



Assessment of psychosocial impact among medical interns working in a tertiary care hospital during the time of pandemic in Chennai district, Tamilnadu - A Cross-sectional study

[Running Title: Psychosocial impact and medical interns]

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ABSTRACT

Background: Medical interns develop apprehensions about the vulnerability of their exposure to infection while treating Covid-19 patients which may further affect their work pattern and efficiency. Studies have shown that the outbreak of infectious diseases would result in mental health issues. In view of this our study aims to assess the psychosocial factors such as anxiety, depression, stress, relationship with peers and change in personal roles among medical interns of a private medical college.

Methodology: This cross-sectional was carried among 248 medical interns working in tertiary care hospitals by using simple random sampling method. Depression, anxiety, and stress were assessed using a standardized 21-item depression, anxiety, and stress questionnaire (DASS-21). To acquire information regarding the study participants' socio-demographic data and social elements, a pretested semi-structured questionnaire was used.

Results: The overall prevalence of Depression [58%], Anxiety [70%] and Stress [44%] were found among the 248 study participants. Around [70.6%] of the study participants reported that their social life had



been affected. The prevalence of various factors associated with depression, anxiety and stress were assessed.

Conclusion: This study reports higher levels of psychosocial distress among the study participants. Adequate knowledge about the pandemic and stress management measures will be the top priority among these budding medicos during such unfavourable pandemic situations.

Keywords: Depression, Anxiety, Stress, Social life

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MAIN TEXT

INTRODUCTION:

On a global scale, the Corona virus illness (COVID-19) pandemic caused international health concerns and significant psychological distress. The (COVID-19) pandemic has been by far the largest outbreak of atypical pneumonia since the severe acute respiratory syndrome (SARS) epidemic in 2003¹. The cumulative number of illnesses and deaths had surpassed those of SARS just weeks after the initial outbreak. During such a health crisis, healthcare services are overburdened, leaving frontline personnel vulnerable to psychological discomfort and other mental health issues. Health care professionals spend hours each day putting on and removing airtight protective equipment, which adds to their exhaustion from the Covid outbreak's increased workload. The National Medical Commission recognizes the qualifications of approximately 542 medical institutions in India². Nearly 50,000 students graduate each year after completing a year of internship prior to receiving their MBBS degree³. Medical interns are the lifeline of teaching hospitals which leaves them exposed to face many challenging situations especially during the time of a pandemic. They develop a dread of contracting the disease and infecting their family members leading to reluctance to work. Increased unjustified violence against doctors in recent years, for no reason other than their own, adds to their woes. This condition raises issues regarding health care employees' mental health, psychological adjustment, and recuperation. In response to the COVID-19 outbreak, local and national mental health

institutions have broadly implemented psychological aid services, including telephone, internet, and application-based counselling or intervention. However, Constant evaluation and mental health therapies aimed at front-line health-care employees, on the other hand, are relatively rare. Studies done in the past have focused on quality of life during Covid among qualified professionals as well as people from various other medical fraternities including paramedics. There is dearth of literature regarding the stress, anxiety and depression faced among medical interns unprepared to deal with such stressful situations. Based on the above background, this study was conducted to assess mental health outcomes among medical interns treating COVID-19 patients by quantifying the degree of depression, anxiety, sleeplessness, and distress symptoms, as well as identifying potential risk factors linked with these symptoms.

METHODOLOGY:

Study design and study area:

This cross-sectional descriptive study was done in tertiary care hospitals Chennai district, Tamil Nadu

Study area and study population:

The study cross-sectional descriptive study was done in tertiary care hospitals located in Chennai district, Tamil Nadu. The population covered in this study was medical interns working in tertiary care hospitals.

Sampling method and sample size calculation:

Using the Dobson's formula $4PQ/I2$, the sample size was estimated. Based on a previous study conducted among medical



interns conducted by M. Carrascos et al which showed 80.8% of respondents were worried of contracting the virus⁴. Using this as Prevalence (P) in the formula, a sample size of 238 was estimated with a 5% absolute precision. By purposive sampling method, interns working in private medical colleges were selected as study participants.

