

THE UNIVERSITY OF MANITOBA

ORAL SYMPTOM EXPERIENCE AND DENTAL
HEALTH SEEKING BEHAVIOR IN THE ELDERLY

by


© YVONNE LEA GUTTMAN (KNAZAN)

A Thesis
Submitted to the Faculty of Graduate Studies
In Partial Fulfillment of the Requirements for the
Degree of Master of Education

DEPARTMENT OF CURRICULUM: MATHS AND NATURAL SCIENCE

WINNIPEG, MANITOBA

MARCH, 1989

 National Library
of Canada

Bibliothèque nationale
du Canada

Canadian Theses Service Service des thèses canadiennes

Ottawa, Canada
K1A 0N4

The author has granted an irrevocable non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of his/her thesis by any means and in any form or format, making this thesis available to interested persons.

The author retains ownership of the copyright in his/her thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without his/her permission.

L'auteur a accordé une licence irrévocable et non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de sa thèse de quelque manière et sous quelque forme que ce soit pour mettre des exemplaires de cette thèse à la disposition des personnes intéressées.

L'auteur conserve la propriété du droit d'auteur qui protège sa thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

ISBN 0-315-51651-8

Canada 

ORAL SYMPTOM EXPERIENCE AND DENTAL HEALTH
SEEKING BEHAVIOR IN THE ELDERLY

BY

YVONNE LEA GUTTMAN (KNAZAN)

A thesis submitted to the Faculty of Graduate Studies of
the University of Manitoba in partial fulfillment of the requirements
of the degree of

MASTER OF EDUCATION

© 1989

Permission has been granted to the LIBRARY OF THE UNIVER-
SITY OF MANITOBA to lend or sell copies of this thesis, to
the NATIONAL LIBRARY OF CANADA to microfilm this
thesis and to lend or sell copies of the film, and UNIVERSITY
MICROFILMS to publish an abstract of this thesis.

The author reserves other publication rights, and neither the
thesis nor extensive extracts from it may be printed or other-
wise reproduced without the author's written permission.

TABLE OF CONTENTS

| | |
|-----------------------|-----|
| ABSTRACT..... | iv |
| ACKNOWLEDGEMENTS..... | vi |
| LIST OF TABLES..... | vii |

| <u>CHAPTER</u> | <u>PAGE</u> |
|-----------------------------------|-------------|
| I. INTRODUCTION TO THE STUDY..... | 1 |
| Background Information..... | 1 |
| Purpose of the Study..... | 6 |
| Research Questions..... | 6 |
| Assumptions of the Study..... | 7 |
| Limitations of the Study..... | 7 |
| Delimitations of the Study..... | 8 |
| II. REVIEW OF THE LITERATURE..... | 9 |
| Self-Care..... | 10 |
| Lay Consultation..... | 11 |
| Demographic Variables..... | 12 |
| Severity of Symptoms..... | 14 |
| Novelty of Symptoms..... | 15 |
| III. METHODS AND PROCEDURES..... | 17 |
| The Interview..... | 22 |
| Data Analysis..... | 24 |
| Research Question #1..... | 26 |
| Research Question #2..... | 27 |
| Research Question #3..... | 28 |
| IV. RESULTS..... | 30 |
| Demographics..... | 35 |
| Research Question #1..... | 43 |
| Research Question #2..... | 50 |
| Research Question #3..... | 55 |

| | |
|---|----|
| V. DISCUSSION..... | 61 |
| REFERENCES..... | 73 |
| APPENDIX A INTRODUCTORY LETTER..... | 79 |
| APPENDIX B TELEPHONE CONTACT..... | 81 |
| APPENDIX C INTRODUCTORY LETTER FOR INDIVIDUALS WITHOUT LISTED TELEPHONE NUMBERS..... | 83 |
| APPENDIX D CLOSED-ENDED SYMPTOM LIST..... | 85 |
| APPENDIX E MODEL INTERVIEW SCHEDULE..... | 91 |

ABSTRACT

This study focused on dental health care seeking behaviour in response to specific oral symptoms. In addition, the study examined whether individual demographic characteristics were related to symptom response and whether symptom characteristics were predictive of seeking of professional dental care.

A stratified random sample of 164 elderly persons, age 65 and over and living in Metropolitan Winnipeg was drawn. Face to face home interviews were utilized to gather sociodemographic, oral status, medical status and dental utilization data. Symptom experience and oral health seeking behavior in response to symptoms were determined utilizing a closed-ended symptom and response list.

The most common response to oral symptoms was self-treatment, followed by ignoring, professional care and talking to someone other than a professional. The type of health action response was related to education, income, how one rated the health of one's mouth, having a dentist, seeing a dentist regularly, time since last dental visit and having natural dentition. The seeking of professional

care in response to some symptoms was associated with the degree of interference, seriousness and novelty of some symptoms.

The study reports low utilization of professional services by the elderly in response to oral symptoms. The role of health promotion should include encouraging the appropriate use of dental services. This can be targeted at three audiences: 1) the elderly, 2) dental professionals, and 3) policy makers. Oral symptoms ignored or self-treated inappropriately by the elderly should be identified as well as which oral symptoms are appropriate to bring to the attention of the dental professional. Since oral symptoms are often interpreted as minor, unimportant or attributed to the aging process, they are not reported. Dental professionals should be trained in interviewing and clarification techniques when taking dental histories. Oral health must be recognized as an integral part of physical health by policy makers in order to make dental services accessible to the elderly segment of the population.

ACKNOWLEDGEMENTS

I would like to sincerely thank my advisor Dr. Dexter Harvey of the Faculty of Education for his advice and constructive criticism throughout the development and completion of this thesis. I thank my thesis committee members, Dr. Jim Welsh of the Faculty of Education and Professor Shirley Gelskey of the Faculty of Dentistry for their suggestions, encouragement, time and effort.

I appreciate the support of the Canadian Dental Hygienists' Association, which through its Research Fellowship assisted me in pursuing my chosen field of study in completing this thesis. Thank you also to Dr. A. Schwartz, Dean of the Faculty of Dentistry for both his support and encouragement.

My parents Fay Guttman and the late Joseph Guttman have my appreciation and love for teaching me never to quit once having started something and for instilling in me the desire to succeed.

I would like to thank my children, Joshua and Eliana for whom the word "thesis" has become an integral part of their vocabularies and schedules over the last year.

Lastly, to the very special man in my life, Joe Holtzman, not only for his invaluable guidance throughout this endeavour and his faith in my abilities, but mostly for his love.

LIST OF TABLES

| <u>Table</u> | | <u>Page</u> |
|--------------|--|-------------|
| Table 1 | Original and Collapsed Variable Codes..... | 31 |
| Table 2 | Gender of Subjects..... | 37 |
| Table 3 | Age of Subjects..... | 37 |
| Table 4 | Ethnic Groups..... | 38 |
| Table 5 | Educational Level of Subjects..... | 39 |
| Table 6 | Marital Status..... | 39 |
| Table 7 | Number of People Living with Subject..... | 40 |
| Table 8 | Number of Chronic Health Problems..... | 40 |
| Table 9 | Medical Consultations within Last 3 Months..... | 41 |
| Table 10 | Last Dental Visit | 42 |
| Table 11 | Dental and Prosthetic Status..... | 42 |
| Table 12 | Average Yearly Income..... | 43 |
| Table 13 | Symptom Frequencies, Seriousness, and Interference Scores..... | 45 |
| Table 14 | Symptoms Resulting in Seeking of Professional Care..... | 47 |
| Table 15 | Health Action Responses By Symptom..... | 51 |
| Table 16 | Relationships Between Symptom Response and Demographic Variables..... | 56 |

CHAPTER I
INTRODUCTION TO THE STUDY

BACKGROUND INFORMATION

We are an aging population. One of the most striking features of Canada's demographic profile during the last century has been the increase in the proportion of older persons. In 1901, 5% of the Canadian population was over age 65. Today that proportion has increased to 11%, with the elderly population in Manitoba exceeding the national average. As the baby boom generation approaches retirement age, the number of older persons in the population will continue to increase rapidly. Projections indicate that by the year 2021 close to 20% or 1 in every 5 Canadians will be over age 65 (Gov't. Canada, 1983).

Several measures of health service utilization indicate that utilization increases at the extremes of life except for dental service utilization (Anderson, 1986). In the United States, the elderly represent 11.8% of the population but account for 27% of all health expenditures

(Haug, 1981; Kiyak, 1984). They have the highest mean number of physician visits per year and the longest length of hospital stays of all other age groups. They are more likely to overutilize the health care system for "minor" complaints (Haug, 1981). Analysis of data from interviews, medical records and medical claims records of a probability sample of Manitoba residents age 65 and over showed medical utilization to be positively correlated with age (Roos & Shapiro, 1981).

The oral health needs of the aged have been well documented. Root caries and periodontal disease have both been shown to increase with age, and the incidence of oral cancer amongst the elderly is the highest of any age group (Gift, 1978, 1985; Smith & Sheihan, 1980; Beck, 1984; Simard, Brodeur, Kandelman, & Lepage, 1985). However, in contrast to their disproportionately high use of medical services, the elderly have historically been the lowest utilizers of oral health care services. Oral health care services refer to any professional services provided by a dentist or a dental hygienist and other dental auxiliaries under the supervision of a dentist. The elderly tend to be less likely to seek professional dental care than the young. The 1978-79 Canada Health Survey reported that 77% of males and females over the age of 65 had not seen a dentist during the preceding 12 months as compared to 60% of the 45-64 age group and 50% of the 25-44 age group

(Health and Welfare Canada, 1983). A review of surveys identifying the oral condition and treatment needs of the elderly in North America and Europe not only reports that less than 20% of older adults visit their dentist regularly, but also that 20-30% of subjects had not visited a dentist for more than 20 years (Kandelman, Brodeur, Simard, & Lepage, 1986).

Several reasons have been cited for the elderly's low utilization of oral health services. These include cost, lack of access to treatment, fear, and lack of self-perceived need. However, low-cost or free dental services for this population have not resulted in a dramatic increase in utilization. Decreased utilization was demonstrated with increasing age in a group of elderly over 62 years in a pre-paid dental care program in Minnesota (Portnoy & Yellowitz, 1977). The self-perceived need variable plays a primary role in dental utilization (Beck, Cons, Field, & Walker, 1982; Kiyak & Miller, 1982; Knazan, 1986). In a study conducted by Knazan (1986), of 275 older adults who responded negatively to a question regarding regular dental visits, 74.2% indicated that they did not perceive a need for such care. However, on dental examination 86% had at least one treatment need. In less than 10% of the cases, cost was cited as the primary reason for lack of regular care. Similar results were found in a Quebec study (Brodeur, Simard, Kandelman, & Lepage, 1985)

which reported lack of perception of need rather than insufficient economic resources as the main factor in lack of utilization of dental care.

Both the medical sociology and gerontology literature have addressed the question of health behaviors of the elderly, particularly in terms of utilization of the formal health care system. Predisposing, enabling and need factors within the Andersen-Newman (1973) framework have been employed extensively to examine the use of professional services (Roos & Shapiro, 1981; Evashwick, Conrad & Lee, 1982; Wolinsky et al, 1983; Kiyak, 1985, Cox, 1986, Chappell & Blandford, 1987; Wan, 1987).

The decision to seek health care is dependent on recognition of the significance of symptoms (Suchman, 1965). This significance has been found to vary widely between individuals (Zborowski, 1952; Zola, 1966; Locker & Grushka, 1987). Studies of perception of symptoms and the variables which lead to health care seeking behavior have reported contradictory results. Zola (1966) concluded that the severity of symptoms does not differ markedly between those who seek care and those who do not. However, little research has focused on health care seeking behavior in response to specific symptoms, especially in the elderly population.

The perceived seriousness of symptoms has been shown to be strongly related to the decision to seek professional

care by the aged (Hulka, Kupper, & Cassell, 1972; Holtzman & Akiyama, 1985; Hulka, 1985; Dean, 1986). Symptom experiences which are assessed as being severe, that is to say painful, long-lasting or disruptive of day-to-day activities; or novel, that is to say newly experienced; or attributed to disease rather than being accepted passively as a natural consequence of aging, are more likely to lead to seeking professional care (Holtzman, 1985). Hulka et al. (1972) reported that when symptom duration was long-standing (more than 3 months) and chronic, medical utilization was less likely to occur. Knowledge of which symptoms should be attended to in terms of professional advice or care, or the seeking of care once that knowledge is obtained, cannot be taken for granted.

Significant numbers of adults experience oral symptoms on any given day (Holtzman & Berkey, 1987), yet these symptoms rarely result in professional contact. It has been speculated that most oral symptoms are simply ignored or are responded to via alternate non-professional pathways of health seeking behavior (Smith & Sheiham, 1979; Holtzman & Akiyama; 1985, Holtzman, Akiyama & Maxwell, 1986,). Studies focusing on health care seeking responses to specific oral symptom experiences are rare.

The elderly are infrequent utilizers of oral health care services. Few studies can be found in the literature which examine oral symptom response in the elderly

population. Previous studies have been small and limited in scope. Therefore, little is known regarding elder responses to specific oral symptoms.

PURPOSE OF THE STUDY

This study focused on the effect of specific oral symptoms on the decision to seek oral health care by the elderly, be that the pathway of self-care or professional care within the formal health care system. It also attempted to determine whether certain characteristics of individuals determine which pathway of care is followed.

RESEARCH QUESTIONS

The research questions addressed in this investigation were:

1. What is the relationship between oral symptoms which are experienced and the specific health actions taken in response to them?
2. Is symptom response a function of individual factors such as age, gender, marital status, income, education, ethnic background, dental utilization, health status or dental status?
3. Which characteristics of oral symptoms (degree of perceived severity/seriousness, degree of interference and novelty) are most predictive of seeking care through the formal health care system?

ASSUMPTIONS OF THE STUDY

Several assumptions were implicit in this study:

1. That older individuals experience oral symptoms;
2. That the symptom list used in this investigation was extensive enough to encompass the full range of common oral symptoms experienced by the aged;
3. That older individuals can accurately recall oral symptoms which they have experienced;
4. That the response categories used in this study were sufficient to capture all possible responses to oral symptoms by the aged sample; and
5. That older individuals reported their responses to oral symptoms honestly and accurately.

LIMITATIONS OF THE STUDY

The limitations of the study were:

1. The study relies on self-reporting of oral symptoms and responses;
2. The design of this study was cross-sectional rather than longitudinal in nature. Responses were only captured at one point in time rather than at a series of points in time; and
3. The generalizability of this study is limited to a white, urban, community-dwelling, English-speaking population.

DELIMITATIONS OF THE STUDY

This study was delimited to:

1. Persons 65 years of age and over;
2. Persons who were residents of metropolitan Winnipeg;
3. Persons who were English speaking;
4. Persons who were non-institutionalized, community-dwelling;
5. Oral symptoms; and
6. Oral symptoms experienced within the 2 week period prior to the study.

Data for this descriptive study were collected from a random sample of community-dwelling elders, age 65 and over, living in metropolitan Winnipeg, via face-to-face home interviews. Sociodemographic data, oral status, dental utilization and medical status data were gathered. Symptom experience was determined utilizing a closed-ended oral symptom list. Subjects were asked to identify which symptoms they had experienced in the previous two weeks. A set of closed-ended questions was then utilized to determine oral health seeking behavior initiated in response to each reported symptom. Interviews were conducted between November, 1987 and May, 1988 and were approximately twenty minutes in length.

CHAPTER II
REVIEW OF THE LITERATURE

A response of some kind is necessary when symptoms are experienced. The literature discusses how entry into the formal health care system in response to symptoms is often preceded by self-medication or lay consultation which may encourage or delay seeking of professional care. Severity or perceived seriousness of symptoms has been found to be a variable in the decision to seek care. Studies also illustrate that responses to symptoms may differ based on age and gender. In the following discussion of the literature, studies dealing with elder's responses to symptoms and the limited body of studies specifically dealing with responses to oral symptoms are reviewed.

