

Factors Related to Obsessive-Compulsive Disorder

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Abstract

The current study examined the relation between academic majors/minors of college students, birth order, gender, level of stress, locus of control (LOC) and the amount of obsessive-compulsive (OC) behaviors. A sample of 75 undergraduate students was surveyed. Questionnaires assessing OC behavior using a 1-7 Likert scale were administered to participants. The findings suggest that stress level was positively correlated with the amount of OC behaviors. No relation was found between LOC and OC behaviors. The study indicated significant difference related to gender and amount of OC behaviors. The hypotheses regarding academic majors/minors, birth order, LOC and OC behaviors were not supported.

Obsessive-Compulsive disorder (OCD) is defined, according to the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV), as occurrence of unwanted obsessive thoughts (obsessions), which are usually accompanied by certain behaviors or mental acts (compulsions) directed to neutralize unwanted thoughts and images. Obsessions are recurrent, persistent thought, impulses or images that are perceived as disturbing, intrusive and inappropriate. They are recognized as products of one's own mind, rather than being imposed. Compulsions are repetitive behaviors (e.g., touching, checking, hand washing) or mental acts (e.g., counting, repeating certain words) that are performed in response to obsessive thoughts with intention to reduce distress or to prevent some unwanted event. In reality there is no connection between these behaviors and obsessive thoughts. Compulsions are usually performed in accordance to some rigid rules. Finally, according to DSM-IV, in order to diagnose OCD a person has to recognize the thoughts and behaviors as distressing, time consuming and interfering with one's life and social functioning.

Although OCD was initially thought to be an extremely rare disorder, Roth and Luton found a prevalence of OCD of 0.3% in 1942 (Garbe et al., 2000), it is now recognized as a relatively common psychiatric disorder. Later, lifetime prevalence of OCD was estimated to be between 2.35 and 3.6% (Apter et al, 1996 and Valleni-Basile et al., 1994). Recent epidemiological studies suggest lifetime prevalence for OCD in children and adolescents between two and four percent (Humaida, Ismail, Abd-Alfattah, Eisa, 2004).

Although most research on OCD has been conducted with adult population, less attention has been given to childhood and adolescent OCD, studies of the disorder in children and adolescents have become available over the last decade. Unlike other mental disorders, this condition may present during childhood with symptoms vary similar of those of adults. Over 80% of individuals with OCD have onset of symptoms before the age of 18.

It is reasonable to estimate that rates of OCD in general population might be underestimated due to several reasons: 1) individuals might be secretive and reluctant to talk about their problem, 2) they might seek alternative treatments or treatments by non-mental health professionals, 3) a routine mental state examination might no include questions screening for OCD, 4) OCD might co-exist with other conditions that might make it difficult to recognize and to diagnose (OCD frequently co-occurs with depression, anxiety disorders and personality disorders).

OCD has gradual onset, and might progress to chronic form with symptoms varying in degree of severity over time. Most people with OCD experience both obsessions and compulsions. Though, it is possible to have a pure obsessional disorder without ritual behaviors. Obsessive thoughts may focus on a variety of topics: contamination, aggression, the need for symmetry and exactness and sexual content are among most common. Most prevalent compulsive rituals involve hoarding, checking and repeating behaviors, cleaning, repeating thoughts and words. Although OCD may present In variety of symptoms that differ among people, it is though to be a homogenous disorder based on the following criteria: 1) anxiety symptoms, 2) fear or expectation that something terrible will happen for which a person will be held responsible, 3) compulsive behaviors help to alleviate anxiety, at least fro a brief period of time, 4) preoccupation with “what if” and tendency o judge risks unrealistically.

It has also been suggested that there is a subclinical form of OCD defined as subclinical Obsessive-Compulsive Syndrome (sOCS). Individuals who are thought to be affected by sOCS typically have obsessive symptoms, compulsive symptoms, or both, but they fail to meet the criteria of the severity of impairment. Maiha, Albert, Bogetto and Ravizza (1999) suggested that average prevalence of sOCS was 12.3%.

