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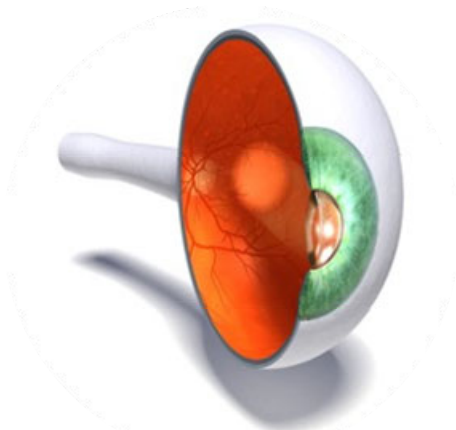


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Vision, Cognition, and Functioning in Older Adults



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Outline

- Epidemiology and definitions
- Cognitive and vision impairments impact functioning
- Functioning impacts well-being
- Implications for optimal aging

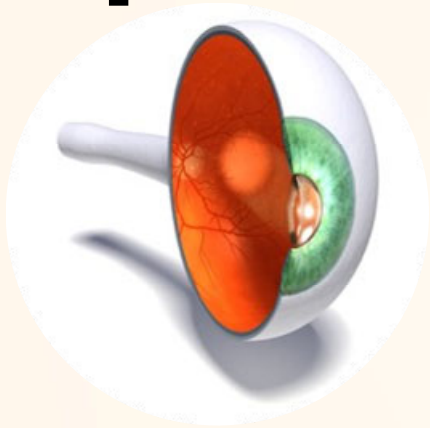


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Epidemiology



9%



14%



4%

Prevent Blindness. <http://www.visionproblemsus.org/>.
Alzheimer's Association. 2018 Alzheimer's Disease Facts and Figures.
NASEM. *Making Eye Health a Population Health Imperative*. National Academies Press. 2016.



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Vision impairment



National Institutes of Health. Public Domain.



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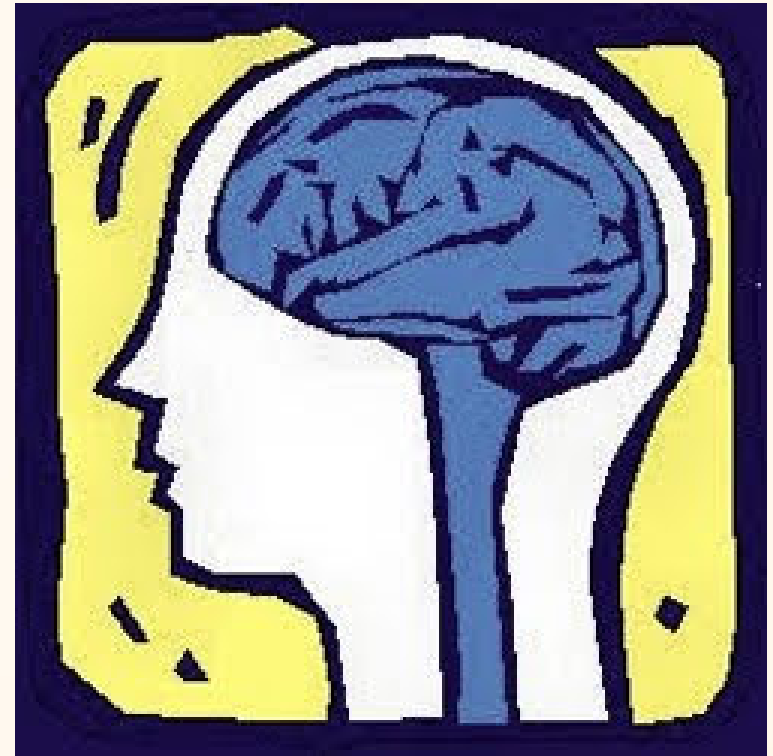
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Cognition

- ✓ Learning & memory
- ✓ Language
- ✓ Executive function
- ✓ Complex attention
- ✓ Perceptual motor
- ✓ Social cognition

American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), American Psychiatric Association, Arlington, VA, 2013.

