

# Fear of COVID-19 Pandemic, Obsessive-Compulsive Traits and Sleep Quality among First Academic Year Nursing Students, Alexandria University, Egypt.

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## Abstract

It is now recognized that the uncertainty caused by the international COVID-19 pandemic can lead to excessive, intense, and repeated mental health problems such as obsessive-compulsive traits and disturbed sleep quality. These psychological responses affect the well-being of individuals and can persist long after the outbreak. Health care workers can be viewed as more vulnerable to these psychological consequences, particularly the younger students such as the first academic year nursing students. Thus, the present study aimed to determine and explore the impact of fear of COVID-19 on obsessive-compulsive traits and sleep quality among the first-academic year nursing students. **Design:** A descriptive correlational design was used in this study. **Setting:** The study was conducted at the Faculty of Nursing, Alexandria University, Egypt. **Subjects:** A representative sample of 275 first-year undergraduate students. **Tools:** Online web-based electronic questionnaires were used including A socio-demographic and Academic Data, FCV-19S, AOCS and ISI. **Results:** Results of the study revealed that 61.1% of the studied students had a moderate level of fear of COVID-19 pandemic and 8.7% of them had a severe level. As well, 35.3% of those students had a moderate level of obsessive-compulsive (OC) traits and 4.7% of them had a severe level of OC traits. In addition, 14.2% of them had a moderate level of insomnia during COVID-19 pandemic. Regression analysis indicates that fear of COVID-19 pandemic was a predictor of both obsessive-compulsive traits ( $P=0.000$ ) and insomnia severity ( $P=0.052$ ). **Conclusion:** level of fear of COVID-19 pandemic can predict the OC traits and insomnia severity levels among studied nursing students. Hence, early detection, picking up and effectively treating students who have intense fears of COVID 19 are emphasized before they evolve to more complex and enduring obsessive-compulsive symptoms. Immediate interventions via multidisciplinary teams, including academic mental health professionals, to the vulnerable group of students are recommended.

**Keywords:** Fear of COVID-19 Pandemic, Obsessive-Compulsive Traits, Sleep Quality.

## Introduction

Nowadays, COVID-19 pandemic created a public health emergency of international concern. The disease's clinical picture varies from mild or even asymptomatic to severe conditions and even death generating significant consequences on individuals, families and societies (Boulos & Geraghty, 2020). A large number of cases are reported from different countries across the world, with many deaths (Hoseinpour Dehkordi, Alizadeh, Derakhshan, Babazadeh, & Jahandideh, 2020). A quarantine period is a forced way; where, contacts between people are restricted. A dramatic change in daily routines and work activities were initiated requiring profound adjustments (Viner et al., 2020). This together

with the uncertainty and distress related to the progression of the disease are likely to increase the psychological burden and put already vulnerable groups at greater risk for mental health problems (Ho, Chee, & Ho, 2020). Health workers including physicians and nurses are the first defence line against the coronavirus disease (COVID-19). They are also considered as one of the vulnerable groups to develop anxiety and fear of this pandemic (Carmassi et al., 2020; Ornell, Schuch, Sordi, & Kessler, 2020).

Although, fear is an adaptive emotion that helps to activate energy to deal with potential threat, it can be maladaptive when it is not well attuned to the actual threat (Blanchard & Blanchard, 2008; Grupe & Nitschke, 2013). Fears of COVID-19 among first-year nursing

students may be related to different concerns as fear of being infected and becoming seriously ill and/or fear of death (Chew, Wei, Vasoo, Chua, & Sim, 2020). Fear and worries may also be related to the health of friends and family members, particularly the elderly relatives or loved ones with chronic health problems (Tsai, 2020). Students' fear may also be related to their studies in the faculty during this time and insecurity regarding their future (Ornell et al., 2020). In addition, the inadequate knowledge regarding the incubation period of the virus, route of transmission, treatment, and safety measures may add to their worries (A. Pakpour & Griffiths, 2020). Other causes of fear are the shortage of medical staff and resources, the lack of masks and protection supplies; as well as, the spread of negative news in mass media, and social network. In that sense, excessive fear and anxiety associated with COVID 19 pandemic are common. This may have harmful effects on the students' mental health and sleep quality. Thus, the likelihood of mental health problems such as increase obsessive-compulsive traits may also be associated with such fear (Ornell et al., 2020).

Obsession-compulsion (OC) traits are generally regarded as a set of personality characteristics that would not typically be so extreme as to constitute a disorder (Mudrack, 2004). They may involve perfectionism, excessive devotion to work, preoccupation with details, over-conscientiousness, rigidity, an inability to delegate tasks and hoarding useless possessions. In fact, the normal repertoire of human behavior may contain some obsessive thoughts and compulsive behaviors (La Sasso, 2007; Martukovich, 2010). Recent researches reported that OC traits are important source of distress among adolescents and college-students (Bhar, 2005; Chiang, 2020; De Silva & Rachman, 2004; O'Leary, 2005; Taylor, Thordarson, & Söchting, 2002). The ego dystonic nature of the OC traits sometimes enforces students to disguise or be ashamed from their traits and not disclose them unless specifically asked. Empirical studies posted that students who experience severe OC traits may show a decline in their academic success. Such students may have major difficulties in

completing their academic tasks (Chandavarkar, Azzam, & Mathews, 2007; Gallagher, South, & Oltmanns, 2003; Mrdjenovich & Bischof, 2003).