The first stage in illness behavior is the experience of distress, difficulty, or some other deviation from expectations (Friedson, 1970). Subsequent stages include evaluation of symptoms, lay consultation, use of home remedies or use of the formal health care system (Suchman, 1965; Alonzo, 1979; Aday, Andersen, & Fleming, 1980) or a combination with some stages occurring simultaneously or with one stage preceding another (Strain, 1987).

An individual must decide on some response to symptoms, when experienced, even if that response is to do nothing. Suchman (1965) points out that as long as the symptoms last they must be considered. The individual may decide to take no action, but unlike voting or buying, he/she cannot simply withdraw from the situation. An interpretive and evaluative process is involved at this point. The resulting decision may be to monitor the symptoms while waiting for them to go away, to decide that no problem exists, to decide that self-care in the form of home remedies and/or lay consultation is sufficient, or to seek care through the formal health care system.

SELF-CARE

Often the decision is that some form of help is needed, particularly when symptoms are severe and persistent (Mechanic, 1968). Research has indicated that self-evaluation of symptoms which results in consulting someone in the formal care system is often preceded by self-treatment of the condition (Dean, 1981, 1986; Brody, Kleban, & Moles, 1983; Levin & Idler, 1983). The self-treatment component of self-care is defined by Dean (1981) as "decisions by lay persons to diagnose and treat perceived symptoms themselves rather than to seek professional treatment services". Holtzman, Akiyama and Maxwell (1986) reported widespread practice of self-care among the aged.

Elliot-Binns (1973) reported that 95% of patients seeing a physician attempt some form of self-care first. Professional services were often pursued only when self-care procedures failed to provide the desired result or when symptoms continued or became more severe.

Dunnell and Cartwright (1972) found self-medication to be the most frequently reported response to symptoms. Studies of illness and self-medication behavior included "teeth, gums and jaw pain and problems" among typical signs and symptoms of illness which might not reach professional attention although they could potentially be an indicator of a more serious condition or chronic disease (Alonzo, 1980).

LAY CONSULTATION

The decision to consult the formal health care system is a social process which most often involves at least one person other than the sufferer. Suchman (1965) reported that three out of every four individuals had discussed their symptoms with someone before seeking medical care. Gourash (1978) suggests that individuals turn to their informal network initially, and only contact professionals as a last resort. Evans and Northwood (1979) and Schmidt (1981) confirm this among the elderly. Lay consultation may result in the suggestion to seek professional care (Strain, 1987). Freidson (1961) found that lay

consultation intervened between symptom experience and the decision to see the doctor. Individuals who had contact with no one were less likely to seek medical care quickly than when they had contact with other people (Calnan, 1983). Other research suggests that when lay networks of consultation involve contact with friends rather than relatives, medical utilization is more likely (McKinlay, 1973). Friends and neighbours are less likely to tolerate extended self-treatment and more likely to encourage professional health care (Salloway & Dillon, 1973). The decision to seek medical care is made more rapidly if made alone or with non-family others rather than with a spouse (Hackett & Cassem, 1975; Alonzo, 1986;). O'Brien and Wagner (1980) reported "delay" in seeking formal services or "ignoring" of symptoms by elderly individuals who were engaged in family networks.

DEMOGRAPHIC VARIABLES

Predisposing factors such as age, gender and marital status are addressed in the existing literature in relation to symptoms and health seeking behavior. The total delay between recognizing symptoms and obtaining professional treatment has been found to be longer for older patients than younger patients (Safer, Tharps, Jackson, & Leventhal, 1979), and older patients are more likely to use self-care as a response to common ailments (Haug, 1986).

Several studies have suggested that the elderly misattribute their symptoms to old age (Haug, 1981; Kart, 1981; Branch & Nemeth, 1985). Certain types of symptoms, especially mild, chronic ones, may be perceived as being a result of normal aging rather than being associated with specific illness. In such a case it is more likely that an individual would attempt to cope with the symptoms rather than take active steps to evaluate the symptoms and seek care. The question arises: do the elderly delay seeking health care due to difficulty in detecting symptoms amidst other commonly experienced chronic conditions or do they notice but ignore symptoms by attributing them to benign signs of aging?

It has been reported in the literature that beliefs regarding appropriate responses to symptoms often do not mirror the elders' actual responses to symptoms (Holtzman & Akiyama, 1985; Holtzman et al, 1986). Studies have documented the underreporting of the elderly's health problems to professionals. Brody (1985), focusing on symptom experiences and responses of older patients, reported that more than half of the symptoms experienced by subjects were not reported to a health professional, including some potentially serious symptoms. Approximately 20% of all symptoms resulted in no response. Some older individuals fail to report symptoms because they believe no one cares or they are reluctant to bother professionals

(Brody & Kleban, 1983). Yet other research suggests that older people take symptoms more seriously and are less likely to engage in lay consultation (Suchman, 1965; Hetherington & Hopkins, 1969). Locker and Grushka (1987) reported that the elderly are more likely to contact a medical or dental professional in response to pain.

In relation to gender differences, women are more likely to report severe symptoms, to view them as serious and to consult lay others (Suchman, 1965). Individuals who are widowed or divorced have been reported to perceive symptoms as serious more often than the rest of the population (Dean, 1986).

Strain (1987) has reported that the enabling variable of income is not effective in predicting symptom response. Similar results were reported by Levin and Idler (1983), who demonstrated that social class was of little value in explaining self-care behaviour. The latter requires immediate professional care while the former can be handled within the individual's everyday situation.

SEVERITY OF SYMPTOMS

When symptoms or an illness are not considered to be serious, professional health care is not sought. Holtzman and Akiyama (1985) reported that older adults do not regard oral symptoms to be as important as most major medical symptoms. Oral symptoms such as bleeding gums, mobile

(loose) teeth and even pain are not interpreted as serious in terms of being life-threatening. In a sociodental investigation of 300 elderly persons in Nottinghamshire, Smith and Sheiham (1979) noted that over one-third of subjects complained of oral pain. Eighty-nine percent of this group had suffered with it for over a month with the pain being severe enough to awaken subjects at night in four cases. Professional care seeking only occurred in 17% of those cases, with the remainder doing nothing or relying on home remedies. Oral health care was not included in a list of 20 health concerns generated by a representative group of elderly (Marinelli, Sreeby, & Kamen, 1982).

NOVELTY OF SYMPTOMS

Banks and Keller (1971) studied the relationship between previously experienced symptoms and the anticipated subsequent behavior in response to those same 29 symptoms. Subjects were asked to indicate their most likely response to a specific symptom from one of four courses of action. Findings suggest that persons who experienced a symptom previously reported less concern with the symptom at a subsequent experience and were less likely to seek medical attention. Controls such as age, sex and socioeconomic class were not utilized.

In summary, the stages of illness behavior are discussed extensively throughout the literature. The literature indicates that self-care is practised widely among the elderly and that professional care is often sought only as a last resort. The decision to seek professional care as opposed to self-treatment has received limited attention in the literature.

CHAPTER III
METHODS AND PROCEDURES

Data regarding the oral symptom experience and oral health care seeking behavior of 164 community-dwelling persons age 65 and over living in metropolitan Winnipeg were collected utilizing face-to-face home interviews .

An age-stratified random sample was obtained from the Manitoba Health Services Commission (MHSC) using the following criteria: (1) Individuals must be 65 years of age or older; (2) Individuals must live in a community-dwelling, non-institutionalized setting; and (3) Individuals must reside in the metropolitan Winnipeg area. The number of persons provided in the sample were proportionate to the eligible population in the age groups 65-74, 75-84, and 85+ respectively. Many previous studies have drawn from patient populations, thereby eliminating those individuals who do not seek professional health care. Seekers of medical care represent only the "tip of the iceberg" in terms of existing illness and pathology (Alonzo, 1986). Based on this rationale, the sample was randomly selected from elderly individuals living in the community rather than patient populations or residents of long-term care facilities. The sample was provided by Manitoba Health Services Commission

for a survey designed to assess the oral health status and oral treatment needs of Winnipeg's elderly.

The sample list provided by MHSC did not include telephone numbers. These numbers were obtained from the Winnipeg telephone directory. An introductory letter describing the study, its purpose and organization, was sent to all potential participants whose telephone numbers had been identified (Appendix A). As a follow-up to the letter, up to four attempts were made to contact the individual by telephone in order to request participation and arrange an interview appointment (Appendix B). If after four attempts the individual could not be reached, his or her name was withdrawn from the sample pool. The introductory letters were mailed in batches of approximately 50, so that there would not be a long delay between receiving the letter and being contacted by an interviewer. Unlisted individuals, those without telephones and individuals for whom correct working numbers could not be obtained were not contacted in this manner. Instead, a letter was mailed describing the study and its purpose and asking those individuals to contact the author (Appendix C). Sixty letters were sent in this manner and of the 16 subjects who responded, 12 agreed to be interviewed. Since the interviews were conducted in English, the individual had to be conversant in the English language as a criterion for participation in the study.

Interviews were conducted between November, 1987 and May, 1988 and were conducted primarily by the author. In addition, 44 interviews were conducted by two other interviewers who were trained by the author to conduct the personal interviews. Interviews lasted approximately twenty minutes.

The face-to-face home interview format was most appropriate for this population for a variety of reasons. Visual deficits as well as difficulties in English literacy may contribute to the consistently low response rates of mail surveys from such a sample group. The telephone interview format may present some additional difficulties for the elderly. In addition, there is a cohort effect which must be considered. This age group is not used to the invasion caused by a telephone survey. It is impersonal with no real possibility of developing any rapport. The individual does not know who is calling and is not able to verify the identity of the caller. The diverse ethnic composition of Winnipeg's elderly population makes comprehension an important consideration for this study. Lack of non-verbal feedback makes it difficult for the interviewer to assess comprehension during a telephone interview (Woodward & Chambers, 1980). Eye contact is important for communication with the elderly, and the ability to see the interviewer's face may facilitate appropriate responses to questions by those participants who suffer from auditory deficits,

commonly experienced as a result of the aging process (Hooyman & Kiyak, 1986; Warner, 1986). Background noises, distractions and interruptions may also create problems during telephone interviews. These can be avoided during face-to-face interviews. With the need for increased processing time for questions and increased response time for this population, acceptable pacing is more difficult to determine over the telephone. In terms of response rates, possible language barriers, auditory deficits and reliability of response, the face-to-face interview format seems to be best suited for this study.

The interview gathered sociodemographic data, oral status, dental utilization, and medical status data. Questions regarding sociodemographics were extracted from the Aging in Manitoba Followup Study (1983) and supplemented with standard questions used in survey research. Dental utilization questions were constructed on the basis of previously published work on use of dental services (Kiyak, 1986; Knazan, 1986; NCHS, 1987).

In order to determine symptom experience, a closed-ended interview format was used. A closed-ended method of data collection has been demonstrated to collect greater numbers of symptom episodes than open-ended methods (Holtzman, Berkey, & Johnson, 1986). A mix of closed-ended and open-ended questions were utilized in recording

responses to these symptoms. The symptom portion of the interview began with the following question:

"Have you experienced any problems with your mouth in the last two weeks?"

Beginning with an open-ended question provided the opportunity for reporting of any symptoms which were not included in the closed-ended symptom experience list. It also identified any symptoms or conditions which were not perceived as problems and possibly attributed to the aging process by virtue of their omission.

A list of 28 symptoms was adapted from the closed-ended categories used by Holtzman, Berkey and Johnson (1986). In addition, consensus was reached among the author and three "experts" in the field of geriatric dentistry regarding these symptoms and an additional 6 symptom which were commonly observed in practice or often reported by the elderly. The final, closed-ended, 34 item symptom list was utilized to collect symptom information from participants. (Appendix D)

The symptom list component of the interview schedule was divided into three sections. Each section was designed with symptoms appropriate to the oral status, that is, dental and/or prosthetic status, of each subject. The first section consisting of 13 symptoms was designed to be administered to all subjects regardless of their oral status (Appendix D, pp 86 and 87). Section II consisted of

13 additional symptoms (Appendix D, pp 88 and 89). These symptoms could only be experienced by subjects who had retained some or all of their natural dentition. Therefore, subjects who were edentulous at the time of the interview were not asked this section of questions. Section III consisted of 8 additional symptoms (Appendix D, p.90). These symptoms were specific to subjects who routinely wore removable prosthetic appliances (complete upper or lower denture, partial upper or lower denture). The symptoms in this section could only be experienced by subjects who were completely edentulous or wore removable prosthetic appliances.

The subject's oral status determined which sections were administered. At a minimum, subjects were asked all questions from Section I plus the symptoms from one of the remaining two sections. Those subjects with both natural dentition and at least one removable prosthetic appliance were asked if they had experienced all three sections of symptoms (34) within the previous two weeks.

Symptoms 24 and 33 were subsequently dropped from the analysis due to lack of positive response by any subject.

THE INTERVIEW

Subjects were asked, "Have you experienced any of the following symptoms in the last two weeks?"

Respondents who answered affirmatively to any of the

symptom categories were then asked the following additional questions:

1. How serious or severe was it? (the symptom) that is, how much did it bother you.

Perceived seriousness or severity of symptoms was rated on a 4-point scale: (1=not at all serious; 2=a little serious; 3=medium serious; 4=very serious).

2. Did it interfere with any of your daily activities (or sleep)? If so, how much?

Perceived interference was rated on the same 4-point scale as above (Appendix D). Symptoms which are socially disruptive are more likely to require attention (McKinlay, 1980).

3. What did you do? that is, the course of action taken in response to symptom:

- a) talked to someone (lay consultation - friends or family)
- b) self-care (eg. home remedy)
- c) professional care sought - Whom? eg. M.D., dentist
- d) ignore or wait (nothing)

4. Have you experienced this symptom before?

5. If yes, what did you do about it before?

That is, was entering the formal care system in response to symptom experience in the last two weeks a primary, secondary or last avenue of response? If professional care

was sought in the past, does it continue as the avenue of health seeking behavior when experienced again?

This study was based on retrospective reports of responses to actual symptoms which had been experienced. Respondent recall has been shown to be increasingly unreliable as a source of morbidity data after a two week period. Shorter than a two week recall period would provide too short a period of time to seek professional care or recall a significant number of oral symptom experiences. The combination of open and closed-ended questions and the two week recall period format was included in the study in order to maximize symptom recall.

A pilot study was conducted with an accessible sample of elderly in order to test the interview schedule. This pilot resulted in minor changes in question ordering and wording.

DATA ANALYSIS

Raw data in the form of the original interview schedules were reviewed for completeness. Ambiguities and gaps in recording were clarified through discussions with the interviewers. Once "cleaned", the original interview schedules were submitted to an assistant for key punching. Data were entered directly from the interview schedules

without the intervening step of transferring to code sheets. This minimized the potential for the introduction of clerical errors.

Using the SPSS/PC+ DATA ENTRY program (Norusis, 1987) data were entered directly into an AT&T 6300 microcomputer equipped with a hard drive and a math coprocessor. Data Entry was used to create an SPSS systems file including all data, variable and value labels. The systems file was then "cleaned" using the DATA ENTRY cleaning subroutine which searches for and identifies values which are out of range or anomalous in other ways. In this way data were entered and prepared for analysis with a high degree of certainty that they were essentially error free. Data analysis then proceeded using the SPSS/PC+ statistical package on the AT&T 6300 and a Toshiba T3200.

The original data analysis plan called for both bivariate and multivariate analyses. However, following the routine generation of a codebook and an initial set of frequency distributions using the FREQUENCIES subroutine and the generation of basis statistics using the DESCRIPTIVES subroutine it became clear that the relatively low number of positive responses to symptom variables would require a modification in the original plan. Certain variables were collapsed to allow sufficient cases for bivariate analysis.

RESEARCH QUESTION #1

What is the relationship between oral symptoms which are experienced and the specific health actions taken in response to them?

The following questions from the interview schedule (Appendix E) were utilized to answer research question #1: Questions 11i and 11iv through 11viii. Symptom list pp.86 through 90 (S1-S34).

