Prevalence of Obsessive-Compulsive Disorder Among Psychology Students

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Abstract

Background: Obsessive-compulsive disorder (OCD) is a psychiatric disorder in which people experience repetitive, unwanted thoughts, called *Obsessions* and repetitive actions in which they cannot get rid of it, called *Compulsions*. Aim: to get the prevalence of OCD among psychology students at the university of Garmian and to compare the prevalence of OCD among grades, age groups and gender of the students. Method: a cross-sectional study design, purposive sampling method, using Yale Brown OCD Scale (YBOCS) to collect 102 samples from psychology students. Results: the severities of OCD were mostly moderate and sever. The mean OCD score was 21, with a standard deviation of 5.87, minimum 4 and maximum 33, and the range was 29. Conclusion: OCD is very common among psychology students, the moderate and severe are the most common severities. There are no significant differences between males and females, but differences in severity among studying grades. Future studies with different assessment tools and larger sample size are recommended with awareness programs about OCD.

Introduction

Obsessive-compulsive disorder (OCD) is a psychiatric disorder in which people experience repetitive, unwanted thoughts, ideas or sensations which are called Obsessions. In order to stop and control these thoughts, they feel anxious and controlled to do something repetitively and not being able to get rid of it which is called Compulsions. Some forms of the repetitive behaviors are hand washing/cleaning, checking on things, and some mental activities such as counting or any other repeating activities, can significantly interfere with a person's daily activities and social interactions. (APA, 2022).

Obsessive-compulsive disorder is a common psychiatric disorder (Weissman et al., 1994), its epidemiology is about 2% among general populations (Sasson et al., 1997). It was thought that prevalence of OCD is very rare in the communities, it thought to be about 5:1000 (Rüdin, 1953), then about 5:10,000 (Woodruff & Pitts Jr, 1964), while in 1988, in a wide range study among five communities in the US, it revealed that the lifetime prevalence rates of OCD were from 1.9% to 3.3% and these rates

were 25 to 60 times greater than had been estimated by previous studies of clinical populations. (Karno et al., 1988). So, this indicates the misunderstanding of the actual prevalence for decades, which still could be true with today's prevalence of OCD. In a recent editorial, it was found that the lifetime prevalence of OCD is from 1 to 2.3%, which is as twice as higher as schizophrenia prevalence (Shavitt et al., 2022).

Although the exact causes of obsessive-compulsive disorder are still unclear and differ in terms of many genetic, environmental and neurobiological factors. Obsessive-compulsive disorder patients may suffer from other disorders besides obsessive-compulsive disorder, such as various mental disorders: anxiety disorder, post-traumatic stress disorder anxiety disorder, depression, substance abuse, eating disorder, learning and also suicidal ideation (Jaisoorya et al., 2017; Huz et al., 2016; Fenske et al., 2015). A systematic review of OCD has revealed that there is a significant association between OCD symptoms and suicide ideation (Angelakis et al., 2015).

Obsessive-compulsive disorder among students has been studied broadly worldwide (Sulaiman et al., 2022; Al-Aaqad, 2021; Jaisoorya et al., 2017; Opakunle et al., 2017; Torres et al., 2016; Huz et al., 2016; Ghoreishi & Nikmanesh, 2014; Sulkowski et al., 2011; Yoldascan et al., 2009), but there are scarce studies about the prevalence of OCD among students in Iraq, especially psychology students. A study was conducted in Iraq among medical students entitled "Prevalence of obsessive-compulsive disorder (OCD) among Iraqi undergraduate medical students in a time of COVID-19 pandemic", the authors found high prevalence of OCD among students and no gender differences (Taher et al., 2021).

