

OPTOMETRIC REFERRAL RATES FOR LOW VISION REHABILITATION SERVICES

by

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This paper is submitted in partial fulfillment of the  
requirements for the degree of

Doctor of Optometry

Ferris State University  
Michigan College of Optometry

May, 2016

POOR REFERRAL RATES FOR LOW VISION REHABILITATION SERVICES

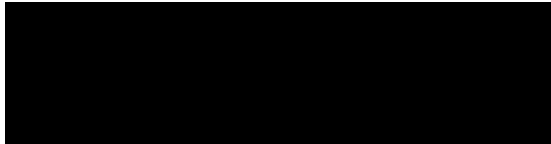
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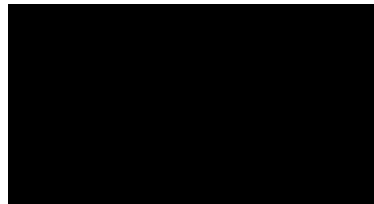
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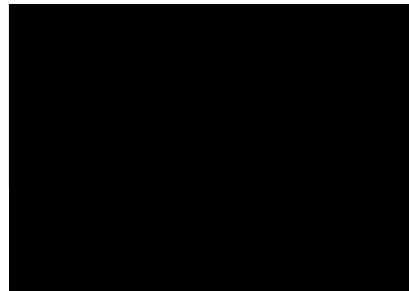


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## ABSTRACT

*Background:* Previous studies have shown that referral rates for low vision rehabilitation services are consistently low among optometrists. An overwhelming number of Americans with vision-related disabilities are unaware of low vision rehabilitation services available to them due to lack of education by eye care practitioners. This project addressed the reasons for lack of referral for low vision rehabilitation services. The study asked optometrists to define low vision and explored common reasons for lack of referral. It also looked at the types of low vision rehabilitation services that eye care practitioners offer to their patients. *Methods:* An online questionnaire was distributed to American optometrists via email and social media. The online survey software tool, QuestionPro, was used to collect and analyze data. *Results:* The study, which included over 300 participants, demonstrated only 11.15% of participants refer patients for low vision rehabilitation services every time a patient has a visual impairment. Only 15.92% of participants frequently refer, 23.57% sometimes refer, 34.39% seldom refer, and 14.97% never refer. Some of the most common reasons for lack of referral include patient barriers, lack of insurance coverage, accessibility, awareness, inefficient communication from practitioners to their patients, and most importantly, the discrepancy between how primary care practitioners and low vision specialists define low vision.

*Conclusions:* While there have been a great number of studies exploring patient barriers to vision rehabilitation services, there is still a lack of research regarding low referral rates among fellow optometrists to low vision rehabilitation providers. Poor referral rates among eye care practitioners for low vision rehabilitation hampers patients with visual impairment or blindness who can benefit greatly from these services.

## ACKNOWLEDGEMENTS

We would like to thank our faculty advisor, Dr. Sarah Hinkley, for her continual guidance throughout the process of gathering and writing the results of this research. We would also like to extend a sincere thank you to both of our families and friends who have been continually supportive throughout our educational journeys in receiving our doctorates of optometry and who have supported our research.

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## INTRODUCTION

The profession of optometry has evolved immensely over the decades and involves much more than just prescribing and fitting eyeglasses and contact lenses. As primary health care professionals, optometrists are licensed to diagnose, treat, and manage ocular diseases, injuries, trauma, disorders of the visual system, as well as detect systemic conditions that affects the eye.<sup>1</sup> Just like any other health care profession, optometry offers many different areas of practice focus and options available within the profession. Most optometrists are in general practice as primary care providers, while others are in practices that focus on ocular disease, geriatrics, pediatrics, specialty contact lenses, sports vision, vision therapy, or low vision rehabilitation.<sup>2</sup>

Low vision rehabilitation began to appear in the 1950s in the United States and focused on those individuals who were partially sighted. The World Wars increased the need for low vision rehabilitation with the goal of helping visually disabled veterans be placed back into the workplace. The growth of low vision rehabilitation was supported by the development of technologies, such as special lens for magnification and closed circuit television. Today, concerns regarding variability in access to these services continue to exist, as do concerns regarding lack of public awareness, low rates of utilization, and low rates of referral from optometrists.<sup>3</sup> The term “vision rehabilitation” includes a wide range of professional services that aim to restore everyday function and permit activities of daily living after vision loss. Vision rehabilitation allows people who are visually impaired to gain back their independence and maintain quality of life.<sup>4</sup> The National Eye Institute defines low vision as a condition that limits a person’s ability to complete everyday activities and cannot be corrected by glasses, contact lenses, medical intervention, or surgery.<sup>5</sup> According to the World Health Organization (WHO), an estimated 285 million people worldwide are visually impaired, 39 million are blind, and 246 have low vision.<sup>6</sup>

