



Psychological Status among the Medical Interns in Jeddah Hospitals during COVID-19

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ABSTRACT

Introduction: Coronavirus (COVID-19) is a highly transmissible virus that causes severe respiratory illness, by March 12, 2020 the virus was declared as a pandemic by the WHO, the first case in Saudi Arabia was announced at 02 march 2020. This outbreak was associated with a high public anxiety, Due to their long working hours and a higher risk of infection, medical interns could face some psychological problems. Our aim is to investigate the psychological status of medical interns during coronavirus (COVID-19) outbreak in Jeddah, Saudi Arabia. **Methodology:** This Cross-sectional study was conducted in the period between July-August 2020 in Jeddah, Saudi Arabia. Data was collected using an online questionnaire distributed. A total number of 319 participants answered the online survey, but a total of 270 responses were included in this study. We used latest version of SPSS for the analysis. **Results:** In this study IES-R Overall showed that PTSD is a clinical concern, all other averages of DASS and IES-R subscales were normal. Females were

significant IES-R overall and IES-R intrusion. In addition, participant above the age of 25 had a significant correlation with all DASS, IES-R and IES-R Overall. Private universities had significance with anxiety, avoidance, intrusion, hyperarousal, and IES-R Overall Conclusion: In our study we found that factors exacerbating psychological distress were, Gender (Females), Age > 25 years, graduating from Private universities. Both marital status and internship experience had no significant relation.

INTRODUCTION

Coronavirus (COVID-19) one of the most severe viruses. Was discovered on December 2019, Affects the respiratory system, it is characterized by its fast transmission rate. (1) COVID-19 is mainly transmitted by air droplets in close contact. (2) By March 12th 2020 the WHO has declared the virus status as a pandemic. (3) The Coronavirus (COVID-19) outbreak in 2020 is associated with high public anxiety in the affected countries. Media speculations may also have contributed to this psychological distress.(4) As of 27th of June 2020, COVID19 had spread to most of the countries in the world and recorded about 10 million cases with about half a million deaths according to the World Health Organization (WHO).(5) the first case of coronavirus in Saudi Arabia was announced by the Ministry of Health (MOH) on 2nd of March 2020.(6) So far it was reported over 175,000 cases in Saudi Arabia and 0000 in Jeddah city on 27th June 2020.(5) The most distressed was the healthcare community (doctors, nurses, technicians, and medical interns, etc) (4), due to raising the risk of infection and working for long shifts to cover medical demands. These may exceed their ability as healthcare professionals and as a result cause anxiety, depression, insomnia and different kinds of psychological distress. (10-12) The medical intern students facing unique challenges and an unprecedented emotional burden from the COVID-19 pandemic (4,10-12). Most of them work in the emergency department and they are the first-line responders at especially high risk of experiencing psychological hardship from the burden of diseases, and deaths (4-13), with the beginning of COVID-19 pandemic number of studies show that medical teams, in general, are more prone to mental health problems. (12) A cohort study was done in China 2019 to assess mental health problems such as anxiety and depression among physicians during the coronavirus pandemic. It included 726 residents who participated in this study, they found physicians were affected mentally after coronavirus. (13) A study conducted in China in January 2020 among about 15000 physicians and nurses done by using online questionnaires aimed to assess the mental health status of physicians and nurses in emergency department of china hospitals during COVID-19 pandemic. It shows that about 1 in 4 among the healthcare workers faced depressive symptoms, and about 1 in 10 of them faced PTSD. (14)

Lai J et al., 2020, conducted a cross-sectional study using a survey from January 29th 2020 to February 3rd 2020 to identify the factors associated with mental health outcomes among healthcare workers in china exposed to coronavirus disease 2019, the study involved 1257 physicians and nurses, the result of the study showed that depression, insomnia and anxiety in healthcare workers are directly proportional to the (COVID-19) cases in their place of work. (15)

Lu W et al., 2020 Apr 4, conducted a cross-sectional study using a questionnaire from February 25th 2020 to February 26th 2020 to evaluate the psychological status of medical workforce of Fujian Provincial Hospital during the (COVID-19) pandemic, the study involved 2042 medical

staff. Results showed that medical staff working in departments involved in handling the coronavirus patients are more likely to suffer from fear, anxiety and psychological disturbance. (16).