The current health-related danger; COVID-19 pandemic, may have an adverse effect on younger students who are susceptible to the increase of obsessive-compulsive traits (Guessoum et al., 2020; Holmes et al., 2020). Indeed, these external events are working as a triggering factors for obsessions and compulsive behaviors (Taylor, Abramowitz, & McKay, 2007). Those young students who have a tendency of overestimating threats, may have a lot of concerns or harm-related obsessions such as becoming contaminated themselves, unknowingly spreading contamination and causing harm to others (Aardema, 2020; Chakraborty & Karmakar, 2020). They may find themselves seeking continuous reassurance by excessive searching for news on COVID-19 (A. H. Pakpour et al., 2020). In addition, they may be in a trial to relieve their fear and anxiety plunge into the trap of compulsive handwashing. They often find the repeated, stereotypical, and timed handwashing process an effective and adaptive coping mechanism with their repeated intrusive obsessive thoughts (Fernández, Crivelli, Guimet, Allegri, & Pedreira, 2020; Ransing et al., 2020; Wang et al., 2020).

Psychoanalytic and cognitive behavioural theorists have emphasized that during distressing times, individuals with obsessive compulsive traits are considered highly anticipating danger or negative outcomes than non-obsessives (Steven Charles Hertler, 2015; Mancini, 2018). Students with obsessive compulsive traits seem to base their interpretations of danger on the absence of disconfirming evidence, rather than on the presence of danger signals. They often assume negative outcomes (Abramowitz, 2006; Mathews & MacLeod, 2005; Rachman, 2004). Whether for these reasons or others, individuals with obsessive compulsive traits appear to be more risk-avoidant than other groups. Evermore, excessive cleaning as one of the OC traits, is an attempt to maintain control over threats by reducing the risk of harm and insuring safety (Steven C Hertler, 2014).

In the same line, these excessive, intense, and repeated health-related problems and the uncertainty state that are caused by the COVID-19 pandemic may lead to disturbed sleep quality among first-year nursing students as a vulnerable group. Sleep quality includes subjective experiences (e.g., sleep latency, or sleep duration and sleep disturbances) (Lemola, Ledermann, & Friedman, 2013). The American Academy of Sleep Medicine (AASM) and Sleep Research Society suggested that sleep duration should be regular seven or more hours per night to maintain optimal health (Edinger et al., 2004). In fact, sleep is vital to human health and is a very important factor in neurocognitive and immune functions, appetite regulation and safety-related behaviors (Panel et al., 2015). Insomnia is characterized by difficulty falling asleep, difficulty staying asleep, waking up too early or complaints of waking up feeling unrefreshed (Walsh, 2004). Insufficient sleep or insomnia is a serious problem with related-mental health consequences such as weak memory and/or poor attention performance and increase OC traits. A strong correlation was found between quality of sleep, physical & psychological wellbeing, and social & occupational activities (Espie et al., 2019).

During the COVID-19 pandemic outbreak and quarantine period; reduced physical activity and a great disruption of daily routines have occurred. These greatly affect the sleep quality of young students (Leone, Sigman, & Golombek, 2020). Additionally, thinking about the COVID-19 crisis, watching media news about this crisis, and watching daily reported deaths of many people all over the world cause stress and uncertainty among those students. All of these stressors are considered the primary causes of insomnia (Fofana, Latif, Bashir, & Komal, 2020). A recent study done by Hampshire et al., 2020 revealed that the prevalence of novel infectious diseases, such as COVID-19, can increase anxiety and stress levels that directly affect sleep quality (Hampshire et al., 2020). On the other hand, the increase in sleep difficulties has a stronger correlation with higher levels of anxiety and OC traits, particularly among health care workers. Therefore, the current study aimed to determine and explore the

impact of fear of COVID-19 on obsessive-compulsive traits and sleep quality among the first-academic year nursing students.

### Research Hypothesis

- Fear of COVID-19 can increase obsessive-compulsive traits and impair sleep quality among first academic year nursing students at Alexandria University, Egypt.

## Subjects and Methods

### Materials

#### Research design:

This study used a descriptive correlational design.

#### Setting:

The study was conducted at the Faculty of Nursing, Alexandria University which is affiliated to the Ministry of Higher Education in Egypt. The Faculty has nine different scientific departments namely, Medical-Surgical Nursing, Critical Care Nursing, Paediatric Nursing, Obstetric and Gynaecological Nursing, Nursing Administration, Community Health Nursing, Gerontological Nursing, Nursing Education and Psychiatric Nursing and Mental Health.

The Faculty follows the credit hours system in undergraduate (Baccalaureate) program. Each academic year encompasses two terms. During the first-academic year, undergraduate students study different nursing and medical subjects including; fundamentals of nursing, medical surgical nursing, anatomy, microbiology, community health, parasitology, physiology and chemistry.

#### Subjects:

The population for this study comprised the first academic year undergraduate students registered at the second term of the academic year 2019-2020. According to the records of the Students' Affairs Department at the Faculty of Nursing, the total number of the first academic year undergraduate students enrolled at the second term during this academic year amounted to 526 students.

The EPI INFO 7 program was used to estimate the sample size based on using 5% acceptable error, 95% confidence coefficient, 50% expected frequency and population size of 526 undergraduate students. The program revealed a minimum sample size of 222 students. Accordingly, a simple random sampling technique was used in this study to recruit a representative sample of 275 first-academic year undergraduate nursing students.

