# OLDER ADULTS WITH VISION LOSS: A CONSIDERATION OF COPING STRATEGIES, APPRAISALS, AND COPING RESOURCES

By

Carmen C. Grabusic

A Thesis Submitted to the Faculty of Graduate Studies in Partial Fulfillment of the Requirements for the degree of

**MASTER OF ARTS** 

Department of Sociology University of Manitoba Winnipeg, Manitoba

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#### **ABSTRACT**

Estimates suggest that approximately 10% of Canadians aged 65 and over have a visual impairment that restricts certain activities (NACA, 1990). Yet relatively little is known about the ways in which individuals deal with such losses in later life. This thesis focuses on the management of vision loss in later life.

Secondary analyses were conducted using data from the 1993/94 Chronic Illness and Disability in Later Life Study. Personal interviews were conducted with a sample of 393 Manitobans aged 68 and over. About one-third of the respondents reported eye trouble not relieved by glasses.

Cross-tabulations and discriminant function analyses were used to consider whether older adults with and without vision loss differ in terms of socio-demographic characteristics and coping resources. A description of the situation of older adults with vision loss, and the actions that they take to deal with their losses are highlighted.

Guided by a modified version of Lazarus and Folkman's (1984) conceptual framework, logistic regression findings reveal that various types of appraisals are associated with the use of the three most frequently identified coping strategies. In comparison, relatively few of the coping resources were associated with the same strategies. Finally, no direct relationships were found between socio-demographic characteristics and coping strategies. This thesis illustrates the need for a conceptual framework developed specifically to examine coping with vision loss in later life to better understand how older adults manage with such losses.

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# TABLE OF CONTENTS

ABSTRACT	i
ACKNOWLEDGMENTS	ti
LIST OF TABLES	vi
LIST OF FIGURES	ix
CHAPTER ONE: INTRODUCTION	1
CHAPTER TWO: REVIEW OF THE LITERATURE	5
Chapter Introduction	5
Terminology	
Prevalence of Visual Impairment	
Visual Disorders	
Characteristics of Visually Impaired Older Adults	10
Concepts Associated with Coping	
Emotion-Focused Strategies	
Problem-Focused Strategies	
Appraisals	
Coping Resources	
Health and Energy	
Positive Beliefs	
Social Support	
Material Resources	27
Coping Outcomes	
Coping Process as a Whole	29
Conceptual Framework	
Summary and Limitations of the Reviewed Literature	
Research Questions	
Chapter Summary	
CHAPTER THREE: METHODOLOGY	36
Chapter Introduction	
The Chronic Illness and Disability Survey	36
Data Collection	
Measurement of Key Variables	
Socio-demographic Characteristics	

Coping Resources	42
Health Status	
Psychological Resources	45
Social Resources	
Material Resources	54
Appraisals and Coping Strategies	54
Appraisals	
Coping Strategies	
Sample Characteristics	
Socio-demographic Characteristics	
Age	
Gender	
Coping Resources	
Health Status	
Psychological Resources	
Social Resources	
Material Resources	
Summary of Sample Characteristics	
Data Analysis	
Research Question # 1	
Bivariate Analyses of Research Question # 1	
Multivariate Analyses of Research Question # 1	
Research Question # 2	
Research Question # 3	
Multivariate Analyses of Research Question # 3	
Chapter Summary	
CHAPTER FOUR: FINDINGS OF RESEARCH QUESTION # 1	80
Chapter Introduction	80
Socio-demographic Characteristics	80
Age	80
Gender	
Age and Gender	82
Coping Resources	
Health Status	
Psychological Resources	85
Social Resources	
Material Resources	
Summary of the Bivariate Analyses	96
Multivariate Analyses	
Results of Discriminant Function Analyses: Equation 1	101
Results of Discriminant Function Analyses: Equation 2	

Results of Discriminant Function Analyses: Equation 3	104
Results of Discriminant Function Analyses: Equation 4	105
Summary of Multivariate Analyses	106
Chapter Conclusion	
CHAPTER FIVE: FINDINGS OF RESEARCH QUESTION # 2	108
Chapter Introduction	
Diagnoses	
Length of Time with Eye Problem(s)	
Eye Conditions/Diseases	
Perceived Cause(s)	
Perceived Symptom(s)	
Amount of Interference	
Interference Described	
Amount of Bother	
Bother Described	119
A Summary of the Situation of EPs	
Coping Strategies	
Chapter Summary	124
CHAPTER SIX: FINDINGS OF RESEARCH QUESTION # 3	
A Comparison of Action Taken and No Action Taken Groups	
Factors Associated with Certain Coping Strategies	
Doctor Visits/Surgery - Bivariate Results	
Doctor Visits/Surgery - Multivariate Results	
Medication Use - Bivariate Results	
Medication Use - Multivariate Results	
Use of Special Equipment or Devices - Bivariate Results	
Use of Special Equipment or Devices - Multivariate Results	
Chapter Summary	
CHAPTER SEVEN: DISCUSSION AND CONCLUSIONS	178
Chapter Introduction	
Differences Between Older Adults With and Without Eye Problems	
Socio-demographic Characteristics	
Health Status	
Psychological Resources	
Social Resources	
Material Resources	183

Describing the Situation of EPs	183
Factors That Are Associated With Coping Strategies	
Socio-demographic Characteristics	187
Appraisals	190
Coping Resources	
Health Status	
Psychological Resources	192
Social Resources	
Material Resources	
Conceptual Framework	
Recommendations For Future Research	
Limitations of This Research	
Implications For Older Adults With Eye Problems and Rehabilitation Professionals	
Chapter Summary	
REFERENCES	203
APPENDIX A: VARIABLES USED IN THE STUDY	211
APPENDIX B: LIFE SATISFACTION INDEX Z: FREQUENCIES AND RELIABILITIES	215
APPENDIX C: SELF-ESTEEM: FREQUENCIES AND RELIABILITIES	216
APPENDIX D: SELF-EFFICACY: FREQUENCIES AND RELIABILITIES	217
APPENDIX E: HEALTH LOCUS OF CONTROL: FREQUENCIES, RELIABILITIES AND FACTORS	218
APPENDIX F: HEALTH PROBLEMS OF EYE PROBLEM (EP) AND NO EYE PROBLEM (NEP) GROUPS	224
APPENDIX G: COMPARISONS USED TO DESCRIBE THE SITUATION OF THE EYE PROBLEM GROUP	225
APPENDIX H: LOGISTIC REGRESSIONS: CORRELATES OF THE COPING STRATEGY DOCTOR VISITS/SURGERY & USE OF SPECIAL FOURMENT/DEVICES	230
EQUIPMENT/DEVICES	400

# LIST OF TABLES

Table 1: Comparison of 1985 Sample and 1993/94 Sample by Selected Socio- demographic Characteristics	40
Table 2: Key Concepts and Variables	41
Table 3: Socio-demographic Characteristics and Coping Resources of the Sample	62
Table 4: Age and Gender of Eye Problem (EP) and No Eye Problems (NEP) Groups	81
Table 5: Self-assessed Health, Chronic Health Problems, and ADL/IADL Limitations of Eye Problem (EP) and No Eye Problem (NEP) Groups	
Table 6: Life Satisfaction, Self-esteem, Self-efficacy, and Health Locus of Control of Eye Problem (EP) and No Eye Problems (NEP) Groups	86
Table 7: Marital Status, Living Arrangements, Size of Family Network, Number of Family Network Members Seen At Least Weekly, Number of Confidants, Number of Friends, and Perceived Instrumental Support of Eye Problem (EP) and No Eye Problems (NEP) Groups	90
Table 8: Monthly Household Income, Perceived Adequacy of Household Income, and Education of Eye Problem (EP) and No Eye Problems (NEP) Groups	94
Table 9: Differences Between Eye Problem (EP) and No Eye Problem (NEP) Groups	97
Table 10: Pearson Product Moment Correlation Matrix, Independent Variables for Discriminant Function Analyses	100
Table 11: Discriminant Function Analyses Results	102
Table 12: Details on Diagnoses Reported by the Eye Problem (EP) Group	109
Table 13: Length of Time with Eye Problems Reported by the Eye Problem (EP) Group	110
Table 14: A Comparison of the Length of Time with Eye Problems and Length of Time Since Diagnosis Reported by the Eye Problem (EP) Group	111
Table 15: Eye Conditions/Diseases Reported by the Eye Problem (EP) Group	112
Table 16: Perceived Cause(s) Reported by the Eve Problem (EP) Group	113

Table 17	Symptoms Associated with Eye Problems Reported by the Eye Problem (EP)  Group	115
Table 18	: Amount of Interference, and Interference Described, Reported by the Eye Problem (EP) Group	117
Table 19	Amount of Bother, and Bother Described, Reported by the Eye Problem (EP)  Group	.119
Table 20	Coping Strategies Used to Deal with Eye Problems Reported by the Eye Problem (EP) Group	.123
Table 21:	A Comparison of Action Taken and No Action Taken Groups by Socio- demographic Characteristics, Appraisals, and Coping Resources	.130
Table 22	Bivariate Relationships Between Socio-demographic Characteristics, Appraisals, Coping Resources, and the Coping Strategy of Doctor Visits/Surgery	.135
Table 23:	Socio-demographic Characteristics, Appraisals, and Coping Resources Associated with Doctor Visits/Surgery (Bivariate Level)	.142
	Pearson Product Moment Correlation Matrix, Independent Variables for Doctor Visits/Surgery Regressions	. 144
Table 25:	Logistic Regressions: Correlates of the Coping Strategy Doctor Visits/Surgery	. 145
Table 26:	Socio-demographic Characteristics, Appraisals, and Coping Resources Associated with Doctor Visits/Surgery (Multivariate Level)	.150
Table 27:	Bivariate Relationships Between Socio-demographic Characteristics, Appraisals, Coping Resources, and the Coping Strategy of Medication Use	.152
Table 28:	Socio-demographic Characteristics, Appraisals, and Coping Resources Associated with Medication Use (Bivariate Level)	.158
Table 29:	Pearson Product Moment Correlation Matrix, Independent Variables for Medication Use Regressions	.159
Table 30:	Logistic Pegressions: Correlates of the Coning Strategy Medication [[se	160

Table 31:	Socio-demographic Characteristics, Appraisals, and Coping Resources	
	Associated with Medication Use (Multivariate Level)	162
Table 32:	Bivariate Relationships Between Socio-demographic Characteristics,	
	Appraisals, Coping Resources, and the Coping Strategy of Special	
	Equipment/Devices (EQ/DEV)	164
Table 33:	Socio-demographic Characteristics, Appraisals, and Coping Resources	
	Associated with the Use of Special Equipment/Devices (Bivariate Level)	169
Table 34:	Pearson Product Moment Correlation Matrix, Independent Variables for	
	Special Equipment/Device Use Regressions	171
Table 35:	Logistic Regressions: Correlates of the Coping Strategy Special	
	Equipment/Devices	172
Table 36:	Socio-demographic Characteristics, Appraisals, and Coping Resources	
	Associated with the Use of Special Equipment/Devices (Multivariate Level)	176
Table 37:	Socio-demographic Characteristics, Appraisals, and Coping Resources	
	Associated with Coping Strategies	188
	LIST OF FIGURES	
Figure 1:	Conceptual Framework	32
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#### **CHAPTER ONE: INTRODUCTION**

As we approach the twenty-first century, Canada's population is rapidly aging. In 1991, 11.6% of the population was 65 years and older, and by the year 2021, we can expect this to increase to 18.2% (Norland, 1994). As society ages, experiences with vision loss or impairment are on the rise as rates of visual impairment increase dramatically with advancing age (Braus, 1995; Naeyaert & Grace, 1990). The aging of the population, together with the increased prevalence and incidence of visual impairment, has resulted in the need for more research to understand how people live with vision loss in later life. This thesis explores the factors which surround such experiences. More specifically, it focuses on the management of vision loss in later life.

Although there is an ample amount of literature on the physical and practical effects associated with vision loss, some researchers (Branch, Horowitz, & Carr, 1989; Reinhardt, 1996; Silverstone, 1993) argue that there has been little research done which considers the factors which influence the management of vision loss in later life. In addition, others (Ainlay, 1989; Davis, Lovie-Kitchin, & Thompson, 1995; Horowitz, Reinhardt, McInerney, & Balistreri, 1994; National Advisory Council on Aging, 1990; Salvage, 1995) have noted that past work has concentrated on younger persons with a recent vision loss, or on those who are completely blind. Somewhat surprising, less is known about the adjustment which occurs, and the ways in which individuals manage their vision loss. Researchers such as Kinderknecht and Garner (1993), Salvage (1995), and Reinhardt (1996) acknowledge the need for more

research which focuses on the ways older people deal with the problems associated with their visual impairment, and the factors that are likely to predict better adaptation.

This research is designed to address the gap which exists in the research literature. It focuses on older adults with vision loss, and more specifically, on a consideration of the relationship between certain factors such as appraisals and coping resources and the actions which are taken to manage the impairment.

Attention is on older individuals who acknowledge having vision problems that are not correctable with prescription lenses, yet are not blind.

The three research questions that will be addressed are:

- 1. Are there significant differences between older adults with vision loss and those without in terms of socio-demographic characteristics and coping resources?
- 2. What are the coping strategies used by older adults with vision loss, and to what extent is there variation in these strategies?
- 3. To what extent are the variations in the strategies taken to manage with vision loss related to socio-demographic characteristics, appraisals, and coping resources?

In Chapter Two, the existing literature is reviewed. To begin, the terminology that is used in regards to the visually impaired is presented, followed by the prevalence of vision loss in Canada, and characteristics of those affected. Next, concepts associated with coping are considered. The focus is on the types of strategies and skills that people implement to manage their vision loss. The concepts

of appraisals and coping resources are also included. This chapter concludes with research questions developed to address the limitations found in the literature review.

Chapter Three includes a description of the Chronic Illness and Disability in Later Life Study. In addition, the variables which are key to this thesis are considered with respect to their measurement, and any transformations that are undertaken for the purposes of the analyses. Next, the study sample is described. The chapter concludes with a discussion on the statistical techniques which are used to address the three research questions.

Chapter Four addresses Research Question # 1 "Are there significant differences between older adults with vision loss and those without in terms of socio-demographic characteristics and coping resources?" Respondents are divided into two groups based on their answer to the question "Have you had eye trouble not relieved by glasses within the last year or otherwise still have after effects from having had them earlier?" Results at the bivariate and multivariate level are reported in order to address this research question.

Chapter Five has two main objectives. The first objective is to describe the situation of people who are living with vision loss in later life. The second objective is to address Research Question # 2 "What are the coping strategies used by older adults with vision loss, and to what extent is there variation in these strategies?" This research question describes the coping strategies used by older adults with vision loss.

Chapter Six addresses Research Question # 3 "To what extent are the variations in the strategies taken to manage with vision loss related to sociodemographic characteristics, appraisals, and coping resources?" The chapter begins with a comparison between individuals who do and who do not take an action(s) to deal with their eye problem(s). Following this comparison, the most frequently mentioned coping strategies are considered in turn. Socio-demographic characteristics, appraisals, and coping resources will be considered in relation to the specific coping strategies. Results at the bivariate and multivariate level are reported in order to address this research question.

The primary purpose of Chapter Seven is to highlight the major findings of the research, and to provide a context by making comparisons to the existing literature. Recommendations for future research are included, followed by the study's limitations. Finally, the chapter closes with a consideration of the implications of the research findings for older adults who are adapting to eye problems, and for rehabilitation professionals who try to help them.

#### CHAPTER TWO: REVIEW OF THE LITERATURE

## **Chapter Introduction**

The purpose of this chapter is to review the literature that has focused on older adults who live with vision loss. The chapter begins with a discussion on the terminology used in regards to the visually impaired, the prevalence of vision loss in Canada, and characteristics of those affected. Following this, concepts associated with coping will be considered. The focus will be on the types of strategies and skills that people implement to manage their vision loss. The concepts of appraisals, coping resources, and coping outcomes will also be included. It is possible to find examples of these concepts in the vision loss literature; however, such concepts do not appear to guide the research in the area. The chapter concludes with research questions developed to address the limitations found in the literature review.

#### Terminology

The terms vision trouble, loss, or impairment all appear in the literature. For the purposes of this work, the aforementioned terms will be used interchangeably. In a most general sense, these terms refer to a reduction in visual performance or usable vision. It is important to recognize that vision loss can vary from mild to severe.

Some individuals experience a minor loss of function, while others experience an immense loss of function (Kinderknecht & Garner, 1993). Limitations include losses in acuity, tunnel vision, glare, or the requiring of more light. Other researchers (Flax,

Golembiewski, & McCaully, 1993; Heinemann, Colorez, Frank, & Taylor, 1988; Οττ, 1991) use the term "low vision" to refer to such losses.

Fortunately, the eye conditions most commonly found among older adults do not tend to result in total blindness, meaning that some residual vision remains which has the potential to be used (Ainlay, 1989; Genensky & Zarit, 1993). It is this goal of using one's residual vision that inspired Ringgold's (1991) book Out of the Corner of My Eye: Living with Vision Loss in Later Life. The author was an 87 year old homemaker and retired college professor who hoped that her personal account would encourage others to make minor adjustments, so that they too could get the most out of their remaining sight. Ringgold (1991, p. 7) notes that "...parts of your eye can still see and that you have to use those parts in a different way than you did before".

# Prevalence of Visual Impairment

Turning to the prevalence of visual impairment, the National Advisory

Council on Aging (1990) reports that 10% of Canadians aged 65 and over have a

visual impairment that restricts certain activities of daily living. In addition, rates of

visual impairment have been reported to increase sharply with age. Based on a

national study in the United States, Stuen (1991) reports that 9.5% of those

individuals aged 65-74 suffer from visual impairment. This increases to 16.0% of

those aged 75-84, and to 26.8% of those aged 85 and over. Although these figures

reveal that vision loss among the elderly is not of epidemic proportions, it is evident

that it does affect a significant number of older adults.

The reported prevalence of visual impairment among older adults needs to be considered carefully as there are difficulties associated with calculating such estimates. Traditionally, attention focused on those individuals who were completely blind, therefore making it difficult to determine the prevalence of those visually impaired but not completely blind (Nelson, 1987). More recently there has appeared to be an increased interest and awareness of issues which surround functional abilities and quality of life. More accurate numbers would assist in determining how many individuals may have difficulties with their activities of daily living, or who have given up other activities due to limited vision. As Silverstone (1993, p. 567) asserts, "[w]hile vision changes are normal, visual impairment is not; as a significant contribution to functional disability, it deserves our closest scrutiny".

To date, the objective of reporting more accurate rates has also been difficult to achieve, as the estimates vary in response to the use of different definitional criteria. For example, at one time

NCHS's [National Center for Health Statistics] measure of 'visual impairment' included specific conditions, such as color blindness, that rarely limit the ability to perform daily living tasks or social roles (Nelson, 1987, p. 331).

More recently, the NCHS has changed their definition of "severe visual impairment" to "...the inability to read newspaper print even when wearing corrective lenses" (Nelson, 1987, p.331). Nelson (1987) believes that the increase in prevalence (beyond that expected due to demographics) is because of the move to more inclusive measures of visual impairment. Continued refinement and improvement in research

procedures and measures will hopefully result in more accurate prevalence figures in the future.

#### Visual Disorders

Although specific eye diseases, physiological aspects of visual impairment, and functional changes in the eye will only be briefly examined, it is important to note that certain visual disorders are more commonly found among older adults. The four most common are macular degeneration, cataracts, glaucoma, and diabetic retinopathy (Burack-Weiss, 1991; Davis et al., 1995; Luxton, 1988; National Advisory Council on Aging, 1990). Each of the four conditions will be considered.

Macular degeneration is believed to be the leading cause of visual impairment among older persons (National Advisory Council on Aging, 1990). The part of the retina which controls acuity and central vision (the macula) ceases to function (Kinderknecht & Garner, 1993). It is estimated that about 30 percent of those aged 65 and over have some degeneration of the macula (Morse, Silberman, & Trief, 1987). This condition is often accompanied by high blood pressure and arteriosclerosis. Due to the fact that little is known about the primary causes of this condition, treatment is only possible in about one-tenth of the cases (National Advisory Council on Aging, 1990).

Cataracts involve a clouding over of the eye's lens, and can result in blurriness, double vision, light scattering, glare sensitivity, poor night vision, and poor color perception (Klein, 1991; Morse et al., 1987). It has been estimated that

approximately 9.6% of those 65-74 years of age have cataracts, with the prevalence increasing to 33.7% of those aged 75 and over (Morse & Friedman, 1986). The degree of loss can vary depending on the size and the location of the clouding or opacity. Some of the suggested causes are chemical changes in the lens, exposure to radiation, high blood pressure, and family history (Morse et al., 1987; National Advisory Council on Aging, 1990). As Weinstock (1987) notes, cataract surgery is now done routinely as a form of treatment, and manages to restore vision in most cases.

Glaucoma is the result of increased pressure in the eye caused by an inadequate drainage of fluid. The prevalence of glaucoma is much lower than for macular degeneration and cataracts. Morse and Friedman (1986) report that this condition affects 1.7% of those aged 65-74, with an increase to 2.9% of those aged 75 and older. This eye condition typically results in the loss of peripheral vision, and may also include seeing colored halos around lights and decreased visual sharpness. Unlike the previous two conditions, it is often accompanied by some discomfort. Some of the possible symptoms include eye pain, nausea, and headaches (Kinderknecht & Garner, 1993). Treatments are aimed at reducing the pressure and may include the use of medications and eye drops or laser surgery.

Diabetic retinopathy causes problems with vision for some diabetics, and for some individuals who have hypertension. The prevalence rates are similar to those given for glaucoma. It has been reported that 1.7% of those aged 65-74 have this condition, while it affects 3.0% of those aged 75 and older (Morse & Friedman,

1986). This condition "...involves the gradual deterioration of the retina due to diabetes-related eye problems such as capillary hemorrhage, retinal exudates, scarring and swelling" (Kinderknecht & Garner, 1993, p.162). Vision difficulties may include blurring and floating spots. More recently, laser surgery is being offered as a treatment, and has been most successful in those cases where the condition is detected early (Morse et al., 1987).

# Characteristics of Visually Impaired Older Adults

Prior to examining how some older adults manage their vision loss, it is important to discuss the characteristics of visually impaired older adults. Studies in the area have determined that age is associated with visual impairment, although it does not cause vision loss (Cherry, Keller, & Dudley, 1991; Naeyaert & Grace, 1990). Some researchers (Branch et al., 1989; Salvage, 1995) have examined other sociodemographic factors such as gender, marital status, and living arrangements, but found no predictive relationship with visual impairment when controlling for age. Finally, there is no evidence in the reviewed literature to suggest that other sociodemographic characteristics such as education, or income are significantly associated with vision loss.

Although research in the area has failed to identify many socio-demographic factors associated with visual impairment among older adults, some researchers have provided a health profile of such individuals. Both physical and the emotional well-being have been considered. In terms of physical health, it has been suggested that

most older adults who are visually impaired have other chronic health problems (e.g., arthritis, high blood pressure) to contend with (Mann, Hurren, Karuza, & Bentley, 1993; Salvage, 1995). Furthermore, it has been suggested that visually impaired older adults require assistance for a significantly greater number of activities of daily living (ADLs) than those with good vision (Horowitz, 1994; Horowitz, Balistreri, Stuen, & Fangmeier, 1995; Laforge, Spector, & Sternberg, 1992; Marx, Werner, Cohen-Mansfield, & Feldman, 1992). Activities where difficulty is reported include personal grooming, (Sullivan, 1983) navigating through both personal and public environments, (Arfken, Lach, McGee, Birge, & Miller, 1994; Salive, Guralnik, Glynn, Christen, Wallace, & Ostfeld, 1994; Sullivan, 1983) and transportation (driving well enough, night vision, reading bus schedules), (Klein, 1991).

In regards to emotional health, Davis and colleagues (1995) found that lower levels of life satisfaction emerged for the older adult with a visual impairment than for other older adults. However, no significant differences were found in terms of self-esteem. Salvage (1995) found depression and anxiety to be associated with visual impairment, even when age was held constant.

Overall, the literature in the area suggests that visually impaired older adults differ from other older adults when it comes to certain health measures. However, the information that is available to date on the factors which are associated with vision loss in later life is somewhat limited. Horowitz and colleagues (1994, p. 4) concur with this observation as they state that "[t]he isolated references in the literature on this topic tend to be impressionistic, rather than empirically based, or drawn from

small sample clinical studies". It would be beneficial if researchers further explored a broad range of factors that are related to vision loss in later life. This would be beneficial as it could potentially assist in identifying those individuals who are more likely to experience vision loss in later life.

# **Concepts Associated with Coping**

In their 1984 book Stress, Appraisal, and Coping, Lazarus and Folkman work towards developing their own conceptualization of coping. They advocate a process-oriented approach to coping, and distinguish this sort of approach from trait or stage theories. The researchers outline a conceptual system including concepts which they believe are a part of the coping process. The review of the literature on coping with vision loss is organized around these concepts. The concepts that will be considered are: coping, coping strategies, coping resources, appraisals, and coping outcomes.

To begin, the concept of coping will be considered. Lazarus and Folkman (1984, p. 141) conceptualize coping as the "...constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person". Similarly, Moos and Schaefer (1984, p. 7) acknowledge that coping is necessary "[w]hen people encounter an event that upsets their characteristic pattern of behavior and lifestyle...". To ensure clarity and a common understanding, it should be noted that the terms of coping, management, adjustment, and adaptation do not appear to be differentiated by researchers in this area (e.g. Davis et al., 1995). While the terms

may not be synonymous, there does appear to be some overlap. For example, all four refer to the actions or lack thereof that individuals introduce to deal with a given challenge. In addition, these concepts all appear to allude to a process that continues over time. Therefore, for the purposes of this discussion, the terms will be understood as operational equivalents.

In addition to conceptualizing the concept of coping, Lazarus and Folkman (1984) define coping strategies as representing those efforts, actions, or techniques that are used to deal with demanding situations. They separate coping strategies according to what purpose they serve. The two categories are emotion-focused and problem-focused. The strategies which are mentioned in the vision loss literature will be considered in relation to these two categories.

### **Emotion-Focused Strategies**

Emotion-focused coping strategies are believed to be implemented when one perceives that nothing can be done to alter or influence the outcome of the situation (Lazarus & Folkman, 1984). Such strategies are often introduced with the intention of controlling those emotions that emerge in response to a crisis (Moos & Schaefer, 1984) and bringing them back to pre-crisis state. Throughout the vision loss literature, there are numerous examples of emotional responses to vision loss. Some of the most frequently mentioned are denial, anger, resentment, confusion, fear, loss of control, depression, passive resignation, and acceptance (Kinderknecht & Garner, 1993; National Advisory Council on Aging, 1990; Sullivan, 1983). Other

researchers (Flax et al., 1993) add that emotions are not only present when you first learn about the eye condition, but continue to occur as one confronts the challenges of day to day living.

Davis and colleagues (1995) argue that emotional responses allow people to deal with the 'grief' of their loss, and to acknowledge feeling threatened. They found that the large majority of their informants (aged 67-96, mean age of 81.4) reported an initial struggle with self-doubt. The tendency for vision loss to elicit negative emotions in some persons may be in response to the expectations or misconceptions held regarding such losses or impairment. Some falsely believe that loss of vision will automatically result in dependency and a loss of independence (Ainlay, 1988). As time passes, individuals may come to realize that their loss does not necessarily have to result in dependency, or incompetence.

# Problem-Focused Strategies

While emotion-focused coping strategies tend to target the emotional state of the individual and his/her situation, problem-focused coping strategies focus on altering, reducing or resolving the challenge at hand by dealing with its tangible consequences. "[P]roblem-focused efforts are often directed at defining the problem, generating alternative solutions, weighting the alternatives in terms of their costs and benefits, choosing among them, and acting" (Lazarus & Folkman, 1984, p.152).

Examples include seeking information and support, and problem solving. These

skills, in general, are represented as being active, in the hopes of confronting, and dealing with, the task at hand.

Problem-focused strategies are disaggregated by Lazarus and Folkman (1984) into those strategies directed at the environment and those directed at the self.

Strategies directed at the environment attempt to alter features in the environment that are either harmful or limiting to the individual. In the case of vision loss, environmental modifications such as altering lighting, reducing glare, and increasing color contrasts contribute to maximum use of residual visual function (Morse et al., 1987; Sullivan, 1983).

Navigating within both private and public environments can be more difficult for someone who has experienced vision loss. Ainlay's (1988) work focuses on how individuals facing vision loss re-interpret themselves and the world around them. "The loss of previously taken-for-granted sensory information about the world forces them to reexamine their knowledge of and relationships with objects in the environment" (1988, p. 83). Ainlay (1988) uses the concept disruptions of spatial experience to represent the sometimes arduous relationship between the spatial environment and the visually impaired person. Overall, this concept refers to the information about the surrounding environment that is primarily gathered by sight, and how it may no longer be gathered as easily or as quickly as it once was.

Other researchers have chosen to downplay the role that vision plays in difficulties associated with the environment. Arfken and colleagues (1994) suggest that vision may play less of a role in predicting falling and recurring falling than

previously believed. In contrast, it may have more to do with the fact that the environment is cluttered, or that hurried movements were to blame. The use of certain strategies or techniques may assist individuals as they come to deal with their surroundings. For example, keeping household furnishings arranged in a clutter free manner, keeping electrical cords wound up, avoiding hanging things such as planters or chandeliers, and keeping doors either fully open or closed, have been cited as ways that visually impaired older adults can keep their personal environments safe for themselves as well as for others (Genensky, Berry, Bikson, & Bikson, 1979).

Research in the area also discusses the distinction between optical and nonoptical assistive devices which may make it easier for some individuals to manage
within, or manipulate their given surroundings. A magnifying glass is an example of
an optical aid which can assist with reading either for information or leisure (Erber &
Osborn, 1994; Sullivan, 1983). In contrast, self-threading needles, thermostats and
oven dials with larger numbers, and modified phones are examples of non-optical
aids (Galler, 1981; Harger, 1994; Mann et al., 1993). Both types of assistive devices
can be of benefit in terms of pursuing and maintaining activities of daily living or
leisure pursuits.

Problem-focused strategies directed at the self include: "...shifting the level of aspiration, reducing ego involvement, finding alternative channels of gratification, developing new standards of behavior, or learning new skills and procedures" (Lazarus & Folkman, 1984, p. 152). Actions that are taken to maintain one's self-concept would also be included here. Self-concept has been defined as "...the

attitudes, feelings, and beliefs he[she] has about the kind of person he[she] is, his[her] strengths and weaknesses, his[her] potentials and limitations, his[her] characteristics qualities, and so forth" (Scott, 1969, p.15). Some of the conclusions drawn by Scott in his 1969 book The Making of Blind Men seem just as appropriate today as they were then. His main thesis is that blind individuals often have to overcome some of the stereotypes that are held by others, in addition to not internalizing such beliefs when it comes to themselves. This theme also seems to apply to visually impaired older adults, as they too will likely have to overcome certain perceptions held by others or themselves to maintain a continued sense of self.

A changing self-concept have also been cited by some researchers as potentially harmful to coping efforts. Thompson and colleagues (1992) observed that some individuals attempt to 'pass' as fully sighted to avoid attention or embarrassment. One possible explanation is that "[t]hey may believe that others will make inaccurate assumptions about them or force undesirable changes on them" (Thompson, Goldhaber, Amaral, & Ringering, 1992, p.78). Therefore, if one can maintain the image of a fully sighted individual, one can regain control over one's life, such as in the areas of managing finances or reading personal mail.

To conclude the discussion on coping strategies, it is clear that the literature contains many examples of the actions taken to deal with vision loss. Furthermore, it should be noted that the literature tends to focus on problem-focused strategies directed at the environment. However, in the reviewed literature there is no mention of whether these strategies are actually used more often than other types, or that the

use of one type of strategy precedes the use of the other. Future research needs to explore the variation that exists in coping strategies, and whether certain types of strategies prove to be more effective than others.

## **Appraisals**

The review of the literature thus far has revealed that researchers have explored to some extent the causes, effects, and coping strategies that comprise the situation for the visually impaired older adult. However, the research is limited when it comes to exploring the variations in coping, and the factors potentially explaining differences in coping strategies. The concept of appraisals will be considered next, as it may contribute to explaining some of the differences in coping and the actions that are taken to manage vision loss.

Lazarus and Folkman (1984) state that appraisals represent an individual evaluating his/her demanding situation, and the various factors that may either increase or decrease the threat or stress associated with the situation. In the case of vision loss, initial appraisals are often numerous and complicated. Appraisals often include coming to terms with the surrendering of certain roles and activities of the present, in addition to the surrendering of future plans. Thus, appraisals take into account both actual and anticipated losses.

Initial appraisals may be influenced by what the individual perceives to be the cause of his/her vision loss. Although not discussing vision loss specifically,

Breytspraak (1984) argues that some people tend to search for causes in order to

make sense of their situation, before they proceed with coping. Ainlay (1989, p. 29) states that "[t]hese attempts to explain the origins of vision loss are part of the concerted effort that all people make to 'make sense' of the world around them".

Some individuals perceive the vision loss to be a 'normal' and expected part of the aging process, while some blame it on an underlying disease or illness. There are also those who believe that a combination of the two exists (McCulloh, Crawford, & Resnick, 1994). It may be that different perceived causes result in differences in coping. One could hypothesize that attribution to an illness rather than to part of the aging process may result in feelings of anger and frustration, rather than acceptance and resignation.

Characteristics of the eye condition may also contribute to an individual's appraisal of his/her situation. Moos and Schaefer (1984) suggest that differences in coping may be the result of specific illness related factors (e.g., rapidity of onset, progress of disease). Some of the research which has focused solely on vision loss has tended to agree with this hypothesis. For example, Kinderknecht and Garner (1993) propose that there are coping differences as a result of differences in the rapidity of onset and progression. If one's vision is declining at a very constant rate, the coping process may be returning to the point of initial evaluation more frequently than someone whose vision loss has plateaued. The constant change in circumstances would contribute to certain individuals having to re-appraise their situation to determine if their current coping efforts and strategies are appropriate for the now altered circumstances. When the progression of vision loss follows a very gradual

course, some may not be completely cognizant of their vision impairment.

Furthermore, the decline in visual function may have been so gradual that they accommodated to it without much notice (Sullivan, 1983). There is no mention in the reviewed literature in regards to instances where the progression is in the direction of self-correcting improvements in one's vision.

Although the degree or the severity of vision loss has been identified as a possible predictor of differences in coping, there is also evidence in the literature to suggest that specific characteristics of the eye condition do not effect coping or adaptation. The work of Horowitz and colleagues (1994) found that neither the suddenness of onset, or the degree of the vision loss predicted adaptation. This inconsistency in the literature suggests that more research is required to determine whether characteristics of the eye condition are predictive of differences in coping.

## Coping Resources

In order to implement either emotion-focused or problem-focused strategies, individuals draw upon various resources such as health and energy, positive beliefs, social support, and monetary resources (Lazarus and Folkman, 1984). These resources are said to represent factors that mediate between the individual and his/her challenging situation. Lazarus and Folkman (1984) believe that identifying the resources that one possesses contributes to a better understanding of the specific ways in which people cope, and why people cope with things as they do.

While Lazarus and Folkman (1984) suggest that the use of coping resources may be adaptive, they also acknowledge that their use may be maladaptive. They describe how certain coping constraints may limit, or even sabotage, the use of coping resources. Examples include personal constraints, environmental constraints, and level of threat (Lazarus & Folkman, 1984). Personal constraints involve instances where internal feelings or beliefs may negatively or positively influence the coping process. Environmental constraints, such as characteristics of the environment, limited services, or physical barriers, may either reduce the benefit of coping strategies or resources, or increase the level of stress on the individual. Finally, the degree of threat that one feels is seen as influencing both the choice and the implementation of coping resources and strategies. "The greater the threat, the more primitive, desperate, or regressive emotion-focused forms of coping tend to be and the more limited the range of problem-focused forms of coping" (Lazarus & Folkman, 1984, p.168).

# Health and Energy

The discussion on specific coping resources will begin by considering health and energy resources which are considered to be physical resources (Lazarus & Folkman, 1984). It is believed that individuals who are sick or tired may have more difficulty gathering physical energy to cope, although research has also shown that people who are ill still seem to gather enough energy to deal with their situations (Lazarus & Folkman, 1984).

Although the vision loss literature has acknowledged that one's general health and functional status may be associated with successful adaptation (Horowitz et al., 1994), the emphasis has tended to be on poor self-rated health or the presence of multiple health problems as predictors of less successful coping. For example, it has been suggested that stress is compounded by the presence of other health conditions besides the vision impairment. "The onset of vision loss not only compounds other losses of aging but also increases the individual's apprehension about his or her total physical and psychological integrity" (Orr, 1991, p. 4).

The suggestion that the level of threat is compounded by other losses is somewhat controversial as it assumes that multiple losses or challenges will result in role stress or conflict, thus making it more difficult for the individual to cope with his/her vision loss. It also seems to suggest that older individuals are more likely than other age groups to be experiencing losses, and that they are only able to deal with a certain number of stresses or roles at any given time. Such an approach is taken by Orr (1991). She lists eleven losses associated with aging without qualifying that such losses are only experienced by some older adults, and that their presence does not always result in detrimental results. The inventory of losses includes reference to physical health (loss of good health), mental health (loss of self-worth or self-esteem), social supports (loss of a social network), and economic issues (retirement, economic security) (Orr, 1991). One of the limitations of such an approach is that not everyone experiences the same losses in later life, and that individuals deal with their multiple challenges or losses differently. While the emphasis in the vision loss

literature has been on the negative impact of poor health on coping, future research clearly needs to further consider health and energy resources and their influence on the management of vision loss.

# Positive Beliefs

The second set of resources to be considered are positive beliefs. Positive beliefs are described by Lazarus and Folkman (1984) as a psychological resource.

They include both general and specific beliefs which function as a basis for hope and inspiration. Viewing one's self positively, inspirational beliefs, spiritual beliefs, and locus of control are all placed in this category by Lazarus and Folkman (1984).

In terms of vision loss, the degree to which individuals feel that they have the ability to influence or modify loss(es) is likely to effect how successful they are in achieving their goals and objectives. Researchers such as Burack-Weiss (1991) have utilized qualitative data to address the process of attitudinal change in older adults experiencing vision impairment. This author argues that one's attitude may contribute to understanding the different actions that people take. The sample of 86 visually impaired older adults were asked "How has your attitude changed since you first began to have vision problems?" (Burack-Weiss, 1991). Although attitude was not clearly conceptualized by the researcher, it appears to represent how one feels about his/her situation. She reports that 37.2% had no change in attitude, with close to equal proportions reporting an improvement (23.2%), or a decline (25.6%) in attitude. The remainder stated that their attitude either paralleled the state of their

eye condition or was not at all related to their eyes. There is the recognition that "[t]ime is not necessarily a healer. Due to changing life circumstances and the progressive nature of most vision impairments, attitude change may just as likely be for the worse as for the better" (Burack-Weiss, 1991, p. 23). This observation is significant as it acknowledges that coping or adjustment does not necessarily become less extensive in proportion to the length of time one has the loss. People's life circumstances are constantly changing, and this is likely to affect how they deal with their vision loss.

The literature consistently mentions that some individuals experiencing vision loss feel that they lose control over their lives, over their environment (personal space, geographical mobility, unknown environments), over certain forms of communication (glances, eye contact, body gestures, and others' facial reactions and expressions), as well as over parts of their privacy (need help with mail, and other written communication) (Orr, 1991). Furthermore, some researchers have chosen to espouse a strong connection between the degree of control one perceives and success with coping.

The concept of locus of control has significant implications related to adjustment and adaptation to sensory loss. Women who attribute their successes to internal causes affirm more pride and satisfaction in their accomplishments than do those who attribute success to an external cause (Kinderknecht & Garner, 1993, p.175).

Therefore, if independence and self-reliance are valued by the individual with vision loss, constant assistance from others may result in feelings of powerlessness, possibly resulting in them not asking for help from others. In summary, the vision loss

literature includes a significant amount of discussion on the positive beliefs which may be related to adaptation to vision loss.

### Social Support

Social support is categorized as an environmental resource (Lazarus & Folkman, 1984). Having people from whom one can draw strength, advice, or support, is believed to assist in the coping process. To begin, it is necessary to make the distinction between the concepts of social support and social network. While a social network refers to all of one's surrounding social contacts, social support focuses more on the actual exchanges between select individuals from the network (Pearlin, Aneshensel, Mullan, & Whitlatch, 1996). As with many areas of people's lives, families and friends of those with vision loss have been recognized as trying to provide both instrumental and emotional support (Davis et al., 1995).