Several studies suggested that clinical OCD and subclinical OCD (obsessive-compulsive symptoms not meeting the diagnostic criteria) are more prevalent among general population than had once been thought (Maggini et al., 2001, Grabe et al., 2000, Mathews et al., 2004, Mahmood et al., 2004). It is assumed that subclinical OCD occurs more frequently than clinical OCD. But very few investigations concerning subclinical OCD have been done. Although there is a substantial similarity in symptomology between clinical OCD and subclinical OCD, it remains unclear whether it is the same disorder varying in the degree of severity or whether subclinical OCD is a syndrome distinct from OCD. There is no conclusive evidence suggesting the nature of the relationship between clinical OCD and subclinical OCD. Both disorders cause social impairment (though in various degrees), decreased satisfaction in different areas of life and interference with normal living. Chronic forms of OCD often pose a challenge in finding effective treatment methods. Identifying young adults at high risk for developing OCD may be an important goal. Since early recognition of the problem and interventions may benefit treatment outcomes.

There have been various causal factors suggested regarding OCD and subclinical OCD. Among biological factors, genetic predisposition and brain abnormalities are regarded as risks. Studies with monozygotic twins and first-degree relatives show a possible genetic link (Carson et al., 1995). More research is needed to substantiate genetic predisposition, though. Several structural abnormalities in the brain of OCD individuals have been identified (abnormalities in the functioning of the basal ganglia and striatum). History of perinatal brain trauma has been found in males with OCD (Lochner et al., 2004). Some studies suggest hormonal changes in women as factors exacerbating OCD. Other studies suggest various sociocultural and demographic factors as causal or precipitating/exacerbating symptoms of OCD. Despite the extensive research conducted on OCD, speculation regarding triggering and causal factors remains not well understood.

In the current research the focus was on whether such demographic factors as gender, birth order, academic majors/minors and personal characteristics such as locus of control and level of stress in one's life had an impact on the development of OCD symptoms and obsessive-compulsive behaviors.

Examination of studies on gender may provide an insight on the relationship between clinical and subclinical OCD. Literature research suggested that gender is related to several differences in OCD (Fisher et al., 1996, 1997). Review of several studies (Mathews et al., 2004, Noshirvani et al., 1991,

Beckstein & Dickinson, 2001) led to conclusion that gender might influence the age of onset and the nature of obsessive-compulsive symptoms. The prevalence of childhood obsessive-compulsive symptoms is higher in girls than in boys or appears to be equally distributed among genders. Obsessions and compulsions related to dirt phobia, checking behavior and obsessive doubt are the most frequently reported symptoms across the studies (Maggini et al., 2001). Clinical studies have confirmed that male gender was a significant predictor of earlier age of onset, more insidious onset and greater chronicity of course (Lochner et al., 2004). Bogetto, Venturello, Albert, Maina and Ravizza (1999) found earlier age of onset of OCD symptoms and disorder in males. Females more frequently showed acute onset of OCD and an episodic course of illness. A history of anxiety disorder was more common among males, while females showed a history of an eating disorder.

Noshirvani et al., (1991) also found that early onset (5-25) was more common in men, and later onset (26-35) was more common in women. Early onset was associated with more checking, and late onset was associated with more washing. More women than men had a history of depression, and only women had a history of anorexia until recently. A survey of 3,012 Turkish adults aged 18 and over found the prevalence rate of OCD to be higher among females (males 2.5%, females 3.3%), but the difference was not statistically significant (Cillicilli et al., 2004). A German study found the gender female to male ration for the diagnosis of OCD to be 5.7, and for the subclinical diagnosis of OCD of 1.2, indicating equal sex distribution. The onset of clinical OCD compared to subclinical OCD was significantly earlier. Duration of subclinical OCD was found to be much shorter than the duration of clinical OCD (Grabe et al., 2000).

Clark and Beck (2002) found few gender differences with the exception of female OCD patients scored higher than males on compulsion scale. Beckstein and Dickinson (2001) found no significant gender differences on total scores, although some significant differences emerged on individual items. Males more frequently engaged in violent or sexual obsessions and fear of contamination. Females more frequently endorsed in rereading and rewriting, and cleaning compulsions.

