

## Memory status of the adults in various areas of Bangladesh

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### Abstract

**Background:** Despite concerns about cognitive decline with aging, few studies document the types and severity of memory errors adults make in everyday life.

**Objectives:** To evaluate the everyday memory statuses of adults of various ages in relation to their sociodemographic and other relevant factors.

**Methods:** It was a cross-sectional study and the sampling was a purposive one. The study period was from August 2018 to July 2019 and it was done in Rajshahi district and some other areas of Bangladesh. The respondents were adults of age ranging from 18 to 80 years. Their memory statuses were assessed by using "Memory Functioning Questionnaire" developed by Gilewski and Zelinski. The questionnaire was supplied to the respondents and later on collected from them along with the answers.

**Results:** The respondents were 94 in number. It was found that among 94 respondents only 2 (2.1%) had severe memory problems, 43 (45.7%) had mild memory problems and 49 (52.1%) had no memory problem. Retrospective memory was very good among 36 (38.3%) respondents, it was average in 47 (50.0%) and very bad in 11 (11.7%) respondents. Forgetfulness was found in severe form among 4 (4.3%) respondents, moderate in 39 (41.5%) and not at all in 51 (54.3%) respondents.

**Conclusions:** This study showed that memory status was not up to the expected level which was problematic for daily healthy living and functioning.

**Declaration of interest:** None

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**Keywords:** Memory status; adults; Bangladesh

### Introduction

Memory is the ability to encode, store, retain and subsequently recall information and past experiences in the human brain. It can be thought of in general terms as the use of past experiences to affect or influence current behavior.<sup>1</sup>

Memory represents a "biological process" incorporating a variety of cognitive attribution. Memory is the current knowledge about something that was known previously. Human memory has been examined from a variety of perspectives, ranging from psychology to engineering.<sup>2</sup> Human memory is fallible and unreliable depending upon circumstances. Memory involves two forms of recall: perfect and imperfect. Perfect recall involves a conjunction between memory of previous actions and memory of previous knowledge. Imperfect

recall involves some knowledge imperfection within the context of the human ability to process information.<sup>2</sup> Memory and learning are two closely related concepts, although the relation between the two cannot be specified.<sup>2</sup>

Memory allows to remember and share the past events, to function efficiently and intelligently, in the present, and even to predict and prepare for the future.<sup>3</sup> It has been widely investigated in modern societies. Three broad types of memory, short-term memory, long-term memory and sensory memory are essential parts of human cognitive processes and human everyday activities as well.<sup>4</sup> It is truly amazing that human being can relive events that occurred decades in the past. And yet this amazing memory system is also prone to failure, sometimes with embar

raising social consequences.<sup>3</sup>

Disturbances of memory is related to many physical, mental and neurological problems. Physical problems may be poor nutrition, dehydration, infection, medication side effects, thyroid imbalance, etc. Among the mental causes it may be anxiety, depression, stress, substance abuse, etc. The neuro-psychiatric causes may be dementia, amnesia, epilepsy, stroke, encephalitis, hydrocephalus, traumatic brain injury, etc. It is also related to everyday life habits such as sleep, exercise, relaxation and other such factors. The objective of the study was to assess the everyday memory status of adults of various ages in relation to their sociodemographic and other relevant factors. We hoped that the study would explore the memory status of the people and thus show the path to improve cognitive abilities of the people.

### Methods

It was a cross-sectional study and the sampling technique was a purposive one. The study period was from August 2018 to July 2019. It was done in Rajshahi district and some other areas of Bangladesh. The respondents were adults of age ranging from 18 to 80 years. They were male, female, of various occupations, educations and other sociodemographic background. The memory status was assessed by using "Memory Functioning Questionnaire" (MFQ) which was developed by Gilewski and Zelinski (1990).<sup>5</sup> MFQ is a reliable instrument with high internal consistency and strong validity.<sup>5</sup> The questionnaire was translated into Bangla along with questions regarding sociodemographic data and other relevant conditions. The physical and mental diseases and problems were also searched in the questionnaire. The questionnaire was supplied to the respondents and later on collected from them along with the answers. The respondents were 94 in number. The memory status was evaluated as general rating of memory, reliance of memory, retrospective functioning, frequency of forgetting, frequency of forgetting during reading, remembering past events, seriousness of forgetting and mnemonics usage. These eight components of the questionnaire were scored separately, i.e. it was not summed up. General rating of the memory was done by asking whether the overall memory was in severe problem, in mild problem or in no problem. Then the retrograde

memory status was searched by asking what its condition was one year back to twenty years back and at the age of eighteen years of the respondents. Answers were suggested to be given in Likert's scale. It was the same for all the remaining components of the questionnaire.