It has been suggested by some (Orr, 1991; Warnke, 1991) that social supports are the most influential resource that one can possess. It is, therefore, no surprise that this area has received considerable attention in the vision loss literature. Various researchers (Emerson, 1981; Galler, 1981; McCulloh et al., 1994; Weisse, 1989) have reported on some of the positive benefits associated with social support. For example, some members of a formal support group reported that not only did they benefit from the emotional support of the group, but they also appreciated learning techniques and strategies from others that could be used in their daily lives (Galler, 1981). Reinhardt reports that "[v]isually impaired elders who maintain supportive

later-life friendships in addition to family relationships have higher life-satisfaction, fewer depressive symptoms, and better adaptation to vision loss" (1996, p. 276). However, the author continues by saying that although this finding is significant, it explains only a small portion of the variance that exists in terms of differences in adaptation to vision loss. In addition to actual support, other researchers propose that perceived support (a subjective belief that one has support) assists those who are attempting to cope with vision loss. Kinderknecht and Garner found that "...reports of effective coping and low levels of psychological distress are associated with high levels of perceived support" (1993, p.177).

Some researchers (Davis et al., 1995) have argued that the maladaptive nature of social supports should also be examined. Vision loss has the potential to put stress on the family, so this may be one reason for supports not being as beneficial as would be desired. Davis and colleagues (1995) state that a consideration of the family dynamics pre-vision loss would be revealing in terms of the actual degree of support the family is capable of providing. In addition, some families may try to limit what the individual does, not acknowledge the loss to a far enough degree, or over-protect or patronize the older family member with vision loss (Kinderknecht & Garner, 1993; Stuen, 1991).

Finally, the benefits that can be provided by social supports may be sabotaged by the older individual him/herself. Some visually impaired older individuals are

...concerned about burdening those who support them and risking abandonment or resentment. The issue of 'burden' is related to whether the social network is sufficient to handle the needs of the client (Thompson et al., 1992, p.79).

Furthermore, while older adults strive to maintain independence, there is the desire by many to engage in interdependent interactions within social situations (Orr, 1991). It appears that some individuals would like to be independent in regards to some areas of their life, in addition to being interdependent with those who comprise their social support networks.

In summary, although it is clear that the literature has discussed social support as a resource for the visually impaired, researchers such as Reinhardt suggest that the "...comparison of the amount and the effect of support received from specific sources within the broad context of social support has received less attention" (1996, p. 269). She suggests that fellow researchers should build upon her research on social supports, to consider other personal and formal resources and argues that such analyses "...may provide an even fuller picture of adjustment to chronic physical impairment in later life" (1996, p. 277). Overall, future research needs to explore whether certain types of social support are more or less likely to help one cope with his/her vision loss, or to influence specific coping actions that are taken.

## Material Resources

The last set of resources to be considered are material resources. Lazarus and Folkman (1984) argue that monetary resources can increase one's options in terms of accessing goods and services which may be of benefit. The influence of monetary resources on the management of vision loss in later life is not an area that has received much attention in the reviewed literature. To date, monetary resources such

as socio-economic status have not been found to be predictive of coping with vision loss (Reinhardt, 1996). Clearly, research is needed to more fully examine whether indicators of material resources are associated with differences in coping, or in differences in the use of certain coping strategies.

# **Coping Outcomes**

Although Lazarus and Folkman (1984) explore various concepts associated with the coping process, they do not appear to consider the concept of coping outcomes with the same amount of detail or explanation. Nonetheless, these researchers do acknowledge that the concepts of coping strategies, appraisals, and coping resources have the potential to contribute to coping outcome(s). Most simply, coping outcomes appear to be the consequences of the coping process. Individuals may not always be consciously aware of their goals and objectives; however, the coping process is likely engaged in with certain expectations. Similar to the initial definition of coping, favorable coping outcomes are those that have altered a stressful, challenging, or demanding situation into one that is non-threatening, neutral, or tolerable (Rutman & Freedman, 1988). In other words, the focus may change from what an individual cannot do, to what he/she is able to do (Flax et al., 1993). In contrast to preferred coping outcomes, non-preferred or negative coping outcomes may result in the belief that the demand or challenge has not been addressed or reduced to the individual's satisfaction.

A concept such as coping outcomes is not only difficult to conceptualize, but it is also difficult to measure. Nonetheless, some researchers have attempted to do

so. Reinhardt (1996) chose three outcome measures for her study. Two were global measures of psychological well-being (life satisfaction, and depressive symptoms), while the third measure was domain-specific, namely adaptation to vision loss. These measures were designated as dependent variables in an analysis that examined whether socio-demographic characteristics, vision, health, functional disability, family support quality, and friend support contributed to their variance.

Finally, Crews (Program Manager - Michigan Commission for the Blind)
seems to best capture what visually impaired older adults strive for as their 'preferred
coping outcomes', while stating what it is that his organization can do to help. He
remarks that

In our efforts to foster independence, we must remember that we are not simply talking about dignity. We are not merely talking about choice. We are not merely talking about cooking a meal, we are talking about self-esteem. We are not only talking about seeing the price of groceries, we are talking about control. These goals - dignity, choice, self-esteem, and control - are the things that are central in all our lives. They are, in fact, the things that make life worth living (Crews, 1991, p. xvi).

### Coping Process as a Whole

Now that some of the different components which comprise the coping process have been considered, the discussion will briefly turn to the process of coping in response to vision loss. Some researchers would like to acknowledge that coping is individualized, as every set of circumstances is different. Yet others would like to determine whether certain groups of people deal with similar challenges in comparable ways. Lazarus and Folkman (1984) believe that the shift of concentration has been away from the farther reaching, global, structural approaches, with the trend

being to produce theories that address coping in response to particular challenges or situations.

Some researchers such as Emerson (1981, p. 42) acknowledge that previous work in the area of coping with vision loss has outlined a "...conceptual framework that normal response to loss of vision follows a pattern of three phases: shock, anaclitic depression, and readjustment". The coping process that has been outlined here, however, does not consist of stages; in contrast, a process-oriented approach has been taken.

Learning to live with vision loss is an ongoing process. The process is not always in a forward direction or in a neat series of steps. People frequently reach a point in the adjustment process where they stay for some period of time. Time, experience, physical, psychological, social, and environmental factors encourage movement to the next step (Flax et al., 1993, p.52).

Great diversity exists among those who cope with vision loss and how they navigate through the coping process. It follows, then, that there are a variety of possible sequences that could occur as a result of diverse individuals and scenarios.

## Conceptual Framework

Some of the concepts presented by Lazarus and Folkman (1984) have been examined previously by other researchers (see, for example, Felton & Revenson, 1984, 1987; Moos & Schaefer, 1984; Tobin, Holroyd, Reynolds, & Wigal, 1989). In keeping with these examples, this study will consider select elements of Lazarus and Folkman's (1984) conceptual scheme. However, a review of both the vision loss literature and the selected data set has necessitated certain adjustments.

For the purposes of this research, socio-demographic characteristics, appraisals, material resources, and coping strategies will be considered in much the same way as discussed by Lazarus and Folkman (1984). However, based on the available data, and a review of the literature on vision loss, the resource groups of health and energy, positive beliefs, and social support have been re-conceptualized as health status, psychological resources, and social resources respectively. For example, the category label of health and energy was found to be unsuitable as the focus will be on considering an individual's health status and not his/her energy level. The term positive beliefs was replaced by psychological resources as the former seems to allude to only those beliefs that are inspired by hope. In contrast, a variety of measures that target one's psychological resources will be included here. Finally, the label of social resources replaces the label of social support. This change was made in recognition of the distinction noted in the literature review between social supports and social networks. Under the more inclusive category of social resources, a number of different types of social resource measures can be included.

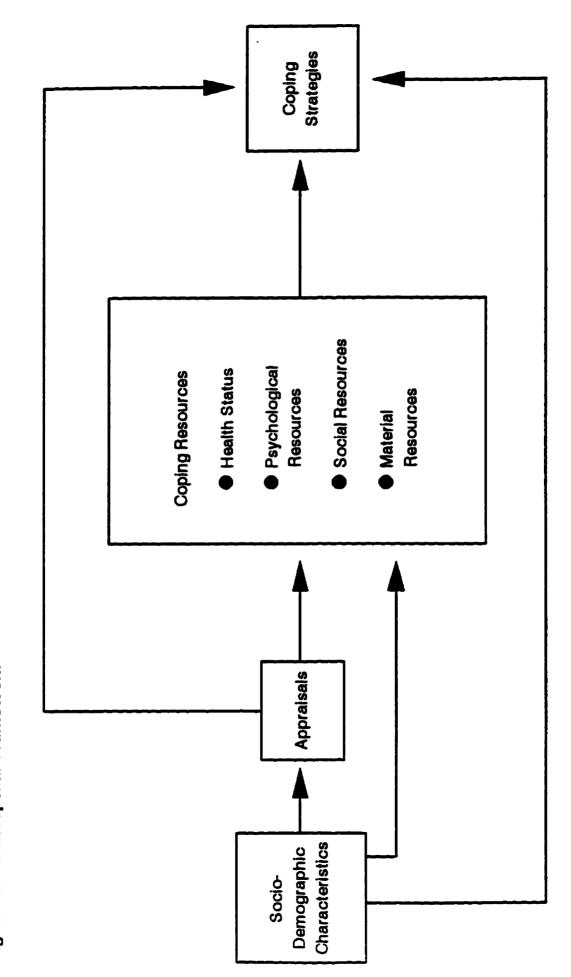


Figure 1. Conceptual Framework

## Summary and Limitations of the Reviewed Literature

The primary purpose of this chapter was to review the literature which considers how some older adults manage with their vision loss. It is clear that various individuals implement a variety of strategies and techniques as they face the many domains in their day to day lives that are effected by the vision loss. A consideration of the relevant literature reveals that certain coping resources are discussed as being significant to coping; however, their relationship to coping strategies deserves further attention.

The literature review has identified several areas for future research. First, despite an ever increasing literature that deals with the practical issues associated with vision loss, it is somewhat surprising that there has not been more done connecting the practical with a conceptual or theoretically based framework. It is possible to find works which focus more on the practical issues associated with vision loss (see for example, Burack-Weiss, 1991; Sekuler, 1991; Thompson et al., 1992) and those which focus more on conceptual or theoretical concepts (see for example. Ainlay, 1988; Davis et al., 1995). However, among the literature reviewed here, there is little evidence to indicate work which combines the two. Secondly, and most important, a review of the literature reveals that little work has been done in regards to understanding the variation that exists among those older adults with vision loss, and the implications of these differences on coping and adjustment (Silverstone, 1993).

These limitations contribute to the motivation to undertake the proposed research. To begin, older adults with eye problems will be compared to those with no eye problems in terms of coping resources and selected socio-demographic characteristics. This question allows for a consideration of the coping resources that older adults possess. The remainder of the research questions will consider some of the concepts in the coping process and the relationship between them. The strategies that are undertaken to deal with vision loss will be considered. In addition, appraisals and coping resources (health status, psychological resources, social resources, and material resources) will be considered to determine whether they contribute to the variation that exists in regards to the actions that are taken to cope with vision loss in later life.

### **Research Ouestions**

This research will explore the following questions:

- 1. Are there significant differences between older adults with vision loss and those without in terms of socio-demographic characteristics and coping resources?
- 2. What are the coping strategies used by older adults with vision loss, and to what extent is there variation in these strategies?
- 3. To what extent are the variations in the strategies taken to manage with vision loss related to socio-demographic characteristics, appraisals, and coping resources?

# **Chapter Summary**

The focus of this chapter has been on reviewing the literature concerning older adults who live with vision loss. The chapter began with a discussion on the terminology used in regards to the visually impaired, the prevalence of vision loss in Canada, and characteristics of those affected. Following this, concepts associated with coping were considered. The concepts of coping strategies, appraisals, and coping resources were all included. It was determined that these concepts do not appear to guide the research in the area of vision loss in later life. The chapter concluded with research questions developed to address the limitations found in the literature review.

### **CHAPTER THREE: METHODOLOGY**

### **Chapter Introduction**

This chapter includes a description of the Chronic Illness and Disability in Later Life Study (CIDLLS). In addition, the variables which are key to this thesis are considered with respect to their measurement, and any transformations that are undertaken for the purposes of the analyses. Next, the study sample is described. The chapter concludes with a discussion on the statistical techniques which are used to address the three research questions.

# The Chronic Illness and Disability in Later Life Study

This research on vision loss in later life involves secondary analysis of data from the Chronic Illness and Disability in Later Life Study (CIDLLS) conducted by the Centre on Aging at the University of Manitoba in the fall/winter of 1993 and 1994. The focus of that study was on chronic illness and disability in the everyday lives of older adults. The information obtained included socio-demographic characteristics, respondents' health beliefs, ability to perform activities of daily living, use of health services, and extent of both perceived and actual social resources. As a follow-up to a 1985 study, the intent was to trace changes which occurred over time in areas such as rates of disability, and service use.

Funding for the project was awarded to L.A. Strain, University of Manitoba, and M.J. Penning, University of Victoria, by the National Health Research and Development Program, Health Canada. More details on methodology are provided in Sweiden and Strain (1995).

This data set was selected as it offers information on older adults with vision loss. Respondents were asked the question "Have you had eye trouble not relieved by glasses within the last year or otherwise still have after effects from having had them earlier?" Those individuals who answered affirmatively were asked a series of specific questions about their eye trouble, including the length of time with eye trouble, perceived cause, specific symptoms of the problem, whether the symptoms were an interference or a bother, what actions, if any, were taken to deal with the problem, and whether the problem had been diagnosed by a health care professional. Finally, those who had lived with the condition for more than eight years were asked whether the condition had become worse, better, or stayed the same.

# **Data Collection**

CIDLLS involved re-interviewing individuals who participated in a 1985 study entitled Decision-Making and the Use of Health and Social Services.<sup>2</sup> A brief description of the initial study sampling methodology will be presented. Attention will then turn to the CIDLLS sample.

The 1985 study involved a random sample from a list generated by the Manitoba Health Services Commission (MHSC)<sup>3</sup> of individuals aged sixty and over who were living in Winnipeg. A total of 1402 names were used from the listing provided by MHSC. New cases were drawn from the listing as potential respondents were deemed ineligible or refused to participate. Among those contacted, 147

<sup>&</sup>lt;sup>2</sup> For more details on this study, see Chappell and Strain (1987).

<sup>&</sup>lt;sup>3</sup> At the time, the MSHC was responsible for the processing of health insurance claims for Manitoba residents. Now it is referred to as Manitoba Health Information Systems.

individuals were ineligible due to health problems (n = 135) or language barriers (n = 12), and 252 refused to participate, leaving a final sample of 743 respondents. The overall response rate was 75% (Strain, 1988). The in-depth interviews with these 743 individuals took place in the spring and summer of 1985.

Beginning in October 1993, potential respondents were sent a letter reminding them of the 1985 study in which they had participated, and inviting them to complete another interview. The letter stated that an interviewer would be calling them, to arrange a time and a place for an interview at their convenience. When a potential respondent was unable to be located, efforts to track the individual included approaching neighbours and searching telephone directories. Individuals who resided in Winnipeg in 1985 but had since moved to other communities in Manitoba, or to other provinces, were also sent letters and contacted by an interviewer. In some of these cases, interviews took place over the telephone.

Of the 743 respondents in the original study, 393 were re-interviewed. Since the initial study, 232 participants had died. In addition, twenty-five were ineligible due to poor health and one person had language problems. Finally, twenty-one were residents of long-term care centres, fifteen were known to have moved from Winnipeg and were not contacted, and twenty-three could not be located. Thirty-three refused a second interview, giving a 7.7% refusal rate. Interviews lasting an average of one and three-quarter hours were conducted with respondents either in

<sup>&</sup>lt;sup>4</sup> The refusal rate was calculated by dividing the number of refusals by the sum of the refusals and the number of completed interviews, and then multiplying by one-hundred.

person (n = 385) or over the telephone (n = 8). It should be noted that the sample size for these analyses will be 391 as two respondents answered very few questions.

Table 1 includes a comparison of selected socio-demographic characteristics of the 1985 (n = 743) and 1993/94 samples of those interviewed (n = 391), and those individuals who were ineligible or refused to participate (n = 350). In general, those individuals who were re-interviewed were more likely to be younger, female, and either married or never-married in 1985, as compared to those individuals not re-interviewed. In addition, a higher level of education was associated with a higher re-interview rate.<sup>5</sup>

<sup>&</sup>lt;sup>5</sup> See Sweiden and Strain (1995) for a more detailed comparison.

TABLE 1: Comparison of 1985 Sample and 1993/94 Sample by Selected Socio-demographic Characteristics

	1985 %	Re-interviewed 1993/94 %	Not Re-interviewed 1993/94 %
Age (in 1985)	(n = 743)	(n = 393)	(n = 350)
60 - 74	` 71.9 ´	82.2	60.3
75 - 79	15.1	14.8	15.4
80 - 84	8.2	2.8	14.3
85÷	4.9	0.3	10.0
$\chi^2 = 108.95$ , d.f. = 6, p<.001			
Gender	(n = 743)	(n = 393)	(n = 350)
Male	41.3	36.9	46.3
Female	58.7	63.1	53.7
$\chi^2 = 6.73$ , d.f. = 1, p<.01			
Marital Status			
(in 1985)	(n = 743)	(n = 393)	(n = 350)
Single/Never Married	7.0	7.9	6.0
Married	60.4	66.4	53.7
Divorced/Separated	5.7	5.1	6.3
Widowed	<b>2</b> 6.9	20.6	34.0
$\chi^2 = 18.68$ , d.f. = 3, p<.001			
Average Monthly			
Household Income			
(in 19 <b>8</b> 5)	(n = 634)	(n = 335)	(n=299)
\$0 - \$1499	73.3	67.2	80.3
\$1500 <b>- \$2</b> 499	17.4	20.6	13.7
\$2500+	9.3	12.2	6.0
$\chi^2 = 27.91$ , d.f. = 6, p<.001			
Years of Education			
(in 1985)	(n=714)	(n=378)	(n = 336)
0 - 6	16.2	10.3	22.9
7-9	28.6	27.0	30.4
10 - 12	39.6	43.7	35.1
13+	15.5	19.0	11.6
$\chi^2 = 27.69$ , d.f. = 3, p<.001			

<sup>&</sup>lt;sup>1</sup> The chi-squares presented are from the comparison of the not interviewed and the interviewed.

Source: Sweiden, J., & Stain, L.A. (1995). <u>Chronic illness and disability in later life: Methodology</u>. (Tech Rep) (Table C - 2, pp. 39 - 42). Winnipeg, Manitoba: University of Manitoba: Centre on Aging.

# Measurement of Key Variables

The following sections focus on the concepts of interest in this study, and the variables chosen to represent them (see Table 2, and Appendix A for additional details). The operational definitions of the key variables, in addition to the variable measurement and transformations are considered.

**TABLE 2: Key Concepts and Variables** 

Concepts	Variables
Socio-demographic Characteristics	Age
	Gender
Health Status	Self-assessed health status
-	Number of Chronic health problems
	Number of ADL/IADL limitations
Psychological Resources	Life satisfaction
	Self-esteem
	Self-efficacy
	Perceived control over health
	Health locus of control
Social Resources	Marital status
	Living arrangements
	Size of family network
	Number of family network members seen at least weekly
	Number of confidants
	Number of friends
	Perceived instrumental support
Material Resources	Monthly household income
	Perceived adequacy of household income
	Education
Coping Strategies	Actions taken to deal with the eye problem
Appraisals	Perceived cause(s) of the eye problem
	Perceived symptom(s) of the eye problem
	Length of time with eye problem(s)
	Amount of interference
	Amount of bother

# Socio-Demographic Characteristics

The two socio-demographic characteristics considered are age and gender.

Other commonly considered socio-demographic characteristics (e.g., monthly household income, education) are included in the category of material resources, as some researchers (Lazarus and Folkman, 1984, p. 164) have commented that material resources are rarely mentioned in discussions of coping.

Age is reported in years (continuous). For certain analyses, this variable is also collapsed into the age categories of "68 to 74", "75 to 79", "80 to 84" and "85 and over", or "68 to 79" and "80 and over". A higher score is associated with increasing age. Gender is coded as a dichotomous variable (males = 0, females = 1).

# **Coping Resources**

### Health Status.

Self-assessed health status, chronic health problems, and activities of daily living (ADL/IADL) limitations have been chosen to represent health status. Each will be addressed in turn. Self-assessed health status targets the respondent's evaluation of his/her health. In order to measure self-assessed health status, respondents are asked "Overall, would you say, in general your health is excellent, good, fair, poor, or bad?" Responses are coded from 1 to 5 respectively. For some analyses, the responses are collapsed into the categories of "Excellent/Good" (1) and "Fair/Poor/Bad" (0). This recoding is necessary to compensate for those categories that have few cases.

Chronic health problems are also considered as a measure of health status. Participants were asked about the presence of twenty-three chronic health problems (heart trouble, stroke, high blood pressure, other circulation problems, kidney trouble, cancer, diabetes, breathing problems, palsy, thyroid trouble, stomach trouble, dental problems, emotional or mental health problems, foot or limb problems, skin trouble, arthritis, eye trouble not relieved by glasses, ear trouble, incontinence, other bladder problems, osteoporosis, fractures, and any other conditions) drawn from the United States Health Insurance Study (U.S. National Office of Vital Statistics, 1957).

Respondents were read the list of conditions and asked if they have had any of them within the last year or are still having the effects from having them earlier.

The response for each condition is either yes (1) or no (0). A count is done to compute the total number of chronic health problems reported by respondents. This count includes all of the above mentioned specific conditions except for eye trouble not relieved by glasses, and other conditions. Any other conditions mentioned by the respondents are excluded as it is possible that some people do not think to volunteer additional health problems while others do. Higher summed scores indicate the presence of more health problems. Cronbach's alpha is not computed to determine reliability as having one health problem is not assumed to be related to having another problem.

The final indicator of health status considers **ADL/IADL** limitations. These items target the respondents' abilities to perform various basic or personal care activities (dressing, eating, bathing, walking, toileting), and instrumental activities

(using the telephone, shopping, preparing meals, doing household tasks, handling money, taking out trash, and taking medication) (modified from Duke University for the Study of Aging and Human Development, 1978; Katz, Ford, Moskowitz, Jackson, & Jaffe, 1963; Manitoba Department of Health and Social Development, 1973; Shanas, Townsend, Wedderburn, Friis, Milhoj, & Stehouwer, 1968). For each activity, respondents are asked whether they are able to complete the task without help, with some help, only with help, or are completely unable to do it. Responses are coded from 0 to 4 respectively.

Before constructing the basic and instrumental ADL scales, each item is recoded so that if the task can be done without help, the respondent is assigned a value of 0, whereas if at least some help is required, that item is recoded to 1. The number of activities that respondents require at least some assistance is then summed. For the basic ADL scale, scores can range from 0 to 5, while 0 to 7 is the range for the IADL scale. Higher scores indicate that individuals require help with more of the ADL/IADL's. For some analyses, both variables are collapsed into two categories that include no help needed (0), and help needed with one or more of the activities (1).

Reliability analyses are carried out on both ADL and IADL items to confirm the appropriateness of each of the scales. Cronbach (1951) has suggested that an alpha coefficient of .60 or higher is indicative of an acceptable level of reliability. The alpha coefficient for the ADL items is .73, while it is .78 for the IADL items, indicating that both scales represent reliable measures.

In the case of ADL and IADL limitations, the twelve items are combined into one scale, as the two sub-scales correlate highly (.71). Hickey (1986) suggests that correlations of .60 and higher indicate a strong association between variables. This larger scale may provide a more comprehensive measure in terms of the extent to which individuals require help with activities of daily living. The possible score on this scale for each respondent ranges from 0 to 12, with higher scores indicating that participants require help with more of the ADL/IADL activities. For some analyses, this variable is collapsed into the categories of no help needed with any of the activities (0), and help needed with one or more of the activities (1). A reliability analysis is carried out on these items to confirm the appropriateness of the scale. As per Cronbach (1951), the alpha coefficient for this combined ADL/IADL scale is .86, indicating that this scale represents a reliable measure.

## Psychological Resources.

Life satisfaction, self-esteem, self-efficacy, perceived control over health, and health locus of control have been chosen to represent psychological resources. The life satisfaction scale by Wood, Wylie, and Sheafor (1969) (LSI-Z) is an instrument designed to measure life satisfaction. The scale includes thirteen statements to which respondents are asked to indicate whether they agree, disagree, or are not sure.

The procedure used to calculate the life satisfaction scale is consistent with the method used in the 1985 Decision-Making and the Use of Health and Social Services study (Strain, 1988). Each of the scale items is recoded so that responses

which indicate high life satisfaction are coded as 2, uncertainty as 1, and low life satisfaction as 0. To construct the scale, response values are summed across all items, with a higher score indicating a higher level of life satisfaction.<sup>6</sup> Possible scores range from 0 to 26. Reliability analyses are conducted to confirm the appropriateness of combining the items into one scale. The reliability of the scale is acceptable as Cronbach's alpha is .74 (See Appendix B for frequencies and reliabilities). A shortened version of life satisfaction is also created for use in some of the analyses.<sup>7</sup>

A scale developed by Rosenberg (1965) is used to measure one's self-esteem. Self-esteem consists of positive feelings that an individual has towards him/her self. This scale includes a series of ten statements to which respondents are asked to strongly agree, agree, disagree, or strongly disagree. Similar to the method used by Ward (1977), the response values of the ten items are combined to construct the self-esteem scale. Prior to summation, each of the scale items is recoded so that responses which indicate high self-esteem are coded as 3, moderately high self-

<sup>6</sup> In order to reduce the length of the interview, respondents interviewed over the telephone were not asked these items, and are therefore assigned missing values on the scale. Two individuals are missing on only one item, and are assigned a "Not Sure" response (value of 1) for that item.

The categories of the collapsed version of the variable include 0 to 13 (Poor), 14 to 19 (Fair), 20 to 22 (Good), and 23 to 26 (Excellent). They are coded from 0 to 3 respectively. This version correlates highly (.88) with the longer version.

<sup>&</sup>lt;sup>8</sup> Self-esteem scores are based on the number of items to which participants respond. For example, if an individual responds to 8 of the 10 items, his/her score only takes into account those 8 items. This method allows individuals who have some missing data to remain in the sample. Respondents missing on five or more of the items are assigned a missing value for the scale. In total, there are 11 respondents who are assigned missing values for this scale. Telephone interviews did not include these items (n = 8), 2 individuals did not answer all 10 items, and 1 individual is missing on more than half of the items.

esteem as 2, moderately low self-esteem as 1, and low self-esteem as 0. Possible scores range from 0 to 30, with a higher score indicating higher levels of self-esteem.

Reliability analyses are conducted to confirm the appropriateness of combining the items into one scale. The reliability of the overall index is acceptable (Cronbach's alpha = .80) (See Appendix C for frequencies and reliabilities). For some analyses, shortened versions of the self-esteem scale are used.<sup>9</sup>

Self-efficacy is measured with the use of Sherer and Maddux's (1982) scale. Self-efficacy refers to beliefs and expectations about one's ability to perform behaviours aimed at generating desired outcomes. This scale consists of a series of seventeen statements to which respondents are asked to strongly agree, agree, disagree, or strongly disagree. Following a method suggested by Sherer and Maddux (1982), each of the scale items is recoded so that responses which indicate high self-efficacy are coded as 3, moderately high self-efficacy as 2, moderately low self-efficacy as 1, and low self-efficacy as 0.

The seventeen items are combined to construct the self-efficacy scale.

Response values are summed across all items, with a higher score indicating that an individual perceives him/herself to be effective and able to affect change in his/her life. Scores may range from 0 to 51.

<sup>&</sup>lt;sup>9</sup> Collapsed categories include 0 to 17 (Poor), 18 to 19 (Fair), 20 (Good), and 21 and above (Excellent). These categories are coded from 0 to 3 respectively, with higher scores indicating larger amounts of self-esteem. This version correlates highly (.94) with the longer version.

 $<sup>^{10}</sup>$  Self-efficacy scores are based on the number of items to which participants respond (see footnote 8 for additional details). Respondents who have missing information on more than 9 of the 17 items are excluded from the scale. In total, there are 12 missing cases for this scale. Persons interviewed over the phone (n = 8) account for the majority, while 2 respondents are missing on all of the items, and 2 individuals are missing on more than 9 of the items.

Reliability analyses are conducted to confirm the appropriateness of combining the items into one scale. The reliability of the overall index is acceptable (Cronbach's alpha = .84). (See Appendix D for frequencies and reliabilities). A shortened version of the variable is created for use in some analyses.<sup>11</sup>

Perceived control over health may also contribute to one's psychological resources, as it measures how much the individual believes that he/she is in control of his/her health. In order to measure perceived control over health, respondents are asked "How much control do you think you have over your health?" Possible responses include none (1), some (2), or a great deal (3). For some analyses, the variable is collapsed into the categories of none/some (0), and a great deal (1).

Health locus of control is another measure of control. Respondents are asked to indicate agreement on a 4 point scale with a series of statements designed to tap health-specific locus of control beliefs (Segall, 1983, drawing on the work of Freidson, 1961; Lau & Ware, 1981; and Wallston, Wallston, Kaplan, & Maides, 1976). Response categories include strongly disagree, disagree, agree, and strongly agree which are coded 0 to 3 respectively. The concepts of external and internal health locus of control, and degree of medical skepticism are incorporated into these items (see Appendix F for frequencies and factor analyses on single items).

External health locus of control reflects the extent to which some individuals believe that their health is a matter of chance (Lau & Ware, 1981;

<sup>&</sup>lt;sup>11</sup> Categories of the shortened version include Poor (0 to 28), Fair (29 to 31), Good (32 to 33), and Excellent (34 to 51). These categories are coded from 0 to 3 respectively, with higher scores suggesting a higher degree of self-efficacy. This version correlates highly (.89) with the longer version.

Wallston et al., 1976). In order to determine the extent to which respondents feel this way, they are asked the extent of their agreement to four statements that target such beliefs. For example, one of the statements is "People who never get sick are just plain lucky".

Both confirmatory factor and reliability analyses are done on these four statements. Confirmatory factor analyses is done in order to verify that these four statements are measuring the same concept. The analyses proceeds in three steps. First, the correlation matrix is calculated. This procedure determines whether the measures are associated. Next, the extraction of the initial factors are reported. Thirdly, the variables are rotated in order to establish the items which factor together. Reliability analyses are conducted to confirm the appropriateness of combining the items into one scale.

Results of the confirmatory factor analyses reveal that only three of the four items load onto the same factor. Therefore, the external health locus of control score is calculated by summing the responses to these three statements.<sup>12</sup> The reliability score of the three remaining items is acceptable as Cronbach's alpha is .70 (see Appendix E for frequencies, factor analyses, and reliabilities). External health locus of control scores may range from 0 to 9. A higher summed score suggests that the respondent believes that his/her health is determined by factors such as fate or chance. For some analyses, it is necessary to collapse the variable.<sup>13</sup>

 $<sup>^{12}</sup>$  External health locus of control scores are based on the number of items to which participants respond. Individuals who are missing on one or more of the items (n = 17) are assigned a missing value for the scale.

<sup>&</sup>lt;sup>13</sup> Categories of the collapsed version of the variable include Low (0 to 4) and High (5 to 9) that are coded 0 and 1 respectively.

In contrast, internal health locus of control reflects the degree to which individuals feel that their health is determined by their own actions. Respondents are asked to indicate agreement to 5 statements that are said to represent such beliefs.

An example of one of the statements is "People who take care of themselves stay healthy".

Both confirmatory factor analyses (for more detail see discussion under external health locus of control) and reliability analyses are performed (Appendix E). Factor analyses results reveal that 4 of the 5 items load onto the same factor. The reliability analyses of the four remaining items (.56) is approaching the suggested level; therefore, interpretations based on these statements will be made cautiously.

In order to determine the degree to which respondents feel that their health is determined by their own actions, responses to the four items are summed. <sup>14</sup> Possible scores range from 0 to 12. Higher scores suggest that individuals believe that they have control over the state of their health. A collapsed version of the variable is also created for use in some analyses. <sup>15</sup>

Medical skepticism refers to the degree to which individuals feel skeptical of the medical profession, more specifically physicians (Freidson, 1961). An example of one of the six statements is "A person understands his or her own health state better than most doctors".

<sup>&</sup>lt;sup>14</sup> Internal health locus of control scores are based on the number of items to which participants respond. Respondents who are missing on one or more of the items (n = 25) are assigned a missing value for the scale.

<sup>&</sup>lt;sup>15</sup> The collapsed version of the variable includes the categories of Low (0 to 5) and High (6 to 12) that are coded 0 and 1 respectively.

Both confirmatory factor analyses (for more detail see discussion under external health locus of control) and reliability analyses are performed (Appendix E). Factor analyses results reveal that 5 of the 6 items load onto the same factor. The reliability analyses of the five remaining items (.56) is approaching the suggested level; therefore, interpretations based on these variables will be made cautiously.

To construct the medical skepticism scale, response values are summed across the five items. <sup>16</sup> Possible scores range from 0 to 15. A higher summed scores implies that the respondent is skeptical when it comes to some aspects of modern medicine, or of certain professionals within the health care system. For some analyses, the variable is collapsed. <sup>17</sup>

# Social Resources.

Social resources are measured by marital status, living arrangements, the size of family network, the number of family network members seen at least weekly, the number of confidants, the number of friends, and perceived instrumental support.

Turning first to marital status, it is represented by a nominal level variable with the categories of single/never married, married, divorced/separated, or widowed. This variable is also converted into a dummy variable where those who are currently married are coded as 1, with all others being coded 0. This coding scheme allows for comparisons between those who are currently married, and those who are not.

<sup>&</sup>lt;sup>16</sup> Medical skepticism scores are based on the number of items to which participants respond. Respondents who are missing on one or more of the items (n = 24) are assigned a missing value for the scale.

<sup>&</sup>lt;sup>17</sup> Categories of the collapsed version include Low (0 to 7) and High (8 to 15) that are coded 0 and 1 respectively.

Living arrangements summarizes the total number of individuals that currently reside with the respondent. Respondents are asked "How many people, if any, live here with you?" For the purposes of the present analyses, this variable is collapsed into two categories that include lives alone (0), and lives with one or more others (1).

Turning to the size of family network, respondents are asked about the number of parents, brothers, sisters, sons, and daughters that they have. Responses are summed to represent the size of the family network. In some analyses, values are recoded to the two categories of 0 to 4 family members (0) and 5 or more family members (1) in order to distribute the sample into two roughly equal categories.

In addition, the number of family network members seen at least weekly is calculated, as respondents are asked the number of each relation (e.g. son, daughter) that they see daily, or at least weekly. For some analyses, this variable is collapsed into the categories of no family members (0), 1 to 2 family members (1), and 3 or more family members (2). This recoding is necessary as there is variation across the sample.

The **number of confidants** is also included as an indicator of social resources. Participants who responded affirmatively to the question "Do you receive emotional support from anyone? That is, do you have someone who you confide in, talk to about yourself, your concerns, etc.?" are also asked to name how many. For some analyses,

this measure is converted from a continuous variable to include the four categories of no confidants (0), one confidant (1), two confidants (2), and three of more confidants (3).

To determine the **number of friends**, respondents are asked "Other than relatives, how many people do you consider as close friends?" For some bivariate analyses, collapsed categories include 0 to 6 friends (coded as 0), and seven or more friends (coded as 1), which divides the sample into roughly two groups.

Lastly, six questions focus on **perceived instrumental support**. For example, respondents are asked "If you were not feeling well, for whatever reason, who, if anyone would get groceries, essentials, etc., for you?" Other areas include house-cleaning, meal preparation, getting to the doctor/hospital, and who if anyone would get called in an emergency, or if information was needed about health matters. The responses from these items include no one (0), and at least one person (1). The response category of "don't know" is recoded to (0). Responses are summed to obtain a measure of the extent of perceived support, with a possible range of 0 to 6. Scores reflect the number of tasks (maximum of 6) that individuals are able to identify at least one person that they can call upon. This variable is collapsed into the two categories of 0 to 4 (0), and 5 to 6 (1), due to the fact that the distribution is extremely skewed in favor of scores 5 and 6.

# Material Resources.

Monthly household income, perceived adequacy of household income, and education have been chosen to represent material resources that one may possess. In the study, respondents are asked to report the total monthly household income in absolute terms. For the purposes of these analyses, responses are grouped into the categories of \$0 to \$1499, \$1500 to \$2499, and \$2500 or more. In some analyses, those who refused to answer, and those who did not know the income of the household may be included or excluded.

Respondents are asked "How do you think your household income and assets currently satisfy your needs?" This variable targets the **perceived adequacy of the**household income. The response categories include very well (1), adequately (2),
with some difficulty (3), and not very well. The categories of with some difficulty,
and not very well are collapsed into one category due to few cases in each.

Finally, the measure of **education** is represented by the total number of years of schooling. This variable is subsequently recoded into the categories of 0 to 8 years (coded as 1), 9 to 12 years (codes as 2), and 13 or more years (coded as 3). Higher scores indicate higher educational attainment.

# **Appraisals and Coping Strategies**

Attention will now turn to the variables that pertain specifically to individuals who report having eye problems that are not relieved by glasses. The variables include appraisals (perceived cause(s), perceived symptom(s), length of time with eye

problem(s), amount of interference, and amount of bother), details on diagnoses (length of time since the diagnosis, and type of professional giving the diagnosis), and eye conditions/diseases. Finally, the variable that is used to evaluate the coping strategies that are used to deal with the eye problem(s) will be considered.

### **Appraisals**

To determine the perceived cause(s) of eye trouble, respondents are asked "What, in your opinion, caused this problem?" Up to three causes per respondent were previously coded by the study's initial investigators into the categories of do not know cause, advancing age, environmental factors, eye-related, hereditary/genetic, medical error, and other health conditions. For the purposes of this thesis, the codes are verified to ensure accuracy, and to validate that the coding scheme corresponds to the objectives of the current research. In some cases, there is information that was recorded on the interview schedule, that was not initially coded. In those cases where the information is relevant, it has been coded and is included. Each perceived cause is converted into a dichotomous variable. For example, not reporting the cause (e.g. advancing age) is coded as 0, while identifying the cause is coded as 1.

Participants are also asked "What are the specific symptoms of this problem?"

Up to three perceived symptoms per respondent were previously coded by the study's initial investigators into the categories of no symptoms, eye irritation, poor vision, and headaches/dizziness. For the purpose of this thesis, the codes are verified to ensure accuracy, and to validate that the coding scheme corresponds to the

objectives of the current research. As noted above, certain interview schedules contain information that was not previously coded. In some cases, the additional information is relevant to this question, and has been included. For example, although respondents interviewed over the telephone were not asked to report on symptoms, <sup>18</sup> some mentioned symptoms when answering the other questions relating to eye problems. Therefore, some of this information can be applied to this question. All of the perceived symptoms are converted into dichotomous variables. For example, not reporting the symptom is coded as 0, while identifying the symptom is coded as 1.

In order to determine the length of time with eye problem(s), respondents are asked "How long ago did you first notice this problem?" Responses are reported in years (continuous). This variable is also collapsed into the categories of "0 to 1", "2 to 3", "4 to 9" and "10 or more" years. A higher score is associated with having the condition for a longer amount of time.

In order to determine the **amount of interference** that respondents experience, they are asked "How much do the symptoms interfere with your day-to-day living?" The measure of interference attempts to target whether individuals perceive the disability of vision loss as limiting or interfering with their daily lives and activities. Responses include not at all (1), some (2), or a great deal (3). For certain analyses, this variable is also collapsed into the categories of not at all/some (0), and a great deal (1).

<sup>&</sup>lt;sup>18</sup> The telephone interviews had some questions deleted to shorten the length of the interview.

Individuals who identify some or a great deal of interference are also asked to describe how the symptoms interfere with their day-to-day lives. Up to three responses per respondent were coded by the study's initial investigators. The categories include affects activities, reference to poor vision, the need to rest more, being irritated/frustrated, and pain. For the purposes of this thesis, the codes are verified to ensure accuracy, and to validate that the coding scheme corresponds to the objectives of the current research. Interference described is included in this research for descriptive purposes.