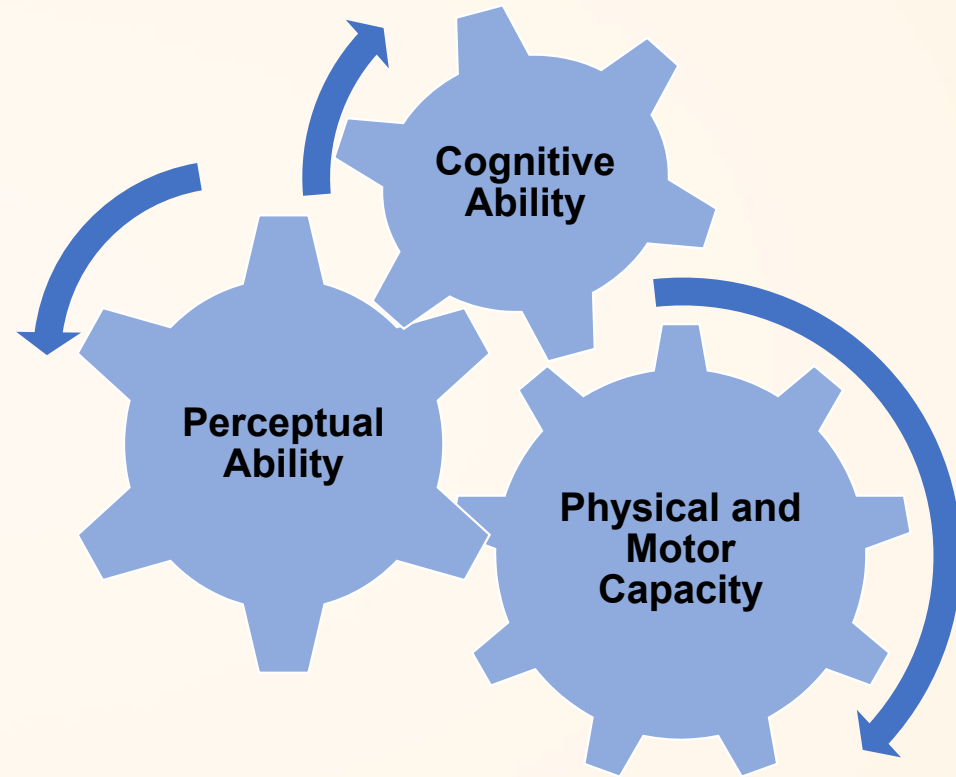
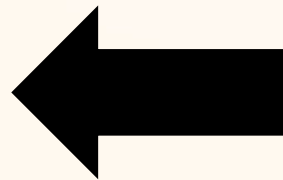


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Functioning



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Optimal aging

✗ Successful aging

✗ Healthy aging

✓ Optimal aging



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Cognition and functioning

Self-Care & Mobility (ADLs)

- Affected later in dementia
 - bathing, dressing

- Attention, visuospatial function

Life Activities (IADLs)

- Affected earlier
 - managing finances

- Executive function

Jekel K, et al. Mild cognitive impairment and deficits in instrumental activities of daily living: a systematic review. *Alzheimers Res Ther.* 2015;7(1):17.
Mlinac ME, Feng MC. Assessment of Activities of Daily Living, Self-Care, and Independence. *Arch Clin Neuropsych.* 2016. 31(6):506-516.

