VISUAL IMPAIRMENT, HEARING LOSS AND COGNITIVE FUNCTION IN A COMMUNITY-DWELLING OLDER ADULTS

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INTRODUCTION

- The deterioration of hearing and visual ability has become a prevalent problem in the older population.[1]
- Several studies previously reported associations between sensory impairments and cognitive decline.[2,3]
- However, these findings have been inconsistent and limited to institutionalised older adults.

OBJECTIVE

- To determine whether impaired hearing and visual acuity are associated with cognitive dysfunction in community - dwelling older adults

METHODOLOGY

- Study design: Cross-sectional
- Participants: Community dwelling older adults age ⩾60, recruited through multistage random sampling in Selangor.

- Habitual distance visual acuity (VA) was measured monocularly using Early Treatment Diabetic Retinopathy Study (ETDRS) chart at 3 meters.
- Visual impairment was defined as having habitual VA in the better eye of >0.3 logMAR.

ETDRS CHART

PURE TONE AUDIOMETRY

- Hearing thresholds were measured using pure tone audiometry. Hearing impairment was defined by having a hearing threshold of >25dBHL at 4 frequency average (0.5kHz, 1kHz, 2kHz, and 4kHz) in the better ear.
- Dual sensory impairment (DSI) referred to those with a combination of both visual and hearing impairments.
- The cognitive function of participants measured using the Malay version of Montreal Cognitive Assessment (MoCA-BM).

RESULTS AND DISCUSSION

Table 1: Characteristic of participants according to sensory impairment (n=210)*

The DSI group has the lowest MoCA scores, followed by those with hearing impairment only and those without sensory impairment.

	Dual sensory impairment (*n* =22)		Hearing impairment only (*n* = 160)		No impairment (*n* =28)	
	n	%	*n*	%	*n*	%
Age (year)						
65-69	4	18.2	56	35.0	18	64.3
70-74	6	27.3	50	31.3	5	17.9
75-79	5	22.7	34	21.3	4	14.3
≥80	7	31.8	20	12.5	1	3.6
Gender						
Male	10	45.5	69	43.1	11	39.3
Female	12	54.5	91	56.6	17	60.7
Education level						
None or primary	15	68.2	69	43.1	6	21.4
Secondary	6	27.3	70	43.8	13	46.4
Post-secondary	1	4.5	21	13.1	9	32.1
MoCA						
Score ≥18	7	31.8	115	72.3	25	89.3
Score <18	15	68.2	44	27.7	3	10.7
Mean ±SD	15.32±7.45		20.74±5.92		22.50±4.18	

*No participant has been found with visual impairment only

The participants with low MoCA scores are 4 times more likely to have DSI as opposed to those with high MoCA scores (OR, 4.00; 95% CI, 1.40-11.42; p<0.001).

The findings should be carefully interpreted as it might not be adequate to represent the general population as no data available for participants with visual impairment only.

CONCLUSION

- The findings of this study supported the relationship between DSI and cognitive function where those with lower cognitive scores were strongly associated with DSI.
- Further studies are needed to determine how severity and duration of DSI affect cognitive function.
- Further research using a longitudinal design could explore more detailed information to better understand the causal relationship between the sensory impairments and cognition.

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