In addition to respondents reporting on the amount of interference, they are also asked about the **amount of bother** they feel. Bother is understood as the extent to which the symptoms of vision loss or impairment may be an inconvenience to them. The bother that individuals perceive may be important when trying to make sense of how they define or appraise their situations, and the coping strategies that they put in place to deal with such bother. Respondents are asked "How much does it bother you that the symptoms are present?" Responses are coded as not at all (1), some (2), or a great deal (3). For certain analyses, this variable is also collapsed into the categories not at all/some (0), and a great deal (1).

Similar to the question on interference, the respondents who report some or a great deal of bother, are asked to **describe the bother**. Up to three responses per respondent were coded by the study's initial investigators. Categories include emotional responses, activities are affected, reference to poor vision, problems with devices, and pain. For the purposes of this research, the codes are verified to ensure

accuracy, and to validate that the coding scheme corresponds to the objectives of the current research. This variable is included in the research for descriptive purposes only.

Individuals with eye problems are asked questions concerning the diagnosis of their condition. Those who answer affirmatively to the question "Has this problem ever been diagnosed by a health care professional?", are also asked when, and by whom. The length of time since the diagnosis is reported in years (continuous). For some analyses, this variable is collapsed into the categories of "0 to 1", "2 to 3", "4 to 9" and "10 or more" years. A higher score is associated with having the condition for a longer amount of time. Responses to the type of professional giving the diagnosis are recorded verbatim, and then coded. Professionals include opthamologist, GP/Family/Emergency MD, specialist MD, and optometrist. The details on diagnoses are only included for descriptive purposes.

It is difficult to specify the eye conditions/diseases that the individuals with eye problems have, as the respondents were not asked to name their eye condition/disease. However, it is possible to determine the frequency of certain conditions/diseases as interviewers regularly wrote information on the interview schedule. When creating this variable, up to two responses per participant are coded. The categories include cataracts, glaucoma, macular degeneration, and other conditions/diseases. This information is provided for descriptive purposes.

# **Coping Strategies**

Respondents who report eye trouble not relieved by glasses are asked "What actions, if any, do you take to deal with this problem?" These actions have been chosen to represent the concept of coping strategies. The study's initial investigators coded up to three actions per respondent. These codes are checked, in order to ensure agreement with the coding scheme. This check revealed that some changes are needed. For example, in some cases there is additional information that is on the interview schedule, that was not previously coded and included. In those cases where the information is relevant to this question, it has been included. Each of the strategies is converted into a dichotomous variable. For example, the codes for the strategy of doctor visits/surgery include: doctor visits/surgery not used (0), and doctor visits/surgery used (1).

In addition to considering coping strategies separately, an attempt will also made to classify the strategies as problem-focused and emotion-focused as defined by Lazarus and Folkman (1984). Problem-focused strategies include those strategies that respondents direct at either the environment or themselves in an effort to manage their vision loss. Examples include medication use, and the use of special equipment/devices. Emotion-focused strategies include those strategies that affect the way individuals thinks about either their situation or themselves. Examples of emotion-focused strategies include denial or avoidance.

# Sample Characteristics

Now that all of the variables that will used in this research have been presented, attention will turn to characteristics of the study sample. Sociodemographic characteristics, and coping resources (health status, psychological resources, social resources, and material resources) are considered. Where possible, comparisons between this sample and the provincial or national senior population will be included. Comparisons between those individuals with and without eye problems are presented in Chapter Four.

# Socio-demographic Characteristics

# **Age**

The sample ranges in age from 68 to 94 ( $\bar{x} = 76.4$ ) (Table 3). Close to one-half (46.3%) are between the ages of 68 and 74, one-quarter (25.6%) of the sample are between the ages of 75 and 79, and 28.2% are over the age of 80. In contrast, in 1991, 60.0% of the Canadian senior population were between the ages of 65 and 74 (Norland, 1994, p.11). This difference is not surprising as the study is a follow-up of individuals who were aged 60 and older at the time of the 1985 study.

TABLE 3: Socio-demographic Characteristics and Coping Resources of the Sample

	Sample (n = 391) <sup>1</sup>
	%
A (Marin)	
Age (Years) 68 - 74	46.3
75 - 79	46.3 25.6
80 - 84	15.9
85+	12.3
Mean (S.D.)	76.4 (5.7)
Gender	
Male	36.8
Female	63.2
Self-assessed Health	(n = 390)
Poor/Fair/Bad	43.1
Good	46.9
Excellent	10.0
Number of Chronic Health Problems	
0	4.1
l	11.8
2	22.8
3-4	35.5
5+	25.8
Mean (S.D.)	3.4 (2.1)
Number of Basic ADLs That Require	
0	81.6
[+	18.4
Mean (S.D.)	0.3 (0.9)
Number of Instrumental ADLs That R	
0	67.5
I+	32.5
Mean (S.D.)	0.8 (1.4)
Number of ADL/IADLs That Require	Assistance
0	65.0
1+	35.0
Mean (S.D.)	1.1 (2.1)

<sup>&</sup>lt;sup>I</sup> If n for the sample does not total 391, the remainder did not answer the question

<sup>(</sup>i.e.missing values)

<sup>2</sup> Basic ADLs include dressing, eating, bathing, walking, and toileting.

<sup>3</sup> Instrumental ADLs include using the telephone, shopping, preparing meals, doing household tasks, handling money, taking out trash, and taking medication.

Table 3 continued

	Sample
	$(n=391)^{1}$
	%
Life Satisfaction	(n=383)
Poor (0 - 13)	22.5
Fair (14 - 19)	35.8 23.8
Good (20 - 22)	23.8
Excellent (23 - 26)	18.0
Mean (S.D.)	17.4 (5.4)
Self-esteem	(n = 380)
Poor (0 - 17)	10.0
Fair (18 - 19)	24.5
Good (20)	39.5
Excellent (21 - 30)	<b>26</b> . l
Mean (S.D.)	20.1 (2.6)
Self-efficacy	(n = 379)
Poor (0 -28)	26.6
Fair (29 -31)	26.6
Good (32 -33)	23.7
Excellent (34 - 51)	23.0
Mean (S.D.)	30.6 (4.2)
Perceived Control Over Health	(n = 384)
None	10.4
Some	55.7
A great deal	33.9
External Health Locus of Control	(n = 375)
Low (0 - 4)	45.3
High (5 - 9)	54.7
Mean (S.D.)	4.6 (1.5)
Internal Health Locus of Control	(n = 366)
Low (0 - 5)	41.3
High (6 - 12)	58.7
Mean (S.D.)	6.0 (1.3)
Medical Skepticism	(n = 367)
Low (0 - 7)	47.4
High (8 - 15)	52.6
Mean (S.D.)	7.8 (2.1)
Marital Status	
Single/Never Married	8.2
Married	51.7
Divorced/Separated	3.8
Widowed	36.3

 $<sup>^{\</sup>rm I}$  If n for the sample does not total 391, the remainder did not answer the question (i.e. missing values)

Table 3 continued

	Sample	
	$(n=391)^{1}$	
	<u>%</u>	
ving Arrangements		
ives Alone	42.5	
ves With One Or More Others	57.5	
e of Family Network (Number of Family Members)	(n = 381)	
)-4	58.3	
i+	41.2	
lean (S.D.)	4.4 (2.9)	
mber of Family Network Members Seen At Least We	ekly	
	18.4	
-2	48.3	
<b>-</b>	33.2	
fean (S.D.)	2.1 (1.7)	
umber of Confidents	(n = 388)	
	20.4	
	30.7	
+	49.0	
Tean (S.D.)	2.0 (2.2)	
mber of Friends	(n = 389)	
1-6	65.6	
<b>-</b>	34.4	
fean (S.D.)	7.6 (10.3)	
rceived Instrumental Support	(n = 389)	
- 4 Tasks Help is Perceived to Exist	8.0	
- 6 Tasks Help is Perceived to Exist	92.0	
lean (S.D.)	5.6 (0.7)	
nothly Household Income (\$)	(n = 312)	
onthly Household Income (\$) 50 - \$1499	40.7	
0 - \$1477 1500 - \$2499	33.0	
2500	26.3	
fean (Range)	\$2000 - \$2249	
rceived Adequacy of Household Income	(n=388)	
rcerved Adequacy of Etousenoid Income /ery Well	26.5	
dequately	58.0	
dequatery  Tith Some Difficulty/Not Very Well	15.5	
lucation (Years)	(n = 389)	
- 8	27.0	
- 0		
- 12	744 /	
- 12 3+	54.2 18.8	

 $<sup>^{\</sup>rm I}$  If n for the sample does not total 391, the remainder did not answer the question (i.e missing values)

#### **Gender**

Turning to gender, almost two-thirds (63.2%) of the respondents in the sample are female (Table 3). This is slightly higher than the findings of the 1991 Census that 58.0% of the Canadian senior population were female (Norland, 1994, pg.14). This reflects to some extent the gender differences in life-expectancy (Gee & Kimball, 1987).

#### Coping Resources

### **Health Status**

In terms of self-assessed health status, over one-half of respondents (56.9%) rate their health as excellent or good (Table 3). This is lower than figures reported by the 1991/92 Manitoba Study of Health and Aging (MSHA), as 75.3% of these Manitobans over the age of 65 rated their health as "very good", or "pretty good" (Centre on Aging, 1996). However, given that this sample is an older one, and that increased age tends to be associated with lower ratings of perceived health status (Centre on Aging, 1996), this finding is not that surprising.

The next indicator of health status is the number of **chronic health problems** (Table 3). The range across the sample is from 0 to 11 health problems. The large majority of the sample (95.9%) report that they have at least one of the conditions listed. Similarly, the 1991/92 MSHA determined that 94.3% of persons aged 65 and

<sup>&</sup>lt;sup>19</sup> It should be noted that the questions (and their response categories) vary across the two studies. The current study asks "Overall, would you say, in general your health is excellent, good, fair, poor, or bad?", while the MSHA asks "How would you say your health is these days? (Possible responses very good, pretty good, not too good, poor, and very poor).

over in Manitoba had one or more chronic conditions (Centre on Aging, 1996).<sup>20</sup> Conditions reported by at least 20.0% of the sample include arthritis/rheumatism (62.1%), ear/hearing trouble (38.1%), eye trouble not relieved by glasses (32.2%), high blood pressure (32.2%), foot/limb problems (29.7%), heart trouble (24.8%), and stomach troubles (24.8%) (Appendix F).

The final measure of health status is number of **ADL/IADL limitations**(Table 3). Close to one-fifth (18.4%) of the sample require help with at least one of the basic ADLs. This is consistent with findings from MSHA which determined that 19.9% of its respondents aged 65 and over required at least some assistance with basic ADLs (Centre on Aging, 1996).<sup>21</sup>

Close to one-third (32.5%) of the respondents require at least some help with IADLs. In comparison, 60.3% of the older Manitobans who participated in the Manitoba Study of Health and Aging reported needing help with at least one IADL (Centre on Aging, 1996).<sup>22</sup> This difference may be reflective of the fact that different activities were included in each of the studies.

<sup>21</sup> It should be noted that the items in the category of basic ADL activities vary across the two studies. MSHA includes two items (taking care of one's appearance, and getting in and out of bed) that do not appear in the CIDLLS.

<sup>22</sup> The items that are included that it is items that are included to the category of basic ADL activities vary across the two studies.

<sup>&</sup>lt;sup>20</sup> Although both studies include many of the same chronic health problems, there are some differences. Distinct from MSHA, CIDLLS includes thyroid, emotional or mental health problems, incontinence (separate from bladder problems), and osteoporosis. In contrast, MSHA includes memory loss, trouble with nerves, bowel problems, and other neurological problems whereas CIDLLS does not.

The items that are included in the category of IADL activities vary across the two studies. The items that appear in MSHA but not in CIDLLS include yardwork/gardening, going up and down stairs, going outdoors in good weather, going outdoors in any weather, getting to places out of walking distance, and getting about the house. CIDLLS includes the additional item of taking out the trash. In addition, MSHA distinguishes between light housework and heavy housework, while CIDLLS asks about doing household tasks. Moreover, MSHA includes two items on money (handling long term finances and handling day-to-day finances), whereas CIDLLS simply asks about handling money.

Once the basic and the instrumental activities are combined into one scale, it is determined that over one-third (35.0%) of the sample requires assistance with at least one of the activities. In comparison, the remaining 65.0% are able to do all the activities independently.

#### Psychological Resources

Psychological resources include life satisfaction, self-esteem, self-efficacy, perceived control over health, and health locus of control. Life satisfaction scores vary across the sample ( $\bar{x} = 17.4$ ), ranging from 0 to 26 (Table 3). Over one-half (58.3%) of the sample have scores in the categories of "poor" and "fair", while the remaining 41.8% have scores that correspond to the categories of "good" and "excellent".

The psychological measure of **self-esteem** also varies across the entire sample  $(\bar{x} = 20.1)$ , with scores ranging from 11 to 30 (Table 3). Just over one-quarter of the sample (26.1%) score "excellent", 39.5% rate "good", and the remaining 34.5% score as "fair" or "poor".

Turning to the psychological measure of self-efficacy, scores here range from 17 to 45 ( $\bar{x} = 30.6$ ) (Table 3). Close to one-half (46.7%) of the sample score "excellent" or "good", while over one-half (53.2%) rate as "fair" or "poor". As scoring procedures differ across studies, it is difficult to draw either local or national comparisons in terms of life satisfaction, self-esteem, and self-efficacy.

In terms of perceived control over health, over one-half (55.7%) of the entire sample feel that they have "some" control over their health, while 33.9% feel that they have a "great deal" of control when it comes to their health (Table 3).

Turning to health locus of control, external health locus of control scores range from 0 to 9, with a mean of 4.6 (Table 3). Turning to the internal health locus of control scale, scores range from 3 to 11 with a mean of 6.0 (Table 3). The final measure of health locus of control is medical skepticism. In this scale, scores range from 2 to 14, with a mean of 7.8 (Table 3). A review of the literature does not reveal information on these sorts of measures for either a Manitoba or a Canadian sample, therefore, comparisons are not possible.

#### Social Resources

The social resources available to the sample will be described by seven indicators. Looking first at marital status, the largest proportion of the sample is married (51.7%) (Table 3). Over one-third (36.3%) are widowed, while the remaining 12.0% is single/never married, or divorced/separated. The proportion of those individuals who are married is slightly lower than the national average of 57.0% of the Canadian population over the age of 65 who reported being married in 1991 (Norland, 1994, p.21). However, this is not surprising given that the study sample is older than the national sample, and as increasing age tends to be associated with widowhood (Gee & Kimball, 1987).

Turning to living arrangements, 42.5% of the sample live alone (Table 3). In contrast, in 1991, 31.1% of Manitobans aged 65 and over lived alone (Centre on Aging, 1996), while 38.0% of Canadian seniors resided alone in 1991 (Norland, 1994, p.35). This finding is not surprising, given that the sample has fewer married individuals when compared to a national sample. Moreover, this sample is a slightly older one, and "...increasing age [i]s associated with a greater likelihood of living alone" (Centre on Aging, 1996, p.22).

On average, study participants identify having between 0 and 18 family members, with a mean of 4.4 (Table 3). Moreover, respondents report a mean of 2.1 family network members seen at least weekly, with a range between 0 and 9 (Table 3). In terms of number of confidants, the majority (79.7%) of the sample feel that they have at least one confidant ( $\bar{x} = 2.0$ ) while the range is from 0 to 20 (Table 3). Turning to the number of friends, the average number is 7.6 with responses of between 0 and 100 (Table 3). The final measure of social support is perceived instrumental support (Table 3). The large majority (92.0%) of respondents are able to identify at least one person upon whom they can depend on for at least five of the six activities which are asked about ( $\bar{x} = 5.6$ ).

## **Material Resources**

The final category of coping resources is material resources. Participants are asked to select the category that their monthly household income falls within. Some individuals refused to answer the question, or did not know their monthly household

income. Among the individuals who did respond, the average monthly household income varies from less than \$250 to above \$5500 ( $\bar{x} = 2124.5$ )<sup>23</sup> (Table 3). Over one-third (40.7%) report monthly household incomes of less than \$1499, while over one-quarter (26.3%) of the group have monthly household incomes of over \$2500.

Those respondents who refuse to answer this question account for 30 cases or 7.7% of the sample. This is not that surprising as some respondents perceive income questions as private information. Furthermore, there is a group of individuals who state that they do not know their monthly household income (49 cases or 12.5% of the sample). Notwithstanding the sensitivity issue, some respondents may either find it difficult to remember, or simply do not know the monthly income of their household.

Household income comparisons with the larger population are difficult to make, as there are a significant number of missing cases among this sample, and income is affected by the size of the household. The average yearly income among those who responded to the question is \$25, 494.<sup>24</sup> while it has been reported that over one-half (54.8%) of Manitobans aged 65 and over report annual household incomes of more than \$20,000 (Statistics Canada, 1995). While recognizing the limitations of any comparison, it appears that this group is not unlike the Manitoba senior population in terms of household income.

Attention now turns to the perceived adequacy of the household income (Table 3). The majority of the sample (84.5%) feel that their income satisfies their needs either "very well" or "adequately". In terms of education, respondents report

<sup>&</sup>lt;sup>23</sup> The mean income that is provided represents the midpoint of the category \$2000 to \$2249.

<sup>24</sup> The mean yearly income represents the mean monthly household income multiplied by twelve.

between 0 and 25 years of schooling. Close to three-quarters of the respondents (73.0%) have 9 or more years of education ( $\bar{x} = 10.6$ ) (Table 3). In comparison, only 58.8% of Manitobans aged 65 and over are reported to have a formal education of more than 9 years (Statistics Canada, 1995). This suggests that this sample, on average, appears to have more years of formal schooling when compared to Manitobans aged 65 and over.

## **Summary of Sample Characteristics**

Although comparisons between the study sample and larger senior populations are only possible on some of the variables, this group of individuals is older and more likely to be female when compared to the Canadian senior population. In terms of health status, the sample is similar to Manitoba's older adult population when chronic conditions are considered. However, when compared to the same group, this sample has a smaller proportion who rate their self-assessed health highly. In terms of living arrangements, a larger proportion of this sample lives alone, as compared to both Manitoba and Canadian senior populations. In terms of income, this group of older individuals appears to have similar household incomes when compared to Manitoba's population aged sixty-five and over. Finally, a larger proportion of this sample have nine or more years of education when compared to Manitobans aged 65 and over.

### **Data Analysis**

Prior to considering the specific research questions, the statistical techniques used to address each of the questions will be presented. Methods include univariate, bivariate, and multivariate statistics. The SPSS for Windows (Version 6.1) software program is used for data analyses.

#### Research Question # 1

To begin, Research Question # 1 focuses on comparing individuals in the sample who report eye problems (EP) to those without eye problems (NEP). The focus is on whether there are significant differences between the groups in terms of socio-demographic characteristics (age and gender) and coping resources (health status, psychological resources, social resources, and material resources). The analyses proceed in several stages.

### **Bivariate Analyses of Research Question #1**

First, frequency distributions are used to evaluate the distribution of the sample in regards to the variables of interest. Next, the analyses includes t-tests for continuous variables, and cross-tabulations and chi-square for categorical variables. These methods are used to determine whether the two sub-groups of interest vary in terms of socio-demographic characteristics and coping resources. Finally, those variables found to be significant at the bivariate level are retained for further multivariate analyses.

A significance level of p<.05 is used for all analyses. For t-tests, the t-ratio of 1.96 is used to indicate significance, as the sample size is larger than 120 (Hopkins, Glass, & Hopkins, 1987). Ratios which are larger than 1.96 indicate that the difference between the sample means are greater than the differences accountable by sampling error (Hopkins et al., 1987).

To determine whether variables which are cross-tabulated are associated, chisquare, correlations and the significance level are examined. The chi-square is a
statistical test used to measure the size of differences between two samples which
might occur by sampling error (Hickey, 1986). The strength of relationships at the
bivariate level are measured by various correlation statistics (Cramer's V, Gamma,
Pearson's, Phi, or Spearman's) depending on the level of measurement of the
variables. All of these statistics have values which range from 0 to ± 1. A larger
magnitude (either negative or positive) indicates a stronger relationship. Those
relationships of more than 0.60 are considered to be strong, while those between 0.30
to 0.50 are rated as moderate, and those less than 0.30 are weak (Hickey, 1986).

#### Multivariate Analyses of Research Question # 1

Discriminant function analysis has been chosen as the multivariate statistical procedure for several reasons. First, it combines a number of variables (socio-demographic characteristics and coping resources), to determine whether such factors differentiate between individuals with eye problems (EPs), and those without (NEPs) such problems. Second, the analyses classify the cases in order to determine how

many would be correctly classified if only the values on the discriminator variables were known (Klecka, 1975).

Prior to conducting the discriminant analyses, the discriminator variables are tested for multicollinearity through the use of a Pearson Product Moment Correlation Matrix. Correlation coefficients near or above 0.60 are considered strong (Hickey, 1986), and require that highly correlated variables be entered into separate discriminant function analyses.

In order to determine the extent to which the variables distinguish between EPs and NEPs, the Wilks' Lambda and chi-square statistics will be consulted. Moreover, the Canonical correlation, eigenvalue, and the percentage of cases correctly classified will be reported. In combination with the significance level (p<.05), both the Wilks' Lambda statistic and the chi-square value reveal whether as a group the variables in the function serve to differentiate between the two groups (Klecka, 1975). The Canonical correlation value squared represents the percentage of the total variance that is accounted for by the discriminant function (Norusis, 1994). With both this statistic, and the eigenvalue, a larger value represents a better function (Norusis, 1994). The discriminant function analyses also includes the percentage of cases correctly classified. This figure reflects the percentage of cases that would be correctly classified in the correct group, if only their values on the discriminator variables were known (Norusis, 1994). Higher percentages are associated with better functions.

Finally, the standardized canonical discriminant function coefficients will be evaluated, as each coefficient represents the relative contribution of its associated variable to the function (Klecka, 1975). The coefficients for the variables will be compared to one another, to determine their relative contribution to the function.

However, these figures cannot be interpreted in terms of their magnitude. A positive (+) value indicates that higher scores for the variable are associated with having eye problems. In comparison, a negative (-) value suggests that higher scores are associated with not having eye problems.

#### Research Question # 2

The objective of Research Question # 2 is to consider the coping strategies that are used by older adults to deal with vision loss. Frequency distributions are used to evaluate the distribution of the sample in regards to the coping strategies that are used. Where appropriate and necessary, the same types of bivariate analyses that were outlined for Research Question # 1 will be utilized. These analyses are not required to answer the research question; however, they may contribute to describing the situation of older adults who live with vision loss in later life.

#### Research Question #3

Finally, Research Question #3 focuses on exploring the factors that are associated with the use of particular coping strategies. The analyses to be undertaken to explore this research question progress in several stages. To begin, cross-

tabulations and correlations are used in order to examine which socio-demographic characteristics, appraisals, and coping resources are associated with the most frequently mentioned coping strategies. To determine whether variables are associated, the chi-square value and the significance level are examined, while the strength of relationships at the bivariate level are measured by various correlation statistics (Cramer's V. Gamma).<sup>25</sup>

#### Multivariate Analyses Research Question #3

In order to evaluate the effects of socio-demographic characteristics, appraisals, and coping resources on the use of individual coping strategies, the multivariate statistical technique of logistic regression is used. This method is appropriate when the dependent variable is dichotomous, as is the case with the coping strategies under investigation (Norusis, 1993). For example, in the case of the strategy of doctor visits/surgery, the value of 0 represents an individual not taking the action, while the value of 1 indicates that the action is taken.

Because of the relatively small sample size, and the use of listwise deletion of missing data in the regression analyses, approximately ten variables in each regression equation can be used. The primary criterion for including a variable in a regression equation is that it has a significant (p <.05) bivariate correlation with the coping strategy that is the dependent variable of interest. Those variables that are approaching the suggested level of significance (p<.10) are also included, up to a maximum of ten variables. Researchers such as Mickey and Greenland (1989) have

<sup>&</sup>lt;sup>25</sup> For more details, see the bivariate analyses description for Research Question # 1.

argued that p<.05 is too low as it may exclude important variables from the model. Although some variables may not be associated with the dependent variable at the bivariate level, they may end up being important when considered in combination with other variables. Bendel and Afifi (1977) recommend that the statistical significance criterion for entry should be even higher (p = 0.15 to 0.20); however, due to the relatively small sample size, the level used here is 0.10. Finally, the variables of age and gender are also included. These two variables are not only of substantive interest, but also serve as examples of socio-demographic characteristics.

Before the logistic regression analyses are conducted, a Pearson Product

Moment Correlation Matrix test for multicollinearity is used to establish correlations
between the independent variables. Correlation coefficients near or above 0.60 are
considered strong (Hickey, 1986), and require that highly correlated variables be
entered into separate regression equations. Variables are entered into regression
equations in the order in which they appear in Figure 1. For example, sociodemographic characteristics are entered first, followed by appraisals, and coping
resources.

To determine the overall explanation provided by the logistic regression model, the -2 times the log of the likelihood (-2LL), and the Improvement Chi-square are examined. The -2LL measure is a reflection of how well the proposed model fits the data (Norusis, 1993). A -2LL value of 0 indicates a strong relationship between the model and the data, while larger values (no upward limit) indicate a poor fit between the model and the data. The Improvement Chi-square is an informative

measure as it unveils whether the variables entered into the equation during the last step are significant (Norusis, 1993). In other words, it reveals the separate contribution of appraisals or coping resources (the second and third blocks of variables to enter the equation) on the particular coping strategy (the dependent variable).

To examine the relative influence of the independent variables on the coping strategies, the statistics that will be considered are the logistic regression coefficient (B), the Wald statistic, and the R statistic. The logistic regression coefficient represents "...the change in the log odds associated with a one-unit change in the independent variable" (Norusis, 1993, p.49). If the value of B is positive, the odds that the event (use of a particular strategy) will occur are increased. In contrast, negative B values indicate that the odds of the event occurring is decreased (Norusis, 1993). The Wald statistic tests the significance of the logistic coefficients.

Finally, the R statistic is used to evaluate the partial correlation that exists between the dependent variables (e.g., coping strategy) and each of the independent variables (Norusis, 1993). This value can range from -1 to +1. "A positive value indicates that as the [independent] variable increases in value so does the likelihood of the event occurring. If R is negative the opposite is true. Small values for R indicate that the variable has a small partial contribution to the model" (Norusis, 1994, p.48). The B and R values are similar in that they both focus on the contribution of individual independent variables within the regression. However, the B values focus more on the increased odds of the use of a coping strategy, whereas

B values focus more on the increased odds of the use of a coping strategy, whereas the R value is more informative in terms of the contribution of the variable to the overall model.

#### **Chapter Summary**

This chapter has included a description of the Chronic Illness and Disability

Study. In addition, an overview of the variables of interest to this study were

considered in terms of their descriptions, measurement, and transformations. Where

appropriate, reliability and factor analyses results were also reported. Next, sample

characteristics were reported on, with comparisons being made to either the Manitoba

or Canadian older population when information was available. Finally, the chapter

concluded with a description of the three Research Question's and the statistical

techniques that are employed to address them.

### CHAPTER FOUR: FINDINGS OF RESEARCH QUESTION # 1

#### **Chapter Introduction**

This chapter addresses Research Question # 1 "Are there significant differences between older adults with vision loss and those without in terms of sociodemographic characteristics and coping resources?" Respondents are divided into two groups based on their answer to the question "Have you had eye trouble not relieved by glasses within the last year or otherwise still have after effects from having had them earlier?" Over one-third of the sample (32.2%) report such problems, as compared to respondents who do not (67.8%). For ease of comparison, the acronym EP will be used to represent individuals with eye problems, while NEP will stand for respondents who have no eye problems. Results at the bivariate and multivariate level are reported in order to address this research question.

### Socio-demographic Characteristics

#### Age

To begin, the two groups will be compared in terms of age and gender. There is a notable difference between the two groups with respect to age distribution (Table 4). The EP group has a mean age of 78.3 years, higher than it is for the NEP group (75.6). Of the EPs, about one-third (30.2%) are between the ages of 68 and 74, while about one-half (54.0%) of NEPs are in this age group. Over one-third (41.2%) of EPs

are aged 80 and over, as compared to 21.9% of NEPs. Both cross-tabulation<sup>1</sup> and ttest results suggest that the presence of eye problems is associated with increasing age (Table 4). The relationship is a moderate one (Gamma = .39).

TABLE 4: Age and Gender of Eye Problem (EP) and No Eye Problems (NEP) Groups

	% of EPs	% of NEPs	% of Total
	(n=126)	(n = 265)	(N=391)
Age (Years)			
68 - 74	30.2	54.0	46.3
75 - 79	28.6	24.2	25.6
80 - 84	21.4	13.2	15.9
<b>85</b> ÷	19.8	8.7	12.3
Mean (S.D.)	78.3 (5.8)	75.6 (5.4)	76.4 (5.7
$\gamma^2 = 23.41$ , d.f. =	3. p<.001: Gamma =	39	-
t-ratio = $-4.50$ , d.f	<u> </u>		
Gender			
Male	27.8	41.4	36.8
Female	72.2	<b>58</b> .9	63.2
$\chi^2 = 6.55$ , d.f. = 1,	p<.05; Phi = .13		

## Gender (Controlling for Age)

68 - 74  $\chi^2$  = 0.24, d.f. = 1, ns; Phi = .04, ns

85+  $\chi^2 = 0.02$ , d.f. = 1, ns; Phi = -.02, ns

### **Gender**

Turning to **gender**, 72.2% of the EP group are female, as compared to 58.9% of NEPs (Table 4). This difference is not that surprising, given the age differences

<sup>75 - 79</sup>  $\chi^2$  = 10.00, d.f. = 1, p<.01; Phi = .32

<sup>80 - 84</sup>  $\chi^2$  = 0.38, d.f. = 1, ns; Phi = .08, ns

<sup>&</sup>lt;sup>1</sup> Collapsed categories include 68 - 74, 75 - 79, 80 - 84, and 85+ years of age.

between the two groups, and the relationship between gender and life expectancy (Gee & Kimball, 1987). Cross-tabulation results suggest that the presence of eye problems is associated with being female. Although the results are statistically significant, the relationship is a weak one (Phi = .13) (Table 4).

### Age and Gender

Among this sample, age and gender are both found to be associated with the presence of eye problems. However, it has been suggested (e.g., Branch et al., 1989) that when age is controlled for, the relationship between eye problems and gender no longer exists. This is also found to be the case with this sample of EPs (Table 4). In summary, except for the EPs aged 75 to 79, when select age groups are considered, the relationship between gender and eye problems no longer remains.

#### Coping Resources

### Health Status

The three indicators of health status to be considered are self-assessed health status, chronic health problems, and ADL/IADL limitations. In terms of self-assessed health status, 48.5% of EPs rate their health as excellent or good, compared to 61.0% of NEPs (Table 5). Cross-tabulation<sup>2</sup> results suggest that the presence of eye problems is associated with poorer self-assessed health ratings. However, the relationship is a weak one (Phi = .12) (Table 5).

<sup>&</sup>lt;sup>2</sup> Collapsed categories include Fair/Poor/Bad, and Good/Excellent.

TABLE 5: Self-assessed Health, Chronic Health Problems, and ADL/IADL Limitations of Eye Problem (EP) and No Eye Problem (NEP) Groups

	% of EPs (n = 126) <sup>1</sup>	% of NEPs $(n = 265)^{i}$	% of Total (N =391) <sup>1</sup>
	$(n=126)^{\circ}$	(n = 203)	(N =391)
Self-assessed Health		(n = 264)	(n = 390)
Fair/Poor/Bad	51.6	39.1	43.1
Good	43.7	48.5	46.9
Excellent	4.8	12.5	10.0
$\chi^2 = 5.50$ , d.f. = 1, p<.05;			
Number of Chronic Health	Problems		
0	3.2	4.5	4. l
1	5.6	14.7	11.8
2	19.0	24.5	22.8
3 - 4	34.9	35.8	35.5
5÷	37.3	20.4	25.8
Mean (S.D.)	4.1 (2.4)	3.1 (1.9)	3.4 (2.1)
$\chi^2 = 15.15$ , d.f. = 2, p<.00 t-ratio = -4,14, d.f. = 203.4			
Number of Basic ADLs Th	at Require Assistance <sup>2</sup>		
0	70.6	86.8	81.6
I+	29.4	13.2	18.4
Mean (S.D.)	0.6 (1.1)	0.2 (0.7)	0.3 (0.9)
$\chi^2 = 14.83$ , d.f. = 1, p<.00	1; Phi =. 19		
t-ratio $-3.40$ , d.f. = $168.77$ ,	p<.001		
	DLs That Require Assistan		
0	48.4	76.6	67.5
1+	51.6	23.4	32.5
Mean (S.D.)	I.3 (1.7)	0.5 (I.1)	0.8 (1.4)
$\chi^2 = 30.95$ , d.f. = 1, p<.00 t-ratio = -4.83, d.f. = 183.9			
Number of ADL/IADLs Ti	nat Require Assistance		
0	46.0	74.0	65.0
I+	54.0	26.0	35.0
Mean (S.D.)	1.9 (2.6)	0.7 (1.7)	1.1 (2.1)
$\chi^2 = 29.27$ , d.f. = 1, p<.00		()	(=)
t-ratio = -4.61, d.f. = 177.3	7 n< 001		
	., p		

<sup>&</sup>lt;sup>1</sup> If n for the sample does not total 391 (126 for those with eye problems or 265 for those without eye problems), the remainder did not answer the question (i.e. missing values).

<sup>2</sup> Basic ADLs include dressing, eating, bathing, walking, and toileting.

<sup>&</sup>lt;sup>3</sup> Instrumental ADLs include using the telephone, shopping, preparing meals, doing household tasks. handling money, taking out trash, and taking medication.

The next indicator of health status is **chronic health problems**<sup>3</sup> (Table 5). The most common health problems found among both groups are arthritis, ear trouble, foot or limb problems, and high blood pressure (Appendix B). The EP group has an average of 4.1 chronic health problems, higher than it is for the NEP group (3.1). Among the EP group, close to one-tenth (8.8%) report less than two conditions, as compared to 19.2% of the NEP group. Moreover, 37.3% of EPs acknowledge having five or more health problems, as compared to 20.4% of NEPs (Table 5). Cross-tabulation<sup>4</sup> and t-test results confirm that the two groups differ in regards to chronic health problems. However, the relationship between eye problems and number of chronic health problems is a weak one (Phi = .19).

The final measure of health status is **ADL/IADL limitations** (Table 5). In terms of basic ADLs, close to one-third (29.4%) of EPs need help with one or more of the activities, as compared to 13.2% of NEPs. Close to one-half (51.6%) of EPs require assistance with at least one of the instrumental ADLs, while the proportion decreases for NEPs (23.4%). Taking into account all twelve ADL/IADL items, more than one-half (54.0%) of EPs need help with at least one of these activities, as compared to 26.0% of NEPs. Cross-tabulation<sup>5</sup> and t-test results suggest that EPs require assistance with a greater number of ADL/IADLs (Table 5). However, although the results are statistically significant, the relationship is a weak one (Phi = .27).

<sup>3</sup> See Appendix B for frequencies on specific chronic health problems.

<sup>5</sup> Collapsed categories include 0, and 1+ ADL/IADL Limitations.

<sup>&</sup>lt;sup>4</sup> Collapsed categories in the cross-tabulation include 0 - 2, and 3 - 4, and 5+ Chronic Health Problems.

## Psychological Resources

Psychological resources include life satisfaction, self-esteem, self-efficacy, perceived control over health, and health locus of control. Turning first to life satisfaction, scores vary across both of the groups (Table 6). On average, the EP group ( $\bar{x} = 16.2$ ) score lower than the NEP group ( $\bar{x} = 18.0$ ). The means for both groups are in the "fair" category in terms of life satisfaction. Results of both the cross-tabulation<sup>6</sup> and the t-test are significant, confirming that EPs score lower on this measure of life satisfaction than NEPs (Table 6). Notwithstanding the statistical significance between eye problems and life satisfaction, the relationship is a weak one (Cramer's V = .21).

<sup>&</sup>lt;sup>6</sup> Collapsed categories include 0 - 13, 14 - 19, 20 - 22, and 23 - 26.

TABLE 6: Life Satisfaction, Self-esteem, Self-efficacy, Perceived Control Over Health, and Health Locus of Control of Eye Problem (EP) and No Eye Problem (NEP) Groups

		% of EPs	% of NEPs	% of Tota
		$(n=126)^{l}$	$(\mathbf{n} = 265)^{\mathbf{l}}$	(N=391)
Life Satis	faction	(n = 123)	(n = 260)	(n = 383)
Poor	(0 - 13)	<b>`35.0</b> ´	16.5	22.5
	(14 - 19)	30.1	38.5	35.8
	(20 - 22)	19.5	25.8	23.8
	(23 - 26)	15.4	19.2	18.0
Mean (S.	•	16.2 (5.9)	18.0 (5.1)	17.4 (5.4)
	0, d.f. = 3, p<.0 2.99, d.f. = 212.	01; Cramer's V = .21 46, p<.005		
Self-esteer	n	(n = 123)	(n = 257)	(n = 380)
Poor	(0 - 17)	15.4	7.4	10.0
Fair	(18 - 19)	32.5	20.6	24.5
Good	(20)	30.9	43.6	39.5
Excellent	(21 - 30)	21.1	28.4	26.1
Mean (S.	D.)	19.4 (2.4)	20.4 (2.7)	20.1 (2.6)
• •	9, d.f. = 3, p<.0 3.34, d.f. = 378,	1; Cramer's V = .20 p<.005		
Self-effica		(n = 123)	(n = 256)	(n = 379)
Poor	(0 - 28)	<b>30.</b> I	25.0	26.6
	(29 - 31)	33.3	23.4	26.6
Good	(32 - 33)	22.8	24.2	23.7
Excellent	(34 - 51)	13.8	27.3	23.0
Mean (S.	D.)	29.9 (4.2)	31.0 (4.2)	30.6 (4.2)
	5, d.f. = 3, p<.0 2.50, d.f. = 377,	5; Cramer's V = .17 p<.005		

<sup>&</sup>lt;sup>1</sup> If n for the sample does not total 391 (126 for those with eye problems or 265 for those without eye problems), the remainder did not answer the question (i.e. missing values).

Table 6 continued

	% of EPs	% of NEPs	% of Total
	$(n=126)^1$	$(n=265)^{l}$	$(N = 391)^{1}$
Perceived Control Over health	(n = 125)	(n = 259)	(n = 384)
None	13.6	8.9	10.4
Some	64.0	51.7	55.7
A Great Deal	22.4	39.4	33.9
$\chi^2 = 11.26$ , d.f. = 2, p<.005; Cramer's	V = .17		
External Health Locus of Control	(n = 122)	(n = 253)	(n = 375)
Low (0 - 4)	35.2	50.2	45.3
High (5 - 9)	64.8	49.8	54.7
Mean (S.D.)	4.8 (1.4)	4.5 (1.5)	4.6 (1.5)
$\chi^2 = 7.42$ , d.f. = 1, ns; Phi = .14		. ,	
t-ratio = -1.89. d.f. = 373, ns			
Internal Health Locus of Control	(n = 116)	(n = 250)	(n = 366)
Low (0 - 5)	46.6	38.9	41.3
High (6 - 12)	53.4	61.2	58.7
Mean (S.D.)	5.8 (1.3)	6.1 (1.3)	6.0 (1.3)
$\chi^2 = 1.96$ , d.f. = 1, ns; Phi = .07			
t-ratio = $1.91$ , $d.f = 364$ , ns			
Medical Skepticism	(n = 117)	(n = 250)	(n = 367)
Low (0 - 7)	46.2	48.0	47.4
High (8 - 15)	53.8	52.0	52.6
Mean (S.D.)	7.8 (2.1)	7.7 (2.1)	7.8 (2.1)
$\chi^2 = .11$ , d.f. = 1, ns; Phi = .02			
t-ratio =31, d.f. = 365, ns			

<sup>&</sup>lt;sup>1</sup> If n for the sample does not total 391 (126 for those with eye problems or 265 for those without eye problems), the remainder did not answer the question (i.e. missing values).

The psychological measure of self-esteem also varies across the two subgroups (Table 6). On average, EPs ( $\bar{x} = 19.4$ ) have lower self-esteem scores than NEPs ( $\bar{x} = 20.4$ ). Cross-tabulation<sup>7</sup> and t-test results confirm that this difference is statistically significant. However, the relationship is a weak one (Cramer's V = .20) (Table 6).

