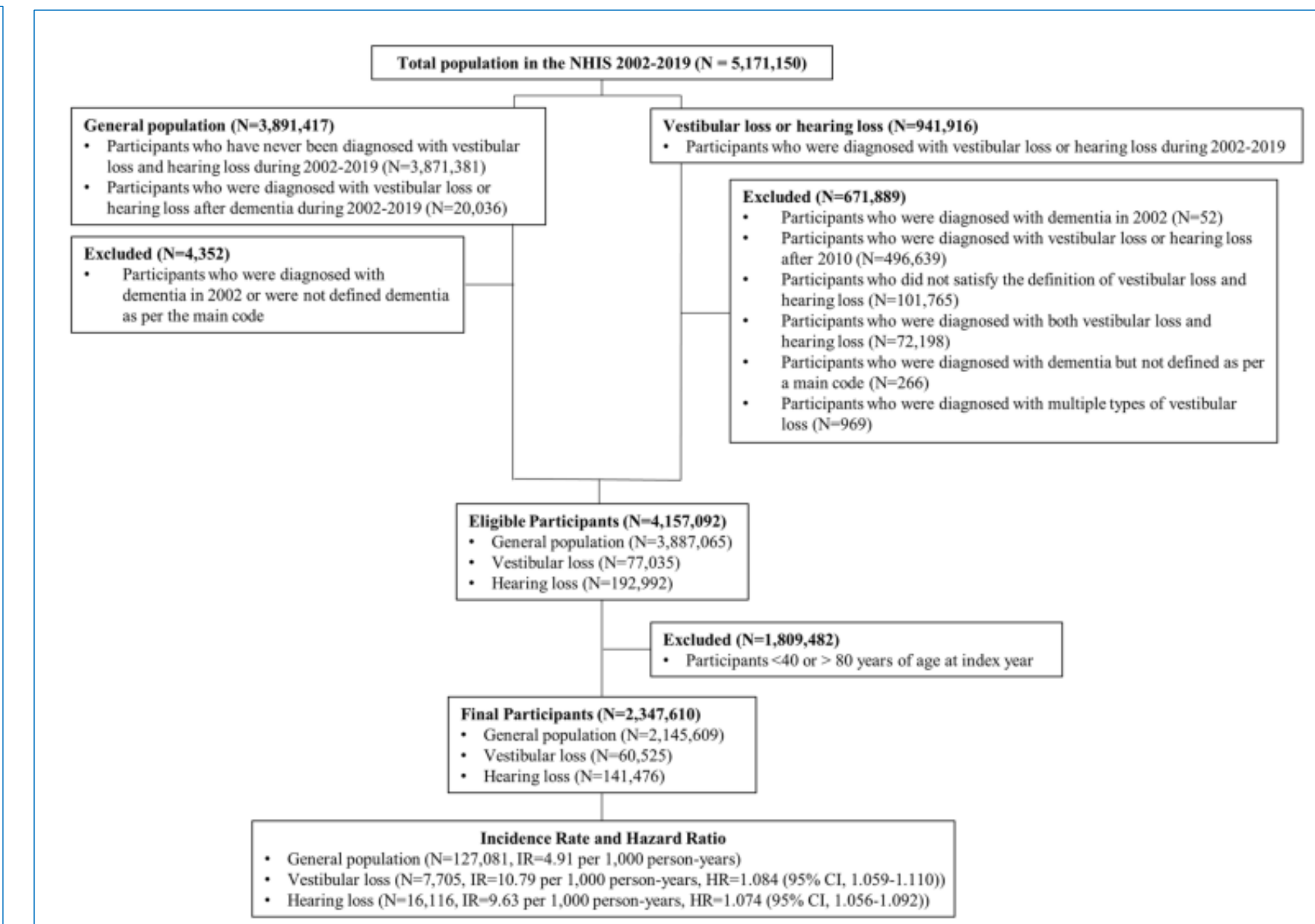


## Abstract

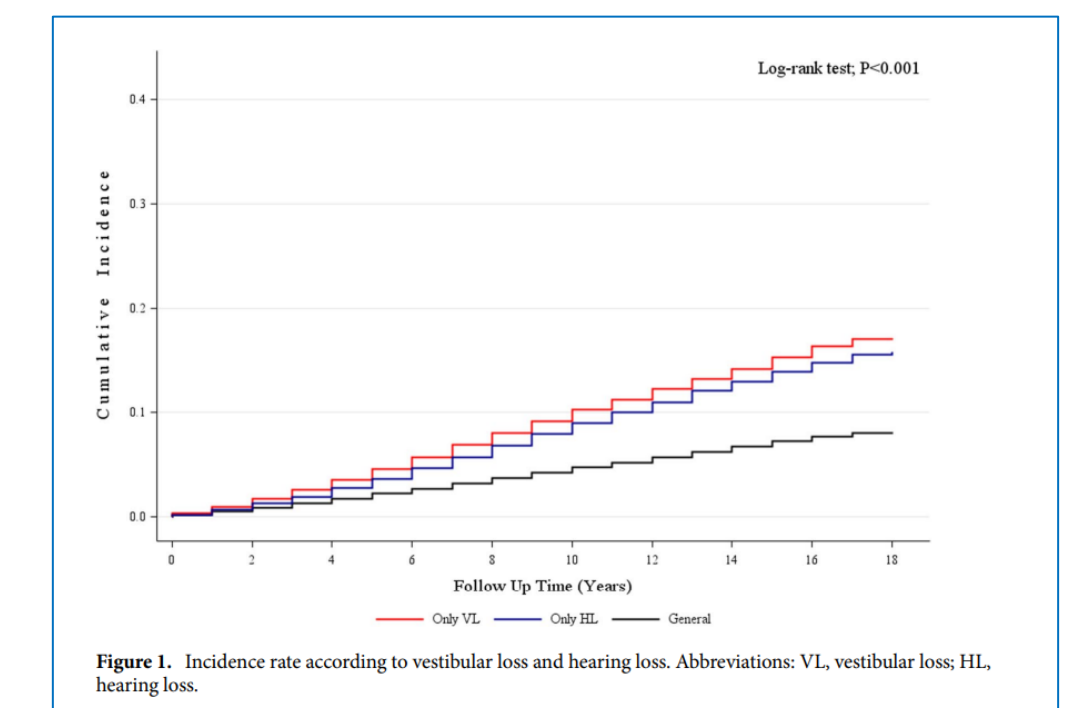
- This retrospective cross-sectional study assessed older adults aged between 40 and 80 years, registered in the Korean National Health Insurance Service database from 2002 to 2019 to investigate the association between vestibular loss and the risk of dementia. The population was divided into three groups (general, vestibular loss, and hearing loss).
- The hazard ratios (HRs) of dementia in the vestibular and hearing loss groups were calculated using national population data. In total, 2,347,610 individuals were identified (general: 2,145,609, vestibular loss: 60,525, hearing loss: 141,476). Mean ages were 53.29 years, 58.26 years, and 58.52 years, respectively.
- Dementia occurred in 127,081 (IR= 4.91 per 1000 person-years), 7705 (IR= 10.79 per 1000 person-years), and 16,116 (IR= 9.63 per 1000 person-years) patients. The vestibular and hearing loss groups had hazard ratios for dementia of 1.084 (95% CI, 1.059–1.110) and 1.074 (95% CI, 1.056–1.092), respectively, compared with the general group.