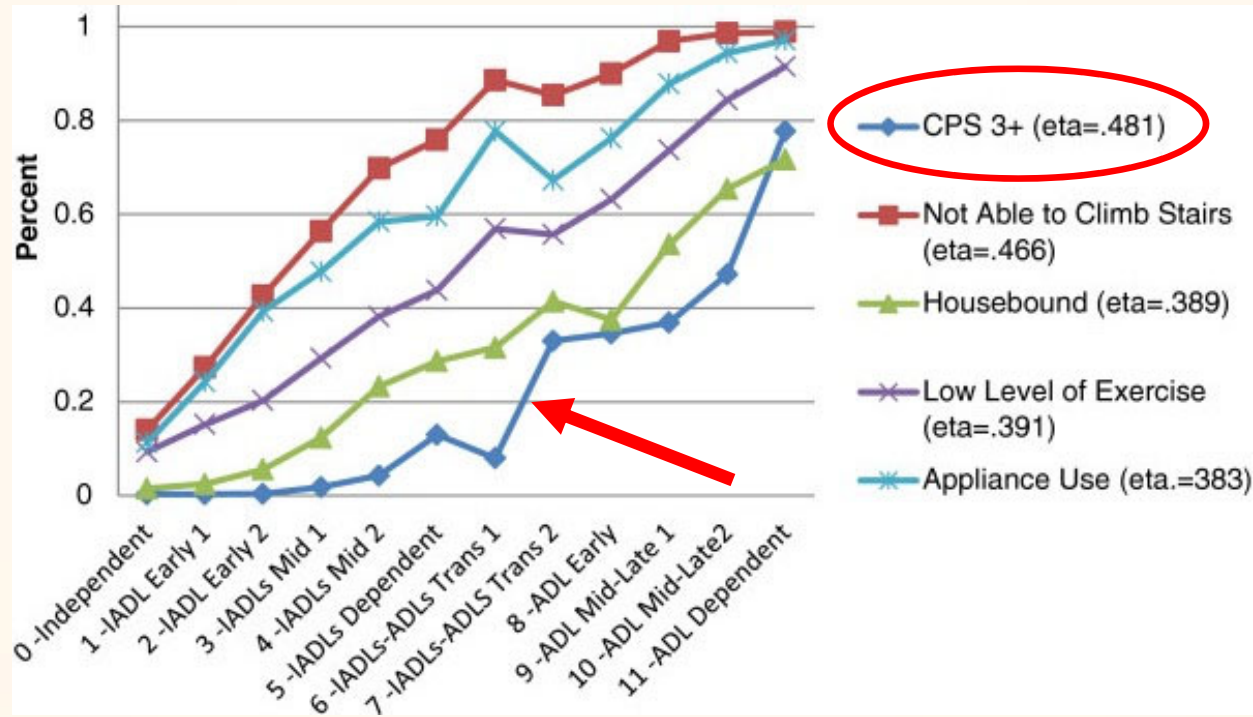


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Cognition and functioning



Morris JN, et al. Scaling functional status within the interRAI suite of assessment instruments. *BMC Geriatrics*. 2013;13:128.



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Vision and functioning

Salisbury Eye Evaluation

- Visual acuity, contrast sensitivity, visual fields matter
- Gradual performance declines (no threshold)
- Mobility disability with severe vision loss



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Turano KA et al. Association of visual field loss and mobility performance in older adults: Salisbury Eye Evaluation Study. *Optom Vis Sci.* 2004;81(5):298.
West SK, et al. How does visual impairment affect performance on tasks of everyday life? The SEE Project. *Arch Ophthalmol.* 2002;120:774-780.