Hence, the majority of people with OCD are not aware of the fact that they do not know they have OCD (Mohammadi et al., 2004) and usu ally OCD is undiagnosed and untreated early (Vivan et al., 2013), it also affects a person's quality of life and functioning (Pampaloni et al., 2022; Hollander et al., 2010). This profession requires healthy adults who would be dealing with others' issues in the future. It has been shown that a lot of people have their first initial symptoms during college years (Beyond OCD, 2019). Psychology students – after graduation- are going to work as counselors in schools and clinics, they require improving their well-being, and this could be achieved by studying their mental health through similar studies.

This study aimed to get the prevalence of OCD among psychology students at the university of Garmian, to comparand e the prevalence of OCD among grades, age groups, and gender of the students. The study questions are: what is the prevalence of OCD among psychology students? Are there any differences in OCD prevalence between males and females? Are there any differences in OCD prevalence among different age groups? Are there any differences in OCD prevalence among the four grades?

Methodology
Study Design
A quantitative method, a cross-sectional study design was used for measure the prevalence of the obsessive-compulsive disorder among Psychology Students at the University of Garmian.
Population and Study Sample
The population of the study was all the students of the psychology department at the University of Garmian. The total number of students is (180) in four grades. The study sample was composed of 102 participants from all grades (25

from fourth grade, 21 from third grade from, 27-secondgrade, from and 29 first grade).

A purposive sampling method was used for the data collection process. The inclusion criteria for data collection were students from the psychology department, all grades, both males and females, and the who were willing to participate in the study.

The setting

This study was conducted at the Department of Psychology, University of Garmian, Kurdistan, Iraq, among four grades of psychology students. The University of Garmian is located in the Garmian region, Sulaymaniyah Governorate, Kurdistan- Iraq. The University of Garmian was established in 2010 as an independent university in Garmian. It has eight colleges which are Colleges of (Education, Basic Education, Science, Medicine, Agricultural Engineering, Language and Human Sciences, Sport Science and Physical Education, and Computer and Information Technology). The departments of (Law and Civil Engineering) are also part of this scientific and academic institution.

Tools and Data Collection

The study questionnaire was composed of two parts; part one was some sociodemographic questions such as age, gender, and grade of study. Part two was the Yale-Brown OCD Scale (YBOCS) (Rapp et al., 2016; Goodman et al., 1989), this scale has been used by researchers for decades from different countries and it has been improved as a valid and reliable scale for OCD (Alić et al., 2022; Storch et al., 2019; Kraus et al., 2015; López-Pina et al., 2015; Esfahani et al., 2012). The scale composes of 10 questions about OCD, with each item rated from 0 (indicates no symptoms) to 4 (extreme symptoms) (total range, 0 to 40), with separate subtotals for the severity of obsessions and compulsions. The grading of the scale is as follows: 8-15 = Mild OCD; 16-23 = Moderate OCD; 24-31= Severe OCD; 32-40 = Extreme OCD. The study questionnaire was designed by google form and shared online with psychology students' groups for a 10 days duration (from October 1st -11th, 2022) to get their responses. A brief clarification and objectives of the study were written for the students at the beginning of the form and they were given the choice to decide if they want to participate in the study and answer the questionnaire.

Reliability and Validity of the questionnaire

The Standard Yale-Brown OCD Scale was translated into the Kurdish-Sorani language by a bilingual faculty and later back-translated into the English language by another Bilingual faculty. Both translations were compared and evaluated by five bilingual faculties and the final draft was proofed to be used for data collection. The internal consistency of the scale was assessed using the Cronbach-Alpha test (0.80) which is statistically good.

Ethical considerations

This study was approved by the scientific debate Department of Psychology. Informed consent was taken online from each participant at the beginning of the questionnaire form, participants were given the freedom to decide about participation in the study by choosing "yes, I agree to participate".

Data Analysis

A quantitative analysis was used by the SPSS (version 26). Descriptive statistics, frequencies, percentages, Chi-Square Tests, and Pearson correlations were used for the analysis of the OCD severity (mild, moderate, severe, and extreme) and sociodemographic data (age, gender, and grade of studying), ANOVA analysis for comparing the means of the OCD scores for the grades, Independent T-test to compare OCD scores for gender, and Cronbach-Alpha test was

used for the reliability of the study questionnaire.