Turning to self-efficacy, EPs ( $\times = 29.9$ ) score lower on average than NEPs ( $\times = 31.0$ ) (Table 6). Results of the cross-tabulation<sup>8</sup> and the t-test indicate that self-efficacy scores vary significantly between the two groups. However, the relationship between eye problems and self-efficacy is not a strong one (Cramer's V = .17).

In terms of perceived control over health, differences appear to exist among the two sub-groups (Table 6). EPs are less likely to perceive a "great deal" of control over their own health (22.4%) as compared to NEPs (39.4%). Cross-tabulation<sup>9</sup> results suggest a weak relationship between eye problems and perceived control over health (Cramer's V = .17).

Turning to external health locus of control, on average, EPs ( $\bar{x} = 4.8$ ) and NEPs ( $\bar{x} = 4.5$ ) score similarly (Table 6). Cross-tabulation on and t-test results confirm that the difference is not statistically significant (Table 6). In other words, the degree to which individuals believe that their health is determined by chance or by fate does not differ between the two groups.

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<sup>&</sup>lt;sup>7</sup> Collapsed categories include 0 - 17, 18 - 19, 20, and 21 - 30.

<sup>&</sup>lt;sup>8</sup> Collapsed categories include 0 - 28, 29 - 31, 32 - 33, and 34 - 51.

<sup>&</sup>lt;sup>9</sup> Categories include None, Some, and A Great Deal.

<sup>&</sup>lt;sup>10</sup> Collapsed categories include 0 - 4, and 5 - 9.

Turning to internal health locus of control, EPs ( $\bar{x} = 5.8$ ) score slightly lower than NEPs ( $\bar{x} = 6.1$ ) (Table 6). Cross-tabulation and t-test results disclose no significant difference between the two groups (Table 6). This finding suggests that the degree to which individuals believe that their health is determined by their own actions does not vary between those with and without eye problems.

The final sub-scale within the health locus of control items is **medical** skepticism. EPs ( $\bar{x} = 7.8$ ) and NEPs ( $\bar{x} = 7.7$ ) score similarly on this measure (Table 6). Cross-tabulation<sup>12</sup> and t-test results confirm that there is no significant difference between the two groups. In summary, the degree to which one is skeptical of modern medicine, or of health care professionals does not appear to associated with eye problems.

## Social Resources

The social resources available to respondents are described by seven indicators. These indicators are: marital status, living arrangements, the size of family network, the number of family network members seen at least weekly, the number of confidants, the number of friends, and perceived instrumental support.

Looking first at marital status, close to equal proportions of EPs are married (42.9%) and widowed (42.1%). In comparison, 55.8% of the NEP group are married, while 33.6% are widowed (Table 7). Cross-tabulation<sup>13</sup> results suggest that the EP

<sup>&</sup>lt;sup>11</sup> Collapsed categories in the cross-tabulation include 0 - 5, and 6 - 12.

<sup>&</sup>lt;sup>12</sup> Collapsed categories include 0 - 7, and 8 - 15.

<sup>13</sup> Collapsed categories include Not currently Married (0), and Married (1).

group is less likely to be married than the NEP group. Although the relationship is statistically significant, it is a weak one (Phi = -.12) (Table 7).

TABLE 7: Marital Status, Living Arrangements, Size of Family Network, Number of Family Network Members Seen at Least Weekly, Number of Confidants, Number of Friends, and Perceived Instrumental Support of Eye Problem (EP) and No Eye Problem (NEP) Groups

	% of EPs	% of NEPs	% of Total
	$(n=126)^{I}$	$(n = 265)^1$	$(N = 391)^{1}$
Marital Status			
Single/Never Married	11.9	6.4	8.2
Married	42.9	55.8	51.7
Divorced/Separated	3.2	4.2	3.8
Widowed	42.1	33.6	36.3
$\chi^2 = 5.77$ , d.f. = 1, p<.05; Phi =12			
Living Arrangements			
Lives Alone	49.2	39.2	42.5
Lives with One or More Others	50.8	60.8	57.5
$\chi^2 = 3.47$ , d.f. = 1, ns; Phi =09			
Size of Family Network (Number of Family Members)		(n= 263)	(n = 381)
0 - 4	61.1	57.4	58.3
5-	38.9	42.6	41.2
Mean (S.D.)	4.1 (2.9)	4.6 (2.8)	4.4 (2.9)
$\chi^2 = 0.48$ , d.f. = 1, ns; Phi =04			
t-ratio = 1.56, d.f. = 387, ns			
Number of Family Network Members Seen at Least We	ekly		
0	19.0	18.1	18.4
1 - 2	49.2	47.9	48.3
<b>3</b> +	31.7	34.0	33.2
Mean (S.D.)	2.1 (1.7)	2.1 (1.7)	2.1 (1.7)
$\chi^2 = .15$ , d.f. = 1, ns; Phi =02			
t-ratio = 1.15, d.f. = 387, ns			

<sup>&</sup>lt;sup>1</sup>If n for the sample does not total 391 (126 for those with eye problems or 265 for those without eye problems), the remainder did not answer the question (i.e. missing values).

Table 7 continued

	% of EPs (n = 126) <sup>1</sup>	% of NEPs (n = 265) <sup>t</sup>	% of Total (N = 391) <sup>1</sup>
Number of Confidents		(n = 262)	(n = 388)
0	17.5	21.8	20.4
1	33.3	29.4	30.7
2+	49.2	48.9	49.0
Mean (S.D.)	1.8 (1.6)	2.1 (2.4)	2.0 (2.2)
$\chi^2 = 1.20$ , d.f. = 2, ns; Cramer's V = .06	• •	` '	•
t-ratio = 1.17, d.f. = 347.75,ns			
Number of Friends		(n = 263)	(n = 389)
0-6	69.0	63.9	65.6
<b>7</b> +	31.0	<b>36</b> .1	34.4
Mean (S.D.)	6.8 (7.1)	8.0 (11.5)	7.6 (10.3)
$\chi^2 = 1.00$ , d.f. = 1, ns; Phi =05			
t-ratio = 1.13, d.f. = 387, ns			
Perceived Instrumental Support		(n = 263)	(n = 389)
0 - 4 Tasks help is perceived to exist	8.7	7.6	8.0
5 - 6 Tasks help is perceived to exist	91.3	92.4	92.0
Mean (S.D.)	5.6 (.75)	5.7 (.71)	5.6 (.73 )
$\chi^2 = .15$ , d.f. = 1, ns; Phi =02			
t-ratio = 1.15, d.f. = 387, ns			

<sup>&</sup>lt;sup>1</sup>If n for the sample does not total 391 (126 for those with eye problems or 265 for those without eye problems), the remainder did not answer the question (i.e. missing values).

The next indicator of social resources is living arrangements. Close to one-half (49.2%) of EPs, and 39.2% of NEPs live alone (Table 7). Results of a cross-tabulation <sup>14</sup> suggest that eye problems are not associated with living arrangements (Table 7).

Turning to the size of family network, the EPs report a mean of 4.1 family members as compared to a mean of 4.6 family members reported by the NEP group

<sup>&</sup>lt;sup>14</sup> Collapsed categories include Lives Alone (0), and Lives with One or More Others (1).

(Table 7). Both cross-tabulation<sup>15</sup> and t-test results confirm that the difference is not statistically significant. Therefore, there does not appear to be a relationship between eye problems and the size of family network (Table 7).

On average, both EPs and NEPs report a mean of 2.1 family network members seen at least weekly (Table 7). Neither the cross-tabulation <sup>16</sup> nor the t-test results are statistically significant (Table 7). Therefore, there is no relationship between the presence of eye problems and the number of family network members seen at least weekly.

In terms of **number of confidants**, 82.5% of EPs and 78.3% of NEPs report having at least one confidant (Table 7). Cross tabulation<sup>17</sup> and t-test findings suggest that there is no significant difference between EPs and NEPs in terms of the number of confidants that they identify (Table 7).

Turning to **number of friends**, the EP group report a mean of 6.8 friends, compared to 8.0 for the NEP group (Table 7). Cross tabulation <sup>18</sup> and t-test results both reveal no significant difference between the two groups in terms of the number of friends identified (Table 7).

<sup>16</sup> Collapsed categories include 0 (0), 1 to 2 (1), and 3 or More Family Members (2). The categories are the result of dividing the entire sample into three groups, taking into account the mean, and a normal distribution curve.

<sup>&</sup>lt;sup>15</sup> Collapsed categories include 0 to 4 (0), and 5+ Family Members (1). The categories were developed after considering the mean number of family members for the entire sample, as well as a distribution that would divide the entire sample into roughly two equal groups.

<sup>&</sup>lt;sup>17</sup> Collapsed categories include None (0), One (1), and Two or More Confidants (2). These categories are the result of dividing the entire sample into three groups, taking into account the mean, and a normal distribution curve.

<sup>&</sup>lt;sup>18</sup> Collapsed categories include 0 - 6 (0), and 7+ Friends (1). These categories are the result of dividing the entire sample into two groups, taking into account the mean.

The final measure of social support is perceived instrumental support

(Table 7). Nearly all (91.3%) of EPs are able to identify at least one person whom
they could call upon for help with at least five of the six activities which are asked
about. In comparison, 92.4% of NEPs report similar levels of perceived instrumental
support. Cross-tabulation<sup>19</sup> and t-test results reveal no significant difference between
the two groups in terms of their perceived instrumental support (Table 7).

#### **Material Resources**

The three material resources to be considered are monthly household income, perceived adequacy of household income, and education. Average monthly household income varies across the sample (Table 8).<sup>20</sup> Among the EPs, over one-third (41.3%) report household incomes less than \$1499, as compared to 28.3% of NEPs. Furthermore over one-tenth (13.5%) of EPs acknowledge incomes of over \$2500, while 24.5% of the NEP group are in this category. Close to equal proportions of both groups do not know the monthly income of the household (EP = 15.1%, NEP = 11.3%), or choose not to respond to this question (EP = 6.3%, NEP = 8.3%).

<sup>&</sup>lt;sup>19</sup> Collapsed categories include 0 to 4 (0), and 5 to 6 (1). These numbers reflect the number of activities for which one has perceived instrumental support. The categories are the result of dividing the entire sample into two groups at the only point where there is some variation.

<sup>&</sup>lt;sup>20</sup> Table 8 reports two income sample distributions. One includes the entire sample, while the other excludes those individuals who did not respond to the question.

TABLE 8: Monthly Household Income, Perceived Adequacy of Household Income, and Education of Eye Problem (EP) and No Eye Problem (NEP) Groups

	% of EPs	% of NEPs	% of Total
	$(n=126)^{I}$	$(n = 265)^{i}$	$(N = 391)^1$
Monthly Household Income (\$)			
(Entire Sample)			
S0 - \$1499	41.3	28.3	32.5
\$1500 <b>- \$24</b> 99	23.8	27.5	26.3
\$2500+	13.5	24.5	21.0
Do Not Know	15.1	11.3	12.5
Missing Value	6.3	8.3	7.7
Monthly Household Income (\$)			
(Excluding Missing Values)	(n = 99)	(n = 213)	(n = 312)
\$0 - \$1499	52.5	35.2	40.7
\$1500 - \$2499	30.3	34.3	33.0
\$2500+	17.2	30.5	26.3
Mean (Range)	<b>\$1500 - \$1749</b>	\$2000 - <b>\$</b> 2249	<b>\$1750 - \$199</b> 9
$\chi^2 = 9.88$ , d.f. = 2, p<.01; Spearm t-ratio = 2.87, d.f. = 310, p<.005	ian =18		
Perceived Adequacy of Househol	ld Income	(n = 262)	(n = 388)
Very Well	25.4	27.1	26.5
Adequately	55.6	59.2	58.0
With Some Difficulty/Not Very Well	19.0	13.7	15.5
$\chi^2 = 1.83$ , d.f. = 2, ns; Cramer's \	/ = .07		
Education (Years)	(n = 125)	(n = 264)	(n = 389)
0-8	28.0	26.5	27.0
9 - 12	56.8	53.0	54.2
13+	15.2	20.5	18.8
Mean (S.D.)	10.6 (3.2)	10.2 (3.5)	10.6 (3.4)
•			
$\gamma^2 = 1.54$ , d.f. = 2, ns; Cramer's V	r = .06		

<sup>&</sup>lt;sup>1</sup>If n for the sample does not total 391 (126 for those with eye problems or 265 for those without eye problems), the remainder did not answer the question (i.e. missing values).

A t-test is conducted to determine whether there is a significant difference in the mean household incomes between the two groups. Excluded are the individuals who chose not to answer this question, or do not know their monthly household income. The mean income of EPs is between \$1500 to \$1749, while NEPs have a mean household income within the range of \$2000 to \$2249. Cross-tabulation<sup>21</sup> and t-test results suggest that EPs have lower monthly household incomes than NEPs. Notwithstanding the statistical significance, the relationship is a weak one (Spearman = -.18).

Attention now turns to the **perceived adequacy of household income** (Table 8). The majority of both groups (EP = 81.0%, NEP = 86.3%) feel that their income satisfies their needs either "very well" or "adequately". Cross-tabulation<sup>22</sup> results reveal that there is no association between eye problems in later life and perceived adequacy of household income (Table 8).

The final material resource to be considered is **education**. Close to three-quarters (72.0%) of EPs have 9 or more years of education, as compared to 73.5% of NEPs (Table 8). Both cross-tabulation<sup>23</sup> and t-test results advise that there is not a significant difference across the two groups in terms of the number of years of schooling (Table 8).

<sup>23</sup> Categories include 0 to 8 years, 9 to 12 years, 13+ years.

<sup>&</sup>lt;sup>21</sup> The collapsed version of the monthly household income variable does not include those individuals who did not know their monthly household income, or who refused to respond.

<sup>&</sup>lt;sup>22</sup> Collapsed categories include Very Well, Adequately, and With Some Difficulty/Not Very Well.

# Summary of the Bivariate Analyses

Although a variety of socio-demographic and coping resources are considered across the two groups, only some of the factors contribute to explaining differences across the two groups (Table 9). Of the socio-demographic characteristics that are included, the groups differ in terms of both age and gender. EPs are significantly older and more likely to be female than NEPs.

# TABLE 9: Differences Between Eye Problem (EP) and No Eye Problem (NEP) Groups

Variables	Significant Differences Between EP and NEP Groups At the Bivariate Level
v at iguiçs	TYDE GLOUDS IN the Division Devel
Socio-demographic Characteristics	
Age	EP group older
Gender	EP group more likely to be female <sup>1</sup>
Health Status	
Self-assessed Health Status	EP group poorer self-assessed health <sup>1</sup>
Chronic Health Problems	EP group more health problems
Number of ADL/IADL limitations	EP group requires help with more
<u> </u>	ADL/IADLs <sup>1</sup>
Psychological Resources	
Life Satisfaction	EP group scores lower <sup>1</sup>
Self-esteem	EP group scores lower <sup>1</sup>
Self-efficacy	EP group scores lower <sup>1</sup>
Perceived Control Over Health	EP group expresses less perceived control <sup>1</sup>
Health Locus of Control	
External Health Locus of Control	***
Internal Health Locus of Control	•==
Medical Skepticism	
Social Resources	
Marital Status	EP group less likely to be married <sup>1</sup>
Living Arrangements	
Size of Family Network	entre.
Number of Family Network Members Seen at	
Least Weekly	•••
Number of Confidants	***
Number of Friends	400
Perceived Instrumental Support	***
Material Resources	
Monthly Household Income	EP group lower household income <sup>1</sup>
Perceived Adequacy of Household Income	***
Education	***

<sup>&</sup>lt;sup>1</sup>Statistically significant but weak association (<.30)
— Indicates no statistically significant differences at the bivariate level.

All three of the health status variables (self-assessed health, chronic health problems, and ADL/IADL limitations) are found to differ across the two groups.

Compared to NEPs, EPs tend to self-assess their health as poorer, have more chronic health problems, and have more ADL/IADL limitations.

Four of the psychological resources are found to vary between the two samples. On average, the EP group score lower in terms of life satisfaction, self-esteem, and self-efficacy, and perceive that they have less control over their own health when compared to NEPs. The two groups do not differ in terms of external and internal health locus of control and medical skepticism.

Only one out of the seven social resources reveal a difference across the two groups. EPs are less likely to be married than NEPs, while there are not significant differences in terms of living arrangements, the size of family network, the number of family network members seen at least weekly, the number of confidants, the number of friends, and perceived instrumental support.

Lastly, in terms of material resources, the two groups appear to vary in terms of monthly household income. EPs have slightly lower household incomes than NEPs. There is no difference between the two groups in terms of the perceived adequacy of household income or education.

#### **Multivariate Analyses**

The variables found to be significant at the bivariate level (age, gender, self-assessed health status, chronic health problems, ADL/IADL limitations, life

satisfaction, self-esteem, self-efficacy, perceived control over health, marital status, and monthly household income) are retained for discriminant function analyses (DFA).<sup>24</sup> This multivariate analysis method is chosen as it takes those variables (socio-demographic characteristics and certain coping resources) which are significant at the bivariate level and determines whether as a group they are able to differentiate between EPs and NEPs. In addition, this statistical technique classifies the cases, in order to determine what proportion are correctly classified when only the information on these variables is known.<sup>25</sup>

Prior to conducting DFA, a Pearson Product Moment Correlation Matrix test for multicollinearity is used to establish correlations between the independent variables. Correlation coefficients near or above 0.60 are considered strong (Hickey, 1986) and result in variables being entered into separate discriminant function analyses. The bivariate correlations between the eleven independent variables are presented in Table 10. It is determined that none of the variables are multicollinear.

<sup>24</sup> For the purposes of these analyses, the variables of age, chronic health problems, ADL/IADL limitations, life satisfaction, self-esteem, self-efficacy, and monthly household income are continuous. Next, the variable of perceived control over health is interval level. Finally, the variables of gender, self-assessed health status, and marital status are dichotomized.

<sup>&</sup>lt;sup>25</sup> For a more detailed discussion on this multivariate method, and its statistics, please see Chapter Three.

TABLE 10: Pearson Product Moment Correlation Matrix, Independent Variables for Discriminant Function Analyses

Var	iables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1)	Age	1.00										
(2)	Gender	.12	1.00									
(3)	Self-assessed	1										
• •	Health Status	12	.04	1.00								
(4)	Chronic Health	•										
	<b>Problems</b>	.09	.10	40	1.00							
(5)	ADL/IADL	ľ										
` '	Limitations	.34	.15	30	.32	1.00						
(6)	Life Satisfaction	09	.03	.32	27	20	1.00					
(7)	Self-esteem	08	05	.19	14	17	81.	1.00				
(8)	Self-efficacy	14	12	.21	24	18	.27	.43	1.00			
(9)	Perceived Control	ł										
• •	Over Health	.16	06	31	20	21	.33	.22	.21	1.00		
(10)	Marital Status	26	40	08	07	11	.10	.05	.13	.06	1.00	
	Monthly	1										
	Household Income	23	34	.11	14	13	.17	.10	.09	.16	.42	1.00

Some researchers (Norusis, 1994) suggest that if too many cases are missing on a particular variable, it may be wise to eliminate the variable from the analysis. Several missing cases on a variable creates two problems. First, results based on smaller sample sizes can be more variable. Second, those who do not have missing data may differ from those who do have missing data, leading to biased results (Norusis, 1994).

In terms of this analysis, the variable of monthly household income has a significant number of missing cases. Forty-nine respondents do not know their average monthly household income, while thirty individuals refused to answer the question. Therefore, additional discriminant function analyses are conducted. A discriminant function analysis is performed without the monthly household income variable (Equation 2). This version is compared to Equation 1 in order to establish

whether the smaller sample size (a result of the monthly household income variable being included) produces different results.

In addition to exploring any differences that exist because of sample size, it is also necessary to consider any differences between respondents who do and who do not have missing data on the monthly household income variable. Consequently, Equation 3 takes into account respondents who provide monthly household income information, while Equation 4 considers respondents who did not provide this information. The monthly household income variable is excluded in both of these analyses.

# Results of Discriminant Function Analyses: Equation 1

The first DFA includes the eleven variables that were found to differentiate EPs and NEPs at the bivariate level (Equation 1). Results are based on a sample size of 298, as the remainder (n = 93) did not have information for all eleven variables. Results reveal that these factors are able to significantly differentiate between EPs and NEPs (Table 11 - Column 2). However, it should be noted that only 13.7% of the variability in the discriminant scores is attributable to between group differences. Upon considering the standardized Canonical discriminant function coefficients, it is evident that the variables of age and ADL/IADL limitations contribute the most to this function, while the third ranked variable of chronic health problems contributes close to one-half less than its predecessors. Positive standardized Canonical discriminant function coefficients indicate that higher scores

<sup>&</sup>lt;sup>26</sup> For these analyses, all of the independent variables are entered in concurrently.

for the variables are associated with the event in question occurring. In this case, advancing age, more ADL/IADL limitations, and more chronic health problems are associated with having eye problems. Finally, as a part of the DFA, the classification procedure indicates that 69.1% of the cases could be correctly classified when only their values on the eleven discriminating variables are known. This is 19.1% better than expected by chance alone.

**TABLE 11: Discriminant Function Analyses Results** 

	Equation 1	Equation 2	Equation 3	Equation 4
	Entire Sample	Entire Sample	Respondents that Provide Income Information	Respondents that Do Not Provide Income Information
	(n = 298)	(n = 373)	(n = 298)	(n=76)
	Standardize	d Canonical Disci	riminant Function	Coefficients <sup>1</sup>
VARIABLES				
Age	+.44	+.41	+.46	+.25
Gender	+.21	+.20	+.26	13
Self-assessed Health Status	+.17	+.18	+.15	+.24
Chronic Health Problems	+.22	+.38	+.23	+.73
ADL/IADL Limitations	+.43	+.41	+.43	+.38
Life Satisfaction	17	13	20	+.18
Self-esteem	13	26	14	46
Self-efficacy	07	+.08	06	Not Included
Perceived Control Over Health	11	17	12	Not Included
Marital Status	+.04	05	02	Not Included
Monthly Household Income	20	Not Included	Not Included	Not Included
FUNCTION STATISTICS				
Canonical Correlation	.37	.38	.37	.50
(Canonical Correlation) <sup>2</sup>	13.7	14.4	13.7	25.0
Wilks' Lambda	. <b>86, p&lt;</b> .001	.86, p<.001	. <b>87</b> , p<.001	.75, p<.01
$\chi^2$ , d.f.	43.33, 11	57.02, 10	42.17, 10	19.82, 7
Significance Level	p<.001	p<.001	p<.001	p<.01
Eigenvalue	.16	.17	.16	.32
Percentage of Cases Correctly				
Classified	<b>69</b> . I	70.5	68.8	72.4

<sup>&</sup>lt;sup>1</sup> A positive sign (+) indicates that higher scores for the variable are associated with having eye problems; a negative sign (-) indicates that higher scores for the variable are associated with not having eye problems.

#### Results of Discriminant Function Analyses: Equation 2

In general, the results of Equation 2 (Table 11 - Column 3) are consistent with the results of Equation 1. The results are based on 373 cases, as the remaining eighteen did not have complete information for the ten variables. To begin, the factors do significantly differentiate between the two groups, while 14.4% of the variability in the discriminant scores is a result of between group differences. Similar to Equation 1, age, chronic health problems, and ADL/IADL limitations contribute the most to the function. Classification results reveal that 70.5% of the time, respondents are placed in the correct group (EP, NEP) when only their values on these ten discriminating variables are known. After considering the findings of both equations (Equations 1 & 2), it does not appear that the smaller sample size (a result of the monthly household income variable being included) alters results substantially.

An additional analysis (not reported in Table 11) conducted with only the three variables of age, chronic health problems, and ADL/IADL limitations is also statistically significant. These findings suggest that these three variables alone serve to distinguish between EPs and NEPs. However, in comparison to those analyses where more variables are included, less of the variance in the discriminant scores is attributed to between group differences (10.2%). Finally, when only the variables of age, chronic health problems, and ADL/IADL limitations are included, 67.5 percentage of cases are correctly classified into the groups of EPs and NEPs.

# Results of Discriminant Function Analyses: Equation 3

In addition to exploring any differences that exist because of sample size, it is also necessary to consider any differences between respondents who do and who do not have missing data on the monthly household income variable. Consequently, Equation 3 takes into account respondents who provide monthly household income information, while Equation 4 considers respondents who did not provide this information. The monthly household income variable is excluded in both of these analyses. It is important to note that within these two groups of individuals (provide monthly household income versus do not provide monthly household income), the proportion of EPs and NEPs is consistent with those found within the entire sample.<sup>27</sup>

The results for Equation 3 are based on 298 out of a possible 312 cases, as some respondents did not have complete information for the ten variables. The findings are consistent with the two previously reported on analyses, as the ten factors successfully differentiate between the two groups. However, only 13.7% of the variability in the discriminant scores is a result of between group differences (Table 11 - Column 4). Similar to the previous two equations, age, chronic health problems, and ADL/IADL limitations contribute the most to the function. Classification results reveal that 68.8% of the time, study participants are placed in the correct group (EP, NEP) when only their values on these ten discriminating variables are known.

 $<sup>^{27}</sup>$  Among those who provided monthly household income (n = 312), 31.7% are EPs, while 68.3% are NEPS. Among those who did not provide monthly household income (n = 79), 34.2% are EPs, while 65.8% are NEPs.

# Results of Discriminant Function Analyses: Equation 4

The final discriminant function analysis (Equation 4) includes respondents who have missing data on the monthly household income variable. In order to fulfill the ratio of one variable for every ten cases, only seven variables were included. Self-efficacy, perceived control over health, and marital status were dropped from this analysis, as they were found to be least influential in the previous analyses (Equations 1 - 3). The Results are based on 76 of the 79 cases, as three individuals did not have complete information for the seven variables. Like the previous three analyses, results of Equation 4 confirm that the seven discriminator variables differentiate between the two groups (Table 11 - Column 5). The corresponding Canonical correlation suggests that 25.0% of the variability in the discriminant scores is attributable to between group differences. However, due to a small sample size these results should be viewed cautiously. A consideration of the standardized Canonical discriminant function coefficients reveals that chronic health problems, and self-esteem contribute most to the function, with the former contributing more than the latter. Finally, classification results reveal that 72.4% of the time, respondents are placed in the correct group (EP, NEP) when only their values on the discriminating variables are known.

If we compare respondents who do and who do not have missing data on the monthly household income variable, it appears that different variables contribute the most to differentiating between EPs and NEPs in each of the samples. In the case of respondents who provide income information (Equation 3), age, ADL/IADL

limitations, and chronic health problems contribute the most to the function. In comparison, for respondents who do not provide income information (Equation 4), chronic health problems, self-esteem, and ADL/IADL limitations are the three factors that contribute the most to the function. Due to the limited sample size of the latter group, it is difficult to say whether the differences that appear here are legitimate, or if they are simply a reflection of the relatively small sample size.

#### Summary of the Multivariate Analyses

The results of the multivariate analyses confirm those findings reported at the bivariate level. All four of the discriminant function analyses reveal that the variables which are found to differ statistically across the two groups at the bivariate level, also serve to distinguish between the two groups when considered in combination at the multivariate level. Notwithstanding the statistical significance, the effectiveness of the discriminant variables as a group is weak. Age, chronic health problems, and ADL/IADL limitations appear to contribute the most to between group differences.

When individuals who do not have missing data on the monthly household income variable are compared to respondents who do, there appears to be a slight variation in terms of the variables which contribute the most (relative to the other variables) to distinguishing among the two groups. However, the extent of this difference is difficult to establish, due to the relatively small sample size of respondents who have missing data on the monthly household income question.

Finally, classification results across all of the DFAs are relatively consistent. The findings suggest that on average seven out of ten respondents are assigned to the correct group, when the values to the discriminator variables is all that is known.

# **Chapter Conclusion**

The main objective of this chapter was to report on the findings of Research Question # 1. The chapter began with comparisons between EP and NEP groups in terms of both socio-demographic characteristics and coping resources. With the use of various bivariate statistics, it was found that the two groups differ in terms of a number of indicators. First, the EP group is more likely to be older, and female, than the NEP group. Secondly, EPs self-assess their health as poorer, have more chronic health problems and more ADL/IADL limitations than the NEP group. Next, EPs express less perceived control over their health, and score lower in terms of life satisfaction, self-esteem, and self-efficacy than NEPs. Finally, EPs are more likely to not be currently married than NEPs, and to have lower monthly household incomes. The chapter also included the results of four separate discriminant function analyses, which confirmed findings found at the bivariate level. Age, chronic health problems, and ADL/IADL limitations were found to contribute the most to between group differences.

# **CHAPTER FIVE: FINDINGS OF RESEARCH QUESTION # 2**

#### **Chapter Introduction**

This chapter has two main objectives. The first objective is to describe the situation of people who are living with vision loss in later life. To begin, details on diagnoses, and length of time with eye problem(s) are presented. Secondly, the eye conditions/diseases that EPs report will be considered. Finally, the sample will be described in terms of perceived cause(s), perceived symptom(s), and the amount of interference and bother that the symptoms cause them. It should be noted that diagnoses information, and eye conditions/diseases are included for descriptive purposes only, and will not be utilized in further analyses.

The second objective of this chapter is to address Research Question # 2

"What are the coping strategies used by older adults with vision loss, and to what

extent is there variation in these strategies?" This research question focuses on

describing the coping strategies used by older adults with vision loss. To determine

what strategies are used, the actions reported to deal with the problem are considered.

The chapter begins by considering details on diagnoses.

#### Diagnoses

The overwhelming majority of EPs (99.2%) indicate that their eye problem(s) have been diagnosed by a health care professional (Table 12). Over-one half (57.9%) of those who have had the problems diagnosed state that an opthamologist diagnosed

them, while an equal number of respondents (16.5%) report that either a general practitioner/family doctor/emergency MD or specialist MD provided the diagnosis.<sup>1</sup>

TABLE 12: Details on Diagnoses Reported by the Eye Problem (EP) Group

Variable	% of EPs
Diagnosed	$(n = 123)^{l}$
No	0.8
Yes	99.2
Type of Professional Giving Diagnosis	$(n = 121)^2$
Opthamologist	57.9
GP/Family/Emergency MD	16.5
Specialist MD	16.5
Optometrist	9.1
Length of Time Since Diagnosis (Years)	$(n = 119)^3$
0-1	40.3
2-3	19.3
4-9	24.4
10+	16.0
Mean (S.D.)	5.5 (8.1)

<sup>&</sup>lt;sup>1</sup> The sample does not total 126 as some respondents were interviewed over the telephone and were not asked this question (n = 3) (i.e. missing values).

Respondents also report on when the diagnosis was made (Table 12). The length of time since the diagnosis ranges from less than one to forty-two years. Over

<sup>&</sup>lt;sup>2</sup> The sample does not total 126 as some respondents were interviewed over the telephone and were not asked this question (n = 3) (i.e. missing values), or did not have the eye problem(s) diagnosed (n = 1).

<sup>&</sup>lt;sup>3</sup> The sample does not total 126 as some respondents were interviewed over the telephone and were not asked this question (n = 3), did not answer the question (n = 2) (i.e. missing values), did not know the length of time since the diagnosis (n = 1), or did not have the eye problem(s) diagnosed (n = 1).

<sup>&</sup>lt;sup>1</sup> Some respondents simply state that a "specialist" diagnosed their eye problems; therefore, it is unknown as to the type of specialist.

one-third of the group (40.3%) indicate that the diagnosis was made in the last year, while 43.7% state that that the diagnosis took place two to nine years ago. Finally, 16.0% of EPs say that they were provided with a diagnosis ten or more years ago.

# Length of Time With Eye Problem(s)

In addition to respondents indicating the length of time since their diagnosis, they are asked how long ago they noticed the problem (Table 13). The length of time with eye problem(s) ranges from less than one to eighty-one years. Over one-quarter (26.2%) of EPs have had their eye problem(s) for less than one year, while over one-half (50.8%) have had the condition for two to nine years. Finally, 23.0% of EPs have had their eye condition(s) for ten or more years.

TABLE 13: Length of Time with Eye Problems Reported by the Eye Problem (EP) Group

Variable	% of EPs
Length of Time with Eye Problems (Years)	(n = 126)
0-1	26.2
2-3	27.0
4-9	23.8
10+	23.0
Mean (S.D.)	8.0 (13.4)

When the length of time with eye problems is compared to the length of time since the diagnosis, EPs report similar time frames (Table 14). Over one-half (53.8%) of EPs noticed the problem and had it diagnosed in the three years prior to

the interview. Similarly, over one-third (40.3%) of the group noticed the problem and had it diagnosed four or more years prior to the interview. Few individuals (5.9%) acknowledge that they have had the problem four or more years, but have only had it diagnosed in the previous three years. Not surprising, there are no individuals who report having the problem diagnosed before they noticed it. In summary, EPs generally receive diagnoses relatively soon after noticing their eye problem(s).

TABLE 14: A Comparison of the Length of Time with Eye Problems and Length of Time Since Diagnosis Reported by the Eye Problem (EP) Group

	% of EPs <sup>1</sup>	% of EPs <sup>1</sup>
	Length of Time wit	h Eye Problems (Years)
	0 - 3 Years	4+ Years
Length of Time Since	•	
Diagnosis (Years)		
0 - 3 Years	53.8	5.9
4+ Years	0.0	40.3

<sup>&</sup>lt;sup>1</sup> The sample is equal to 119 as the remainder did not answer one of the two questions (i.e. missing values), or were not required to answer (i.e. not applicable). See Table 12 for more details

#### **Eye Conditions/Diseases**

It is difficult to specify the eye conditions/diseases that EPs have, as the respondents were not asked to name their eye condition/disease. However, it is possible to estimate the frequency of certain conditions/diseases as interviewers regularly wrote information on the interview schedule. This information on eye

<sup>&</sup>lt;sup>2</sup> The correlation between the original variables (Years - continuous) is not as strong as it is for the collapsed variables (Pearson's = 0.71, p<.0001).

conditions/diseases is available for eighty-five respondents (67.4% of EPs). The majority (75.3%) of this sub-group mention that they have cataracts (Table 15). The second most frequently identified condition is glaucoma (17.6%), followed by macular degeneration (8.2%). Finally, 9.4% of EPs report having other conditions/diseases such as retinitis (n = 4), vascular problems caused by an accident (n = 2), growth on eye (n = 1), and stye (n = 1). Due to the limited sample size, it is difficult to make any sort of comparison to the Manitoba or Canadian senior population; however, the eye conditions/diseases of this sample generally reflect those found in the larger society (see National Advisory Council on Aging, 1990).

TABLE 15: Eye Conditions/Diseases Reported by the Eye Problem (EP) Group

Variable	% of EPs	
Eye Condition/Disease	$(n=85)^1$	
Cataracts	75.3	
Glaucoma	17.6	
Macular Degeneration	8.2	
Other <sup>2</sup>	9.4	

<sup>&</sup>lt;sup>1</sup> There is no information on eye condition/disease for the remainder of the sample.

#### Perceived Cause(s)

To determine the perceived cause(s) of eye problem(s), EPs are asked "What, in your opinion, caused this problem?" Over one-half (53.6%) do not provide a cause, while 45.2% report one perceived cause, and one individual (0.8%) reports two

<sup>&</sup>lt;sup>2</sup> Examples of other conditions/diseases are retinitis (n = 4), vascular problems caused by an accident (n = 2), growth on eye (n = 1), and stye (n = 1).

<sup>&</sup>lt;sup>3</sup> The percentages add up to more than 100% as some respondents reported more than one eye condition/disease.

causes. In general, EPs report a variety of causes (Table 16). Perceived causes will be reported in order from most to least frequently mentioned. The frequency for a given cause represents the percentage of EPs who report the given cause.

TABLE 16: Perceived Cause(s) Reported by the Eye Problem (EP) Group

Variable	% of EPs
Number of Perceived Causes Reported <sup>1</sup>	$(n = 125)^2$
0	53.6
1	45.2
2	0.8
Perceived Cause	$(n = 125)^2$
Do Not Know Cause	53.6
Advancing Age	20.8
Eye-Related	8.8
Hereditary/Genetic	6.4
Environmental Factors	4.0
Other Health Conditions	4.0
Medical Error	3.2

Respondents who do not know the cause of their eye problems are in the category of "0".

In addition to EPs (53.6%) who do not know the cause of their eye problems, there are six categories of causes that respondents report. These include: advancing age, eye related, hereditary/genetic, environmental factors, other health conditions, and medical error. The most frequently mentioned cause is advancing age, which is given by 20.8% of the EP group. Respondents in this group acknowledge "old age" or "aging" as the cause of their eye problem(s).

<sup>&</sup>lt;sup>2</sup> The sample does not total 126 as one individual did not answer the question (i.e. missing value)

<sup>&</sup>lt;sup>3</sup> The perceived cause percentages add up to more than 100% as one respondent reported two causes.

Close to one-tenth (8.8%) of the group make an eye related reference when asked to name the cause of their eye problems. Examples include "pressure behind the eye", "growth in eye", "nerves have dried up", and "blood doesn't go to entire of eyes". Hereditary/genetic is named as the cause of eye problems by 6.4% of EPs. Examples of responses categorized here are "inherited", and "weakness from birth that degenerated".

Equal numbers of EPs (4.0%) report that their eye problem(s) is caused by environmental factors, or is the result of other health conditions. The environmental factors include climate reasons (e.g., "too much UV sunlight"), in addition to accidents in both the home and at work. A recounting of a childhood accident is given by one respondent, who states that "I fell when I was a young child-[and] hit [the] corner of my eye on the table". Moreover, a few respondents implicate their work environments as the cause of their eye problems (e.g., "from working in the sewing factory", and "welding torches flashes damaged eyes"). Examples of other health conditions that are given are diabetes, slight stroke, and arthritis. Finally, 3.2% of EPs indicate that medical error is what caused their eye problems (e.g., "poor job done on one eye [cataract surgery] 1950's - vision poor because of that", and "I think they [cataracts] may be caused by my shock treatments").

Among this sample, not knowing the cause of one's eye problems, or reporting advancing age as the cause of one's eye problems is not associated with one's age or gender (Appendix G - A & B). It is not possible to make such comparisons with the other perceived causes (eye related, hereditary/genetic,

environmental factors, other health conditions, and medical error) and the variables of age and gender, due to the relatively few respondents who report such causes.

# Perceived Symptom(s)

To determine the perceived symptom(s) associated with eye problems, EPs are asked "What are the specific symptoms of this problems?" Over one-tenth (13.6%) of EPs do not report any symptoms, while 72.0% identify only one symptom, and 14.4% report two or more symptoms (Table 17). Perceived symptoms will be reported in order from most to least frequently mentioned. The frequency for a given symptom represents the percentage of EPs who report the given symptom.

TABLE 17: Symptoms Associated with Eye Problems Reported by the Eye Problem (EP) Group

Variable	% of EPs
Number of Symptoms	$(n = 125)^1$
0	13.6
1	72.0
2+	14.4
Type of Symptom	$(n = 125)^1$
Poor Vision	72.0
Eye Irritations	24.8
Headaches/Dizziness	1.6

<sup>&</sup>lt;sup>1</sup> The sample does not total 126 as one respondent did not answer the question (i.e. missing value)

Not surprising, the most frequently mentioned symptom (72.0%) by EPs is **poor vision**. For example, one individual states that she "can't read [the] phone book

without magnifying glasses". Moreover, she experiences blurred and double vision when her eyes are tired. Next, close to one-quarter (24.8%) of EPs state that they experience eye irritations. Examples of this symptom include "watering eyes", "itchy eyes", "eye pain", or "growth in the eye". Finally, only 1.6% of the EP group indicate that they have headaches/dizziness.

Somewhat surprising, reporting no symptoms is not associated with the length of time with eye problem(s) (Appendix G - C). In other words, having eye problem(s) for a longer amount of time is not indicative of an individual experiencing symptoms from the condition. Neither the symptoms of poor vision nor eye irritation are found to be associated with age, gender, or length of time with eye problem(s). (Appendix G - D & E). Finally, due to few respondents reporting the symptom of headaches/dizziness, it is not possible to make any comparisons with this symptom.

#### **Amount of Interference**

Turning to the amount that symptoms interfere with day to day living, over one-half (65.6%) of EPs report that the symptoms associated with their eye problems do not interfere at all with their day-to-day living (Table 18). In comparison, over one-third (34.4%) of EPs state that the symptoms interfere with their day-to-day living some, or a great deal.