Data were collected by the researcher and his reliable associates and were checked for consistencies as well as completeness. Data were analyzed by the author himself manually and shown as tables and bar charts in the results section duly. Ethical concerns were maintained throughout the study.

### Results

In the study, majority of the respondents were females (55.3%). Among the respondents, nearly half of them (51.0%) were from 18 to 35 years and 17.0% were 56 years and above. Regarding education, most of the respondents (70.2%) were highly educated i.e. graduates and postgraduates. In regard to occupation, majority were service holders (68.0%). Majority of respondents (69.1%) were from Rajshahi district.

**Table 1: Characteristics of the respondents (N=94)**

	Frequency (n)	Percentage (%)
<b>Gender</b>		
Male	42	44.6
Female	52	55.3
<b>Age range (years)</b>		
18-35	48	51.0
36-55	30	31.9
≥56	16	17.0
<b>Education</b>		
Below SSC	4	4.2
SSC & HSC	24	25.5
Graduate	22	23.4
Postgraduate	44	46.8
<b>Occupation</b>		
Service	64	68.0
Business	4	4.2
Student	15	15.9
Housewife	9	9.5
Retired job holder	2	2.1
<b>Residence</b>		
Rajshahi	65	69.1
Chittagong	29	30.8
<b>Physical disease</b>		
Hypertension	19	20.2
Diabetes	12	12.7
Heart diseases	2	2.1
Stroke	1	1.0
Others	5	5.3
<b>Mental disorder</b>		
Depressive disorders	6	6.3

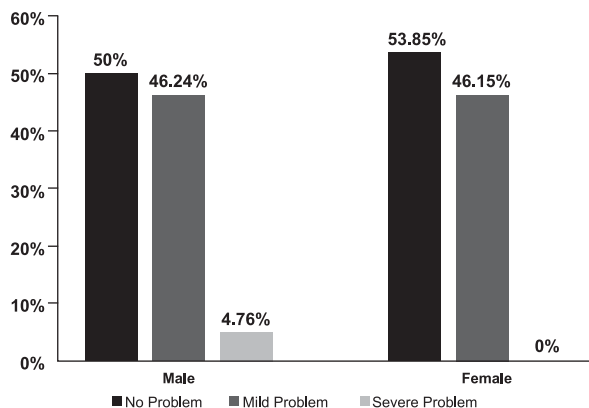
The above table shows that 47.8% respondents stated to have some sorts of physical or mental diseases. But none stated to have direct severe memory problem related diseases such as dementia, amnesic disorders, Korsakoff's syndrome, etc. Table 2 shows that among 94 respondents only 2 (2.1%) had severe memory problems, 43 (45.7%) had mild memory problems and 49 (52.1%) had no memory problems. Retrospective memory was very good among 36 (38.3%) respondents, it was good in 47 (50.0%) and very bad in 11 (11.7%) respondents. Forgetfulness was found in severe form among 4 (4.3%) respondents, moderate in 39 (41.4%) and not at all in 51 (54.2%) respondents.

**Table 2: Memory status of the respondents (N=94)**

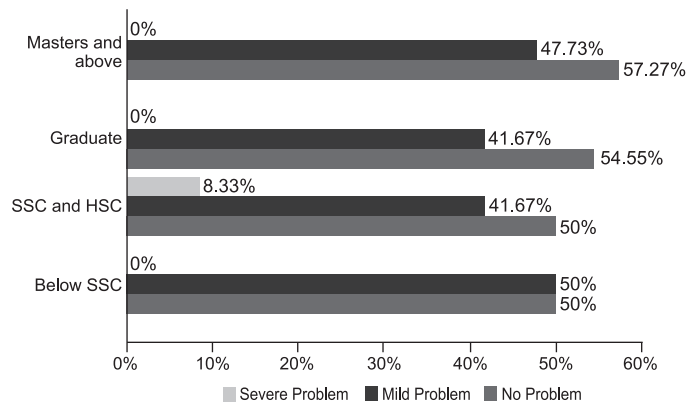
Memory status	Frequency (n)	Percentage (%)
<b>Memory status</b>		
No problem	49	52.1
Mild problem	43	45.7
Severe problem	2	2.1
<b>Ability to remember past events</b>		
Very good	36	38.3
Good	47	50.0
Very bad	11	11.7
<b>Forgetfulness in everyday affairs</b>		
Don't forget	51	54.3
Sometimes forget	39	41.4
Severe forgetfulness	4	4.3

The figures also show that memory status was slightly better in women (53.8%) than men (50.0%). Younger age group had more memory problems (52.0%) than the aged persons (44.0%). Highly educated persons had better memory status (57.2%) than those having lower level of education (50.0%). Service holders were found to possess slightly higher status of memory (57.8%) than other professionals (56.6%). Those suffering from hypertension and diabetes mellitus had mild memory problems, 27.9% and 18.6%, respectively. Severe memory problems were found in 2 (2.1%) respondents having depressive illness.