This cross-sectional study was done in China 2020 to evaluate the psychological status and sleep quality of nursing interns during the outbreak of COVID-19. It included 95 surveys collected from nursing interns and arrived to high levels of anxiety and depression during the collective isolation to affect their sleep quality. (17)

However, there are limited studies about the psychological harm caused by Coronavirus (COVID-19) among the healthcare workers in general and specifically medical interns, as they have the least medical experiences in facing these situations. Our aim in this study is to assess the psychological status as well as the performance of medical interns during coronavirus (COVID-19) in Jeddah, Saudi Arabia.

METHOD

This study was approved by the institutional review boards- research center and ethical committee at Dr. Soliman Fakeeh Hospital (DSFH IRB), Jeddah, Saudi Arabia. This quantitative cross- sectional study was conducted in the period between July-august 2020 in Jeddah, Saudi Arabia. All medical interns who satisfy the following inclusion criteria:

1. Working in Jeddah hospitals and primary health care centers.
2. Completed six years of MBBs education.

Were included in this study, and we excluded all medical interns who have been diagnosed with any psychological disorders before the beginning of COVID-19 pandemic. The study included a randomized sample size and based on Cohen, West and Aiken (2003)' sample power calculation, the minimum required sample size for observational study, with the desired probability level of (0.05), and medium effect size of (0.05), and the statistical power level of (0.8), the required sample size was 300. In addition, the drop out rate of previous studies was 10%. So, the required sample size was 350 (18).

The data collection method was a consented online based questionnaire included two main parts:

Part I: Sociodemographic data such as age, gender, university, hospitals, experience in internship in month, marital status and previous diagnosis with psychological disorder.

Part II: It included two major tools to assess psychological status of participants.

- A. The psychological impact of COVID-19 was measured using the Impact of Event Scale Revised (IES-R) (19-26). The IES-R is a self-administered questionnaire that has been well-validated in the Chinese population for determining the extent of psychological impact after exposure to a public health crisis within one week of exposure. This 22-item questionnaire is composed of three subscales and aimed to measure the mean avoidance, intrusion, and hyperarousal. The total IES-R score was divided into 0–23 (normal), 24–32 (mild psychological impact), 33–36 (moderate psychological impact), and >37 (severe psychological impact).

B. Mental health status was measured using the Depression, Anxiety and Stress Scale (DASS-21) and calculations of scores was based on the previous study (27). *Table 1*

The DASS has been demonstrated to be a reliable and valid measure in assessing mental health in the Chinese population.

Table 1: The Depression, Anxiety and Stress Scale (DASS-21)

Psychological Status	Depression	Anxiety	Stress
Questions	3, 5, 10, 13, 16, 17 and 21	2, 4, 7, 9, 15, 19 and 20	1, 6, 8, 11, 12, 14 and 18
Subscale Score	-Normal (0-9) -Mild (10-12) -Moderate (13-20) -Severe (21-27) -Extremely severe (28-42)	-Normal (0-6) -Mild (7-9) -Moderate (10-14) -Severe (15-19) -Extremely severe (20-42)	-Normal (0-10) -Mild (11-18) -Moderate (19-26) -Severe (27-34) -Extremely severe (35-42)

Data entry was done using Microsoft office excel version 2016. Data analysis was done using SPSS statistical software version 25 and Descriptive statistics were calculated for sociodemographic characteristics and study outcomes. Percentages of responses were calculated according to the number of respondents per response with respect to the number of total responses of a question. The scores of the IES-R and DASS subscales were expressed as mean and standard deviation. We used linear regressions to calculate the univariate associations between sociodemographic characteristics, and the IES-S score as well as the subscales of the DASS. All tests were two-tailed, with a significance level of $p < 0.05$ and a confidence level of 95%.

RESULTS

The aim in this study is to assess the psychological status as well as the performance of medical interns during coronavirus (Covid-19) lockdown in Jeddah, Saudi Arabia.

Demographic Characteristics

A total number of 319 participated with us. However, due to the exclusion criteria of previous psychological disorder diagnosis 49 participants weren't included in the study. The overall response was 270 (84.64%).

The mean age of the participant was 25.21 SD 1.33. Females were slightly more than males 58.3%, 41.7%, respectively. Furthermore, participants were divided to 3 groups according to their experience in internship and resulted as follow: < 3 months 84 (26.33%), 4-8 months 16(5.02%) and > 8 months 219 (68.65%). Table2

Table 2: The Sociodemographic Data of The Study Participants (n = 319)

Element	Frequency (%)
Age	
Mean	25.21
ST dev.	1.328
Gender	
Male	133 (41.7%)
Female	186 (58.3%)
Marital Status	
Single	282 (88.4%)
Married	36 (11.29%)
Divorced	1 (0.31%)
Widow	0
Experience in internship in months	
< 3 months	84 (26.33%)
4 – 8 months	16 (5.02%)
> 8 months	219 (68.65%)
Previous psychological disorder	
Yes	49 (15.36%) *
No	270 (84.64%)

