



## A STUDY TO ASSESS ANXIETY AND DEPRESSION AMONG JUNIOR MEDICAL RESIDENTS OF A TERTIARY CARE CENTER USING HOSPITAL ANXIETY AND DEPRESSION SCALE

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**ABSTRACT** **Background:** Mental health disorders among doctors have become an issue of great concern. Not only are the figures unacceptably high, it is increasing with time as well. Junior residents at their earliest phases of medical training seem to be more susceptible to mental health issues, commonly anxiety and depression. Regardless of the underlying variables, we need to accept that mental health disorders have become a crippling disease within the occupation, hindering the quality of patient care.

**Aim:** To assess the prevalence of Anxiety and Depression among junior medical residents of a tertiary care hospital (AVBRH, DMIMS, Sawangi) and to evaluate the associated socio-demographic and work related risk factors.

**Method:** A cross sectional study involving 69 junior medical residents of AVBRH was conducted using the Hospital Anxiety and Depression Scale. The association between risk factors under study was analyzed using chi-square test and uni-variable and multiple variable regression analysis.

**Results:** According to our study 44.9% residents had definitive anxiety and 24.6% had definitive depression. Year of residency was associated with anxiety while post graduate speciality and marital status were significant factors for depression.

**KEYWORDS :** Anxiety, depression, prevalence, residents, risk factors

### INTRODUCTION

Mental wellness is a cardinal component of health (*Basic documents.*, 2014). It is imperative to the overall quality of life. Unfortunately, the current scenario depicts an unacceptable rising trend of mental health disorders, worldwide ("Depression," n.d.). Today, as much as one third of the general population is anticipated to experience anxiety at least once in their lifetime (Bandelow & Michaelis, 2015). Depression has also become a leading debility, endured by 264 million people across the global landscape ("Depression," n.d.; James et al., 2018). Not only is it a resource draining epidemic; it poses to be a menacing taboo as well (Bandelow & Michaelis, 2015).

Without doubt, we have largely achieved a general openness on this matter. However, within this pursuit of creating awareness and promoting discussions, we seem to have lost sight of perhaps a paradoxical, but a greater threat, that is of mental health disorders lurking within the medical profession itself. Several studies indicate that, in fact mental health issues are becoming wildly rampant among physicians, than in any other occupational group (Demir, Ay, Erbaş, Ozdil, & Yaşar, 2007). Burnout, depression, anxiety and PTSD are such disorders commonly reported to be prevalent (Ruitenburg, Frings-Dresen, & Sluiter, 2012). Multifarious factors must be explored as no single variable can rationalize this burden.

Sources of stress among clinicians are many. Chronic exposure to human suffering is inevitable in this profession. Doctors often tend to internalize the disappointment and negative responses associated with bad prognoses and mortality of their patients (Meier, Back, & Morrison, 2001). Furthermore, long working hours, frequent night shifts and on-call duties do not leave much room for recreational activities. Often times they even struggle to make time for family, friends and spouses, who could potentially be their emotional buffers (Myers, 2013). Sooner or later emotional exhaustion sets in.

In addition to this, more and more administrations are seen to be enforcing bureaucratic pedantry on their doctors (Myers, 2008). Litigation within the job is ever increasing (Hughes, Burke, Hickie, Wilson, & Tobin, 2002). Patient demands are becoming more stringent, compelling physicians to work at a pace that far exceeds their individual abilities (Williams, Savage, & Linzer, 2006). Also, the misplaced association of doctors with divinity leads them to be perceived as invincible and unsusceptible to ailments. This grave misconception places an unnecessary burden on our physicians which impinges on their efficiency (Wu, 2000).

Consequently, today we see suicide among doctors increasing at an alarming pace. It is approximated that we may possibly be losing a doctor per day, to suicide. It is also the second most common cause of death among medical students (*Physician Suicide*, 2019). Not only that, the high dropout rates among medical trainees also indicate that our clinicians are struggling to cope with the stress associated with this profession. Poor mental health makes them more prone to errors, ultimately leading to poor quality of patient care. This vicious cycle of poor performance followed by intense self-criticism inevitably leads to emotional fatigue, distress and burnout. More often than not, we see them find solace in alcohol and illicit drugs (Stehman, Testo, Gershaw, & Kellogg, 2019).