Based on the American Optometric Association (AOA) website, “visual impairment” refers to a functional limitation of the eye(s) or visual system due to a disorder or disease resulting in a visual disability or visual handicap.<sup>7</sup> The severity of visual impairment is often measured based on the best corrected vision in the better eye and/or the degree of visual field loss using accepted definitions. The World Health Organization (WHO) uses the following classifications of visual impairment: 20/30-20/60 is classified as mild vision loss, 20/70-20/160 is moderate low vision, 20/200-20/400 is severe low vision, 20/500-20/1,000 is profound low vision, less than 20/1,000 is near total blindness, and no light perception is total blindness.<sup>8</sup> Additionally, in the United States, any person with vision that cannot be corrected to better than 20/200 in the best eye, or who has 20 degrees or less of visual field remaining, is deemed legally blind.<sup>3,8</sup>

Currently, there is no standard definition of low vision across eye care professionals. While it is characterized either by visual acuity deficits, visual field deficits, or a combination of both based on the WHO and USA legal blindness definitions, eye care providers often include functional factors such as visual processing ability, contrast sensitivity, binocularity and others in deciding who may need vision rehabilitation.<sup>7,9</sup> Visual impairment can affect patients of any age. With increasing advancements in technology and medicine, age-related visual impairments are more common today than in the past due to the aging baby boomers reaching senior citizen status. The U.S Census Bureau suggests that the overall U.S population will increase by 10% over the next decade with the greatest growth rate among senior citizens.<sup>10</sup> Common conditions causing vision impairment and blindness include macular degeneration, diabetic retinopathy, cataracts, and glaucoma. In addition, some of the most common causes of visual impairment among infants, children and teens can include congenital cataracts, retinopathy of prematurity, retinal abnormalities, and retinitis pigmentosa. Another common causes of visual impairment involves traumatic injuries to the eye or traumatic brain injuries (TBI).<sup>5,6,11</sup> This means that there will be a

higher demand for eye care professionals who specializes in vision rehabilitation services as the prevalence of age-related visual impairments increases among senior citizens.<sup>6,10</sup>

Due to an increased public and governmental awareness surrounding concussions, traumatic brain injuries, and the aging population in the United States, the area of low vision rehabilitation has received increased cognizance over the years.<sup>12</sup> Traumatic brain injuries can often cause a wide variety of visual impairments such as loss in visual acuities, dysfunctions in ocular motility, visual field loss, cranial nerve palsies, and loss of binocularity.<sup>13</sup> According to the Centers for Disease Control and Prevention, an estimated 1.7 million people incur traumatic brain injuries annually. Of those, approximately 20%-40% of people with TBIs suffer varying degrees of visual dysfunction, vision loss, and/or visual field deficits.<sup>14,15</sup>

## METHODS

An IRB-approved online questionnaire was distributed to North American optometrists via email and social media. This survey method was chosen because of the ease of administration and data analysis as well as the likelihood of the survey to be completed by participants. Emails including a link for the survey were sent to all state optometric associations and were distributed to their members by email or by including the link to the questionnaire in the state's monthly newsletter. In addition, the link for the questionnaire was posted on a social media group for members of the optometric profession with over 23,000 members. It should be noted that members of the social media group are not exclusively optometrists and include opticians, office managers, distributors as well as suppliers. Only doctors of optometry were invited to complete the survey. Also, there is overlap between members of state associations and members of the social media group so the questionnaire asked that the survey be completed only once by an individual. The online survey software tool, QuestionPro, was used to collect data and allowed participants to submit the questionnaire electronically with no identifying information. See Appendix 1 for the sample survey. Data from the survey was then automatically exported to Microsoft Excel which allowed for avoidance of any transcribing errors.

## RESULTS

In total, 315 subjects participated in the survey. Not all participants answered every question which is addressed in the specifics below. Table 1 describes the primary practice focus of the cohort. The participants were asked to choose one response that reflected their primary focus even if they have one or more other areas of focus. The most common practice focus of the cohort was primary care (Table 1). A large variance was observed in the participants' practice settings. The highest percentage of respondents (30.25%) reported self-employed solo practice and with second highest (17.20%) reported self-employed partnership. Response distribution by state is reported in Figure 1. There were 310 responses to the question. The majority of responses came from Michigan (79 respondents) followed by Georgia (34 respondents), and Pennsylvania (33 respondents). Table 3 represents a summary of the survey questions with percentages of each response listed.

