83.1
5. Do Voluntary Work		
Yes	80	38.1
No	130	61.9

* Total respondents may not total 215 due to missing data.

** Percents may not add to one hundred due to rounding error.
Percents correspond to number of respondents answering that question.

c. Participation in Pre-Retirement Seminars

Table 3.3 shows the distribution of responses to questions about participation in pre-retirement seminars, both the one provided by the company and by any other agency. Almost two thirds of respondents had participated in the company's seminar, but only 17% had participated in some other seminar. A total of 145 (67.4%) respondents had participation in one or more seminars. Two thirds of respondents who participated in the company's seminar considered it to be moderately useful, while most others (30%) evaluated it as very useful. Table 3.3 also shows the distribution of responses to the question of how these seminars can be improved. In the "Other features" category of this question, it is relevant to note that only 2.2% of the respondents volunteered the opinion that the topic of health promotion should be improved. As well, about one third of respondents felt that the seminar should be provided earlier in life. Other suggestions, such as providing seminars to specific groups (e.g., singles) and expanding the financial area, were made infrequently (5.9% and 3.7% respectively).

TABLE 3.3
Participation in and Evaluation of the Company's
and Other Pre-Retirement Seminars

	Company's Seminar Percent* (n=135)	Other Seminars Percent* (n=36)
1. Participation	64.2	17.0
2. Usefulness		
a. Very useful	30.4	30.6
b. Moderately useful	62.2	50.0
c. Little or no use	7.4	19.4
3. It can be improved by:		
a. More time	26.7	11.1
b. Better instructors	22.2	30.6
c. Additional topics	16.3	16.5
d. Other features	44.4	11.1

* Percents may not add to one hundred due to rounding error.

In answers to the question of how well they were prepared for retirement, 41.3% of the respondents said that they were very well prepared, 46.5% felt they were somewhat well-prepared, 6.1% were only a little prepared, and 6.1% said they were not well prepared.

Table 3.4 shows the distribution of responses to the question which asked respondents to evaluate the health information given in seminars provided by the company or other agencies. A salient finding in this table is that only 30% of respondents considered the information on health as good or excellent. About 20% each considered the health information as "fair" or "poor", while almost a third reported that this type of information was either not presented or they could not recall if it were presented.

TABLE 3.4.
Ratings of Information on Health in Company's
and Other Seminars

Responses	Number*	Percent**
a. Excellent	4	3.0
b. Good	35	26.5
c. Fair	27	20.5
d. Poor	24	18.2
e. Not included	33	25.0
f. Don't Know	9	6.8

* n=132.

** Percents may not add to one hundred due to rounding error.

Table 3.5 shows the distribution of answers to the question asking the reason for not participating in any pre-retirement seminar. The information contained in this table refers to the 67 individuals who did not participate in pre-retirement seminars. The findings indicate that the three most common reasons for not participating in pre-retirement seminars are a belief that they could prepare for retirement on their own (28%), a lack of awareness of their availability (19%), and the unavailability of the seminar (18%).

TABLE 3.5
Reasons for Not Participating in Any
Pre-Retirement Seminar

Reason	Number*	Percent**
a. Did not know they were available	13	19.4
b. No time to take them	6	9.0
c. Health reasons	2	3.0
d. Did not think they were relevant	4	6.0
e. Did not think they were necessary	4	6.0
f. Can prepare on my own	19	28.4
g. Not available at that time	12	17.9
h. Not offered	4	6.0
i. Other reasons	3	4.5

* n =67.

** Percents do not add to one hundred due to rounding error.

Only 17.3% of the respondents participated in courses after retirement for the purpose of improving their retirement life. The number of courses taken after retirement ranged from 1 to 25. Of these respondents, 32.5% considered the courses to be very useful, 62.2% considered them moderately useful, and only 5.4% considered the courses to be of little or no use.

Table 3.6 shows the reasons given for not participating in courses for improving one's life after retirement. This table shows that more than one half of respondents considered that they could prepare on their own, and one fifth considered that those courses were of little or no relevance.

TABLE 3.6
Reasons for Not Participating in Seminars
After Retirement

Reasons	Percent* (n=167)
a. Did not know they were available	15.4
b. No time to take them	3.6
c. Health reasons	1.2
d. Did not think they were relevant	20.1
e. Can prepare on my own	55.0
f. Plan to continue working	1.2
g. The company seminar was enough	2.4

* Percents do not add to one hundred due to rounding error.

d. Health Practices

Table 3.7 presents the distribution of responses to questions regarding respondents' health practices, which are arranged in clusters according to types of behavior. Stratification of responses by gender, age and education is presented in Appendix C.1. It can be observed in this table that clusters with the highest frequencies of practice are: 1) health monitoring, 2) harmful substance avoidance, and 3) accident avoidance. Within them, visits to the family doctor (83%), moderate or no consumption of alcohol (84.5%), and use of seat belts (95.4%), respectively, are the most frequently practiced behaviors. Another striking finding is that only one quarter of respondents practice aerobic exercise routinely.

