

Subjective memory impairment in normal aging Indonesians

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Abstract

Objective: To determine the frequency and the distribution of various aspects of subjective memory impairment in normal aging Indonesians, and their relationship to age, gender and education. **Methods:** A questionnaire-based survey of participants of the National Memory and Alzheimer's Disease Awareness Campaign conducted in 7 cities in Indonesia during the period from July to December 1999. Six hundred and forty seven subjects with the mean age of 58 years (range: 38 to 87 years) participated in the study. Fifty seven percent of the subjects were women. The subjects had at least 6 years of education; with 49% and 43% with university and senior high school education respectively. The level of education for men were significantly higher than women. Memory complaints were common. Of the specific situations, the most frequent memory complaints were "where things have been placed" (82%), and "remembering names of persons" (75%), while the least frequent complaints were "telephone numbers used frequently" (28%) and "losing main points of conversation" (35%). There were significantly more memory complaints among those above 60 years old as compared to those who were younger and those who had higher level of education. **Conclusion:** Subjective memory impairment is common among normal adult urban Indonesian population.

Key words: subjective memory impairment, prevalence, age, gender, education

INTRODUCTION

Improvements in medical care, planned parenthood, and living standards in Indonesia have increased the life expectancy of the Indonesian population and this has increased the number of elderly in the population and age structure of the society. In the year 2000, life expectancy is expected to reach 64.9 years for men and 68.8 years for women.¹ In 1990, the number of elderly (60 years and older) was 11.28 million (6.27% of the Indonesian population). In 2000 the number of elderly is expected to increase to 15.2 million (7.28%). It is estimated that over the next 20 years the number of elderly will reach 29.12 million (11.09%).^{1,2} The Bureau of Census, USA reported in 1993 that between 1990-2025, the number of elderly in Indonesia will increase by 414%, the highest rate of increase in the world.²

The Indonesian government has shown interest in the welfare of the elderly by launching a National Day for Older People in May 26th, 1996.² More interest needs to be shown in the quality of life of the older population, including their mental and memory function.

Memory is a cognitive function known to decline with age.^{3,4} A working group of the

National Institute of Mental Health have proposed the criteria for age-associated memory impairment as: "The presence of complaints of gradual reduced memory function in daily living of people aged over 50, and objective impairment on a standardised memory test as compared to young adults; they should have adequate intellectual function, absence of dementia or other medical conditions which may cause cognitive deterioration."⁵ Although memory complaints like forgetfulness occur as part of the normal ageing process, poor memory could be an early sign of a pathological process, such as Alzheimer's disease⁶ and may predict dementia in 3 years.^{7,8} However, in developing countries such as Indonesia, forgetfulness as a symptom of dementia may not be so easily recognised. In China medical help may be sought after signs of physical deterioration such as stroke, but not in response to memory decline.⁹ No previous survey on memory function has been done in Indonesia. The aims of this study were to determine the prevalence of subjective memory impairment in the normal ageing population, the distribution of various types of memory complaints, and to determine its relationship to age, education and sex.

METHODS

The study subjects were the participants in the “From Forgetfulness to Alzheimer’s Disease” symposiums during the National Memory and Alzheimer’s Disease Awareness Campaign from July to December in 1999. The symposiums were held in Jakarta, Surabaya, Bandung, Yogyakarta and Semarang in Central Jawa, Medan and Palembang in Sumatra. Questionnaires containing questions on the characteristics of participants and their memory complaints in various situations were distributed prior to the symposium. The purpose of the survey and other instructions pertaining to the questionnaires were explained verbally. Those who consented to participate in the survey were asked to fill in the questionnaires anonymously. The completed questionnaires were collected before the start of the symposium.

All statistical analyses were performed using the SPSS for windows software. Chi-square

tests were used to examine the differences between diverse variables and a p value <0.05 is statistically significant.