A study examining students in Egypt found no statistically significant difference with respect to gender, the prevalence rate was somewhat higher for males than females (Humaida, Ismail, Abd-Alfattah, Eisa, 2004). Fisher, Himle and Hanna (1996/1997) found several significant gender differences in obsessive-compulsive symptoms. Males showed more concern with dirt and germs, hoarding obsessions and touching, tapping or rubbing rituals. Females described significantly more often fears of being responsible for something terrible happening. Mathews, Jang, Hami, and Stein

(2004) found that males scored slightly higher on Leyton Obsessional Inventory short form (LOI-sf) than females, but there were no significant differences between the two groups.

Several studies suggested birth order to not be statistically significant in development of OCD symptoms (Humaida et al., 2004 and Cillicilli et al., 2004). On contrary, OCD was associated more with the last born child (52.7%) than with the first born child (27.5%) (Ismail and Abd-Elaziz, 1998). Okasha et al., (2001) found first born to be a risk factor in the sample of 340 male and female secondary school students (ages 15-17) and 560 male and female university students (ages 18-24) in Egypt. However, more studies are needed to support the idea that being the first born is a risk factor for OCD.

Few studies suggest that stress is a factor in development of obsessive-compulsive symptoms, however, the results are inconclusive. Some authors suggested that stressful events are likely to precipitate OCD in females (Bogetto et al., 1999), though not all studies agree with the findings (Lensi et al., 1996).

In the literature there were several references to the possible connection between the locus of control and OCD symptoms. According to Rotter (1966), locus of control can be either internal (I) or external (E). Those with internal locus of control indicate that they influence the results of events in which they participate; on contrary, those with predominantly external locus of control report that other people control the outcome of events, or factors such as chance, accident, fate and luck play a significant role. Studies by Beekman et al., (1998) and Einstein and Menzies (2004) suggested that there is a relationship between external locus of control and obsessive-compulsive symptoms. However, research conducted by Kennedy, Lynch and Schwab (1998) found significant negative correlation. Possible explanation of the findings was that participants with OCD were aware of the need for internal control.

Even though extensive research is available on factors related to OCD, no valid evidence is available on academic majors/minors related to OCD.

The current research examined factors such as academic majors/minors, gender, birth order, locus of control, level of stress and their relationship to the amount of obsessive-compulsive behaviors. College students were chosen to be the participants of the research, because their age group

represented the highest risk factor for developing obsessions and compulsions. It was not expected that many cases of clinical OCD would be found, but rather subclinical obsessive-compulsive symptoms and behaviors.

The research further hypothesized that females would report greater number of obsessive-compulsive symptoms and behaviors. Several studies suggested that female gender was a risk factor for OCD. Also, evidence shows that females tend to be more open when discussing symptoms.

First born and only children were expected to exhibit the most obsessive compulsive behaviors due to higher parental expectations and responsibilities.

Participants with external locus of control and higher stress level were predicted to display more obsessive-compulsive behaviors to compensate for their need for control.

More obsessive-compulsive behaviors were predicted among students in science and business majors/minors vs. liberal arts majors/minors. Science and business majors/minors allow more opportunity to express obsessive-compulsive behaviors. Science and business majors/minors usually require qualities such as precision, exactness, order, repetition, which are often seen among the compulsive symptoms of OCD.

Presence and degree of obsessive-compulsive symptoms and behaviors were measured in relationship to various demographic and personal factors (academic majors/minors, gender, birth order, locus of control, level of stress). Random sample of college students was drawn and the research data was collected via surveys containing questions assessing obsessive-compulsive symptoms (Yale-Brown Obsessive-Compulsive Scale was used), locus of control and stress level in daily lives.

The demographic data related to the hypothesis (gender, birth order, academic majors/minors) was collected. Because the survey was anonymous, participants were expected to be more open and honest about their responses.

Method

Participants

The study investigated the prevalence of Obsessive-Compulsive behaviors among students, as well as the associated risk factors: gender, academic major/minor, birth order, level of stress and locus of control. Volunteers for participation in the study were requested among college students.

Participants were undergraduate students in local colleges. The sample included 75 participants, 51 females and 24 males, 46 students with science/business majors/minors, 26 students with liberal arts/humanities majors/minors, and 30 first born or only children, 43 those standing lower in the birth order were present. Three students failed to state their majors/minors, and 2 students did not indicate their birth order. Informed consents were obtained verbally. All participants completed the survey described below.