TABLE 3.7
Percent of Respondents Who Engage in Health Practices

Health Practice	Percent (n=215)
1. Control of Stress	
a. Take steps to control stress	56.8
b. Sleep 7-8 hours a night	60.3
c. Socialize at least one day/week	71.8
2. Health Monitoring	
a. Annual blood pressure checks	79.1
b. Annual visits to the dentist	79.0
c. Annual visits to the family doctor	83.0
3. Accident Avoidance	
a. Always use seat belt	95.4
b. Almost never drive above the speed limit	49.8
c. Have smoke detector	85.6
d. Do not smoke in bed	93.0
e. Take special precautions at home	63.7
4. Dietary Practices	
a. Avoid too much salt	51.2
b. Avoid too much fat	57.5
c. Eat enough fiber	74.2
d. Avoid too much cholesterol	50.7
e. Get enough vitamins and minerals	60.8
f. Avoid too much sweets	41.6
5. Harmful Substance Avoidance	
a. Do not smoke	80.9
b. 0-2 alcoholic drinks a day	84.5
6. Aerobic Exercise	
a. 20 minutes 3 times a week	24.4

When asked to list which other activities, if any, they engage in to maintain or improve their health, responses ranged from 0 to 7 more activities. The mean number of activities was 1.5 and the median is 1.0. Reported practices included mainly physical activities such as walking, playing golf, swimming, curling, skating, skiing, bicycling, and a few respondents mentioned activities such as Yoga, Tai-Chi, and dressing according to the weather.

When asked about their social life, 14% of respondents reported they live alone, one fifth are somewhat unhappy with the frequency of their socialization, and only 2% reported a lack of a support network in case of disease or disability. Almost one quarter of the respondents (23.6%) do not belong to clubs or associations. Respondents who belong to other clubs or associations belong to a range of one to 12 for a mean and median of 2. When asked about the level of their participation, from the 159 respondents who belong to clubs or associations, one third reported they are very active, about one half reported they are fairly active, and one seventh refer to not being active.

e. Self-Reported Health Status and Answers to the Nottingham Health Profile.

Retirees' self-reported health status. When asked to rate their health status, 27.4% of the respondents reported they perceive it as excellent, 35.4% as very good, 26.1% as good, 9.3% as fair, and 1.9% as poor.

The Nottingham Health Profile. The percentages of positive responses to the statements of the profile are presented in Table 3.8 in terms of six clusters of health problems. It is important to note in this table the very small number of positive responses that were given to these questions.

TABLE 3.8
Percents of Positive Responses to the
Nottingham Health Profile

Question	Percent (n=215)
1. Energy Level	
I am tired all the time	5.1
Everything is an effort	4.2
I soon run out of energy	14.0
2. Pain	
I have pain at night	9.8
I usually have unbearable pain	0.9
I find it painful to change position	0.9
I am in pain when I walk	4.2
I am in pain when I am standing	1.9
I am in constant pain	1.4
I am in pain when I am going up and down stairs	3.7
I am in pain when I am sitting	0.9
3. Emotional Reaction	
Things are getting me down	5.1
I have forgotten what it's like to enjoy myself	2.3
I am feeling on edge	8.4
Days seem to drag	1.4
I lose my temper easily these days	6.5
I feel as if I am losing control	1.4
Worry is keeping me awake at night	3.7
I feel that life is not worth living	0.0
I wake up feeling depressed	1.9
4. Social Isolation	
I feel lonely	2.8
I am finding it hard to make contact with people	3.7
I feel there is nobody I am close to	2.8

TABLE 3.8 (CONTINUED)

Question	Percent (n=215)
4. Social Isolation (continued)	
I feel I am a burden to people	0.5
I find it hard to get on with people	1.9
5. Sleep	
I take tablets to sleep	5.1
I am waking up in the early hours of the morning	36.3
I lie awake for most of the night	2.3
It takes me a long time to get to sleep	7.0
I sleep badly at night	8.8
6. Physical Ability	
I can walk about only indoors	2.8
I find it hard to bend	9.8
I am unable to walk	0.9
I have troubles getting up and down stairs or steps	6.6
I find it hard to reach for things	2.3
I find it hard to dress myself	2.3
I find it hard to stand for long	11.2
I need help to walk about outside	1.4

The most frequent positive responses were, in order of increasing frequency: "I find it hard to stand for long" (11%) in the cluster of physical ability; "I soon run out of energy" (14%) in the energy level cluster; and "I wake up in the early hours of the morning" (36%).

f. Satisfaction with Retirement.