The following statistical procedures utilizing data from the above questions were employed to answer research question #1:

- a) Frequency distribution of symptom experiences for each symptom;
- b) Frequency distribution of responses for each symptom reported;
- c) A composite variable for symptom experiences was created by summing the number of positive responses to symptom experiences for each subject. This yielded the number of symptoms experienced by each subject; and
- d) The mean number of symptom experiences, standard deviation and range were calculated based on the composite variable.

RESEARCH QUESTION #2

Is symptom response a function of individual factors such as age, sex, marital status, income, education, ethnic background, dental utilization, health status or dental status?

The following questions from the interview schedule (Appendix E) were utilized to answer research question #2:

Age and gender - p.2 Fact Sheet

Demographic questions 1 through 10,13, and 14

Symptom responses pp. 86 through 90.

The following statistical procedures utilizing data from the above questions were employed to answer research question #2:

- a) Frequency distributions for each demographic variable;
- b) Demographic variables were collapsed;
- c) Composite variables were created for each of the four response categories by summing the number of positive responses for each category;
- d) Demographic variables were crosstabulated by composite response variables for all subjects reporting one or more symptom experiences;
- e) Response categories were collapsed to Professional and other by combining non-professional response categories;

f) Demographic variables were crosstabulated by response type (professional/other); and

g) Discriminant analysis was performed with response type (Talked to someone/self-treatment/professional/ ignore) as the dependent variable and demographic variables as independent variables for each symptom where sufficient cases were available.

RESEARCH QUESTION #3

Which characteristics of oral symptoms (degree of severity, degree of interference, and novelty) are most predictive of seeking care through the formal health care system?

The following questions from the interview schedule (Appendix E) were utilized to answer research question #3:

Question 11ii, 11iii, and 11ix.

Symptom list pp. 86 through 90 - Sections on "serious", "interfere" and "experienced before" and Response Sections "Saw a professional".

The following statistical procedures utilizing data from the above mentioned questions were employed to answer research question #3:

a) Frequency distributions were generated for severity, interference and novelty (previous experience with a symptom) for each symptom;

b) Response type (professional/other) was cross-tabulated by severity, interference and novelty for each symptom; and

c) Discriminant analysis was performed with response type (professional/other) as the dependent variable and severity, interference and novelty as independent variables for each symptom.

The chi square statistic was used to test the independence of variables for all crosstabulations. The 5 percent probability level ($p=.05$) was used as the criterion for rejection of the null hypothesis. The selection of this probability level is generally accepted in exploratory studies since it minimizes the likelihood of making Type II or beta error. That is, failing to reject the null hypothesis when a relationship between variables does in fact exist. Lambda was used as a measure of association between variables measured at the nominal level in all crosstabulations.

CHAPTER IV

RESULTS

Based on the data analysis described below, the results are presented in this chapter. Frequency distributions of variables documented in the demographic section of the interview schedule will be presented in tabular form and discussed. The remainder of the findings will be organized according to the three previously stated research questions.

Data analysis began with the generating of frequency distributions for all variables. Later, crosstabulations were performed in order to test relationships between the variables. In some instances the decision was made to collapse variables in order to provide sufficient cell counts for statistical analysis (Table 1). The following variables were collapsed: Ethnic groups were collapsed into three categories (Canadian/American/British, Eastern European and Other); Education was collapsed into two categories (Less than high school and High School +); Marital status was collapsed into two categories (Single (which included divorced and separated) and Married/Common-law); Number of people living with you was collapsed into two categories (none and 1 or more); Number of chronic

Table 1

ORIGINAL AND COLLAPSED VARIABLE CODES

| QUESTION | ORIGINAL CODES | RECODES |
|---|---|---|
| ETHNIC GROUP | <ol style="list-style-type: none"> 1. Canadian 2. British/English 3. U.S.A. 4. French 5. German 6. Norwegian/Danish Swedish/Icelandic 7. Dutch/Belgian 8. Polish 9. Russian/Ukranian 10. Other European/Middle East 11. Asia Oceanic 12. Native Indian or Eskimo 13. Other 14. Jewish | <ol style="list-style-type: none"> 1. Canadian/American British 2. Eastern European 3. Other |
| EDUCATION | <ol style="list-style-type: none"> 1. No School 2. Elementary 3. Junior High 4. High School 5. Post Secondary 6. Post Graduate 7. Trade School | <ol style="list-style-type: none"> 1. Less than High School 2. High School + |
| MARITAL STATUS | <ol style="list-style-type: none"> 1. Single 2. Married/Common-Law 3. Divorced/Separated 4. Widowed | <ol style="list-style-type: none"> 1. Single 2. Married/Common- law |
| NUMBER OF PEOPLE LIVING WITH YOU | (Number Recorded) | <ol style="list-style-type: none"> 1. None 2. One or more |
| NUMBER OF CHRONIC HEALTH PROBLEMS | (Number Recorded) | <ol style="list-style-type: none"> 1. None or one 2. More than one |
| NUMBER OF PHYSICIAN VISITS IN LAST 3 MONTHS | (Number Recorded) | <ol style="list-style-type: none"> 1. None 2. One or more |

Table 1 con't

| | | |
|---|---|---|
| IMPORTANCE OF ORAL HEALTH TO TOTAL HEALTH | <ol style="list-style-type: none"> 1. Not important at all 2. Very little importance 3. Some importance 4. Very important | <ol style="list-style-type: none"> 1. Not important/very little importance 2. Some/very important |
| HOW MUCH DO YOU THINK ABOUT THE HEALTH OF YOUR MOUTH? | <ol style="list-style-type: none"> 1. Very little or never 2. Some of the time 3. Very much | <ol style="list-style-type: none"> 1. Not important/very little importance 2. Some/very important |
| RATING HEALTH OF MOUTH | <ol style="list-style-type: none"> 1. Excellent 2. Good 3. Fair 4. Poor | <ol style="list-style-type: none"> 1. Excellent/good 2. Fair/poor |
| LAST DENTAL VISIT | <ol style="list-style-type: none"> 1. Within the last month 2. Within the last 6 months 3. 6 months to a year 4. 1-5 years 5. 6-10 years 6. More than 10 years 7. Never | <ol style="list-style-type: none"> 1. Less than 1 year 2. One year + |
| LENGTH OF TIME WEARING DENTURES | <ol style="list-style-type: none"> 1. Less than 1 year 2. Up to 5 years 3. 5-10 years 4. More than 10 years | <ol style="list-style-type: none"> 1. Less than 5 years 2. 5 years plus |
| INCOME | <ol style="list-style-type: none"> 1. No income 2. Less than \$5,000 3. \$5,000-6,999 4. \$7,000-9,999 5. \$10,000-14,999 6. \$15,000-19,999 7. \$20,000-24,999 8. \$25,000-29,999 9. \$30,000-39,999 10. \$40,000+ | <ol style="list-style-type: none"> 1. Less than \$10,000 2. \$10,000+ |

health problems was collapsed into two categories (None or one and More than 1); Number of times a doctor was seen in the last 3 months was collapsed into two categories (None and One +); Importance of oral health to total body health and "How much do you think about the health of your mouth?" were both collapsed into two categories (Not important/very little importance and some/very important); Rating of the health of the mouth was collapsed into two categories (Excellent/good and fair/poor); The timing of the last dental visit was collapsed into two categories (Less than 1 year and 1 year +); Length of time wearing dentures was collapsed into two categories (Less than 5 years and 5 years +); and Average yearly income was collapsed into two categories (Less than \$10,000. and \$10,000 +).

Bivariate analysis proceeded through the use of the SPSS/PC+ CROSSTABS procedure to test relationships between categorical variables and collapsed continuous variables which were treated as categorical variables. Chi-square based statistics were used to identify relationships between variables with $p < .05$ required to reject the null hypothesis. Fisher's exact test was used in 2x2 tables where valid cases equaled 20 or less. Where expected cell sizes were less than 5, Yates correction for continuity was

calculated. Lambda was used as a measure of association between categorical variables.

Where a sufficient number of cases allowed, discriminant analysis was performed to identify the demographic variables which might predict specific response to oral symptoms experienced. Demographic variables were subdivided into 5 groups: demographics, attitudes, health status, dental status, and utilization. The demographic variables found within each subgroup were as follows:

Demographics - age, gender, ethnicity, marital status, number of people living with subject, education and income.

Attitudes - thinking about health (question #8), importance of oral health to total body health (question #9), thinking about oral health (question #10i), and rating health of mouth (question #10ii). (See Appendix E)

Health Status - total health problems (question #5), physician visits (question #6), and health description (question #7). (See Appendix E)

Dental Status - natural teeth (question #10ix), partial dentures (question #10x), and complete dentures (question #10xi). (See Appendix E)

Utilization - having a dentist (question #10iii), regular dental visits (question #10iv), and last dental visit (question #10vi). (See Appendix E)

Discriminant analysis was possible only for symptoms which were reported by 15 or more subjects. Only 4 symptoms met this criterion (S2 - pain, irritation or burning of gums; S5 - difficulty biting or chewing; S12 - biting lips, tongue, or cheek; and S14 - food trapped or stuck between teeth).

The random sample provided by MHSC consisted of 450 community-dwelling elders, age 65 and over, living in metropolitan Winnipeg. Those who were not interviewed either were not interested and refused, were deceased, were not functioning at a cognitive level necessary to participate in an interview, were ill or hospitalized, were away from the city, were unable to be interviewed in English, or were unable to be contacted in four attempts. Of 390 introductory letters mailed, 152 interviews were conducted, yielding a participation rate of 39%. An additional 12 subjects were obtained as a result of the 60 letters sent to those who were not listed in the telephone directory. A total of 164 subjects participated in the study.

DEMOGRAPHICS

Males comprised 38.3% of the final sample and females 61.7%. Data on gender were not recorded for two subjects (Table 2). Age range was 65 to 93, with a mean age of 72.

Age categories were 65-74 (61.6%); 75-84 (27.4%); and 85 and over (11%) (Table 3). Sixty percent of the sample responded affirmatively when asked if they considered themselves a member of an ethnic group. Data on ethnic group was, therefore, not available for 65 subjects who claimed no ethnic identification. Reported ethnic groups included Canadian (42.4%); German/Mennonite (12.1%); Ukranian/Russian (12.1%); Polish (7.1%); British (7.1%); Jewish (6.1%); Dutch/Belgian (4.0%); Norwegian/Danish/Swedish (2.0%); Asian (1.0%); American (1.0%); French (1.0%) (Table 4). Educational levels ranged from no formal education to post-graduate training. Seventy subjects (42.7%) had completed less than high school (Table 5). Fifty-six percent were married and living with their spouse while fifty subjects (30.5%) were widowed (Table 6). Thirty-seven percent of subjects lived alone while 63% lived with at least one other person (Table 7). At least one chronic health problem was reported by 86.6% of the sample (Table 8). Only 13.4% of subjects reported having difficulty getting to the dentist if necessary, a factor which might effect seeking professional oral health care.

Table 2

GENDER OF SUBJECTS

| | <u>NUMBER</u> | <u>PERCENT</u> |
|--------|------------------------|----------------|
| MALE | 62 | 38.3 |
| FEMALE | 100 | 61.7 |
| TOTAL | <u>162^a</u> | <u>100.0</u> |

^aData on gender was not available for two subjects

Table 3

AGE OF SUBJECTS

| | <u>NUMBER</u> | <u>PERCENT</u> |
|-------|---------------|----------------|
| 65-74 | 101 | 61.6 |
| 75-84 | 45 | 27.4 |
| 85+ | 18 | 11.0 |
| TOTAL | <u>164</u> | <u>100.0</u> |

Table 4

ETHNIC GROUPS

| | <u>NUMBER</u> | <u>PERCENT</u> |
|---------------------------------------|-----------------------|----------------|
| CANADIAN | 42 | 42.4 |
| BRITISH/ENGLISH | 7 | 7.1 |
| AMERICAN | 1 | 1.0 |
| FRENCH | 1 | 1.0 |
| GERMAN/MENONITE | 12 | 12.1 |
| NORWEGIAN/DANISH SWEDISH/ICELANDIC | 2 | 2.0 |
| DUTCH/BELGIAN | 4 | 4.0 |
| POLISH | 7 | 7.1 |
| RUSSIAN/UKRANIAN | 12 | 12.1 |
| OTHER EUROPEAN/ MIDDLE EAST | 3 | 3.0 |
| ASIA OCEANIC | 1 | 1.0 |
| JEWISH | 6 | 6.1 |
| OTHER | 1 | 1.0 |
| TOTAL | <u>99^a</u> | <u>100.0</u> |

^aData on ethnic group not available for 65 subjects

Table 5

EDUCATIONAL LEVEL OF SUBJECTS

| | <u>NUMBER</u> | <u>PERCENT</u> |
|----------------|---------------|----------------|
| NO SCHOOL | 1 | .6 |
| ELEMENTARY | 25 | 15.2 |
| JUNIOR HIGH | 44 | 26.8 |
| HIGH SCHOOL | 64 | 39.0 |
| POST SECONDARY | 19 | 11.6 |
| POST GRADUATE | 6 | 3.7 |
| TRADE SCHOOL | 3 | 1.8 |
| MISSING | 2 | 1.2 |
| TOTAL | <u>164</u> | <u>100.0</u> |

Table 6

MARITAL STATUS

| | <u>NUMBER</u> | <u>PERCENT</u> |
|--------------------|---------------|----------------|
| SINGLE | 15 | 9.1 |
| MARRIED/COMMON-LAW | 92 | 56.1 |
| DIVORCED/SEPARATED | 7 | 4.3 |
| WIDOWED | 50 | 30.5 |
| TOTAL | <u>164</u> | <u>100.0</u> |

Table 7

NUMBER OF PEOPLE LIVING WITH SUBJECT

| | <u>NUMBER</u> | <u>PERCENT</u> |
|-------|---------------|----------------|
| 0 | 61 | 37.2 |
| 1 | 87 | 53.0 |
| 2 | 12 | 7.3 |
| 3 | 3 | 1.8 |
| 4 | 1 | .6 |
| TOTAL | <u>164</u> | <u>100.0</u> |

Table 8

NUMBER OF CHRONIC HEALTH PROBLEMS

| | <u>NUMBER</u> | <u>PERCENT</u> |
|-------|---------------|----------------|
| 0 | 22 | 13.4 |
| 1 | 45 | 27.4 |
| 2 | 40 | 24.4 |
| 3 | 28 | 17.1 |
| 4 | 13 | 7.9 |
| 5 | 11 | 6.7 |
| 6 | 2 | 1.2 |
| 7 | 2 | 1.2 |
| 8 | 1 | .6 |
| TOTAL | <u>164</u> | <u>100.0</u> |

More than half the sample (56.7%) had seen a doctor in the last 3 months (Table 9), while only 26.8% had sought dental care in the last 6 months with some of those visits having been made to a dental mechanic rather than a dentist (Table 10). Only 29% of those seniors interviewed reported seeing a dentist regularly. Of those, the majority (87.9%) reported seeing a dentist twice a year. Over half (53.7%) of the participants had some or all of their natural teeth remaining (Table 11). Reports of average annual household income by the 87.2% of the sample who responded to the question were primarily less than \$20,000 (Table 12). Income data were not reported by 21 subjects.