Raw Scores of Measurements

The average of the scores on Depression, Anxiety, Stress, and DASS for overall were all normal. IES-R subscales presented with normal findings except in IES-R-overall which was 25.78 ± 20.72 (PTSD is a clinical concern). Table 3

Table 3: Raw Score of Anxiety, Distress, Depression of the Study Participants (n=270)

Element	Average	Standard Deviation
DASS - Depression	5.86	5.85
DASS - Anxiety	4.91	5.30
DASS – Stress	5.92	5.80
DASS – Overall	16.70	16.24
IES-R Avoidance	10.17	7.94
IES-R Intrusion	9.14	8.06
IES-R Hyperarousal	6.46	5.70
IES – R – Overall	25.78	20.72

The Results of Comparison

In terms of comparison between gender and subscales, it showed significance relation in both IES-R Intrusion (p value=0.035) and IES-R-Overall (p value=0.027) with females using independent T test. In addition, there is a significant relation between age and depression score (p value=0.0025), anxiety score (p value=0.014), stress score (p value=0.034), DASS-Overall (p value=0.018), avoidance (p value=0.001), intrusion (p value=0.00), hyperarousal (p value=0.008), and IES – R – Overall (p value=0.001), and favor more than 25 years.

Furthermore, there is a significant relation between universities and anxiety (p value=0.04), avoidance (p value=0.01), intrusion (p value=0.00), hyperarousal (p value=0.003), and IES – R

– Overall (p value=0.001), all in favor of private colleges. On the other hand, For both marital status and internship experience there were no significance relation. Table 4

Table 4: The Results of Comparison Between the Main Study Outcomes and the Study Participants Characteristics

	Gender		Age		Marital status		Internship Experience			University	
	Male	Female	<25	>25	Single	Married	<4 months	4-8 months	>8 months	Public	private
DASS– Depression Mean	5.31	6.22	5.26	6.92*	5.78	6.58	5.74	6.54	5.86	5.31	6.31
DASS– Anxiety	4.56	5.15	4.32	5.96*	4.83	5.69	4.67	6.64	4.90	4.19	5.51*
DASS – Stress	5.49	6.20	5.35	6.91*	5.79	7.12	6.05	6.55	5.84	5.29	6.44
DASS– Overall	15.37	17.57	14.93	19.79*	16.41	19.38	16.45	19.73	16.6	14.79	18.26
IES-R Avoidance	8.75	11.12	8.92	12.38*	10.23	9.69	9.95	11.36	10.18	8.78	11.32*
IES-R Intrusion	7.19	9.07*	7.84	11.43*	8.27	8.73	8.85	10.36	9.17	7.26	10.69*
IES-R Hyperarousal	5.76	6.93	5.77	7.68*	6.46	6.50	6.39	5.55	6.54	5.32	7.41*
IES–R– Overall	21.69	27.12*	22.52	31.49*	24.95	24.92	25.20	27.27	25.89	21.36	29.42*
*Implies Significance (P-value <0.05)											

Bivariate Correlation

Using Spearman correlation test a significant difference was found between the age and depression (p value=0.029), anxiety (p value=0.004), stress (p value=0.018), DASS-Overall (p value=0.011), avoidance (p value=0.00), intrusion (p value=0.00), hyperarousal (p value=0.01), and IES – R – Overall (p value=0.00). In addition, in gender, it showed significant correlation with avoidance (p value=0.02, r=-0.14), intrusion (p value=0.05, r=-0.12), and IES – R – Overall (p value=0.04, r=-0.13) all indicating weak inverse correlations, the rest were insignificant. Furthermore, with the universities had significance in anxiety (P-value = 0.03, r=0.26), Avoidance (P-value = 0.01, r=0.17), Intrusion (p value=0.000, r=0.26), Hyperarousal (P-value = 0.004, r=0.24), IES-Overall (P-value = 0.001, r=0.23) all indicating weak direct correlations. All correlations with marital status as well as internship experience years were insignificant. Table

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Table 5: Bivariate Correlation between Sociodemographic Characteristics and the Study Outcomes (Spearman Coefficient)

	Age	Gender	Marital status	Internship experience	University
DASS- Depression	0.029*	0.40	0.45	0.82	0.31
DASS -Anxiety	0.004*	0.24	0.14	0.82	0.03*
DASS -Stress	0.018*	0.57	0.10	0.94	0.18
DASS -Overall	0.011*	0.37	0.17	0.79	0.14
IES - Avoidance	0.000*	0.02*	0.93	0.56	0.01*
IES - Intrusion	0.000*	0.05*	0.46	0.50	0.000*
IES - Hyperarousal	0.01*	0.14	0.54	0.45	0.004*
IES - Overall	0.000*	0.04*	0.74	0.44	0.001*
*Implies Significance (P-value <0.05)					

DISCUSSION

This study assessed the psychological status among medical interns in Jeddah, Saudi Arabia during the time of covid-19 outbreak.