Of the 314 responses received, (74.93%) responded that they sometimes, seldom or never refer patients for low vision services. The most common reason for not referring patients was that the practitioner does not feel that they have a patient base with low vision needs. Over half of the respondents reported that they would not consider referring for these services unless the patient's visual acuity was 20/100 or worse. Table 4 lists other participant-generated responses for why practitioners do not refer for low vision rehabilitation services.



Of practitioners responding that they indeed examine low vision patients, less than 1/3 report always educating their patients about available low vision rehabilitation services. In order for patients to receive low vision rehabilitation services, the first step is for optometrists to educate their patients on available providers and resources.

About 60% of respondents were aware that some insurance companies cover the costs of low vision devices. Although, Medicare typically provides coverage for low vision rehabilitation services, it does not cover vision assistive equipment or devices, even if they are necessary for everyday functions and safety. Due to the fact that many types of low vision devices contain a lens, the Center for Medicare and Medicaid Services (CMS) classifies them in the same category as eyeglasses and contact lenses, which is not covered under Medicare's policy.<sup>16</sup>

Of those providing low vision services, the most commonly prescribed devices are magnifiers including stand, hand-held and illuminated magnifiers. The next most commonly prescribed device is a high plus lens for near (add). Other responses to commonly prescribed devices included tints/task lighting, computer software and iPad apps, CCTV's, telescopes, microscopes, prism therapy, and bioptic telescopes.

*Table 1. Primary Practice Focus of the Cohort*

<i>Primary Practice Focus</i>	<i>N</i>	<i>%</i>
Primary Care	<b>228</b>	<b>72.38%</b>
Contact Lenses	12	3.81%
Disease	31	9.84%
Pediatrics	9	2.86%
(Low) Vision Rehabilitation	16	5.08%
Vision Therapy	8	2.54%
Other	11	3.49%
<b>TOTAL responses</b>	<b>315</b>	<b>100%</b>

*Table 2. Primary Practice Setting of the Cohort*

<i>Primary Practice Setting</i>	<i>N</i>	<i>%</i>
Self-Employed Corporate Lease	16	5.10%
Self-Employed Solo Practice	<b>95</b>	<b>30.25%</b>
Self-Employed Partnership	54	17.20%
Employed by Optometrist(s)	48	15.29%
Employed by Ophthalmologist(s)	37	11.78%
Employed by Government/Military/Veteran Administration hospital	11	3.50%
Employed by Corporate Retailer	16	5.10%
Employed by Educational Institution	16	5.10%
Other	21	6.69%
<b>TOTAL responses</b>	<b>314</b>	<b>100%</b>

*Figure 1. Response Distribution by State*

Note: States without a number represent no responses were received.

Total Responses: 310



*Table 3. Summary of Survey Questions and Percentage of Responses*

Question	Answer Choice and Percent of Respondents					
Do you refer patients for low vision rehabilitation services? (314)	Yes, Always 11.15%	Yes, Often 15.92%	Yes, Sometimes 23.57%	<b>Yes, Seldom 34.39%</b>	No 14.97%	
If answered “No” or “Yes, seldom” or Yes, sometimes” to number 4, why not? (check all that apply) (300)	Fear of losing patients .33%	No available resources in the area 18%	Not aware of available low vision resources 10.66%	<b>Do not have patient base with vision impairment 37%</b>	Lack of time 4.33%	
	Lack of patient insurance coverage for services or devices 14%	Other: low vision services are provided in house 10.33%	Other: see Table 4 5.33%			
What is the best visual acuity level at which you would consider referring for (low) vision rehabilitation services? (313)	20/40 13.74%	20/60 33.55%	<b>20/100 35.14%</b>	20/200 7.08%	None .96%	
	Other 9.58%					
Are you aware that some insurance companies cover low vision devices? (314)	<b>Yes 59.24%</b>	No 40.76%				
Do you offer any sort of entry level (low) vision rehabilitation services to your patients: pocket, stand, or handheld magnifiers; lamps; tints; high adds; handheld telescopes; low vision apps for tablets, etc.? (314)	<b>Yes 55.73%</b>	No 7%	44.2			
Do you offer secondary (low) vision rehabilitation services to your patients (such as electro-optical devices; bioptic mounted telescopes; telemicroscopes; computer software; closed circuit televisions, etc.)? (311)	Yes 21.22%	<b>No 78.78%</b>				
Do you provide or refer patients for the following rehabilitation services: home or workplace rehabilitation services; bioptic driving rehabilitation services; orientation/mobility services; support groups? (297)	<b>Yes 61.62%</b>	No 38.38%				
How often do you educate your low vision patients on available rehabilitation resources? (303)	<b>Always 27.39%</b>	Often 23.10%	Sometimes 19.80%	Seldom 15.84%	Never 2.64%	Do not have patient base with vision impairment 11.22%