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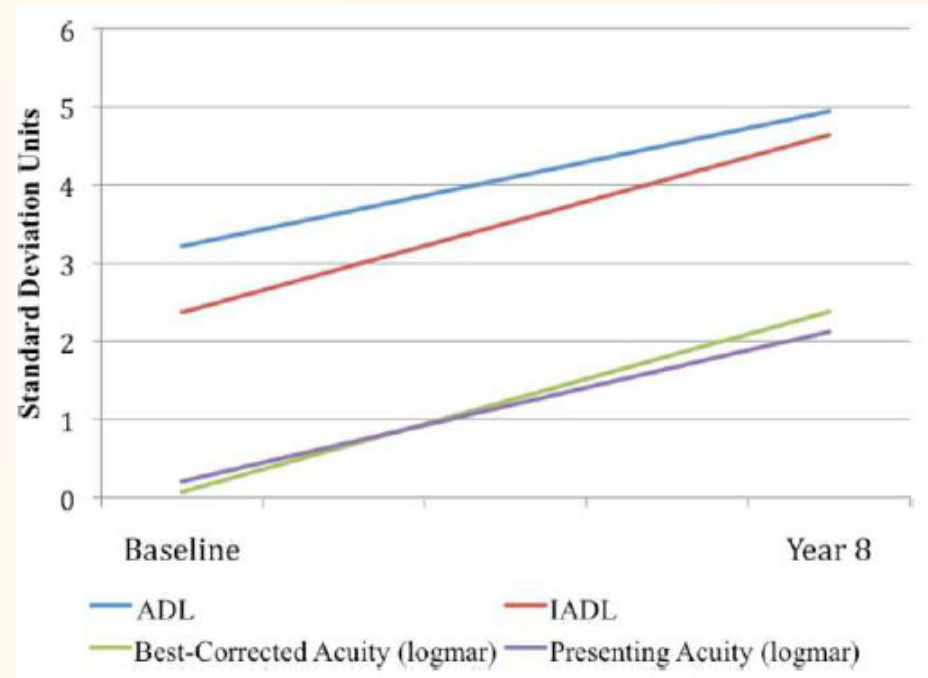
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Vision and functioning

Salisbury Eye Evaluation

- 8 years follow-up
- Worse vision → worse function
- Supports causality



Lam BL, et al. Longitudinal relationships among visual acuity and tasks of everyday life: the Salisbury Eye Evaluation Study. *Invest Ophthalmol Vis Sci.* 2013;54(1):193.



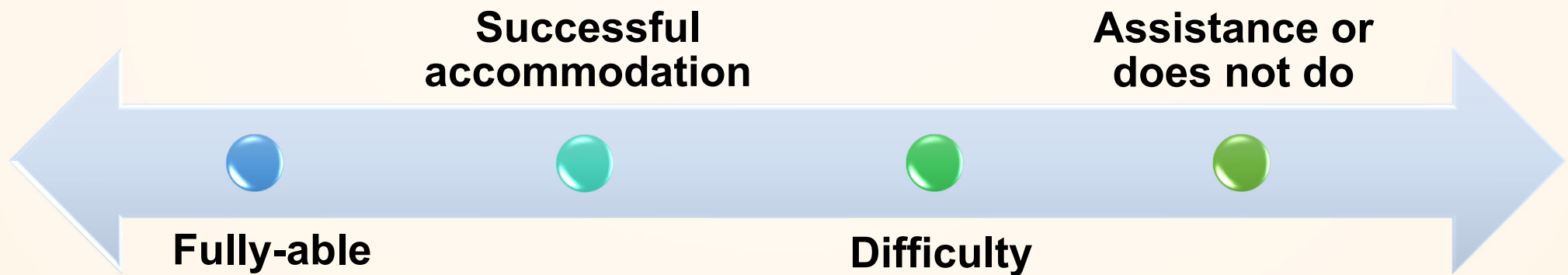
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Vision and functioning

National Health and Aging Trends Study (NHATS)



