

Impact of OCD on Short Term Memory Span amongst University Level Students

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ABSTRACT

The research attempts to measure the OCD level and short-term memory span of the university level students. As per the results there exists a negative correlation between the two variables and the mean scores for the male and female population were also being measured. The data was being collected using simple random sampling and the population was being chosen from the university of Gurgaon district of Haryana.

Correlational research design was being applied. Y-BOCS was being used to measure the level of OCD and PMT was being used to measure the short-term memory span.

INTRODUCTION

Excessive thoughts (obsessions) that lead to repetitive behaviors (compulsions).

Obsessive-compulsive disorder is characterized by unreasonable thoughts and fears (obsessions) that lead to compulsive behaviors.

OCD frequently centers on ideas like a dread of germs or the requirement to organize objects in a certain way. Symptoms typically appear gradually and change over time. Both conversation therapy and medication are used as forms of treatment.

OCD is characterized by a pattern of unpleasant thoughts and anxieties (obsessions) that cause you to engage in repetitive behaviors (compulsions). These compulsive thoughts and behaviors disrupt daily life and cause severe distress. You might try to suppress or dismiss your obsessions, but doing so simply makes you feel more upset and anxious. In the end, you get compelled to engage in obsessive behaviors to reduce your stress. Despite attempts to suppress or ignore unwanted thoughts or urges, they persist. This feeds the OCD cycle, which results in more ritualistic behavior.

OCD often centers around certain themes—for example, an excessive fear of getting contaminated by germs. To ease your contamination fears, you may compulsively wash your hands until they are sore and chapped.

If you have OCD, you may be ashamed and embarrassed about the condition, but treatment can be effective.

SYMPTOMS

Obsessive-compulsive disorder usually includes both obsessions and compulsions. But it is also possible to have only obsession symptoms or only compulsion symptoms. You may or may not realize that your obsessions and compulsions are excessive or unreasonable, but they take up a great deal of time and interfere with your daily routine and social, school or work functioning.

Obsession symptoms

OCD obsessions are repeated, persistent and unwanted thoughts, urges or images that are intrusive and cause distress or anxiety. You might try to ignore them or get rid of them by performing a compulsive behavior or ritual. These obsessions typically intrude when you're trying to think of or do other things.

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Obsessions often have themes to them, such as:

- Fear of contamination or dirt
- Doubting and having difficulty tolerating uncertainty
- Needing things orderly and symmetrical
- Aggressive or horrific thoughts about losing control and harming yourself or others
- Unwanted thoughts, including aggression, or sexual or religious subjects Examples of obsession signs and symptoms include:
- Fear of being contaminated by touching objects others have touched
- Doubts that you have locked the door or turned off the stove
- Intense stress when objects are not orderly or facing a certain way
- Images of driving your car into a crowd of people
- Thoughts about shouting obscenities or acting inappropriately in public
- Unpleasant sexual images
- Avoidance of situations that can trigger obsessions, such as shaking hands

Compulsion symptoms

Compulsions associated with OCD are repetitive behaviors that you feel compelled to perform. These repetitive behaviors or mental acts are intended to alleviate anxiety caused by your obsessions or to prevent something negative from happening. Compulsions, on the other hand, provide no pleasure and may only provide temporary relief from anxiety.

When you have obsessive thoughts, you can create rules or rituals to help control your anxiety. These compulsions are excessive and frequently unrelated to the problem they are supposed to solve.

As with obsessions, compulsions typically have themes, such as:

- Washing and cleaning
- Checking
- Counting
- Orderliness
- Following a strict routine
- Demanding reassurance

Examples of compulsion signs and symptoms include:

- Hand-washing until your skin becomes raw
- Checking doors repeatedly to make sure they're locked
- Checking the stove repeatedly to make sure it's off
- Counting in certain patterns
- Silently repeating a prayer, word, or phrase
- Arranging your canned goods to face the same way

Severity varies

OCD typically begins in adolescence or young adulthood, but it can begin in childhood. Symptoms typically appear gradually and vary in severity throughout life. The kinds of obsessions and compulsions you have can also change over time. When you are under more stress, your symptoms will generally worsen. OCD, which is typically thought to be a lifelong disorder, can have mild to moderate symptoms or be so severe and time-consuming that it is disabling. If your obsessions and compulsions are affecting your quality of life, see your doctor or mental health professional.

