



Supplementary Material

Modification of the Association between Visual Impairment and Mortality by Physical Activity: A Cohort Study among the Korean National Health Examinees

Kyoung-Nam Kim, Sang Jun Park, Woosung Kim, Jungmin Joo, Haebin Kim, Kyae Hyung Kim, Ji Hoon Sohn and Yong Jin Kwon

Table of Contents:

Methods: Assumed Causal Pathway and Adjusted Covariates

Table S1. Associations of visual impairment with all-cause and cause-specific mortality among the Korean national health examinees, further adjusted for physical activity.

Table S2. Associations of visual impairment with all-cause and cause-specific mortality among the Korean national health examinees, excluding individuals diagnosed with vision-threatening conditions among those classified in the no visual impairment group.

Table S3. Associations of visual impairment with all-cause and cause-specific mortality among the Korean national health examinees, including individuals with physical, auditory, language, intellectual, and mental disabilities, brain lesions, and other types of disability.

Methods

Assumed Causal Pathway and Adjusted Covariates

According to the assumed causal pathways, the covariates adjusted in the main model were age (year), sex, household income (deciles, 0–10), residing province, smoking status (non-smoker, ex-smoker, or smoker), alcohol consumption (none, 1–2, 3–4, or ≥ 5 times/week), body mass index (<18.5 , 18.5–22.9, 23–24.9, or ≥ 25 kg/m²), waist circumference (cm), systolic and diastolic blood pressure (mmHg), serum levels of fasting glucose (mg/dL), creatinine (mg/dL), aspartate aminotransferase (U/L), alanine aminotransferase (U/L), and gamma glutamyltransferase (U/L), and history of stroke (yes or no), heart disease (yes or no), hypertension (yes or no), type 2 diabetes (yes or no), dyslipidemia (yes or no), and other diseases including cancer (yes or no).

Table S1. Associations ^a of visual impairment with all-cause and cause-specific mortality among the Korean national health examinees, further adjusted for physical activity.

Visual function	No. of deaths	HR	95% CI	p-value for trend
All-cause mortality				
No visual impairment	8211	Ref.	Ref.	0.03
Mild visual impairment	34	1.16	0.81, 1.67	
Severe visual impairment	16	1.87	1.06, 3.29	
Mortality due to cardiovascular diseases				
No visual impairment	1202	Ref.	Ref.	0.03
Mild visual impairment	6	1.21	0.84, 1.75	

Severe visual impairment	5	1.80	1.02, 3.18	
Mortality due to cancers				
No visual impairment	3415	Ref.	Ref.	0.33
Mild visual impairment	9	0.83	0.39, 1.74	
Severe visual impairment	2	0.43	0.06, 3.07	
Mortality due to other diseases				
No visual impairment	3504	Ref.	Ref.	0.01
Mild visual impairment	19	1.58	0.99, 2.51	
Severe visual impairment	9	2.15	0.96, 4.79	

Note. CI = confidence interval; HR = hazard ratio; Ref. = reference. ^aAdjusted for age, sex, household income decile, residing province, smoking status, alcohol consumption, physical activity, body mass index, waist circumference, systolic and diastolic blood pressure, serum levels of fasting glucose, creatinine, aspartate aminotransferase, alanine aminotransferase, and gamma glutamyltransferase, and history of stroke, heart disease, hypertension, type 2 diabetes, dyslipidemia, and other diseases including cancer.

Table S2. Associations^a of visual impairment with all-cause and cause-specific mortality among the Korean national health examinees, excluding individuals diagnosed with vision-threatening conditions among those classified in the no visual impairment group.

Visual function	No. of deaths	HR	95% CI	p-value for trend
All-cause mortality				
No visual impairment	7250	Ref.	Ref.	0.02
Mild visual impairment	34	1.18	0.82, 1.70	
Severe visual impairment	16	1.93	1.09, 3.40	
Mortality due to cardiovascular diseases				
No visual impairment	1058	Ref.	Ref.	0.02
Mild visual impairment	6	1.23	0.86, 1.78	
Severe visual impairment	5	1.86	1.05, 3.28	
Mortality due to cancers				
No visual impairment	3060	Ref.	Ref.	0.34
Mild visual impairment	9	0.83	0.39, 1.74	
Severe visual impairment	2	0.44	0.06, 3.10	
Mortality due to other diseases				
No visual impairment	3132	Ref.	Ref.	0.004
Mild visual impairment	19	1.63	1.02, 2.60	
Severe visual impairment	9	2.25	1.01, 5.03	

Note. CI = confidence interval; HR = hazard ratio; Ref. = reference. ^aAdjusted for age, sex, household income decile, residing province, smoking status, alcohol consumption, physical activity, body mass index, waist circumference, systolic and diastolic blood pressure, serum levels of fasting glucose, creatinine, aspartate aminotransferase, alanine aminotransferase, and gamma glutamyltransferase, and history of stroke, heart disease, hypertension, type 2 diabetes, dyslipidemia, and other diseases including cancer.

Table S3. Associations^a of visual impairment with all-cause and cause-specific mortality among the Korean national health examinees, including individuals with physical, auditory, language, intellectual, and mental disabilities, brain lesions, and other types of disability.

Visual function	No. of deaths	HR	95% CI	<i>p</i> -value for trend
All-cause mortality				
No visual impairment	8554	Ref.	Ref.	0.04
Mild visual impairment	34	1.15	0.79, 1.65	
Severe visual impairment	16	1.86	1.06, 3.28	
Mortality due to cardiovascular diseases				
No visual impairment	1261	Ref.	Ref.	0.03
Mild visual impairment	6	1.20	0.83, 1.73	
Severe visual impairment	5	1.80	1.02, 3.17	
Mortality due to cancers				
No visual impairment	3509	Ref.	Ref.	0.34
Mild visual impairment	9	0.83	0.39, 1.74	
Severe visual impairment	2	0.44	0.06, 3.10	
Mortality due to other diseases				
No visual impairment	3784	Ref.	Ref.	0.01
Mild visual impairment	19	1.53	0.96, 2.44	
Severe visual impairment	9	2.12	0.95, 4.72	

Note. CI = confidence interval; HR = hazard ratio; Ref. = reference. ^aAdjusted for age, sex, household income decile, residing province, smoking status, alcohol consumption, physical activity, body mass index, waist circumference, systolic and diastolic blood pressure, serum levels of fasting glucose, creatinine, aspartate aminotransferase, alanine aminotransferase, and gamma glutamyltransferase, and history of stroke, heart disease, hypertension, type 2 diabetes, dyslipidemia, and other diseases including cancer.