- The results of the current study suggest that vestibular loss increases the risk of developing dementia. Therefore, similar to hearing loss, vestibular loss should be considered a risk factor for dementia, and treatments such as adequate vestibular rehabilitation may reduce this risk.

## Résultats



	General (n=2,145,609)	Only VL (n=60,525)	Only HL (n=141,476)	P value
Age, mean (SD)	53.29 (10.43)	58.26 (10.76)	58.52 (10.91)	<0.001
<65, n (%)	1,758,551 (81.96)	40,715 (67.27)	93,920 (66.39)	
≥ 65, n (%)	387,058 (18.04)	19,810 (32.73)	47,556 (33.61)	
Income (bottom 20%), n (%)	385,300 (18.46)	10,942 (18.36)	24,272 (17.43)	<0.001
Sex, n (%)				<0.001
Male	1,126,958 (52.52)	17,221 (28.45)	71,204 (50.33)	
Female	1,018,651 (47.48)	43,304 (71.55)	70,272 (49.67)	
Diabetes, n (%)	179,618 (8.37)	7,827 (12.93)	19,392 (13.71)	<0.001
Hypertension, n (%)	383,160 (17.86)	22,106 (36.52)	40,717 (28.78)	<0.001
Dyslipidemia, n (%)	62,801 (2.93)	4156 (6.87)	7530 (5.32)	<0.001
Ischemic heart disease, n (%)	66,274 (3.09)	4597 (7.6)	8699 (6.15)	<0.001
Stroke, n (%)	43,313 (2.02)	5045 (8.34)	5088 (3.6)	<0.001
Cancer, n (%)	127,459 (5.94)	5513 (9.11)	12,571 (8.89)	<0.001

**Table 1.** Demographic characteristics of the study population. VL vestibular loss; HL hearing loss. P-values were calculated using chi-square test.