Short Term Memory

The ability to store a small amount of information in the mind and keep it readily available for a short period of time is referred to as short-term memory. It is also referred to as primary or active memory. Because short-term memory is necessary for daily functioning, experiencing short-term memory loss can be frustrating and even debilitating.

- Short-term memory is very brief. When short-term memories are not rehearsed or actively maintained, they last mere seconds.
- Short-term memory is limited. It is commonly suggested that short-term memory can hold only seven items at once, plus or minus two.

Duration

The majority of the information stored in short-term memory will be retained for only 20 to 30 seconds, if at all. Some information can stay in short-term memory for up to a minute, but most information decays quickly unless you use rehearsal strategies like saying it aloud or mentally repeating it.

However, short-term memory information is highly susceptible to interference. Any new information that enters short-term memory quickly dispenses with old information. Short term memories can also be hampered by similar items in the environment.

For example, if you're in a crowded, noisy room, or if you're thinking about what to say to the person rather than paying attention to their name, you might have a harder time remembering it.

While many short-term memories are quickly forgotten, paying attention to them allows them to progress to the next stage-long-term memory.

Capacity

The amount of data that can be stored in short-term memory varies. In 1956, psychologist George Miller proposed in an influential paper titled "The Magical Number Seven, Plus or Minus Two," that people can store between five and nine items in short-term memory.

According to newer research, people can store approximately four chunks or pieces of information in short-term memory.

Consider this scenario: you're trying to remember a phone number. As the other person rattles off the 10-digit phone number, you mentally record it. A few moments later, you realize you've already forgotten the number. If information is not rehearsed or repeated until it is committed to memory, it is quickly lost from short-term memory.

Short-Term vs. Working Memory

Working memory and short-term memory, according to some researchers, significantly overlap and may even be the same thing. Working memory refers to the ability to use, manipulate, and apply memory for an extended period of time (for example, recalling a set of instructions as you complete a task), whereas short-term memory only refers to the temporary storage of information in memory.

According to the Baddeley-Hitch model of working memory, there are two components: a place where you store visual and spatial information (visuospatial scratchpad) and a place where you record auditory information (phonological loop). Furthermore, the model implies the existence of a "central executive" who controls and mediates these two components, as well as processes information, directs attention, sets goals, and makes decisions.

How Short-Term Memory Becomes Long-Term Memory

Memory researchers frequently use the three-store model to conceptualize human memory. According to this model, memory is made up of three basic stores: sensory, short-term, and long-term, and each of these can be distinguished based on storage capacity and duration.

While long-term memory appears to have an infinite capacity and can last for years, shorter-term memory is relatively brief and limited. The capacity and duration of short-term memory are both limited. Memory must be transferred from short-term stores into long-term memory in order to be retained. The precise mechanisms by which this occurs are still debatable and poorly understood.

The classic model, also known as the Atkinson-Shiffrin model or multi-modal model, proposed that after a certain

amount of time, all short-term memories were automatically transferred to long-term memory.

Researchers have recently proposed that some mental editing occurs and that only certain memories are selected for long-term retention. Time and interference can both have an impact on how information is encoded in memory.

According to the information-processing view of memory, human memory functions similarly to a computer. In this model, information first enters short-term memory (a temporary holding store for recent events), and then some of it is transferred into long-term memory (a relatively permanent store), like how data on a computer is stored on a hard disc.

Some researchers, however, question the existence of separate stores for short-term and long-term memories.

