Association of Ophthalmologic Disorders and Depression in the Elderly: A Review of the Literature

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ABSTRACT

Objective: To review the prevalence of depression in common ophthalmologic disorders in the elderly and provide insight into treatment.

Data Sources: PubMed, Google Scholar, and DynaMed were searched using the terms *depression* and *ophthalmology* in combination with *depression*, mood *disorders*, *cataracts*, *vision loss*, *age-related macular degeneration*, *primary openangle glaucoma*, and *Fuchs corneal dystrophy*. Articles were limited to those published in the English language between 1993 and 2013.

Study Selection and Data Extraction:

Twenty-eight articles that studied the prevalence of depression in ophthalmologic disorders were screened and summarized.

Results: The strongest association between ophthalmologic disorders and psychiatry is depression. In the future, primary care physicians and psychiatrists should play a significant role in the assessment and treatment of depression in visually impaired patients.

Conclusion: Greater recognition and treatment of depression in individuals with impaired vision is warranted.

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Published online: August 20, 2015. Corresponding author: Maju Mathew Koola, MD, DPM, Clinical Research Program, Sheppard Pratt Health System, 6501 N Charles St, Baltimore, MD 21204 (mkoola@sheppardpratt.org). The strongest association between ophthalmologic disorders and psychiatry is depression. The lifetime risk of depression is 17% in the United States,¹ and the illness has a higher prevalence in ophthalmologic disorders.² It has been shown that vision loss can nearly double the risk of depression.² A number of conditions such as age-related macular degeneration, cataracts, primary open-angle glaucoma, and Fuchs corneal dystrophy or any type of visual loss have been associated with depression.^{3–5} The definitions of these disorders are summarized in Table 1. The objective of this article is to comprehensively review the prevalence of depression in common ophthalmologic conditions in the elderly.

METHOD

PubMed, Google Scholar, and DynaMed were searched using the terms *depression* and *ophthalmology* in combination with *depression, mood disorders, cataracts, vision loss, age-related macular degeneration, primary open-angle glaucoma*, and *Fuchs corneal dystrophy*. Articles were limited to those published in the English language between 1993 and 2013. Twenty-eight articles that studied the prevalence of depression in ophthalmologic disorders were screened and summarized.

The majority of the studies used the criteria of clinically significant depressive symptoms. Scales used to diagnose depression included the Geriatric Depression Scale, the Center for Epidemiologic Studies Depression Scale, the Structured Clinical Interview for *DSM-IV* Axis I Disorders, the Hospital Anxiety and Depression Scale, the Hamilton Depression Rating Scale (HDRS), and the Montgomery-Asberg Depression Rating Scale.

RESULTS

Age-Related Macular Degeneration

Age-related macular degeneration is a condition of abnormal proliferation of blood vessels under the retina causing loss of central vision. The prevalence of depression in age-related macular degeneration ranges from 33%–44%.^{3,4,6,7} These values are much higher than standard rates of depression in the elderly and are similar to those of patients who have been diagnosed with cancer.^{8,9} Since age-related macular degeneration is the most common cause of irreversible vision loss and blindness in those over 65 years of age in the developed world, this strong association should not be ignored.¹⁰

In a study by Brody and colleagues,¹¹ 291 patients with advanced age-related macular degeneration and depression were assigned to a 12-hour self-management program (n = 86), a series of 12 hours of tape-recorded health lectures (n = 74), or a waiting list (n = 72) in a randomized controlled trial (RCT). The self-management program was effective in individuals with age-related macular degeneration and depression.¹¹ This effect lasted even after 6-month follow-up.¹²

In 16 individuals with age-related macular degeneration,¹³ 12 had major depression and 4 had minor depression according to the HDRS. Escitalopram was significantly better than placebo in reducing HDRS scores.¹³ Another RCT¹⁴ compared problemsolving treatment to usual care in elderly patients with age-related macular degeneration and depression and found a significant reduction in depressive symptoms 2 months after 6 problem-solving treatment sessions over 8 weeks. However, this reduction was lost by 6-month follow-up.¹⁴

- The strongest association between ophthalmologic disorders and psychiatry is depression.
- Greater recognition of depression in individuals with impaired vision and the initiation of appropriate pharmacologic and psychosocial interventions are required.
- In the future, primary care physicians and psychiatrists should play a significant role in the assessment and treatment of depression in visually impaired patients.

Cataracts

Although age-related macular degeneration is the most common cause of irreversible vision impairment in the elderly, cataracts are the most common cause of reversible vision impairment in the same population, affecting more than half of people over the age of 65 years.¹⁵ Similar to age-related macular degeneration, cataracts also have been linked to depression.¹⁶ However, in contrast to age-related macular degeneration and other irreversible causes of vision impairment, cataracts can be treated by artificial replacement of the lens via cataract surgery.

An RCT¹⁷ showed a postoperative improvement of mood after cataract surgery. This finding is further supported by a retrospective cohort study,¹⁸ which found an 18% reduction in mental health care visits for depression and anxiety 1 year after cataract surgery compared to the previous year, resulting in a 28% decrease in mental health care costs. However, 1 study¹⁹ found no improvement of depressive symptoms in patients with cataracts after surgery. This finding was attributed to the idea that many factors contribute to depression and that treating only 1 aspect (cataracts) did not lead to a significant improvement in the patients' depression.¹⁹ Nonetheless, it can be concluded that there is a significant amount of data suggesting that a strong link exists between cataracts and depression.