The last question of the questionnaire asked the respondents to rate their degree of satisfaction with retirement on a scale of possible responses with these results:

- a) 42.7% delighted

- b) 28.9% pleased
- c) 20.9% mostly satisfied
- d) 6.2% mixed feelings
- e) 0.5% mostly dissatisfied
- f) 1.0% feel unhappy about it.

These figures show that 92.5% of the respondents have mainly positive feelings about retirement.

In sum, the retired employees in the club are largely males and younger than 65 years of age. Most of them retired after 1980, and only a small percent is interested in going back to work. Only a minority engage in voluntary work.

Regarding type of retirement, the findings correspond with the trend mentioned in Chapter 1 of an increase in the number of people who retire early. However, as opposed to some reports, health retirement was not very frequent in this group of retirees.

Regarding respondents' evaluation of pre-retirement seminars, almost 70% of respondents give less than a positive assessment of the quality of health information in those seminars. Also of importance for this study is the low frequency of reported health problems in the Nottingham Health Profile. The small frequency of positive responses correspond to the respondents' self-rating of health in which only one tenth rated their health as either poor or fair.

CHAPTER 4

RESULTS: TEST OF HYPOTHESIS

The hypothesis to be tested in this study states that participation in pre-retirement programs has a positive effect on post-retirement levels of health practices and health status. This hypothesis therefore has to be tested on two dependent variables. The null hypothesis which will be statistically tested states that the median scores on measures of health practices and health status are the same for the three groups formed according to their degree of participation in pre-retirement seminars.

Tests for Health Practices. Kruskal-Wallis tests were carried out on five clusters of health practices, and a chi-square of independence was carried out for the relationship between participation in pre-retirement seminars and aerobic exercise.

Since the distribution of responses on the independent variables follows a non-normal distribution, the procedure for testing the hypothesis involves first, using the Kruskal-Wallis test for comparing the three groups' medians on measures of health practices. Then, if the test shows a statistically significant difference, the test is repeated on pairs of the groups to determine which pairs are statistically different. Since this search for differences involves multiple comparisons, and an increase in the number of comparisons results in a decrease in the level of significance of the tests (Leach, 1979: 162), only two pairs of groups were chosen for comparison.

The first comparison involves the two groups of retirees who had participated in pre-retirement seminars (i.e., participated in one, and participated in more than one seminar). The second comparison involves the group of retirees who did not participate in any seminars and the group who participated in only one seminar. These comparisons were chosen because, if the test were to detect a difference among three groups, and both groups with retirement seminars were found to be equal, it could be safely assumed that both of them differ from the group without seminar. Similarly, if the groups with participation in

seminars were different, and the group with one seminar were found to be equal to the group without seminars, then it could be assumed that the group with two seminars differ from the other two groups.

Comparisons between groups will be made only for those initial differences which reach a level of significance of 0.05. Table 4.1 provides the results of tests for levels of health practices. Detailed tables of these analyses including exact *p*-values are presented in Appendix B.1.

Table 4.1 shows that significant differences exist in the comparison of the three groups for the clusters of health monitoring, dietary practices, and harmful substance avoidance. This indicates that there is **no support** for the null hypothesis in respect to these clusters. The null hypothesis is supported with respect to the clusters of control of stress and accident avoidance. When both groups with seminars are compared, significant differences are found for health monitoring and dietary practices. For these clusters the group with only one seminar is not statistically different from the group with no seminars. An examination of the mean ranks of these pairs indicates that the group with higher scores on health practices is the one with respondents who participated in more than one seminar. For the cluster of harmful substance avoidance, the groups that participated in pre-retirement seminars are not different, and the group with one seminar is different from the group without seminars, indicating thus that both groups which participated in seminars are different from the group with no seminars. In regard to this cluster, an examination of the mean ranks shows that both groups who participated in pre-retirement seminars have higher scores in the practice of harmful substance avoidance than the group without seminars.

TABLE 4.1
Kruskal-Wallis Analysis of Degree of
Participation in Pre-Retirement Seminars and Level of
Health Practices

Index	Comparison of Three groups*	Comparison of Two groups**	
	H-Value	2 and 3 H-value	1 and 2 H-value
1. Control of Stress	5.132		
2. Health Monitoring	6.815 (1)	3.428 (1)	0.586
3. Accident Avoidance	1.528		
4. Dietary Practices	8.215 (1)	5.238 (1)	0.894
5. Harmful Substance Avoidance	7.712 (1)	0.232	6.303 (1)

* The p-value has been obtained from the chi-square distribution with two degrees of freedom.

** The p-values are with one degree of freedom from the chi-square distribution. Group 1=0 seminars, Group 2=1 seminars, and Group 3= 2+ seminars.