Maintenance Rehearsal

Maintenance rehearsal (or rehearsal) can assist in the transition of memories from short-term to long-term memory. For example, you could use this method when studying for an exam. Instead of just reviewing the information once or twice, you could go over your notes several times until the important information is memorized.

Chunking

Chunking is a memorization technique that can help information transfer into long-term memory. This method involves grouping information into easier-to-remember groups, phrases, words, or numbers.

For example, remembering the number 65,495,328,463 will require considerable effort. It will be easier to remember if it is divided into the following chunks: 6549 532 8463.

How does OCD affect students' short-term memory, resulting in memory decline and poor academic performance?

OCD is a mental disorder defined by excessive or obsessive thoughts that result in repetitive or compulsive behavior.

OBJECTIVES OF THE STUDY

- To find out the level of OCD of university students
- To find out the short-term memory span of the university students
- To find out if there is any correlation between the two variables
- To find out significant differences of the mean scores of Male and Female Population

LITERATURE REVIEW

Tolin [1] attempted to study the memory confidence level in the people suffering from OCD. He exposed the sample subjects to three response provoking stimulus or three

objects mainly safe, neutral, and unsafe. They were being told to remember objects of all the three categories in a list in a cycle of 6 trials until the results for all the three categories become equal. He found out that the population showed no significant difference in the results of the safe and neutral objects but the scores reduced in the unsafe objects which showed that fear provoking stimulus linked to OCD cause significant impairment in the memory of the OCD subjects.

Another study was being done by Konishi [2] on the patients suffering from OCD. The research attempted to study the episodic memories of the patients. The population was divided into two groups. Control and Experimental. Both the groups were being showed two lists of 12 words in each list. Each of the list was being named. The results showed that the patients who had OCD had impaired retrieval and encoding process

Another study published in the Journal of Neuropsychology [3] found that individuals with OCD had impairments in visual-spatial working memory, which is a type of STM that involves temporarily holding and manipulating visual information.

A study published in the Journal of Obsessive-Compulsive and Related Disorders [4] found that individuals with OCD had impairments in the ability to suppress irrelevant information in working memory, which may contribute to the difficulty in stopping obsessive thoughts or compulsive behaviors.

A study published in the Journal of Psychiatric Research found that individuals with OCD had deficits in the ability to update and maintain information in STM, suggesting that difficulties in these cognitive processes may contribute to the perseverative nature of OCD symptoms.

RATIONALE OF THE STUDY

The main purpose of this research is to access the short-term memory span of the university students who are suffering from OCD compared to the normal university population and find significant differences between the scores of the two given groups

The rising number of the OCD population in our country make it a matter of concern since OCD directly hampers with your daily life functioning and affects your cognitive functioning as well.

The past studies have shown that patients who had moderate to severe level of OCD had lower remembrance power and lower psycho motor skills.

In the past few years there have not been any major research over this topic and number of rising causes amongst the young adult population has become a matter of concern since it is directly affecting with academic performance and

memory functioning which is further giving rise to serious mental health issues like, inferiority complex, depression etc.

Through this research teachers can plan out a unique learning plan for the students whose memory is specifically hampered by OCD and accordingly they can plan special remedial classes for such students.

In today's world OCD has become a prominent disorder but very few people are aware about it. This study would technically help to spread more awareness about this disorder and would also help more of such students who are having symptoms of OCD.

METHODOLOGY

Hypotheses of the Study

For the present study two hypothesis are being framed based on the previous researches:

- H1: There exist a negative correlation between the two variables
- H2: There is significant difference between the mean scores of the male and female populations for OCD level and short-term memory span.

Independent Variable

For the present study short term memory span was taken as the independent variable.

Dependent Variable

For the present study OCD Level span was taken as the dependent variable.

Sample Size and Sampling Technique

The current study includes 200 college students from the Gurugram district of Haryana. The samples were chosen using a simple random sampling method. The sample is meant to be representative of the entire population. The simplest type of probability sample is a simple random sample (SRS). The study's goal may be to estimate a quantity with a desired precision (defined as the variance or deviance from the population mean) or to test a mean hypothesis.