RESULTS

Six hundred and forty seven subjects participated in the study. The characteristics of the participants are listed in Table 1. Forty three percent were men and 57% women. The mean age was 58 years (range: 38-87 years). All participants had received at least 6 years of elementary education. Most participants had received higher level of education — 49% university and 43% senior high schools. The overall level of education was significantly higher in men than women. The highest level of education received by most men was academy or university (62%) whereas it was senior high school for most women (50%). Table 2 lists the relationship between the age groups and education levels. There was significantly more

Table 1. Characteristic of participants

	Men		Women		Total	
	n	%	n	%	n	%
No. of participants	279	43	369	57	647	100
Mean age in years (SD)	60 (10.9)		57 (10.8)		58 (10.9)	
Age group in years						
38 – 59	125	37	211	63	336	52
60 – 69	101	47	112	53	213	33
≥70	52	53	46	47	98	15
Level of education						
Elementary School	4	20	16	80	20	3
Junior High School	11	31	24	69	35	5
Senior High School	91	33	185	67	276	43
University *	172	54	144	46	316	49

* Inclusive of other forms of higher education.

Table 2. Relationship between age groups and education level

Education	Elementary school		Junior high school		Senior high school		University		Total	
	n	%	n	%	n	%	n	%	n	%
Age groups										
30 – 59	4	1	7	2	138	41	187	56	336	52
60 – 69	9	4	3	6	94	44	97	46	213	33
≥ 70	7	7	15	15	44	45	32	33	98	15
Total	20	3	35	5	276	43	316	49	647	100

younger participants (<60 years) who had higher education compared with the older participants of more than 60 years ($p<0.001$).

Table 3 lists the frequency of the various memory complaints. Table 4 lists the relationship between the age groups and the memory complaints. Significant differences were found between those below 60 years and those 60 years and above for “names of persons” ($p<0.001$), “direction to places” ($p=0.016$), “things people tell you” ($p=0.022$), “appointments” ($p=0.015$), “nouns” ($p<0.001$), “telephone numbers just dialed” ($p=0.001$), “recognizing faces” ($p=0.018$), “losing main points of conversation” ($p<0.001$), and “telephone numbers used frequently” ($p=0.008$).

Table 5 lists the relationship between memory complaints and gender. Women complained significantly more forgetting to leave messages ($p<0.001$) and losing the main points of

conversation ($p=0.018$). The relationship of memory complaints and education level is listed in Table 6. The higher the level of education of the respondents, the more complaints they had. Significant difference was found between respondents who received 9 years or more education and who received 6-9 years of education for “where things have been placed” ($p=0.001$), “names of persons” ($p=0.036$), “direction to places” ($p=0.003$), “appointments” ($p=0.004$), “telephone numbers just dialed” ($p<0.001$), “losing main point of conversation” ($p<0.001$) and “telephone numbers used frequently” ($p=0.014$).

DISCUSSION

This study shows that subjective memory impairment is common among normal ageing Indonesians. Increasing age is associated with

Table 3. Frequency of subjective memory impairment in specific situations.

Memory complaints	No		Yes	
	n	%	n	%
Did the subject have any memory problems with:				
1. Where things have been placed	114	18	533	82
2. Names of persons	162	25	485	75
3. Remembering things to do	269	42	378	58
4. Leave messages	282	44	365	56
5. Directions to places	309	48	338	52
6. Things people tell you	346	54	301	47
7. Appointments	349	54	298	46
8. Nouns	371	57	276	43
9. Telephone numbers just dialed	374	58	273	42
10. Recognising faces	400	62	247	38
11. Losing main points of conversation	418	65	229	35
12. Telephone numbers used frequently	468	72	179	28

Table 4. Relationship between memory complaints and age groups

Age groups in years Memory complaints	38 – 59		60 – 69		≥70	
	n	%	n	%	n	%
1. Where things have been placed	273	81	184	86	76	78
2. Names of persons	242	72	163	77	80	82
3. Remembering things to do	204	61	121	57	53	54
4. Leave messages	183	55	130	61	52	53
5. Directions to places	170	51	113	53	55	56
6. Things people tell you	150	45	103	48	48	49
7. Appointments	156	46	97	46	45	46
8. Nouns	120	36	103	48	53	54
9. Telephone numbers just dialed	121	36	96	45	56	57
10. Recognising faces	108	32	95	47	44	45
11. Losing main points of conversation	93	28	84	39	52	53
12. Telephone numbers used frequently	74	22	66	31	39	40

