Vision in FOCUS

ophthalmic insights from a normal population

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On May 24, 2024, Lena Havstam Johansson defended her thesis "Visual function and functional vision – ophthalmological perspectives on a normal population" at the Dept. of Clinical Neuroscience, Institute of Neuroscience and Physiology, Sahlgrenska Academy, University of Gothenburg, and Dept. of Ophthalmology, Sahlgrenska University Hospital, Mölndal, Sweden. The main supervisor was Prof. Madeleine Zetterberg, MD, Dept. of Clinical Neuroscience, and the co-supervisors Associate Prof. Hanna Falk Erhag, RN, and Prof. Ingmar Skoog, MD, Dept. of Psychiatry and Neurochemistry, Centre for Ageing and Health, all at the Institute of Neuroscience and Physiology, Sahlgrenska Academy, University of Gothenburg.

Key points:

- Being 70 years-old does not mean you will have low vision.
- Measuring IOP will not catch glaucoma.
- Contrast sensitivity is important to measure to understand the patient's point of view.
- Socioeconomic and emotional factors influence visual ability.

With an aging population, vision health is vital for maintaining independence, well-being, and quality of life. The aim of this thesis was to investigate visual function and functional vision among 70-year-olds in Gothenburg, Sweden. A randomized sample of 1,203 participants completed questionnaires on somatic health, social factors, and well-being. Of these, 560 underwent comprehensive ophthalmic examinations, including assessments of visual acuity (VA), contrast sensitivity (CS), and visual field (VF).

Good vision in 70-year-olds but refractive errors

In the first study, participants reported the most common eye diseases as cataract (23%), age-related macular degeneration (4.7%), glaucoma (4.3%), and diabetic retinopathy (1.4%). Only cataract showed a gender difference, affecting more women (27%) than men (19%). Most participants (88%) had normal central VA, and 99% met WHO's standard for normal vision. Men had better VA than women. About 62% had refractive errors, and low CS was associated with poorer vision. People with cataract or AMD reported worse vision-related quality of life (VRQoL) than those with glaucoma or diabetic retinopathy. Overall, VRQoL also showed gender differences.

Glaucoma does not affect quality of life

The second study found glaucoma prevalence comparable to global rates, indicating many undiagnosed cases. Known glaucoma was present in 2.1% and previously undiagnosed glaucoma in 2.7% of participants, while some self-reports were reclassified as ocular hypertension. Risk factors included family history and high intraocular pressure (IOP), although 67% of new cases had normal IOP. VA and CS were similar in those with and without glaucoma. The third study showed that glaucoma itself did not significantly affect VRQoL, whereas lower income did. Financial limitations likely reduced access to glasses or eye care. Although individuals with glaucoma reported poorer general health, their overall QoL—including physical, emotional, and social functioning—was unaffected.

Misunderstanding one's own visual capacity

The fourth study examined individuals who misjudged their visual ability, representing 9% of the population. Perceived visual function was strongly influenced by socioeconomic and emotional factors. Group A included participants with low visual acuity who nonetheless reported good vision; most were women without proper spectacles and displayed more extroverted personality traits. Group B comprised individuals with normal vision who perceived their eyesight as poor. This group had lower education levels, more reported eye diseases, and a reduced sense of meaning in life, suggesting lower stress-coping capacity.

Remaining questions:

- Would regularly using VRQoL questionnaires enhance clinicians' understanding of patient experiences, identify vision impacts not detected with standard exams, and inform more personalized care?
- Could future interdisciplinary research combining medical and social perspectives explore how low income, limited education, and awareness of social support systems affect VRQoL?

References

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