Tools Used

- Y-BOCS scale for adults
- Picture memory test
- Laptop
- Paper
- Pens

Research Design

For the present study correlational research design is being chosen. A correlational research design investigates relationship between variables without the researcher controlling or manipulating any one of them.

Procedure

All the participants were being invited to the psychology laboratory one at a time and the rapport was being formed with each one of them. In the first stage they were being administered by Y-BOCS scale to measure the level of OCD. A proper consent was being taken by each of the participant who was a part of the test. For the administration of the YBOCS scale all the required instructions were given to the participant and a brief description was being given about the scale as well. After the administration of the Y-BOCS scale the participant was being given a break of 2 min. After 2 min they were being administrated with the Picture memory test to their short-term memory span. PMT consists of a list of pictures that are being displayed on the screen for 30 sec and after 30 sec they will vanish. The participant must write down the names of all the objects that he remembers. After the administration of the test the scores were being calculated.

RESULTS

From the above data it can be inferred that the r value is negative and significant at 0.5 confidence level from which it can be concluded that there exists a negative correlation between the OCD level of students and their short-term memory span which means that the higher the OCD level of students lower the short-term memory span and vice versa.

Also, in the **Table 1** the value of “t” came out to be 2.4601 and the two sampled P value is less than 0.0001 and by conventional criteria the difference is extremely statistically significant which means that there is a good significant difference between the mean scores of the two groups.

Table 1. To find out the OCD Level of the college students and the Mean and SD have been calculated.

| Sub Sample | N | Mean | SD |
|------------|-----|-------|-------|
| Female | 80 | 24.60 | 7.20 |
| Male | 120 | 30.81 | 10.32 |
| Total | 200 | 27.7 | 8.7 |

t: 4.6751; df: 198 Two sampled P value is less than 0.0001

Similarly, in the **Table 2** the t value came out to be 2.4601 and the two sampled P value is less than 0.0147 and by conventional criteria the difference is statistically significant which means that there is a significant difference between these two groups as well.

Table 2. To find out the Short-Term Memory Span of the college students and mean andSD have been calculated.

| Sub Sample | N | Mean | SD |
|------------|-----|-------|------|
| Male | 120 | 14.30 | 5.43 |
| Female | 80 | 12.60 | 3.61 |
| Total | 200 | 13.45 | 4.52 |

t: 2.4601; df: 198 Two sampled P value is less than 0.0147

Hence, from the above two paragraphs we can infer that there exists a significant difference between the mean scores of the male and female population of OCD levels and short-term memory span.

Hence both the hypotheses are being accepted.

Correlational Analysis For the testing of the ‘r’ the value is calculated (**Table 3**).

Table 3. Correlational Analysis For the testing of the ‘r’.

| Variable | N | R value | Significance at 0.5 level |
|--------------------------------|-----|---------|---------------------------|
| OCD and Short-term memory span | 200 | -0.7 | Significant and Negative |

DISCUSSION

From this entire research we concluded that that participant with high level of OCD tend to have low short-term memory spans. This might be one of the reasons for lower learning power of the students as well. The educational Institutions should arrange special remedial classes for such students whose memory is specifically hampered by OCD. Apart from OCD there might be several other learning disorders as well that the student might be suffering from but the existence of these disorders is generally neglected by parents and teachers.

Every educational institution should assign a highly trained psychologist or a counsellor to help children overcome such issues which could hamper with their academic learning.

Hence from this research we could point out OCD as one of the factors for poor academic performance of the students.

Another thing that we could conclude from this research is that OCD is more prominent amongst males.

LIMITATIONS OF THIS RESEARCH

- The research was time taking
- The research was not cost effective

- The study ignored the important environmental factors that could lead to a bias in the results
- The Language used in Y-BOCS scale is a little advanced and few participants faced some trouble while understanding the statements.

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