Another matter of great concern that follows the prevalence of these diseases is that of the stigma surrounding them, which runs far deeper within the medical profession than any other. Although the acceptance of mental health issues within the general population is slowly increasing, the same cannot be held true for the health profession. Discrimination of doctors with poor mental health by licensing authorities, hospital administrations and patients themselves is the major reason why physicians are reluctant to seek help for these eminently treatable diseases (*Physician Suicide*, 2019).

Although numerous studies have been conducted worldwide on this topic, the data available with regards to that of physicians is limited, especially in the developing world. This is one of the main reasons which led us to study the disease burden of anxiety and depression among residents in our hospital. Instead of targeting the whole population of doctors we chose junior residents, as they constitute a group particularly vulnerable to these mood disorders (Firth-Cozens, 1987). In this study, we also aimed to analyze the associated factors in this risk group, which have been postulated in similar studies. Even if we succeed in demonstrating the magnitude of the problem, this will just be a drop in the ocean. We hope that our study will contribute to set off a wave of awareness and reformation that will reach distant shores.

**METHOD AND MATERIALS**

This is a cross sectional study conducted in Acharya Vinoba Bhave Rural Hospital (AVBRH) under Datta Meghe Institute of Medical Sciences (DMIMS), Sawangi Meghe, from November 2019 to December 2019. A written approval of Ethical committee of the institution was obtained for the study. A pre-tested, anonymous online questionnaire was circulated among the Junior Medical Residents of AVBRH. No exclusion criteria were defined and all responses submitted with consent during the given period were included in the study.

The online survey had three sections; Demographic data, work characteristics and Hospital Anxiety and Depression Scale questionnaire. Demographic data included age, gender, marital status and type of accommodation. Year of residency, postgraduate specialty (Clinical Surgical, Clinical Non-surgical and Non clinical), number of working hours per week, number of off-days per week and number of night duties per week were studied under work characteristics. Hospital Anxiety and Depression-Scale was used as the screening tool for anxiety and depression (Snaith, 2003).

Hospital Anxiety and Depression Scale is a self-administered questionnaire with 14 questions divided equally into two subsets; anxiety and depression. Points are allotted to each item on a scale of 0-3. A total score for each subset is calculated and categorized into levels of the mood disorders (Snaith, 2003). The final scores of our study were also divided accordingly into the following three categories: 0-7 (Normal range), 8-10 (Probable Anxiety/Depression), 11-15 (Definitive Anxiety/Depression).

**Statistical Analysis**

Data analysis was done using descriptive and inferential statistics. All qualitative data was presented as frequencies and percentages while quantitative data was presented as mean±standard deviation and tabulated. The association between demographic and work related factors vs. anxiety and depression was analyzed using inferential statistics with chi square test and multiple regression analysis. A p value of less than 0.05 was considered to be statistically significant. SPSS version 24.0 was used for all statistical analysis.

**RESULTS**

Among the 325 junior medical residents of DMIMS, 69 (21.2%) participated in this study, with a mean age of 26±1.77 years. The majority of participants were Males (60.9%) and Unmarried (89.9%). When stratified by Postgraduate Specialties, the number of residents in clinical branches were more (Clinical Non-surgical: 44.9%, Clinical Surgical: 43.5%) compared to Non-clinical branches (11.6%). 43.4% were First year Residents, 47.8% were Second year and 8.7% were Third year residents. Frequencies of other demographic and work related factors are presented in **Table1**.