#### **Tools:**

The following four tools were used to collect the data for this study:

#### **Tool I: A Socio-demographic and Academic Data Questionnaire:**

This questionnaire was developed by the researchers to elicit data about the socio-demographic characteristics of the studied subjects such as age, sex, residence, cohabitation, and number of family members. In addition, it covers academic data such as the reason for joining Faculty of Nursing and work during study year.

#### **Tool II: The Fear of COVID-19 Scale (FCV-19S):**

Fear of COVID-19 Scale was developed by (Ahorsu et al., 2020). It is a seven-item scale that assesses the fear of COVID-19, (e.g., "I am most afraid of coronavirus-19", "I am afraid of losing my life because of coronavirus-19", "My heart races or palpitates when I think about getting coronavirus-19"...etc.). Each item of the scale is rated on a 5-point Likert-type scale that ranges from 1 (strongly disagree) to 5 (strongly agree). Accordingly, the total score of FCV-19S is calculated by adding up each item score (ranging from 7 to 35); with a score ranging from 7-15 indicating mild fear, from 16-25 indicating moderate fear, and 26-35 indicating severe fear of COVID-19. The scale has been tested for its reliability in different studies. It was reported that Cronbach's alpha of the FCV-19S was 0.82, and test-retest reliability (ICC) was 0.72 (Carre, Griffiths, & Maillez, 2020; Martínez-Lorca, Martínez-Lorca, Criado-Álvarez, & Armesilla, 2020; Masjoudi, Aslani, Khazaeian, & Fathnezhad-Kazemi, 2020; Saleem et al., 2020).

#### **Tool III: The Short Version of Arabic Obsessive-Compulsive Scale (AOCS):**

The Arabic Obsessive-Compulsive Scale was developed by (Abdel-Khalek, 1998). It is designed to assess Obsessive-Compulsive traits. It was originally consisting of 32 statements answered on a true/false format, with higher scores indicating higher obsession and compulsion. The 32 items of the original Arabic Obsessive-Compulsive Scale (AOCS) were shortened to 20 items. To control acquiescence response bias and other response sets, to some extent, five filler items were randomly added with a normal, positive, and non-OC content, to avoid the problem of double negatives. These items were not considered in the total score (Items number 1, 5, 12, 17, and 20). Examples of the filler items are as follows "I am happy with my lifestyle", "I feel optimistic about the future", and "I am satisfied with myself". Accordingly, the AOCS consists of 25 items; five of them are fillers and are excluded from the computation of the total score. The remaining 20 items are positive indicators of OC. Each item of the AOCS is answered on a 4-point Likert-type scale: 1 (No), 2 (Some), 3 (Much), and 4 (Always). The sum of a participant's scores on the 20 items represents his/her total score on the AOCS. The total score ranges from 20 to 80, with a score ranging from 20-39 indicating mild, from 40-59 indicating moderate and from 60-80 indicating severe Obsessive-Compulsive traits. The scale has been tested for internal consistency and reliability. It showed high internal consistency with Cronbach's alpha=0.897 (Abdel-Khalek & Lester, 1998).

#### **Tool IV: Insomnia Severity Index (ISI):**

Insomnia Severity Index (ISI) is a brief self-report instrument. It was developed by (Morin, 1993). It is a 7-items scale assessing the perceived severity of insomnia symptoms during the last 2 weeks. It targets the subjective symptoms and consequences of insomnia, as well as the degree of concerns or distress caused by those difficulties. Its content corresponds in part to the diagnostic criteria of insomnia. The scale evaluates (a) the severity of sleep-onset (initial), (b) sleep maintenance (middle), (c) early morning awakening (terminal) problems, (d) the degree of

satisfaction with current sleep pattern, (e) noticeability to others/impairing the quality of life, (f) level of distress caused by the sleep problem and (g) interference with daytime functioning. Each of these items is rated on a 5-point Likert-type scale that ranges from (0) indicating “not at all” to (4) indicating “extremely”. Total score is obtained by summing up all item scores and is ranging from 0 to 28. Interpretation of the results is as follows: (0–7) absence of insomnia; (8–14) sub-threshold (mild) insomnia; (15–21) moderate insomnia; and (22–28) severe insomnia. Numerous studies proved that ISI is a valid and reliable instrument; concurrent validity was ( $r= 0:65$ ) and Cronbach’s alpha was ( $\alpha = 0.75$ ) (Bastien, Vallières, & Morin, 2001; Chung, Kan, & Yeung, 2011; Gagnon, Bélanger, Ivers, & Morin, 2013; Morin, Belleville, Bélanger, & Ivers, 2011; Savard, Savard, Simard, & Ivers, 2005).

### **Method:**

- Official permissions were obtained from the responsible authorities of the Faculty of Nursing, Alexandria University, Egypt.
- The Socio-demographic and Academic Data Questionnaire (tool I) was developed by the researchers.
- The **Fear of COVID-19** (tool II) and **Insomnia Severity Index (ISI)** (tool IV) were translated into Arabic language, and then reviewed by bilingual experts in the field of Psychiatric Nursing and Mental Health.
- The translated tools were submitted via E-mail (because of quarantine period) to a jury composed of five experts in the field of Psychiatric Nursing and Mental Health to test their face validity. Tools proved to be valid.
- The researchers developed an electronic form containing the study tools (tool I, II, III and IV).
- **Pilot study:** Before embarking on the actual study, a pilot study was carried out on 20 registered first academic year undergraduate nursing students who were excluded from the actual study by sending the electronic form via their academic e-mails, to ascertain the clarity and applicability of the study tools and to identify any obstacles that might be faced during data collection. The pilot study revealed that study tools were clear, understood, and applicable.
- Cronbach’ Alpha was done on 20 first academic year undergraduate nursing students who were excluded from the actual study to measure the internal consistency of the study tools. Tools proved to be reliable, for tool II  $\alpha= 0.819$ , tool III  $\alpha = 0.837$  and tool IV  $\alpha = 0.814$ .