Inclusion criteria: All Medical interns working in a private medical college were selected for the study, non-gender specific.

Exclusion criteria: Interns with active covid-19 infection and those on drug therapy for any mental disorder were excluded from the study

Data collection tools:

To acquire information regarding the study participants' socio-demographic data and social elements, a pretested semi-structured questionnaire was used.

Depression, anxiety, and stress were assessed using a standardized 21-item depression, anxiety, and stress questionnaire (DASS-21). It is further divided into three subscales that measure depression, anxiety, and stress. The participants were asked to score their experience with each symptom on a 4-point Likert scale ranging from 0 (does not apply to me) to 3 (applies to me most of the time). Each subscale's scores are added together and classified as mild, moderate, severe, or extremely severe⁵. The DASS-21 has been approved for use in measuring depression, anxiety, and stress in adults⁶

For the assessment of social factors, a score was assigned to each item in the questionnaire, and the median value for the total score of all participants was determined. Participants with a score less than the median value were considered to have a normal social life, whereas those with a score above the median value were considered to have Covid-19 affecting their social life.

Operational definition:

Medical intern: In medicine, a doctor who has completed medical school and is engaged in a year of additional training at a hospital before residency.⁷

Psychosocial factors: Factors that affect a person psychologically and socially. It includes several domains such as mood status (anxiety, depression, and stress), social factors (Education, employment, relationship with others)⁸

Data analysis method:

The data was imported into a Microsoft Excel sheet and analyzed with SPSS 25. The outcome variables (Social status, Depression, Anxiety and Stress) in the study are all categorical and were expressed as frequency and percentage. Chi-square test and logistic regression was used to identify the association between the selected variables and presented in the form of tables.

Ethical consideration:

The purpose of this study was explained, and informed consent was obtained from each participant. The proposal for this study was presented before the Institutional Ethical Committee, Sree Balaji Medical College and Hospital and approval was obtained before beginning the study was carried out.

RESULTS:

The study included 248 participants working in a tertiary care hospital in Chennai district, Tamil Nadu. Socio demographic determinants, prevalence of depression, anxiety, stress and social life being affected during the Covid-19 pandemic and the association of these factors with mental health were assessed in this study.

Socio-demographic characteristics of the study participants:

Among the 248 study participants 51.2% were found to be males and 48.8% females. The majority of the participants (70.6%) in the study were lesser than 24 years of age and about (29.4%) were aged 25 and above. Most of the participants had more than 4 members in their family (76%)