Testing Materials

Obsessive-Compulsive behaviors were assessed with an adapted version of the Yale-Brown Obsessive Compulsive Scale (Y-BOCS), which included 26 questions measuring obsessive thoughts and compulsive behaviors. 1-7 Likert scale was used to rate each response. Anxiety was assessed by 4 questions from the Worries Survey (Makosky et al.), 5 questions assessing the locus of control were included, as well as the question asking to rate the stress level on the 1-7 Likert scale. The survey was given the name "Personality Profile Questionnaire" in order to avoid biased responses (see appendix for copy of the survey). All participants were kept blind to the purpose of the study.

Procedure

Before the survey was administered, the field study had been conducted to check the survey for possible mistakes, to see if questions were difficult to understand and to find out whether the survey would generate relevant data. Aspects that the study controlled for were: a sample representative of different academic majors, representation of both genders, no student participated in the survey more than once and the survey was not scheduled on test days. The study was approved by the Institutional Review Board of MaKendree College in Illinois. Instructions on how to complete the survey were given. The study was conducted by mean of self-administered questionnaires during the time frame from March 30, 2006 to April 6, 2006. The time it took to complete the survey was 10-15 minutes. The survey was conducted in several stages. During the first stage, the survey was administered to a group of students selected by convenient sampling. Then the analysis of data was

conducted. During the following stages, matched samples on such variables as gender and academic majors/minors were randomly selected. After the survey was completed, the questions regarding the purpose of the survey were answered on individual basis.

Results

Analysis of gathered data was conducted using SPSS 13.0 for Windows. In order to determine gender differenced related to Obsessive-Compulsive behaviors t-test was run. For females the mean was 129.4, for males the mean was 112.2, p -level = 0.015. Significant difference between the two groups was found and the hypothesis regarding females reporting more Obsessive-Compulsive behaviors was supported.

The hypothesis regarding first born and only children reporting more OC behaviors was not supported. The mean for the first born children was 121.4, the mean for children lower in birth order was 124.9, $t = -0.51$, $p = 0.61$.

To determine if there was the relation between the locus of control and Obsessive-Compulsive behaviors Pearson Correlation was used. The hypothesis regarding students with external locus of control reporting more Obsessive-Compulsive behaviors was not supported, $r = 0.18$, $p = 0.13$. No relationship between LOC and OC behaviors was found.

To assess the relation between stress level and the amount of OC behaviors Pearson Correlation was run. The hypothesis regarding participants with greater stress level reporting more OC behaviors was supported, $r = 0.36$, $p = 0.001$.

The difference in the amount of OC behaviors among students in Science majors/minors vs. Liberal Arts/humanities majors/minors was examined using t-test. The hypothesis was not supported, $t = 1.47$, $p = 0.15$. Although the difference between the two groups was not significant, the trend in the data was in the direction predicted.

Some significant differences were found on individual items. Women were found to have higher worry level compared to men in the sample. For women $M = 28.5$, for men $M = 24.2$, $p = 0.02$.

Obsessive behaviors involving food were found to be significantly predominant among women. Mean for women was 3.78, while for men the mean was 2.67, $p = 0.013$.

Obsessive-Compulsive symptoms regarding order and symmetry were found to be more prevalent among students in science/business majors, compared to students in liberal arts/humanities majors/minors. Science majors/minors $M = 19.42$, liberal arts/humanities majors/minors $M = 15.95$, $p = 0.003$.

Discussion

The present study found that women reported higher rates of Obsessive-Compulsive behaviors/symptoms than men. This finding is somewhat in contrast to findings of previously conducted studies. This outcome could be due to the fact that the sample size was comparatively small, and male and female participants were not equally represented in the study (51 females, 24 males). Furthermore, the findings could be due to the fact that men were reluctant to report Obsessive-Compulsive symptoms, even though the survey was anonymous. Future research would be needed on the subject.

With regard to the birth order, there was no significant difference found between the two groups (first born and only children and children lower in the birth order). The difference between the two groups in the sample representation was not large (30 first born or only children, 43 children standing lower in the birth order), but relatively small sample size could have influenced the results. The finding corresponds with the findings of earlier studies (Humaida et al., 2004 & Cillicilli et al., 2004).

The current research found no relationship between the external locus of control and Obsessive-Compulsive behaviors. The finding could be due to the fact that participants with Obsessive-Compulsive symptoms were aware of their need for control. More studies conducted with larger samples would be advantageous to have conclusive results.