### **Actual study:**

- The actual study started by approaching the Students’ Affairs Department at the Faculty of Nursing and obtaining a list of names and academic e-mails of the registered undergraduate students' who were enrolled in the first academic year, at the second term of the academic year 2019-2020.
- A representative sample from undergraduate students registered in the second semester was recruited through the simple random sampling method after excluding names of students who participated in the pilot study and the reliability test.
- The researchers collected the data through sending the electronic form for the randomly recruited students via their academic e-mails and instructions regarding answering the study tools were given.
- Data collection was done during the period from 20<sup>th</sup> Jun 2020 to 30<sup>th</sup> July 2020.

### **Ethical considerations:**

- An electronic informed written consents were obtained from those who accepted to participate after explaining the purpose and nature of the study. As well, the returned responses were considered as their consents.
- Students' privacy and anonymity were considered and respected.
- Confidentiality of data was assured and respected.
- The right to participate and to withdraw from the study was emphasized to students.

### **Statistical analysis:**

- The Statistical Package for Social Sciences (SPSS) program, version 25.0 was used for data analysis.
- Qualitative data were described using number and percent.

- Quantitative data were described using range (minimum and maximum), mean, and standard deviation.
- Reliability of tools was assessed using Cronbach's Alpha test.
- The correlations between two quantitative variables were assessed using Pearson coefficient.
- Multivariate analysis was done using ANOVA.
- The multiple analysis coefficients were assessed by the Stepwise Technique.

### Results:

**Table 1** shows the distribution of the studied students according to their socio-demographic and academic characteristics. It appears from this table that nearly half of the

studied subjects (46.6%) were in the age group ranging from 18 to less than 19 years. The table also reveals that, 65.1% of the studied students were females and the majority of them were living in urban areas (93.5%) with their families (93.9%). Students whose families consist of 4 to 5 members represented 52.4% of the total studied students and 38.5% of them have families consist of 6 to 7 members. It was also found that among the studied subjects 39.6% joined Faculty of Nursing because of their pre-faculty grades and 31.6% because they love helping others. Those who reported that they joined the faculty because of job opportunities represented 28.0% of the total studied students. Studied subjects who were not working amounted to 83.6% while the rest (16.4%) were working during their academic study.

**Table (1):** Distribution of the studied students according to their socio-demographic and academic characteristics (N=275):

Socio-demographic and academic characteristics	No	%
<b>Age (in years)</b>		
17-	35	12.7
18-	128	46.6
19-	63	22.9
20+	49	17.8
<b>Sex</b>		
Male	96	34.9
Female	179	65.1
<b>Residence</b>		
Urban	257	93.5
Rural	18	6.5
<b>Cohabitation</b>		
Family	258	93.9
Relatives	6	2.2
Alone	11	4.0
<b>Number of family members</b>		
2-3	10	3.6
4-5	144	52.4
6-7	106	38.5
8-10	15	5.5
<b>Reason for joining Faculty of Nursing</b>		
Job opportunities	77	28.0
Pre- faculty grades	109	39.6
Love helping others	87	31.6
Family pressure	2	0.7
<b>Work during study years</b>		
No	230	83.6
Yes	45	16.4

**Table 2** represents the distribution of the studied students according to their levels of fear of COVID-19, obsessive-compulsive traits and insomnia severity. It can be noted that 61.1% of the studied students had a moderate level of fear of COVID-19, followed by 30.2% having a mild level. While only 8.7% of them had a severe level of fear of COVID-19, with a total mean score of  $17.96 \pm 5.102$ . Concerning obsessive-compulsive traits, the table displays that 60.0% of the studied students had a mild level, 35.3% had a moderate level and 4.7% of them had a severe level of obsessive-compulsive traits, with a total mean score of  $25.81 \pm 10.073$ . Regarding insomnia severity, 46.9% of the studied students reported that they had no insomnia. Among those who had insomnia, about thirds of them (66.4%) had a mild level and 26.7% of them had a moderate level of insomnia, with a total mean score of  $8.88 \pm 5.851$ .

**Table (2):** Distribution of the studied students according to their levels of fear of COVID-19, obsessive-compulsive traits and insomnia severity:

Variables	Levels						Mean score X ± SD
	Mild		Moderate		Severe		
	No.	%	No.	%	No.	%	
Fear of COVID -19 (N=275)	83	30.2	168	61.1	24	8.7	17.96±5.102
Obsessive Compulsive Traits (N=275)	165	60.0	97	35.3	13	4.7	25.81±10.073
Insomnia Severity (N=146)	97	66.4	39	26.7	10	6.9	8.88±5.851

N.B. 129 (46.9%) of the total study subjects had no insomnia

**Table 3** reveals the relation between levels of fear of COVID 19 and obsessive -compulsive traits & insomnia severity among the studied students. It can be observed that, 64.9% of of total study subjects had moderate level of obsessive -compulsive traits and moderate level of fear of COVID 19. Also, 38.5% of them who had severe level of obsessive-compulsive traits had moderate severe level of fear of COVID 19. The table also shows that, 12.4% of total number of students had moderate level of obsessive -compulsive traits and severe level of fear of COVID 19 and 61.5% of them reported having severe level of obsessive -compulsive traits and severe level of fear of COVID 19 with a statistically significant difference ( $X^2= 60.115$ ,  $P= 0.000$ ). Additionally, there is a statistically significant difference at P level = 0.001 between students' levels of fear of COVID 19 and insomnia severity. 51.3% of total study subjects had moderate level of insomnia severity and moderate level of fear of COVID 19. Also, 30.0% of them had severe level of insomnia severity and severe level of fear of COVID 19 ( $X^2= 24.050$ ).