Regarding the results of this study, all averages of DASS and IES-R subscales are normal, and for IES-R overall it shows that PTSD is a clinical concern. In terms of comparing between gender and subscales, it shows significance of IES-R overall with females. In addition, participant above the age of 25 have significant correlation with all DASS, IES-R and IES-R Overall. Furthermore, private universities have significance with anxiety, avoidance, intrusion, hyperarousal, and IES-R Overall. Age is significant with all of DASS, IES-R subscales, and IES-R overall. Regarding gender, it shows significant correlation with avoidance, intrusion, IES-R overall. Lastly, there are a significant correlation between universities and all of anxiety, avoidance, intrusion, hyperarousal, and IES-R Overall.

Min Luo, et al, 2020 conducted study on the psychological and mental impact of coronavirus disease 2019 (COVID-19) on medical staff and general public, it showed that the prevalence of depression and anxiety was the greatest among patients with pre-existing conditions and COVID-19 infection, results showed that it was similar between the general public and healthcare workers. Common risk factors included being a female, having lower socioeconomic status, as well as having higher risk of infection with COVID-19, and lastly, social isolation, protective factors included having sufficient medical resources, the latest and most accurate information, and taking safety and precautionary measures.(28) This study found similar result to what we was found regarding females being more prone to psychological distress, and the fact that our target population are the interns (health care providers) facing the infection on a wide scale.

Ahmed MA, et al, 2020, conducted a cross-sectional study; using an online survey from 10th to 17th March 2020 to determine the association between (COVID-19) and fear and practice modification among dentists, the study involved a total of 669 participants from different countries. Results showed that more than two thirds of the dentists are anxious of the current (COVID-19) pandemic due to their line of work and how it deals with the patients.(29) This study results are similar to what we found in certain groups of interns, for example, interns who are above 25 years of age in our study suffered more psychological impact from this pandemic and of acquiring it and transmitting it to their families, so this creates a certain feeling distress and fear of the workplace.

A cross-sectional study done among HCW in Toronto, Canada in 2020 had 248 participants showed that there is no difference among demographic data; however, HCW who work longer where at higher risk for distress, (11) but our results showed the difference with demographic data (Ex. female and age > 25 years) correlation with the DASS and IES.

Kang L, 2020, conducted a cross-sectional study to evaluate the Impact on mental health and perceptions of psychological care among medical and nursing staff in Wuhan during the (COVID-19) outbreak, the study involved 994 medical and nursing staff. Results showed that the majority had mild disturbances which scales up in the staff which participated in confronting actual infected people, furthermore the medical and nursing staff sought psychological therapy.(30) This literature also describes how medical staff who works during the pandemic suffer from psychological disturbance especially those confronting the infected, this targets our aim of study that the interns are actually afraid of getting infected which is why we excluded those who suffered a previous psychological disorders so that we do not get any false positive results.

Limitations to this research includes the low response rate and the fact that 49 participants met our exclusion criteria to end up with a sample of 270 individual. Other reason for this is that Saudi Arabia was in a 24-hour lockdown during the pandemic and while the data has been collected, so physically collecting the data and using the help of data collectors was difficult.

Our recommendation is that medical interns undergo periodic psychological assessment by a psychiatrist to assess their mental health and the capacity to help patients. Another important note is to have sufficient medical resources, the latest and most accurate information, and taking safety and precautionary measures with all patients. We also recommend that future studies include a bigger variety of healthcare workers rather than interns alone and make it in a national wide level.

CONCLUSION

This study aimed to assess the psychological status among medical interns during COVID-19 outbreak in Jeddah, Saudi Arabia. This study found that factors exacerbating psychological distress are, gender (females), age > 25 years, graduating from private universities, this indicates that socio-demographic data is an important factor in terms of assessing the psychological status. Both marital status and the period of internship experience had no significant relation. We recommend that medical interns undergo psychological assessments by a psychiatrist periodically, as well as taking precautions with every patient they encounter,

lastly, to perform further studies on larger samples and to include a wider variety of medical staff.

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