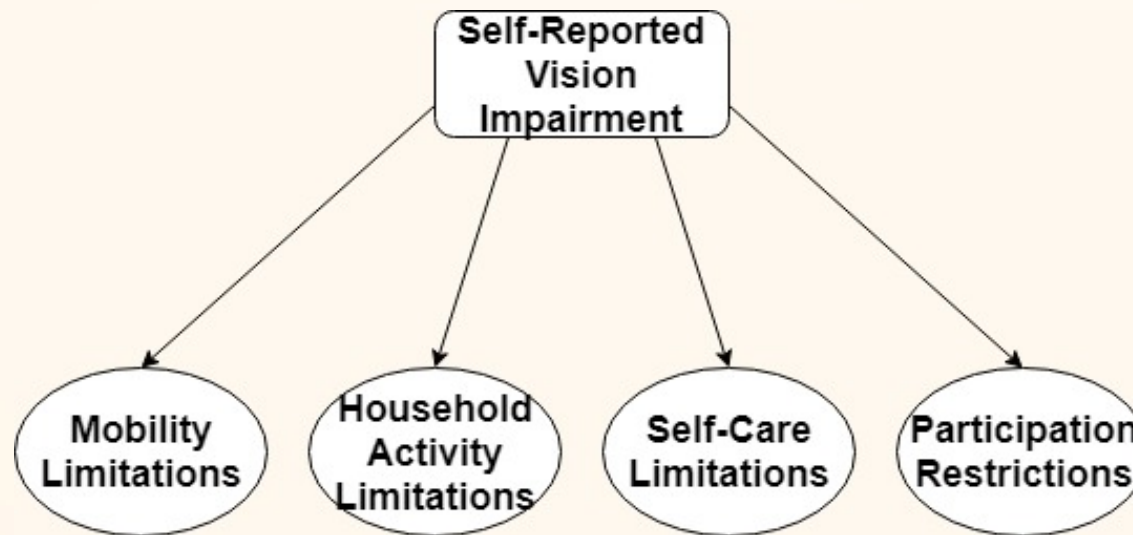
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Vision and functioning

National Health and Aging Trends Study (NHATS)



Xiang X. Self-reported Vision Impairment and Subjective Wellbeing in Older Adults: A Longitudinal Mediation Analysis. *J Gerontol A Biol Sci Med Sci.* 2019; doi:10.1093/gerona/glz148.



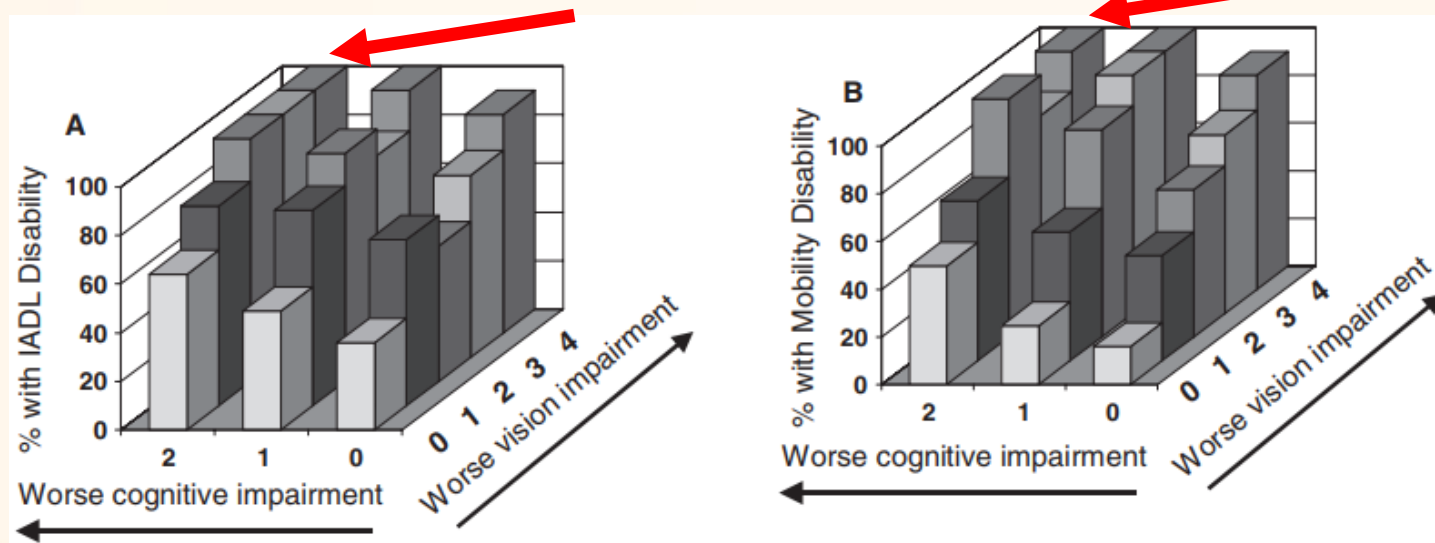
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Vision, cognition, and functioning