**Table 3:** Relation between levels of fear of COVID 19 and OC traits & insomnia severity among the studied students (N=275):

Variables	Levels of fear of COVID 19						Total N=275		Test of significance
	Mild (N= 83)		Moderate (N=168)		Severe (N=24)		No	%	
	No.	%	No.	%	No.	%			
<b>Obsessive-compulsive traits levels</b>									
- Mild	61	37.0	100	60.6	4	2.4	165	60.0	$X^2= 60.115$ $P= 0.000^*$
- Moderate	22	22.7	63	64.9	12	12.4	97	35.3	
- Severe	0	0.0	5	38.5	8	61.5	13	4.7	
<b>Insomnia severity levels</b>									
- No	48	37.2	75	58.1	6	4.7	129	46.9	$X^2= 24.050$ $P=0.001^*$
- Mild	24	24.7	67	69.1	6	6.2	97	35.3	
- Moderate	10	25.6	20	51.3	9	23.1	39	14.2	
- Severe	1	10.0	6	60.0	3	30.0	10	3.6	

$X^2$  = Chi Square test \* Statistically significant at  $p \leq 0.05$

**Table 4** demonstrates relation between mean scores of fear from COVID 19 and obsessive-compulsive traits & insomnia severity levels among the studied students. It can be observed that, students who had severe levels of obsessive-compulsive traits had higher levels of fear of COVID 19 than those who had mild or moderate levels with a statistically significant difference ( $F= 24.0505$ ,  $P=0.000$ ). Additionally, there is a statistically significant difference at  $P=0.001$  between students who had severe level of insomnia severity and those who had mild or moderate levels ( $F= 5.535$ ). Those students demonstrated higher levels of fear of COVID 19.

**Table 4:** Relation between mean scores of fear of COVID 19 and OC traits & insomnia severity levels among the studied students (N=275):

Variables	Mean Scores of fear from COVID 19		Test of significance
	Mean ± SD		
<b>Obsessive-compulsive traits levels</b>			
- Mild	16.68±4.044		F= 24.0505 P= 0.000*
- Moderate	19.02±5.458		
- Severe	26.38±4.908		
<b>Insomnia severity levels</b>			
- No	16.95±4.475		F= 5.535 P=0.001*
- Mild	18.20±4.725		
- Moderate	19.90±6.735		
- Severe	21.90±5.685		

F= ANOVA test \* Statistically significant at  $p \leq 0.05$

**Table 5** displays correlation matrix between fear of COVID-19, obsessive-compulsive traits, and insomnia severity among the studied students. The table reveals that a statistically significant positive correlation is found between Fear of COVID-19 and obsessive-compulsive traits ( $r=0.382$ ,  $p = 0.000$ ). It can also be noted that there is a statistically significant positive correlation between Fear of COVID-19 and insomnia severity ( $r= 0.255$ ,  $p= 0.000$ ). As well, a statistically significant positive relationship between obsessive-compulsive traits and insomnia severity is found ( $r=0.564$ ,  $p=0.000$ ). From this table it can be concluded that there is a statistically significant positive relationship between fear of COVID-19, obsessive-compulsive traits, and insomnia severity among the studied first-year nursing students.

**Table (5):** Correlation Matrix between fear of COVID-19, obsessive compulsive traits and insomnia severity among studied students (N=275):

Variables		Fear of COVID-19	Obsessive-Compulsive traits	Insomnia severity
Fear from COVID-19	r			
	p			
Obsessive- Compulsive traits	r	0.382		
	p	0.000*		
Insomnia severity	r	0.255	0.564	
	P	0.000*	0.000*	

r = Pearson correlation \* Statistically significant at  $P \leq 0.05$

**Table 6** shows regression analysis between fear of COVID-19, obsessive-compulsive traits, and insomnia severity among studied students. It was examined through using binary logistic regression analysis (Enter method) with obsessive-compulsive traits and insomnia severity as the dependent variables. The R2 value was 0.149 which means that only 14.9% of the variability in the outcome is explained by the independent variable (fear of COVID-19). The table indicates that fear of COVID-19 was a predictor of both obsessive-compulsive traits ( $P=0.000$ ) and insomnia severity ( $P=0.052$ ).

