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The effects of comorbidites among older people with vision impairment

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Abstract. This study uses the 1994 Health Interview Survey Supplement on Aging to identify the effects of comorbid conditions upon older people who report vision problems. The Supplement on Aging is a longitudinal survey of US non-institutionalized older people (≥ 70); the sample size is 9447. A summary vision variable was created to identify vision loss. In addition, the International Classification of Functioning, Disability, and Health (World Health Organization, International Classification of Functioning, Disability and Health, Author, Geneva, 2001) was employed as a conceptual framework to portray the multidimensional characteristics of older people, and it creates activity limitations and participation restrictions as outcome measures. This paper examines the effect of depression, broken hip, and diabetes upon older visually impaired people compared to those without these conditions. Outcome measures include bathing, preparing meals, buying groceries, going places, visiting friends, phoning friends, and eating out. The findings indicate that vision impairment alone creates limitations in activity performance and participation measures. However, vision loss in combination with the comorbid conditions of depression, broken hip, and diabetes indicated substantially greater effects in the outcomes measures. Parentages, odds ratios, and confidence intervals are calculated. The paper suggests that efforts to treat and prevent comorbid conditions would have the potential to improve performance of people experiencing vision loss.

Keywords: Vision impairment; Aging; Health; Depression; Broken hip; Diabetes

1. Introduction

Vision loss among older people becomes immediately complex because the experience of declining vision generally occurs in the content of substantial social and physical

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changes. In 2001, the authors (Crews and Campbell [3]) examined the Health Interview Survey 1994 Supplement on Aging to determine the association of vision impairment with other health conditions, and we discovered that older people with vision loss had higher rates of arthritis, hypertension, diabetes, falls and hip fractures, and depression than people without vision loss. In addition to more complex health problems, older people with vision loss reported overall poorer health and decrements in the performance in activities and social participation. That inquiry led us to consider how older people who experience both vision and hearing loss might compare with people without sensory loss and those with only one sensory limitation [1].

That investigation lead us to think about the public health implications of sensory loss among older people, not just in terms of falls, fall prevention, but in terms of exercise, conditioning, nutrition and weight management, and depression [2]. These investigations led us to consider the implications of combinations of health conditions among older people with vision impairment. That is, are some combinations more serious than others, and is there potential to intervene as these conditions occur? For example, what is the effect upon activity performance and social participation upon older people who have both vision loss and depression? Does depression create additional disability for older people with vision impairment? Since depression–if correctly diagnosed–can be successfully treated, there may be opportunities to develop interventions to improve to the quality of life, function, and social roles of people who experience various combinations. Gaining insight into those circumstances is the aim of this paper.

2. Methods

The National Center for Health Statistics fielded a national survey on people over the age of 70 in 1994 [4]. The Supplement on Aging (SOA-II) surveyed 9447 people in 1994 and followed them in three waves over 4 years. Participants represented a civilian, non-institutionalized population. Data were weighted for age, sex, race, and nonresponse in order to produce national estimates. Due to the complex stratified cluster sampling design employed by the SOA-II, SUDAAN was used to analyze data.

The Supplement on Aging lacks the precision one would like in the questions regarding vision impairment. We created a summary measure for vision loss, including: “blindness in one eye,” “blindness in both eyes,” or “trouble seeing even with glasses.”

In addition, we adopted the conceptual framework proposed by the World Health Organization’s *International Classification of Functioning, Disability and Health* (ICF) [5]. The ICF framework portrays human experience as a multidimensional taxonomy allowing disability to be understood in its complexity. The dimensional quality allows one to map experience at the individual, group, or population level. It also allows for outcomes to be designed and measured around each of these domains.

For our purposes, we selected variables that could be classified within these various domains. We examined six conditions in addition to vision loss: arthritis, diabetes, stroke, broken hip, depression, and hearing loss. We wanted to examine the effects of chronic conditions (arthritis and diabetes), injury or traumatic change (broken hip and stroke), mental health (depression) and sensory loss (hearing loss) to portray