- Less evidence on impact of **comorbid** vision-cognitive impairment



Whitson HE, et al. The combined effect of visual impairment and cognitive impairment on disability in older people. *J Am Geriatr Soc.* 2007;55:885.

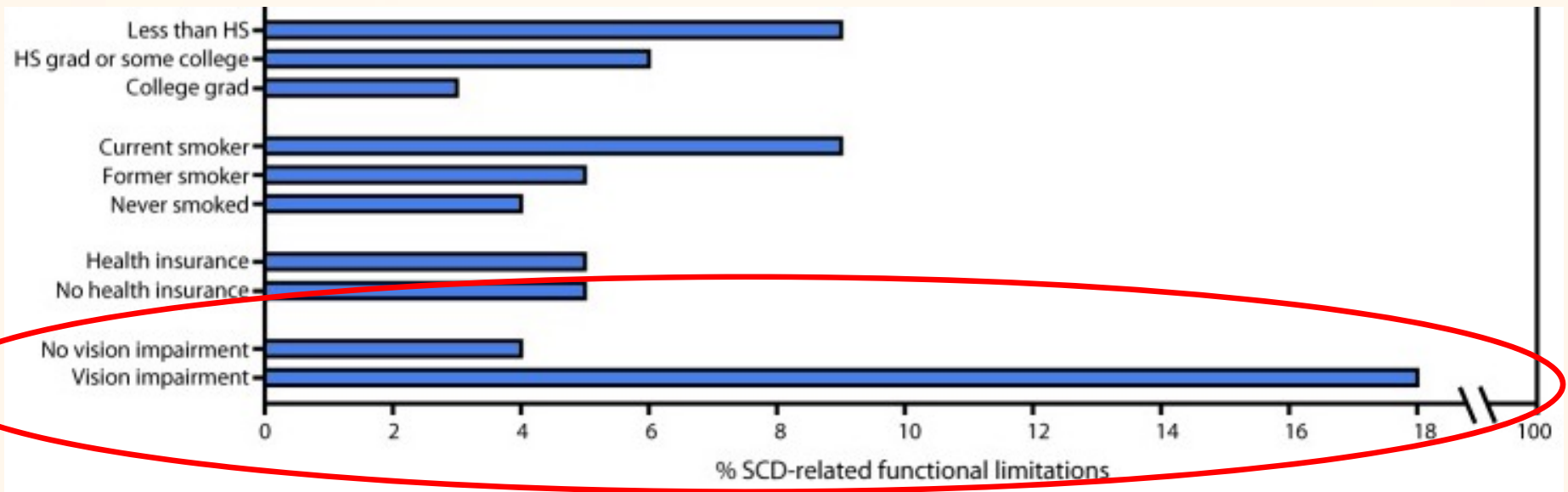


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Vision, cognition, and functioning



Saydah S et al. Vision impairment and Subjective Cognitive Decline–Related Functional Limitations—United States, 2015–2017. *MMWR Morb Mortal Wkly Rep.* 2019;68:453–7.