TABLE 18: Amount of Interference, and Interference Described, Reported by the Eye Problem (EP) Group

Variable	% of EPs
Amount of Interference	$(n=125)^{1}$
Not At All	65.6
Some	25.6
A Great Deal	8.8
Interference Described	$(n=43)^2$
Affects Activities	74.4
Reference to Poor Vision	20.9
Need to Rest More	7.0
Irritating/Frustrating	2.3
Pain	2.3

<sup>&</sup>lt;sup>1</sup> If n for the sample does not total 126, the remainder did not answer the question (i.e. missing values).

#### **Interference Described**

Individuals who identified some or a great deal of interference are also asked to describe how the symptoms interfere with their day-to-day lives (Table 18). Over three-quarters (83.7%) provide one description, while 16.3% give two responses. The most frequently reported response by this group is that their symptoms affect their activities (74.4%). Responses are diverse and include leisure pursuits such as "cannot read newspaper or books", "trouble playing bingo", "can't knit anymore", as well as other activities of daily living such as "cooking, cleaning much more difficult", and "cannot read recipes". Finally, it is clear that eye problem symptoms

<sup>&</sup>lt;sup>2</sup> Includes only those who identified some or a great deal of interference.

 $<sup>^{3}</sup>$ The percentages for Interference Described add up to more than 100% as some respondents give two responses (n = 7).

interfere with one's mobility. Examples of mobility issues include "generally no driving at night", "can't go downtown by myself", and "have to walk carefully on uneven ground".

Over one-fifth (20.9%) of this sub-group make reference to their poor vision when asked to report how their eye problem symptoms interfere with their day-to-day lives. References to poor vision include "can't see to my left", and "can't see some distance in direct sunlight". Finally, the need to rest more (7.0%), being irritated/frustrated (2.3%), and pain (2.3%) are other ways that respondents describe how their symptoms interfere with their lives (Table 18).

#### **Amount of Bother**

Attention will now turn to the amount of **bother** that is reported by EPs (Table 19). Close to one-half (49.2%) of the respondents reveal that the symptoms associated with their eye problems do not cause them any bother, while the remainder of the group (50.8%) declare that the symptoms cause them some or a great deal of bother.

TABLE 19: Amount of Bother, and Bother Described, Reported by the Eye Problem (EP) Group

Variable	% of EPs
Amount of Bother	$(n = 122)^{I}$
Not At All	49.2
Some	35.2
A Great Deal	15.6
Bother Described	$(n=62)^2$
Emotional Response	<b>58.</b> 1
Activities Affected	33.9
Reference to Poor Vision	12.9
Problems with Devices	3.2
Pain	1.6

<sup>&</sup>lt;sup>1</sup> If n for the sample does not total 126, the remainder did not answer the question (i.e. missing values).

#### **Bother Described**

Similar to the question on interference, the respondents who report some or a great deal of bother, are asked to describe the bother. Over three-quarters (87.1%) provide one description, while the remaining 12.9% give two responses. Over one-half (58.1%) of EPs describe their bother in terms of an emotional response (Table 19). In general, respondents refer to being frustrated, annoyed, depressed or worried about the symptoms that accompany their eye problems. More specifically, one respondent describes her bother by admitting that her symptoms have "taken the joy out of reading as her eyes become blurry in a short time".

<sup>&</sup>lt;sup>2</sup> Includes only those who identified some or a great deal of bother.

<sup>&</sup>lt;sup>3</sup>The percentages for Bother Described add up to more than 100% as some of the respondents give two responses (n = 8).

Other EPs (33.9%) describe the bother in relation to the activities that are affected by it. Responses included in this category are, "hard to sew", and "bothersome because I love to read". Next, there are EPs who describe the bother by making a reference to their poor vision (12.9%) (e.g., "I would like to see better" and "in poor light can't make out things I want to see"). Finally, problems with devices (3.2%), and pain (1.6%) are also ways that respondents describe the bother created by their symptoms (Table 19).

When the amount of interference is compared with the amount of bother, it is not surprising that the two are strongly correlated (Phi = .60) (Appendix G - F). EPs who report some or a great deal of interference are also likely to report some or a great deal of bother. In comparison, EPs who report no interference generally report no bother.

Turning to symptoms, EPs who report one or more symptoms are more likely to report some/a great deal of interference and some/a great deal of bother than EPs who report no symptoms (Appendix G - F). The symptom of poor vision is significantly associated with both the amount of interference and bother that are reported (Appendix G - D). In general, EPs who indicate poor vision as a symptom are more likely to report some/a great deal of both interference and bother, than EPs who do not report poor vision as a symptom. However, not withstanding the statistical significance, the relationships are weak ones. The symptom of eye irritations is not found to be associated with the amount of interference and bother that are reported (Appendix G - E).

Age is not found to be associated with the amount of either interference or bother that are reported (Appendix G - F & G). Moreover, although the variable of gender is not found to be related to the amount of bother, it is found to be associated with the amount of interference (Appendix G - F & G). Women (28.6%) are less likely than men (50.0%) to report some/a great deal of interference (Phi = -.20). However, this finding is presented cautiously, due to the relatively small sample size of men (n = 34). Finally, the length of time with eye problem(s) is not found to be related to the amount of interference or bother that is reported by EPs (Appendix G - F & G).

# A Summary of the Situation of EPs

The first portion of this chapter has focused on describing the situation of EPs. In summary, the large majority of the group have had their eye problems diagnosed by a health care professional. The length of time since the diagnosis, and the length of time since the problems were noticed, varies across the group. Although there are various eye conditions/diseases that are mentioned by respondents, the majority indicate that they have cataracts. Over one-half of EPs state that they do not know the cause of their eye problems. In comparison, close to one in five EPs identify the perceived cause of advancing age. Finally, the most frequently mentioned symptoms associated with the eye problem(s) are poor vision and eye irritation.

### Coping Strategies

Now that the situation of EPs has been described in detail, the coping strategies which are taken to deal with the eye problems will be presented.

Respondents are asked "What actions, if any, do you take to deal with this problem?"

It should be noted that the terms coping strategies and actions will be used interchangeably. The frequency for a given action represents the percentage of respondents who reported taking that action.

To begin, over one-tenth of EPs (14.3%) report that they do not take action to deal with their eye problems (Table 20). In comparison, over one-half (54.8%) of the group report taking one action, and 31.0% report two or more actions. The actions that are given will be considered individually, in the order of most to least frequently mentioned. The actions include doctor visits/surgery, medication use, use of special equipment/devices, and lifestyle adjustments. The frequency for a given action represents the percentage of EPs who report the given action.

TABLE 20: Coping Strategies Used to Deal With Eye Problems
Reported by the Eye Problem (EP) Group

Variable	% of EPs
Number of Coping Strategies	(n = 126)
0	14.3
I	54.8
2+	31.0
Type of Coping Strategy	(n = 126)
Doctor visits/surgery	61.9
Medication use	29.4
Use of special equipment/devices	14.3
Lifestyle adjustments	10.3

<sup>&</sup>lt;sup>1</sup> The percentages add up to more than 100% as some respondents reported more than one coping strategy.

The most likely action taken by EPs is **doctor visits/surgery** (61.9%).

Examples include routine check-ups with a general practitioner, optometrist or opthamologist. In addition, surgery (e.g., removal of cataracts) is also included here. The second most frequently mentioned action is **medication use** (29.4%). Internal, external, non-prescription, prescription medications, and eye bathing solutions are considered here.

Next, 14.3% of EPs indicate that they use special equipment/devices to help manage with their eye problems. While few EPs mention the use of special markers on the stove, or needle threaders, the majority refer to lenses such as "eye glasses for reading", "magnifying glasses", and "tinted glasses". The remaining strategy of lifestyle adjustments is given by relatively few respondents (10.3%). This category

includes actions such as decreasing activities (e.g., not reading or watching as much television), avoiding problems (e.g., staying away from rush hour traffic), and altering one's lifestyle (e.g., no longer driving at night).

In summary, although there is variance in the strategies that are taken by EPs to deal with eye problems, all of the strategies are examples of problem-focused strategies. Furthermore, the strategies tend to be medically oriented, with little reporting of self-care type strategies. This consideration of the actions reveals that it is not possible to classify the responses into the two categories of problem-focused and emotion-focused coping strategies (Lazarus & Folkman, 1984). Subsequently, the coping strategy categories of doctor visits/surgery, medication use, use of special equipment/devices, and lifestyle adjustments will be retained for further analyses.

# Chapter Summary

This chapter began by examining the situation of older adults who are living with vision loss. Details on diagnoses, length of time with eye problem(s), eye condition/disease, perceived cause(s), perceived symptom(s), and the amount of interference and bother were all considered. This descriptive analysis of the situation of older adults who are living with eye problems has provided a consideration of the differences that exist within this sample.

The second section of the chapter focused on the coping strategies used by older adults to deal with vision loss. It was determined that there is variation in terms of the actions that are taken to deal with one's eye problems. Doctor visits/surgery,

medication use, use of special equipment/devices, and lifestyle adjustments were the actions most frequently mentioned by EPs. The following chapter will further explore the variation that exists in terms of the strategies that are taken, and the effect of certain socio-demographic characteristics, appraisals, and coping resources, on the coping strategies that are taken by older adults living with eye problems. Moreover, EPs who take an action, will be compared to EPs who do not take action in order to determine any differences between the two groups.

### **CHAPTER SIX: FINDINGS OF RESEARCH QUESTION #3**

# **Chapter Introduction**

The purpose of this chapter is to report on the findings of Research Question # 3 "To what extent are the variations in the strategies taken to manage with vision loss related to socio-demographic characteristics, appraisals, and coping resources?" As the analyses proceed in several stages, the chapter will be divided into sections. The first section will focus on a comparison between EPs who do and who do not take an action(s) to deal with their eye problem(s). Following this comparison, the most frequently mentioned coping strategies will be discussed in turn.

Socio-demographic characteristics, appraisals, and coping resources will be considered in relation to the specific coping strategies. It should be noted that some variables are deleted from this portion of the analyses, as there are too few individuals in certain response categories to conduct statistical analyses. In the case of perceived causes and perceived symptoms, only those responses that are given by over ten percent of the EP group are included. The perceived causes include not knowing the cause, and advancing age. The perceived symptoms reported by over ten percent of EPs include no symptoms, poor vision, and eye irritation. Finally, in the case of coping strategies, doctor visits/surgery, medication use, and use of special equipment/device are included, while the least frequently mentioned coping strategy (lifestyle adjustments) is eliminated from further analyses due to a small sample size.

<sup>&</sup>lt;sup>1</sup> The perceived causes deleted are eye related, hereditary/genetic, environmental factors, medical error, and other health conditions, while the symptom excluded is headaches/dizziness.

In order to determine what factors are associated with the use of certain strategies at the bivariate level, chi-square and the significance level are examined. A significance level of p<.05 is used as the sample size is relatively small (Hopkins, Glass, & Hopkins, 1987). The strength of the relationship is measured by various statistics (Phi and Cramer's V). These statistics have values which range from 0 to ± 1. A larger magnitude (either negative or positive) indicates a stronger relationship. Those relationships of more than 0.60 are considered to be strong, while those between 0.30 to 0.50 are rated as moderate, and those less than 0.30 are weak (Hickey, 1986).

The multivariate analysis technique of hierarchical logistic regression is used to establish the relative influence on socio-demographic characteristics, appraisals, and coping resources on the use/non-use of individual coping strategies.<sup>2</sup> In order to limit the number of independent variables that advance from the bivariate analyses to the multivariate analyses,<sup>3</sup> only those variables that are found to be statistically significant (p<.05), or approaching significance (p<.10) at the bivariate level are retained for the multivariate analyses.

Researchers such as Mickey and Greenland (1989) have argued that p<.05 is too low as it may exclude important variables from the model. Although some variables may not be associated with the dependent variable at the bivariate level, they may end up being important when considered in combination with other variables. Bendel and Afifi (1977) recommend that the statistical significance

<sup>3</sup> The ratio that is being used is one variable for every ten cases.

<sup>&</sup>lt;sup>2</sup> Socio-demographic characteristics are entered first, followed by appraisals, and then coping resources.

criterion for entry should be even higher (p = 0.15 to 0.20); however, due to the relatively small sample size, the level used here is 0.10.

Finally, the variables of age and gender will be included in the logistic regression models regardless of their significance level. These two variables are not only of substantive interest, but also serve as examples of socio-demographic characteristics. The chapter begins by comparing EPs who do and who do not take an action(s) to deal with their eye problem(s).

# A Comparison of Action Taken and No Action Taken Groups

In order to identify differences between EPs who do and who do not take actions to deal with their eye problem(s), a comparison of the two groups according to socio-demographic characteristics, appraisals, and coping resources is conducted.<sup>4</sup> Of the 126 EPs, over three-quarters (85.7%) report taking one or more actions, while 14.3% take no action. As there are relatively few EPs who do not report the use of an action (n = 18), the results must be interpreted with caution. The relatively small sample size limits the analyses that can be conducted. For example, the  $\chi^2$  could not be calculated for close to one-third of the relationships as there were less than five cases in at least one of the cells.

Overall, socio-demographic characteristics, appraisals, and coping resources do not appear to influence whether EPs do or do not take action to deal with their eye problem(s) (Table 21). More specifically, a series of cross-tabulations reveal that

<sup>&</sup>lt;sup>4</sup> See Table 21 for the variables that are used in the analyses, and their categories.

there are no statistically significant differences in terms of socio-demographic characteristics (age and gender) between EPs who do and who do not take actions to deal with their eye problems. Turning to appraisals, perceived cause(s), perceived symptom(s), length of time with eye problem(s), amount of interference, and amount of bother do not appear to influence whether EPs do or do not take action to deal with their eye problem(s). Small sample sizes do not allow for  $\chi^2$  values to be calculated for the perceived cause of advancing age, the reporting of no symptoms, and the amount of interference.

TABLE 21: A Comparison Of Action Taken and No Action Taken Groups by Socio-demographic Characteristics, Appraisals, and Coping Resources<sup>1</sup>

Variables		Action Taken <sup>2</sup> %	No Action Taken <sup>2</sup> %
SOCIO-DEDROGRAPHIC CHARACTERISTICS			
Age		COLUMN TO A COLUMN TO THE COLU	
68 - 79	(n=74)	<b>85</b> .1	14.9
80+	(n = 52)	86.5	13.5
$\chi 2 = .05$ , d.f. = 1, p = .82; Phi =02			
Gender			
Male	(n = 35)	85.7	14.3
Female	(n=91)	<b>85</b> .7	14.3
$\chi 2 = .00$ , d.f. = 1, p = 1.00; Phi = .00			
APPRAISALS		apartamentarius	
Cause - Do Not Know			
Know cause	(n = 58)	<b>87</b> .9	12.1
Do not know cause	(n = 67)	83.6	16.4
$\chi 2 = .48$ , d.f. = 1, p = .49; Phi = .06			
Cause - Advancing Age <sup>4</sup> (AA)			
AA not reported as cause	(n = 99)	85.9	14.1
AA reported as cause	(n = 26)	84.6	15.4
Symptom - No Symptoms <sup>4</sup>			
At least one symptom	(n=108)	86.1	13.9
No symptoms	(n=17)	82.4	17.6
Symptom - Poer Vision (PV)			
PV not reported as a symptom	(n = 35)	85.7	14.3
PV reported as a symptom	(n = 90)	<b>85</b> .6	14.4
$\chi 2 = .00$ , d.f. = 1, p = .98; Phi = .00			
Symptom - Eye Irritation (EI)			
EI not reported as a symptom	(n = 94)	86.2	13.8
EI reported as a symptom	(n=31)	83.9	16.1
$\chi 2 = .10$ , d.f. = 1, p = .75; Phi = .03			
Length of Time With Eye Problem(s) (Years			
0 - 3	(n=67)	<b>82</b> .1	17.9
<del>4-</del>	(n = 59)	89.8	10.2
$\chi 2 = 1.54$ , d.f. = 1, p = .22; Phi =11			
Amount of Interference			
Not at all	(n=82)	82.9	17.1
Some/a great deal	(n=43)	90.7	9.3
Amount of Bother			
Not at all	(n = 60)	86.7	13.3
Some/a great deal	(n=62)	83.9	16.1
$\chi 2 = .19$ , d.f. = 1, p = .66; Phi = .04			

<sup>&</sup>lt;sup>1</sup> In this table the percentages are added horizontally and the comparisons are made vertically. <sup>2</sup>The sample size of the action taken group is 108 (18 for the no action taken group). <sup>3</sup>If n does not equal 126 on an independent variable the remainder are missing values. <sup>4</sup> $\chi^2$  cannot be calculated as there are less than 5 cases in at least one of the cells.

Table 21 continued

		Action Taken <sup>2</sup>	No Action Taken <sup>2</sup>
Variables			70
HEALTH STATUS	45		
Self-assessed Health Status			
Bad/Fair/Poor	(n=65)	86.2	13.8
Good/Excellent	(n=61)	85.2	14.8
$\chi 2 = .02$ , d.f. = 1, p = .88; Phi = .01			
Number of Chronic Health Problems			_
0 - 2	(n = 35)	85.7	14.3
3 - 4	(n = 44)	<b>84</b> .1	15.9
5+	(n=47)	87.2	12.9
$\chi 2 = .18$ , d.f. = 2, p = .91; Cramer's V = .04	4		
Number of ADL/IADL Limitations			
0	(n=58)	<b>84</b> .5	15.5
I+	(n=68)	86.8	13.2
$\chi 2 = .13$ , d.f. = 1, p = .72; Phi =03			
PSYCHOLOGICAL RESOURCES			emerani Manazaran
Life Satisfaction <sup>4</sup>			
0 - 19 (Poor/Fair)	(n = 80)	82.5	17.5
20 - 26 (Good/Excellent)	(n = 43)	90.7	9.3
Self-esteem			
0 - 19 (Poor/Fair)	(n = 59)	<b>83</b> .1	16.9
20 - 30 (Good/Excellent)	(n = 64)	87.5	12.5
$\chi 2 = .49$ , d.f. = 1, p = .49; Phi =06	,		
Self-efficacy			
0 - 31 (Poor/Fair)	(n = 78)	87.2	12.8
32 - 51 (Good/Excellent)	(n = 45)	82.2	17.8
$\chi 2 = .56$ , d.f. = 1, p = .45; Phi = .07	,		
Perceived Control Over Health			
None/Some	(n = 97)	86.6	13.4
A great deal	(n = 28)	<b>82</b> .1	17.9
$\chi 2 = .35$ , d.f. = 1, p = .55; Phi = .05	,		
External Health Locus of Control			
0 - 4 (Low)	(n = 43)	90.7	9.3
5 - 9 (High)	(n = 79)	82.3	17.7
Internal Health Locus of Control	• •		
0 - 5 (Low)	(n = 54)	85.2	14.8
6 - 12 (High)	(n = 62)	87.2	12.9
$\chi 2 = .09$ , d.f. = 1, p = .77; Phi =03	<b>\ /</b>		
Medical Skepticism			
0 - 7 (Low)	(n = 54)	85.2	14.8
8 -15 (High)	(n = 63)	85.7	14.3
$\chi 2 = .01$ , d.f. = 1, p = .94; Phi =01	( /	• •	

<sup>&</sup>lt;sup>1</sup> In this table the percentages are added horizontally and the comparisons are made vertically. 
<sup>2</sup>The sample size of the action taken group is 108 (18 for the no action taken group). 
<sup>3</sup>If n does not equal 126 on an independent variable the remainder are missing values. 
<sup>4</sup> $\chi^2$  cannot be calculated as there are less than 5 cases in at least one of the cells.

Table 21 continued

a <u>na na manda da ma</u>		Action Taken <sup>2</sup> %	No Action Taken <sup>2</sup>
Variables			%
SOCIAL RESOURCES			
Marital Status			
Not currently married	(n=72)	84.7	15.3
Currently married	(n=54)	87.0	13.0
$\chi 2 = .14$ , d.f. = 1, p = .71; Phi =03			
Living Arrangements			
Lives alone	(n = 62)	82.3	17.7
Lives with at least one other	(n = 64)	89.1	10.9
$\chi 2 = 1.19$ , d.f. = 1, p = .28; Phi =10			
Size of Family Network (Family Members)			
0-4	(n=77)	87.0	13.0
5 <del>+</del>	(n = 49)	83.7	16.3
$\chi 2 = .27$ , d.f. = 1, p = .60; Phi = .05			
Number of Family Network Members Seen At	t Least Weekly		
0 - 2	(n = 86)	84.9	15.1
3+	(n = 40)	87.5	12.5
$\chi 2 = .15$ , d.f. = 1, .p = .70; Phi =03			
Number of Confidants			
0 - 1	(n = 64)	84.4	15.6
2+	(n = 62)	87.1	12.9
$\chi 2 = .19$ , d.f. = 1, p = .66; Phi =04			
Number of Friends <sup>4</sup>			
0 - 6	(n = 87)	83.9	16.1
7+	(n = 39)	89.7	10.3
Perceived Instrumental Support			
0 - 4 Tasks help is perceived to exist	(n = 11)	90.9	9.1
5 - 6 Tasks help is perceived to exist	(n = 115)	85.2	14.8
MATERIAL RESOURCES		East 1 to the first continue management	E Bhithelicine 'r
Monthly Household Income			
0 - \$1499	(n = 52)	76.9	23.1
<b>\$1500+</b>	(n = 47)	87,2	12.8
$\chi 2 = 1.76$ , d.f. = 1, p = .18; Phi =13			
Perceived Adequacy of Household Income <sup>4</sup>			
Very well/Adequately	(n = 102)	85.3	14.7
With some difficulty/Not very well	(n = 24)	87.5	12.5
Education (Years) 4			
0 - 8	(n = 35)	91.4	8.6
9 - 12	(n=71)	83.1	16.9
13+	(n = 19)	89.5	10.5

 $<sup>^1</sup>$  In this table the percentages are added horizontally and the comparisons are made vertically.  $^2$  The sample size of the action taken group is 108 (18 for the no action taken group).  $^3$  If n does not equal 126 on an independent variable the remainder are missing values.  $^4\chi^2$  cannot be calculated as there are less than 5 cases in at least one of the cells.

Neither health status (self-assessed health status, number of chronic health problems, number of ADL/IADL limitations), nor psychological resources (life satisfaction, self-esteem, self-efficacy, perceived control over health, external health locus of control, internal health locus of control, medical skepticism) appear to influence whether EPs do or do not take action to deal with their eye problem(s). Life satisfaction and external health locus of control do not have  $\chi^2$  values calculated because of a limited sample size.

Finally, of those social resources (marital status, living arrangements, size of family network, number of family network members seen at least weekly, and number of confidants), and material resources (monthly household income, perceived adequacy of household income, and education) that are considered, none appear to influence whether EPs do or do not take action to deal with their eye problem(s). The remainder of the indicators (number of friends, perceived instrumental support, perceived adequacy of household income, and education) were not statistically considered due to less than five cases in at least one of the cells.

Notwithstanding the fact that these groups do not differ in terms of these factors, the eighteen individuals who acknowledge not taking any actions to deal with their eye problems are eliminated from the remainder of the analyses. They are excluded in order to explore the factors that are associated with certain coping strategies among EPs who take actions to deal with their eye problems. Therefore, the sample size for the remainder of the analyses is 108. Attention will now turn to the factors associated with certain coping strategies.

# Factors Associated with Certain Coping Strategies

A series of cross-tabulations are conducted with each of the sets of independent variables (socio-demographic characteristics, appraisals, and coping resources), and the dependent variables (doctor visits/surgery, medication, special equipment/devices), in order to determine the factors that are associated with certain coping strategies. For each of the coping strategies under investigation, the results of the bivariate analyses (cross-tabulations) will be presented first, followed by the results of the multivariate analyses (logistic regressions). The first coping strategy to be considered is doctor visits/surgery.

## **Doctor Visits/Surgery - Bivariate Results**

Close to three-quarters (72.2%) of the 108 EPs in the sample report the coping strategy of doctor visits/surgery, while 27.8% do not. Cross-tabulation results between socio-demographic characteristics, appraisals, coping resources, and the strategy of doctor visits/surgery are presented in Table 22.<sup>5</sup> Only four of the thirty variables considered are significantly associated with the coping strategy of doctor visits/surgery at the p<.05 level. An additional two variables approach but do not reach statistical significance. The correlations are weak or moderate. Recognizing the relatively small sample size, low correlations can be statistically significant while reflecting weak or moderate associations.

<sup>&</sup>lt;sup>5</sup> See Table 22 for the variables that are used in the analyses, and their categories.

TABLE 22: Bivariate Relationships Between Socio-demographic Characteristics, Appraisals, Coping Resources, and the Coping Strategy of Doctor Visits/Surgery

		Doctor Visits/ Surgery Used <sup>2</sup>	Doctor Visits/ Surgery Not Used <sup>2</sup>
Variables		<b>%</b>	%
SOCIO-DEMOGRAPHIC CHARACTERISTIC			AND THE PERSON OF THE PERSON O
Age			
68 <b>- 7</b> 9	(n=63)	<b>73</b> .0	27.0
80+	(n=45)	71.1	28.9
$\chi 2 = .05$ , d.f. = 1, p = .83; Phi =02			
Gender			
Male	(n=30)	76.7	23.3
Female	(n=78)	70.5	29.5
$\chi 2 = .41$ , d.f. = 1, p = .52; Phi =06			
APPRAISALS		CONTRACTOR OF STREET	The transfer of the same of th
Cause - Do Not Know			
Know cause	(n=51)	66.7	33.3
Do not know cause	(n = 56)	76.8	23.2
$\chi 2 = 1.35$ , d.f. = 1, p = .24; Phi = .11			
Cause - Advancing Age (AA)			
AA not reported as cause	(n = 85)	70.6	29.4
AA reported as cause	(n = 22)	77.3	22.7
$\chi 2 = .39$ , d.f. = 1, p = .53; Phi = .06			
Symptom - No Symptoms			
At least one symptom	(n = 93)	72.0	<b>28</b> .0
No symptoms	(n=14)	71.4	<b>28</b> .6
$\chi 2 = .00$ , d.f. = 1, p = .96; Phi =00			
Symptom - Poor Vision (PV)			
PV not reported as a symptom	(n = 30)	63.3	36.7
PV reported as a symptom	(n = 77)	75.3	24.7
$\chi 2 = 1.54$ , d.f. = 1, p = .21; Phi = .12			
Symptom - Eye Irritation (EI)			
EI not reported as a symptom	(n = 81)	77.8	22.2
EI reported as a symptom	(n = 26)	53.8	46.2
$\chi 2 = 5.59$ , d.f. = 1, p = .02; Phi =23			
Length of Time With Eye Problem(s) (Year	3)		
0-3	(n = 55)	74.5	25.5
4+	(n = 53)	69.8	30.2
$\chi 2 = .30$ , d.f. = 1, p = .58; Phi =05			
Amount of Interference			
Not at all	(n = 68)	82.4	17.6
Some/A great deal	(n = 39)	53.8	46.2
$\chi 2 = 9.98$ , d.f. = 1, p = .00; Phi =31	-		
Amount of Bother			
Not at all	(n = 52)	82.7	17.3
Some/A great deal	(n = 52)	61.5	38.5
$\chi 2 = 5.79$ , d.f. = 1, p = .02; Phi =24	•		

<sup>&</sup>lt;sup>1</sup> In this table the percentages are added horizontally and the comparisons are made vertically.

<sup>2</sup>The sample size of the doctor visits/surgery used group is 78 (30 for the doctor visits/surgery not used group). <sup>3</sup>If n does not equal 126 on an independent variable the remainder are missing values.

Table 22 continued<sup>1</sup>

		Doctor Visits/ Surgery Used <sup>2</sup>	Doctor Visits/ Surgery Not Used <sup>2</sup>
Variables		%	%
HEALTH STATUS			And the second s
Self-assessed Health Status			
Bad/Fair/Poor	(n = 56)	69.6	30.4
Good/Excellent	(n=52)	75.0	25.0
$\chi 2 = .39$ , d.f. = 1, p = .53; Phi = .06			
Number of Chronic Health Problems			
0 - 2	(n = 30)	73.3	<b>26</b> .7
3 - 4	(n=37)	73.0	27.0
5+	(n=41)	70.7	29.3
$\chi 2 = .07$ , d.f. = 2, p = .96; Cramer's V =	= .03		
Number of ADL/IADL Limitations			
0	(n = 49)	75.5	24.5
1÷	(n = 59)	69.5	30.5
$\chi 2 = .48$ , d.f. = 1, p = .49; Phi =07			
PSYCHOLOGICAL RESOURCES			
Life Satisfaction	***************************************		
0 - 19 (Poor/Fair)	(n = 66)	74.2	25.8
20 - 26 (Good/Excellent)	(n = 39)	69.2	30.8
$\chi 2 = .31$ , d.f. = 1, p = .58; Phi =05			
Self-esteem			
0 - 19 (Poor/Fair)	(n = 49)	63.3	<b>36.7</b>
20 - 30 (Good/Excellent)	(n = 56)	80.4	19.6
$\chi 2 = 3.82$ , d.f. = 1, p = .05; Phi = .19	,		
Self-efficacy			
0 - 31 (Poor/Fair)	(n = 68)	<b>72</b> . i	27.9
32 - 51 (Good/Excellent)	(n = 37)	73.0	27.0
$\chi 2 = .01$ , d.f. = 1, p = .92; Phi = .01	` ,		
Perceived Control Over Health			
None/Some	(n = 84)	75.0	25.0
A great deal	(n = 23)	65.2	34.8
$\chi 2 = .87$ , d.f. = 1, p = .35; Phi =09	,		
External Health Locus of Control			
0 - 4 (Low)	(n = 39)	69.2	30.8
5 - 9 (High)	(n = 65)	73.8	26.2
$\chi 2 = .26$ , d.f. = 1, p = .61; Phi = .05	(4)		
Internal Health Locus of Control			
0 - 5 (Low)	(n = 46)	69.6	30.4
6 - 12 (High)	(n = 54)	74.1	25.9
$\chi 2 = .25$ , d.f. = 1, p = .62; Phi = .05	( J.)	. ···•	=
Medical Skepticism			
0 - 7 (Low)	(n = 46)	65.2	34.8
8 -15 (High)	(n = 40) (n = 54)	81.5	18.5
$\chi 2 = 3.42$ , d.f. = 1, p = .06; Phi = .18	(11 )	<b>G1.</b> 2	. 3.5

<sup>&</sup>lt;sup>1</sup>In this table the percentages are added horizontally and the comparisons are made vertically.

<sup>2</sup>The sample size of the doctor visits/surgery used group is 78 (30 for the doctor visits/surgery not used group).

3 If n does not equal 126 on an independent variable the remainder are missing values.

Table 22 continued<sup>1</sup>

Variables		Doctor Visits/ Surgery Used <sup>2</sup>	Doctor Visits/ Surgery Not Used <sup>2</sup> %
SOCIAL RESOURCES			
Marital Status		ordere er	ACTUAL AUGUSTANCES PARTICION PART
Not currently married	(n = 61)	70.5	29.5
Currently married	(n=47)	74.5	25.5
$\chi 2 = .21$ , d.f. = 1, p = .65; Phi = .04	(40 11)	,5	20.0
Living Arrangements			
Lives alone	(n = 51)	66.7	33.3
Lives with at least one other	(n=57)	77.2	22.8
$\chi 2 = 1.49$ , d.f. = 1, p = .22; Phi = .12	(20 01)		<b>52.</b> 4
Size of Family Network (Family Members	e)		•
0 - 4	(n = 67)	76.1	23.9
5+	(n=41)	65.9	34.1
$\chi 2 = 1.34$ , d.f. = 1, p = .25; Phi =11	(,	<b>0</b> 2.5	54.1
Number of Family Network Members See	n At I seet Wash	he	
0 - 2	(n=73)	76.7	23.3
3+	(n=35)	62.9	37.1
$\chi 2 = 2.26$ , d.f. = 1, p = .13; Phi =15	(4 55)	<b>02.</b> 7	37.1
Number of Confidents			
0 - 1	(n = 54)	81.5	18.5
2+	(n = 54)	63.0	37.0
$\chi 2 = 4.62$ , d.f. = 1, p = .03; Phi =21	(11 34)	05.0	37.0
Number of Friends			
0-6	(n = 73)	76.7	23.3
7+	(n = 35)	62.9	37.1
$\chi 2 = 2.26$ , d.f. = 1, p = .13; Phi =15	(11 33)	V2.7	37.1
Perceived Instrumental Support <sup>4</sup>			
0 - 4 tasks help is perceived to exist	(n = 10)	80.0	20.0
5 - 6 tasks help is perceived to exist	(n ≈ 98)	71.4	28.6
MATERIAL RESOURCES			7717
Monthly Household Income		ادا و داوت <del>ایناود</del> دو .	r grande for
0 - \$1499	(n = 40)	70.0	30.0
\$1500+	$(n \approx 41)$	68.3	31.7
$\chi 2 = .03$ , d.f. = 1, p = .87; Phi =02	( 11)	00.5	J 1. /
Perceived Adequacy of Household Income	•		
Very well/Adequately	(n = 87)	73.6	26.4
With some difficulty/Not very well	(n=21)	66.7	33.3
$\chi 2 = .40$ , d.f. = 1, p = .53; Phi =06	(·· <b>-</b> ·)	<b>45.</b> ,	JJ.J
Education (Years) <sup>4</sup>			
0-8	(n = 32)	71.9	<b>28</b> . I
9 - 12	(n = 52) $(n = 59)$	71.2	28.8
13+	(n = 17)	76.5	23.5

<sup>&</sup>lt;sup>1</sup>In this table the percentages are added horizontally and the comparisons are made vertically.

<sup>&</sup>lt;sup>2</sup>The sample size of the doctor visits/surgery used group is 78 (30 for the doctor visits/surgery not used group).

If n does not equal 126 on an independent variable the remainder are missing values.  $\chi^2$  cannot be calculated as there are less than 5 cases in at least one of the cells.

To begin, neither of the socio-demographic characteristics (age and gender) are significantly associated with this strategy. Turning to the concept of appraisals, not knowing the cause of one's eye problem(s), attributing the cause to advancing age, reporting no symptoms, reporting poor vision (symptom), and the length of time with eye problem(s) are not significantly associated with the strategy of doctor visits/surgery.

In contrast, there is a statistically significant relationship between reporting eye irritation (symptom) and this course of action. EPs who do not report eye irritation (e.g., watery eyes, itchy eyes, eye pain, or growth in the eye) as a symptom (77.8%) are more likely to report the action of doctor visits/surgery, than EPs who do report eye irritation as a symptom (53.8%). The corresponding correlation statistic suggests, that although the relationship is statistically significant, it is not a particularly strong one (Phi = -.23).

Cross-tabulations also reveal that both the amount of interference, and the amount of bother, are associated with the coping strategy of doctor visits/surgery. EPs who indicate that the symptoms associated with their eye problems cause them no interference in their daily lives (82.4%) are more likely to indicate doctor visits/surgery as an action taken, than EPs who indicate some or a great deal of interference (53.8%). A consideration of the correlation statistic indicates that the relationship is a moderate one (Phi = -.31).

Similar to the amount of interference that is reported, EPs who indicate that

the symptoms associated with their eye problems do not cause them any bother (82.7%) are more likely to report the strategy of doctor visits/surgery, than EPs who state that their symptoms bother them some or a great deal (61.5%). However, although the relationship is statistically significant, the relationship is a weak one (Phi = -.21).

Turning to the coping resources, the cross-tabulations reveal that none of the measures of health status (self-assessed health status, number of chronic health problems, and number of ADL/IADL limitations) are statistically associated with the coping strategy of doctor visits/surgery.

In terms of psychological resources, life satisfaction, self-efficacy, perceived control over health, external health locus of control, and internal health locus of control are not associated with this strategy. The remaining two psychological resources (self-esteem and medical skepticism) approach but do not reach statistical significance (p<.10). More specifically, there is a tendency, albeit not statistically significant, that those with relatively lower self-esteem (63.3%) are less likely to have visited a doctor or had surgery than those with relatively high self-esteem (80.4%). In addition, EPs with relatively higher medical skepticism scores (81.5%) are more likely to use this strategy than those with relatively lower scores (65.2%).

Only one of the seven measures of social resources (number of confidants) is found to be statistically significant at the p<.05 level. EPs who have fewer confidants (0-1) (81.5%) are more likely to report doctor visits/surgery than EPs who have

more confidants (2+) (63.0%). Notwithstanding the statistical significance of this association, the relationship is a weak one (Phi = -.21). The other measures of social resources (marital status, living arrangements, size of family network, number of family network members seen at least weekly, and number of friends) are not significantly associated with the strategy of doctor visits/surgery. None of the material resources (monthly household income, and perceived adequacy of household income) are statistically associated with doctor visits/surgery. The social resource of perceived instrumental support and the material resource of education could not have their  $\chi^2$  values calculated due to limited sample sizes.

In summary, the bivariate analyses reveal that the coping strategy of doctor visits/surgery is associated with eye irritation (symptom), amount of interference, amount of bother, and the number of confidants that one has (Table 23). First, EPs who do not report eye irritation as a symptom are more likely to report the coping strategy of doctor visits/surgery than EPs who do report eye irritation. Second, individuals who report no interference are more likely to use this strategy than respondents who indicate some or a great deal of interference. Next, those who report no bother are more likely to report doctor visits/surgery than EPs who report some or a great deal of bother. Finally, EPs who have fewer confidants (less than two), are more likely to report the coping strategy of doctor visits/surgery than EPs who have two or more confidants.

There is also the tendency, albeit not statistically significant, that those with relatively higher self-esteem are more likely to have visited a doctor or had surgery than those with relatively low self-esteem. Lastly, EPs with relatively high medical skepticism scores appear to be more likely to use this strategy than those with relatively lower scores. Again this does not reach statistical significance. Attention will now turn to the multivariate analyses that focus on the coping strategy of doctor visits/surgery.

TABLE 23: Socio-demographic Characteristics, Appraisals, and Coping Resources
Associated with Doctor Visits/Surgery (Bivariate Level)<sup>1</sup>

	EPs More Likely to Use
VARIABLES	Doctor Visits/Surgery
7.1	
Socio-demographic Characteristics	
Age	***
Gender	
Appraisals	
Cause - Do Not Know	•••
Cause - Advancing Age	***
Symptom - No Symptoms	one.
Symptom - Poor Vision	-
Symptom - Eye Irritation	EPs who do not report eye irritation <sup>2</sup>
Length of Time With Eye Problem(s)	
Amount of Interference	EPs who report no interference
Amount of Bother	EPs who report no bother <sup>2</sup>
Health Status	
Self-assessed Health Status	***
Number of Chronic Health Problems	
Number of ADL/IADL limitations	
Psychological Resources	
Life Satisfaction	a
Seif-esteem	EPs with relatively higher self-esteem scores?
Self-efficacy	
Perceived Control Over Health	***
External Health Locus of Control	***
Internal Health Locus of Control	~~
Medical Skepticism	EPs with relatively higher medical skepticism scores <sup>2</sup>
Social Resources	
Marital Status	
Living Arrangements	
Size of Family Network	***
Number of Family Network Members Seen at	
Least Weekly	
Number of Confidants	EP3 who have fewer confidants <sup>2</sup>
Number of Friends	
Perceived Instrumental Support	$\chi^2$ not calculated as <5 cases in one or more cells
Material Resources	
Monthly Household Income	•••
Perceived Adequacy of Household Income	
Education	$\chi^2$ not calculated as <5 cases in one or more cells

<sup>&</sup>lt;sup>1</sup> Relationships significant at p<.05 are in bold, while those significant at p<.10 are in italics.

<sup>2</sup> Statistically significant but weak association (Phi <.30)

— Indicates no statistically significant relationship at the bivariate level.

### **Doctor Visits/Surgery - Multivariate Results**

The independent variables used in the doctor visits/surgery regressions include age and gender as examples of socio-demographic characteristics. Next, the appraisals of eye irritation (symptom), amount of interference, and amount of bother are included. Finally, self-esteem, medical skepticism, and number of confidants represent coping resources.<sup>6</sup>

Before the logistic regression analyses are conducted, a Pearson Product Moment Correlation Matrix test for multicollinearity is used to establish correlations between the independent variables. Correlation coefficients near or above 0.60 are considered strong (Hickey, 1986) and result in variables being entered into separate regression equations. The bivariate correlations between the eight independent variables are presented in Table 24. A moderate relationship (0.36) exists between gender and the number of confidants, with women tending to have more confidants than men. One problem of multicollinearity appears, as the correlation between the variables of amount of interference and amount of bother is 0.60. Subsequently, these two variables are entered into separate regression equations (Models 1 and 2).