Results

Table 1: socio-demographic characteristics of the study participants:

		Frequency	Percent
Age groups	18-20 years	35	34.3
	21-23 years	57	**55.9**
	24 or more	10	9.8
Gender	Male	38	37.3
	Female	64	**62.7**
Grades	Grade 1	29	**28.4**
	Grade 2	27	26.5
	Grade 3	21	20.6
	Grade 4	25	24.5
Total		102	100.0

The majority of participants' age were between 21-23 years old (55.9), with the majority of female participants (62.7), and similar rates of participants from the grades.

Figure 1 shows that the severity of OCD was mostly moderate and severe. The mean OCD score was 21, with a standard deviation of 5.87, minimum 4, and a maximum 33, and the range was 29.
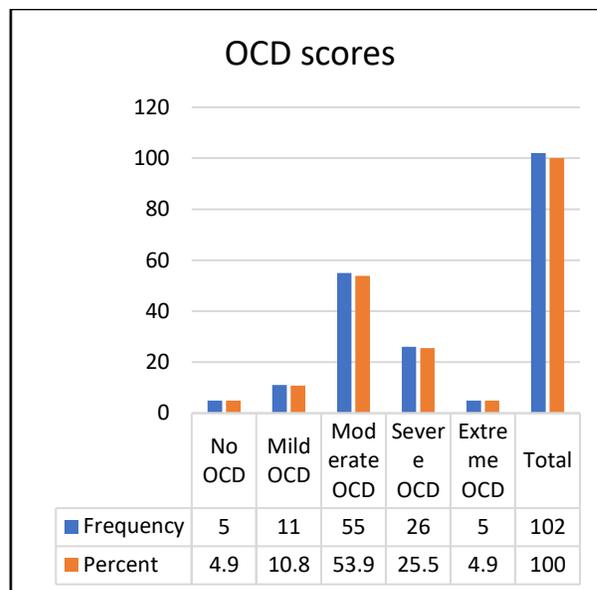

Figure 1: Severity of OCD scores among students.

Table 2: Chi-Square for OCD severity and age groups:

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.444a	8	**0.904**
Likelihood Ratio	3.703	8	0.883
Linear-by-Linear Association	.249	1	0.618
N of Valid Cases	102		
a. 9 cells (60.0%) have an expected count less than 5. The minimum expected count is .49.			

The table shows no significant relationship between OCD severity and age (sig= 0.904). which means that there are not significant differences in OCD severity among the age groups.

Table 3: Chi-Square for OCD severity and gender:

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.651a	4	**0.070**
Likelihood Ratio	9.401	4	0.052
Linear-by-Linear Association	1.192	1	0.275
N of Valid Cases	102		
a. 5 cells (50.0%) have expected count less than 5. The minimum expected count is 1.86.			

The correlation between OCD severity and gender is not significance (sig= 0.07), this shows no significance differences between males and females regarding OCD severity.

Table 4: Chi-Square for OCD severity and grades:

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	17.614[a]	12	0.128
Likelihood Ratio	18.825	12	0.093
Linear-by-Linear Association	5.775	1	0.016
N of Valid Cases	102		
a. 12 cells (60.0%) have expected count less than 5. The minimum expected count is 1.03.			

The correlation between OCD severity and grades also shows no significance differences (sig= 0.12), this means the severity is very similar.
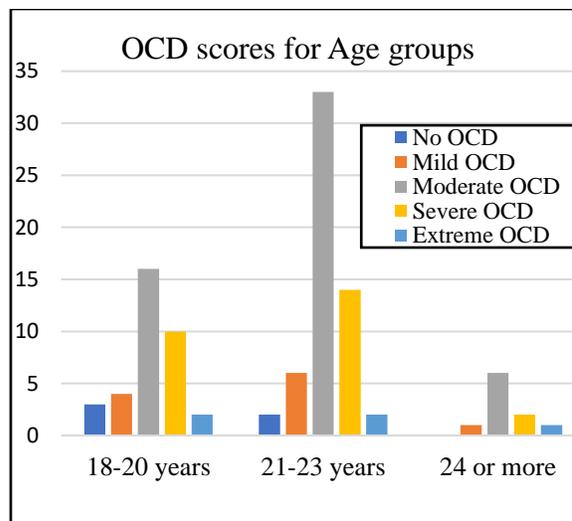

Figure 2: Severity of OCD scores of age groups.