Table 9

MEDICAL CONSULTATIONS WITHIN LAST 3 MONTHS

| | <u>NUMBER</u> | <u>PERCENT</u> |
|--------------------|---------------|----------------|
| NO CONSULTATIONS | 71 | 43.3 |
| 1-3 CONSULTATIONS | 79 | 48.2 |
| 4-6 CONSULTATIONS | 10 | 6.1 |
| 7-12 CONSULTATIONS | 4 | 2.4 |
| TOTAL | <u>164</u> | <u>100.0</u> |

Table 10

| | <u>NUMBER</u> | <u>PERCENT</u> |
|--------------------------|---------------|----------------|
| WITHIN THE LAST MONTH | 19 | 11.6 |
| WITHIN THE LAST 6 MONTHS | 25 | 15.2 |
| 6 MONTHS TO 1 YEAR | 14 | 8.5 |
| 1-5 YEARS | 52 | 31.7 |
| 6-10 YEARS | 15 | 9.1 |
| MORE THAN 10 YEARS | 39 | 23.8 |
| TOTAL | <u>164</u> | <u>100.0</u> |

Table 11

| | <u>YES</u> | <u>NO</u> | <u>TOTAL</u> |
|-------------------|----------------|----------------|---------------|
| NATURAL DENTITION | 88 (53.7%) | 76 (46.3%) | 164 (100%) |
| PARTIAL DENTURES | 44 (26.4%) | 120 (73.6%) | 164 (100%) |
| COMPLETE DENTURES | 106 (64.4%) | 58 (35.6%) | 164 (100%) |

Table 12

| AVERAGE YEARLY INCOME | | |
|-----------------------|------------------------|----------------|
| <u>INCOME</u> | <u>FREQUENCY</u> | <u>PERCENT</u> |
| NO INCOME | 1 | .6 |
| \$5,000 - 6,999 | 11 | 6.7 |
| \$7,000 - 9,999 | 32 | 19.5 |
| \$10,000 - 14,999 | 31 | 18.9 |
| \$15,000 - 19,999 | 28 | 17.1 |
| \$20,000 - 24,999 | 14 | 8.5 |
| \$25,000 - 29,999 | 12 | 7.3 |
| \$30,000 - 39,999 | 4 | 2.4 |
| \$40,000 + | 10 | 6.1 |
| TOTAL | <u>143^a</u> | <u>100.0</u> |

^aData on income not reported by 21 subjects.

RESEARCH QUESTION #1: What is the relationship between oral symptoms which are experienced and the specific health actions taken in response to them?

Only 13.4% of all subjects responded positively to an open-ended question regarding whether they had experienced any problems "in their mouths" in the preceding 2 weeks. However, 83% of subjects when presented with the closed-ended symptom questionnaire reported experiencing one or more symptoms in the same 2 week period. Within the two week reporting period, 164 people reported a total of

426 symptoms, with a mean of 2.6 symptoms per person. Of the 136 persons (82.9%) reporting some symptom experience, 26.5% experienced one symptom, 26.5% experienced two symptoms, 11% experienced three symptoms, 11.8% experienced four symptoms, 11.8% experienced five symptoms, 4.4% experienced six symptoms, 2.2% experienced seven symptoms, 1.5% experienced eight symptoms, 2.9% experienced nine symptoms and 1.5% experienced ten symptoms.

The five most frequently reported symptoms were: Food stuck under a denture (39.6%); Food trapped or stuck between teeth (31.7%); Dry mouth (28.7%); Denture that slips, rocks, drops (27.4%); and Difficulty biting or chewing (18.3%).

Table 13 lists all symptoms with their reported frequencies. (Seriousness and interference scores included in this table will be discussed in reference to a subsequent research question).

The data indicated that older adults seldom seek professional care in response to oral symptoms. Only 16 subjects (9.8%) saw a dentist in response to oral symptoms experienced in the preceding 2 weeks. Coincidentally, professional care was sought in response to 16 of the 32 symptoms listed. Symptoms for which professional care were sought are listed in Table 14.

Table 13

SYMPTOM FREQUENCIES, SERIOUSNESS,
AND INTERFERENCE SCORES

| | SYMPTOMS | FREQ | SERIOUSNESS | | INTERFERENCE | |
|-----|--|------|-------------|------|--------------|------|
| | | | MEAN | SD | MEAN | SD |
| 1. | Pain, irritation, burning tongue | 10 | 2.10 | .99 | 1.50 | .85 |
| 2. | Pain, irritation, burning gums | 17 | 2.47 | .87 | 2.00 | 1.22 |
| 3. | Pain, irritation, burning lips | 11 | 2.18 | .98 | 1.00 | .00 |
| 4. | Pain, irritation, burning roof of mouth | 3 | 2.67 | 1.15 | 2.00 | 1.73 |
| 5. | Difficulty biting or chewing | 30 | 2.67 | 1.09 | 2.43 | 1.19 |
| 6. | Bleeding gums | 4 | 1.50 | .58 | 1.00 | .00 |
| 7. | Jaw joint pain | 9 | 2.00 | 1.12 | 1.56 | 1.01 |
| 8. | Bad breath | 13 | 2.31 | 1.03 | 1.00 | .00 |
| 9. | Dry mouth | 47 | 2.28 | 1.00 | 1.41 | .76 |
| 10. | General mouth discomfort | 6 | 2.33 | 1.03 | 2.17 | 1.33 |
| 11. | Bad taste in mouth | 14 | 1.92 | .86 | 1.07 | .27 |
| 12. | Biting lips, tongue, or cheek | 16 | 2.00 | .82 | 1.31 | .60 |
| 13. | Cold sore on lip | 8 | 1.63 | .52 | 1.00 | .00 |
| 14. | Food trapped or stuck between teeth | 52 | 1.54 | .87 | 1.06 | .31 |
| 15. | Toothache | 4 | 2.75 | .96 | 2.00 | 1.41 |
| 16. | Broken tooth | 4 | 1.75 | .96 | 1.50 | 1.00 |
| 17. | Loose tooth | 5 | 3.20 | .84 | 2.20 | 1.64 |
| 18. | Rough or sharp area on tooth | 10 | 1.90 | 1.20 | 1.00 | .00 |
| 19. | Broken or lost filling | 7 | 1.57 | .98 | 1.00 | .00 |
| 20. | Sensitivity to hot or cold | 6 | 1.67 | .52 | 1.00 | .00 |
| 21. | Sensitivity to sweets | 2 | 3.50 | .71 | 2.00 | 1.41 |
| 22. | Sensitivity to chewing | 3 | 2.33 | .58 | 1.33 | .58 |
| 23. | Sensitivity to brushing | 3 | 2.00 | .00 | 1.00 | .00 |
| 24. | Lost tooth (not removed by dentist) | 0 | N.A. | N.A. | N.A. | N.A. |
| 25. | Cavity found on own | 3 | 1.33 | .58 | 1.00 | .00 |
| 26. | Problem keeping mouth clean | 1 | 1.00 | .00 | 1.00 | .00 |
| 27. | Sore, irritation from denture | 15 | 2.50 | .89 | 1.86 | 1.17 |
| 28. | Slipping, rocking, dropping denture | 45 | 2.31 | 1.16 | 1.67 | 1.13 |

Table 13 con't

| | | | | | | |
|-----|------------------------------|----|------|------|------|------|
| 29. | Food stuck under denture | 65 | 1.66 | .83 | 1.24 | .69 |
| 30. | Broken tooth on denture | 5 | 1.20 | .45 | 1.20 | .45 |
| 31. | Rough, sharp area on denture | 7 | 1.71 | 1.11 | .00 | .00 |
| 32. | Lost tooth on denture | 3 | 2.00 | 1.73 | 1.00 | .00 |
| 33. | Difficulty cleaning dentures | 0 | N.A. | N.A. | N.A. | N.A. |
| 34. | Galvanic reaction | 1 | 2.00 | .00 | 1.00 | .00 |

Few subjects sought care even for symptoms for which one might expect professional care to be the most rational response. For example, in response to Toothache (S15), only 25% of subjects sought professional care. Seventy-five percent of subjects responded to these symptoms by either self-treating or waiting or ignoring rather than seeking professional care. However, it should be noted that numbers were small for this symptom experience (n=4). Similarly for Broken Tooth (S16), experienced by four subjects, all chose to do nothing. For Pain, irritation or burning of the tongue (S1) and Sensitivity to sweets (S21), Sensitivity to chewing (S22), and Sensitivity to brushing (S23), no professional care was sought. In response to Loose tooth (S17), as many subjects did nothing (40%) as sought professional care. In one instance, Broken or lost filling (S19), 71.4% of episodes resulted in seeking professional care.

Table 14

SYMPTOMS RESULTING IN SEEKING OF PROFESSIONAL CARE

| <u>SYMPTOM NUMBER</u> | <u>SYMPTOM</u> | <u>FREQ</u> |
|---------------------------|---|-------------|
| 2 | PAIN, IRRITATION OR BURNING OF THE GUMS | 2 |
| 3 | PAIN, IRRITATION OR BURNING OF THE LIPS | 1 |
| 4 | PAIN, IRRITATION OR BURNING OF THE ROOF OF THE MOUTH | 2 |
| 5 | DIFFICULTY BITING OR CHEWING | 5 |
| 7 | JAW JOINT PAIN | 1 |
| 9 | DRY MOUTH | 1 |
| 10 | GENERAL MOUTH DISCOMFORT | 1 |
| 14 | FOOD TRAPPED OR STUCK BETWEEN TEETH | 1 |
| 15 | TOOTHACHE | 1 |
| 17 | LOOSE TOOTH | 2 |
| 18 | ROUGH OR SHARP AREA ON TOOTH | 2 |
| 19 | BROKEN OR LOST FILLING | 5 |
| 25 | CAVITY FOUND ON OWN | 1 |
| 27 | SORE OR IRRITATION FROM DENTURE | 2 |
| 28 | SLIPPING, ROCKING, DROPPING DENTURE | 3 |
| 31 | ROUGH OR SHARP AREA ON DENTUR | 1 |

A much more common response to symptom experiences was self-treatment. One hundred and seventeen subjects (71.3%) responded to one or more symptoms with self-treatment. Self-treatment consisted of responses such as using salt-water rinses, oral hygiene care such as brushing or flossing, use of toothpicks, or simply removing irritating dentures and leaving them out of the mouth until needed for talking or eating. Self-treatment was the treatment of choice in response to many common symptoms such as Bad breath (S8), 84.6%; Cold sore (S13), 62.5%; Food trapped between the teeth (S14), 94.2%; Food stuck under a denture (S29), 95.3%; and Bad taste in the mouth (S11), (57.1%). Surprisingly, several symptoms which involved pain and discomfort and, therefore, for which one would expect the seeking of professional care, resulted in self-treatment in the majority of cases. Pain, irritation, or burning of the tongue (50%), gums (58%), lips (45.5%) (S1-S3); Dry mouth (S9), 62.2%; General mouth discomfort (S10), 50%; and Sore or irritation from a denture (S27), 53.3% are all examples of conditions which were self treated. The only symptom for which the dominant response was seeking professional care (66.7%) was pain, irritation or burning of the roof of the mouth (S4). However, subjects reported this symptom in only three cases.

A substantial number of subjects reported ignoring or waiting for symptoms to subside. Eighty-five (51.8%) subjects chose to wait or ignore one or more symptoms.

Many of the oral symptoms which resulted in the ignoring or waiting response were "mechanical problems" which sometimes cause discomfort and which can only be corrected by a dental professional. For instance, rough or sharp area on a tooth (S10) was ignored by 80% while only 20% sought professional care; Cavity found on own (S25) was ignored by 66.7%, while only 33.3% sought professional care. Slipping, rocking or dropping denture (S28) was ignored by 71.1% with an additional 22.2% self-treating. Broken tooth on denture (S30) was ignored by 100% of all subjects reporting it. Rough or sharp area on denture (S31) was ignored by 71.4%, and Lost tooth on denture (S32) was ignored by 66.7%.

Although "talking to someone" in response to symptoms has been reported in the literature as an important "first-line" response to medical symptoms, this avenue of response was reported in very few cases involving oral symptoms. Only nine people (5.5%) talked to someone other than a professional in response to one or more oral symptoms. This type of action was selected in response to a total of 10 symptoms. For only three symptoms was talking reported by more than one subject. Talking was reported by two subjects in response to Pain, irritation or burning of the lips (S3), three subjects in response to Difficulty biting or chewing (S5), and two subjects in response to Biting of your lips, tongue, cheek (S12). Given the

extremely infrequent reported use of this response, "talked to someone" was dropped as a response category for most of the subsequent analyses.

Table 15 reports the health actions taken in response to oral symptom experience.

RESEARCH QUESTION #2: Is symptom response a function of individual factors such as age, gender, marital status, income, education, ethnic background, dental utilization, health status, or dental status?

The anticipated relationships between demographic variables such as gender, age, education level, income, ethnicity and seeking professional care in response to oral symptoms were not found. This is probably attributable to the relatively small number and mild intensity of symptoms reported. Using Chi-square, a significant relationship between the time since the last dental visit and seeking professional care in response to a sore or irritation from a denture (S27), $p=.02$ was observed. That is to say, if a subject had utilized dental services within the previous year, they tended to seek professional care in response to experiencing this symptom.

The existence of relationships between one avenue of symptom response and sociodemographic and psychosocial variables were explored (Table 16). Small numbers of reported symptoms made sophisticated multivariate analysis

Table 15

HEALTH ACTION RESPONSES BY SYMPTOM

| <u>SYMPTOM</u> | <u>TALK</u> | <u>SELF</u> | <u>PRO</u> | <u>IGNORE</u> | <u>TOTAL</u> |
|--|-------------|-------------|------------|---------------|--------------|
| 1. Pain, irritation, burning tongue | 1 | 5 | 0 | 4 | 10 |
| 2. Pain, irritation, burning gums | 0 | 10 | 2 | 5 | 17 |
| 3. Pain, irritation, burning lips | 2 | 5 | 1 | 3 | 11 |
| 4. Pain, irritation, burning roof of mouth | 0 | 1 | 2 | 0 | 3 |
| 5. Difficulty biting or chewing | 3 | 7 | 5 | 15 | 30 |
| 6. Bleeding gums | 0 | 1 | 3 | 0 | 4 |
| 7. Jaw joint pain | 0 | 0 | 1 | 8 | 9 |
| 8. Bad breath | 0 | 11 | 0 | 2 | 13 |
| 9. Dry mouth | 1 | 30 | 1 | 14 | 46 |
| 10. General mouth discomfort | 1 | 3 | 1 | 1 | 6 |
| 11. Bad taste in mouth | 0 | 8 | 0 | 6 | 14 |
| 12. Biting lips, tongue, cheek | 2 | 2 | 0 | 11 | 15 |
| 13. Cold sore on lip | 0 | 5 | 0 | 3 | 8 |
| 14. Food trapped/stuck between teeth | 0 | 49 | 1 | 2 | 52 |
| 15. Toothache | 0 | 1 | 1 | 2 | 4 |
| 16. Broken tooth | 0 | 0 | 0 | 4 | 4 |
| 17. Loose tooth | 1 | 0 | 2 | 2 | 5 |
| 18. Rough/sharp area on tooth | 0 | 0 | 2 | 8 | 10 |
| 19. Broken or lost filling | 0 | 0 | 5 | 2 | 7 |
| 20. Sensitivity to hot or cold | 1 | 0 | 0 | 5 | 6 |
| 21. Sensitivity to sweets | 0 | 2 | 0 | 0 | 2 |
| 22. Sensitivity to chewing | 0 | 1 | 0 | 2 | 3 |
| 23. Sensitivity to brushing | 1 | 1 | 0 | 1 | 3 |
| 24. Lost tooth (not removed by dentist) | 0 | 0 | 0 | 0 | 0 |
| 25. Cavity found on own | 0 | 0 | 1 | 2 | 3 |
| 26. Problem keeping mouth clean | 0 | 1 | 0 | 0 | 1 |
| 27. Sore/irritation from denture | 1 | 8 | 2 | 4 | 15 |
| 28. Slipping, rocking, dropping denture | 0 | 10 | 3 | 32 | 45 |
| 29. Food stuck under denture | 0 | 61 | 0 | 3 | 64 |
| 30. Broken tooth on denture | 0 | 0 | 0 | 5 | 5 |
| 31. Rough/sharp area on denture | 0 | 1 | 1 | 5 | 7 |
| 32. Lost tooth on denture | 0 | 1 | 0 | 2 | 3 |
| 33. Difficulty cleaning dentures | 0 | 0 | 0 | 0 | 0 |
| 34. Galvanic reaction | 0 | 0 | 0 | 1 | 1 |
| TOTALS | 14 | 224 | 34 | 154 | 426 |

impossible. However, crosstabulations yielded some interesting findings. There were no relationships between the demographic variables of age, gender, ethnic group, marital status, health status, medical utilization, perceived importance of oral health or being edentulous, and the avenue of symptom response: talking to someone, self-treatment, professional care and ignore or wait. An association approaching significance was demonstrated between how one rates one's mouth and whether one talks to someone else, in response to oral symptoms. Those who rated the health of their mouths as excellent or good were less likely to talk to someone, while those who rated the health of their mouths as fair or poor were more likely to talk to someone about their symptoms. There was a significant relationship between this same variable and the ignore/wait symptom response ($p=.009$). Those persons who rated the health of their mouths as excellent or good were less likely to ignore oral symptoms. As might be expected, there was an association approaching significance between ability to access dental care and talking. Those who had difficulty getting to a dentist if they had to due to problems of mobility, visual acuity or fear of being on their own, were more likely to talk to someone in response to oral symptoms. There were no significant relationships between this variable and any of the other three symptom responses. A strong association which approached

significance was found between having natural dentition and ignore/wait response to symptoms. Older adults with some or all of their natural teeth were less likely to ignore oral symptoms and more likely to follow one of the other avenues of symptom response. Perhaps this is explained by the fact that most older adults who have managed to retain their natural dentition into old age want to continue to do so.

