



ORIGINAL RESEARCH PAPER

Medical Science

A SURVEY ON THE STATUS OF SHORT TERM MEMORY IN MEDICAL STUDENTS

**KEY WORDS:** Short term memory, medical students, trial, alphabets, boys, girls.

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ABSTRACT

A survey was conducted among the medical students to check the short term memory using the alphabetical test. After obtaining an informed consent, 185 students (94 girls & 91 boys) participated in the study. They were explained in detail about the testing procedure. They were asked to write down the alphabets they remember at the end of each trial after the letters disappear. The test had six trials with increasing number of alphabets by 2. The first two questions were answered correctly by all the students except one. More number of mistakes was committed for trials 5 & 6, in particular for trail 6 which had 12 alphabets. When the range of less than ten mistakes was considered, the values were 69.23% boys and 59.57% girls. Boys performed well when compared to girls. 21.27% girls committed mistakes ranging from 16-19 but only 9.89% boys were incorrect for this range. Among 185 students, all alphabets of the last trail were marked correct by only a boy and a girl. The results were illustrated graphically. The test depicts the maximum number of alphabets which a student can hold in his/ her short term memory. This study can be further enhanced by performing on a larger group.

INTRODUCTION

Human memory exists in three forms- sensory, short term and long term memory. These different types have their own way of operation but cooperate in the process of memorization, as a unitary process, proposed by Atkinson- shiffrin<sup>[1]</sup>. Short term memory is the capacity of brain to store small amount of information in readily available state, without manipulation, for a very brief period of time. Another type of memory, the working memory<sup>[2]</sup> was put forward by Baddeley, where there is manipulation of information. A normal person can store upto 7±2 units in his/ her short term memory. This idea was put forward by Miller (1956)<sup>[3]</sup>, he called it the "magic number 7". Memory can be enhanced by "chunking"<sup>[4]</sup> the information. Chunking is a process by which individual pieces of information are bound together into a meaningful whole<sup>[5]</sup>. Genetic based studies<sup>[6,7]</sup> were conducted for the short term memory. But the literature was scanty for a short term memory test using alphabets. Hence this study was designed to assess the same.

MATERIALS & METHODS

A simple short term memory test<sup>[8]</sup> was displayed to the students and was asked to write down the alphabets for each trial after they disappear. 186 students participated in the study. An informed consent was taken from them. The students were enthusiastic as this was a memory based test. There were six trials. As the trials proceed, the number of alphabets increases by two. 1<sup>st</sup> to 4<sup>th</sup> trials last for 5 seconds. The fifth trial lasts for 4.5 seconds. For the last trial there were 12 alphabets that will appear on the screen for 3 seconds. The results were tabulated and represented graphically. Difference in the gender variation was also illustrated.

RESULTS & DISCUSSION:

The following results were observed from the study. Among 185 students, 94 were girls and 91 were boys. More mistakes were committed by girls when compared to boys. Trials 1-4 appeared for 5 seconds whereas trail 5 for 4 seconds and trial 6 for only 3.15 seconds. The maximum number of mistakes done by boys, was 20 but for girls it was 23. More mistakes were committed for trial 5 and 6 as it contained 10 and 12 alphabets respectively. When trial 6 was considered, among 185 students, only one boy and a girl wrote all the 12 alphabets in correct order. A tabular form depicting the total number of responses by boys and girls was also given below. As quoted, 'memory is the diary that we all carry about with us', it occurs in three forms. Short term memory, sometimes referred to as working memory, is the intermediate stage, where it is converted to long term memory on repeated rehearsal. Short term memory is due to a temporary memory trace caused by the reverberating circuit in hippocampus<sup>[9]</sup>. The limbic system comprised of hippocampus and amygdala is considered to

be the locus for memory. The hippocampus is a 5cm long organ located in relation to floor of the inferior horn of the lateral ventricle<sup>[10]</sup>. It is the place where consolidation occurs which is then converted to long term memory on practice. The long term memory is diffusely spread as bits over the entire brain. When remembering any particular event, the information is collected from the entire brain to get the complete picture. Recently the Nobel Prize was given for the discovery of place cells in the hippocampus<sup>[11]</sup>. The short term memory plays a vital role when the information is gathered in a systematic way so that it converts to long term memory. The students of the present generation lack attention while learning new things from the subject due to many distractions in the form of mobiles, gadgets, friends, sophistications etc. On the other hand, they hardly revise the chapters. Hence the short term memory is effected which will obviously impair the long term memory. So they can't retain the subject for a long time. The present study was done to make a comparative evaluation of the working condition of short term memory. The last two trials were not answered completely correct by maximum number of students. Boys were good in answering when compared to girls. Effective measures need to be taken to improve the attention and interest towards learning the subject so that the memory levels can be enhanced.

Graph 1 : Total number of incorrect responses given by boys and girls

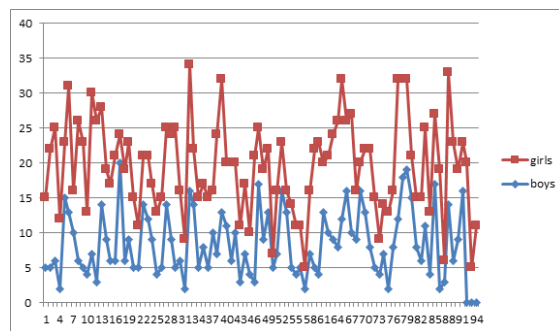
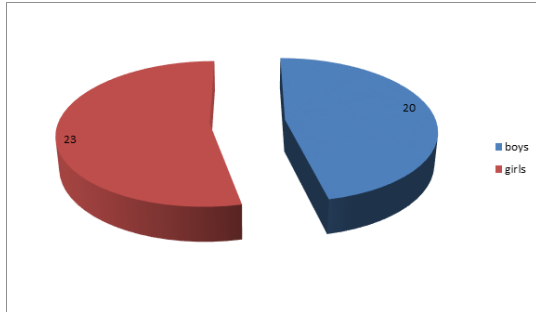


Table 1: number and % of boys and girls who gave incorrect responses

Number of incorrect answers	Boys (total 91)		Girls (total 94)	
	Number	%	Number	%
1-10	63	69.23	56	59.57
11-15	18	19.78	16	17.02
16-19	9	9.89	20	21.27
20-25	1	1.09	2	2.12

**Graph 2: comparison between boys and girls for highest number of mistakes committed**



### CONCLUSION

An alphabet based short term memory test was done for 185 medical students, where 91 were boys and 94 girls. Most of the students gave incorrect responses for the last two trials. Boys answered well when compared to girls. There is a definite attention deficit for the medical students from this report. Measures need to be taken to improve the short term memory so that they focus well on studies.

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