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Original Article

Psychiatry/Mental Health Section

Comparative Evaluation of Depression, Anxiety and Quality of Life between Clinical and Other than Clinical Branch Postgraduate Medical Students: A Cross-sectional Study

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ABSTRACT

Introduction: Medical training has been reported to be stressful. Clinical branch residents were found to be more anxious when compared to other than clinical branch residents. Heavy workloads and long working hours usually contribute to stress, resulting in fatigue, depression, and anxiety.

Aim: To compare depression, anxiety, and Quality of Life (QoL) between clinical and other than clinical branch postgraduate medical students.

Materials and Methods: The present cross-sectional study was conducted in the Department of Psychiatry at the Institute of Medical Sciences (IMS), Banaras Hindu University (BHU), in Varanasi, Uttar Pradesh, India. The data were collected from 150 residents through face-to-face interviews and by applying the Hamilton Anxiety Rating Scale (HAM-A), Hamilton Depression Rating Scale (HDRS), and World Health Organisation Quality of Life Brief Version (WHOQOL-BREF). The data were analysed using International Business Machines (IBM) Statistical Package for the Social Sciences (SPSS) Statistics 23.0 software.

Results: The present study found that the majority of residents were male 108 (72%), belonged to the Hindu religion (134, 89.33%), were unmarried (150, 83.33%), and resided in the hostel (118, 78.67%) during their residency tenure. The prevalence of depression among clinical branch residents was 52 (50.0%), and in other than clinical branch residents, it was 17 (36.96%) (p=0.633). The prevalence of anxiety among clinical branch residents was 65 (62.5%), and in other than clinical branch residents, it was 18 (39.14%) (p=0.002). QoL was better in other than clinical branch residents compared to clinical branch residents in physical health, social, and environmental domains (p<0.04).

Conclusion: The study concluded that clinical branch residents were experiencing significantly higher levels of anxiety. Overall, the QoL of residents in other than clinical branches was better than their counterparts in clinical branches.

Keywords: Hamilton anxiety rating scale, Hamilton depression rating scale, Medical residents, World health organisation quality of life scale

INTRODUCTION

Mental health is an important component of overall health, imperative to the overall QoL. Unfortunately, the current trend indicates a rising rate of mental illness worldwide. Today, as much as one third of the general population is expected to experience anxiety-related symptoms at some point in their life [1]. Depression has also become a leading cause of debility across the world, with an estimated 264 million people suffering from it [2]. This is an alarming situation since depression (and mental illness) is not only stigmatised but is also responsible for the exhaustion of resources.

Medical training has been considered stressful, particularly residency training, because of the burden of responsibilities and expectations. The residents are not just doctors in training but also educators, researchers, and administrators [3]. More working shifts, heavy patient loads, low control over the job, and research work contribute to stress, causing burnout, depression, anxiety, fatigue, irritability, substance abuse, and sleep disturbances. Two-fifths of postgraduate medical students were found to be suffering from mild to moderate depression in the previous study [4]. Another study from Gujarat found significant differences between clinical and other than clinical residents in anxiety (39.55% and 26.21%, respectively) (p=0.0359) but insignificant differences in depression (29.8% and 20.38%, respectively) [5]. A study from Bangladesh reported that every seventh resident endures atleast one of the following: disorders of depression, anxiety, and stress-related disorders [6].

Quality of Life (QoL) is an important tool to evaluate health. QoL refers to an individual's perception of their health determined by cultural, social, and environmental contexts [7]. Stress in the medical field can affect the QoL in residents. It is assumed that the workload and resulting relatively poor QoL are higher in residents of clinical branches than in those in other than clinical branches. The level of training and socio-demographic characteristics may also be important factors [4].

However, no data is available from Uttar Pradesh. So, the present study was planned to compare the severity of anxiety, depression, and QoL between clinical (which includes residents from departments of Medicine, Surgery, Paediatrics, Orthopaedics, Obstetrics and Gynaecology, Dermatology, Anaesthesiology, Psychiatry, Radiodiagnosis, Otorhinolaryngology, Ophthalmology) and other than clinical (which includes residents from Departments of Anatomy, Physiology, Biochemistry, Pathology, Microbiology, Pharmacology, Community Medicine, and Forensic Medicine).

