



## **Comparison Information Recall from Overt Memory among Generalized Anxiety Patients, Major Depression Patients and Normal Individuals**

**Najmeh Hamid, (PhD)<sup>1\*</sup> and Fariba Kalantari<sup>2</sup>**

1. Associate Professor, Educational Sciences and Psychology College, Shahid Chamran University of Ahwaz

2. PhD Student, Educational Sciences and Psychology College, Shahid Chamran University of Ahwaz

\*Corresponding author's e-mail: dr\_najmehamid@yahoo.com

### **ABSTRACT**

The aim of this study is to compare in formation recall from overt memory among generalized anxiety patients, major depression patients, and normal persons. Statistical universe of the study were generalized anxiety patients (GAP), and major depression disorders (MAD) referring to (Who have referred to) therapeutic, instructional and counseling centers in Ahwaz. These people were chosen through available sampling, and were matched regarding age, socioeconomic status, having one standard deviation higher than Beck's scale of anxiety and depression, and other important scales in the study. Normal persons were chosen from among the workers of the same places. The instruments applied to the study included: Beck Depression inventory, Beck anxiety inventory, and Recall Test. For data analysis, one-way variance analysis, and also Tukey posteriori test were applied. Results showed that regarding free recall and recall , there was a significant difference among the 3 groups of subjects ( $P<0.05$ ); normal persons recorded the highest free and recall, but those suffering from major depression showed the lowest free and recall. But in relation to recognition, there was no significant difference between those suffering from generalized anxiety and major depression.

**Keywords:** in formation recall, overt memory, generalized anxiety, major depression, normal persons

### **INTRODUCTION**

The concept of memory has become one of the major fields of study in behavioral sciences, at the beginning of twenty-first century. Memory is the process of saving information and experiences and the probability of retrieving them in future. Such ability, representing and retrieving information is of great importance for all cognitive processes including perception and problem solving. There is a fundamental interest in the study of human memory to know how this simple system can do (perform) such various phenomena as preparation, familiarity, and recall, skills and knowledge acquisition. Cognitive psychologists have classified these behaviors according to special characteristics and limits; the most prominent classification is overt memory and covert memory. Covert memory refers to the retrieval and representation of saved information, without conscious awareness or intention. Overt memory is the result of conscious reflection of previous knowledge or experiences [1].

In the covert memory, processing is perceptual, while in overt memory it id conceptual. Perceptual processing is shallow and superficial, but conceptual processing is deep. The most important proponents of this viewpoint are Jacoby and Reydeger [2]. Depressed persons deviate environmental inputs in a way, so that they agree with their negative interior conclusion; to do so, they delete or deviate any information that is discordant with their cognitive organization. Thus, these persons' biased memory results from negative cognitive patterns and a kind of deficits in the process of information processing. Comparative analysis of depressed and non-depressed persons indicates the existence of malfunction and deficits in the cognitive performance of depressed

persons, in relation to data processing and data processing speed [3], in overt memory [4], though some studies show no special deficit in the cognitive interests of depressed person compared to the normal group [5].

In their study, Sarra Hayes and Hirsch [6] investigated the deviations of data processing in generalized anxiety disorder. A recent study has shown that it is possible to train very anxious people and have they accepted interpretive and benign deviations; this, in turn can lower the level of anxiety. There is little evidence that anxious persons have a better memory when facing information.

Mitt [7], studied memory deviation when facing information recall in anxiety and anxiety disorder in a meta-analysis: Results showed that there is no difference in the quality of data processing between anxious and very anxious patients. But, there was a big difference between the effects of studying, in recall and recognition. The pointed out that more researches are necessary in order to identify and explain mediator variables for preference and avoidant recall.

In a study, Gunther, Holtkamp and Jolles [8], dealt with oral memory and the aspects of attention control in children and teenagers suffering from anxiety disorders or depression disorders, which revealed a significant effect, regarding the relationship between the results of the oral memory. It was also found out that dysmnnesia, accompanies child depression in a special way.

Malhy studied fore head lobe of depressed patients while performing an active memory task; their performance was lower than the control group in all active memory part. Based on their observations, they concluded that depression brings about almost specific damages to active memory, particularly the (central performer). Bruce and Friedman [9] investigated the overt memory deviation for dangerous words in anxiety disorder. Although their findings showed in generalized anxiety disorder (GAD), in this field contradictory related to the study of attention process in generalized anxiety disorder, results made that memory deviation is seen almost in all anxiety disorder.

In recent years, extensive attention has been paid to the assessment of memory functions, since they accompanied the hippocampus analysis. The results of two meta-analyses proved less hippocampus in very depressed patients, especially with sequential repetition [10]. In recent years, functional magnetic Resonance imaging (fMRI) has explained some parts of the brain that includes motor memory in depression and shows abnormal processing during emotional and shows abnormal processing during emotional coding in memory in amygdale, hippocampus and parietal areas. [10]. Toozande Jani and KamalPour [11] cited the effects of mood-adapted memory bias on overt and implicit memory; results showed that in depressed patients, disorder happens only in overt memory. In relation to retrieving emotional words, these patients showed significant difference compared to other groups. One hypothesis was also approved that (induced) mood, makes recalling those information, harmonious with it, easy.