(1) Significant between 0.01 and 0.05.

The next step in the analysis of the hypothesis is to introduce stratified analysis of the relationship between the independent and dependent variables using the control variables gender, education, age and type of retirement. The purpose of this analysis is to determine if the hypothesis holds for particular strata of the respondents. Frequency distributions when stratified analysis is introduced are shown in Appendix C.2.

Table 4.2 presents the H-values for the stratified analysis. Control of stress, which was not significant in the comparison without stratification, reaches significance only for those who have an education lower than a Bachelor degree. The group with more than one seminar has a higher mean rank on health practices suggesting that the better educated may obscure a significant difference in the comparison without stratification. The comparisons for health monitoring reach significant differences only for males, persons younger than 65, who retired without health problems, and those who retired early. For all these

stratified comparisons, the group that participated in more than one seminar had higher mean ranks on health practices. Tests on the accident avoidance cluster do not reach significant values, indicating that none of the control variables affect the relationship. In the tests for dietary practices, statistically significant differences are found in the following strata: males, females, with education less than a Bachelor degree, older than 65, and those who retired early. An examination of the mean ranks shows that, in all comparisons, the group with more than two seminars had higher values on health practices. However, since there was only one female who participated in more than one seminar, this comparison was carried out on only two groups: the group with no seminars, and a group which included all females who participated in pre-retirement seminars. The later was the group with the highest mean rank. For harmful substance avoidance, significant differences were found for the strata consisting of males, persons younger than 65, and those who retired early. For males and early retirement, the group that had more than one seminar had the highest mean ranks on health practices. In the stratum of respondents younger than 65, the group with one seminar had the highest mean rank. Complete tables with H- and P-values are provided in Appendix B.1.

TABLE 4.2

Kruskal-Wallis Tests for the Stratified Analysis of Health Practices.

Comparison of the Three Groups by Degree of Participation
in Pre-Retirement Seminars

Control Variable	Health Practices		
	Control of Stress	Health Monitoring	Accident Avoidance
1. Gender			
a. Males	5.272	5.802 (1)	2.941
b. Females	0.727	2.034	0.185
2. Education			
a. < Bachelor degree	9.166 (1)	4.381	1.706
b. ≥ Bachelor degree	0.984	4.761	0.715
3. Age			
a. < 65	3.037	6.484 (1)	1.140
b. ≥ 65	0.885	3.885	0.560
4. Health Retirement			
a. Yes	1.942	2.098	0.046
b. No	4.594	6.766 (1)	2.293
5. Early Retirement			
a. Yes	3.353	7.461 (1)	1.926
b. No	0.000	0.963	1.039

TABLE 4.2 (CONTINUED)

Control Variable	Health Practices	
	Dietary Practices	Harmful Substance Avoidance
1. Gender		
a. Males	6.698 (1)	5.790 (1)
b. Females	4.132 (1)	2.109
2. Education		
a. < Bachelor degree	11.610 (2)	5.305
b. ≥ Bachelor degree	2.599	4.322
3. Age		
a. < 65	5.069	11.870 (2)
b. ≥ 65	6.119 (1)	4.079
4. Health Retirement		
a. Yes	2.216	4.593
b. No	5.149	4.495

TABLE 4.2 (CONTINUED)

Control Variable	Health Practices	
	Dietary Practices	Harmful Substance Avoidance
5. Early Retirement		
a. Yes	6.319 (1)	10.870 (2)
b. No	3.523	1.222

* These p-values are with one degrees of freedom from the chi-square distribution.

(1) Significant between 0.01 and 0.05.

(2) Significant at < 0.01

The chi-square test of independence for aerobic exercise and degree of participation in pre-retirement seminars gives a result of 0.316 which, with two degrees of freedom, is not significant ($p=0.85$). Table 4.3 provides the chi-square values of the stratified analysis for the relationship between participation in pre-retirement seminars and aerobic exercise. These tests are not significant and therefore the null hypothesis of independence between the variables is not rejected.

TABLE 4.3
Chi-Square Tests of Independence for the Stratified
Analysis of the Relationship Between Exercise and
Degree of Participation in Pre-Retirement Seminars

Control Variable	Chi-Square	P-Value*
1. Gender		
a. Males	0.316	N.S.
b. Females	1.591	N.S.
2. Education		
a. < Bachelor degree	0.906	N.S.
b. ≥ Bachelor degree	0.033	N.S.
3. Age		
a. < 65	0.909	N.S.
b. ≥ 65	1.008	N.S.
4. Health Retirement		
a. Yes	1.706	N.S.
b. No	0.006	N.S.
5. Early Retirement		
a. Yes	0.715	N.S.
b. No	3.611	N.S.

* p-values obtained with two degrees of freedom. N.S. = non-significant if $p > 0.05$.