Figure:1Prevalence of Depression, Anxiety and Stress

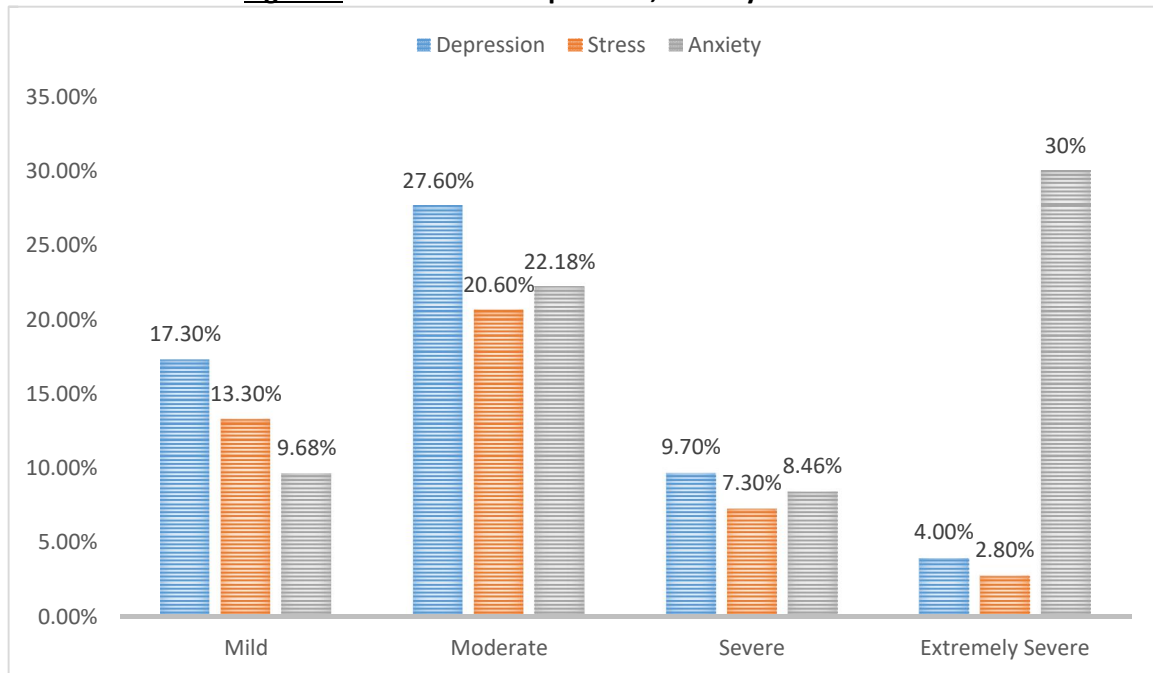


Fig.1 shows details regarding the prevalence of Depression [58%] with severity grading as Mild– 17.3%, Moderate – 27.6%, Severe – 9.7% and Extremely severe depression – 4%, Prevalence of Stress [44%] with severity grading of Mild – 9.68%, Moderate – 20.6%, Severe – 7.3% and Extremely severe stress – 2.8%, prevalence of Anxiety [70%] with severity grading Mild- 9.68%, Moderate – 22.18% , Severe – 8.46% and Extremely severe anxiety – 30%. Around 70% of the participants reported of their social life being affected

Risk factors:

Among the study participants females had a higher prevalence of depression (30.6%), anxiety (35.9%) and stress (23%) in comparison to their male counterparts having depression (27.4%), anxiety (34.3%) and stress (21 %) in the study population. Among the study participants only 20% of study participants aged 25 and up were stress-free, with the remaining 80% suffering from mild to severe anxiety. Around 65% of participants aged 24 and under were stress-free, while 35% experienced mild to severe anxiety. These findings were found to be statistically significant with a p-value of 0.01* and chi-square value of 28.04 listed in table 1. Increase in age was significantly associated with increase in levels of anxiety. *P= <0.05 (statistically significant at 95 % Confidence Interval)

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TABLE1: Association of anxiety with age

Variable		Anxiety status					Chi-square	P-value
		No	Mild	Moderate	Severe	Extremely Severe		
Age group	<=24	60 (34.3%)	7 (4%)	37 (21.1%)	19 (10.9%)	52 (29.7%)	28.04	0.01*



>=25	14 (19.2%)	17 (23.3%)	18 (24.7%)	2 (2.7%)	22 (30.1%)		
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*P= <0.05 (statistically significant at 95 % Confidence Interval)

