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EPIDEMIOLOGY

Vision impairment in a life course model of potentially modifiable dementia risk factors

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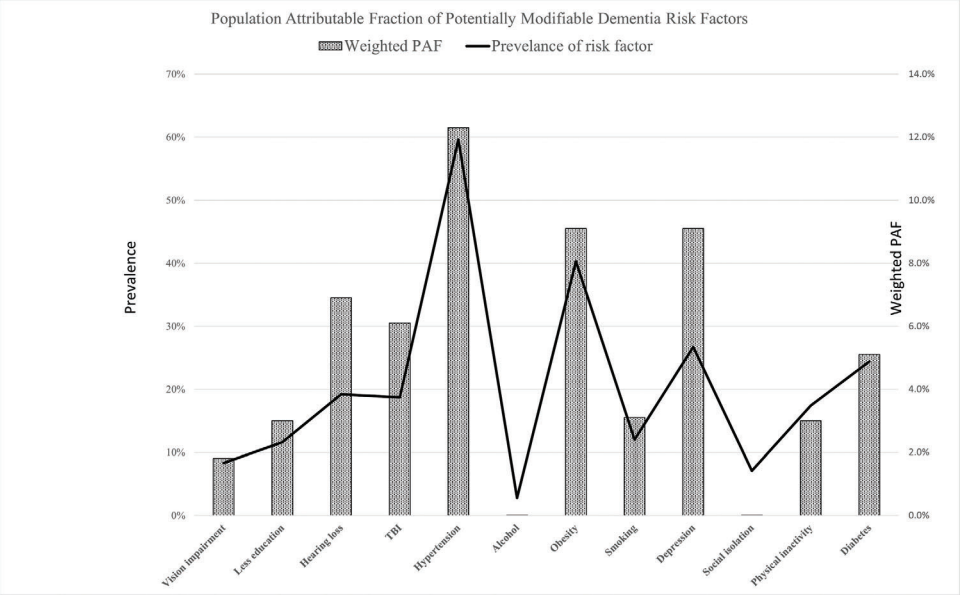
Abstract

Background: There is considerable evidence that vision impairment and blindness are a risk factor for accelerated cognitive decline and incident dementia. Additionally, up to 90% of vision impairment is preventable or has yet to be treated. Nonetheless, vision impairment has not been included in prevailing life-course models of dementia risk factors used to shape public health policy and research priorities.

Method: We calculated the population attributable fraction (PAF) of dementia for vision impairment and other potentially modifiable dementia risk factors. The relative risk of dementia was derived from published meta-analyses. Communalities and risk factor prevalence were calculated using cross-sectional survey data from the 2018 Health and Retirement Study. Data on vision impairment were derived from the CDC's Vision and Eye Health Surveillance System. All PAF values were weighted for communality (clustering of risk factors).

Result: The 12 risk factors in this model were associated with 59.8% of dementia cases in the U.S (Figure). Hypertension had the highest PAF (12.3%) among all risk factors. Vision impairment had a prevalence of 8.3% and a PAF of 1.8%, which suggests that >100,000 prevalent cases of dementia in the U.S. may have been prevented through healthy vision.

Conclusion: Vision impairment contributes significantly to existing life-course models of potentially modifiable dementia risk factors and has a magnitude similar to that of some other well accepted risk factors. A majority of vision impairment is modifiable, so this risk factor may represent an important target for future interventional research to prevent dementia.


Population Attributable Fraction of Potentially Modifiable Dementia Risk Factors
Weighted PAF
Prevelance of risk factor
Prevalence
Weighted PAF
70%
60%
50%
40%
30%
20%
10%
0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
Vision impairment
Less education
Hearing loss
TBI
Hypertension
Alcohol
Obesity
Smoking
Depression
Social isolation
Physical inactivity
Diabetes