A significant relationship was found between level of education and ignore/wait as a response to oral symptoms ($p=.02$). Those older adults with less than high school level were more likely to ignore oral symptoms. No other symptom response avenues were demonstrated to have any relationship with educational level.

Those with income levels less than \$10,000 annually were much more likely to talk to someone in response to oral symptoms. This relationship was significant at the .01 level. No other avenue of symptom response was found to be related to annual income levels.

Most of the sample practiced self-care in response to some oral symptoms. However individuals were more likely to practice self-care if they had some or all of their natural teeth ($p=.01$).

As might be expected, those who reported having a dentist were more likely to seek professional care than those who did not ($p=.003$). Knowing where to go to access

dental treatment is a factor in seeking professional care in response to oral symptoms.

A significant relationship was found between time since last dental visit and seeking professional care in response to oral symptoms. One was much more likely to seek professional care if one had seen a dentist within the last year ($p < .001$). Similarly one was less likely to ignore or wait in response to symptoms having seen a dentist within the past year. This association approached statistical significance.

Significant relationships were consistently found between the dental utilization variables of regular dental visits and seeing a dentist at least once a year and all avenues of oral symptom response. No one who saw a dentist regularly talked in response to oral symptoms and similarly all those who talked in response to symptoms did not see a dentist regularly ($p = .04$). If one visited a dentist at least once a year, one would be more likely to follow the self-treatment avenue of symptom response than those who did not see a dentist that often ($p = .005$). Those who saw a dentist regularly were more likely to seek professional care in response to symptoms ($p = .009$). Quite similarly, if one saw a dentist regularly and at least once a year, one was less likely to ignore oral symptoms ($p = .01$). A positive orientation to oral health as illustrated by

recent and regular dental visits was found to be significantly related to all avenues of symptom response.

Discriminant analysis proved to be of limited utility in predicting type of response to specific symptoms due to the small number of symptom reports available for analysis. Wearing of complete dentures proved to be a useful dental status variable in predicting type of response for only two symptoms, S2 (Pain, irritation or burning of the gums) and S5 (Difficulty biting or chewing). Attitude variables such as thinking about health, importance of oral health to total body health, and rating health of mouth also proved to be useful in predicting type of response to symptoms S2 and S12 (Biting of your lips, tongue or cheek). Utilization variables which proved to be useful in predicting type of response were regular dental visits and last dental visit for symptoms S2 and S5. Demographic variables were inconsistent in predicting symptom response.

RESEARCH QUESTION #3: Which characteristics of oral symptoms (degree of perceived severity/seriousness, degree of interference, and novelty) are most predictive of seeking care through the formal health care system?

Subjects tended to rate their symptoms as not at all or a little serious. In other words, the majority of symptoms

TABLE 16
 RELATIONSHIPS BETWEEN SYMPTOM RESPONSE
 AND DEMOGRAPHIC VARIABLES

| <u>DEMOGRAPHIC VARIABLES</u> | <u>TALKED</u> | <u>SELF</u> <u>TREATMENT</u> | <u>PROFES-</u> <u>SIONAL</u> | <u>IGNORE</u> |
|----------------------------------|---------------|---------------------------------|---------------------------------|---------------|
| GENDER | N.S. | N.S. | N.S. | N.S. |
| AGE | N.S. | N.S. | N.S. | N.S. |
| ETHNIC GROUP | N.S. | N.S. | N.S. | N.S. |
| EDUCATION | N.S. | N.S. | N.S. | .02 |
| MARITAL STATUS | N.S. | N.S. | N.S. | N.S. |
| INCOME | .01 | N.S. | N.S. | N.S. |
| HEALTH STATUS | N.S. | N.S. | N.S. | N.S. |
| MEDICAL UTILIZATION | N.S. | N.S. | N.S. | N.S. |
| THINK ABOUT ORAL HEALTH | N.S. | N.S. | N.S. | N.S. |
| IMPORTANCE OF ORAL | N.S. | N.S. | N.S. | N.S. |
| HEALTH TO TOTAL HEALTH | | | | |
| RATING HEALTH OF MOUTH | Trend | N.S. | N.S. | .009 |
| HAVE A DENTIST | N.S. | N.S. | .003 | N.S. |
| SEE DENTIST REGULARLY | .04 | .05 | .009 | .01 |
| SEE DENTIST ONCE/YEAR | .05 | .005 | .03 | .01 |
| LAST DENTAL VISIT | N.S. | N.S. | .000 | .006 |
| DIFFICULTY GETTING TO DENTIST | Trend | N.S. | N.S. | N.S. |
| DENTAL STATUS | | | | |
| NATURAL DENTITION | N.S. | .01 | N.S. | Trend |
| COMPLETE DENTURES | N.S. | N.S. | N.S. | N.S. |
| TIME WEARING DENTURES | N.S. | N.S. | N.S. | N.S. |

Note. N.S. indicates not significant. Values indicate significance levels. Trend indicates associations approaching significance.

which were experienced were not considered serious by the subjects. The mean serious scores per symptom ranged from 1.0 to 3.5, with 1 being the lowest score and 4 being the highest. However, those symptoms whose mean serious scores were highest were only reported as having been experienced by fewer than five subjects. If one examines the symptoms most frequently reported, the mean serious scores are at the lower end of the scale.

How much each symptom interfered with daily activities or sleep when experienced, was rated on the same 4-point scale as seriousness. The degree of interference with normal activities may be another measure of perceived symptom importance. The majority of symptoms reported did not interfere with activities very much. Interference presented itself similarly to seriousness when examined. Mean interference scores ranged from 1.0 to 2.4, with the higher means reflecting symptoms which were often experienced by five or fewer subjects.

Table 13 presents the means and standard deviations of symptom seriousness and interference.

Ability to evaluate relationships between "seriousness", "interference", and "novelty" and the use of professional care was hampered by the low reported symptom frequencies and limited variation in degree of seriousness

and interference attributed to most symptoms. However, certain relationships did emerge. Lambda, a proportional reduction of error based statistic was used, where sufficient reported cases existed, to evaluate the association between degree of interference and individual symptoms with response as the dependent variable. The following findings were noted.

For symptom S2 (Pain, irritation or burning of the gums), a 50% reduction in error in predicting use of professional services was achieved based on knowledge of the level of interference. A high level of interference was associated with use of professional services. Similar findings were observed in regard to symptom S7 (Pain in a jaw joint) ($\text{Lambda}=1.0$) and S17 (A loose tooth) ($\text{Lambda}=.5$). However, in this last case low interference was associated with use of professional services. Although limited by the data problems noted above, these findings are somewhat suggestive regarding an association between selection of professional care as a symptom response and degree of interference.

A similar approach was applied to the crosstabulation of reported seriousness with response type for each symptom. Again, the problems of low reported frequencies and limited variation in reported degree of seriousness hampered these efforts. In only two instances did examination of Lamdas show an association between reported seriousness and response type. For S7 (Pain in a jaw joint)

again, a high degree of seriousness was predictive of choice of professional care ($\Lambda=1.0$). However, in regard to S17(a loose tooth), a medium degree of seriousness was associated with professional care, while little or no seriousness and very high seriousness were associated with other responses ($\Lambda=1.0$). Again, while these findings are suggestive, they must be interpreted with extreme caution given the limitations in data as previously noted.

The effect that the novelty of a symptom might have on the seeking of professional care and entering the formal health care system was explored. In other words, did previous experience with a symptom influence response to subsequent episodes of the symptoms? Thirty-three persons (22%) sought professional care for symptoms experienced in the past. However, when subsequently experiencing these symptoms in the previous two weeks to the interview, only 16 (9.8%) sought professional care. Symptom by symptom comparisons were used to analyze the relationship between previous symptom experience and subsequent use of professional care in response to a recurrence of the same symptoms. Inspection of individual symptom tables suggests that previous use of professional care resulted in less frequent use of professional care in response to subsequent episodes of the same symptom. Unfortunately, cell frequencies were too low to yield statistically significant differences.

For S19 (A broken or lost filling), an association between previous experience and use of professional services was observed ($\lambda=.5$). However, the relationship was not in the same direction as with other symptoms. Previous experience was most often associated with use of professional response.

Finally, an attempt was made to use discriminant analysis as a multivariate approach to predict choice of professional services on the basis of severity, degree of interference and previous symptom experience. Unfortunately, this attempt was frustrated by low symptom reporting frequencies. However, for the one symptom where sufficient data existed (S5-Difficulty biting or chewing), seriousness was predictive of choice of professional care as opposed to non-professional responses. Eighty percent of subjects choosing professional care were accurately classified for this symptom using this one variable.

CHAPTER V
DISCUSSION

This study utilized face-to face home interviews on an age-stratified random sample of community-dwelling individuals age 65 and over, living in metropolitan Winnipeg. Specific oral symptoms which were experienced within the two weeks prior to each interview were identified and the response in terms of oral health seeking behavior was determined. Characteristic responses to symptoms were studied. Typical modes of responses included discussing the symptoms with someone else, self-treatment, seeking professional care, or doing nothing about the symptoms by ignoring them and waiting for them to abate.

This study reports low utilization of professional dental services by older adults in response to oral symptoms. As a rule, subjects did not perceive their oral symptoms as serious, as illustrated by the mean severity score. They also did not perceive their oral symptoms as interfering with their daily activities to any great degree. Demographic variables were generally not shown to be related to symptom response; utilization variables were.

Previous studies have demonstrated that a closed-ended approach to data collection generates a greater number of symptom reports than an open-ended approach. This study incorporated both a preliminary open-ended question which allowed for the reporting of any symptoms which were experienced but not included in the closed-ended symptom list, as well as a closed-ended format which perhaps served as a cue to recall of oral symptom experiences within the last two weeks. The results of this study indicated that the open-ended query of oral health problems experienced in the last two weeks was responded to negatively by the majority of participants (87%). The lack of response to the open-ended question is consistent with Brody (1985) and her colleagues who found underreporting of even potentially serious symptoms. However, when specific symptoms were queried, 83% reported experiencing at least one symptom in the same two week period with a mean of 2.6 symptoms per person. The reporting or lack of reporting of symptoms by individuals depends on how one asks about the symptoms.

One should note that problems of recall may be greater for short duration discomfort, with more serious, painful and debilitating episodes being more memorable. As a result, recalled symptoms in this study which were minor or transient were probably underestimated. Therefore, there

are probably more oral symptoms being experienced among the elderly than captured by cross-sectional strategies.

Experiencing symptoms does not necessarily lead to seeking professional care. The response to symptoms such as Bad breath (S8) or Bad taste in the mouth (S11) which could be an indication of serious underlying systemic illness was responded to by self-treatment in the majority of reported episodes. "Something wrong" is cited as one of the two primary reasons for visiting a dentist for both dentate and edentulous individuals. One would expect that symptoms resulting in pain or discomfort would be more likely to lead to the seeking of professional care. Surprisingly, several such symptoms commonly resulted in self-treatment rather than the expected professional care. Not only were dentists not sought out but also in many cases where dental mechanics could have effectively treated the symptom, they were not consulted. Similarly, oral symptoms which result from hypofunctional or nonfunctional salivary glands lead to "dry mouth" which is unpleasant and painful and may affect vital functions such as speech, taste, chewing and swallowing. However, although "dry mouth" was experienced by 28.7% of subjects, 96% of subjects responded by self-treating or ignoring rather than seeking professional care. Only 9.8% of subjects sought professional care.

Why does oral symptom experience not result in the seeking of professional care? Alonzo (1979) distinguishes between everyday and life-threatening illness, the former to be coped with and the latter leading to seeking of professional care. Perhaps this distinction provides an explanation for the underutilization of professional oral health care services by the elderly. Holtzman and Akiyama (1985) suggest that when symptoms are minor, commonplace or of insidious onset they go unreported. As with physical illness, many dental symptoms are ongoing or recurring. Perhaps the elderly ignore such everyday symptoms by attributing them to benign signs of aging rather than signs of illness. They may have difficulty distinguishing these symptoms from the many symptoms associated with chronic health problems which so often accompany the aging process. This line of thought would support the determinant of health seeking behavior which Mechanic (1968) refers to as "competing possible interpretations that can be assigned to symptoms once they are recognized" and "the frequency of the appearance of the deviant signs or symptoms, their persistence, or their frequency of recurrence."

Mechanic (1968) also refers to the extent to which the symptoms are perceived as serious as being a determinant of health seeking behavior. That is to say, people are more likely to seek treatment when they perceive their symptoms

as being serious. Alternately, Hickey (1988) found that some older adults reported hesitation in reporting medical symptoms which they felt might be indicative of serious illness unless there was significant pain. As mentioned earlier, most subjects in this study did not as a rule perceive their oral symptoms as serious and did not seek professional care. This finding seems to be consistent with Mechanic's speculation.

A possible explanation for the low seriousness scores reported by subjects may be methodological limitations stemming from the symptom list component of the interview schedule. As a rule, seriousness/severity scores were low for the majority of symptoms. Since oral symptoms are often minor, recurring, attributed to the aging process and not life-threatening, perhaps such symptoms would never be interpreted as serious, unless accompanied by severe pain.

The method of treating symptoms must also be perceived as being effective in order for professional care to be sought. If an older adult feels that his/her recurrent symptoms likely will not be remedied by treatment, he/she may choose not to see a dentist. Similarly, if a professional was seen in regard to a previously experienced oral symptom and no relief or solution was provided, it would seem likely that professional care would not be sought when that symptom was experienced again.

The low numbers seeking professional care in response to oral symptoms might be related to the low number of symptom experiences reported. Perhaps this phenomenon might be explained by methodological factors. It has been shown that a two week recall is the most effective reporting period for this population. However, perhaps a series of two week symptom recall interviews over a longer period of time would have prevented the low frequencies of many of the oral symptoms. That is, a longer period for symptom data collection would provide more time for symptoms to occur and be reported by each individual. In addition, symptom logs have proven to be effective for reporting of oral symptom experiences. In this study, because the design was cross-sectional in nature, we cannot be certain that the oral symptom experiences and responses were characteristic of this sample.

In some instances the symptom experience being discussed during the interview may have resulted in some confusion in the data. Where the interview schedule refers to the experiencing of dry mouth, was the symptom interpreted equally by all subjects? That is to say, some answers seemed to refer to the dry mouth experienced as a result of dryness in the home which is treated effectively with a drink of water and some to the dry mouth experienced as a result of medication and systemic illness. Similarly, when experiencing of bad breath was responded to

positively, was this the bad breath which indicates possible systemic illness or the bad breath which accompanies certain dietary choices? Just as interviewers should clarify such questions in future studies, clinicians must present the questions clearly and clarify patients' answers when taking patient histories.

One of the more recent in the series of reports stemming from the Canada Health Promotion Survey (1985) is the Active Seniors Report (1987). This report states that most Canadian seniors perceive themselves to be healthy. The majority rate their health as excellent or very good, as do most Canadians. Despite the fact that many suffer from chronic illness and physical limitations, they are reported to be coping quite well. Perhaps Alonzo's (1979) differentiation between life threatening and everyday illness, the first leading to seeking professional care and the latter to be coped with, is another explanation for the lack of professional care sought by the elderly. Not seeking professional care is a function of the coping skills of the elderly. The characteristics of oral symptoms and disease in the absence of pain are such that they are coped with rather than brought to the attention of the professional.