**Figure 1: Gender and memory status (N=94)**



**Figure 2: Educational level and memory status (N=94)**



**Discussion**

Reports of everyday memory problems are common among adults of all ages.<sup>6</sup> In this study regarding memory status, 52.1% respondents had no memory problems. Memory problems were severe in 2.1% respondents and 45.7% respondents had mild memory problems. Memory problems are often found to be related to anxiety and depression.<sup>6</sup> In this study, 2.1% of the respondents having severe memory problems had depressive illnesses. So it was consistent with findings of other studies. Two respondents had strokes but they did not complain about any memory problem. Approximately 30% of stroke patients develop dementia within 1 year of stroke onset. Stroke affects cognitive domains, which include attention, memory, language and orientation.<sup>7</sup> So, these respondents need further follow up. Those who had hypertension, diabetes mellitus and heart diseases were found to have more memory problems than the others. It was found in researches that high blood pressure has adverse effect in parts of the brain involved in memory. Those who had hypertension were found to have less blood flow to the brain than those having normal blood pressure. Though in many cases there is physiological mechanism to compensate less blood flow, still there is possibility of memory problems among the patients of hypertension.<sup>8</sup> Memory loss may also be a consequence of diabetes mellitus due to blood vessel damage and poor blood flow to the brain. The diabetic patients are at a greater risk for mild cognitive impairment and memory problems that can sometimes lead to Alzheimer's disease.<sup>9</sup> Heart diseases are also related to decreased blood flow in the brain, thus may also cause vascular dementia.<sup>10</sup> Respondents having other physical diseases had no complaints about memory problems. But it should be noted that good health is essential for optimizing

memory and all other cognitive functions. It was found in many studies that physical fitness was associated with better quality of life and cognitive functions.<sup>11</sup> None of the respondents complained about having dementia, amnesia or related problems, which indicate that they had no major neurocognitive impairments.

Here memory status was found better among the women than men. It is consistent with findings of many other studies. Females showed better autobiographical memories, random word memory recall, story recall, auditory episodic memory, semantic memory and face recognition tasks.<sup>12</sup> This is explained by two hypotheses. The affect intensity hypothesis states that females have superior memory function because their responses to emotional experience is more intense than men. Another hypothesis, the cognitive hypothesis, suggests that females encode events in greater details, whereas males encode the gist of events.<sup>12</sup>

In this study, young age group respondents had more memory problems than that of advanced age groups. Many studies showed that elderly adults perform poorly on variety of memory tasks. These age-related memory deficits probably reflect anatomical and physiological deterioration of the aging brain.<sup>13</sup> In the late 1950s, numerous studies showed poorer memory performance in older compared with younger age groups. It was found that more than 40% of the individuals were older than 60 years of age.<sup>14</sup> Despite large body of research documenting memory deficits with age, some works suggest that there may be exceptions. Memory can be determined along with biological factors some other factors also. These may be socio-emotional domains, depending on positivity, motivational relevance, or importance to the self of information, particularly in socio-emotional domain.<sup>15</sup> Two respondents of this study having severe memory problems had depression and they were among the younger age group. Mild memory problems were also found among the younger age group. Young people are suffering from more life stress than the advanced aged persons in recent times in our country due to academic stress, unemployment, high ambition, uncertainty of life, etc. These may be the contributing factors to their memory problems.

Highly educated respondents were found to be better in memory status due to proper utilization of their cognitive abilities. Many studies suggest such. It was observed that low education was consistently associated with a high prevalence of cognitive impairment.<sup>16</sup>

Service holders retain better memory abilities than other professionals due to their secured life and better utilization of cognitive abilities. Retrospective memory was found good in 88.3% respondent which is a positive finding which would be helpful to increase adaptive fitness. Prospective memory uses retrospective memory for future oriented tasks.<sup>17</sup>

In this study mild and severe forgetfulness were found in 41.4% and 4.2% respondents, respectively. Though forgetfulness is considered as harmful and cause exasperation, it can also be considered as an adaptive factor. It is a necessary process for refreshing memory and subsequently adapting individual behavior to the environment, allowing other memories to eventually be recorded and selected. Forgetting can also be a protective factor as it helps to not remember irrelevant and useless information. Otherwise specific and valuable information cannot be remembered easily.

There were many limitations of this study as it did not cover many aspects of memory, e.g. memory system, memory process, types of memory, etc. It also did not explore in details about the causes and consequences of memory status and problems. More researches are required to fulfil these demands.

## Conclusions

In conclusion it can be said that this study finds an average state of memory abilities among the respondents. Large studies are required to find in-depth situation of memory and other cognitive abilities of the people. Then it will be possible to assess and improve intellectual health of the people which will contribute a lot to individual and community level.

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