Severity of OCD scores is higher for (21-23) years old, moderate severity is the most common severity among all the age groups.
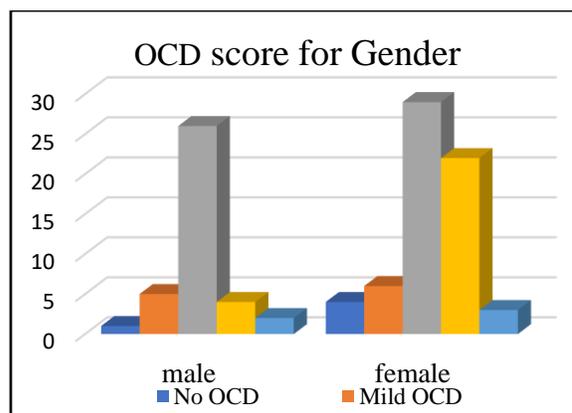

Figure 3: Severity of OCD scores of males and females.

The figure shows differences in OCD scores, moderate severity is the most common severity for both males and females, while sever score is higher for females compared to males.
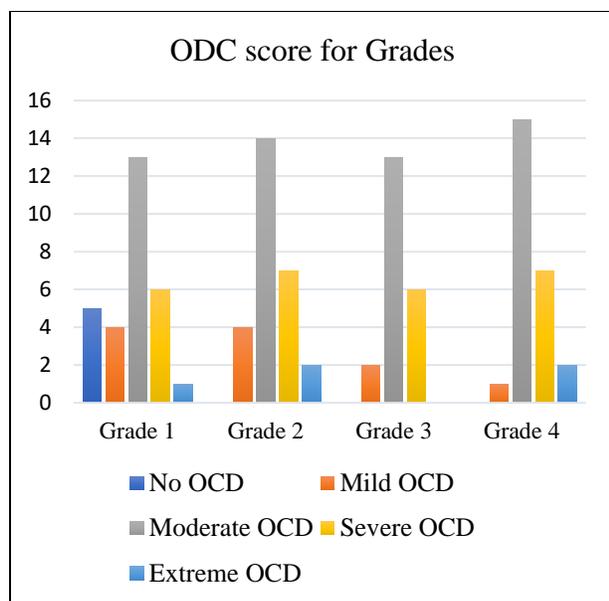
ODC score for Grades

Figure 4: Severity of OCD scores of the four grades.

Moderate severity of OCD scores is the most common severity among all the grades and followed by sever score. There are also differences in other severities among them; grade 1 and 2 have all the severities of OCD, while grade 3 and 4 have mostly moderate and severe.

Table 5: ANOVA analysis of OCD total scores for the grades:

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	304.087	3	101.362	3.126	0.029
Within Groups	3177.913	98	32.428		
Total	3482.000	101			

The ANOVA analysis show a significant result (sig= 0.029 which is less than 0.05) meaning that there are significant differences in OCD scores among the four grades.

Table 6: Comparing the OCD total scores between Males and females using Independent T-test:

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Sum	Equal variances assumed	.872	**0.353**	-.871	100	.386
	Equal variances not assumed			-.899	85.51	.371

The independent T-test shows no significant differences (sig= 0.353) between males and females in OCD scores at a p-value of (0.05).