TABLE 2:Multiple logistic Regression

Social Status as Outcome Variable

Variables	P-Value	Adjusted odds ratio (AOR)	95%ConfidenceInterval (CI)
Are you comfortable wearing Personal Protective Equipment (PPE) throughout your duty hours?	0.001*	4.02	2.75 - 6.85
Did you suffer from any health condition due to prolonged usage of PPE and face mask?	0.033*	1.458	1.28 – 2.79
Have you seen any Covid-19 related deaths while on duty?	0.023*	2.46	1.61 – 4.80
I experienced breathing difficulty (e.g.excessivelyrapidbreathing,breathlessness in the absence of physical exertion)	0.09	3.9	2.69 – 5.80
Have you been engaged in Covid-19 related duties?	0.08	5.6	4.61 – 7.72
Are you working Voluntarily or forcibly in Covid-19 related duties?	0.059	1.9	1.42 – 2.55
How long do you work in a day?	0.12	2.2	1.18 – 3.29
Do you feel your workload has increased during Covid-19?	0.34	2.6	1.32 – 3.44
Do you feel protected from Covid-19 by using N95 mask?	0.06	2.9	1.58 – 4.70
Are you able to speak with your peers during work hours?	0.45	3.8	2.28 – 4.40
Were you feeling safe enough going home after each Covid-19 duty sessions?	0.55	2.4	1.85 – 3.93
Are you able to spend time with your family during lockdown?	0.90	3.0	1.82 – 4.90
Do you miss going out on a vacation/trip due to Covid-19 lockdown?	0.68	2.9	1.63 – 4.74
Did you miss any of your friend/family functions you were supposed to attend?	0.98	1.3	1.28 – 2.40
Have you / any of your family members suffered from Covid-19 in the past?	0.78	1.5	1.24 – 4.76

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Are you able to eat properly?	0.89	1.9	1.63 – 1.81
Is your sleeping pattern affected due to Covid-19 related duties?	0.98	4	2.58 – 5.70
How many hours do you sleep per day?	0.77	2	1.24 – 3.36
Have you ever disclosed the news of a Covid-19 related death to the family members of the deceased?	0.23	3.5	2.38 – 4.50
Do you feel your workplace is safe enough while handling Covid-19 cases?	0.43	3.3	1.91 – 4.97
Is the Covid-19 situation creating a change in your lifestyle?	0.134	3.2	1.43 – 4.64

*P= <0.05 (statistically significant at 95 % Confidence Interval)

TABLE 3: Outcome- Depression Status

Variables	P-Value	AOR	95%Confidence Interval (CI)
I felt that life was meaningless	0.02	1.2	1.18 – 2.20
I couldn't seem to experience any positive feeling at all	0.03	1.6	1.58 – 2.98
I found it difficult to work up the initiative to do things	0.89	1.2	1.12 – 2.15
I felt that I had nothing to look forward to	0.98	0.5	0.33 – 1.04
I felt down-hearted and blue	0.77	0.9	0.55 – 1.12
I was unable to become enthusiastic about anything	0.23	0.8	0.54 – 1.42
I felt I wasn't worth much as a person	0.43	0.9	0.87 – 1.09

*P= <0.05 (statistically significant at 95 % Confidence Interval)

TABLE 4: Outcome-Anxiety Status

Variables	P-Value	AOR	95%Confidence Interval (CI)
I was aware of dryness of my mouth	0.04	4.4	2.90 – 6.04
I felt I was close to panic	0.009	1.1	1.01 – 2.10
I experienced breathing difficulty (e.g. excessively rapid)	0.059	0.9	0.67 – 1.87



breathing, breathlessness in the absence of physical exertion)			
I experienced trembling (e.g. in the hands)	0.12	0.7	0.66 – 0.99
I was worried about situations in which I might panic and make a fool of myself	0.34	1.5	0.88 – 2.10
I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	0.06	1.6	0.69 – 2.88
I felt scared without any good reason	0.45	1.5	0.88 – 3.08

*P= <0.05 (statistically significant at 95 % Confidence Interval)

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Variables	P-Value	AOR	95%Confidence Interval (CI)
I found it hard to wind down	0.04	4.4	2.85 – 6.07
I tended to over-react to situations	0.01	3.4	1.74 – 5.94
I felt that I was using a lot of nervous energy	0.009	1.1	1.01 – 2.23
I found myself getting agitated	0.4	0.9	0.67 – 1.87
I found it difficult to relax	0.78	0.7	0.56 – 0.99
I was intolerant of anything that kept me from getting on with what I was doing	0.9	1.5	0.88 – 2.10
I felt that I was rather touchy	0.67	1.6	1.59 – 2.88