Saufi et al. [12], conducted a study named recalling and judging, about the frequency of emotional and neutral words in patients suffering from major depression, generalized anxiety and control group; they indicated that although both clinical groups, compared to the normal witness group, in the task of judging the frequency of emotional words showed mood- adapted bias, only depressed patients showed this bias in recalling mood-adapted words. Research findings suggest that no similar processing principles are dominant in two groups, and as salaried in previous viewpoints, those suffering from anxiety and depression, do not follow the same biases in all levels of information processing.

In the study of overt and implicit memory bias (positive and negative), in difficult and in difficult conditions, and perception the risky consequence in depressed, anxious, combinational and healthy college-students, Nosrati et al. [13], showed that subjects in depressed and healthy group regarding implicit memory, in both conditions (difficult & in difficult) showed significant difference in recalling positive emotional words. Depressed subjects recalled negative emotional words from implicit memory, in both condition, more than anxious and combinational disorder subjects.

**Significance of subject:** One important subject in the literature of psychology, particularly clinical psychology is the way emotional- disorders affect person's cognitive functions. Wallims and associates believe that emotional disorders affect cognitive processes, including attention and memory in several ways. Emotional disorders can increase people's attention to events that cause tenseness, or increase the number of retrieving these events [14]. This the study of memory is of great importance, since thinking (including perception, problem-solving, and recall) rely on memory, and any bias in memory can cause bias in thinking and cognition. In addition, emotions can affect memory in encoding, saving, and retrieval [15]. Finally, this subject can serve cognition therapy, which is wide spread these days. Besides, since these two disorders, namely, anxiety and depression. Overlap, they are studied and compared in one united study.

### **Hypothesis:**

1. Regarding free recall, there exists difference among those who suffer from generalized anxiety, major depression, and normal persons.
2. Regarding signing recall, there is difference among those who suffer from generalized anxiety, major depression, and normal persons.
3. Regarding recognition, there is difference among those who suffer from generalized anxiety major depression, and normal persons.

## MATERIALS AND METHODS

The statistical universe of this study includes outpatients diagnosed as having generalized anxiety disorder (GAP) and major depression disorder (MAD), who have reference to governmental and non- governmental psychiatric centers and consulting & psychotherapy centers in Ahvaz. These patients were (matched) according to clinical interview, and considering such variables important to the study. According to clinical interview and psychiatrist diagnosis, those who every one standard deviation higher than the average, according to Beck scales of anxiety and depression were elected as patient group. Other group of people was selected as the statistical universe of normal group. Available sampling was the sampling method of this study; thus groups of subjects were chosen accordingly:

1. The two groups of patients generalized anxiety (GAD) and major depression disorder were chosen according to the psychiatrist diagnosis and a clinical interview based on DSM- TV variables, led by a clinical psychologist.

2. Normal group included shahid Chamran University students; this group had never been diagnosed as having any mental disorders. Subjects of all groups were matched according to such variable as age, education, and socio cultural status .

### **Instrument:**

Beck depression inventory (BDI) Contains 21 questions are about psychological signal, and 6 questions over about body symptoms. All questions have 4 options (0-3) that evaluate the intensity of the symptoms. Total score is obtained through adding all the scores of the questions; the range is between 0-63 .Higher scores indicate higher depression.

Beck anxiety inventory (BAI) contains 21 questions that emphasize particularly on physiologic aspects of anxiety. 13 questions of BAI are about anxiety mood, 3 questions about specific fears, and 5 questions are related to hyperactivity and motor tension in anxiety.

Recall indication: this test includes 30 associative pairs (e.g.: gifted, holiday) that are taken from a list made by are [1]. It should be mentioned that these words are matched regarding level of affection, frequency, and word length (4-5 letters). Minimum sore is 0, and maximum score is 30.

Free recall test: this test contained 2 short passages(each containing 10 lines) elected from among Nahravainan [1] and were matched regarding level of affection these passages were elected from the 20 passages given to university students, which were matched mostly according to level of affection min. score =0 max.score:30

Recognition test: this test contained 2 lists of words, the first having 30 words and the second, 68 words(a combination of words in list 1+ new words) for recognizing words in list 1. As an example such words as: old, hat, tree were taken from word lists made by zare[1] which were matched regarding level of affection, frequency, and word length. Min. score: 0 max. Score: 30.

### **Giving memory tests:**

These tests were given to the subjects, one by one, as follows:

1. At first indication recall test was given to the subjects in a written from to memorize in 2 minutes. To avoid the interference of the effects of cognitive tasks, after the learning step, subjects were given a cognitive activity requiring writing 1-100 conversely. Then in the test step, they were given pair words. They were told one word, then were required to recall the other (2 minutes was the allocated time .)

2. The second test .i.e. free recall was taken after 5 minutes. 2 passages were given to the subjects to memorize in 4 minutes. To avoid the interference of the effects of the cognitive task, subjects were given a cognitive activity including Raven intelligence test for adults.