Discussion

To our knowledge, this study is the first study about OCD among psychology students in Iraq and Kurdistan; OCD among medical students and other Humanities Educations has been studied in Kurdistan (Hama & Ahmed, 2018), no study has been conducted among psychology students yet. The aim of the current study was to find out the prevalence of OCD among psychology students and to compare the OCD severity among different age groups, gender, and grades at the University of Garmian, Kurdistan- Iraq.

The severity of OCD has been mostly moderate and severe levels among students and the majority of the students have OCD symptoms. Similar results were found among university students in Iraq (Taher et al., 2021), Iran (Safaralizadeh et al., 2014; Ghoreishi & Nikmanesh, 2014), United States (Sulkowski et al., 2011), Brazil (Torres et al., 2016), in Nigeria (Opakunle et al., 2017), and Saudi Arabia (Sultan

et al., 2021); in which the prevalence of OCD was high. Also, among students in India; it seemed that OCD was not uncommon among them (Jaisoorya et al., 2017). This finding disagrees with Yoldascan et al., 2009 in Turkey, they found only 4.2% OCD diagnoses among university students and Shams et al., 2011 in Iran, it was about 11.9% among students. The high prevalence of OCD among university students is not uncommon, especially the changes, responsibilities, and anxiety that university students have are great indicators for high levels of OCD.

Severity of OCD scores is higher for (21-23) years old and the ANOVA analysis show a significant result (sig= 0.029 which is less than 0.05) meaning that there are differences in OCD scores among the four grades. This shows that OCD severity tends to be higher among older students; students at grades three and four. Brakoulias et al., 2017, also found that OCD onset starts at late adolescence (after 17 years old). It is also recommended to consider the age 20 as the best cut- off age for determining the late onset of OCD (Anholt et al., 2014). This result is different from some other studies; an Iranian study found no significance relationship between age and OCD severity (Assareh et al., 2016), another study found no differences among different age groups of adolescences and adults in OCD severity, the differences were in the types of obsessions and compulsions that they had (Butwicka & Gmitrowicz, 2010). These differences among age groups and higher OCD severity in older ages (grades 3 and 4) are indicators of the higher stress and anxiety that those students have as a result of more difficult studying and worrying about their future after graduation, especially about getting a job, building a family, and financial stability. In Kurdistan, newly graduated students struggling with finding a permanent job to guarantee their financial outcome which also influences their social life, this leads to obsessions.

The independent T-test showed no significant differences between males and females in OCD scores at a p-value of (0.05). Similar finding was found in another study among university students in Iraq (Taher et al., 2021), Mavrogiorgou et al., 2016 did not find differences between males and females in OCD severity and Mathis et al., 2011 in a review about gender differences in OCD, they found that in general there are no significant differences in the severity, but differences in the OCD types; some obsessions tend to be more common in males and others are more common in females, the same was found in other studies (Jaisoorya et al., 2017; Castle et al., 1995); they did not find differences in the severity. This result disagrees with an Iranian study; it showed higher OCD prevalence in females compared to males (0.7% and 2.8% in males and females) (Mohammadi et al., 2004), also an Egyptian study among university students found differences between males and females (Sulaiman et al., 2022) and another study in Brazil found girls are more affected with OCD (f et al, 2013). Having no significant differences between males and females in OCD severity could be as result of the similarities in the life style that the students have now adays, they both are studying and going through same challenges, stressors, and the same quality of life as students from the same region; most of the students at the university are living in the same region (Garmian region).

Conclusion

This study has come to the conclusion that OCD is very common among psychology students at the University of Garmian, the moderate and severe are the most common severities of OCD. There are no significant differences between males and females, but differences in severity among studying grades; older students tend to have higher OCD levels. It was found that there is no previous study about OCD among psychology students in Iraq and Kurdistan. This study has some limitations; the tool of data collection that was used in this study does not assess the types of obsessions and compulsions. The community of this study was limited to psychology students, in future studies we recommend including all the colleges and departments in the study. It is also recommended to conduct more studies in Iraq and Kurdistan about OCD among students and general population. Awareness about OCD is also recommended for different levels of the community; undergraduate students, at schools, for parents because early assessment helps with the treatment process of OCD and helps with having better quality of life.