Table 5. Relationship between memory complaints and gender

Memory complaints	Men		Women	
	n	%	n	%
1. Where things have been placed	222	79	311	84
2. Names of persons	209	75	276	75
3. Remembering things to do	149	54	229	62
4. Leave messages	136	49	229	62
5. Direction to places	141	51	197	53
6. Things people tell you	120	43	181	49
7. Appointments	116	42	182	49
8. Nouns	126	45	150	41
9. Telephone numbers just dialled	108	39	65	45
10. Recognising faces	109	39	138	37
11. Losing main points of conversation	82	30	147	40
12. Telephone numbers used frequently	77	28	102	28

Table 6. Relationship between memory complaints and education

Types of Memory complaints	Level of education							
	Elementary School		Junior high school		Senior high school		University	
	n	%	n	%	n	%	n	%
1. Where things have been placed	13	65	21	89	223	81	266	84
2. Names of persons	10	50	24	69	207	75	244	77
3. Remembering things to do	8	40	21	60	168	61	181	57
4. Leave messages	10	50	20	57	165	60	170	54
5. Direction to places	6	30	23	66	161	58	148	47
6. Things people tell you	10	50	19	54	138	50	134	42
7. Appointments	11	55	15	43	131	48	141	45
8. Nouns	7	35	15	46	121	44	133	42
9. Telephone numbers just dialled	7	35	21	60	135	49	110	35
10. Recognising faces	7	35	19	54	109	40	112	35
11. Losing main points of conversation	11	55	17	49	115	42	86	27
12. Telephone numbers used frequently	8	40	16	46	86	31	69	22

more memory complaints. However, memory complaints are common even in the younger age group. It is seen in both genders and in subjects of different education levels. Of specific situations where there were memory difficulties, the most frequent complaints were “forgetting where things have been placed” and “names of persons” seen in 82% and 75% of the respondents respectively. The least frequent complaints were “telephone numbers used frequently” and “losing main points of conversation” seen in 35% and 28% of the respondents. These results are similar to previous studies.^{5,7} They are consistent with the observation that impairment in the registration of new information is selectively more affected in the normal ageing process than retrieval of old material, which remains relatively unaffected.

In 8 out of the 12 specific situations studied, respondents who were 60 years or older had significantly more memory complaints than those who were younger. In a similar study, Bolla et al also reported a greater frequency of forgetting and using memory techniques in older individuals.⁶ This is not surprising in view of the known decline in memory function in normal aging.³

In respect to gender, significantly more women than men complained of “losing the main points of conversation” and “forgetting to leave message”. In the similar studies by Bolla et al and Schmand et al, “losing main points of conversation” and “forgetting appointments” were the most serious memory complaints.^{6,8} The seriousness of the complaints were not assessed in this study. On the other hand, Coffey

et al reported in a study using magnetic resonance imaging that with increasing age, men's brain shrink more than women's, particularly in the frontal and temporal region.¹⁰ Whether structural changes in the brain correlate with functional impairment requires further investigation.

This study also shows that in some specific situations, higher education level was associated with a higher frequency of memory complaints. This is unlikely to reflect a greater objective memory loss among the educated. In fact, most prevalence studies have reported that elderly persons with no or low levels of education have a higher prevalence of dementia and Alzheimer's disease¹¹⁻¹³, whereas others have failed to find such correlation.^{14,15} Katzman has hypothesized that education may increase brain reserve by increasing the synaptic density in the neocortical association cortex. Education might protect against neuro-degeneration or the onset of dementia, because education improves neuronal networking and so minimizes signs of functional and cognitive impairment.¹³

Bolla et al demonstrated a strong association between memory complaints and depressed mood among healthy adults.⁵ Nevertheless, subjective memory impairment can be a guide to the diagnosis of dementia and an important screening tool for further investigations.^{6-8,16,17}

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