Glaucoma and Fuchs Corneal Dystrophy

Other ophthalmologic conditions that cause visual impairment, such as glaucoma and Fuchs corneal dystrophy, also have been shown to have a high prevalence of depression (29% and 30%, respectively).⁴ Focusing specifically on glaucoma, there have been mixed results, with some studies showing a strong association with depression and others showing no significant association.^{4,20,21} This discrepancy has led researchers to look at specific types of glaucoma and their association to depression.

Primary open-angle glaucoma is the most common type of glaucoma²² and has a chronic course and a variety of causes. Primary closed-angle glaucoma is a medical emergency without a chronic course and will not be covered in this review. The most common cause of primary open-angle glaucoma in some countries is the subtype pseudoexfoliative glaucoma, which is the result of a vascular disease called pseudoexfoliative syndrome. One study²³ found a strong association between pseudoexfoliative glaucoma and depression, but not between other types of primary open-angle glaucoma and depression.

Table 1. Ophthalmologic Disorder Definitions	
Ophthalmologic	
Disorder	Definition
Age-related macular degeneration	A condition of abnormal proliferation of blood vessels under the retina causing loss of central vision
Cataract	A cataract is a clouding of the lens inside the eye that leads to a decrease in vision; it is the most common cause of reversible vision impairment in the elderly
Glaucoma	A group of ocular disorders that result in optic nerve damage and often are associated with increased intraocular pressure
Fuchs corneal dystrophy	A slowly progressing corneal dystrophy that usually affects both eyes

This finding²³ suggests that the particular type of glaucoma is important in relation to risk for depression. Glaucoma causes peripheral visual impairment, whereas age-related macular degeneration and Fuchs corneal dystrophy cause central visual impairment. Peripheral visual impairment with glaucoma may not negatively affect activities of daily living as much as central vision impairment, and this may explain why some studies do not show strong associations with depression.⁴ Some researchers have hypothesized that depression related to glaucoma could be due in part to the medications that glaucoma patients receive such as β -blockers.²⁴ However, multiple studies have suggested that there is no association between depression and the topical β -blockers that glaucoma patients use.^{20,25} Hence, the disease itself is more likely to be a contributing factor than the medication.

General Visual Impairment

Since conditions such as age-related macular degeneration, cataracts, glaucoma, and Fuchs corneal dystrophy cause vision loss, and there is a strong association between these disorders and depression, it is reasonable to think that any condition causing vision impairment could be associated with depression. A cross-sectional study by Evans and colleagues⁵ looked at the association between vision impairment and depression and anxiety in the elderly. They found a strong link only to depression, maintaining that visually impaired individuals are at a 25% increased odds of depression. This finding is further supported by studies in which there is a 2-fold¹² and a 4-fold²⁶ increased odds of depression. The current hypothesis of the link between vision impairment and depression is that vision impairment leads to a loss of functioning and activities of daily living, which then leads to depression.⁵ Therefore, the association is an indirect one. Moreover, depression also has been shown to decrease an individual's basic functioning and ability to perform activities of daily living, thus perpetuating the original stimulus that led to depression in the first place and creating a vicious cycle of vision loss and depression with poor functioning.

Nurses play a significant role in managing depression in older people with visual impairment. They effectively deliver psychosocial care to meet patients' needs for help and support to alleviate depression. This support provides a basis for resuming independence and maintaining quality of life. Providing psychosocial support to the older person and his or her family or caregiver and providing education and advice about formal counseling and emotional support services are all important aspects of care.²⁷

CONCLUSION

With all of the associations mentioned, it may be beneficial for practicing primary care physicians, ophthalmologists, and psychiatrists to take extra care and screen more specifically for depression in those with age-related macular degeneration, cataracts, primary open-angle glaucoma, Fuchs corneal dystrophy, or any type of visual impairment or blindness. Unfortunately, studies have shown that only a small percentage of elderly individuals with comorbid vision impairment and depression are being diagnosed and treated accordingly.²⁸ More intense depression treatment for individuals with ocular conditions may be required considering that their relapse rates are fairly high. Treatment strategies aimed at teaching these patients to cope with the vision loss associated with age-related macular degeneration combined with cognitive-behavioral therapy might help and significantly improve the quality of their lives.³ Researchers have hypothesized why depression is specifically associated

Drug names: escitalopram (Lexapro and others). **Author affiliations:** Doctor of Medicine Program, Saba University School of Medicine, Saba, Dutch Caribbean (Dr McCusker); and Clinical Research Program, Sheppard Pratt Health System, Baltimore, Maryland (Dr Koola).

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with ocular disorders.⁴ They determined that certain ocular conditions such as age-related macular degeneration, Fuchs corneal dystrophy, and glaucoma cause a fear of falling and poor balance and prevent these individuals from driving, thus reducing an individual's life space (the area an individual covers on a daily basis). Through this reduction of life space, there is an increased risk of depression. Therefore, research focusing on increasing this particular population's mobility and life space may be enough to prevent depression in some patients.⁴ Popescu and colleagues⁴ also address the potential uncontrolled effects of age, cognitive status, comorbidities, medications, and other known effect modifiers and confounders that may be associated with depression.

In summary, greater recognition of the psychiatric challenges faced by individuals with impaired vision as well as the initiation of appropriate interventions for this population are required. With the aid of this review, primary care physicians, ophthalmologists, and psychiatrists can become more familiar with these associations and provide appropriate care to those with ophthalmologic disorders and depression. In the future, primary care physicians and psychiatrists should play a significant role in the assessment and treatment of depression in visually impaired patients.

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