**Table1: Demographic and work related characteristics of the study population (n=69)**

Age, mean(±SD)	26(±1.77)
Gender, n(%)	
Male	42(60.9)
Female	27(39.1)
Type of accommodation, n(%)	
Hostel	45(65.2)
Apartment/Flats	24(34.8)
Marital status, n(%)	
Single	7(10.1)
Married	62(89.9)
Postgraduate specialty, n(%)	

Clinical Non-surgical	31(44.9)
Clinical Surgical	30(43.5)
Non Clinical	8(11.6)
Year of residency, n(%)	
First year	30(43.5)
Second year	33(47.8)
Third year	6(8.7)
Total number of working hours per week, mean(±SD)	73.4(±40.09)
Number of night shifts per week, mean(±SD)	2.4(±2.21)
Number of days off per week, mean(±SD)	0.4(±0.51)

The scores calculated according to the Hospital Anxiety and Depression Scale showed that 44.9% (n=31) had definitive anxiety, 24.6% (n=17) had definitive depression and 17.4% (n=12) residents had both definitive anxiety and depression. Univariable analysis for anxiety showed that year of residency had a significant impact on anxiety (p=0.025) and first year residents had a higher level of anxiety (29%) compared to their seniors (**Table2**).

**Table2: Correlation of demographic and work characteristics with anxiety level**

	No Anxiety (n=20)	Definitive (n=31)	Probable (n=19)	Total (n=69)	χ <sup>2</sup> -value	p-value
<b>Age (years)</b>						
21-25 years	5	14	5	24	2.70	0.25, NS
26-30 years	15	17	13	45		
<b>Gender</b>						
Male	13	17	12	42	0.87	0.64, NS
Female	7	14	6	27		
<b>Type of Accommodation</b>						
Apartment/Flats	8	11	5	24	0.63	0.72, NS
Hostel	12	20	13	45		
<b>Marital Status</b>						
Single	18	28	16	62	0.02	0.98, NS
Married	2	3	2	7		
<b>Postgraduate Specialty</b>						
Clinical Non-Surgical	5	18	8	31	6.67	0.15, NS
Clinical Surgical	13	9	8	30		
Non Clinical	2	4	2	8		
<b>Year of residency</b>						
JR 1	6	20	4	30	11.13	0.025, S
JR 2	12	10	11	33		
JR 3	2	1	3	6		
<b>Total no of working hours per week</b>						
Up to 40	4	5	6	15	4.72	0.52, NS
41-80	9	11	3	23		
81-120	6	12	7	25		
>120	1	3	2	6		
<b>No of night shift per week</b>						
0 to 4	17	29	13	59	5.69	0.22, NS
5 to 8	3	2	4	9		
9 to 12	0	0	1	1		
<b>No of days off per week</b>						
0	15	19	11	45	3.93	0.41, NS
1	5	12	6	23		
2	0	0	1	1		

Accordingly, marital status (p=0.012) and postgraduate specialty (p=0.026) were significant factors for depression (**Table3**).

**Table3: Correlation of demographic and work characteristics with depression level**

	No Anxiety (n=20)	Definitive (n=31)	Probable (n=19)	Total (n=69)	χ <sup>2</sup> -value	p-value
<b>Age (years)</b>						
21-25 years	10	4	10	24	1.71	0.42, NS
26-30 years	19	13	13	45		
<b>Gender</b>						
Male	18	11	13	42	0.30	0.85, NS
Female	11	6	10	27		
<b>Do you live in</b>						
Apartment/Flats	8	4	12	24	4.67	0.09, NS
Hostel	21	13	11	45		

Marital Status						
Single	29	14	19	62	8.20	0.012,S
Married	0	3	4	7		
Postgraduate Specialty						
Clinical Non-Surgical	8	9	14	31	11.05	0.026,S
Clinical Surgical	16	8	6	30		
Non Clinical	5	0	3	8		
Year of residency						
JR 1	10	11	9	30	5.59	0.23,NS
JR 2	17	4	12	33		
JR 3	2	2	2	6		
Total no of working hours per week						
Up to 40	6	3	6	15	5.21	0.51,NS
41-80	13	4	6	23		
81-120	9	7	9	25		
>120	1	3	2	6		
No of night shift per week						
0 to 4	24	15	20	59	2.79	0.59,NS
5 to 8	5	2	2	9		
9 to 12	0	0	1	1		
No of days off per week						
0	17	15	13	45	7.00	0.13,NS
1	12	2	9	23		
2	0	0	1	1		

Multiple regression analysis was done for both anxiety and depression, and although none of the factors proved to be significant for anxiety, postgraduate specialty was found to be significantly correlated to depression (p=0.033) (Table4).