Tests for Health Status. The same procedure reported in the previous section was followed to test whether the median levels of health status were the same for all three groups. The null hypothesis to be tested is that median scores on various health status indexes are the same for all three groups of respondents. Higher scores signify more health problems, or lower health status.

Table 4.4 shows that significant differences exist in the comparison among three groups only for the energy level and physical ability clusters, indicating **no support** for the null hypothesis on these two clusters. In all other clusters, the statistical tests **support** the null hypothesis of no difference between groups. For the energy level cluster, comparison of the groups with pre-retirement seminars shows that they are not different, whereas the comparison of the group with one seminar and the group without seminars is statistically

different. For physical ability, comparisons between pairs show that the group with one seminar is different from the other two groups. Examination of mean ranks in the energy level and physical ability clusters shows that the group with no seminars had the highest scores indicating lower health status for this group.

TABLE 4.4
Kruskal-Wallis Tests for Participation in
Pre-Retirement Seminars and Scores of the
Nottingham Health Profile

Index	Comparison of Three groups*	Comparison of Two groups**	
	H-Value	2 and 3 H-value	1 and 2 H-value
1. Energy level	9.404 (2)	3.277	9.013 (2)
2. Pain	4.393		
3. Emotional reaction	0.870		
4. Social isolation	5.089		
5. Sleep	2.922		
6. Physical ability	10.850 (2)	5.167 (1)	9.679 (2)

* The p-value has been obtained from the chi-square distribution with two degrees of freedom.

** The p-values are with one degrees of freedom from the chi-square distribution. Group 1=0 seminars, Group 2=1 seminar, and Group 3= 2+ seminars.

(1) Significant between 0.01 and 0.05.

(2) Significant with < 0.01.

When stratified analysis is introduced in the comparison of health status of groups by degree of participation in pre-retirement seminars, Table 4.5 shows significant differences in the energy level cluster for the strata of males, less educated, younger than 65, retired without health problems, and retired early. An examination of mean ranks shows higher values (lower health status) in all strata for the group with no seminars, with the exception of those younger than 65, in which case the group with more than one seminar has a higher mean rank. For the pain and emotional reaction clusters, the stratified analysis shows no

significant differences for all strata. For this clusters thus, the null hypothesis holds. For the cluster on social isolation, a significant difference is found only for the stratum of those older than 65, in which case the group with more than one seminar has the higher mean rank. The cluster on sleep shows a significant difference only for the stratum of better educated. In this test, the group without seminars has the higher mean rank. For the physical abilities cluster, significant differences are found in the strata of males, less educated, younger than 65, those who retired without health problems, and those who retired early. For the stratum of males, the groups with zero and more than one seminar had higher mean ranks. The group without seminars had the higher mean ranks for the strata of less educated, without health retirement, and with early retirement. The group with more than one seminar had higher scores in the stratum of respondents younger than 65.

TABLE 4.5
Kruskal-Wallis for the Stratified Analysis of Health Status by Degree of
Participation in Pre-Retirement Seminars

Control Variable	Health Scores		
	Energy Level	Pain	Emotional Reaction
1. Gender			
a. Males	7.990 (1)	5.426	0.297
b. Females	3.284	0.016	0.184
2. Education			
a. < Bachelor degree	9.627 (2)	5.543	0.945
b. ≥ Bachelor degree	2.519	3.436	2.578
3. Age			
a. < 65	7.838 (1)	2.975	0.421
b. ≥ 65	1.548	1.601	0.717
4. Health Retirement			
a. Yes	1.182	0.845	0.670
b. No	7.370 (1)	2.544	0.407
5. Early Retirement			
a. Yes	10.370 (2)	4.478	0.225
b. No	0.444	0.500	0.000

TABLE 4.5 (CONTINUED)

Control variable	Health Scores		
	Social Isolation	Sleep	Physical Ability
1. Gender			
a. Males	4.423	2.794	8.651 (2)
b. Females	2.333	0.239	2.696
2. Education			
a. < Bachelor degree	1.855	0.903	12.850 (2)
b. ≥ Bachelor degree	3.394	10.170 (2)	2.537
3. Age			
a. < 65	0.589	0.195	7.453 (2)
b. ≥ 65	10.590 (2)	2.340	1.984
4. Health Retirement			
a. Yes	3.218	0.416	1.342
b. No	1.152	2.539	7.543 (1)
5. Early Retirement			
a. Yes	4.948	1.620	10.710 (2)
b. No	0.000	1.489	0.963

* These p-values are with two degrees of freedom from the chi-square distribution.

(1) Significant between 0.01 and 0.05.