<sup>&</sup>lt;sup>6</sup> For these analyses, age is continuous, and number of confidants includes the categories of 0, 1, 2, and 3+. The remaining variables are dichotomous.

TABLE 24: Pearson Product Moment Correlation Matrix, Independent Variables for Doctor Visits/Surgery Regressions

Variables	(1)	(2)_	(3)	(4)	(5)	(6)	(7)	(8)
(1) Gender	1.00							
(2) Age	-0.06	1.00						
(3) Eye Irritation (Symptom)	0.02	0.04	1.00					
(4) Amount of Interference	-0.20	0.17	0.19	1.00				
(5) Amount of Bother	-0.01	0.05	0.15	0.60	1.00			
(6) Number of Confidents	0.36	0.06	0.05	0.13	0.09	1.00		
(7) Self-esteem	-0.02	-0.13	-0.20	-0.21	0.02	-0.03	1.00	
(8) Medical skepticism	-0.03	-0.06	0.08	-0.14	-0.19	-0.07	-0.04	1.00

Note: Strong associations are in bold.

The results of the logistic regression models for the coping strategy of doctor visits/surgery are presented in Table 25. The first regression (Model 1) includes the amount of interference. Overall, the full model's high -2LL value (94.53) demonstrates that, in combination, socio-demographic characteristics, appraisals, and coping resources, offer a low level of explanation for the use of doctor visits/surgery.

TABLE 25: Logistic Regressions: Correlates of the Coping Strategy Doctor Visits/Surgery

Model  $1^1$  (n = 99)

Independent Variables		Step 1			Step 2			Step 3	
	B	Wald	R	B	Wald	R	B	Wald	R
Constant	2.02	0.40		1.36	0.17		0.88	0.06	
Socio-demographic							yan na		
Characteristics	2.00.000	••••					7		,, ,
Age	-0.01	0.07	0.00	0.01	0.06	0.00	0.01	0.07	0.00
Gender	-0.22	0.17	0.00	-0.50	0.74	0.00	0.18	0.07	0.00
Appraisais		andillal mone						nja mje mae	en ja an see
Eye Irritation				-0.94	3.27	-0.11	-1.00	3.07	-0.10
Amount of Interference				-1.19*	5.38	-0.17	-0.83	2.18	-0.04
Coping Resources		<u> </u>							amayanijar
Self-esteem				,			0.63	1.38	0.00
Medical Skepticism							0.96	3.21	0.11
Confidants							-0.60*	4.05	-0.14
	-2LL =	113.75		-2LL =	103.28		-2[.L.=	94,53	
	Improv	ement z	2 =	Improv	ement <u>Y</u>	<sup>2</sup> =	Improv	ement χ <sup>2</sup>	=
	•	f. = 2, ns		-	<b>l.f.</b> = 2, p			f. = 3, p<	

Model  $2^2$  (n = 97)

Independent Variables		Step 1			Step 2			Step 3	·
	В	Wald	R	В	Wald	R	В	Wald	R
Constant	2.66	0.67	-	3.07	0.85	_	2.26	0.37	_
Socio-demographic Characteristics					- opinii opii kaatii o	de per en c'hiro Net en eleffisie (	an de maria	an om til som sam Egginnadi av sig	
Age	-0.02	0.16	0.00	-0.10	0.08	0.00	-0.00	0.01	0.00
Gender	-0.42	0.55	0.00	-0.45	0.58	0.00	0.13	0.04	0.00
Appraisals		armen neme.	in	Stationary	- maniji	girangirangir	*******	**** * ******* ·	
Eye Irritation				-1.08*	4.41	-0.15	-1.17*	4.04	-0.14
Amount of Bother				-0.81	2.66	-0.08	-0.51	0.86	0.00
Coping Resources		er e e e e e e e e e e e e e e e e e e		ilina later e	mendi d			<del>1</del>	· · · · · · · · · · · · · · · · · · ·
Self-esteem							0.65	1.44	0.00
Medical Skepticism							1.14*	4.17	0.15
Confidants							-0.66*	4.77	-0.17
<del></del>	-2LL =	109.95		-2LL = 1	101.86		-2LL = 9	90.71	
	•	ement χ² f. = 2, ns	=	•	ement χ² . = 2, p<.			ement χ² .f. = 3, p	

<sup>&</sup>lt;sup>1</sup> This model includes the variable Amount of Interference, and excludes the variable Amount of Bother.

<sup>&</sup>lt;sup>2</sup> This model includes the variable Amount of Bother, and excludes the variable Amount of Interference.

<sup>•</sup> p<.05

<sup>\*\*</sup> p<.01

The first block of variables to enter the regression equation (Step 1) are the two socio-demographic characteristics (age and gender). A consideration of the Improvement Chi-square value reveals that the socio-demographic component of the model does not contribute significantly to the goodness-of-fit of the model to the data, when considered on their own. This suggests that the association between age or gender and doctor visits/surgery is negligible.

The second block of variables to enter the equation (Step 2) are the appraisals. The Improvement Chi-square value illustrates that appraisals contribute significantly to the goodness-of-fit of the model after taking socio-demographic characteristics into account. The negative and significant logistic regression coefficient (B) and negative R value for the amount of interference indicates that EPs whose symptoms<sup>7</sup> do not interfere with their daily lives are more likely to use the strategy of doctor visits/surgery, as compared to EPs who state that their symptoms interfere some/a great deal. In contrast, the symptom of eye irritation makes a minimal or no contribution to the explanation of the model.

Finally, the coping resources are entered into the equation (Step 3). As the Improvement Chi-square is statistically significant, the variables representing the coping resources (self-esteem, medical skepticism, and number of confidants) do contribute significantly to the goodness-of-fit of the model, after taking into consideration the level of explanation provided by the socio-demographic characteristics, and appraisal variables. The negative and significant logistic

<sup>&</sup>lt;sup>7</sup> Symptoms associated with their eye problem(s).

regression coefficient (B) and negative R value for confidants reveals that EPs with fewer confidants are more likely to use this strategy than those with more confidants. The remaining coping resources of self-esteem and medical skepticism are not significant on their own, although the latter is approaching significance. The number of confidants is the only variable that is significant in the full model, as the amount of interference ceases to be significant after the coping resources have been added.

In order to understand why the amount of interference does not remain significant in the full model, additional models are considered. One approach involves excluding each of the coping resources from the model. First, when medical skepticism is excluded from the model, the amount of interference is significant in the full model (Appendix H - A). This suggests that the addition of medical skepticism results in the amount of interference no longer being significant in the full model. The same was not found when either self-esteem, or confidants were excluded from the model (Appendix H - B & C). Finally, when coping resources (as a group) are entered prior to appraisals, the amount of interference is still not significant in the full model (Appendix H - D). This suggests that the order that the variables enter the model does not affect variable significance levels. This final model confirms that the amount of interference does not retain its significance when coping resources have been taken into account.

As interference and bother are multicollinear, the second logistic regression equation conducted with the coping strategy of doctor visits/surgery has the variable of bother replacing interference (Model 2). This model's high -2LL value (90.71)

demonstrates that in combination, socio-demographic characteristics, appraisals, and coping resources, offer a low level of explanation for the use of doctor visits/surgery. A comparison of the -2LL values from Models 1 and 2 does not reveal a significant difference between the two.

The first block of variables to enter the regression equation (Step 1) are the two socio-demographic characteristics (age and gender). The Improvement Chi-square value reveals that the socio-demographic component of the model does not contribute significantly to the goodness-of-fit of the model to the data. Neither of the indicators emerge as statistically significant.

The second block of variables to enter the equation (Step 2) are the appraisals. The Improvement Chi-square value illustrates that appraisals contribute significantly to the goodness-of-fit of the model after taking socio-demographic characteristics into account. Although the amount of bother is strongly correlated to the amount of interference, it is not found to be significant. This is in contrast to the findings of Model 1. However, the other appraisal that is included, eye irritation, is significant. The negative and significant (p<.05) logistic regression coefficient (B) and negative R value for the variable of eye irritation (symptom) implies that EPs who do not indicate the symptom of eye irritation are more likely to report the strategy of doctor visits/surgery, as compared to EPs who do report the symptom of eye irritation. In order to understand why eye irritation is significant in Model 2 and not in Model 1, an additional model is created (Appendix H - E). The model does not include amount of interference or amount of bother. In this model, eye irritation is significant in the

full model. This suggests that after the amount of interference is taken into account (Model 1), eye irritation is no longer significant. In comparison, taking the amount of bother into consideration (Model 2) does not prevent eye irritation from being significant.

Finally, the coping resources are entered into the equation (Step 3). As the Improvement Chi-square is statistically significant, this block of variables contributes to the goodness-of-fit of the model, after taking into consideration socio-demographic characteristics, and appraisal variables. Medical skepticism and confidants are both found to be significant on their own, while self-esteem is not. The positive and significant logistic regression coefficient (B) and positive R value for medical skepticism suggests that EPs with relatively higher medical skepticism scores are more likely than EPs with relatively lower scores to use this strategy. The negative and significant logistic regression coefficient (B) and negative R value for confidants reveals that EPs who have fewer confidants, when compared to EPs with more confidants, are more likely to report doctor visits/surgery. Medical skepticism, confidants, and eye irritation are all significant in the full model.

Table 26 provides a summary of the variables that are found to be significantly associated, at the multivariate level, with the coping strategy of doctor visits/surgery. In summary, the two regressions that are conducted with the coping strategy of doctor visits/surgery yield fairly consistent results. To begin, both regression equations suggest that socio-demographic characteristics do not contribute to the level of explanation for the use of doctor visits/surgery as a strategy. In

contrast, the concept of appraisals is found to be significant. In the first equation (includes amount of interference), no interference increases the likelihood of EPs using this strategy. The second equation (includes amount of bother) also finds that appraisals contribute to the use of doctor visits/surgery; however, the variable of eye irritation (symptom) is found to be significant rather than the amount of bother. Finally, both models suggest that coping resources as a group appear to contribute to the explanatory power of the model, with the number of confidants being significant in both models, and medical skepticism significant in Model 2, and approaching significance (p = .07) in Model 1.

TABLE 26: Socio-demographic Characteristics, Appraisals, and Coping Resources Associated with Doctor Visits/Surgery (Multivariate Level)<sup>1</sup>

	EPs More Likely to Use
VARIABLES	Doctor Visits/Surgery <sup>2</sup>
Socio-demographic Characteristics	
Age	
Gender	***
Appraisais	
Symptom - Eye Irritation	EPs who do not report eye irritation
Length of Time With Eye Problem(s)	
Amount of Interference	EPs who report no interference
Amount of Bother	
Coping Resources	
Self-esteem (Psychological Resource)	***
Medical Skepticism (Psychological Resource)	EPs who have relatively higher medical skepticism
Number of Confidence (Social Becourse)	SCOPES  File who have forces confidents
Number of Confidants (Social Resource)	EPs who have fewer confidants

Only those variables that have a significance level of p<.10 at the bivariate level, as well as age and gender are listed here. For a complete listing of variables examined at the bivariate level, see Table 23.

The level of significance that is used is p<.05

<sup>&</sup>lt;sup>3</sup>Variables significant in one of the models are in italics, while those significant in both models are in hold.

<sup>&</sup>lt;sup>4</sup> The amount of interference is only significant prior to coping resources being included in the model.

— Indicates no statistically significant relationship at the multivariate level.

To conclude the discussion on the coping strategy of doctor visits/surgery, it appears that certain appraisals, and coping resources increase the likelihood of doctor visits/surgery. More specifically, when socio-demographic characteristics and appraisals are taken into account, the amount of interference is found to be significantly associated with doctor visits/surgery. Next, eye irritation and medical skepticism are significant when socio-demographic characteristics, appraisals, and coping resources have all been considered, and amount of interference is not included. Finally, the number of confidants is found to be associated with the use of this strategy, regardless of whether the amount of interference or the amount of bother is included.

#### Medication Use - Bivariate Results

The second coping strategy to be considered is medication use. Of the 108 EPs considered in these analyses, 34.3% report medication use for their eye problem(s), while 65.7% do not. Cross-tabulation results between socio-demographic characteristics, appraisals, and coping resources, and the coping strategy of medication use are presented in Table 27.8 Only two of the thirty considered variables are significantly associated (p<.05) with the coping strategy of medication use at the bivariate level while two approach statistical significance. Recognizing the relatively small sample size, low correlations can be statistically significant while reflecting weak associations.

<sup>&</sup>lt;sup>8</sup> See Table 27 for the variables that are used in the analyses, and their categories.

TABLE 27: Bivariate Relationships Between Socio-demographic Characteristics, Appraisals, Coping Resources, and the Coping Strategy of Medication Use<sup>1</sup>

		Medication Used <sup>2</sup> %	Medication Not Used <sup>2</sup>
Variables		70	%
SOCIO-DEMOGRAPHIC CHARACTERISTICS			
Age			
68 - 79	(n=63)	39.7	60.3
80+	(n=45)	26.7	<b>7</b> 3.3
$\chi 2 = 1.97$ , d.f. = 1, p = .16; Phi =14			
Gender			
Male	(n = 30)	26.7	<i>7</i> 3. <i>3</i>
Female	(n=78)	37.2	62.8
$\chi 2 = 1.06$ , d.f. = 1, p = .30; Phi = .10			
APPRAISALS:	a collision and the collision in the	de recognica de la constante d	mine Constitution   OPtion Commission of
Cause - Do Not Know			
Know cause	(n=51)	39.2	60.8
Do not know cause	(n = 56)	30.4	69.6
$\chi 2 = .93$ , d.f. = 1, p = .34; Phi =09			
Cause - Advancing Age (AA)			
AA not reported as cause	(n = 85)	37.6	62.4
AA reported as cause	(n = 22)	22.7	77.3
$\chi 2 = 1.72$ , d.f. = 1, p = .19; Phi =13			
Symptom - No Symptoms			
At least one symptom	(n = 93)	34.4	65.6
No symptoms	(n = 14)	35.7	64.3
$\chi 2 = .01$ , d.f. = 1, p = .92; Phi = .01	,		
Symptom - Poor Vision (PV)			
PV not reported as a symptom	(n = 30)	50.0	50.0
PV reported as a symptom	(n = 77)	28.6	71.4
$\chi 2 = 4.38$ , d.f. = 1, p = .04; Phi =20	,		
Symptom - Eye Irritation (EI)			
EI not reported as a symptom	(n = 81)	27.2	72.8
El reported as a symptom	(n = 26)	57.7	42.3
$\chi 2 = 8.11$ , d.f. = 1, p = .00; Phi = .28	( ,		
Length of Time With Eye Problems (Years)			
0 - 1	(n = 27)	18.5	81.5
2 - 3	(n = 28)	28.6	71.4
4-9	(n = 27)	40.7	59.3
10+	(n = 26)	50.0	50.0
$\chi 2 = 6.74$ , d.f. = 3, p = .08; Cramer's V = .25	(/		=
Amount of Interference			
Not at all	(n = 68)	33.8	66.2
Some/A great deal	(n = 39)	35.9	64.1
$\chi 2 = .05$ , d.f. = 1, p = .83; Phi = .02	( 37)		J 7. 1
Amount of Bother			
Not at all	(n = 52)	38.5	61.5
Some/A great deal	(n=52) $(n=52)$	30.8	69.2
$\chi 2 = .68$ , d.f. = 1, p = .41; Phi =08	(11 - 34)	30.0	<u>ت. ر ن</u>

In this table the percentages are added horizontally and the comparisons are made vertically.

The sample size of the medication used group is 37 (71 for the medication not used group).

If n does not equal 126 on an independent variable the remainder are missing values.

Table 27 continued

		Medication Used <sup>2</sup>	Medication Not Used <sup>2</sup>
Variables		%	%
Bu Man GM ustalla allega		7.5	
Self-assessed Health Status		26.2	
Bad/Fair/Poor	(n = 56)	26.8	73.2
Good/Excellent	(n=52)	42.3	<i>57.7</i>
$\chi 2 = 2.88$ , d.f. = 1, p = .09; Phi = .16			
Number of Chronic Health Problems		4.5	<b>63.3</b>
0 - 2	(n=30)	46.7	53.3
3-4	(n=37)	29.7	70.3
5+	(n=41)	29.3	70.7
$\chi 2 = 2.84$ , d.f. = 2, p = .24; Cramer's V =	.16		
Number of ADL/IADL Limitations			c# A
0	(n=49)	34.7	65.3
1+	(n=59)	33.9	66.1
$\chi 2 = .01$ , d.f. = 1, p = .93; Phi =01	المحادات المتنا المتشارات	and the second of	
PSYCHOLOGICAL RESOURCES			
Life Satisfaction			
0 - 19 (Poor/Fair)	(n = 66)	34.8	65.2
20 - 26 (Good/Excellent)	(n = 39)	35.9	64.1
$\chi 2 = .01$ , d.f. = 1, p = .91; Phi = .01			
Self-esteem			
0 - 19 (Poor/Fair)	(n=49)	38.8	61.2
20 - 30 (Good/Excellent)	(n=56)	32.1	67.9
$\chi 2 = .50$ , d.f. = 1, p = .48; Phi =07			
Self-efficacy			
0 - 31 (Poor/Fair)	(n=68)	30.9	69.1
32 - 51 (Good/Excellent)	(n=37)	43.2	56.8
$\chi$ 2 = 1.60, d.f. = 1, p = .21; Phi = .12			
Perceived Control Over Health			
None/Some	(n=84)	31.0	<b>69</b> .0
A great deal	(n=23)	43.5	56.5
$\chi 2 = 1.27$ , d.f. = 1, p = .26; Phi = .11			
External Health Locus of Control			
0 - 4 (Low)	(n = 39)	43.6	56.4
5 - 9 (High)	(n = 65)	30.8	69.2
$\chi 2 = 1.75$ , d.f. = 1, p = .19; Phi =13			
Internal Health Locus of Control			
0 - 5 (Low)	(n = 46)	39.1	60.9
6 - 12 (High)	(n = 54)	33.3	66.7
$\chi 2 = .36$ , d.f. = 1, p = .55; Phi =06	-		
Medical Skepticism			
0 - 7 (Low)	(n = 46)	39.1	60.9
8 -15 (High)	(n = 54)	33.3	66.7
$\chi 2 = .36$ , d.f. = 1, p = .55; Phi =06	-		

<sup>&</sup>lt;sup>1</sup>In this table the percentages are added horizontally and the comparisons are made vertically.

<sup>2</sup>The sample size of the medication used group is 37 (71 for the medication not used group).

<sup>3</sup>If n does not equal 126 on an independent variable the remainder are missing values.

Table 27 continued<sup>1</sup>

Variables		Medication Used <sup>2</sup> %	Medication Not Used <sup>2</sup> %
SOCIAL RESOURCES			
Marital Status			
Not currently married	(n = 61)	37.7	62.3
Currently married	(n=47)	29.8	70.2
$\chi 2 = .74$ , d.f. = 1, p = .39; Phi =08	` ,		
Living Arrangements			
Lives alone	(n=51)	37.3	62.7
Lives with at least one other	(n = 57)	31.6	68.4
$\chi 2 = .39$ , d.f. = 1, p = .53; Phi =06	•		
Size of Family Network (Family Members)			
0-4	(n = 67)	38.8	61.2
5+	(n=41)	26.8	73.2
$\chi$ 2 = 1.62, d.f. = 1, p = .20; Phi =12	-		
<b>Number of Family Network Members Seen</b>	At Least Week	l <b>y</b>	
0 - 2	(n = 73)	32.9	67.1
3+	(n = 35)	37.1	62.9
$\chi 2 = .19$ , d.f. = 1, p = .66; Phi = .04			
Number of Confidents			
0 - 1	(n = 54)	29.6	70.4
2+	(n = 54)	38.9	61.1
$\chi 2 = 1.03$ , d.f. = 1, p = .31; Phi = .10			
Number of Friends			
0-6	(n = 73)	32.9	67.1
7+	(n = 35)	37.1	62.9
$\chi 2 = .19$ , d.f. = 1, p = .66; Phi = .04			
Perceived Instrumental Support			
0 - 4 Tasks help is perceived to exist	(n = 10)	40.0	60.0
5 - 6 Tasks help is perceived to exist	(n = 98)	33.7	66.3
MATERIAL RESOURCES			
Monthly Household Income			
0 - \$1499	(n = 40)	32.5	67.5
\$1500+	(n=41)	29.3	70.7
$\chi 2 = .10$ , d.f. = 1, p = .75; Phi =03			
Perceived Adequacy of Household Income			
Very well/Adequately	(n = 87)	36.8	63.2
With some difficulty/Not very well	(n = 21)	23.8	76.2
$\chi 2 = 1.26$ , d.f. = 1, p = .26; Phi =11			
Education (Years) <sup>4</sup>			
0 - 8	(n = 32)	37.5	62.5
9 - 12	(n = 59)	35.6	64.4
13+	(n=17)	23.5	76.5

<sup>&</sup>lt;sup>1</sup>In this table the percentages are added horizontally and the comparisons are made vertically. <sup>2</sup>The sample size of the medication used group is 37 (71 for the medication not used group). <sup>3</sup>If n does not equal 126 on an independent variable the remainder are missing values. <sup>4</sup> $\chi^2$  cannot be calculated as there are less than 5 cases in at least one of the cells.

The analyses reveal that neither of the socio-demographic characteristics (age and gender) are associated with the coping strategy of medication use. Turning to the concepts of appraisals, not knowing the cause of the eye problem(s), attributing the cause to advancing age, and having no symptoms are not associated with medication use. In addition, neither the amount of interference nor bother is found to be associated with the coping strategy of medication use.

In contrast, both of the most commonly reported symptoms by EPs, namely poor vision and eye irritation, are associated with the strategy of medication use. EPs who do not report poor vision (e.g., trouble seeing, blurry vision) as a symptom (50.0%) are more likely to indicate medication use, than EPs who do report the symptom of poor vision (28.6%). However, the association is a weak one (Phi = - .20).

The symptom of eye irritation is also associated with medication use. EPs who indicate the symptom of eye irritation (57.7%), are more likely to use medication, than EPs who do not report the symptom of eye irritation (27.2%). A consideration of the corresponding correlation statistic reveals that the relationship is close to being a moderate one (Phi = .28).

Although not statistically significant at the p<.05 level, EPs who have had their eye problems for a longer period of time are more likely to indicate medication use than EPs who have had their eye problems for fewer years. However, the corresponding correlation statistic implies that the relationship is a weak one (Cramer's V = .25).

The health status indicators of number of chronic health problems, and number of ADL/IADL limitations are not found to be associated with the strategy of medication use. In comparison, self-assessed health status is approaching significance, with a tendency for EPs with better self-assessed health (42.3%) to report medication use more than EPs with poorer self-assessed health (26.8%).

None of the psychological resources (life satisfaction, self-esteem, self-efficacy, perceived control over health, external health locus of control, internal health locus of control, and medical skepticism), or social resources (marital status, living arrangements, size of family network, number of family network members seen at least weekly, number of confidants, number of friends, and perceived instrumental support<sup>9</sup>) are found to be significantly associated with the coping strategy of medication use. Finally, material resources (monthly household income, perceived adequacy of household income, and education<sup>10</sup>) are not significantly associated with this strategy.

In summary, the variables that are found to be statistically associated (p<.05) with the coping strategy of medication use are the symptoms of poor vision and eye irritation (Table 28). Medication use is more likely to be reported as a coping strategy by EPs who do not report poor vision as a symptom, than EPs who do report this symptom. In comparison, those who report eye irritation (symptom), are more likely to report medication use when compared to EPs who do not report this symptom. The longer that an individual has had his/her eye problems also appears to

 $<sup>^{9}</sup>$   $\chi^{2}$  is not calculated due to less than five cases being in one or more of the cells.  $^{10}$   $\chi^{2}$  is not calculated due to less than five cases being in one or more of the cells.

be an indication of medication use, although the relationship is not statistically significant at the p<.05 level. Finally, there is a tendency, albeit not statistically significant, for those with better self-assessed health to report the use of medication, when compared to those with poorer self-assessed health.

TABLE 28: Socio-demographic Characteristics, Appraisals, and Coping Resources
Associated with Medication Use (Bivariate Level)<sup>1</sup>

VARIABLES	EPs More Likely to Use Medication
Socio-demographic Characteristics	
Age	
Gender	
Appraisals	
Cause - Do Not Know	_
Cause - Advancing Age	
Symptom - No Symptoms	***
Symptom - Poor Vision	EPs who do not report poor vision <sup>2</sup>
Symptom - Eye Irritation	EPs who report eye irritation <sup>2</sup>
Length of Time With Eye Problem(s)	EPs who have had the problem(s) longer2
Amount of Interference	
Amount of Bother	<del></del>
Health Status	
Self-assessed Health Status	EPs with better self-assessed health <sup>2</sup>
Number of Chronic Health Problems	•••
Number of ADL/IADL limitations	
Psychological Resources	
Life Satisfaction	
Self-esteem	
Self-efficacy	
Perceived Control Over Health	
External Health Locus of Control	
Internal Health Locus of Control	•••
Medical Skepticism	-
Social Resources	
Marital Status	
Living Arrangements	
Size of Family Network	***
Number of Family Network Members Seen at	
Least Weekly	400
Number of Confidants	
Number of Friends	
Perceived Instrumental Support	$\chi^2$ not calculated as <5 cases in one or more cells
Material Resources	
Monthly Household Income	•••
Perceived Adequacy of Household Income	•
Education	$\chi^2$ not calculated as <5 cases in one or more cells

<sup>&</sup>lt;sup>1</sup> Relationships significant at p<.05 are in bold, while those significant at p<.10 are in italics.

<sup>2</sup> Statistically significant but weak association (Phi or Cramer's V <.30)

— Indicates no statistically significant relationship at the bivariate level.

### Medication Use - Multivariate Results

The independent variables of age<sup>11</sup> and gender are included in the regressions on medication use as examples of socio-demographic characteristics. Next, the appraisals of poor vision (symptom), eye irritation (symptom), and length of time with eye problem(s) are included. Finally, self-assessed health status represents the concept of coping resources.

Before the logistic regression analyses are conducted, a Pearson Product Moment Correlation Matrix test for multicollinearity is used to establish correlations between the independent variables. Correlation coefficients near or above 0.60 are considered strong (Hickey, 1986) and result in variables being entered into separate regression equations. The bivariate correlations between the six independent variables are presented in Table 29. Although no strong correlations between the independent variables are evident, it is not surprising that the symptoms of poor vision and eye irritation are moderately correlated (-0.43). Among this group, EPs tend to report either poor vision or eye irritation, but not both.

TABLE 29: Pearson Product Moment Correlation Matrix, Independent Variables for Medication Use Regressions

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) Gender	1.00					
(2) Age	-0.08	1.00				
(3) Poor Vision	-0.08	0.19	1.00			
(4) Eye Irritation	0.06	0.08	-0.43	1.00		
(5) Length of Time with Eye Problem(s)	0.02	-0.03	0.20	-0.08	1.00	
(6) Self-assessed Health Status	-0.03	-0.29	-0.05	-0.09	0.09	1.00

<sup>&</sup>lt;sup>11</sup> For these analyses, age is continuous, while length of time with eye problem(s) includes the categories of 0 - 1, 2 - 3, 4 - 9, and 10 + years. The remaining variables are dichotomous.

The results of the logistic regression analysis conducted for medication use are presented in Table 30. Overall, the final model's high -2LL value (114.27) demonstrates that in combination, socio-demographic characteristics, appraisals, and coping resources, offer a low level of explanation for the use of medication. The first block of variables to enter the regression equation (Step 1) are the two socio-demographic characteristics. The Improvement Chi-square value suggests that the socio-demographic component of the model does not contribute significantly to the goodness-of-fit of the model to the data. Moreover, neither of the indicators (age and gender) emerge as statistically significant.

TABLE 30: Logistic Regression: Correlates of the Coping Strategy
Medication Use

(n = 107)

Independent Variables		Step 1			Step 2			Step 3	
	В	Wald	R	В	Wald	R	В	Wald	R
Constant	1.18	0.18		0.22	10.0		-1.70	0.25	-
Socio-demographic Characteristics	<del>.</del>		 مان مسيحة	i - <u>L</u> i i jiga	n hghinggo Lac		المعاقبة بسد	7 - 7 - 87	u talanti in u
Age	-0.03	0.63	0.00	-0.03	0.43	0.00	-0.01	0.04	0.00
Gender	0.54	1.28	0.00	0.44	0.73	0.00	0.50	0.89	0.00
Appraisals									
Poor Vision				-0.80	1.97	0.00	-0.71	1.48	0.00
Eye Irritation				1.33*	5.47	0.16	1.48*	6.34	0.19
Length of Time with  Eye Problem(s)				0.70••	9.54	0.24	0.68*	8.75	0.24
Coping Resources Self-assessed Health Status	ere <b>, t</b> r		ser billion		Tarris, Segentia, estas		0.76	2.32	0.05
	Impro	= 136.17 vement l.f. = 2, 1		-2LL = 1 Improve d.f. = 3,	ment $\chi^2 =$	19.52,	-2LL =     Improved	ement χ²	= 2.38,

p<.05

<sup>\*\*</sup> p<.01

The second block of variables to enter the equation (Step 2) are the appraisals. The Improvement Chi-square value illustrates that appraisals contribute significantly to the goodness-of-fit of the model, after taking socio-demographic characteristics into account. The positive and significant (p<.05) logistic regression coefficient (B) and positive R value for eye irritation (symptom) indicates that EPs who report eye irritation as a symptom, are more likely to report the strategy of medication use, as compared to EPs who do not report this symptom. Length of time with eye problem(s) is also significant. The positive logistic regression coefficient (B) and positive R value indicates that EPs who have had their eye problem(s) for a longer period of time, are more likely to report the strategy of medication use, as compared to EPs who have had their eye problem(s) for a shorter time period. The symptom of poor vision is also considered in this regression equation, but is not found to be statistically associated with the coping strategy of medication use, when other factors are taken into account.

Finally, one coping resource (Step 3) is entered into the equation. The Improvement Chi-square is not statistically significant; therefore, self-assessed health status does not contribute to the goodness-of-fit of the model, after taking into consideration socio-demographic characteristics, and appraisals. The two appraisal variables of eye irritation and length of time with eye problem(s) remain significant in the full model.

Table 31 presents a summary of the variables that are significantly associated with coping strategy of medication use at the multivariate level. In general, the

results of the logistic regression reveal that socio-demographic characteristics, and coping resources are not related to medication use as a coping strategy. In contrast, appraisals, more specifically eye irritation (symptom), and the length of time with eye problem(s), do influence the use of this strategy. In summary, the strongest correlates of medication use among this group of EPs are having eye problem(s) for a longer period of time, and reporting the symptom of eye irritation.

TABLE 31: Socio-demographic Characteristics, Appraisals, and Coping Resources
Associated with Medication Use (Multivariate Level)<sup>1</sup>

VARIABLES	EPs More Likely to Use Medication <sup>2</sup>			
Socio-demographic Characteristics	<del></del>			
Age				
Gender	***			
Appraisals				
Poor Vision				
Symptom - Eye Irritation	EPs who report eye irritation			
Length of Time With Eye Problem(s)	EPs who have had the problem(s) longer			
Coping Resources				
Self-assessed health status (Health Status)	· ·			

<sup>&</sup>lt;sup>1</sup> Only those variables that have a significance level of p<.10 at the bivariate level, as well as age and gender are listed here. For a complete listing of variables examined at the bivariate level, see Table 28. <sup>2</sup> The level of significance that is used is p<.05

<sup>--</sup> Indicates no statistically significant relationship at the multivariate level.

## Use of Special Equipment or Devices - Bivariate Results

The final coping strategy to be considered is the use of special equipment/devices (EQ/DEV). Only 16.7% of the 108 EPs report the use of this strategy, while 83.3% do not. As there are relatively few EPs who report the use of EQ/DEV (n = 18), the results must be interpreted with caution. Cross-tabulation results between socio-demographic characteristics, appraisals, and coping resources, and the coping strategy of special equipment or devices can be found in Table 32. Only one of the thirty variables is significantly associated (p<.05) with the coping strategy of special equipment/devices, while four others approach statistical significance (p<.10).

TABLE 32: Bivariate Relationships Between Socio-demographic Characteristics, Appraisals, Coping Resources, and the Coping Strategy of Special Equipment/Devices (EQ/DEV)<sup>1</sup>

Variables		EQ/DEV Used <sup>2</sup> %	EQ/DEV Not Used <sup>2</sup> %
SOCIO DEMOGRAPHICO DA MODERNO DE			
Age	Tage attachment although of	иниция — помей монициальной в	Hamilton and the feature of the contract of th
68 - 79	(n = 63)	17.5	82.5
80+	(n = 45)	15.6	84.4
$\chi 2 = .07$ , d.f. = 1, p = .79; Phi =03	,		
Gender			
Male	(n = 30)	20.0	80.0
Female	(n = 78)	15.4	84.6
$\chi 2 = .33$ , d.f. = 1, p = .56; Phi =06	,		
ATTAISAIS			
Cause - Do Not Know		and the second second	er earlie 1967 in Marifinal terretrio (1967).
Know cause	(n = 51)	19.6	80.4
Do not know cause	(n = 56)	12.5	87.5
$\chi 2 = 1.01$ , d.f. = 1, p = .32; Phi =10	•		
Cause - Advancing Age (AA)			
AA not reported as cause	(n = 85)	14.1	85.9
AA reported as cause	(n = 22)	22.7	77.3
$\chi 2 = .97$ , d.f. = 1, p = .32; Phi = .10	` ,		
Symptom - No Symptoms <sup>4</sup>			
At least one symptom	(n = 93)	18.3	81.7
No symptoms	(n = 14)	0.0	0.001
Symptom - Poor Vision (PV) <sup>4</sup>	` ,		
PV not reported as a symptom	(n = 30)	10.0	90.0
PV reported as a symptom	(n = 77)	18.2	81.8
Symptom - Eye Irritation (EI)	` '		
EI not reported as a symptom	(n = 81)	12.3	87.7
EI reported as a symptom	(n = 26)	26.9	73.1
$\chi 2 = 3.13$ , d.f. = 1, p = .08; Phi = .17	•		
Length of Time With Eye Problem(s) (Years)			
0-3	(n = 55)	14.5	<b>85.5</b>
4+	(n = 53)	18.9	1.18
$\chi 2 = .36$ , d.f. = 1, p = .55; Phi = .06	•		
Amount of Interference			
Not at all	(n = 68)	11.8	88.2
Some/A great deal	(n = 39)	25.6	74.4
$\chi 2 = 3.41$ , d.f. = 1, p = .06; Phi = .18	, ,		
Amount of Bother			
Not at all	(n = 52)	5.8	94.2
Some/A great deal	(n = 52)	28.8	71.2

<sup>&</sup>lt;sup>1</sup>In this table the percentages are added horizontally and the comparisons are made vertically.

<sup>2</sup>The sample size of the EQ/DEV used group is 18 (71 for the EQ/DEV not used group).

<sup>3</sup>If n does not equal 126 on an independent variable the remainder are missing values.

 $<sup>^4\</sup>chi^2$  cannot be calculated as there are less than 5 cases in at least one of the cells.

Table 32 continued<sup>1</sup>

		EQ/DEV Used <sup>2</sup>	EQ/DEV Not Used <sup>2</sup>
Variables		%	%
HIALTESTATUS			
Self-assessed Health Status	6- 50	144	05.7
Bad/Fair/Poor	(n = 56)	14.3	<b>85.7</b>
Good/Excellent	(n=52)	19.2	80.8
$\chi 2 = .47$ , d.f. = 1, p = .49; Phi = .07			
Number of Chronic Health Problems	( 20)	20.0	<b>9</b> 0.0
0 - 2 3 - 4	(n = 30) $ (n = 37)$	20.0 21.6	80.0 78.4
		9.8	90.2
5+ 	(n=41)	9.8	90.2
$\chi$ 2 = 2.30, d.f. = 2, p = .32; Cramer's V =	.13		
Number of ADL/IADL Limitations 0	(n = 49)	16.3	83.7
1+	(n = 59)	16.9	83.1
-	(n – 37)	10.9	<b>03.</b> L
χ2 = .01, d.f. = 1, p = .93; Phi = .01  PSYCHOLOGICAL RESOURCES	ra varanteriaria (hagitar)	a ja <del>kindidi</del> n <b>a ja jamata</b> ) ma	enditer var e
Life Satisfaction			
0 - 19 (Poor/Fair)	(n = 66)	10.6	89.4
20 - 26 (Good/Excellent)	(n = 56)	20.5	79.5
$\chi 2 = 1.96$ , d.f. = 1, p = .16; Phi = .14	(11 50)	20.5	,,,,
Self-esteem			
0 - 19 (Poor/Fair)	(n = 49)	14.3	85.7
20 - 30 (Good/Excellent)	(n=37)	14.3	85.7
$\chi 2 = .00$ , d.f. = 1, p = 1.00; Phi = .00	(22 - 2 - 7 )		
Self-efficacy			
0 - 31 (Poor/Fair)	(n = 68)	13.2	86.8
32 - 51 (Good/Excellent)	(n=37)	16.2	83.8
$\chi 2 = .17$ , d.f. = 1, p = .68; Phi = .04	(12 51)		
Perceived Control Over Health			
None/Some	(n=84)	13.1	<b>86</b> .9
A great deal	(n = 23)	30.4	69.6
$\chi 2 = 3.88$ , d.f. = 1, p = .05; Phi = .19	,		
External Health Locus of Control			
0 - 4 (Low)	(n = 39)	17.9	82.1
5 - 9 (High)	(n=65)	12.3	87.7
$\chi 2 = .63$ , d.f. = 1, p = .43; Phi =08	•		
Internal Health Locus of Control			
0 - 5 (Low)	(n = 46)	10.9	<b>89</b> . I
6 - 12 (High)	(n = 54)	14.8	85.2
$\chi 2 = .34$ , d.f. = 1, p = .56; Phi = .06	-		
Medical Skepticism			
0 - 7 (Low)	(n = 46)	15.2	84.8
8 -15 (High)	(n = 54)	13.0	<b>87</b> .0
$\chi 2 = .10$ , d.f. = 1, p = .75; Phi =03			

<sup>&</sup>lt;sup>1</sup>In this table the percentages are added horizontally and the comparisons are made vertically.

<sup>2</sup>The sample size of the EQ/DEV used group is 18 (71 for the EQ/DEV not used group).

<sup>3</sup>If n does not equal 126 on an independent variable the remainder are missing values.

Table 32 continued<sup>1</sup>

Variables		EQ/DEV Used <sup>2</sup> %	EQ/DEV Not Used <sup>2</sup>
SOCIAL RESOURCES			
Marital Status	The second secon		
Not currently married	(n=61)	11.5	88.5
Currently married	(n = 47)	23.4	76.6
$\chi 2 = 2.72$ , d.f. = 1, p = .10; Phi = .16	, ,		
Living Arrangements			
Lives alone	(n=51)	9.8	90.2
Lives with at least one other	(n = 57)	22.8	77.2
$\chi 2 = 3.28$ , d.f. = 1, p = .07; Phi = .17	` ,		
Size of Family Network (Family Members)	)		
0 - 4	(n = 67)	16.4	83.6
5+	(n=41)	17.1	82.9
$\chi 2 = .01$ , d.f. = 1, p = .93; Phi = .01	, ,		
Number of Family Network Members See	n at Least Weekly		
0 - 2	(n=73)	15.1	<b>8</b> 4.9
<b>3</b> +	(n = 35)	20.0	80.0
$\chi 2 = .41$ , d.f. = 1, p = .52; Phi = .06	(,		
Number of Confidents			
0 - 1	(n = 54)	16.7	83.3
2+	(n = 54)	16.7	83.3
$\chi 2 = .00$ , d.f. = 1, p = 1.00; Phi = .00	` ,		
Number of Friends			
0 - 6	(n = 73)	16.4	83.6
7÷	(n = 35)	17.1	82.9
$\chi 2 = .01$ , d.f. = 1, p = .93; Phi = .01	(3.7)		
Perceived Instrumental Support			
0 - 4 Tasks help is perceived to exist	(n = 10)	0.0	100.0
5 - 6 Tasks help is perceived to exist	(n=98)	18.4	81.6
MATERIAL RESOURCES			1. <del>1</del> 1
Monthly Household Income			
0 - \$1499	(n = 41)	17.5	82.5
\$1500+	(n = 40)	24.4	75.6
$\chi 2 = .58$ , d.f. = 1, p = .45; Phi = .08	,		
Perceived Adequacy of Household Income			
Very well/Adequately	(n = 87)	16.1	83.9
With some difficulty/Not very well	(n=21)	19.0	81.0
$\chi 2 = .11$ , d.f. = 1, p = .74; Phi = .03	, ,		
Education (Years)			
0 - 8	(n = 32)	12.5	87.5
9 - 12	(n=59)	16.9	83.1
13+	(n = 17)	23.5	76.5

<sup>&</sup>lt;sup>1</sup>In this table the percentages are added horizontally and the comparisons are made vertically. 
<sup>2</sup>The sample size of the EQ/DEV used group is 18 (71 for the EQ/DEV not used group). 
<sup>3</sup>If n does not equal 126 on an independent variable the remainder are missing values. 
<sup>4</sup> $\chi^2$  cannot be calculated as there are less than 5 cases in at least one of the cells.