Authors Contributions

Authors have worked together in all the parts of this study.

Conflict of Interests

The authors declare no conflict of interests.

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References

1- Al-Aaqad, A.A. (2021). Neurotic perfectionism and its relationship to obsessive-compulsive disorder among a sample of university students. The Egyptian Journal for Psychological Studies, 31(112).

2- Alić, M., de Leeuw, A., Selier, J., van Megen, H., & Visser, H. (2022). Responsiveness and other psychometric properties of the Yale–Brown Obsessive–Compulsive Scale Severity Scale—Second Edition in a Dutch clinical sample. Clinical Psychology & Psychotherapy, 29(4), 1355-1363.

3- American Psychiatric Association (APA). Obsessive-Compulsive Disorder (OCD), last updated February, 2022. Accessed at 11-10-2022. Available at: https://www.psychiatry.org/patients-families/ocd/what-is-obsessive-compulsive-disorder

4- Angelakis, I., Gooding, P., Tarrier, N., & Panagioti, M. (2015). Suicidality in obsessive compulsive disorder (OCD): a systematic review and meta-analysis. Clinical psychology review, 39, 1-15.

5- Anholt, G. E., Aderka, I. M., Van Balkom, A. J. L. M., Smit, J. H., Schruers, K., Van Der Wee, N. J. A., ... & Van Oppen, P. (2014). Age of onset in obsessive–compulsive disorder: admixture analysis with a large sample. Psychological Medicine, 44(1), 185-194.

6- Assareh, M., Rakhshani, T., Kashfi, M., & Ayazi, M. (2016). Status of obsessive compulsive disorder among Iranian college students in Kermanshah, Iran. Journal of Human Environment and Health Promotion, 1(4), 213-219.

7- Beyond OCD. (2019). OCD: Why Is This Happening? Access date: November 2022. Available at: https://beyondocd.org/information-for-college-students/why-is-this-happening

8- Brakoulias, V., Starcevic, V., Belloch, A., Brown, C., Ferrao, Y. A., Fontenelle, L. F., ... & Viswasam, K. (2017). Comorbidity, age of onset and suicidality in obsessive–compulsive disorder (OCD): an international collaboration. Comprehensive psychiatry, 76, 79-86.

9- Butwicka, A., & Gmitrowicz, A. (2010). Symptom clusters in obsessive–compulsive disorder (OCD):

influence of age and age of onset. European child & adolescent psychiatry, 19(4), 365-370.

10- Castle, D. J., Deale, A., & Marks, I. M. (1995). Gender differences in obsessive compulsive disorder. Australian & New Zealand Journal of Psychiatry, 29(1), 114-117.

11- Esfahani, S. R., Motaghipour, Y., Kamkari, K., Zahiredin, A., & Janbozorgi, M. (2012). Reliability and Validity of the Persian version of the Yale-Brown Obsessive-Compulsive scale (Y-BOCS). Iranian Journal of Psychiatry & Clinical Psychology, 17(4).

12- Fenske, J.N., Petersen, K. (2015). Obsessive-Compulsive Disorder: Diagnosis and Management. American family physician. 92(10):896–903.

13- Ghoreishi, S. A., & Nikmanesh, S. (2014). Prevalence of Obsessive-Compulsive Disorder and its relationship with anxiety symptoms in students of Zanjan universities (2009). Journal of Kermanshah University of Medical Sciences, 18(5).

14- Goodman, W. K., Price, L. H., Rasmussen, S. A., Mazure, C., et al. (1989). The Yale-Brown Obsessive Compulsive Scale. I. Development, use, and reliability. Arch Gen Psychiatry. 46(11): p. 1006-11.