**Table4: Multiple Regression analysis for Depression score**

Model	Unstandardized Coefficients		Standardized Coefficients	t	p-value
	B	Std. Error	Beta		
V	Depression	1.286	0.941		
A	Age	0.084	0.265	0.046	0.318 0.752,NS
R	Gender	0.063	0.225	0.036	0.282 0.779,NS
I	Type of Accommodation	-0.349	0.261	-0.193	1.336 0.187,NS
A	Marital Status	0.621	0.414	0.217	1.499 0.139,NS
B	PG Specialty	-0.344	0.158	-0.268	2.182 0.033,S
L	Year of residency	-0.191	0.194	-0.140	0.986 0.328,NS
E	Total no of working hours	0.035	0.140	0.037	0.253 0.801,NS
S	No of night shift per week	0.037	0.265	0.018	0.141 0.888,NS
	No of days off per week	0.155	0.241	0.092	0.644 0.522,NS

**DISCUSSION**

Mental health disorders among doctors are on a rising trend (Mata et al., 2015). Poor mental health is proving to be a hindrance for the physicians, even at the earliest stages of their training (*Physician Suicide*, 2019). The results of our study conducted among 69 junior medical residents, demonstrated a predominance of mood disorders (anxiety and depression) among the participants. Anxiety was more prevalent with 44.7% having definitive anxiety, and 17.4% having both anxiety and depression. Definitive depression was found in 24.6% residents. Similar results were reflected in various studies conducted across India. 40.35% and 36.6% of resident doctors in Pondicherry, Tamil Nadu and Ahmedabad, Gujarat respectively, were recorded to have anxiety. Depression levels were lower with 27.7% in Ahmedabad and 11.40% in Pondicherry (Dave, n.d.; Sasidharan, Kolasani, & Divyashanthi, 2016).

According to the analysis of 10 Indian studies on psychiatric morbidity, anxiety and depression were reported to be the most prevalent mental disorders in India (MadhavS, 2001). However these rates among medical residents, when compared to that of the Indian general population, were unexpectedly high (Ganguli, 2000; MadhavS, 2001; Reddy & Chandrashekar, 1998). This prevalence of mood disorders, particularly within the medical profession can be attributed to the job strain and high psychological demand associated with it (Ruitenburg et al., 2012; Stansfeld & Candy, 2006; Wada et al., 2008). Louise B Andrew in his recent publication on Physician Suicide wrote: "Stressful aspects of physician training-such as long hours, having to make difficult decisions while being at risk of errors due to inexperience, learning to deal with death and dying, frequent shifts in workplace, and estrangement from supportive networks, such as family-could add to tendency toward depressive symptoms in trainees." (*Physician Suicide*, 2019)

At a global glance, a meta-analysis of 54 international studies stated that depressive symptoms were present in 28.8% of resident physicians (Mata et al., 2015). Mental health status of residents from developing nations such as Bangladesh, Pakistan and Tunisia was comparable to that of the present study (Atif, Khan, Ullah, Shah, & Latif, 2016; Marzouk et al., 2018; Zaman et al., 2014). However, studies regarding depression among doctors in the developed countries yielded results such as 20% in Canada Ontario, 15% in Turkey, 12% in Britain and 11.3% in US (Coomber et al., 2002; Earle & Kelly, 2005; Erdur et al., 2006; Schwenk, Gorenflo, & Leja, 2008). This disparity in figures between our study and those from developed countries could be partly due to the different survey tools, methodological approaches, cultural differences, and availability of facilities and resources. Further research is mandatory to analyze various factors contributing to these high levels of mood disorders among medical residents in India and other developing countries.

According to the current study, year of residency was a significant risk factor for anxiety (p=0.025). It was observed that the number of first year residents experiencing anxiety was twice that of second year residents and only 16.67% of third year residents were anxious. This notable proportion of anxiety among first year residents was substantiated by other studies as well (Firth-Cozens, 1987; Saini, Agrawal, Bhasin, Bhatia, & Sharma, 2010). Overwork, poor relation with consultants and negative implications of the job on personal life seemingly contribute to this undesirable increase in stress among junior medical officers within the profession. However, it is speculated that, mental health of first year residents may show improvement as they gain experience with each successive year of residency (Firth-Cozens, 1987).