(2) Significant at < 0.01

The statistical analysis showed some support for the hypothesis. That is, retirees who participated in one or more pre-retirement seminars as a whole engaged in higher levels of health practices in three domains ("health monitoring", "dietary practices" and "harmful substance avoidance") and had higher levels of health in two dimensions of the Nottingham Health Profile ("energy level" and "physical ability") compared to those who did not participate in pre-retirement seminars. On the other hand, these groups were found not to be different in respect to three other domains of health practices ("exercise", "accident avoidance" and "control of stress") and four other dimensions of health ("pain", "emotional reaction", "social isolation" and "sleep"). Among those who participated pre-retirement seminars, those who participated in two or more seminars engaged in higher levels of health practices in three domains (health monitoring, dietary practices and harmful

substance avoidance) and had higher levels of health in two dimensions (energy level and physical ability) compared to those who participated in only one seminar.

Further analysis showed that the observed relationship between participation in pre-retirement seminars and higher levels of health practices and of health tended to apply to males, persons younger than 65, those with less than a Bachelor degree, and persons who retired early.

CHAPTER 5

DISCUSSION AND CONCLUSIONS

The purpose of this study was twofold: to describe the health practices and health status of retirees of a large company, and to test statistically the relationship between participation in pre-retirement seminars and health practices and health status of the retirees. This chapter provides a summary and discussion of the most striking findings related to the descriptive data and to the statistical test of the hypothesis. The findings will be linked to other studies reported in the literature review in Chapter 1.

a. Demographic Characteristics of the Sample. This survey achieved a response rate of 70.7% of all non-employed members of the annuitant club of a major Calgary oil firm. It was found that about two thirds of the sample were 55 to 65 years of age, 85% were males, 45% had at least a Bachelor degree or equivalent, and 83% were married. It is not known if these figures are representative of the non-respondents. The finding of a high proportion of highly educated people among respondents may be either an accurate reflection of the education level in the company, or it may indicate that persons with lower levels of education did not answer the questionnaire, or that they tend not to affiliate with the club.

The large proportion of married persons in the sample may be due to the fact that more than 50% of respondents were aged 55 to 65 and widowhood is more common among individuals older than 65. It was also mentioned that about one third of retirees from the company do not belong to the club. These retirees may be different in some respects from those who belong to the club. It was not possible to explore this hypothesis since names and addresses of these persons were not available.

b. Characteristics of Retirement. A great proportion of respondents (80%) retired after 1980. There is reason to suspect that this figure is related to the reduction in staff due to the international oil crisis in the early 1980's. Although 73.9% of those who retired

under the incentive program answered that they would have preferred to remain at work if the incentive program had not been in place, 92.5% of respondents expressed satisfaction with retirement.

Although the sample was limited to club members who are not employed, out of 215 respondents, only six were looking for a job and an additional 25 reported that they would like to work but were not looking for a job. Over four fifths of the respondents indicated that they were neither seeking work nor wanting to go back to work. This corresponds with the trend mentioned in the literature, that once employees abandon the labor force, they are not very likely to go back to work. This finding parallels the distribution of responses to the scale on satisfaction with retirement life.

Regarding the type of retirement, also in accord with reports in the literature, 93% of the club members retired before the age of 65. One seventh retired due to some degree of health problems. It was not feasible, due to measurement problems, to assess "voluntariness of retirement" in this study, as originally intended.

c. Pre-Retirement Seminars. Pre-retirement seminars were first made available to company employees in 1980. About two thirds of respondents (64%) had participated in the pre-retirement seminar provided by the company. This figure corresponds to the higher participation rates reported in the literature.

In general terms, among those who participated in these seminars, only 7% considered them as of little or no use. All other respondents assigned to them some degree of positive value. However, about one third of respondents suggested that, in order to make seminars more useful for future retirees, they should be provided earlier in their working lives. Only 17% of respondents participated in seminars which were not provided by the company.

Although only 30% of respondents valued positively information on health promotion provided in these seminars, only 2% of respondents volunteered the suggestion that more information on health should be provided. This compares with 3.7% of the respondents

who suggested that the financial section should be expanded. However, social and economic issues can have a bearing on health. As one respondent put it:

Income has an extremely important bearing on one's happiness, activities, worry, sleeplessness, socializing, visits to a dentist, etc., all of which have an effect on one's health/outlook on life.

The main reasons given for not having participated in pre-retirement seminars fall into two categories: those who felt they could prepare on their own, and those for whom the seminars were not available, either because they retired before the program was implemented (19%), or because the courses were not immediately available to them (18%).

d. Health Practices. The distributions of responses to questions about health practices showed that relatively more respondents engaged in health practices in the areas of "health monitoring", "harmful substance avoidance" and "safety practices". On the other hand, relatively fewer respondents engaged in health behaviors in the areas of "dietary practices" and "control of stress", and relatively few (24%) engaged routinely in "aerobic exercise". Although only about 20% of respondents currently smoke, 40% of them either smoke in bed or live with somebody who smokes in bed, thereby putting themselves at greater risk of injury or possible death from fire.