The analyses reveal that neither of the socio-demographic characteristics (age and gender) are significantly associated with this strategy at the bivariate level. The two measures of appraisals that are found to be approaching statistical significance, are eye irritation (symptom) and amount of interference. Although not statistically significant at the p<.05 level, EPs who report eye irritation (26.9%) tend to report the use of EQ/DEV more so than EPs who do not report this symptom (12.3%). There is also the tendency for EPs who report some/a great of interference to report this strategy (25.6%) as compared to EPs who report no interference (11.8%). Not knowing the cause of one's eye problems, reporting the cause as advancing age, and length of time with eye problem(s) are not found to be associated with the coping strategy of EQ/DEV. Poor vision and reporting no symptoms  $\chi^2$  values are not calculated because of limited sample sizes.

The analyses disclose that none of health status indicators (self-assessed health, number of chronic health problems, number of ADL/IADL limitations) are at the bivariate level significantly associated with the coping strategy of medication use. In contrast to the two previously considered coping strategies, it is found that one of the psychological resources (perceived control over health) is statistically associated with use of EQ/DEV. Analyses indicate that EPs who feel that they have a great deal of control over their own health (30.4%) are more likely to report the strategy of EQ/DEV than EPs who state that they perceive either no/some control over their own health (13.1%). Notwithstanding the association, the relationship is a weak one (Phi

<sup>12</sup> P<.05 when three decimal places are considered.

= .19). The other measures of psychological resources (life satisfaction, self-esteem, self-efficacy, perceived control over health, external and internal health locus of control, and medical skepticism) are not associated with the strategy of EQ/DEV.

Turning to social resources, the size of family network, number of family network members seen at least weekly, number of confidants, and number of friends are not found to be associated with EQ/DEV use. Both marital status and living arrangements approach the suggested level of significance. EPs who are currently married (23.4%) tend to be more likely to report this strategy than EPs who are not currently married (11.5%). It follows, then, that those who live with one or more others (22.8%), are more likely than those who live alone to report the use of EQ/DEV (9.8%). The  $\chi^2$  for perceived instrumental support could not be calculated due to small cell sizes. Finally, none of the material resources (monthly household income, perceived adequacy of household income, education 13) are, at the bivariate level, significantly associated with this strategy.

In summary, there is only one variable (perceived control over health) that is significantly associated with the coping strategy of EQ/DEV at the p<.05 level. Eye irritation, amount of interference, marital status, and living arrangements are found to be approaching the suggested level of significance (Table 33). As previously mentioned, the results from this particular set of bivariate analyses must be interpreted with caution, due to the few EPs (n = 18) who report the use of this strategy.

 $<sup>^{13}</sup>$   $\chi^2$  is not calculated due to less than five cases being in one or more of the cells.

TABLE 33: Socio-demographic Characteristics, Appraisals, and Coping Resources Associated with the Use of Special Equipment/Devices (Bivariate Level)<sup>1</sup>

	FB Many Libely to Hee Special
VARIABLES	EPs More Likely to Use Special Equipment/Devices
VARIABLES	2 quipment Devices
Socio-demographic Characteristics	
Age	***
Gender	
Appraisals	
Cause - Do Not Know	***
Cause - Advancing Age	
Symptom - No Symptoms	$\chi^2$ not calculated as <5 cases in one or more cells
Symptom - Poor Vision	y <sup>2</sup> not calculated as <5 cases in one or more cells
Symptom - Eye Irritation	EPs who report the symptom of eye irritation <sup>2</sup>
Length of Time With Eye Problem(s)	
Amount of Interference	EPs who report some/a great deal of interference2
Amount of Bother	$\chi^2$ not calculated as <5 cases in one or more cells
	L not calculated as 45 cases in one of more said
Health Status	
Self-assessed Health Status	
Number of Chronic Health Problems	***
Number of ADL/IADL limitations	atter
Psychological Resources	
Life Satisfaction	***
Self-esteem	***
Self-efficacy	***
Perceived Control Over Health	EPs who perceive to have a great deal of
- V	control over their health <sup>2</sup>
External Health Locus of Control	
Internal Health Locus of Control	***
Medical Skepticism	
Medical Skepheisin	_
Social Resources	
Marital Status	EPs who are currently married <sup>2</sup>
Living Arrangements	EPs who live with one or more others?
Size of Family Network	***
Number of Family Network Members Seen at	
Least Weekly	***
Number of Confidants	***
Number of Friends	***
Perceived Instrumental Support	$\chi^2$ not calculated as <5 cases in one or more cells
r organies monamental papport	A not calculated as -2 cases in one of more con-
Material Resources	
Monthly Household Income	***
Perceived Adequacy of Household Income	
Education	$\chi^2$ not calculated as <5 cases in one or more cells
Luuveuvu	Y HAT SEISCHEON OF A CONSON IN ONE OF HIGH AND

<sup>&</sup>lt;sup>1</sup> Relationships significant at p<.05 are in bold, while those significant at p<.10 are in italics.

<sup>2</sup> Statistically significant but weak association (Phi or Cramer's V <.30)

— Indicates no statistically significant relationship at the bivariate level.

# Use of Special Equipment or Devices - Multivariate Results

The independent variables that are included in the regressions on special equipment/device use are the socio-demographic variables of age<sup>14</sup> and gender.

Secondly, eye irritation (symptom), and the amount of interference are examples of appraisals. Finally, perceived control over health, marital status, and living arrangements are examples of coping resources that are included in these analyses.

Moment Correlation Matrix test for multicollinearity is used to establish correlations between the independent variables. Correlation coefficients near or above 0.60 are considered strong (Hickey, 1986) and will result in variables being entered into separate regression equations. The bivariate correlations between the seven independent variables are presented in Table 34. It is not surprising that gender and marital status are moderately correlated (-0.31), as older women are less likely to be married than men because of the gender differences in mortality, tendency for men to marry women younger than themselves, and greater likelihood of re-marriage for men. The correlation between marital status and living arrangements is a strong one (0.64); therefore, each will be entered into separate regression equations (Models 1 and 2).

<sup>&</sup>lt;sup>14</sup> For these analyses, age is continuous, while the remaining variables are dichotomous.

TABLE 34: Pearson Product Moment Correlation Matrix, Independent Variables for Special Equipment/Device Use Regressions

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	1.00						
(1) Gender	1.00						
(2) Age	-0.06	1.00					
(3) Eye Irritation	0.05	0.07	1.00				
(4) Amount of Interference	-0.24	0.13	0.16	1.00			
(5) Perceived Control Over Health	-0.03	-0.07	0.02	-0.02	1.00		
(6) Marital Status	-0.31	-0.21	-0.02	0.08	0.12	1.00	
(7) Living Arrangements	-0.23	-0.31	-0.08	0.08	0.11	0.64	1.00

Note: Strong associations are in bold.

The results of the logistic regression models for the coping strategy of EQ/DEV are presented in Table 35. The first regression includes the variable of living arrangements (Model 1). This model's -2LL value (80.38) demonstrates that in combination, socio-demographic characteristics, appraisals, and coping resources, offer a low level of explanation for the use of EQ/DEV.

TABLE 35: Logistic Regressions: Correlates of the Coping Strategy **Special Equipment/Devices** 

Model  $1^1$  (n = 105)

Independent Variables		Step I			Step 2			Step 3	
	B	Wald	R	B	Wald	R	B	Wald	R
Constant	-1.27	0.13	_	-0.75	0.04	-	-4.36	1.10	
Socio-demographic	1		-, 11-						
Characteristics	F . III .				+	4 - 4			
Age	-0.00	0.00	0.00	-0.02	0.14	0.00	0.01	0.08	0.00
Gender	-0.43	0.59	0.00	-0.30	0.25	0.00	-0.08	0.02	0.00
Appraisals			The 1st						
Eye Irritation				0.85	2.17	0.04	1.06	3.00	0.11
Amount of Interference				0.94	2.70	0.09	0.95	2.54	0.08
Coping Resources	i de								
Perceived Control Over Health							1.19 <sup>2</sup>	3.79	0.14
Living Arrangements							0.91	1.82	0.00
	-2 <i>LL</i> =	92.42		-2LL =	86.78		-2LL =	80.38	
	-	ement χ²	· =	-	vement χ		•	ement $\chi$	
	U.58, d.	f. = 2, ns		5.64, d	.f. = 2, ns	<u> </u>	6.4U, d	.f. = 2, p	<.05

Model  $2^3$  (n = 105)

Independent Variables		Step 1			Step 2			Step 3	
	В	Wald	R	В	Wald	R	В	Wald	R
Constant	-1.27	0.13		-0.75	0.04		-3.14	0.62	
Socio-demographic Characteristics									
Age	-0.00	0.00	0.00	-0.02	0.14	0.00	0.00	0.00	0.00
Gender	-0.43	0.59	0.00	-0.30	0.25	0.00	-0.09	0.02	0.00
Appraisals									
Eye Irritation				0.85	2.17	0.04	0.94	2.50	80.0
Amount of Interference				0.94	2.70	0.09	1.02	2.93	0.10
Coping Resources Perceived Control Over Health	÷. •		· · · · · · · · · · · · · · · · · · ·				1.23*	4.09	0.16
Marital Status							0.58	0.89	0.00
	•	92.42 vement χ .f. = 2, as			86.78 /ement χ .f. = 2, ns		-2LL = 8 Improve 5.38, d.f	ement χ²	=

<sup>&</sup>lt;sup>1</sup> This model includes the variable Living Arrangements, and excludes the variable Marital Status. 
<sup>2</sup>Perceived Control Over Health is just over the suggested significance level (0.052).

<sup>&</sup>lt;sup>3</sup>This model includes the variable Marital Status, and excludes the variable Living Arrangements.

p<.05

p<.01

The first block of variables to enter the regression equation (Step 1) are the two socio-demographic characteristics. The Improvement Chi-square statistic implies that the socio-demographic component of the model does not contribute significantly to the goodness-of-fit of the model to the data. Generally, age and gender are unimportant in explaining the use/non-use of special equipment/devices.

The second block of variables to enter the equation (Step 2) are the appraisals.

The Improvement Chi-square value illustrates that appraisals do not contribute significantly to the goodness-of-fit of the model after taking socio-demographic characteristics into account. Neither eye irritation nor amount of interference are statistically significant.

Finally, the coping resources are entered into the equation. As the Improvement Chi-square is significant, the block of variables representing the coping resources component of the equation contributes significantly to the goodness-of-fit of the model, after taking into consideration the level of explanation provided by the socio-demographic characteristics, and appraisal variables. Moreover, although the coping resources as a group contribute to the model, only one of its two measures is near the suggested significance level. Perceived control over health is just over (p = .052) the suggested significance level, while living arrangements is not significant.

In response to the variables of living arrangements and marital status being multicollinear, the second logistic regression equation is conducted with the variable of marital status replacing living arrangements (Model 2). This model's -2LL value (81.40) is similar to the one that is reported for Model 1 (80.38). This demonstrates

that this combination of variables (marital status rather than living arrangements), does not offer a larger or smaller level of explanation for the use of EQ/DEV.

The first block of variables to enter the regression equation (Step 1) are the two socio-demographic characteristics. The Improvement Chi-square value implies that the socio-demographic component of the model does not contribute significantly to the goodness-of-fit of the model to the data. Neither age nor gender emerge as statistically significant.

The second block of variables to enter the equation (Step 2) are the appraisals. The Improvement Chi-square value illustrates that appraisals do not contribute significantly to the goodness-of-fit of the model after taking socio-demographic characteristics into account. In other words, the association between eye irritation, and the use of EQ/DEV is negligible among this group of EPs. This is also found to be the case for the amount of interference and the use of this strategy.

Finally, the coping resources are entered into the equation (Step 3). Here, the Improvement Chi-square is not statistically significant. This suggests that this block of variables does not contributes to the goodness-of-fit of the model, after taking into consideration the level of explanation provided by socio-demographic characteristics, and the appraisal variables. However, the positive and significant (p<.05) logistic regression coefficient (B) and positive R value for the variable perceived control over health implies that EPs who report a great deal of control over their own health, are more likely to report the strategy of EQ/DEV, as compared to EPs who report no/some control over their own health. The coping resource of marital status is not

found to make a significant contribution to the explanation of the model. In the full model, perceived control over health is the only variable that remains significant.

Table 36 includes a summary of the variables that are significant at the multivariate level with the coping strategy of EQ/DEV. In summary, the two regression models that are conducted with the coping strategy of EQ/DEV yield similar results. In both cases, socio-demographic characteristics, and appraisals are not found to be related to the use of EQ/DEV as a coping strategy. The difference that exists between the two models involves the coping resources. In the first model (includes living arrangements), coping resources are found to contribute to the goodness-of-fit between the model and the data, while perceived control over health approaches statistical significance. In comparison, the findings from the second model (includes marital status) suggest that while perceived control over health is significant on its own, coping resources as a group are not.

In order to understand why coping resources as a group are significant in one model, and not in the other, an additional regression is conducted (Appendix H - F). The model does not include either living arrangements or marital status. The rationale for excluding these variables is to explore their influence on perceived control over health, and coping resources as a whole. The model's findings reveal that when living arrangements and marital status are excluded, not only does perceived control over health remain significant in the full model, but coping resources as a group are also significant. This suggests that their exclusion from the model does not effect the statistical significance of either perceived control over

health, or coping resources. This is not surprising given that at the bivariate level both living arrangements and marital status were only approaching the recommended level of statistical significance. To conclude the discussion on the coping strategy of use of special equipment/devices, it appears that both socio-demographics and appraisals do not in combination, or individually, strongly predict the use of special equipment/devices to deal with one's eye problem(s). In comparison, the coping resource of perceived control over health is associated with the coping strategy of EQ/DEV.

TABLE 36: Socio-demographic Characteristics, Appraisals, Coping Resources
Associated with the Use of Special Equipment/Devices (Multivariate Level)<sup>1</sup>

VARIABLES	EPs More Likely to Use Special Equipment/Devices <sup>2</sup>
Socio-demographic Characteristics	en e
Age	
Gender	
Appraisals	
Symptom - Eye Irritation	***
Amount of Interference	***
Coping Resources	• • • • • • • • • • • • • • • • • • •
Perceived Control Over Health (Psychological	EPs who perceive to have a great deal of
Resource)	control over their health <sup>3</sup>
Marital Status (Social Resource)	-
Living Arrangements (Social Resource)	-

<sup>&</sup>lt;sup>1</sup> Only those variables that have a significance level of p<.10 at the bivariate level, as well as age and gender are listed here. For a complete listing of variables examined at the bivariate level, see Table 33.

<sup>2</sup> The level of significance that is used is p<.05

<sup>&</sup>lt;sup>3</sup> Perceived Control Over Health is significant in Model 2 (Marital Status included and Living Arrangements excluded), and approaching significance (p = 0.52) in Model 1(Living Arrangements included and Marital Status excluded).

<sup>--</sup> Indicates no statistically significant relationship at the multivariate level.

## Chapter Summary

This chapter reported on the findings of Research Question # 3. The first section of the chapter focused on a comparison between EPs who do and who do not report taking an action(s) to deal with their eye problem(s). Following this comparison, the most frequently mentioned coping strategies were considered.

Socio-demographic characteristics, appraisals, and coping resources were considered in relation to the specific coping strategies. In order to determine what factors are associated with the use of certain strategies, both the results of bivariate and multivariate analyses were presented. In general, socio-demographic characteristics were not found to influence the use of particular strategies, while in some cases both appraisals and coping resources were found to be predict the use of certain coping strategies. The following chapter discusses the meaning of these findings within the context of the conceptual framework.

## **CHAPTER SEVEN: DISCUSSION AND CONCLUSIONS**

## **Chapter Introduction**

The primary purpose of this final chapter is to highlight the major findings of this research, and to provide a context by making comparisons to the existing literature. In addition, recommendations for future research will be included. Next, the study's limitations will be presented. In closing, the implications of the research findings for older adults who are adapting to eye problems, and for rehabilitation professionals who try to help them will be considered.

# Differences Between Older Adults With and Without Eye Problems

This research began by examining the differences that exist between older adults with and without eye problems in terms of socio-demographic characteristics and coping resources. The tendency has been for researchers to focus on a particular type of coping resource (e.g., Reinhardt, 1996), while the aim of this research was to gain a better understanding of the variety of coping resources that older adults possess. Comparisons according to socio-demographic characteristics will be considered first, followed by coping resources.

<sup>&</sup>lt;sup>1</sup> See Table 9 for a summary of the differences between EP and NEP groups.

# Socio-demographic Characteristics

The findings of this research reveal relationships between age and eye problems, and gender and eye problems. Other studies in the area have also determined that EPs are older (Branch et al., 1989; Kleinschmidt, 1995), and are more likely to be female than NEPs (Salvage, 1995). Notwithstanding these findings, it has been reported that although age is associated with eye problems, it does not cause them (Cherry, Keller, & Dudley, 1991). Finally, consistent with the work of Branch and colleagues (1989), when age is controlled for, the relationship between eye problems and gender no longer exists.

#### **Health Status**

EPs and NEPs were found to differ in terms of all three of the health status measures. Consistent with the work of Branch et al. (1989), EPs were found to self-assess their health poorer, and to require help with more activities of daily living (ADL/IADL) than NEPs.<sup>2</sup> In addition, EPs, on average, had more chronic health problems to contend with when compared to NEPs. It is difficult to make a comparison with the existing literature in terms of chronic health problems, as researchers include different health problems.

<sup>&</sup>lt;sup>2</sup> There are some differences across the two studies in terms of what ADL and IADL items are included. Both studies include the basic ADLs of dressing, eating, bathing, and walking, while the current study also includes toiletting. Branch et al. (1989) also ask about transferring, and grooming. Turning to instrumental ADLs, both studies include shopping, preparing meals, doing household tasks, and handling money. The current study also includes using the telephone, taking out trash, and taking medication, while Branch and colleagues ask about transportation needs.

Discriminant function analyses findings suggest that ADL/IADL limitations and number of chronic health problems are most strongly associated with someone having or not having eye problems. The tendency for EPs to have more challenges to their health could possibly influence how they cope with their eye problems. However, researchers such as Lazarus and Folkman (1984) speculate that challenges to one's health do not necessarily negatively influence coping.

Thus, whereas health and energy certainly facilitate coping efforts - it is easier to cope when one is feeling well than when one is not - people who are ill and enervated can usually mobilize sufficiently to cope when the stakes are high enough (Lazarus & Folkman, 1984, p. 159).

#### Psychological Resources

The second set of coping resources that were considered were psychological resources. In general, when life satisfaction, self-esteem, and self-efficacy scores were considered, both EPs and NEPs scored relatively high (see Table 6). Therefore, any differences that exist between the two groups must be considered with this in mind. When compared to NEPs, EPs had lower life satisfaction scores. This difference has also been reported by other researchers (e.g., Davis et al., 1995), albeit with slightly different measures of life satisfaction, and with different samples. Using a longitudinal research design, Horowitz and colleagues (1994) explored whether the relationship between eye problems and lower levels of life satisfaction is one that persists over time. Data in this study were collected over three points in time. First, baseline data were obtained when individuals were referred to the Lighthouse for

<sup>&</sup>lt;sup>3</sup> Horowtiz and colleagues (1994) measure Life Satisfaction with the use of the Life Satisfaction Inventory (LSI-A) (Neugarten, Havighurst, & Tobin, 1961), modified by Adams, 1969.

vision rehabilitation services. Time 1 interviews were conducted as soon as possible after baseline (no range is provided by the researchers), and before rehabilitation services began. Time 2 represents post-rehabilitation service, and was gathered approximately two years after the Time 1 interview (Horowitz et al., 1994).

Horowitz and colleagues (1994) report that having a greater number of functional vision problems<sup>4</sup> is associated with lower levels of life satisfaction at time one. However, the same was not found to be true at baseline, or at time two. Overall, it appears that eye problems do contribute somewhat to one's level of life satisfaction. However, it is also clear that there are many other factors which contribute to one's life satisfaction.

Next, EPs were found to have lower self-esteem scores than NEPs. This finding is in contrast to the results reported by Davis et al. (1995). However, their study only focused on individuals with and without macular degeneration, and included a slightly different measure of self-esteem.<sup>5</sup>

Thirdly, self-efficacy scores were found to vary across the sample, with EPs scoring slightly lower than NEPs. Next, EPs perceived themselves to possess less control over their health than NEPs. Lastly, EPs and NEPs did not differ in terms of health external or internal locus of control, or medical skepticism. The reviewed literature does not include mention of differences between EPs and NEPs in terms of self-efficacy, perceived control over health, or health locus of control. Such

<sup>&</sup>lt;sup>4</sup>Functional vision problems included distance acuity, number of eye diagnoses, and number of optical devices and non-optical devices used at baseline.

<sup>&</sup>lt;sup>5</sup> Davis and colleagues (1995) measure self-esteem with the Revised Feelings of Inadequacy Scale (RFIS) (Eagly, 1967).

resources have the potential to assist one with the adjustment process (Dodds, Ferguson, Hawes, & Yates, 1994); therefore, it is important for future research to examine these concepts in relation to coping with eye problems.

# Social Resources

The third group of coping resources that were considered were social resources. Researchers such as Reinhardt (1996) encourage the use of multiple measures of social resources when considering older adults with vision loss. In the case of this research, only one of the seven social resource indicators reveals differences across the two groups. EPs were less likely than NEPs to be currently married. This finding was expected given that EPs tend to be older, and are more likely to be female than NEPs, and the relationship between age and marital status, and gender and marital status (Gee & Kimball, 1987).

No differences were found between EPs and NEPs in terms of living arrangements, the size of family network, number of family network members seen at least weekly, number of confidants, number of friends, and perceived instrumental support. Although the existing literature has not specifically considered many of these indicators, Branch and colleagues (1989) also found no differences between EPs and NEPs in terms of social contact with others, and number of confidants. It is encouraging that the data suggest that EPs and NEPs do not differ significantly in terms of the social resources that they have available to them. This is important, as

some researchers (Orr, 1991; Warnke, 1991) have argued that social resources are the most influential coping resource that one can possess.

### Material Resources

The last group of resources that were considered were material resources. No differences were found between EPs and NEPs in terms of perceived adequacy of household income, and education. However, it was found that the EP group had lower household incomes than the NEP group. Salvage (1995) also reports that EPs report more problems with income than NEPs.

In summary, there are certain relationships that exist between sociodemographic characteristics and eye problems, and individual coping resources and
eye problems. However, it is important to acknowledge that except for the
relationship between chronic health problems and eye problems, all of the
relationships between coping resources and eye problems are weak. This suggests
that EPs do not appear to be disadvantaged in terms of the coping resources they have
access to when compared to NEPs.

#### Describing the Situation of EPs

Prior to investigating the actions that EPs take to deal with their eye problems, it was necessary to describe the situation of people who were living with vision loss in later life. In summary, the large majority of the group have had their eye problems diagnosed by a health care professional, while the length of time since the diagnosis,

and the length of time with the problems varied across the group. Eye conditions/diseases were mentioned by some respondents, with the majority of these individuals indicating that they had cataracts.

Over one-half of EPs stated that they did not know the cause of their eye problems. In comparison, close to one in five EPs identified the perceived cause of advancing age. Davis and colleagues (1995) also asked respondents the extent to which they understood the cause of their vision loss. It was reported that respondents fell into the three categories of correct interpretation (33%), some idea (30%), and did not know cause/wrong idea (37%). Therefore, it is not surprising that such a large proportion of the current sample did not know the cause of their eye problems. Finally, the most frequently mentioned symptoms associated with the eye problem(s) were poor vision and eye irritation. In general, these symptoms were reported to interfere with one's activities, and to bother one emotionally.

Following a description of the situation of EPs, the focus shifted to the coping strategies used by EPs. Although a variety of strategies were identified by respondents, all of them were examples of problem-focused strategies. The most frequently mentioned strategies were doctor visits/surgery, medication use, use of special equipment/devices (EQ/DEV), and lifestyle adjustments.

The recognition that EPs use a variety of problem-focused strategies is consistent with the findings reported by Horowitz et al. (1994). It should be noted that these researchers refer to instrumental coping strategies; however, this category is equivalent to the category of problem-focused strategies. Respondents in their

study acknowledge using close to one-half (47.8%) of the instrumental strategies that were listed. However, the use of these strategies is argued to decrease over time.

The finding of change in utilization of instrumental strategies should not be surprising. When individuals begin to experience a health problem, there is often a strong tendency to act aggressively to find out information and explore alternative treatments. However, over time, these strategies are not as useful, nor necessarily as needed, as the condition stabilizes (Horowitz et al., 1994, p. 66).

The current research is not based on a longitudinal design; therefore, it is not possible to comment on whether this sample of EPs uses such strategies less or more than they did in the past.

The tendency for this sample of EPs to report problem-focused strategies is not surprising for a number of reasons. First, as a large majority have had their eye problems diagnosed by a health care professional, the likelihood that actions taken reflect those that would be monitored by these professionals (e.g., doctor visits/surgery, medication use) is increased. Secondly, the absence of non-medical strategies is consistent with the general under-reporting of self-care type strategies (Edwardson, Dean, & Brauer, 1995). It may be that the individuals do not acknowledge self-care type strategies as important as the treatment options offered to them by health care professionals.

Thirdly, the absence of emotion-focused strategies may be due in part to the wording of the question. Respondents were asked "What actions, if any, do you take to deal with this problem?" The word "action" may have encouraged respondents to report behaviors, rather than to consider emotions. A question such as "What emotions have your eye problems produced, and how have you dealt with them?"

could potentially draw out some of the emotion-focused strategies that have been used by EPs.

Finally, as the information was obtained though self-reporting, respondents may have neglected certain things that they do to manage with their vision loss (e.g., arranging furniture in a clutter free manner) which has since become a part of everyday life. This is compounded by the fact that most age related eye problems are gradual in nature, and techniques are introduced slowly over time (Reinhardt, 1996). The wording of the question and the reliance on self-reporting are somewhat related in that a better question could potentially assist respondents in providing a broader range of actions that they take to deal with their eye problem(s).

Describing the situation of EPs, and the actions that they take to deal with their eye problems is significant for a number of reasons. First, a description of this sample revealed that EPs represent a diverse group of individuals. Not only did they differ in terms of eye related factors (e.g., eye conditions/diseases) but they also differ in terms of how they appraised (e.g., perceived cause) their situations. These differences suggest that aspects such as professional services need to be flexible to accommodate a diverse group of individuals. Finally, a consideration of the coping strategies reveals the predominance of problem-focused strategies. Notwithstanding the tendency to report these types of strategies, it was important to consider the variation that does exist in strategies, and the factors that were associated with these differences.

# **Factors That Are Associated With Coping Strategies**

A review of the literature in the area of coping with eye problems revealed that little attention has been placed on the factors that influence how one copes, and the actions that he/she takes. Moreover, past research does not appear to be based on conceptual or theoretical models. This limitation of the literature motivated the current research to be based on a modified version of Lazarus and Folkman's (1984) conceptual model. It follows, then, that the final objective of this research was to explore the extent to which socio-demographic characteristics, appraisals, and coping resources are related to the coping strategies that were reported by EPs. A description of the specific factors that were found to be associated with each of strategies can be found in Chapter Six, while the focus here will be on the influence that socio-demographics, appraisals, and coping resources have on the strategies that were identified.

# Socio-demographic Characteristics

Researchers (e.g., Moos & Schaefer, 1984) suggest that socio-demographic characteristics such as age and gender may influence one's adjustment or the coping process. In this research, the direct relationship between socio-demographic characteristics and coping strategies was considered. There was no association found between age and the use of doctor visits/surgery, medication use, or the use of special equipment/devices (Table 37). Similarly, no association was found between gender and the use of any of the three most frequently identified coping strategies.

TABLE 37: Socio-demographic Characteristics, Appraisals, and Coping Resources Associated with Coping Strategies

sons the description of the control of the control of the different of the description of the description of the control of th	***************************************		EPs More Likely	EPs More Likely to Use the Strategy	**************************************	
•	The state of the s	:				
	Doctor Visits/Surgery	Symbol Serv		Medication Use	Use of Special E.	Use of Special Equipment/Devices
	Bivariate	Multivariate	Rivariate		Bivariate	Multivariate
Socio-demographic Characteristics	ics					
Aye		:	*	:	:	!
Gender		1		; ;	:	:
Appraisals						
Cause - Do Not Know	-	:	£ £	į	ł	3 8 8
Cause - Advancing Age		* :	£ 8	į	i	:
Symptom - No Symptoms	:	t t	!	;	i	į
Symptom - Poor Vision		i	No Poor Vision		:	
Symptom - Eye Irritation	No Eye Irritation	No Eye Irritation1	Has Eye Irritation	Has Eye Irritation	Has Eye frritation	
Length of Time With Eye Problem	1 1 1	e 8 8	Longer Time With Eye Problems	Longer Time With Eye Problems	• •	ł
Amount of Interference	No Interference	No Interference <sup>2</sup>	1 6 5		Some/A Great Deal	i
Amount of Bother	No Bother	i	i	:	:	•
Health Status						
Self-assessed Health Status	, ,	t t	Better Self- Assessed Health	i	i	i
# of Chronic Health Problems	į	ļ	į	i		į
Number of ADL/IADL limitations		:	t :	t :	:	i
Psychological Resources						
Life Satisfaction	į	į	į	;	:	
Self-esteem	Higher Self-esteem	;		!	E	I C .
Self-efficacy	•	1 1	ł	;	i	ł
Perceived Control (PC) Over Health	\$ 6 6	}	:	;	More Perceived	More Perceived
					Control Over Health	Control Over Health
External Health Locus of Control	:	;	ł	;	i	į
Internal Health Locus of Control	-	i	£ .		•	i
Medical Skepticism Higher Med Skepticism	Higher Medical Skepticism	Higher Medical Skepticism <sup>1</sup>	) :	i	8 1 8	!
Transfer tenden bereiten bereiten der Bereiten bestehenden bestehen bereiten bestehenden bestehen bestehen bestehenden bestehen bestehenden bestehenden bestehenden bestehenden bestehenden bestehenden bestehenden bestehenden bestehende bestehe			***	to dec		

Only significant in one of two models.
Only significant prior to coping resources being included in the model.
--- Indicates no statistically significant relationship at the bivariate level or the multivariate level.

**Table 37 continued** 

**************************************	***************************************		E.FS IVIOTE LAN	Ers More Lakely to Use the Strategy		
	Doctor V	Doctor Visits/Surgery	Me	Medication Use	Use of Special Equipment/Devices	nipment/Devic
	Bivariate	Multivariate	Bivariate	Multivariate	Bivariate	Multivariate
Social Resources						
Marital Status	•	:	ļ	7	Currently Married	i
Living Arrangements	i	1	i	•	Lives With Other(s)	:
Size of Family Network	:	•	:	f 1 E		į
Number of Family Network						
Members Seen at Least Weekly	ł			; ;	i	i
Number of Confidants	Fewer confidants	Fewer confidants	:	:	1	;
Number of Friends	!	-		:		i
Perceived Instrumental Support	•	;	:		:::::::::::::::::::::::::::::::::::::::	į
Material Resources						
Monthly Household Income	•	1	:	:	5 a 2	
Perceived Adequacy of Income	F :	:	ŧ	ŧ		t 2 2
Education			ţ	£ 1	I	1

#### **Appraisals**

In contrast to socio-demographic characteristics, appraisals were more likely to be associated with coping strategies (Table 37). The relationship between appraisals and coping strategies was expected, as appraisals represent an individual evaluating his/her demanding situation, and the various factors that may either increase or decrease the threat or stress associated with the situation (Lazarus & Folkman, 1984). It follows, then, that if the situation is perceived to require their attention, actions will be taken. Following such a realization, a decision is made as to what type of action to implement. An individual may decide that self-care is sufficient, while in other cases seeking professional care may be deemed as more appropriate.

In general, perceived causes were not found to be associated with the use of certain strategies. More specifically, even the causes identified by respondents (e.g., advancing age, hereditary/genetic) that were beyond their control, were not found to be indicative of either taking or not taking a particular action. In summary, identifying or not identifying a specific perceived cause does not appear to be associated with the action(s) that one takes to deal with the eye problem(s).

In contrast, perceived symptoms were found to be influential. For example, at the bivariate level only, EPs who identified eye irritation were more likely to report medication use, and the use of EQ/DEV than EPs who did not report the symptom.

The opposite was found in terms of doctor visits/surgery. However, it may be that EPs who did identify eye irritation had it alleviated by the use of doctor visits/surgery.

The relationship that appears to exist between perceived symptoms and coping strategies is not surprising, as EPs may believe that their symptom(s) will be alleviated with the use of a certain strategy.

Finally, for certain strategies, the length of time with the eye problem(s), the amount of interference, and the amount of bother were found to increase the likelihood of the action being identified. The finding that these last three appraisals do not consistently appear across the strategies may suggest that these factors only influence certain types of coping strategies, and are not as important when coping is considered more generally.

# **Coping Resources**

In this research, the direct relationship between coping resources and coping strategies was considered. Unlike appraisals, coping resources were generally found not to be associated with the use of certain coping strategies (Table 37). Each of the four types of coping resources will be considered in turn.

# **Health Status**

The health status indicators of self-assessed health status, chronic health problems, and ADL/IADL limitations were not found to be related to the actions that were taken to deal with eye problems. To begin, although the measure of self-assessed health status reflects how individuals perceive their health status, it does not provide us with an indication of how they self-assess the health of their eyes. The

inclusion of a self-assessed health status measure directly referring to the eyes, may have revealed alternative findings. For example, poorer self-assessed health of the eyes may be associated with an increased likelihood of doctor visits. Finally, the non-importance of chronic health problems and ADL/IADL limitations serves to further strengthen the argument that one's general health status is not necessarily associated with how they care for different parts of their body.

# Psychological Resources

The second set of coping resources to be considered are psychological resources. When considered in combination with other factors, life satisfaction was not found to be associated with the use of doctor visits/surgery, medication use, or the use of special equipment/devices. The same results appeared for both self-esteem and self-efficacy.

It may be that the severity of the eye problems within this population is affecting the relationship between specific psychological resources (e.g., life satisfaction) and coping strategies. While the current sample includes EPs with mild, moderate, and severe conditions, it may be that when the severity of the eye problem(s) is controlled for, relationships between psychological resources and coping strategies exist.<sup>6</sup> For example, life satisfaction scores may be lower for EPs with more severe eye problems. It may follow, then, that these individuals may be more willing to use EQ/DEV with the hopes of improving their life satisfaction.

<sup>&</sup>lt;sup>6</sup> The terms mild, moderate, and severe are not referring to specific acuity levels. They simply serve as an indication of the relative differences in severity that exist between EPs.

Unfortunately, the current sample does not allow for this sort of analysis as there is no information on the severity of the eye problem(s).

In contrast to the previously mentioned psychological resources, perceived control over health, and medical skepticism were found to be associated with the use of individual coping strategies. EPs with more perceived control over their health were found more likely to identify the coping strategy of EQ/DEV when compared to EPs with less perceived control over health. In addition, EPs with greater medical skepticism were more likely to report doctor visits/surgery when compared to EPs with less medical skepticism. At first, this last relationship may seem unusual. However, as EPs identified actions already taken, it may be that the reported doctor visits/surgery have increased their medical skepticism. However, as there is no information on medical skepticism prior to EPs consulting doctors or having surgery, it is not possible to declare this with any certainty. In summary, although certain psychological resources were associated with certain coping strategies, the findings do not reveal a strong relationship between this sort of coping resource and coping strategies.

#### Social Resources

With the exception of number of confidants, none of the social resources studied here were found to increase the likelihood of using a specific coping strategy. This relationship is somewhat surprising and may be explained in a number of ways. First, except for (number of) confidants, and perceived instrumental support, the

remainder of the social resources simply reflect the number of individuals whom an EP identifies (e.g., number of friends, number of family network members), while not considering the nature of the relationships. In comparison, a confidant is someone who one can talk to, and trust with his/her concerns, while perceived support targets the help that individuals think is available to them from others. Among the social resource measures included here, these two come closest to measuring the nature of a relationship. The findings here suggest that EPs with fewer confidants are more likely to report doctor visits/surgery than EPs with more confidants. Having less confidants may lead one to seek out guidance or treatment options from a professional, as they do not have peers with whom they can discuss their eye problem(s).

Next, it may be that social resources are not associated with the use of the strategies that were identified by these EPs. However, social resources could possibly be more influential in terms of other strategies. To illustrate, it may be that individuals who have fewer social resources would be more likely to attend a vision loss support group than individuals who have more social resources.

#### **Material Resources**

The final set of resources that were considered were material resources.

Researchers such as Lazarus and Folkman (1984) recognize the difficulty in establishing the influence of such resources. In the case of this research, material resources (monthly household income, perceived adequacy of household income, and

education) are not directly related to the strategies that were considered here. Doctor visits/surgery are generally covered by the Canadian health care system (Taylor, 1987); therefore, it should not be surprising that there is no relationship between this particular strategy and material resources. If the action was one that required the use of private funds, individuals with fewer material resources may have been less likely to identify the strategy as an action that they take to manage their eye problems.

#### Conceptual Framework

The conceptual framework that has guided this research has both advantages and disadvantages. To begin, the framework should be commended for its comprehensiveness. The coping resources of health status and psychological resources attempted to measure both one's physical and mental health, while social and material resources served as additional types of coping resources. Secondly, the broad nature of the framework lent itself to the operationalization of its concepts, and was amenable to testing. More specifically, the framework allowed for the consideration of a number of coping resources, and the potential impact that they would have on coping strategies. Moreover, although the current research findings did not uncover many direct relationships between coping resources and coping strategies, it can still be argued that health status, psychological resources, social resources, and material resources are coping resources that may on a more general level assist an individual when dealing with his/her eye problems.

In keeping with the work of Lazarus and Folkman (1984), the concepts were considered in a particular order (socio-demographic characteristics, appraisals, coping resources, coping strategies). By following this order, the current research may not have revealed all of the relationships that exist. Furthermore, it may be that relationships between concepts exist in more than one direction, thus concealing the complexity of the coping process. In summary, the conceptual framework that was adopted for this research is somewhat over-simplified, and may require changes in order to better get at how older adults cope with eye problems.

Additional disadvantages associated with the use of this framework may have less to do with the framework itself, and more to do with the type of data that was used, and the composition of the sample. The use of secondary data limited the way in which the concepts could be operationalized, which may have contributed to the current findings.

In comparison, this conceptual framework may be more successfully applied when used in relation to primary data collection. The development of one's own measures and concepts, may allow for a better fit between the model and the data than was the case here. For example, by including additional measures specific to eye problems, the model might be better equipped to explain the variation that exists in terms of coping with eye problems. An example of an appraisal that could be included is self-assessed severity of eye problems, as it may be that the severity of the eye problems is indicative of the use of certain coping strategies.

The sample of EPs that were used here may have also influenced the effectiveness of the model in terms of explaining the coping process. As previously mentioned, the EPs considered here represent a diverse group of individuals. They differed in terms of their conditions/diseases, the length of time with eye problem(s), and perceived cause(s) and symptoms. It may be that if sub-groups of EPs (e.g., only those with cataracts) were identified individually, the model may have more closely reflected the way that they cope. By considering all types of EPs simultaneously, the differences in coping that exist may have been concealed. In other words, the model may be better at explaining how some groups of EPs group cope rather than how all EPs cope.