They were given 40 minutes, then in the test level, they were asked to recall the previous text in a written from, in 5 minutes.

3. The third test, i.e. recognition, was given 5 minutes after free recall test. At first, the first list of words was given to the subjects in a written from; they were to memorize them in 2 minutes. In order to avoid the interference of the effects of cognitive task, subjects were asked to memorize the shapes of test and then draw them. 10 minutes was the allocated time. After doing the cognitive activity, subjects were given the second list; they ought to recognize previous word from among the words of the new list in 2 minutes, and mark them in the special from, made for this purpose.

## RESULTS

Table 1 illustrates the summery of data related to the average and standard deviation of generalized anxiety, major depression, and normal group scores.

In order to study the difference among the three groups, regarding free recall, one - way variance was applied; the results are presented in table 2.

**Table 1.** Average and deviation scores of subjects in variable as free recall, indication recall, and recognition

Variable	Groups	Average	Standard score
Free recall	Afflicted with generalized anxiety	19.61	3.18
	Afflicted with major depression	16.52	2.96
	Normal persons	25.60	3.14
Recall	Afflicted with generalized anxiety	20.95	2.85
	Afflicted with major depression	18.27	3.91
	Normal persons	24.43	2.16
Recognition	Afflicted with generalized anxiety	21.34	4.17
	Afflicted with major depression	22.18	3.75
	Normal persons	25.30	2.93

**Table 2.** The results of one- way variance; comparing free recall in the 3 groups

Change Sourced	Total	Degree Of Freedom	Logarithmic Mean	F-Ratio
Between-Group	4882.28	2	2441.14	
Within-Group	98177.32	297	283.68	8.84
Total	88939.82	299		

According to calculated F in table 2 ( $F=4.84$ ), there has been a significant difference among the 3 groups of subjects, regarding free recall ( $P < 0.05$ ). The results of (posteriori) test revealed great difference between the 2 groups of generalized anxiety and major depression, regarding free recall ( $P < 0.05$ ). Also between the groups of generalized anxiety and normal persons there is a big difference ( $P < 0.05$ ). On the other hand there is great difference between the groups if generalized anxiety and major depression ( $P < 0.01$ ).

Results of one- way variance analysis are reflected in table 3, in order to study the difference among the three groups, regarding indication recall.

**Table 3.** Results of one-way variance analysis to compare the averages of indication recall among the three groups

Change Sources	Logarithmic total	Degree of freedom	Logarithmic mean	F-Ratio
Between group	3984.25	2	2992.13	
Within group	850788.62	297	238.64	7.91
Total	97838.91	299		

Regarding calculated F in table 3 ( $F= 8.71$ ) there was a big difference among the three groups, namely, generalized anxiety, major depression, and normal persons, regarding indication test ( $P < 0.05$ ). The results of test also indicates a significant difference between generalized anxiety and normal group ( $P, 0.05$ ), also the results of Tukey test show a great difference between major depression disorder and normal group ( $P < 0.01$ ).

But there is no significant difference between anxiety disorder and major depression group, regarding recognition. The results of one- way variance analysis, in order to study the difference among the three groups, regarding recognition is given in Table 4.

**Table 4.** Results of one- way variance analysis for comparing recognition mean of the three groups

Change source	Logarithmic total	Degree of freedom	Logarithmic mean	F- ratio
Between-group	3366.84	2	1683	5.59
Within-group	33086	297	284.71	
Total	45957.09	299		

The results in table 4 are indicative of significant difference among the subjects of groups, in relation to recognition ( $P < 0.05$ ). The results of Tukey test were also indicative of a big difference among the three groups of generalized anxiety disorder, depression disorder, and normal group ( $p < 0.05$ ). But there was no specific difference between the generalized anxiety and the major depression group.

## DISCUSSION

This study was conducted to investigate the role of the media in the relationship between boys and girls. The results of this study indicated that most explanations and the greatest role in explaining the relationship between boys and girls contributed to the satellite. According to some experts, communication media including television can influence thoughts, attitudes and actions of people through providing different subjects in different video formats (movies, series etc.). They show positive or negative exaggerated videos or represent a moving mirror like picture of everyday social realities, either good or bad ones. They make films based on cultural

conditions and atmosphere of the community, different issues including those related to the relationship of young boys and girls. This mutual impact can be seen in other images as well. Because of much higher superiority of the satellite in terms of luxury and modern appearance design and quality in comparison with broadcast networks or the Internet, it seems that it has Girls tend a significant role in tendency of girls for having an unallowable relationship with the opposite sex. On the other hand, the internet has the lowest representation in the relationship between boys and girls. Virtual community on the Internet has not been successful in creation of boys and girls tendency to have relationship with the opposite sex due to the lack of proper transfer of real emotions. Jencitrz, in his study [10] found that main reasons of changing the identities of young people and their relationships are as follows: The lack of attention to the emotional and passionate needs and demands of the youth, lack of attention to their vitality, lack of attention to local culture, lack of availability of the mass media especially Internet and familiarity with various cultures. Results of this study may create necessary insight for university managers in planning for leisure time of students.

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