15- Hama, R.G., and Ahmed, R.S. (2018). Obsessive Compulsive Symptoms among Students of Faculty of Medical Sciences and Faculty of Humanities Education in University of Sulaimani. Journal of Sulaimani College of Medicine (JSMC), University of Sulaimani. DOI: https://doi.org/10.17656/jsmc.10182

16- Hollander, E., Stein, D. J., Fineberg, N. A., Marteau, F., & Legault, M. (2010). Quality of life outcomes in patients with obsessive-compulsive disorder: relationship to treatment response and symptom relapse. The Journal of clinical psychiatry, 71(6), 16465.

17- Huz, I., Nyer, M., Dickson, C., Farabaugh, A., Alpert, J., Fava, M., & Baer, L. (2016). Obsessive-compulsive symptoms as a risk factor for suicidality in US college students. Journal of Adolescent Health, 58(4), 481-484.

18- Jaisoorya, T. S., Reddy, Y. J., Nair, B. S., Rani, A., Menon, P. G., Revamma, M., ... & Thennarasu, K. (2017). Prevalence and correlates of obsessive-compulsive disorder and subthreshold obsessive-compulsive disorder among college students in Kerala, India. Indian journal of psychiatry, 59(1), 56.

19- Karno, M., Golding, J. M., Sorenson, S. B., & Burnam, M. A. (1988). The epidemiology of obsessive-compulsive disorder in five US communities. Archives of general psychiatry, 45(12), 1094-1099.

20- Kraus, S. W., Potenza, M. N., Martino, S., & Grant, J. E. (2015). Examining the psychometric properties of the Yale–Brown Obsessive–Compulsive Scale in a sample of compulsive pornography users. Comprehensive psychiatry, 59, 117-122.

21- López-Pina, J. A., Sánchez-Meca, J., López-López, J. A., Marín-Martínez, F., Núñez-Núñez, R. M., Rosa-Alcázar, A. I., ... & Ferrer-Requena, J. (2015). The Yale–Brown obsessive compulsive scale: a reliability generalization meta-analysis. Assessment, 22(5), 619-628.

22- Mathis, M. A. D., Alvarenga, P. D., Funaro, G., Torresan, R. C., Moraes, I., Torres, A. R., ... & Hounie, A. G. (2011). Gender differences in obsessive-compulsive disorder: a literature review. Brazilian Journal of Psychiatry, 33, 390-399.

23- Mavrogiorgou, P., Bethge, M., Luksnat, S., Nalato, F., Juckel, G., & Brüne, M. (2016). Social cognition and metacognition in obsessive–compulsive disorder: an explorative pilot study. European Archives of Psychiatry and Clinical Neuroscience, 266(3), 209-216.

24- Mohammadi, M. R., Ghanizadeh, A., Rahgozar, M., Noorbala, A. A., Davidian, H., Afzali, H. M., ... & Tehranidoost, M. (2004). Prevalence of obsessive-compulsive disorder in Iran. BMC psychiatry, 4(1), 1-8.

25- Opakunle, T., Aloba, O., Opakunle, O., Oyewole, A., & Osokoya, O. (2017). Prevalence and correlates of obsessive–compulsive symptoms in a sample of undergraduate clinical medical students in Osogbo, Southwestern Nigeria. Nigerian Journal of Health Sciences, 17(2), 66.

26- Pampaloni, I., Marriott, S., Pessina, E., Fisher, C., Govender, A., Mohammed, H., ... & Pallanti, S.

(2022). The global assessment of OCD. Comprehensive Psychiatry, 152342.

27- Rapp, A. M., Bergman, R. L., Piacentini, J., & McGuire, J. F. (2016). Evidence-Based Assessment of Obsessive-Compulsive Disorder. J Cent Nerv Syst Dis. 8: p. 13-29. PMC4994744.

28- Rüdin, E. (1953). A Contribution to the Question of Obsessive-Compulsive Disorder, Particularly its Hereditary Relationships. Archives of Psychiatry and Nervous Disorders, 191(1), 14-54.