#### Recommendations For Future Research

While this study has contributed to the research literature on managing with eye problems in later life, there are many areas that future researchers need to focus on. In a most general sense, the question of generalizability of the findings of this study reveals the need for additional research in the area. The current sample is relatively small in size; therefore, a sample with a greater number of individuals in each of the age categories, as well as a greater proportion of males, would enhance the generalizability of the findings. As it stands now, the sample tends to be older, and female.

Next, there are some measures relating to eye problems that are noticeably absent from the data set, that future research needs to consider. For example,

respondents were not asked to indicate the name of the eye condition/disease that they had. It may be that certain coping strategies are associated with particular conditions/diseases. In addition, there was no objective or subjective indication of the severity of the eye problems. This could have been gathered with either a clinical measurement (e.g., acuity levels), or by the self-reporting of respondents. The presence of such a measure would have allowed for a consideration of the relationship between the severity of the eye problems, and the actions that are taken to deal with such problems.

There is also the need for more longitudinal studies, perhaps qualitative in nature, which focus on the management of eye problems in later life. As the present research relied on cross-sectional data, it is based on retrospective self-reporting. Moreover, it did not allow for a consideration of longer term behaviours.

Longitudinal studies would help to uncover how older adults deal with such problems, as well as what factors contribute most to successful adaptation over time. Qualitative data collection would allow for direct questioning on how EPs have experienced the coping process. Moreover, this methodology would allow for specific questions that focus on the emotional coping that has taken place, such as with the use of emotion-focused coping strategies.

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Finally, in order to better understand how older adults come to manage with their eye problems, future research needs to consider including an extensive list of coping strategies. Two examples of such lists are available but only one is specific to vision problems. First, Lazarus and Folkman (1984) have developed a "Ways of

Coping" list. Respondents are asked to indicate whether a specific way to cope is something that is not used, somewhat used, used quite a bit, or used a great deal. For example, one of the ways of coping is "Talked to someone to find out more about the situation". One of the strengths of this list is the inclusion of both emotion-focused, and problem-focused coping strategies. However, it is limited in that is does not specifically address coping with vision loss.

In comparison, Horowitz and colleagues (1994) have used a scale developed by the Elderly Care Research Center (ECRC) in order to index the variety of coping strategies that are used deal with vision loss. "Respondents were asked whether or not they were likely to use each of 22 coping strategies in dealing with their vision loss, a specific problem situation" (Horowitz et al., 1994, p.15). The items include a wide range of strategies such as seeking out information from others, expecting the worse, and altering activities. In general, it is perceived that these sorts of lists are effective to use, as they serve to cue respondents as to the range of strategies that they currently use, or that they have used in the past when dealing specifically with their eye problems. In addition, differences in coping may emerge when a larger number of coping strategies are examined.

#### Limitations of This Research

Upon reviewing the current research, there are a number of limitations that exist. First, it should be noted that this research is limited in terms of its sample. The relatively small sample size not only restricted the types of analyses that were

conducted, but it also limits the generalization of any findings. In addition, the sample represents the "survivors" of the original study. These individuals were more likely to be in better health and less functionally disabled than those original participants who were lost to the follow-up. Referring specifically to the EP sample, generalizability is limited as a small sample size would not allow for certain controls to be taken. With a larger sample size, it may have been possible to have controlled for such factors as eye condition/disease, and length of time with eye problems(s). In light of these points, generalizations must be made cautiously.

Another weakness centers around the data set that was used, as it was relatively general in nature. An interview schedule designed specifically to explore vision loss would possible lead to more accurate findings, and would allow for more detailed questions which focus solely on eye problems. Moreover, the use of this data set does not allow us to answer certain research question such as "What factors contribute to more successful long-term adaptation to vision loss in later life?"

Finally, there are numerous limitations that relate to the current investigator's "...lack of control over the content of the data" (Black, 1995). As secondary data analyses involve data gathered by another for difference purposes, some of the questions were not worded the way the current researcher would have preferred, or were simply not included. For example, although the ADL/IADL activities give a good indication of respondent's functional limitations, it does not allow for an understanding of how many of these activities are directly affected by vision loss.

Moreover, the absence of key variables such as name of eye condition/disease, and

severity of the eye problems is noticeable, as it may be that these factors influence how EPs cope with their eye problems.

# Implications for Older Adults with Eye Problems and Rehabilitation Professionals

Notwithstanding the recognized limitations of the research, this study has provided some information that may be helpful to those older adults who are living with eye problems, or those individuals who try to help them. First, as EPs are diverse in nature, it is both necessary and appropriate to further explore their differences across such factors as eye condition/disease, and severity, so that interventions and services can be planned for, and provided accordingly. Second, the finding that appraisals are important predictors of the use of certain coping strategies suggests that the way in which respondents perceive their situation is predictive of the types of actions they take. In other words, respondents evaluate their situation, and decide whether they can treat the condition themselves, or should seek professional care.

Finally, research findings suggest that in general, older adults with vision loss have access to many of the same coping resources when compared to those without such problems. This is important for professionals to emphasize, as it suggests that generally, EPs are not any worse off than NEPs when it comes to the coping resources that they possess. Although the current research may not have uncovered the direct or indirect influence that coping resources have on coping strategies, it may still be that coping resources at one time or another will assist an older adult in dealing with their eye problems.

# **Chapter Summary**

This final chapter highlighted the major findings of the three research questions, while drawing comparisons based on the literature. This was followed by a consideration of the conceptual framework that was used to guide this research. In addition, recommendations for future research were included, followed by the study's limitations. Next, the implications of the research findings for older adults who are adapting to eye problems, and for rehabilitation professionals who try to help them were considered.

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#### APPENDIX A: VARIABLES USED IN THE STUDY

	SOCIO-DEMOGRAPI	HIC CHARACTERISTI	CS
Variable	Question	Coding	Level of Measurement
Age	Date of Birth	Years - continuous	Ratio
Gender	Sex of Respondent	0 - Male I - Female	Nominal

	COPING R	ESOURCES	
Variable	Question	Coding	Level of Measurement
Health Status			
Self-assessed Health Status	Overall, would you say, in general your health is	1 - Excellent 2 - Good 3 - Fair 4 - Poor 5 - Bad	Ordinal
Chronic Health Problems	See Appendix F for individual chronic health problems.	For each problem: Does not have (0) Has (1)	Dichotomous Ratio when summed
Number of ADL/IADL Limitations	See Table 5 for individual ADL and IADL items.	(Recoded) 0-No help required 1-Needs at least some help	Dichotomous Ratio when summed
Psychological Reso	urces		
Life-satisfaction	See Appendix B for individual items.	0 - Disagree 1 - Undecided 2 - Agree	Ratio when items summed
Perceived Control Over Health	How much control do you think you have over your health?	1 - None 2 - Some 3 - A great deal	Ordinal
Health Locus of Control (External, Internal, and Medical Skepticism)	See Appendix E for individual items.	0 - Strongly agree 1 - Agree 2 - Disagree 3 - Strongly Disagree	Ratio when items summed
Self-esteem	See Appendix C for individual items.	0 - Strongly agree 1 - Agree 2 - Disagree 3 - Strongly disagree	Ratio when items summed
Self-efficacy	See Appendix D for individual items.	0 - Strongly agree 1 - Agree 2 - Disagree 3 - Strongly disagree	Ratio when items summed

#### Appendix A continued

	COPING R	ESOURCES	
Variable	Question	Coding	Level of Measurement
Social Resources			
Marital Status	What is your marital status?	I - Never Married 2 - Married 3 - Divorced/ Separated 4 - Widowed	Nominal
Living Arrangements	How many people, if any, live here with you?	0 - Lives alone 1 - Lives with one or more others	Nominal
Size of Family Network	How many (parents, brothers, sisters, sons, daughters) do you have?	Continuous	Ratio when summed
Number of Family Network Members Seen at Least Weekly	Of your (father, mother, brothers, sisters, sons, daughters), how many do you have contact with? (every day/once a week or more)	Sum of those family members seen at least weekly	Ratio when summed
Number of Confidants	Do you receive emotional support from anyone? That is, do you have someone who you confide in, talk to about yourself, your concerns, etc.? (If Yes) How many?	Number of confidants (continuous)	Ratio
Number of Friends	Other than relatives, how many people do you have at least weekly contact with?	Number of friends (continuous)	Ratio
Perceived Instrumental Support	If you were not feeling well, for whatever reason, who, if anyone would get groceries, essentials, etc., for you?" Other areas include house-cleaning, meal preparation, getting to the doctor/hospital, and who if anyone would get called in an emergency, or if information was needed about health matters?	0 - No one 1 - At least one person	Ratio when the six items summed

#### Appendix A continued

	COPING R	ESOURCES	
Variable	Question	Coding	Level of Measurement
Material Resources			
Monthly Household Income	What is the total average monthly income for your household?	Dollars - continuous	Ratio
Perceived Adequacy of Household Income	How do you think your household income and assets currently satisfy your needs?	I - Very well 2 - Adequately 3 - With some difficulty 4 - Not very well 5 - Totally inadequate	Ordinal
Education	How many years of schooling do you have?	Years - continuous	Ratio

#### Appendix A continued

	APPRA	ISALS	
Variable	Question	Coding	Level of Measurement
Perceived Cause(s)	What in your opinion, caused this problem?	Do Not Know Cause Advancing Age Eye - Related Hereditary/Genetic Environmental Factors Other Health Conditions Medical Error	Nominal
Perceived Symptom(s)	What are the specific symptoms of this problem?	Poor Vision Eye Irritations Headaches/Dizziness	Nominal
Length of Time With Eye Problem(s)	How long ago did you first notice this problem?	Years - continuous	Ratio
Amount of Interference	How much do the symptoms interfere with your day to day living?	1 - Not at all 2 - Some 3 - A great deal	Ordinal
Amount of Bother	How much does is bother you that the symptoms are present?	l - Not at all 2 - Some 3 - A great deal	Ordinal
	COPING ST	RATEGIES	2 - 12 - 15 - 15 - 15 - 15 - 15 - 15 - 1
Variable	Question	Coding	Level of Measurement
Coping Strategies	What actions, if any, do you take to deal with this problem?	Doctor Visits/Surgery Medication Use Use of Special Equipment/Devices Lifestyle Adjustments	Nominal

#### APPENDIX B: LIFE SATISFACTION INDEX Z: FREQUENCIES AND RELIABILITIES<sup>1</sup>

Statement	Disagree %	Not Sure %	Agree	No Response %	Alpha if Item Deleted <sup>2</sup>
1. As I grow older, things seem better than I thought they would be.	33,5	9,0	<b>*55,5</b>	2,0	.71
2. I have gotten more of the breaks in life than most people I know.	43.7	6, 1	<b>*48.1</b>	2,0	.73
3. This is the dreariest time of my life.	<b>*73,9</b>	1.5	22,5	2,0	.71
4. Most of the things I do are boring or monotonous.	<b>*83,1</b>	1,3	13,6	2,0	.72
5. As I look back on my life, I am fairly well satisfied.	7.9	1.0	<b>*89,0</b>	2,0	.72
6. I am just as happy as when I was younger.	32,0	2,6	<b>*63.4</b>	2.0	.70
7. I have made plans for things I'll be doing a month or a year from now.	52,4	0.0	<b>*45,5</b>	2.0	.73
8. The things I do are as interesting to me they ever were,	17.6	0.8	<b>*79.5</b>	2,0	.71
9. When I think back over my life, I didn't get most of the important things I wanted.	<b>*</b> 55,2	2.8	39.9	2.0	.73
10. These are the best years of my life,	52,7	6,6	<b>*38.6</b>	2,0	.71
11. Compared to other people, I get down in the dumps too often.	<b>*8</b> 6.7	0,5	10.7	2.0	.72
12. I have gotten pretty much what I expected out of life.	16.4	5.1	<b>*76.5</b>	2.0	.72
13. In spite of what people say, the lot of the average person is getting worse, not better.	*33,8	13,6	50.6	2.0	,73

Source: Wood, V., Wylie, M.L., & Sheafor, B. (1969). An analysis of a short self-report measure of life satisfaction: Correlation with rater judgments.

Journal of Gerontology, 24(4), 465-469.

Does not include missing values.

Cronbach's alpha for all items = .74 (n = 391) (NEP group = .71, EP group = .77)

<sup>\*</sup>Denotes answer indicating satisfaction.

APPENDIX C: SELF-ESTEEM: FREQUENCIES AND RELIABILITIES<sup>1</sup>

Statement	Strongly Agree %	Agree %	Disagree %	Strongly Disagree %	No Response	Alpha if Iten Deleted <sup>2</sup>
1. I feel I am a person of worth, at least on an equal plane with others.	0.11*	84.1	0.1	0.5	3.3	.78
2. I feel that I have a number of good qualities.	+8.2	87.2	0.1	0.0	3.6	67.
3. All in all, I am inclined to feet that I am a failure.	0.0	3.6	75.2	6'11+	3,3	11.
je je	<b>*</b> 5.6	8.62	10,5	0.3	3.8	62.
5. I feel I do not have much to be proud of.	0.3	8,9	74.7	+15.6	3,6	.77
6. I take a positive attitude toward myself.	+7.4	84.9	4.1	0.0	3.6	.77
7. On the whole, I am satisfied with myself.	+5.1	84.7	6.1	0.0	4.1	.78
8. I wish I could have more respect for myself.	0,0	<b>8</b> : I	73.4	0.6+	5,9	.78
9. I certainly feel useless at times.	8.0	34.0	8.95	<b>*</b> 4.9	3,6	<b>æ</b> .
10. At times I think I am no good at all,	0.0	10.5	70,1	1.91	3,3	.78

<sup>1</sup> Source: Rosenberg, M. (1965). <u>Society and the adolescent self-image</u>. Princeton, NJ: Princeton University Press.

<sup>2</sup> Does not include missing values.

<sup>3</sup> Cronbach's alpha for all items = .80 ( n = 391) (NEP group = .82, EP group = .74)

\*Denotes answer indicating high self-esteem

APPENDIX D: SELF-EFFICACY: FREQUENCIES AND RELIABILITIES<sup>1</sup>

	Strongly	Agree	Disagree	Strongly	Š	Alpha if
Statement	Agree %	*	*	Disagree **	Response	liem Deferred <sup>2</sup>
1. When I make plans, I am certain I can make them work.	<b>*6.4</b>	68.3	20.2	0.5	4.6	83
<ol><li>One of my problems is that I cannot get down to work when I should.</li></ol>	0.5	35.0	8'95	*4.3	(C)	<b>8</b>
3. If I can't do a job the first time, I keep trying until I can.	+5.1	77.5	12.3	0,3	6,4	8
<ol> <li>When I set important goals for myself, I rarely achieve them.</li> </ol>	0.0	17.4	8'69	•4.6	8.2	83
5. I give up on things before completing them,	0.0	13.8	76.0	<b>*7.2</b>	3.1	.82
6. I avoid facing difficulties.	0.3	26.1	65.2	*4.3	4.1	. <b>8</b> 2
7. If something looks too complicated, I will not even bother to try it.	8.0	44.5	46.8	<b>*</b> 2.8	5,1	.82
8. When I have something unpleasant to do, I stick to it until I finish it.	<b>*</b> 2.6	91.6	0.11	0,3	4.6	<b>.8</b> 3
<ol> <li>When I decide to do something, I go right to work on it.</li> </ol>	<b>#</b> 3,3	8.79	25.1	0,5	3,3	8.
10. When trying to learn something new, I soon give up if I am not initially						•
successful.	0.0	28.6	61.1	*1.5	8.7	<b>8</b> 3
11. When unexpected problems occur, I don't handle them well.	0.5	23.5	65.7	<b>*</b> 2.6	7.7	.83
12. I avoid trying to learn new things when they look too difficult for me,	0.1	43.2	48,8	<b>41.5</b>	5.4	.82
13. Failure just makes me try harder.	<b>*</b> 2.0	67.5	21.0	0,3	9.2	83
14. I feel insecure about my ability to do things.	0.3	25.3	67.3	<b>*</b> 2.3	6.4	.82
15. I am a self-reliant person.	+7.7	82.6	8.9	0'0	3,8	.83
16. I give up easily.	0'0	8.2	85.7	<b>*</b> 2.3	3,8	.82
17. I do not seem capable of dealing with most problems that come up in life.	0.0	12.3	78.0	•5.6	4.1	.82

| Source: Sherer, M., & Maddux, J. (1982). The self-efficacy scale: Construction and validation. Psychological Reports, 51(2), 663-671.

<sup>2</sup> Does not include missing values.

<sup>3</sup> Cronbach's alpha for all items = .84 (NEP group = .83, EP group = .84)

\*Denotes answer indicating high self-efficacy

## APPENDIX E: HEALTH LOCUS OF CONTROLIFE FREQUENCIES, RELIABILITIES AND FACTORS

#### **External Health Locus of Control**

Statement	Strongly Agree %	Agree %	Disagree %	Strongly Disagree %	Alpha if item Deleted <sup>2</sup>
1. Getting well is often a matter of chance,	2.8	28.9	52,7	5,1	.61
7. People who never get sick are just plain lucky.	3.3	56,5	33.0	1.0	.55
11. Good health is largely a matter of good fortune.	3.1	46.8	40.7	1.3	.68
22. No matter what I do, if I am going to get sick, I will get sick. <sup>3</sup>	0,5	46.5	42.7	2.0	••

<sup>&</sup>lt;sup>1</sup> Source: Segall, A. (1983). <u>Interview schedule, 1983 Winnipeg area study</u>. Winnipeg, MB: Department of Sociology, University of Manitoba. drawing on the work of: Freidson, E. (1961). <u>Patients' views of medical practice</u>. New York, NY: Russell Sage Foundation; Lau, R.R., & Ware, J.F. (1981). Refinements in the measurement of health-specific locus-of-control beliefs. <u>Medical Care, 19(2), 1147-1158</u>; and Wallston, B.S., Wallston, K.A., Kaplan, G.D., & Maides, S.A. (1976). Development and validation of the health locus of control (HLC) scale. <u>Journal of Consulting and Clinical Psychology, 44(4), 580-585</u>.

<sup>&</sup>lt;sup>2</sup> Does not include missing values.

This statement does not factor into the same factor as the other three, and is therefore deleted from the scale.

<sup>\*</sup>Responses of strongly agree indicate beliefs in external control/chance

<sup>&</sup>lt;sup>5</sup> Cronbach's alpha for all items = .70 (NEP group = .71, EP group = .68)

Appendix E continued

Internal Health Locus of Control

Statement	Strongly Agree	Agree %	Disagree %	Strongly Disagree	Alpha if item
3. When I am sick, I try to find out all the details of what is	7.9	65.2	23.0	0.3	Deleted
4. People's ill health results from their own carelessness.	0.1	43.7	45.5	<u>∞</u> .	.56
13. People who take care of themselves stay healthy.	2.8	77.0	16.1	0.0	.5
17. Whenever I get sick it is because of something I've done or	0,5	30.9	58.8	<u>6,1</u>	.42
not done.  19. When I feel ill, I know it is because I have not been getting	0.0	31.5	59.1	<u></u>	<u>4</u> .
the proper exercise or eating right.					

<sup>1</sup> Does not include missing values.

<sup>2</sup> This statement does not factor into the same factor as the other four, and is therefore deleted from the scale.

<sup>3</sup> Responses of strongly agree indicate beliefs in internal health locus of control.

<sup>4</sup> Cronbach's alpha for all items = .56 (NEP group = .56, EP group = .53)

Appendix E continued

Medical Skepticism

Statement	Strongly Agree %	Agree %	Disagree %	Strongly Disagree %	Alpha if item Deleted'
<ol><li>I have my doubts about some things doctors say they can do for you.</li></ol>	3,3	47.8	41.9	<b>8</b> .1	.53
5. I believe in trying out different doctors to find out which one I think will give me the best care.	1.5	20.5	8.79	9.9	.54
6. If you wait long enough, you can get over most sicknesses without going to the doctor. <sup>2</sup>	1.5	30.2	53,5	7.2	i
<ol> <li>Some home prescribed remedies are still better than prescribed drugs for curing sicknesses.</li> </ol>	<del>1</del> .	49.1	35,5	2.0	.48
10. A person understands his/her own state of health better than most doctors.	<b>∞</b> .	49.1	41.4	1.5	.47
12. Doctors often tell you there's nothing wrong with you, when you know there is.	0.5	36.1	52.7	0.1	.50

<sup>1</sup> Does not include missing values.
2 This statement does not factor into the same factor as the other five, and is therefore deleted from the scale.
3 Responses of strongly agree suggest higher levels of medical skepticism.
4 Cronbach's alpha for all items = .56 (NEP group = .56, EP group = .57)

## Appendix E continued

## Principal Components Analysis of Health Locus of Control

Item	Communality
1	.58
2	.48
3	.78
4	.44
5	.37
6	.65
7	.65
9	.37
10	.54
11	.68
12	.49
13	.43
17	.60
19	.60
22	.60

Factor	Eigenvalue	Percentage of Variance	Cumulative Percent
1	2.89	19.2	19.2
2	1.74	11.6	30.8
3	1.44	9.6	40.4
4	1.15	7.7	48.1
5	1.05	7.0	55.1

Appendix E continued

Correlation Matrix of Single Items!

Item		7	=	22	6	4	13	17	19	7	ws.	9	6	10	12
_	8														
7	38	00.1													
=	₹.	.55	<del>2</del>												
77	61.	.13	.25	90.											
•	=	05	17	- 10:-	90. 1										
4	10.	9	<b>8</b> 0.	02	90'-	<b>8</b> .									
13	으.	91.	<u>.05</u>	03	8	8	90.1								
17	.27	<u>-</u> .	-12	<u>50</u>	07	9	=	8.							
6	8	<b>6</b> .	<b>6</b> 0	ō.	.17	.23	26	<del>.</del> 5	<u>8</u> .						
7	8	60.	.07	02	<b>8</b> 0.	.05	8	90.	9	90.					
Y)	2.	13	.22	<b>.</b>	.15	91	80.	<b>8</b> 0.	=	<b>∞</b>	<u>8</u> .				
9	<b>.</b> 00	<b>6</b> .	91:	61.	07	.07	07	01.	90	<b>6</b>	.17	8			
6	<u>4</u> .	=	=	<b>8</b> 0.	<b>3</b>	<b>8</b> 0.	<u>61</u>	<u>+</u>	<u>«</u>	.15	.17	.05	8		
2	<b>8</b> 0.	.15	24	.0S	60.	\$	.03	=	9:	.27	.2	.23	30	8.	
12	.07	.13	<b>œ</b>	<b>S</b> 0.	80	90.	8	4.	<b>8</b> 0.	20	61.	.15	<b>.</b>	.2 <b>8</b>	90.

<sup>1</sup> The following items are expected to factor together:

External health locus of control: Items 1, 7, 11, and 22
Internal health locus of control: Items 3, 4, 13, 17, and 19

Medical Skepticism: Items 2, 5, 6, 9, 10, and 12

## Appendix E continued

#### Varimax Rotation of Health Locus of Control

Measure		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
	<b>Item</b>					
	7	. <b>79</b>	.15	02	06	02
External	11	.76	.20	.01	.21	13
	1	.74	.02	.18	.01	01
	10	.10	.70	.03	.18	.07
	2	.05	.65	08	23	.04
Medical	12	.05	.60	.12	.11	31
Skepticism	9	.13	.49	.29	05	.13
•	5	.10	.49	.17	.21	.23
	19	01	.03	.74	04	.23
Internal	17	.20	.09	.74	.07	07
	4	09	.12	.60	.09	22
	13	.18	.09	.48	33	.22
Medical Skepticism <sup>1</sup>	6	05	.23	.01	.76	16
External <sup>1</sup>	22	.35	13	.00	.63	.25
Internal <sup>1</sup>	3	16	.16	.04	02	.85

<sup>&</sup>lt;sup>1</sup>This is the concept that the items was expected to factor into.

APPENDIX F: HEALTH PROBLEMS OF EYE PROBLEM (EP) AND NO EYE PROBLEM (NEP) GROUPS

	%	NEPs with Probl	em Total Sample with Problem %
Health Problem	(n = 126)	(n = 265)	(n=391)
			The property of the party of th
Heart Trouble		215	24.8
Stroke	9.5	6.0	7.2
High Blood Pressure	34.9	30:9	32.2
Other Circulation			
Problems	16.7	11.7	13.3
Kidney Trouble	4.0	-3.8	3.8
Cancer	5.6	7.9	7.2
Diabetes	tt.t	5.3	<b>7.2</b>
Breathing Problems	14.3	14.7	14.6
Palsy		0.4	0.3
Thyroid Trouble	7.9	6.4	6.9
Stomach Trouble	31.7	21.5	24.8
Dental Problems	16.7	10.6	12.5
Emotional or Mental			
Health Problems	159	6.0	9.2
Foot or Limb	2 · · · · · · · · · · · · · · · ·		
Problems	34.9	27.2	29.7
Skin Trouble	15.9	.14.3	14.8
Arthritis	73.0	57.0	62.1
Eye Trouble			32.2
Ear Trouble	43.7	35.5	38.1
Incontinence	10:3	શુક્ર કે મહાસ્ <b>ક<i>77</i> -</b> ક	7.2
Other Bladder	and the second s	in the second of	ومانون ه <b>ده د</b> همه داده و در مواده و در مواده داده و در مواده و د
Problems	8.7	9.8	9.5
Osteoporosis	10.3	6.4	7.7
Fractures	12.7	6.4	8.4

#### APPENDIX G: COMPARISONS USED TO DESCRIBE THE SITUATION OF THE EYE PROBLEM GROUP (EP)1

#### A) A Comparison of Do Not Know Cause and Know Cause of Eye Problem(s) Groups by Age, and Gender<sup>2</sup>

		Do Not Know Cause	Know Cause
Variables		%	<u> </u>
Age			
68 - 79	(n = 73)	46.6	53.4
80+	(n = 52)	63.5	36.5
$\chi 2 = 3.48$ , d.f. = 1, ns; Phi = .17			
Gender			
Male	(n = 35)	51.4	48.6
Female	(n = 90)	54.4	45.6
$\chi 2 = .09$ , d.f. = 1, ns; Phi = .03			

#### B) A Comparison of Advancing Age is Cause and Advancing Age Not Cause of Eye Problem(s), by Age, Gender<sup>2</sup>

Variables		Advancing Age is Cause %	Advancing Age Not Cause %
Age			
68 - 79	(n = 73)	20.5	79.5
80÷	(n=52)	21.2	78.8
$\chi 2 = .01$ , d.f. = 1, ns; Phi = .01	• •		
Gender			
Male	(n = 35)	25.7	74.3
Female	(n = 90)	18.9	81.1
$\chi 2 = .71$ , d.f. = 1, ns; Phi =08			

#### C) A Comparison of No Symptoms and At Least One Symptom Groups, by Length of Time with Eye Problem(s)<sup>2</sup>

Variables		No Symptoms %	At Least One Symptom
Length of Time With Eye P	roblem(s)		
0 - 3	(n = 67)	16.4	83.6
<b>4</b> ÷	(n=58)	10.3	89.7
$\chi 2 = .98 \text{ d.f.} = 1$ , ns; Phi =	09		

<sup>&</sup>lt;sup>1</sup> In these tables the percentages are added horizontally and the comparisons are made vertically.
<sup>2</sup> If n does not equal 126 on an independent variable the remainder are missing values.

D) A Comparison of Poor Vision (Symptom) and No Poor Vision (Symptom) Groups by Age. Gender, Length of Time With Eye Problem(s), Amount of Interference, and Amount of Bother<sup>2</sup>

Variables		Poor Vision (Symptom) %	No Poor Vision (Symptom) %
Age			
68 - 79	(n=73)	65.8	34.2
80+	(n = 52)	80.8	19.2
$\chi 2 = 3.40$ , d.f. = 1, ns; Phi = .16	_		
Gender			
Male	(n=35)	80.0	20.0
Female	(n = 90)	<b>68</b> .9	31.1
$\chi 2 = 1.54$ , d.f. = 1, ns; Phi =11	. ,		
Length of Time With Eye Problem(s	) (Years)		
0-3	(n = 67)	65.7	34.3
4+	(n=58)	79.3	20.7
$\chi 2 = 2.87$ , d.f. = 1, ns; Phi = .15	, ,		
Amount of Interference			
Not At All	(n=81)	65.4	34.6
Some/A Great Deal	(n = 43)	<b>86</b> .0	14.0
$\chi 2 = 6.00$ , d.f. = 1, p<.05; Phi = .22			
Amount of Bother			
Not At All	(n = 59)	59.3	40.7
Some/A Great Deal	(n = 62)	83.9	16.1
$\chi$ 2 = 9.02, d.f. = 1, p<.01; Phi = .27	, ,		

In this table the percentages are added horizontally and the comparisons are made vertically.
 If n does not equal 126 on an independent variable the remainder are missing values.

E) A Comparison of Eye Irritation (Symptom) and No Eye Irritation (Symptom) Groups by Age, Gender, Length of Time with Eye Problem(s), Amount of Interference, and Amount of Bother<sup>2</sup>

Variables		Eye Irritation (Symptom) %	No Eye Irritation (Symptom)
Age			
68 <b>- 7</b> 9	(n=73)	20.5	79.5
80+	(n = 52)	30.8	69.2
$\chi 2 = 1.70$ , d.f. = 1, ns; Phi = .12			
Gender			
Male	(n = 35)	22.9	<b>77.</b> 1
Female	(n=90)	25.6	74.4
$\chi 2 = 0.10$ , d.f. = 1, ns; Phi = .03			
Length of Time with Eye Problem(s) (	Years)		
0-3	(n = 67)	26.9	<b>73.</b> I
4÷	(n = 58)	22.4	77.6
$\chi 2 = .33$ , d.f. = 1, ns; Phi =05	, .		
Amount of Interference			
Not At All	(n = 81)	21.0	79.0
Some/A Great Deal	(n=43)	32.6	67.4
$\chi 2 = 2.01$ , d.f. = 1, ns; Phi = .13	• •		
Amount of Bother			
Not At All	(n = 59)	20.3	<i>7</i> 9.7
Some/A Great Deal	(n=62)	30.6	69.4
$\chi 2 = 1.69$ , d.f. = 1, ns; Phi = .12			

<sup>&</sup>lt;sup>1</sup> In this table the percentages are added horizontally and the comparisons are made vertically.
<sup>2</sup> If n does not equal 126 on an independent variable the remainder are missing values.

F) A Comparison of Amount of Interference Groups by Amount of Bother, Age, Gender, the Length of Time With Eye Problem(s), and Number of Symptoms Reported<sup>2</sup>

Variables		Not At All (Amount of Interference) %	Some/A Great Deal (Amount of Interference %
Amount of Bother			
Not at All	(n = 60)	95.0	5.0
Some/A Great Deal	(n = 62)	38.7	61.3
$\chi 2 = 43.3$ , d.f. = 1, p<.001; Phi = .60	(		
Age			
68 - 79	(n=73)	72.6	27.4
80+	(n=52)	55.8	53.5
$\chi 2 = 3.81$ , d.f. = 1, ns; Phi = .17			
Gender			
Male	(n=34)	50.0	50.0
Female	(n=91)	71.4	28.6
$\chi 2 = 5.04$ , d.f. = 1, p<.05; Phi =20			
Length of Time With Eye Problem(s	i) (Years)		
0-3	(n = 66)	71.2	28.8
4 <del>+</del>	(n=59)	59.3	40.7
$\chi 2 = 1.95$ , d.f. = 1, ns; Phi = .12			
Number of Symptoms Reported			
0	(n = 16)	100.0	0.0
I	(n = 90)	64.4	35.6
2+	(n=18)	38.9	61.1

In this table the percentages are added horizontally and the comparisons are made vertically.
 If n does not equal 126 on an independent variable the remainder are missing values.

G) A Comparison of Amount of Bother Groups by Age, Gender, the Length of time With Eye Problem(s), the Amount of Interference, and the Number of Symptoms Reported<sup>2</sup>

Variables		Not At All (Amount of Bother) %	Some/A Great Deal (Amount of Bother) %
Age			
68 - 79	(n=71)	52.1	47.9
80+	(n=51)	45.1	54.9
$\chi 2 = .59$ , d.f. = 1, ns; Phi = .07			
Gender			
Male	(n = 32)	43.8	56.3
Female	(n = 90)	51.1	<b>48</b> .9
$\chi 2 = .51$ , d.f. = 1, ns; Phi =06			
Length of Time with Eye Problem(s) (	Years)		
0-3	(n = 66)	45.5	54.5
4+	(n = 56)	53.6	46.4
$\chi 2 = .80$ , d.f. = 1, ns; Phi =08			
Number of Symptoms Reported <sup>3</sup>			
0	(n = 16)	93.8	6.3
1	(n = 87)	44.8	55.2
2+	(n = 18)	27.8	72.2
$\chi$ 2 = 16.67, d.f. = 2, p<001; Cramer's	•		

In this table the percentages are added horizontally and the comparisons are made vertically.
 If n does not equal 126 on an independent variable the remainder are missing values.
 There are less than 5 cases in one of the cells.

# APPENDIX H: LOGISTIC REGRESSIONS: CORRELATES OF THE COPING STRATEGY DOCTOR VISITS/SURGERY & USE OF SPECIAL EQUIPMENT/DEVICES

#### A) Medical Skepticism Not Included (n = 104)

Independent Variables		Step 1			Step 2			Step 3	
	В	Wald	R	B	Wald	R	B	Wald	R
Constant	1.41	0.22		0.50	0.02	-	0.24	0.01	
Socio-demographic Characteristics									
Age	-0.00	0.01	0.00	0.02	0.28	0.00	0.03	0.39	0.00
Gender	-0.20	0.15	0.00	-0.54	0.93	0.00	-0.03	0.00	0.00
Appraisals									
Eye Irritation				-0.92**	3.26	-0.10	-0.79*	2.16	-0.04
Amount of Interference				-1.42	<b>7</b> .9 <b>8</b>	-0.22	-1.22	5.21	-0.17
Coping Resources Self-esteem							0.48	0.90	0.00
Medical Skepticism			1	Medical Sk	epticism	Not Incl	uded		
Confidants					-		-0.51	3.47	-0.12
		122.94 vement χ .f. = 2, ns		•	109.26 ement χ <sup>2</sup> .f. = 2, p-		•	104.71 vement $\chi^2$ f. = 2, ns	=

#### B) Self-esteem Not Included (n = 99)

Independent Variables		Step 1	· ·	Step 2				Step 3			
	В	Wald	R	В	Wald	R	В	Wald	R		
Constant	2.02	0.40		1.36	0.17		1.66	0.22			
Socio-demographic											
Characteristics											
Age	-0.01	0.07	0.00	0.01	0.06	0.00	0.01	0.03	0.00		
Gender	-0.22	0.17	0.00	-0.50	0.74	0.00	0.12	0.03	0.00		
Appraisals											
Eye Irritation				-0.94	3.27	-0.11	-1.10	3.83	-0.13		
Amount of Interference				-1.19	5.38*	-0.17	-0.96	3.10	-0.10		
Coping Resources											
Self-esteem				Self-es	teem Not	Include	d				
Medical Skepticism							0.88	2.80	0.09		
Confidants							-0.57*	3.89	-0.14		
* * * * * * * * * * * * * * * * * * * *	-2LL =	113.75		1 * * * * * * * * * * * * * * * * * * *				= 95.92			
	•	vement χ ,f. = 2, ns		= Improvement $\chi^2$ = Improve					/ement χ <sup>2</sup> = .f. = 2, p<.05		

#### Appendix H continued

#### Logistic Regressions: Correlates of the Coping Strategy Doctor Visits/Surgery

#### C) Confidants Not included (n = 99)

Independent Variables		Step 1			Step 2		Step 3			
	В	Wald	R	B	Wald	R	В	Wald	R	
Constant	2.02	0.40		1.36	0.17		-0.06	0.00		
Socio-demographic	42,500	4.								
Characteristics							-		***	
Age	-0.01	0.07	0.00	0.01	0.06	0.00	0.02	0.15	0.00	
Gender	-0.22	0.17	0.00	-0.50	0.74	0.00	-0.39	0.44	0.00	
Appraisals:										
Eye Irritation				-0.94	3.27	-0.11	-1.00	3.32	-0.11	
Amount of Interference	<b>!</b>			-l.19*	5.38	-0.17	00.1-	3.49	-0.12	
Coping Resources										
Self-esteem							0.57	1.19	0.00	
Medical Skepticism							0.94	3.34	0.11	
Confidants				Confid	ants Not	Included				
	-2LL = 113.75 Improvement χ² = 0.26, d.f. = 2, ns			Improv	-2LL = 103.28 Improvement $\chi^2 = 10.47$ , d.f. = 2, p<.01			-2LL = 98.98 Improvement $\chi^2 = 4.30$ , d.f. = 2, as		

#### D) Coping Resources Entered Prior to Appraisals (n = 99)

Independent Variables		Step 1			Step 2			Step 3		
	В	Wald	R	B	Wald	R	B	Wald	R	
Constant	2.02	0.40		0.91	0.07		0.88	0.06		
Socio-demographic										
Characteristics	-									,
Age	-0.01	0.07	0.00	0.00	0.00	0.00	0.01	0.07	0.00	
Gender	-0.22	0.17	0.00	0.44	0.49	0.00	0.18	0.07	0.00	
Coping Resources										
Self-esteem				0.98	3.80	0.13	0.63	1.38	0.00	
Medical Skepticism				0.90	3.22	0.10	0.96	3.21	0.11	
Confidants				-0.67*	5.38	-0.17	-0.60*	4.05	-0.14	
Appraisals										
Eye Irritation							-1.00	3.07	-0.10	
Amount of Interference							-0.83	2.18	-0.04	
en e	-2LL =	113.75		-2LL =	100.96	•	-2[L] =	94.53		
	Impro	vement χ .f. = 2, ns	•	Improv	ement χ i.f. = 3, μ		Improv	ement $\chi^2$ .f. = 2, p<		

#### Appendix H continued

#### E) Amount of Interference and Amount of Bother Not Included (n = 100)

Independent Variables		Step 1			Step 2	Step 3					
	B	Wald	R	B	Wald	R	B	Wald	R		
Constant	2.26	0.52		2.13	0.46		1.44	0.17	-		
Socio-demographic Characteristics	•				** *!						
Age	-0.01	0.11	0.00	-0.01	0.03	0.00	-0.00	0.00	0.00		
Gender	-0.26	0.24	0.00	-0.24	0.19	0.00	0.45	0.47	0.00		
Appraisals											
Eye Irritation				-1.13*	5.19	-0.17	-1.14*	4.29	-0.15		
Amount of Interference Amount of Bother Coping Resources		Amount of Interference Not Included Amount of Bother Not Included									
Self-esteem							0.80	2.34	0.06		
Medical Skepticism							1.05*	4.05	0.14		
Confidants							-0.67*	5.17	-0.17		
	Improv	114.23 /ement χ .f. = 2, ns		-2LL = 109.12 Improvement $\chi^2 = 5.10$ , d.f. = 1, p<.05			-2LL = 96.86 Improvement χ <sup>2</sup> = 12.26, d.f. = 3, p<.01				

# Logistic Regressions: Correlates of the Coping Strategy Use of Special Equipment/Devices

#### F) Marital Status and Living Arrangements Not Included (n = 105)

Independent Variables	Step 1			Step 2			Step 3		
	B	Wald	R	B	Wald	R	В	Wald	R
Constant	-1.27	0.13		-0.75	0.04		-1.96	0.27	_
Socio-demographic					: -				
Characteristics			14		<u> </u>		-		
Age	-0.00	0.00	0.00	-0.02	0.14	0.00	-0.01	0.03	0.00
Gender	-0.43	0.59	0.00	-0.30	0.25	0.00	-0.26	0.19	0.00
Appraisals									
Eye Irritation				0.85	2.17	0.04	0.90	2.36	0.06
Amount of Interference				0.94	2.70	0.09	1.08	3.35	0.12
Coping Resources									
Perceived Control Over Health							1.29*	4.61	0.17
Living Arrangements			Li	ving Arra	ngements	Not In	cluded		
Marital Status					Status No				
	-2LL =	92.42		$-2LL = 86.78$ Improvement $\chi^2 =$			<i>-2LL</i> = 82.30		
	Impro	vement χ	2 =				Improvement $\chi^2 = 4.48$ , d.f. = 1, p<.05		
	0.58, d.f. = 2, ns				.f. = 2, ns				