**Table (6):** Regression analysis between fear of COVID-19, obsessive-compulsive traits, and insomnia severity among studied students (N=275):

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant (Fear of COVID-19)	12.976	0.798		16.251	0.000
Obsessive- Compulsive traits	0.174	0.034	0.350	5.166	0.000*
Insomnia severity	0.106	0.054	0.121	1.948	0.052*

\* Statistically significant at  $p \leq 0.05$

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.385a	0.149	0.142	4.726

**Table 7** reveals the differences between mean scores of fears of COVID-19, obsessive-compulsive traits and insomnia severity according to socio-demographic and academic characteristics of the studied students. It can be observed that, female students had higher levels of fear of COVID 19 than males with a statistically significant difference ( $t = 14.412$ ,  $P=0.000$ ). The students who were living in urban areas had higher levels of fear of COVID 19, obsessive-compulsive traits & insomnia than those who were living in rural areas with a statistical significant differences ( $t= 3.945$ ,  $6.335$  and  $6.795$  respectively;  $P=0.048$ ,  $0.012$  and  $0.010$  respectively). Additionally, there is a statistically significant difference at  $P=0.053$  between students who have large families (from 8 to 10 members) and those who have smaller families (from 2 to 7 members) ( $F= 2.588$ ). Those students demonstrated higher levels of obsessive-compulsive traits. It can also be observed from the table that there is a statistically significant difference between students' reported reason for joining Faculty of Nursing in relation to their levels of obsessive-compulsive traits and insomnia severity. Those who joined the Faculty of Nursing because of their family pressure had a statistically significant higher levels of obsessive-compulsive traits and insomnia than those who mentioned other reasons for joining the Faculty of Nursing as job opportunity, pre-faculty grades, and love helping others ( $F= 3.472$  and  $6.645$  respectively;  $P= 0.017$  and  $0.000$  respectively).

**Table (7):** Difference between mean scores of fear of COVID-19, obsessive-compulsive traits and insomnia severity according to socio-demographic and academic characteristics of the studied students (N=275):

Items	Fear of COVID-9	Obsessive-Compulsive Traits	Insomnia Severity
	Mean $\pm$ SD	Mean $\pm$ SD	Mean $\pm$ SD
<b>Sex</b>			
Male	16.41 $\pm$ 4.247	39.15 $\pm$ 10.35	8.40 $\pm$ 5.369
Female	18.80 $\pm$ 5.333	38.31 $\pm$ 10.23	9.15 $\pm$ 6.092
t (value)	t= 14.412 p=0.000*	t= 0.405 p=0.525	t= 1.025 p=0.312
<b>Residence</b>			
Urban	18.12 $\pm$ 5.130	39.01 $\pm$ 10.34	9.12 $\pm$ 5.835
Rural	15.67 $\pm$ 4.159	32.78 $\pm$ 7.026	5.44 $\pm$ 5.067
t (value)	t= 3.945 p=0.048*	t= 6.335 p=0.012*	t= 6.795 p=0.010*
<b>Cohabitation</b>			
Family	18.06 $\pm$ 5.180	38.83 $\pm$ 10.43	8.95 $\pm$ 5.860
Relatives	15.33 $\pm$ 4.844	32.33 $\pm$ 5.465	6.67 $\pm$ 3.559
Alone	17.18 $\pm$ 2.639	36.73 $\pm$ 6.871	8.64 $\pm$ 6.786
F (value)	F= 0.970 P=0.380	F= 1.372 P=0.255	F= 0.453 P=0.636
<b>Number of family members</b>			
2-3	17.20 $\pm$ 3.676	36.00 $\pm$ 7.195	9.00 $\pm$ 4.163
4-5	18.38 $\pm$ 5.518	39.86 $\pm$ 10.59	9.31 $\pm$ 5.938
6-7	17.56 $\pm$ 4.504	36.73 $\pm$ 9.545	8.16 $\pm$ 5.779
8-10	17.33 $\pm$ 5.815	41.60 $\pm$ 11.85	9.80 $\pm$ 6.439
F (value)	F= 0.696 P=0.555	F= 2.588 P=0.053*	F= 0.921 P=0.431
<b>Reason for joining Faculty of Nursing</b>			
Job opportunity	18.08 $\pm$ 4.445	37.81 $\pm$ 9.269	8.82 $\pm$ 5.74
Pre-faculty grades	18.41 $\pm$ 5.278	40.61 $\pm$ 11.44	10.2 $\pm$ 6.175
Love helping others	17.44 $\pm$ 5.343	36.56 $\pm$ 9.066	7.05 $\pm$ 4.953
Family pressure	12.00 $\pm$ 7.071	49.00 $\pm$ 7.071	17.5 $\pm$ 2.121
F (value)	F= 1.523 P=0.209	F= 3.472 P=0.017*	F= 6.645 P=0.000*

t = Student t test

F= ANOVA test

\* Statistically significant at  $p \leq 0.05$

## Discussion:

Coronavirus (COVID-19) due to its rapid spread, strong infectivity and increased mortality has the power of inducing a wide range of emotional responses among individuals all over the world including university students (Ding et al., 2020; Li et al., 2020; Van Bavel et al., 2020). Significant disturbances in university students' daily functioning caused by this pandemic as strict isolation measures and closure of universities have been associated with significant levels of stress among this population (Bodrud-Doza, Shammi, Bahlman, Islam, & Rahman, 2020). Many researchers reported that, the potential effects of the current pandemic on mental health should not be underestimated. Even if most individuals do not get infected and remain physically well, they often suffer from negative psychological effects of this pandemic (Boyras & Legros, 2020; Cao et al., 2020; Fernández et al., 2020; Juan et al., 2020; Kontoangelos, Economou, & Papageorgiou, 2020; Spoorthy, Pratapa, & Mahant, 2020).