*Note: number in italics and parentheses immediately following each question is the number of respondents to that question.*

*Table 4. Summary of Participant Comments Regarding Why the Practitioner Never, Seldom, or Sometimes Refers Patients for Vision Rehabilitation Services (Question 5)*

<i>Response</i>	<i>Number of Responders</i>
Lack of patient motivation	5
“Military discharges patients with visual impairment”	1
“Services are widely available in my area”	1
“Not many patients require it, so I don’t think of it when I get one”	1
“I encourage referring optometrists to manage all primary and secondary eye care needs and focus on perisurgical care only”	1
“I often refer and patients don’t want to bear out of pocket expense”	1
“Older patients especially don’t want to travel to low vision appointments or pay for equipment or technology”	1

## DISCUSSION

Individuals with vision loss face a wide range of problems and challenges and may find it difficult or impossible to carry out simple daily activities that was once accomplished with little to no effort. Studies on low vision impairments have shown that it can adversely affect quality of life, functional status, confidence, independence, and social interaction.<sup>17,18</sup> However, vision loss does not have to diminish a person’s quality of life. Instead, patients with low vision need help to learn new ways to make the most of what’s left of their vision. Several research studies have shown that low vision services are associated with high patient satisfaction. Research done by Scott et al. (1999) have shown that low vision services increased their overall functional status enabling them to do as much as or more than what they had anticipated.<sup>18</sup> Through low vision rehabilitation, patients with visual impairments are able to gain back their confidence and independence that once seemed lost.

Since there is currently no standard definition of low vision, this allows for differing opinions and interpretations of what low vision actually means. This can have a negative effect on patients who are in need of vision rehabilitation services. While the majority of primary care practitioners use a numerical definition, low vision specialists uses a more functional definition.<sup>9,19</sup> For instance, low vision specialists define low vision as any visual impairment that can hinder activities of daily living (ADLs) or quality of life while most primary eye care practitioners uses a numerical definition based on best-corrected visual acuity to determine who qualifies for vision rehabilitation.<sup>9,19</sup>

The World Health Organization classifies mild vision loss as 20/30-20/60 and moderate vision loss as 20/70-20/160.<sup>8</sup> In contrast, Medicare defines low vision as best corrected acuity worse than 20/60 with best correction.<sup>16</sup> Based on the survey, there is a clear discrepancy between how surveyed optometrists define low vision compared to national/international and insurance-based definitions. Over half of the respondents reported that they would not consider referring for these services unless the patient’s visual acuity was 20/100 or worse. Anytime a patient is unable to

function at a previous level because of vision loss could be considered an impairment which may be different from a numerical definition.<sup>9,19</sup> This is because a numerical definition does not take into account the challenges associated with vision loss or the patient's quality of life. Therefore, in order to provide quality care for people with low vision and ensure proper utilization of vision rehabilitation services, a universal standard definition is required that takes into account functional abilities.

Based on the prevalence of visual disability calculated by the Bureau of the Census, the National Center for Health Statistics, and the Bureau of Labor Statistics, the number of adults (age 16+) reported to have a visual disability was 7,327,800 in 2013. These agencies reported the number of children having a visual disability in 2013 was 694,300.<sup>20</sup> Based on these numbers, it is likely that eye care practitioners indeed have a patient base with low vision rehabilitation needs even though 37% of respondents' answered that they do not refer for low vision rehabilitation services because they do not have a patient base with vision impairment.

It is projected that the number of Americans over the age of 65 will more than double between 1995 and 2030, the demand for low vision rehabilitation services continues to increase as these senior citizens suffer more vision loss than any other age group.<sup>20,21,23</sup>

However, the number of optometrists practicing low vision rehabilitation remains low. Our survey results show that just over half (55.73%) of the participants offer any sort of entry level low vision rehabilitation services but that number drops significantly when asked if they provide secondary services such as electro-optical devices, bioptic mounted telescopes, telemicroscopes exc., making accessibility to these important low vision rehabilitation services an ongoing issue.