TABLE 5:Outcome –Stress status

*P= <0.05 (statistically significant at 95 % Confidence Interval)

Multiple logistic regression analysis was done for identifying the predictors of social life, depression, anxiety, and stress after eliminating the confounding factors. It was observed that wearing PPE kit for prolonged periods of time (AOR; 4.02) , suffering from health issues due to prolonged PPE and face mask usage (AOR ;

1.45) and attending to Covid related deaths (AOR ;2.46) had impacted the social life among medical interns working during the pandemic, “feeling of life being meaningless” (AOR; 1.2) and “not able to experience any positive feeling” (AOR; 1.6) were found to have statistically significant association with



depression status. “Awareness of dryness of mouth due to prolonged masking” (AOR; 4.4), and “tendency to panic” (AOR; 1.1) were found to be significantly associated with anxiety status and “finding it hard to wind down after a hectic workday” (AOR;4.4) and “tendency to over-react to situations” (AOR; 3.4) was found to be associated with stress status of the study participants.

DISCUSSION:

Among the study population male participants were proportionately higher (51.2%) when compared with 48.8% females. Majority of the participants (31.5%) in the study were about 24 years of age and around (29.4%) were aged 25 and above.

This study reports high levels of Depression (**58%**), Anxiety(**70%**), Stress(**44**) %and social life being affected (**70**)%among medical interns. Among the psychosocial problems of the study group anxiety and social life being affected had the highest prevalence (70) %. This demonstrates how much fear and social problems Corona created in such a short period of time. Similar findings were observed in the study done by Maria M. C.Carrascosa et al in 2021 in Brazil ⁴among medical interns where around 80.8% of medical interns were being afraid of getting contaminated with the virus. A study done in India by Suryavanshi.N et al in 2020in the year 2020 reported prevalence of depression – 47% and anxiety– 50% among healthcare professionals in India⁹.Being directly involved in the diagnosis, treatment, and care of COVID-19 patients, healthcare professionals are more likely to experience symptoms of depression, anxiety, insomnia, and distress, as well as an increased psychological burden¹⁰.Thesestudy findings prove that higher psychological distress is prevalent among medical professionals especially during such unfavorable pandemic situations. Gender is an important determinant of human health, and there is a clear pattern for sex-specific prevalence rates of various physical and mental disorders¹¹. According to the American Psychological Association, women are more

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likely than men to report high levels of stress¹². In this study, it was found that females have a higher rate of experiencing depression, anxiety, and stress than males. Individual differences in stress reactivity have been identified as a potentially relevant risk factor for men and women experiencing gender-specific health problems^{13,14}

In this study around 21% of participants aged 24 and lesser than that suffered from moderate anxiety level and 29.7% of them had extremely severe anxiety level and around 24.7% participants aged 25 and more suffered from moderate anxiety and 30.1% had extremely severe anxiety. There is significant association between anxiety status and age with p-value of 0.01. In a study done by SimegneWkibret et al among health care professionals of Ethiopia in 2020^{15,16}, the age group of 30–39 and greater or equal to 40 years exhibited a higher risk of anxiety about COVID-19. There is evidence that increase in age is significantly associated with increase in levels of anxiety.

CONCLUSION AND RECOMMENDATIONS:

Psycho-social disorders such as sadness, anxiety, and stress were shown to be common among medical interns in this study. The outcomes of this study emphasise the significance of proper pandemic education and stress management strategies, which would be a top concern among these aspiring doctors in such unfavourable pandemic scenarios. The public-health response to the COVID-19 outbreak must include safeguarding health-care personnel. Appropriate stress management techniques, such as relaxation exercises, staying in touch with their peers and families, and safety interventions must be addressed for better preparedness for potential future waves of COVID19 pandemics or other disasters.

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