Differences found in the practice of different clusters of health behaviors can be explained within the framework referred to in the literature review: the multidimensionality of health practices is related to internal (individual) and external (social and/or environmental) processes. The clusters of "health monitoring", "accident avoidance" and "harmful substance avoidance" had a participation rate of about 80%. Behaviors of these clusters have in common an awareness dimension, perhaps derived from diffusion of information by different media, plus in the case of some indicators of "accident avoidance", a legal dimension, i.e., use of seat belt and not driving over the speed limit. In the case of use of seat belt, the high figure may have changed because shortly after the conclusion of the survey, the law imposing its use was abolished. On the other hand, the practice of

behaviors of the remaining clusters may be more likely to be affected by external agents. "Dietary practices" are related to cultural and/or customary beliefs and attitudes which can make them less likely to be changed. Regarding "control of stress", the individual is subject to the availability of means (knowledge) to control it, and to the availability of friends to socialize with. The practice of "aerobic exercise" depends on the individual's general health, peer pressure, and the knowledge that aerobic exercise can be practiced by them. Also, a large number of respondents engage in some sort of physical activity which have beneficial effects for health, i.e. walking and leisure activities.

e. Health Status. Regarding respondents health status, when asked to self-rate their health, about 90% of respondents rated their health as either excellent, very good or good, which corresponds to findings of other surveys. The low rates of health problems reported in the Nottingham the Health Profile suggest that this is a healthy group of respondents. The three areas in which relatively high numbers of health problems were reported were "energy level", "sleep" and "physical ability". Relatively few problems were reported in the areas of "pain", "emotional reaction" and "social isolation". The good health status of the group as a whole may be related to some process of selection, that is, individuals who are healthy tend to practice more health behaviors and to belong to the retirement club.

f. Statistical Test of the Hypothesis. The design for the test of hypothesis in this study had some limitations related to internal validity which made it difficult to draw inferences about a causal relationship between independent and dependent variables. Weaknesses in the sampling design also influenced external validity, thus affecting generalizability of the findings. These characteristics have been mentioned at several points in this report. In brief they are: a non-probability sample, a retrospective design with a control group that may not be ideal, and the non-random allocation of subjects to treatment and control groups.

The test of the hypothesis in this study was directed towards the search for significant differences in the levels of health practices and health status between groups that differ in

their degree of participation in pre-retirement seminars. The statistical analysis showed that groups that differ by degree of participation in pre-retirement seminars have different levels of practice in three areas of health behaviors and differ in two dimensions of health.

However, the analysis showed no difference between the groups in relation to three other areas of health behaviors and four dimensions of health. These results indicate that there is some evidence that a relationship exists between participation in pre-retirement seminars and levels of health practices and health status.

However, the limitations of the research design do not allow firm conclusions to be made about a causal relationship between participation in seminars and health practices and health status. That is, even though there is a statistical association between these variables, it cannot be claimed that seminars have a positive effect on health practices and health status. Current levels of health practices and health status may be the result of many historical and contemporary factors which were not controlled in this study. Further research is required to identify these factors and to explore the nature of the relationship between pre-retirement seminars and health practices and health status. Nevertheless, the descriptive data as well as the results of the test of the hypothesis allow the formulation of proposals about a possible relationship between participation in pre-retirement seminars and health practices and health status.

Although results from this study are far from being conclusive, an attempt can be made to speculate about the general question stated for this study, namely, do pre-retirement seminars have an impact on the retirees health? On the one hand, there are reasons to suspect that if they do, their impact is minimal: first, although their main function is to enable employees to deal with economic issues after retirement, 4% of respondents volunteered the recommendation that the finance section should be expanded. Regarding other issues, 2% of respondents suggested that the health promotion area should be expanded, and 6% of respondents stated that due the fact that seminars are designed for married persons, the need of specific groups e.g., singles and widows and widowers are

overlooked. Second, seminars usually are of short duration, and those who retire early and/or under incentive packages usually take them shortly before retirement. In such a way, pre-retirement seminars have less possibilities of having an impact on retirees' lives. Accordingly, one third of respondents suggested that the seminar should be provided earlier in life. Third, 37% of those who did not participate in pre-retirement seminars mentioned problems of availability as the reason for not taking the seminars. Such a figure may be a reflection of the fact that a larger number of employees work in the field, where they do not have easy access to seminars.