Finally, it has been frequently suggested that in the senior years, impaired vision and hearing and decreased mobility may make it impossible for an older person to visit a dental office. Perhaps such impairments might

explain the small number of older adults who sought professional care in response to oral symptoms. However, in this study, 86% reported no difficulty in getting to the dentist.

What variables did seem to have an effect on seeking professional care as a response to oral symptom experience? Having a regular dentist and seeing a dentist regularly were associated with seeking professional care. This finding supports previous studies which report that persons with more recent dental utilization are more likely to have had another visit within the previous twelve months. A positive experience within the dental system may provide enough motivation for the individual to continue to see the dentist (Gift, 1984).

The elderly have been reported to be the lowest utilizers of dental services of any age group. Wolinsky (1989) suggests that these conclusions have been somewhat misleading and rather than being related to aging, the low utilization rates are due to a cohort effect. He believes that succeeding cohorts of aged will reflect the higher utilization patterns of middle aged and younger cohorts. The accuracy of this hypothesis is supported by the fact that dental utilization among the elderly has increased in the last 10 years and reflect the patterns exhibited by the current older cohort during their middle years. This trend along with Wolinsky's suggested cohort effect will result in increased dental utilization without any intervention.

The role of health promotion should be to encourage the appropriate use of dental services. Misperceptions about aging and oral health result from insufficient information. Strategies are required to change people's inaccurate beliefs regarding the effects of aging and the relationship of aging to the oral cavity. Information about what oral symptoms to expect as a result of medication regimens or the aging process itself and which oral symptoms may be indicative of serious illness is necessary also. The elderly must be informed about the potential for relief of their common everyday oral symptoms by professional dental care. Older adults should then be able to identify what symptoms are appropriate to bring to the attention of the dental professional and which are appropriate for self-treatment or a "wait and see" approach.

At the same time, we should identify which symptoms are usually ignored or self-treated inappropriately by the elderly. This could be achieved by further study using symptom logs and the documentation of oral symptom experiences by a random sample of elderly. These symptoms could then be targeted for health promotion programs. In addition, clinicians should be made knowledgeable about what questions to pose to their older patients regarding symptom experiences. This study has shown that majority of everyday oral symptoms experienced by the elderly go

unreported to health care professionals. As previously discussed, several of these unreported symptoms might be indications of either more serious situations or systemic disease and should be questioned further or clarified.

The incidence of oral cancer is highest among the elderly, with one-third of diagnosed oral cancer cases resulting in death. Since, early detection is the key for a positive prognosis in these cases, regular dental examinations for this population group is recommended. Many of the persons most susceptible to oral cancers are elderly denture wearers who generally perceive little need for dental check-ups. Health promotion could be a vehicle for education which will provide the knowledge of what is appropriate to bring to the dental office rather than ignoring or self-treating. Programs which teach self-examination for oral cancer as well as community-based screening programs are crucial to the health of this high-risk population.

Education would be possible in the offices of dental professionals, but more people could be reached at a lower cost if it is provided in other settings such as those where older persons gather. Research also indicates that older persons watch more television than other age groups and read newspapers regularly. Oral health promotion presented through these media would build on the life-style of the older adult.

Hickey (1988) reports that many older patients are very private about their health. He suggests that this is motivated by the fear of loss of autonomy and control over their personal health decisions. Older adults want to be in charge of their own treatment. This concern for autonomy and independence may provide an explanation for the low utilization of dental services by the older population. Jake Epp's (former Minister of Health) document, "Achieving Health for All" (1986) states that Canadians are seeking opportunities to take responsibility for their own health.

Oral health promotion, through teaching oral hygiene skills and self-examination for oral cancer provides a major implementation strategy of the Epp document. Such interventions contribute to enabling all elderly individuals to take control over and improve their own oral health. Developing personal skills and reorienting of health services through changes in professional education and training are major actions outlined in the Ottawa Charter (1986). These are all addressed in the oral health strategies previously discussed.

Canada's Health Promotion Survey (HPS) was undertaken by the Health Promotion Directorate of Health and Welfare Canada in 1985. The survey was designed to explore the health knowledge, attitudes, beliefs and behaviours of adult Canadians. The Active Health Report(1987) summarizes and interprets this survey. The HPS and subsequently the

Active Health Report did not explore the oral health knowledge, beliefs or behaviour of adult Canadians. Breast self-examination and PAP tests were included as one of the categories for health protection and improvement, but oral cancer self-examination or screenings were not. Coordinating healthy public policy is one of three implementation strategies for health promotion outlined in the Epp document. It states "We must bear in mind that health is not necessarily a priority for other sectors". Unfortunately, it seems that oral health is not even a priority for Health and Welfare Canada policy makers. Perhaps oral health promotion is necessary not only for the elderly, the dental profession, and other health professionals, but also for policy makers. Oral health must be recognized as a major component of physical health by policy makers, who can then target oral health promotion as a priority area. Otherwise, the elderly can not be expected to attach appropriate significance to achieving optimum oral health.

REFERENCES

- Aday, L., Andersen, R., & Fleming, G. V. (Eds.). (1980). Health care in the United States. Beverly Hills, CA.: Sage Publications.
- Alonzo, A. A. Everyday illness behavior: A situational approach to health status deviation. *Social Science and Medicine*, 1979, 13(a), 397-404.
- Alonzo, A. A. Acute illness behavior: A conceptual exploration and specification. *Social Science and Medicine*, 1980, 14(A), 515-26.
- Alonzo, A. A. The impact of the family and lay others on care-seeking during life-threatening episodes of suspected coronary artery disease. *Social Science and Medicine*, 1986, 22(12), 1297-1311.
- Andersen, R. & Newman, J. F. Societal and individual determinants of medical care utilization in the United States. *Milbank Memorial Fund Quarterly* 1973, 51(1), 95-124.
- Anderson, W. F. Organization of health care services for the elderly. *J Am Geriatr Soc* 1986, 34(3), 240-4.
- Banks, F., & Keller, M. Symptom experience and health action. *Medical Care*, 1971, 9, 498-502.
- Beck, J., Cons, N., Field, H., & Walker, J. The Iowa survey of oral health: 1980. University of Iowa College of Dentistry and Iowa Dental Association, Iowa City, 1982.
- Beck, J. D. The epidemiology of dental diseases in the elderly. *Gerodontology* 1984, 3, 5-16.
- Brodeur, J., Simard, P., Kandelman, D., & Lepage, Y. Conclusions from a study on the oral health of Quebecers aged 65 and over. *J Canad Dent Assn* 1985, 11, 817-19.
- Brody, E. M. (1985). Mental and Physical Health Practices of Older People. New York: Springer Publishing Co. Inc.
- Brody, E. M., Kleban, M. H. Day-to-day mental and physical health symptoms of older people: a report on health logs. *The Gerontologist* 1983, 23(1), 75-85.

- Brody, E. M., Kleban, M. H., & Moles, E. What older people do about their day-to-day mental and physical health symptoms. J of the Am Geriatrics Society 1983, 31(8), 489-98.
- Calnan, M. Social networks and patterns of help-seeking behaviour. Social Science and Medicine 1983, 17, 25-8.
- Chappell, N. L. & Blandford, A. A. Health service utilization by elderly persons. Canadian J of Sociology 1987, 12(3), 195-215.
- Chappell, N. L., Strain, L. A. & Blandford, A. A. (1986). Aging and health care: A social perspective. Toronto: Holt, Rinehart and Winston.
- Dean, K. Self-care responses to illness: A selected review. Social Science and Medicine, 1981, 15(A), 673-87.
- Dean, K. Lay care in illness. Social Science and Medicine, 1986, 22(2), 275-84.
- Dunnell, K., & Cartwright, A. (1972). Medicine takers, prescribers and hoarders. London: Routledge and Kegan Paul.
- Elliot-Binns, C. P. An analysis of lay medicine. J of the Royal College of General Practice, 1973, 23, 255-64.
- Evans, R. L., Northwood, L. K. The utility of natural help relationships. Social Science and Medicine, 1979, 13A, 789-95.
- Evashwick, C., Conrad D., & Lee, F. Factors related to utilization of dental services by the elderly. American J of Public Health, 1982, 72(10), 1129-35.
- Freidson, E. (1961). Patient's views of medical practice. New York: Russell Sage.
- Gourash, N. Help-seeking: A review of the literature. American J of Community Psychology, 1978, 6, 413-23.
- Government of Canada, Department of Health and Welfare (1983). Fact book of aging in Canada.
- Government of Canada, Department of Health and Welfare (1986). Achieving health for all: A framework for health promotion.

Government of Canada, Department of Health and Welfare (1987). The active health report - Perspectives on Canada's health promotion survey 1985.

Government of Canada, Department of Health and Welfare (1988). Canada's health promotion survey: Technical report.

Hackett, T. P., & Cassem, N. H. The psychologic reactions of patients in the pre-and post-hospital phases of acute myocardial infarction. Postgraduate Medicine, 1975, 57, 43-6.

Haug, M. Age and medical care utilization patterns. J Gerontol, 1981, 36, 103-11.

Haug, M. (1986). Doctor-patient relationships and their impact on elderly self-care. In K. Dean, T. Hickey and B. E. Holstein (Eds.) Self-care and Health in Old Age (pp 130-66). Dover, NH: Croom Helm.

Hickey, T. Changing health perceptions of older patients and their implications for dentistry. Gerodontics, 1988, 4, 212-216.

Holtzman, J. M., & Akiyama, H. Symptoms and the decision to seek professional care. Gerodontics, 1985, 1, 44-9.

Holtzman, J. M., Akiyama, H., & Maxwell, A. J. Symptoms and self-care in old age. J of Applied Gerontology, 1986, 5(2), 183-200.

Holtzman, J. M., Berkey, D. B., & Johnson, D. A. Variability in oral symptom self-reporting by the aged. Paper presented at the Annual Scientific Session of the American Association for Dental Research, Washington D.C., March 1986.

Holtzman, J. M., & Berkey, D. B. Methodological alternatives for the collection of oral health symptoms in the aged. Gerodontics, 1987, 3, 128-30.

Holtzman, J. M., Berkey, D. B., & Miyoshi, T. J. Common oral symptoms: Age and sex distributions. Poster presented at the Annual Meeting of the International Association for Dental Research, Chicago, Illinois, March 1987.

Hooyman, N., & Kiyak, H. A. (1986). Age-related sensory changes and their consequences. In Social gerontology: A multidisciplinary perspective. New York: Random House.

Hulka, B. S., Kupper, L. L., & Cassell, J. C. Determinants of physician utilization: Approach to a service-oriented classification of symptoms. Med Care, 1972, 10, 300-309.

Hulka, B. S., & Wheat, J. R. Patterns of utilization: The Patient Perspective. *Med Care*, 1985, 23(5), 438-60.

Kandelman, D., Brodeur, J. M., Simard, P., & Lepage, Y. Dental needs of the elderly: A comparison between some European and North American surveys. *Community Dental Health*, 1986, 3(1), 19-39.

Kart, C. (1981). Experiencing symptoms: Attribution and misattribution of illness among the aged. In M. R. Haug (Ed.), Elderly patients and their doctors. New York: Springer Publishing Co. Inc.

Kiyak, H. A. Utilization of dental services by the elderly. *Gerodontology*, 1984, 3, 17-26.

Kiyak, H. A & Miller, R. R. Age differences in oral health behavior and beliefs. *J of Public Health Dentistry*, 1982, 42, 404-16.

Kiyak, H. A., Crinean, J., & Stockinger, S. Older persons' use of dental services compared to other health services. Paper presented at meeting of the Gerontological Society of America, New Orleans, La. November 1985.

Knazan, Y. L. Application of PRECEDE to dental health promotion for a Canadian well-elderly population. *Gerodontology*, 1986, 2, 180-5.

Levin, L. S., & Idler, E. L. Self-care in health. *Annual Review of Public Health*, 1983, 4, 181-201.

Locker, M., & Grushka, L. The impact of dental and facial pain. *J of Dental Research*, 1987, 66(9), 1414-17.

Manitoba Department of Health (1989) Aging in Manitoba: Needs and resources 1983. In press.

Marinelli, R. D., Sreeby, L. M., & Kamen, S. Perception of dental needs by the well elderly. *Spec Care Dent*, 1982, 2(4), 161-4.

McKinlay, J. B. Social networks, lay consultations and help-seeking behavior. *Social Forces*, 1973, 51, 275-92.

McKinlay, J. B. (1980) Social network influences on morbid episodes and the career of help seeking. In L. Eisenberg and A. Kleinman (Eds.), The relevance of social science for medicine (pp 77-107). Dordrecht, The Netherlands: D Reidel Publishing Co.

Mechanic, D. (1968). Medical sociology. New York: The Free Press.

National Center for Health Statistics (1987). Use of dental services and dental health, 1986 data from the National Health Survey. Series 10, No. 165.

O'Brien, J. E., & Wagner, D. L. Help seeking by the frail elderly: Problems in network analysis. *The Gerontologist*, 1980, 20, 78-83.

Ottawa Charter For Health Promotion: An International Conference on Health Promotion. November 17-21, 1986; Ottawa, Ontario, Canada.

Portnoy, R., & Yellowitz, J. Senior citizens need teeth too. Paper presented at the Annual Meeting of the Gerontological Society, San Francisco, November 1977.

Roos, N. P., & Shapiro, E. The Manitoba longitudinal study on aging: Preliminary findings on health care utilization by the elderly. *Med Care*, 1981: 19: 644-57.

Safer, M. A., Tharps, Q. J., Jackson, T. C., & Leventhal, H. Determinants of three stages of delay in seeking care at a medical clinic. *Med Care*, 1979, 17(1), 11-29.

Salloway, J. C., & Dillon, P. B. A comparison of family networks and friend networks in health care utilization. *J of Comparative Family Studies*, 1973, 4(1), 131-42.

Schmidt, M. G. Personal networks: Assessment, care, and repair. *J of Gerontological Social Work*, 1981, 3(4), 65-76.

Simard, P., Brodeur, J., Kandelman, D., & Lepage, Y. Oral health status and needs of the elderly in Quebec. *J Canad Dent Assoc*, 1985, 1, 43-6.

Smith, J. M., & Sheiham, A. How dental conditions handicap the elderly. *Community Dent and Oral Epidemiol*, 1979, 7, 305-10.

Strain, L. A. Stages in help-seeking: From symptom awareness to resolution. Paper presented at the Inter-Congress meeting of the Research Committee on Aging: Health and Health Care in an Aging World, International Sociological Assoc. Winnipeg, Manitoba, Aug. 1987.

Suchman, E. Stages of illness and medical care. *J of Health and Human Behavior*, 1965, 6, 114-28.

Wan, T. T. H. Functionally disabled elderly: Health status, social support, and use of health services. Research on Aging, 1987, 9(1), 61-78.

Warner, R. W. Improving communication with the older patient: Overcoming the physical barrier of a hearing loss. Special Care in Dentistry, 1986, Jan-Feb, 15-17.

Wolinsky, F. D., Coe, R. M., Miller, D. K., Prendergast, J. M., Creel, M. S., & Noel, M. N. Health services utilization among the non-institutionalized elderly. J of Health and Social Behavior, 1983, 24(4), 325-37.

Woodward, C. A., & Chambers, L. W. Guide to questionnaire construction and question writing. The Canadian Public Health Association, 1980.

Zborowski, M. Cultural components in response to pain. J Soc Issues, 1952, 8, 16-30.

Zola, I. K. Culture and symptoms: An analysis of patients' presenting complaints. American Sociological Review, 1966, 31, 615-30.