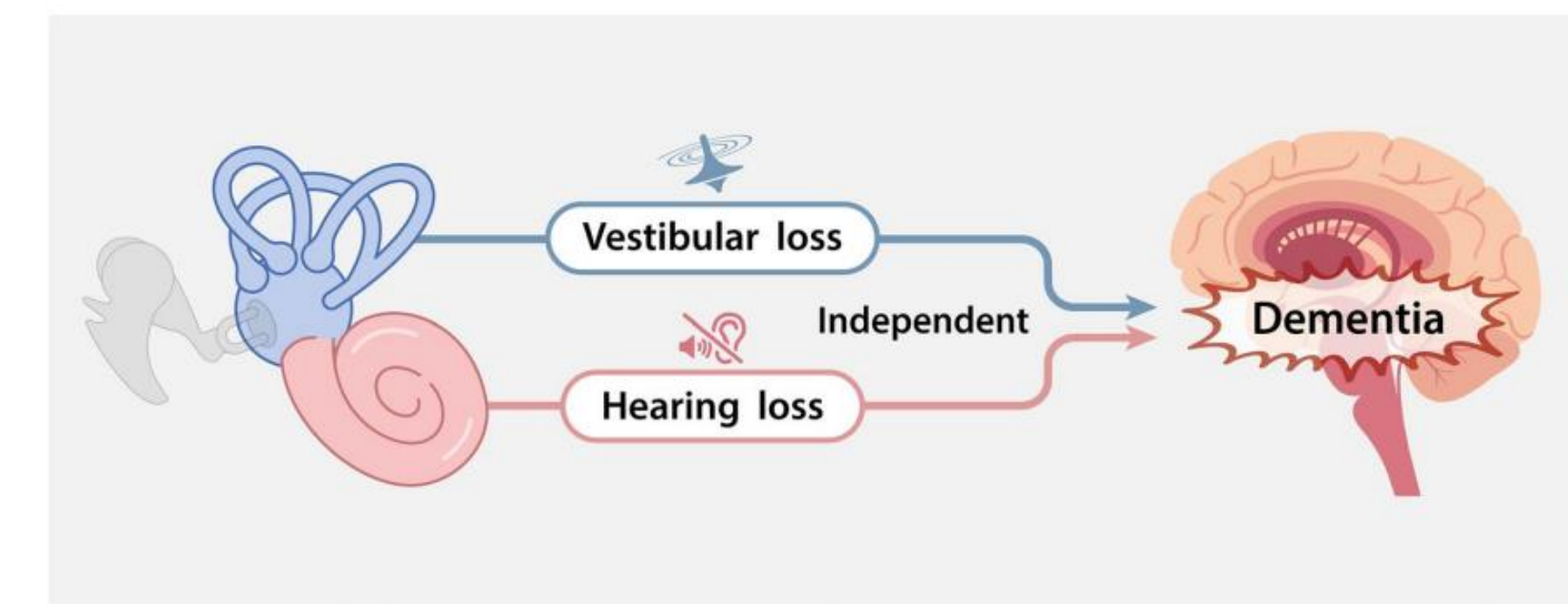


## Objects

- To our knowledge, no studies have been published on this topic in large-scale populations. This study aimed to investigate the association between vestibular loss and risk of dementia using a large-scale database. In South Korea, the national population is registered with the National Health Insurance Service, and all medical data are organized in the National Health Information Database. Utilizing nationwide data might provide a deeper understanding of this association.

## Conclusion

- This retrospective study demonstrated that vestibular loss increased the risk of dementia compared to healthy controls, with the HR of dementia being similar to that of the hearing loss group.



## Materials and methods

- Korean National Health Insurance Service (KNHIS) is a system in which all Koreans and registered foreigners must enroll.
- Ultimately, we included 2,145,609 participants in the general study population: 60,525 with vestibular loss, and 141,476 with hearing loss.

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