On the other hand, two features of the findings about the relationship between participation in pre-retirement seminars and health practices and health status suggest that pre-retirement seminars may have a positive effect: 1) the general finding that individuals who participate in pre-retirement seminars are more likely to practice health behaviors and to have better health, and 2) this relationship is more likely to hold for those with lower education. This suggests an issue that may have to be addressed by planners of pre-retirement seminars: those employees who work in the field are more likely to have lower levels of education, and therefore benefit more from the seminars, yet they may have less access to the seminars.

g. Implications. Practical implications can be drawn from the literature review and the findings for both the club and for the company. Also, the findings of this study have implications for future research on the topic in Calgary or other areas.

1. Implications for the club. The main implications for the club can be drawn from the data concerning the practice of health behaviors. Although in general terms respondents rated high in their practice of health behaviors, there is still a need to promote the routine practice of aerobic exercise, dietary practices, control of stress, and for smokers, the avoidance of smoking in bed. Also, special attention should be given to promoting involvement in social activities among those who are older than 65. The club may consider different methods for addressing these areas if this were considered a relevant club activity.

2. Implications for the company. Although the promotion of behaviors mentioned above are applicable to the study group, it cannot be assumed that the needs of currently employed individuals is the same. Historical and contextual events affecting different cohorts of employees may produce different needs in different age groups. Evaluation of employees' needs should be monitored periodically.

Echoing the concern of an important percentage of retirees, pre-retirement seminars as such should be provided earlier in life. Alternatively, information now provided in pre-retirement seminars could be taught to employees in different stages of their working life to reduce fears about job security that might arise if the seminars were given all at once. Since the learning and practice of behaviors follows a continuum through the individuals' lives, to make pre-retirement seminars deal with health promotion topics in an effective manner the seminar presentations should be based on certain principles about adult learning. Specifically, although individuals maintain the capacity to learn new behaviors throughout the life-span, it is easier to re-enact behaviors that have already been learned than to adopt new ones. To adopt a new health behavior an individual first has to believe that it will result in better health, and then, it is necessary for the individual to produce that behavior before it can be re-enforced. All this implies that in order to make health promotion in pre-retirement seminars effective, it should be related to and coordinated with other health promotion efforts initiated in earlier stages of the employees' lives either by the company or by other community agencies. Therefore, if the pre-retirement seminar is provided shortly before retirement it will be able to re-enforce behaviors already practiced and address concerns about retirement.

Following the broad definition of health provided by the World Health Organization, the health promotion content of pre-retirement seminars should be as inclusive as possible to promote mental and social as well as physical health and well-being. Within this framework, if pre-retirement seminars are coordinated with other efforts, they, as a whole

(including teachings on finances, volunteer work, etc.), can be considered as a health promotion activity.

3. Implications for future research. There are a number of questions that remain that can be addressed by future researchers on the topic of health promotion for workers in general, or for retirees in particular, either in Calgary or elsewhere in Canada. Briefly stated, they are:

- a) Is there a difference among companies on the level of participation in pre-retirement seminars? If a difference exists, is it due to characteristics of the workers' background, the programs themselves, or management policy?
- b) Are there differences among companies in the level of health practices among retired employees? If any, are these differences related to participation in pre-retirement seminars?
- c) What is the relationship that exists between health practices and health status? Is this relationship modified by participation in pre-retirement seminars?
- d) What is the relationship between background characteristics of individuals and levels of health practices?
- e) What are the determinants of type of retirement and their relationship to health status? Is voluntariness of retirement an important determinant of both participation in pre-retirement seminars and health behaviors?

Related to these questions are the following hypotheses:

- a) Employees from different companies have different levels of participation in pre-retirement seminars.
- b) Retired employees from different companies differ in their levels of health status and health practices.

- c) The relationship health practices and health status is affected by participation in pre-retirement seminars.
- d) Background characteristics, i.e., education, gender, income and age affect the relationship between health practices and health status.
- e) Voluntary retirement has a positive effect on health status and health practices.

In order to be able to answer these questions and properly test these hypotheses, it is necessary to involve a large number of companies in a study. A longitudinal design with a randomly selected sample and random allocation of subjects to treatment and control groups, as well as measurements of the dependent variables before and after the event would allow for the possibility of both inferring a causal relationship and to generalize the results. Finally, the concepts of "voluntary" and "involuntary" retirement should be operationalized in order to draw conclusions about the influence of this variable on health and health practices.

In conclusion, this study showed that an association exists between participation in pre-retirement seminars and health status and health practices. Although there are some findings that point toward a positive effect of seminars for some retirees, it was not possible to firmly establish the type of relationship between variables. On the other hand, this study has succeeded in providing baseline data which can allow for future comparisons of health status and health practices with retirees from other oil companies, as well as for comparisons that are specific to the groups included in this survey. If health promotion is to be emphasized among participants in the club, the findings can also serve as baseline data to evaluate the impact of those measures in terms of both health status and the number of health behaviors practiced.

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APPENDIXES

Copies of the appendixes may be obtained by writing to:

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