APPENDIX A

INTRODUCTORY LETTER



THE UNIVERSITY OF MANITOBA

FACULTY OF DENTISTRY

780 Bannatyne Avenue
Winnipeg, Manitoba
Canada R3E 0W3

July 23, 1987

Dear

The University of Manitoba, Faculty of Dentistry with the cooperation of the Manitoba Dental Association and Manitoba Dental Hygienists' Association is conducting a survey of Winnipeg residents age 65 and over to find out how much dental disease they have and how much dental care is needed by them. Your name has been randomly chosen to participate in this survey.

Before proceeding, we would like to explain the two segments of the survey:

1. An interviewer will contact you by telephone to confirm your participation, and will try to arrange a convenient time to meet with you in order to record some basic information about yourself and any dental problems you feel you have. After this meeting, an examination of your mouth at a dental office close to your home will be arranged.
2. The survey examination will be performed by a licensed Manitoba dentist and dental hygienist using a mouth mirror, a dental explorer, and a dental probe. There should be no discomfort from this examination. No x-rays will be taken.

Taking part in the dental screening examination is voluntary, there is no cost and you may withdraw at any time. No treatment will be given and this examination is not intended to take the place of your regular dental check-ups or treatment by your dentist. However, the examiner will give each person a note saying whether immediate dental care is needed.

The information gathered in this survey will be strictly confidential and used for statistical purposes only. The information will help determine the dental health status of Winnipeg's residents who are age 65 and over as well as to measure the effects of future dental programs and services in improving this group's dental health. For these reasons, it is important that everyone chosen for this survey take part in it.

Any questions you may have will be answered by the Director of the Survey, Yvonne Knazan, Assistant Professor, Faculty of Dentistry, University of Manitoba at 788-6706. Thank you very much for your anticipated cooperation.

Sincerely,

Yvonne Knazan,
Survey Director
University of Manitoba

Dr. A. Schwartz, Dean
Faculty of Dentistry
University of Manitoba

Dr. Ken Skinner,
President
Manitoba Dental Association

APPENDIX B

TELEPHONE CONTACT

TELEPHONE CONTACT:

HELLO (MR./MRS./MS.) _____ . MY NAME IS
 _____ . I AM FROM THE FACULTY OF DENTISTRY AT
 THE UNIVERSITY OF MANITOBA AND WE ARE CONDUCTING A STUDY BY TALKING TO
 PEOPLE OF YOUR AGE ABOUT YOUR DENTAL HEALTH, ANY PROBLEMS YOU'VE
 EXPERIENCED IN YOUR MOUTH, AND WHAT YOU'VE DONE ABOUT THEM. YOU WERE
 SENT A LETTER ABOUT THIS STUDY A FEW WEEKS AGO. DID YOU RECEIVE IT?
 IF YES CONTINUE: IF NO: COULD I EXPLAIN THE STUDY TO YOU AND CONTINUE:
 YOU ARE ONE OF ABOUT 400 PEOPLE WHOSE NAME WAS SELECTED BY CHANCE FROM
 ACROSS THE CITY OF WINNIPEG. I WANT TO ASSURE YOU THAT EVERYTHING WILL
 BE KEPT CONFIDENTIAL AND YOUR NAME WILL NOT BE USED ANYWHERE. I WOULD
 PREFER TO MEET WITH YOU IN YOUR HOME TO MAKE IT EASIER FOR YOU.
 HOWEVER, IF YOU WOULD PREFER TO MEET AT ANOTHER CONVENIENT PLACE THAT
 YOU CAN GET TO ON YOUR OWN, I WOULD BE HAPPY TO MEET YOU THERE. THE
 INTERVIEW WILL ONLY TAKE ABOUT 30 MINUTES. WE WOULD REALLY APPRECIATE
 YOUR HELP IN THIS STUDY. COULD I MAKE AN APPOINTMENT TO MEET WITH YOU?
 IF NO, TRY TO FIND OUT WHY NOT AND RECORD. IF YOU WOULD LIKE
 CONFIRMATION OF THIS STUDY YOU MAY PHONE THE FACULTY OF EDUCATION,
 UNIVERSITY OF MANITOBA AT 474-9063.

IF YES, MAKE APPOINTMENT WITHIN ONE WEEK - CONFIRM DATE, TIME, PLACE. .

THANK YOU VERY MUCH (MRS./MR./MS.) _____ .

I'LL SEE YOU THEN ON DATE .

APPENDIX C

INTRODUCTORY LETTER FOR INDIVIDUALS
WITHOUT LISTED TELEPHONE NUMBERS



THE UNIVERSITY OF MANITOBA

FACULTY OF DENTISTRY

780 Bannatyne Avenue
Winnipeg, Manitoba
Canada R4E 0W3

November 6, 1987

Dear

The University of Manitoba, Faculty of Dentistry with the cooperation of the Manitoba Dental Association and Manitoba Dental Hygienists' Association is conducting a survey of Winnipeg residents age 65 and over to find out how much dental disease they have and how much dental care is needed by them. Your name has been randomly chosen to participate in this survey.

Before proceeding, we would like to explain the two segments of the survey:

1. An interview in your home will be arranged at your convenience in order to record some basic information about yourself and any dental problems you may have. After this meeting, an examination of your mouth at a dental office close to your home will be arranged.
2. The survey examination will be performed by a licensed Manitoba dentist and dental hygienist using a mouth mirror, a dental explorer, and a dental probe. There should be no discomfort from this examination. No x-rays will be taken.

Taking part in the dental screening examination is voluntary, there is no cost and you may withdraw at any time. No treatment will be given and this examination is not intended to take the place of your regular dental check-ups or treatment by your dentist. However, the examiner will give each person a note saying whether immediate dental care is needed.

The information gathered in this survey will be strictly confidential and used for statistical purposes only. The information will help determine the dental health status of Winnipeg's residents who are age 65 and over as well as to measure the effects of future dental programs and service in improving this group's dental health. For these reasons, it is important that everyone chosen for this survey take part in it.

Since we cannot reach you by telephone to arrange an interview, please contact the Director of the Survey, Yvonne Knazan, Assistant Professor, Faculty of Dentistry, University of Manitoba at 788-6706. Any questions you may have about the study can be answered at that time.

Thank you very much for your anticipated cooperation.

Sincerely,

~~Yvonne Knazan~~
Yvonne Knazan,
Survey Director
University of Manitoba

~~Dr. A. Schwartz~~
Dr. A. Schwartz, Dean
Faculty of Dentistry
University of Manitoba

~~Dr. Ken Skinner~~
Dr. Ken Skinner,
President
Manitoba Dental Association

APPENDIX D

CLOSED-ENDED SYMPTOM LIST

ASK THESE QUESTIONS OF ALL SUBJECTS

In the past 2 weeks have you experienced:

| SYMPTOM | NO | YES | IF YES, ASK: HOW SERIOUS WAS IT? | IF YES, ASK: HOW MUCH DID IT INTERFERE WITH SLEEP OR ACTIVITY | IF YES, ASK: WHAT DID YOU DO | | | IF YES, ASK: WHAT DID YOU DO ABOUT IT BEFORE? 1 - 4 |
|--|----|-----|--|---|--|--|--|--|
| | | | | | IF YES, ASK: HAVE YOU EXPERIENCED THIS BEFORE 1-YES 2-NO | IF YES, ASK: TALKED TO SOMEONE WHO? 1) | IF YES, ASK: SELF TREAT- MENT (EG. HOME REMEDY DESCRIBE) 2) | |
| 1. Pain, Irritation or burning of the tongue | | | | | 1) | 2) | 3) | 4) |
| 2. Pain, irritation or burning of the gums | | | | | | | | |
| 3. Pain, irritation or burning of the lips | | | | | | | | |
| 4. Pain, irritation for burning of the roof of the mouth | | | | | | | | |
| 5. Difficulty biting or chewing | | | | | | | | |
| 6. Bleeding gums | | | | | | | | |

NUMBER AND RECORD ALL COMMENTS AND DESCRIPTIONS ON BACK

- SERIOUSNESS AND INTERFERENCE CODE 1 NOT AT ALL
2 A LITTLE
3 MEDIUM
4 VERY

ASK THESE QUESTIONS OF ALL SUBJECTS

In the past 2 weeks have you experienced:

| SYMPTOM | NO | YES | IF YES, ASK: HOW SERIOUS WAS IT? | IF YES, ASK: HOW MUCH DID IT INTERFERE WITH SLEEP OR ACTIVITY | IF YES, ASK: WHAT DID YOU DO | | | IF YES, ASK: WHAT DID YOU DO ABOUT IT BEFORE? 1 - 4 | | | |
|---|----|-----|--|---|------------------------------|----|----|--|--|----|-------------------|
| | | | | | TALKED TO SOMEONE WHO? | 1) | 2) | | SELF TREAT- MENT (EG. HOME REMEDY DESCRIBE) | 3) | IGNORE OR WAIT |
| 7. Pain in a jaw joint | | | | | | 1) | 2) | 3) | 4) | | |
| 8. Bad breath | | | | | | | | | | | |
| 9. Dry mouth | | | | | | | | | | | |
| 10. General mouth discomfort | | | | | | | | | | | |
| 11. A bad taste in your mouth | | | | | | | | | | | |
| 12. Biting of your lips, tongue, or cheek | | | | | | | | | | | |
| 13. A cold sore on your lip | | | | | | | | | | | |

NUMBER AND RECORD ALL COMMENTS AND DESCRIPTIONS ON BACK

- 1 NOT AT ALL
- 2 A LITTLE
- 3 MEDIUM
- 4 VERY

ASK THESE QUESTIONS ONLY OF SUBJECTS WITH NATURAL TEETH

In the past 2 weeks have you experienced:

| SYMPTOM | NO | YES | IF YES, ASK: HOW SERIOUS WAS IT? | IF YES, ASK: HOW MUCH DID IT INTERFERE WITH SLEEP OR ACTIVITY | IF YES, ASK: WHAT DID YOU DO | | | IF YES, ASK: HAVE YOU EXPERIENCED THIS BEFORE 1-YES 2-NO | IF YES, ASK: WHAT DID YOU DO ABOUT IT BEFORE? 1 - 4 |
|---|----|-----|--|---|------------------------------|-------------------------------|-------------------|--|--|
| | | | | | TALKED TO SOMEONE WHO? | SAW A PROFESSIONAL WHO? | IGNORE OR WAIT | | |
| 14. Food trapped or stuck between teeth | | | | | 1) | 2) | 3) | 4) | |
| 15. A toothache | | | | | | | | | |
| 16. A broken tooth | | | | | | | | | |
| 17. A loose tooth | | | | | | | | | |
| 18. Rough or sharp area on a tooth | | | | | | | | | |
| 19. A broken or lost filling | | | | | | | | | |
| 20. A tooth sensitive to heat or cold | | | | | | | | | |
| 21. A tooth sensitive to sweets | | | | | | | | | |
| 22. A tooth sensitive to chewing | | | | | | | | | |

NUMBER AND RECORD ALL COMMENTS AND DESCRIPTIONS ON BACK
 SERIOUSNESS AND INTERFERENCE CODE 1 NOT AT ALL
 2 A LITTLE
 3 MEDIUM
 4 VERY

ASK THESE QUESTIONS ONLY OF SUBJECTS WITH NATURAL TEETH

In the past 2 weeks have you experienced:

| SYMPTOM | NO | YES | IF YES, ASK: HOW SERIOUS WAS IT? | IF YES, ASK: HOW MUCH DID IT INTERFERE WITH SLEEP OR ACTIVITY | IF YES, ASK: WHAT DID YOU DO | | | | IF YES, ASK: WHAT DID YOU DO ABOUT IT BEFORE? 1 - 4 |
|---|----|-----|--|---|--|---|---|-----------------------------------|--|
| | | | | | IF YES, ASK: TALKED TO SOMEONE WHO? | IF YES, ASK: SELF TREAT- MENT (E.G. HOME REMEDY DESCRIBE) | IF YES, ASK: SAW A PROFESSIONAL WHO? | IF YES, ASK: IGNORE OR WAIT | |
| 23. A tooth sensitive to brushing | | | | | 1) | 2) | 3) | 4) | |
| 24. A lost tooth (not removed by a dentist) | | | | | | | | | |
| 25. A cavity that you found on your own | | | | | | | | | |
| 26. Problems keeping your mouth clean | | | | | | | | | |

NUMBER AND RECORD ALL COMMENTS AND DESCRIPTIONS ON BACK
 SERIOUSNESS AND INTERFERENCE CODE 1 NOT AT ALL
 2 A LITTLE
 3 MEDIUM
 4 VERY

ASK THESE QUESTIONS ONLY OF SUBJECTS WHO WEAR DENTURES

In the past 2 weeks have you experienced:

| SYMPTOM | NO | YES | IF YES, ASK: HOW SERIOUS WAS IT? | IF YES, ASK: HOW MUCH DID IT INTERFERE WITH SLEEP OR ACTIVITY | IF YES, ASK: WHAT DID YOU DO | | | IF YES, ASK: WHAT DID YOU DO ABOUT IT BEFORE? 1 - 4 |
|--|----|-----|--|---|--|--|---|--|
| | | | | | IF YES, ASK: TALKED TO SOMEONE WHO? | IF YES, ASK: SELF TREAT- MENT (EG. HOME REMEDY DESCRIBE) | IF YES, ASK: SAW A PROFESSIONAL WHO? | |
| 27. A sore or irritation from a denture | | | | | 1) | 2) | 3) | 4) |
| 28. A denture that is slipping, rocking dropping | | | | | | | | |
| 29. Food stuck under your denture | | | | | | | | |
| 30. A broken tooth on your denture | | | | | | | | |
| 31. A rough or sharp area on the denture | | | | | | | | |
| 32. A lost tooth on your denture | | | | | | | | |
| 33. Difficulty cleaning your dentures | | | | | | | | |
| 34. Shocks in your mouth (galvanic reaction) | | | | | | | | |

NUMBER AND RECORD ALL COMMENTS AND DESCRIPTIONS ON BACK

- SERIOUSNESS AND INTERFERENCE CODE 1 NOT AT ALL
 2 A LITTLE
 3 MEDIUM
 4 VERY

APPENDIX E

MODEL INTERVIEW SCHEDULE

ORAL SYMPTOM EXPERIENCE
AND HEALTH SEEKING
BEHAVIOR AMONG THE ELDERLY
INTERVIEW SCHEDULE

Yvonne Knazan

Faculty of Dentistry

University of Manitoba

Fall, 1987

INTERVIEWER: Introduce yourself to participant on arrival and confirm you are from the University of Manitoba.

Mr./Mrs./Ms. _____, I'd like to talk to you about you, your family and friends, your health and any problems you may be having now or have had recently with your mouth. Let me assure you again that everthing you say is confidential and your name will not be used anywhere. We are interested in general patterns and not a particular individual. If there are any questions you would rather not answer, please do not feel obligated to do so. Thank you again for your help, we really appreciate it.

FACT SHEET

ID. No. _____

Interviewer _____

Date of Interview _____
(Day/Mo./Yr.)

Time Started _____

Time Finished _____

No. of calls to obtain interview

1 2 3 4

Place of Interview _____

Sex

1. Male

2. Female

What is your preferred language. _____

Do you feel comfortable communicating in English? 1. No 2. Yes

Age at last birthday _____ Birthday _____
(Day/Mo./Yr.)

Code 1. 65 - 74

2. 75 - 84

3. 85 + _____

First, I'd like to know a little about you.

1. Do you consider yourself a member of a particular ethnic group?

- 1 No
- 2 Yes
- 3 Missing

(IF YES) Which ethnic group?

- 01 Canadian
- 02 British (ISLES) English
- 03 U.S.A. or Western Hemisphere
- 04 French
- 05 German
- 06 Norwegian/Danish/Swedish/Icelandic
- 07 Dutch/Belgian
- 08 Polish
- 09 Russian/Ukrainian
- 10 Other European-Middle East
(Italian, Spanish, Portuguese, Greek, Slavic, etc.)
- 11 Asia Oceanic (Chinese, Japanese, Polynesian, East Indian,
etc.)
- 12 Native Indian or Eskimo
- 13 Other (SPECIFY _____)
- 14 Jewish (ASK FOR COUNTRY OF ORIGIN) _____
- 99 Missing

2. What grade were you in when you left school? _____

- | | | | | | |
|---|------------|---|-------------|---|----------------|
| 1 | No School | 3 | Junior High | 5 | Post Secondary |
| 2 | Elementary | 4 | High School | 6 | Post Graduate |
| | | | | 7 | Trade School |

3. What is your marital status?

- 1 Single
- 2 Married/Common-law
- 3 Divorced/Separated
- 4 Widowed
- 9 Missing

4. How many people, if any live here with you? _____

What is their relationship to you?