As of 2012, approximately 40,000 of optometrists and 18,000 ophthalmologists are in practice in the United States.<sup>24</sup> Despite the clear benefits of vision rehabilitation, there is still a great number of patients missing out on these services due to patient barriers, lack of standard definition of low vision, accessibility, awareness, and low referral rates. Although the majority of primary eye care practitioners claim that they do provide resources and/or educate their patients about vision rehabilitation services, a great majority of low vision rehabilitation providers state that their patients were unaware of the resources available to them.<sup>19</sup> In addition, our study shows that approximately half of optometrists seldom or never educate their patients about vision rehabilitation and how it can have a positive impact on their overall life. In addition, there is inefficient communication between practitioners and patients. Our study reveals that the majority of optometrists (79.93%) either sometimes, seldom, or never refer patients for rehabilitation services. Therefore, effective communication between primary eye care providers and their low vision patients is key to vision rehabilitation referrals.

## CONCLUSION

While there have been a great number of studies exploring patient barriers to vision rehabilitation services, there is still a lack of research regarding low referral rates among fellow optometrists to low vision rehabilitation providers. Poor referral rates among eye care practitioners for low vision rehabilitation hampers patients with visual impairment or blindness who can benefit greatly from these services. Low vision rehabilitation often requires an integrative process between many different professionals aimed to help patients with visual impairment or blindness learn new ways to compensate for their vision loss, provide emotional support, increase their functional status, and enhance their quality of life. Low vision patients are more likely to follow through if they are aware of the available resources, receive the information at the time of service, and understand the benefits of vision rehabilitation.

The findings of the current study suggests that many patients with visual impairments could benefit greatly from low vision rehabilitation services but are not getting the referral from their eye care providers due to lack of education. Low vision impairments can greatly affect an individual's quality of life. However, low vision services can help to restore and maximize functional vision and enhance quality of life in individuals with visual impairments. Through our research, we hope that eye care providers educate their low vision patients accordingly and refer them to low vision services for those who meet the criteria. Further research needs to be done to determine the most efficient methods and communication strategies for referring for low vision rehabilitation services.

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1. What is your practice focus?
  - a. Primary Care
  - b. Contact Lenses
  - c. Disease
  - d. Pediatrics
  - e. (Low) Vision Rehabilitation
  - f. Other (please specify: \_\_\_\_\_)
  
2. What is your primary practice setting?
  - a. Self-Employed Corporate Lease
  - b. Self-Employed Solo Practice
  - c. Self-Employed Partnership
  - d. Employed by Optometrist(s)
  - e. Employed by Ophthalmologist(s)
  - f. Employed by Government/Military/Veteran Administration hospital
  - g. Employed by Corporate Retailer
  - h. Other (please specify: \_\_\_\_\_)
  
3. In which state do you practice in? \_\_\_\_\_
  
4. Do you refer patients for low vision rehabilitation services?
  - a. Yes, always
  - b. Yes, often
  - c. Yes, sometimes
  - d. Yes, seldom
  - e. No
  
5. If answered "No" to number 3, why not? (check all that apply)
  - a. Fear of losing patients
  - b. No available resources in the area
  - c. Not aware of available low vision resources
  - d. Do not have patient base with vision impairment
  - e. Lack of time
  - f. Lack of patient insurance coverage for services or devices
  - g. Other (please specify: \_\_\_\_\_)
  
6. What is the best visual acuity level at which you would consider referring for (low) vision rehabilitation services?
  - a. 20/40
  - b. 20/60
  - c. 20/100
  - d. 20/200
  - e. None of the above
  - f. Other: (please specify \_\_\_\_\_)
  
7. Are you aware that some insurance companies cover low vision devices?
  - a. Yes
  - b. No

8. Do you offer any sort of entry level (low) vision rehabilitation services to your patients (such as pocket, stand, or handheld magnifiers; lamps; tints; high adds; handheld telescopes; low vision apps for tablets, etc.)?

- a. Yes
- b. No

9. If answered “YES” to question number 7, what services do you most commonly offer?

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10. Do you offer secondary (low) vision rehabilitation services to your patients (such as electrooptical devices; bioptic mounted telescopes; telemicroscopes; computer software; closed circuit televisions, etc.)?

- a. Yes
- b. No

11. Do you provide or refer for the following: (low) vision rehabilitation services to your patients (such as home or workplace rehabilitation services; bioptic driving rehabilitation services; orientation/mobility services; support groups)?

- a. Yes
- b. No

12. How often do you educate your low vision patients on available rehabilitation resources?

- a. Always
- b. Often
- c. Sometimes
- d. Seldom
- e. Never
- f. Do not have patient base with vision impairment

13. Any additional comments about providing or referring for low vision rehabilitation services?

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