The hectic schedules in the physician training programs often interfere with the quantity of time spent by the residents with their spouses, leading to marital conflicts. As residents constantly remain preoccupied with anxiety about academics and course works, it leaves them very little space to be mindful about the loneliness and isolation that may be felt by their partners. Financial worries may also add to the burden. Studies have stressed on the fact that doctors in such conflicted marriages were more prone to emotional disturbances (Myers, 2013; Schultz & Russell, 1984). Our study also strongly supports the association between marital status and depression (p=0.012). All (n=7) of the residents who were married showed depressive symptoms, of which 57.1% had definitive depression.

Postgraduate specialty also showed a significant correlation to depression (p=0.026, and p=0.033). The percentage of depression among clinical residents amount to 60.66% (n=3), which is quite high compared to the 37.5% of non-clinical residents (n=3). These figures were compatible with previous studies done locally (Delhi, Gujarat, Bhopal) and in Tunisia (Dave, n.d.; Marzouk et al., 2018; Saini et al., 2010; Singh et al., 2018). Furthermore, Obstetrics/Gynecology, Radiology and Family medicine were listed as the specialties frequently associated with increased levels of stress, by a 2018 study published in Saudi Arabia. The basis of this variation seen between specialties may be ascribed to the difference in job demands, patient care and availability of resources (Alosaimi et al., 2018).

In contrast to our findings, others studies had stressed that long working hours had a significant association with anxiety and depression (Dave, n.d.; Grover, Sahoo, Bhalla, & Avasthi, 2018; Marzouk et al., 2018; Saini et al., 2010). Age and gender were also not found to be significant variables in our study. This may be due to the small sample size and difference in study methods.

**Limitations**

Since our study design was a cross sectional study, we were unable to establish causality of the factors. A longitudinal study would be required for this purpose. Lack of an exclusion criteria, meant that our study included participants with existing psychological disorders, leading to a selection bias. Stigma surrounding mental health disorders and discrimination within the work environment that may follow a probable diagnosis, could have led to the reluctance in participating in our survey. The busy schedule of residents was a hindrance to their participation as well. Consequently, 69 out of 325 had participated in our study; leaving us with a small sample size. With the time constraint on our study, residents from all the departments could not be included. Our survey tool was a self-administered questionnaire, which had the propensity for response bias. Since the HADS inventory was circulated in English, the language barrier could also have affected the

responses to an extent. Lastly, this study cannot be generalized to the post graduate medical student population in India, as our data was specific to a private tertiary care hospital based in a rural setting.

### Recommendations

Clinicians need to be sensitized on the prevalence of mental health issues within the profession. Measures need to be taken to spread awareness and de-stigmatize the presence of these disorders among doctors. Any transformation in the existing healthcare system would require well informed administrators and policy makers. These changes can include a reduction in heavy work load on individuals. A degree of leniency for the physicians entrapped in the confinements of bureaucratic institutions must also be advocated. This will allow them to deliver patient care to the best of their capabilities, remain motivated and develop professionally. Panels must not only be established to review the medical errors and patient mortality, but also to provide guidance and support to the doctors in these critical situations. Policies must be in place to combat discrimination faced by clinicians suffering from various mental illnesses. At the same time, seeking help for timely diagnosis and appropriate treatment of these disorders must be continually encouraged among doctors. This could allow for a healthy atmosphere which supports physical and mental wellbeing, ensuring a flourishing career.

### CONCLUSION

Anxiety and depression was notably prevalent among junior medical residents of our hospital. Post graduate specialty, year of residency and marital status were found to play a key role in their prevalence. Sensitization of doctors to these disorders and measures to de-stigmatize mental health issues among them are necessary to ensure that they seek help in a timely manner. Eliminating the discrimination associated with poor mental health, establishing support systems, and reducing the workload could be the stepping stones towards better mental wellbeing.

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