- | | | | | | | | |
|---|--------|---|------------|---|---------|---|----|
| 1 | Spouse | 3 | Parent | 5 | Sibling | 9 | MV |
| 2 | Child | 4 | Grandchild | 6 | Other | | |

5. Now I have a list of health problems that people often have. I'll read them and you tell me if you've had any of them within the last year or otherwise still have after effects from having had them earlier.

CODE: 1 NO 2 YES 9 MISSING

- a) Heart and circulation problems (HARDENING OF THE ARTIERIES, HIGH BLOOD PRESSURE, HEART TROUBLE, ANAEMIA OR OTHER BLOOD DISEASES)
 - b) Stroke
 - c) Arthritis or rheumatism (JOINTS, BACK, ORTHOPAEDIC)...
 - d) Palsy (PARKINSON'S DISEASE)
 - e) Eye trouble not relieved by glasses (CATARACTS, GLAUCOMA)
 - f) Ear trouble (HEARING LOSS).....
 - g) Chest problems (ASTHMA, EMPHYSEMA, T.B., BREATHING PROBLEMS)
 - h) Stomach trouble (INCLUDING LOWER GASTRO-INTESTINAL PROBLEMS)
 - i) Kidney trouble (INCLUDING BLADDER TROUBLES)
 - j) Diabetes
 - k) Other
6. How many times have you seen a physician in the last three months?
- 1 no consultation
 - 2 1 - 3 consultations
 - 3 4 - 6 consultations
 - 4 7 - 12 consultations
 - 5 more than 12

7. Which of the following statements best describes your health:
- 1 My health never prevents activities
 - 2 My health rarely prevents activities
 - 3 My health occasionally prevent some activities
 - 4 My health very often prevents activities
 - 5 My health prevens most activities, or requires confinement to my bed
 - 9 MV
8. How much do you think about your health?
- 1 Very little or never
 - 2 Some of the time
 - 3 Very much
 - 4 DK
 - 9 MV
9. How important is the health of your mouth to the rest of your body health?
- 1 Not important at all
 - 2 Very little importance
 - 3 Some importance
 - 4 Very important
 - 9 MV
10. Now I's like to ask you some questions about your teeth and mouth.
- i. How much do you think about the health of your mouth and/or teeth?
- 1 Very little or never
 - 2 Some of the time
 - 3 Very much
 - 4 DK
 - 9 MV

ii. How would you rate the health of your mouth?

- 1 Excellent
- 2 Good
- 3 Fair
- 4 Poor
- 9 MV

iii. Do you have a dentist you see?

- 1 No
- 2 Yes IF YES: NAME _____

iv. Do you visit a dentist regularly?

- 1 No
If no, why not? _____

- 2 Yes
If yes, why? _____

IF YES, CODE 6 FOR QUESTION viii.

- 9 MV

v. How often do you see a dentist? Once a year?

- 1 No
- 2 Yes

If yes: Do you see a dentist more than once a year?

- 1 No
- 2 Yes

If yes: How many times a year do you see a dentist?

vi. When was the last time you saw a dentist?

- 1 Within the last month
- 2 Within the last 6 months
- 3 6 months to 1 year
- 4 1 - 5 years
- 5 6 - 10 years
- 6 more that 10 years
- 7 never
- 9 MV

MAKE SURE LAST VISIT ABOVE WAS TO DENTIST
IF LAST VISIT TO DENTAL MECHANIC CODE 2

vii. Why did you see a dentist the last time?

viii. Which of the following reasons explains why you don't see a dentist regularly?

- 1 I don't perceive a need for it.
- 2 Expense
- 3 Fear of pain
- 4 Difficulty in getting there
- 5 I don't know where to go for treatment
- 6 I see a dentist regularly
- 9 MV

ix. Do you have your own natural teeth?

- 1 No
- IF YES:
- 3 Upper
- 4 Lower
- 5 Both
- 9 MV

x. Do you wear any partial dentures?

- 1 No
- IF YES:
- 3 Upper
- 4 Lower
- 5 Both
- 9 MV

xi. Do you wear complete dentures?

- 1 No
- IF YES:
- 3 Upper
- 4 Lower
- 5 Both
- 9 MV

IF NOT WEARING ANY DENTURES GO TO QUESTION #11

xii. If no natural teeth but generally not wearing dentures, CODE 8

xiii. How long have you had your present dentures?

- 1 less than a year
 - 2 up to 5 years
 - 3 5 - 10 years
 - 4 more than 10 years
-

xiv. Do you take your dentures out at night?

- 1 No
 - 2 Yes
 - 9 MV
-

11. Now I'd like to ask you about any problems you've had in your mouth recently:

i. During the past 2 weeks have you experienced any problems in your mouth?

- 1 No
- 2 Yes

IF YES, LIST PROBLEMS - REMAINDER OF QUESTIONS IN # 11 MUST BE ASKED FOR EACH PROBLEM LISTED

ii. How serious or severe was it?

- 1 not at all
- 2 a little
- 3 medium amount
- 4 very

iii. How much did it interfere with any of your regular activities (or your sleep)

- 1 not at all
- 2 a little
- 3 medium amount
- 4 very much

iv. Did you do anything about the problem?

- 1 No
- 2 Yes
- 9 MV

v. IF NOT LIVING WITH OTHERS GO ON TO vi.
IF LIVING WITH OTHERS: When the condition was first noticed,
did you talk to anyone living in the house about what to do
about it?

- 1 No
- 2 Yes
- 9 MV

IF YES, LIST PERSON AND ADVICE GIVEN

vi. Did you talk to anyone outside the household (other
than a health professional) about what should be done
about the condition.

- 1 No
- 2 Yes
- 9 MV

(IF YES, LIST PERSON, RELATIONSHIP TO SUBJECT AND ADVICE GIVEN

vii. Did you use any home remedies, or anything not prescribed by
a doctor to help treat the condition(s)?

- 1 No
- 2 Yes
- 9 MV

(IF YES, LIST TREATMENTS)

viii. Did you go to a health professional about the condition?

- 1 No
- 2 Yes
- 9 MV

(IF YES, LIST TYPE OF HEALTH PROFESSIONAL, eg. DENTIST, PHYSICIAN, DENTAL MECHANIC, PHARMACIST:NOTE IF THIS OCCURRED IN CONJUNCTION WITH OTHER HEALTH SEEKING BEHAVIOUR OR AFTER)

ix. Have you experienced this symptom before:

- 1 No
- 2 Yes

IF YES what did you do about it last time?

ASK THESE QUESTIONS OF ALL SUBJECTS

In the past 2 weeks have you experienced:

| SYMPTOM | NO | YES | IF YES, ASK: HOW SERIOUS WAS IT? | IF YES, ASK: HOW MUCH DID IT INTERFERE WITH SLEEP OR ACTIVITY | IF YES, ASK: WHAT DID YOU DO | | IF YES, ASK: WHAT DID YOU DO ABOUT IT BEFORE? 1 - 4 | |
|--|----|-----|--|---|------------------------------|-------------------------------|--|----|
| | | | | | TALKED TO SOMEONE WHO? | SAW A PROFESSIONAL WHO? | | |
| 1. Pain, Irritation or burning of the tongue | | | | | 1) | 2) | 3) | 4) |
| 2. Pain, irritation or burning of the gums | | | | | | | | |
| 3. Pain, irritation or burning of the lips | | | | | | | | |
| 4. Pain, irritation for burning of the roof of the mouth | | | | | | | | |
| 5. Difficulty biting or chewing | | | | | | | | |
| 6. Bleeding gums | | | | | | | | |

NUMBER AND RECORD ALL COMMENTS AND DESCRIPTIONS ON BACK

- 1 NOT AT ALL
- 2 A LITTLE
- 3 MEDIUM
- 4 VERY

ASK THESE QUESTIONS OF ALL SUBJECTS

In the past 2 weeks have you experienced:

| SYMPTOM | IF YES, ASK: HOW SERIOUS WAS IT? | | IF YES, ASK: HOW MUCH DID IT INTERFERE WITH SLEEP OR ACTIVITY | IF YES, ASK: WHAT DID YOU DO | | | | IF YES, ASK: HAVE YOU EXPERIENCED THIS BEFORE 1-YES 2-NO | IF YES, ASK: WHAT DID YOU DO ABOUT IT BEFORE? 1 - 4 |
|---|--|-----|---|------------------------------|----------|--|-------------------------------|--|--|
| | NO | YES | | TALKED TO SOMEONE WHO? | 1) 2) | SELF TREAT- MENT (EG. HOME REMEDY DESCRIBE) | SAW A PROFESSIONAL WHO? | | |
| 7. Pain in a jaw joint | | | | 1) | 2) | 3) | 4) | | |
| 8. Bad breath | | | | | | | | | |
| 9. Dry mouth | | | | | | | | | |
| 10. General mouth discomfort | | | | | | | | | |
| 11. A bad taste in your mouth | | | | | | | | | |
| 12. Biting of your lips, tongue, or cheek | | | | | | | | | |
| 13. A cold sore on your lip | | | | | | | | | |

NUMBER AND RECORD ALL COMMENTS AND DESCRIPTIONS ON BACK
 SERIOUSNESS AND INTERFERENCE CODE 1 NOT AT ALL
 2 A LITTLE
 3 MEDIUM
 4 VERY

ASK THESE QUESTIONS ONLY OF SUBJECTS WITH NATURAL TEETH

In the past 2 weeks have you experienced:

| SYMPTOM | NO | YES | IF YES, ASK: HOW SERIOUS WAS IT? | IF YES, ASK: HOW MUCH DID IT INTERFERE WITH SLEEP OR ACTIVITY | IF YES, ASK: WHAT DID YOU DO | | | | IF YES, ASK: WHAT DID YOU DO ABOUT IT BEFORE? 1 - 4 | | | | |
|---|----|-----|--|---|------------------------------|----|--|----|--|-------------------------------|----|-------------------|----|
| | | | | | TALKED TO SOMEONE WHO? | 1) | SELF TREAT- MENT (EG. HOME REMEDY DESCRIBE) | 2) | | SAW A PROFESSIONAL WHO? | 3) | IGNORE OR WAIT | 4) |
| 14. Food trapped or stuck between teeth | | | | | | | | | | | | | |
| 15. A toothache | | | | | | | | | | | | | |
| 16. A broken tooth | | | | | | | | | | | | | |
| 17. A loose tooth | | | | | | | | | | | | | |
| 18. Rough or sharp area on a tooth | | | | | | | | | | | | | |
| 19. A broken or lost filling | | | | | | | | | | | | | |
| 20. A tooth sensitive to heat or cold | | | | | | | | | | | | | |
| 21. A tooth sensitive to sweets | | | | | | | | | | | | | |
| 22. A tooth sensitive to chewing | | | | | | | | | | | | | |

NUMBER AND RECORD ALL COMMENTS AND DESCRIPTIONS ON BACK
 SERIOUSNESS AND INTERFERENCE CODE 1 NOT AT ALL
 2 A LITTLE
 3 MEDIUM
 4 VERY

ASK THESE QUESTIONS ONLY OF SUBJECTS WITH NATURAL TEETH

In the past 2 weeks have you experienced:

| SYMPTOM | NO | YES | IF YES, ASK: HOW SERIOUS WAS IT? | IF YES, ASK: HOW MUCH DID IT INTERFERE WITH SLEEP OR ACTIVITY | IF YES, ASK: WHAT DID YOU DO | | | IF YES, ASK: WHAT DID YOU DO ABOUT IT BEFORE? 1 - 4 |
|---|----|-----|--|---|------------------------------|--|-------------------------------|--|
| | | | | | TALKED TO SOMEONE WHO? | SELF TREAT- MENT (EG. HOME REMEDY DESCRIBE) | SAW A PROFESSIONAL WHO? | |
| 23. A tooth sensitive to brushing | | | | | 1) | 2) | 3) | 4) |
| 24. A lost tooth (not removed by a dentist | | | | | | | | |
| 25. A cavity that you found on your own | | | | | | | | |
| 26. Problems keeping your mouth clean | | | | | | | | |

NUMBER AND RECORD ALL COMMENTS AND DESCRIPTIONS ON BACK
 SERIOUSNESS AND INTERFERENCE CODE 1 NOT AT ALL
 2 A LITTLE
 3 MEDIUM
 4 VERY

ASK THESE QUESTIONS ONLY OF SUBJECTS WHO WEAR DENTURES

In the past 2 weeks have you experienced:

| SYMPTOM | NO | YES | IF YES, ASK: HOW SERIOUS WAS IT? | IF YES, ASK: HOW MUCH DID IT INTERFERE WITH SLEEP OR ACTIVITY | IF YES, ASK: WHAT DID YOU DO | | | IF YES, ASK: WHAT DID YOU DO ABOUT IT BEFORE? 1 - 4 | | |
|--|----|-----|--|---|------------------------------|----|----|--|----|----|
| | | | | | TALKED TO SOMEONE WHO? | 1) | 2) | | 3) | 4) |
| 27. A sore or irritation from a denture | | | | | | 1) | 2) | 3) | 4) | |
| 28. A denture that is slipping, rocking dropping | | | | | | | | | | |
| 29. Food stuck under your denture | | | | | | | | | | |
| 30. A broken tooth on your denture | | | | | | | | | | |
| 31. A rough or sharp area on the denture | | | | | | | | | | |
| 32. A lost tooth on your denture | | | | | | | | | | |
| 33. Difficulty cleaning your dentures | | | | | | | | | | |
| 34. Shocks in your mouth (galvanic reaction) | | | | | | | | | | |

NUMBER AND RECORD ALL COMMENTS AND DESCRIPTIONS ON BACK
 SERIOUSNESS AND INTERFERENCE CODE 1 NOT AT ALL
 2 A LITTLE
 3 MEDIUM
 4 VERY

13. Now I have some questions about your ability to carry on different activities. I am interested in your capability, not whether or not you actually do them.

i) Can you use the telephone to call others?

- 1 No
2 Yes
9 MV

ii) Would you have any difficulty getting to the dentist if you had to?

- 1 No
2 Yes
9 MV
IF YES, WHY?
-
-

14. Now I would like to ask about your income and expenses.

What you tell me is confidential information.

(EXPLAIN THAT THE QUESTIONNAIRE IS NOT MENTIONING HIS/HER NAME AND THAT THE INFORMATION WILL BE USED STATISTICALLY AS WE WANT TO KNOW WHAT INCOMES OLDER PEOPLE MAKE IN GENERAL AND NOT THE INCOME OF ANY ONE INDIVIDUAL) (HAND RESPONDENT CARD)

a) What is the average yearly income for your household, including the old age security payment?

- 01 No income
02 Less than \$5000
03 \$5000 - \$6999
04 \$7000 - \$9999
05 \$10,000 - \$14,999
06 \$15,000 - \$19,999
07 \$20,000 - \$24,999
08 \$25,000 - \$29,999
09 \$30,000 - \$39,999
10 \$40,000 +
99 MV
-

(THANK RESPONDENT FOR HIS/HER ASSISTANCE. RECORD TIME ON FACT SHEET)

THIS CONCLUDES THE INTERVIEW. I HAVE ENJOYED TALKING WITH YOU AND WOULD LIKE TO THANK YOU FOR TAKING TIME TO PARTICIPATE IN THE STUDY. WITHOUT YOUR CO-OPERATION AND ASSISTANCE, IT WOULD NOT BE POSSIBLE.

WOULD YOU BE INTERESTED IN RECEIVING RESULTS OF THIS STUDY WHEN THE STUDY IS COMPLETED?

- 1 No
 - 2 Yes
-