29- Safaralizadeh, F., & Bagheriyeh, F. Hashemloo, L., Motearefi. F. (2014). The prevalence obsessive-compulsive disorder in students in Khoy University in 2013. IJPN, 2(2), 13-21.

30- Sasson, Y., Zohar, J., Chopra, M., Lustig, M., Iancu, I., & Hendler, T. (1997). Epidemiology of obsessive-compulsive disorder: a world view. Journal of Clinical Psychiatry, 58(12), 7-10.

31- Shams, G., Foroughi, E., Esmaili, Y., Amini, H., & Ebrahimkhani, N. (2011). Prevalence rates of obsessive-compulsive symptoms and psychiatric comorbidity among adolescents in Iran. Acta Medica Iranica, 680-687.

32- Shavitt, R. G., van den Heuvel, O. A., Lochner, C., Reddy, Y. J., Miguel, E. C., & Simpson, H. B. (2022). Obsessive-compulsive disorder (OCD) across the lifespan: Current diagnostic challenges and the search for personalized treatment. Frontiers in Psychiatry, 13, 927184.

33- Storch, E. A., McGuire, J. F., Wu, M. S., Hamblin, R., McIngvale, E., Cepeda, S. L., ... & Goodman, W. K. (2019). Development and psychometric evaluation of the children's Yale-Brown obsessive-compulsive scale second edition. Journal of the American Academy of Child & Adolescent Psychiatry, 58(1), 92-98.

34- Sulaiman, S.A., Saafan, M.A., Mahmood, M.T., & Mahmood, E.A. (2022). Obsessions and compulsions of a student University in the light of gender variables and major. Refereed Scientific Journal of Specific Education Studies and Research, 8(15): p 455-466.

35- Sulkowski, M. L., Mariaskin, A., & Storch, E. A. (2011). Obsessive-compulsive spectrum disorder symptoms in college students. Journal of American College Health, 59(5), 342-348.

36- Sultan, S., Fallata, E. O., Bashar, M. A., Olaqi, E. E., Alsharif, G. H., BinSaleh, R. A., & Fakieh, R. A. (2021). Prevalence, sociodemographic and academic correlates of obsessive-compulsive disorder in the students of college of applied medical sciences, Umm Al-Qura university. Journal of Obsessive-Compulsive and Related Disorders, 28, 100604.

37- Taher, T. M. J., Al-fadhul, S. A. L., Abutiheen, A. A., Ghazi, H. F., & Abood, N. S. (2021). Prevalence of obsessive-compulsive disorder (OCD) among Iraqi undergraduate medical students in time of COVID-19 pandemic. Middle East Current Psychiatry, 28(1), 1-8.

38- Torres, A. R., Cruz, B. L., Vicentini, H. C., Lima, M. C. P., & Ramos-Cerqueira, A. T. A. (2016). Obsessive-compulsive symptoms in medical students: prevalence, severity, and correlates. Academic Psychiatry, 40(1), 46-54.

39- Vivan, A. D. S., Rodrigues, L., Wendt, G., Bicca, M. G., Braga, D. T., & Cordioli, A. V. (2013). Obsessive-compulsive symptoms and obsessive-compulsive disorder in adolescents: a population-based study. Brazilian Journal of Psychiatry, 36, 111-118.

40- Weissman, M. M., Bland, R. C., Canino, G. J., & Greenwald, S. (1994). The cross-national epidemiology of obsessive-compulsive disorder: The Cross-National Collaborative Group. The Journal of clinical psychiatry.

41- Woodruff, R., & PITTS JR, F. N. (1964). Monozygotic twins with obsessional illness. American Journal of Psychiatry, 120(11), 1075-1080.

42- Yoldascan, E., Ozenli, Y., Kutlu, O., Topal, K., & Bozkurt, A. I. (2009). Prevalence of obsessive-compulsive disorder in Turkish university students and assessment of associated factors. BMC psychiatry, 9(1), 1-8.