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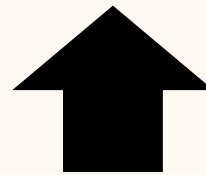
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Implications for Optimal Aging

- Activity limitations affect health-related quality of life and well-being
- Not all activity limitations have same impact

- Walking and bathing
- Bathing and dressing
- Walking and transferring

greater impact



less impact

Sims T, et al. Simple counts of ADL dependencies do not adequately reflect older adults' preferences toward states of functional impairment. *J Clin Epid.* 2008;61:1261.

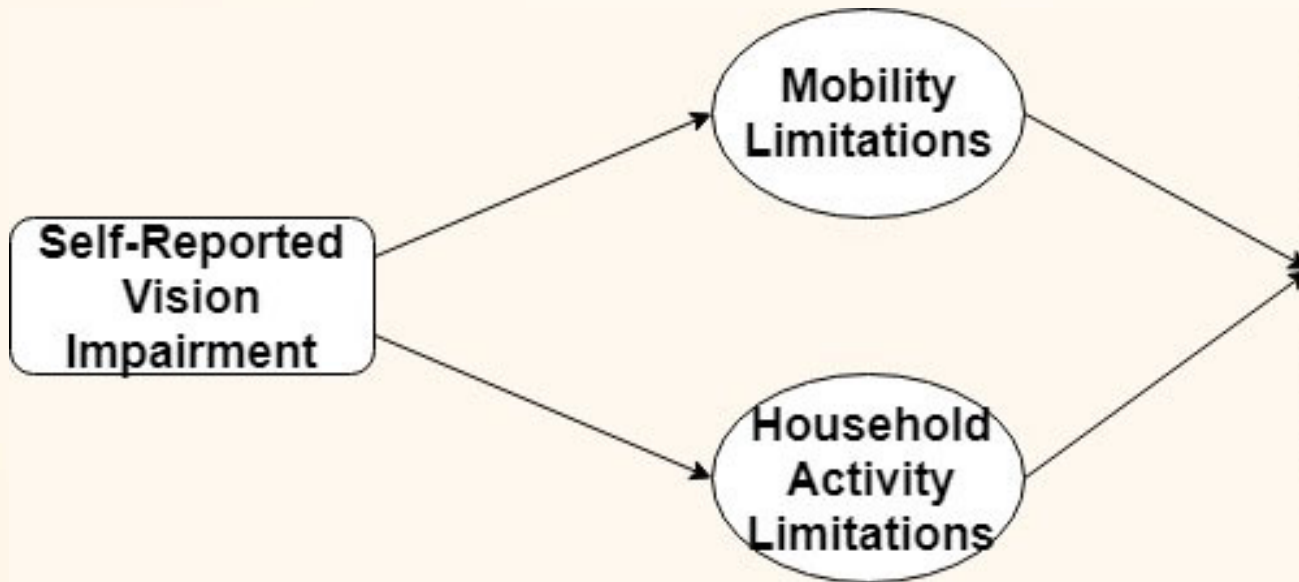


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Implications for Optimal Aging



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Xiang X. Self-reported Vision Impairment and Subjective Wellbeing in Older Adults: A Longitudinal Mediation Analysis. *J Gerontol A Biol Sci Med Sci.* 2019; doi:10.1093/gerona/glz148.



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Implications for Optimal Aging

Assistance/Unable

Difficulty

Successfully
accommodating

Fully-able

Original Investigation | SOCIOECONOMICS AND HEALTH SERVICES

A Low-Vision Rehabilitation Program for Patients With Mild Cognitive Deficits

Heather E. Whitson, MD, MHS; Diane Whitaker, OD; Guy Potter, PhD; Eleanor McConnell, RN, PhD; Fay Tripp, OT; Linda L. Sanders, MPH; Kelly W. Muir, MD, MHS; Harvey J. Cohen, MD; Scott W. Cousins, MD

- ✓ Frequent, repetitive sessions
- ✓ Simplified training
- ✓ Companion involvement



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Vision, Cognition, and Optimal Aging



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