The current concerns and anxieties about COVID-19 may cause, contribute to, or worsen psychological symptoms in individuals such as depression, increase obsessive-compulsive (OC) traits and insomnia (Aardema, 2020; Chew et al., 2020; Kakunje, Mithur, & Kishor, 2020; Machado et al., 2020; Rogers et al., 2020). The first academic-year nursing students are more prone to develop various symptoms of these psychological problems, due to fear of the unknown and uncertainty. Increase OC traits and insomnia among them are considered the main psychological problems that can have adverse effects on academic achievement and future carrier. In this context, the current study aimed to determine and explore the impact of fear of COVID-19 on obsessive-compulsive traits and sleep quality among the first-academic year nursing students.

Findings of this study highlighted major psychological challenges faced by the first-academic year nursing students during COVID-19 pandemic outbreak. It was found that around two-thirds of those students experience moderate level of fear of COVID-19. This rate of fear among the study participants may be partially attributed to the number of infected

persons and the increased death rates which continue to mount across the world without a foreseeable endpoint. In the same line, the perceived threat of becoming infected themselves, or any family member or loved ones, the social isolation that have been forced, closings of the universities and relocation following university campus closures are considered contributing factors for increasing fear level of COVID-19 among those students. This goes with other study results which found that the majority of the studied students have experienced anxiety because of COVID-19 pandemic, out of which 38.6% experienced mild anxiety, 34.3% experienced moderate and 27.1% experienced severe anxiety, and the level of stress in the studied population is moderated by the level of specific fear of COVID-19 (Dymecka, Gerymski, & Machnik-Czerwik, 2020).

In the present study, more than one-third of the studied students reported having moderate level of OC traits during COVID 19 pandemic. This can be attributed to the fact that first-academic year nursing students as all newly students started to encounter their educational, academic, economic, and environmental-adaptation challenges during time of COVID-19 pandemic. These challenges may include difficult and intense nursing education, imagined training in stressful and highly infected environments like hospitals, dealing with the patients with different diagnoses & those with terminal stages of diseases and interacting with their stressed family members. All these stressors can have negative effects on their patterns of cognition and can activate stress-related schemata among those young students which could result in more OC traits. Similarly, (Horesh & Brown, 2020) stated that, although large numbers of people throughout the world show resilience to the profound loss, stress, and fear associated with COVID-19, the virus will likely exacerbate existing mental health disorders and contribute to the onset of new stress-related disorders for many.

Results of the present study also showed that studied students who had moderate and severe levels of fear of COVID-19 also suffered from moderate level of OC traits. However, one of the hallmarks of obsessive-

compulsive traits is contamination fears and excessive hand-washing. Now, these behaviors are accepted and even encouraged to protect human health and are applauded as adaptive and resourceful. Many stores now prominently post rules mandating face masks and hand sanitizer use and limit the number of customers allowed inside at one time. These restrictions in the face of the deadly pandemic can result in more OC traits among the students. Moreover, it was claimed that COVID-19-related worries among nursing students; for example fear of being infected may be linked to increase OC traits among such students (Boyras & Legros, 2020; Gupta & Sahoo, 2020; Juan et al., 2020; Kontoangelos et al., 2020; Lin, Hu, Alias, & Wong, 2020; Zegarra-Valdivia, Vilca, & Guerrero, 2020).

Another possible explanation for increase OC traits among studied students is that students' feelings of cut off from social groups and colleagues during their first-academic year may increase their anxieties and worries. On the other hand, the sudden change of the teaching methods from traditional face to face method to on-line learning without proper preparation of those students may have been particularly increasing their fear from managing academic work responsibilities. Although, the Faculty of Nursing has quickly adapted online opportunities to overcome this crisis and to be connected with its students, these digital behaviors could be one of stressful circumstances that contribute to increase OC traits among those students. Students with pandemic contamination fears, or who previously were unable to regulate their use of technology, find trigger situations that were once avoidable have now become even more ubiquitous (Sharma et al., 2020). Students' attempt to counter both the lack of control over overwhelming external factors from one hand and increasing stresses (e.g., increasing responsibility and increasing attention to details) from another hand. Along the same line, previous studies reported that obsessions are triggered by external events and are related to current concerns (Abramowitz, Nelson, Rygwall, & Khandker, 2007; Hermans, Martens, De Cort, Pieters, & Eelen, 2003).

Contrary to expectations, insomnia severity is not a significant problem among

studied students. The majority of students who had moderate fear of COVID-19 had either no or mild insomnia. This may be explained by the nature of the tool used in the present study (ISI). This tool used to assess the perceived severity of insomnia symptoms; as well as, the degree of concerns or distress caused by those difficulties. Its content corresponds in part to the diagnostic criteria of insomnia. Another explanation to the obtained results is that, many people including faculty students cope with excessive anxiety and fear with hypersomnia. They go into excessive sleep or increase sleep hours as a way to escape from excessive thinking about the problem; as well as, the emotional distress caused by these negative thoughts.

Interestingly, the current study revealed that there is a significant positive correlation between fear of COVID-19, OC traits and insomnia among the studied first-year nursing students. This result could be explained in the light of the assumption of (Hobfoll, 2001) "along with prolonged stress and fear, resources may be lost". The threat associated with the pandemic is a source of strong fear and impedes effective coping with it, consequently it can also increase the level of OC traits. Feelings of fear and anxiety that emerge in response to COVID-19 crisis can drive the existing obsessive fears of contamination in some students with OC traits and further trigger compulsive actions. Coronavirus can become all they think about among those students; their fear of contact with contaminated surfaces and /or passing too close to other people lead to disturbed everyday activities. Fear of COVID-19 may cause the students to be more likely to comply with pandemic restrictions. One of these restrictions is social isolation that may have negative impact on both level of OC traits and sleep quality. A recent study done by Hampshire et al., 2020 revealed that the prevalence of novel infectious diseases, such as COVID-19, can increase anxiety and stress levels, that directly affect sleep quality (Hampshire et al., 2020).