The relation between stress and Obsessive-Compulsive behaviors was found in the present study. That finding corresponded to some previous studies (Bogetto et al., 1999), although, some studies found no significant relationship between the variables (Lensi et al., 1996). In addition, the nature of the relation between the variables is not clear.

No significant difference between the two groups (science/business majors/minors vs. liberal arts/humanities) and Obsessive-Compulsive behaviors was found, although, the trend was in the direction predicted. The two groups were not equally represented in the sample (46 students with science/business majors/minors, 26 students with liberal arts/humanities majors/minors), which could have influenced the results. No research studies were found on the topic. More research studies would be desirable in the future.

Identifying factors associate with Obsessive-Compulsive behaviors could be an important step in recognizing and diagnosing OCD, as well as the treatment outcomes. The findings of the current research indicated the need for more studies conducted

Investigating the prevalence of subclinical Obsessive-Compulsive symptoms and behaviors, and factors associated with them, as well as studies examining the nature of the relation between the Obsessive-Compulsive Syndrome and clinical OCD.

The limitations of the current research were: questions used for assessment of OCD were used to detect OC behaviors among the participants, sample size was small, also, convenient, rather than randomized sampling was used, that is why the findings of the research study cannot be generalized. Furthermore, assessments were made using self-report questionnaires, which introduced the possibility of false positive and false negative results.

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Appendix

Personality profile questionnaire

Thank you for your participation in the survey. Participation is on voluntary basis. You have freedom to withdraw at any time. The information provided is anonymous and confidential. Please answer each question with honesty.

- | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|-------|---|---|---|---|---|--------------|
| | Never | | | | | | All the time |
| 1. It is important for me to have a place for everything | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. It bothers me when people do not put things back exactly as I left them | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. I am meticulous and orderly with most of my possessions | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. I need to keep doing something until I get it just right | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. I like to pre-plan and schedule most of my activities very carefully | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. I feel I must strive for perfection in almost everything I do | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. After completing a task, I have to check and recheck what I have done | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. I experience difficulty in trying to make the right decision | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. I like to make lists of my daily chores and activities | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. I feel uncomfortable when I have to break an appointment | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. I tend to get upset if things don't go as I planned | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12. When leaving my home I find that I have to check and recheck doors, lights, windows, stove, etc | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13. I have persistent concerns about my body | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14. I have excessive concerns about dirt and germs | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 15. I have feelings of revulsion about bodily waste and secretions | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | Never | | | | | | All the time |
| 16. Most mornings I spend a great deal of time making sure that I look just right | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 17. I tend to worry about what people think of me | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 18. I am preoccupied with food and food measurements | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 19. I am overly concerned about my weight (example: weighing myself several times a day) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 20. I have rituals involving food (example: not letting food touch on the plate) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 21. I move, walk and eat rapidly because I don't want to waste time | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 22. I find it difficult to relax and do nothing | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

23. I worry about having too much to do and too little time to do it	1	2	3	4	5	6	7
24. I worry about not being successful in my major	1	2	3	4	5	6	7
25. I worry about my grades	1	2	3	4	5	6	7
26. I worry about finding a job in major field upon graduation	1	2	3	4	5	6	7
27. When under stress I tend to become confused and disorganized	1	2	3	4	5	6	7
28. I frequently get angry at others for not sticking to plans we have made	1	2	3	4	5	6	7
29. I am frequently tense	1	2	3	4	5	6	7
30. I often feel anxious or apprehensive even though I don't know why	1	2	3	4	5	6	7
31. If you set realistic goals, you can succeed no matter what	1	2	3	4	5	6	7
32. Chance has nothing to do with being successful	1	2	3	4	5	6	7
33. A person cannot rise above his/her background	1	2	3	4	5	6	7
34. Most of the time, failing an assignment is a sign of insufficient effort on my part	1	2	3	4	5	6	7
35. You cannot control your future	1	2	3	4	5	6	7
36. What is the level of stress in your life?	1	2	3	4	5	6	7
	Very little						Great deal

Please, include the following:

Gender **M** / **F**

Birth order **oldest child**
only child
neither

Academic major _____

Academic minor _____