Finding of the present study indicated that, the studied female nursing students had higher level of fear of COVID-19 than males. This finding can be explained by the fact that males mainly use some defence mechanisms such as

denial and reaction formation than females to maintain their self-integrity. Another possible explanation for the obtained result may be related to the emotional nature of the females and their reactions to external events without considering the whole picture of the situation. This finding is in consistent with (Pappa et al., 2020) who posted that the prevalence rate of fear, anxiety and depression appeared to be higher in females. Contrary to this finding, a study done by (Liu et al., 2020) found that men were more likely to report high level of PTSD symptoms due to high level of fear of COVID-19.

The present study also revealed that living in urban areas contributes to more feeling of fear of COVID-19, OC traits and insomnia than living in rural areas among the studied students. This finding may be due to the presence of social networking, cohesion, and support of the family members in rural areas. This cohesion could be a significant factor in decreasing students' experience of fear during the COVID-19 crisis. In this respect, literatures have indicated that living with parents and family support were considered as a constructive factor against feeling of fear from any external stressors (Kontoangelos et al., 2020; Prime, Wade, & Browne, 2020). It could also be assumed that the repeated exposure to media in urban than in rural areas is a contributing factor for increasing fear of COVID-19. This explanation is supported by (Young, King, Harper, & Humphreys, 2013), who stated that "the more media coverage a disease receives, the more likely individuals are to perceive it as a threat, regardless of the actual risk involved". Along the same line, (Garfin, Silver, & Holman, 2020) proposed that repeated media exposure to the outbreak can lead to heightened stress responses that can lead to far-reaching impact on physical and mental health. Contrary to these results, (Cao et al., 2020) reported that living in urban areas versus rural areas was conducive to reducing the anxiety and fear of college students.

Results of the present study showed that increase number of family members indicates more OC traits among the studied nursing students. In the same line; many researchers reported that, one of the most known symptoms of OCD is a fear of germs/contamination or a

perceived threat of becoming infected. For others with harm-related obsessions, may suddenly start to develop obsessions about infecting others. They will not be concerned about themselves but will be more worried about contaminating and harming others including family members or loved ones. Likewise, those with contamination fears may have a more difficult time than usual as current events squeeze their way into the obsessional narrative (Aardema, 2020; Fineberg et al., 2020; Ransing et al., 2020; Wang et al., 2020). The proposed (obsessional) scenario by which can be acquired during COVID-19 pandemic included touching/contacting other contaminated individuals; touching things outside the house which then could have been somehow brought into the house; resulting in the entire family being infected.

The current results showed that students who had joined the faculty because of their family pressure experienced high levels of OC and insomnia or disrupted sleep quality than those who reported other reasons for joining the faculty (job opportunity, pre-faculty grades or love helping others). This result can be attributed to the fact that nursing as a profession requires high degree of interpersonal reactivity. The student nurse who had joined the faculty because of their family pressure was not basically willing to engage in this experience; as well, he /she did not have the intrinsic social competency that makes him/her ready to recognize and manage emotions, provide care and concern for others, make responsible decisions, establish positive relationships, and handle challenging situations effectively. Accordingly, those students experienced dissatisfaction with joining the Faculty of Nursing which may be a critical factor for increasing anxiety level due to their improper psychological preparation for this challenging and stressful profession.

## Conclusion

Based on the findings of the present study, it can be concluded that level of fear of COVID-19 among first-academic year nursing students, Alexandria University is related positively to their levels of OC traits and insomnia. Being female and living in urban areas contribute to increase fear of COVID-19.

Moreover, living in urban areas & with large family members and joining the Faculty of Nursing because of family pressure increase levels of OC traits and insomnia among those students.

### Recommendations:

**The followings are the main recommendations yielded by this study:**

- Early detection, picking up and effectively treating students who have intense fears of COVID 19 are emphasized before they evolve to more complex and enduring obsessive-compulsive symptoms.
- Immediate interventions via multidisciplinary teams, including academic mental health professionals to the vulnerable group of students.
- A compassionate calming approach and mental health support have to be provided through hotline teams, chat lines, and media.
- Provision of safe psychological online counseling, self-help services and tele-psychiatry consultation (for example, via electronic devices or apps).
- On-line psycho-education could be used about different adaptive coping measures that could help to manage students' level of perceived stress during COVID-19 crisis e.g.:
  - Verbal, written, or symbolical expressions of feelings of fear and anxiety. In addition to use of problem-solving, seeking social support, distraction, and positive thinking.
  - Stress management techniques, such as deep breathing exercises, progressive relaxation, meditation, mental imagery and mindfulness-based interventions
  - Reducing TV time and listening to COVID-19 pandemic crisis news and minimizing the time spent in using electronic devices such as mobile, laptop or computer, on the other hand; increasing levels of physical activity, adhering to the same pre-lockdown academic-hour routine and positive attitude towards life.
- Delivering of regular and accurate information updates on the COVID-19 is needed.
- Further studies are needed to investigate the level of fear of COVID-19 in nursing students especially with regard to different psychological variables as depression, phobia and eating disorders.

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