MATERIALS AND METHODS

The present cross-sectional study was conducted between December 2019 and June 2021 at a tertiary care teaching Institute, the Institute of Medical Sciences, Banaras Hindu University, in

Varanasi, Uttar Pradesh, India. The study was approved by the Ethical Committee of the Institute (Dean/2019/EC/1750, dated: 18/11/2019). Written informed consent was obtained from all the participants indicating their willingness to participate in the study.

Inclusion and Exclusion criteria: All the junior residents enrolled in the Institute who gave consent to participate were included in the study. Subjects who had an examination within four weeks or had any serious medical or psychiatric illness were excluded from the study.

The clinical branch included residents from the departments of Medicine, Surgery, Paediatrics, Orthopaedics, Obstetrics and Gynaecology, Dermatology, Anaesthesiology, Psychiatry, Radiodiagnosis, Otorhinolaryngology, and Ophthalmology. The other-than-clinical branch included residents from the Departments of Anatomy, Physiology, Biochemistry, Pathology, Microbiology, Pharmacology, Community Medicine, and Forensic Medicine.

Sample size: The data were collected from 150 junior residents through face-to-face interviews (50 from each of the 1st, 2nd, and 3rd years). A convenient sample was chosen, with 46 students from the other-than-clinical branch group and 104 students from the clinical branch group included in the study.

Study Procedure

All the residents selected based on the selection criteria were explained the objectives of the study and assured of confidentiality. They were given a socio-demographic datasheet consisting of a semistructured interview on socio-demographic variables such as age, gender, religion, marital status, residence, and income. Furthermore, they were assessed using the following scales.

Hamilton Anxiety Rating Scale (HAM-A) [8]: It consists of 14 items, each defined by a series of symptoms, measuring both somatic anxiety (physical complaints related to anxiety) and psychic anxiety (mental agitation and psychological distress). Each item is scored on a scale of 0 (not present) to 4 (severe), with a total score range of 0-56. A score of <17 is considered to indicate mild anxiety; 18-24 indicates mild to moderate severity, and 25-30 is considered moderate to severe.

Hamilton Depression Rating Scale (HDRS) [9]: This is the most widely used clinician-administered depression assessment scale. It contains 17 items pertaining to symptoms of depression experienced over the past week. The method for scoring is such that a score of 0-7 is generally accepted to be within the normal range (or in clinical remission), while a score of 8-13 indicates mild depression, 14-18 indicates moderate depression, 19-22 indicates severe depression, and a score of >/=23 indicates very severe depression.

World Health Organisation Quality of Life scale (WHO-QoL) [10]: This is a shorter version of the WHO-QoL-100 (original version) developed by the WHO. This questionnaire assesses the individual's perceptions in the context of their culture, value systems, personal goals, standards, and concerns. It is a self-report Likert-type scale that includes 26 questions measuring the following four broad domains: Physical health, psychological health, social relationships, and environment. Two items out of 26 questions each give an overall QoL and general health score. Raw domain scores were transformed to a 4-20 score according to the guidelines and then linearly transformed to a 100-scale.

STATISTICAL ANALYSIS

The data was analysed using Microsoft excel 2013 and SPSS version 23.0 for Windows. The comparison was done by applying the Chi-square test, and a p-value of <0.05 was considered significant.

RESULTS

The majority of residents in the clinical branch were males 78 (75%) and belonged to the Hindu religion 93 (89.42%). The present study found that a significantly higher number of residents in the clinical and other than clinical branches were unmarried (98, 94.23% vs. 27, 58.7%, p<0.001) and hostellers (93, 89.42% vs. 25, 54.35%, p<0.001) [Table/Fig-1]. The prevalence of tobacco and alcohol abuse was significantly higher in clinical branch postgraduates (p=0.002) [Table/Fig-1].

Socio-demographic profile of residents		Clinical (n-104)		Other than clinical (n-46)		χ^2-value	p-value
		n	%	n	%		
Gender	Male	78	75	30	65.22	1.514	0.219
	Female	26	25	16	35.78		
Age {Mean±SD (in years)}		26.962±1.532		29.438±2.770			0.0001
Religion	Hindu	93	89.42	41	89.13	0.010	0.995
	Muslim	9	8.65	4	8.69		
	Other	2	1.92	1	2.17		
Marital status	Unmarried	98	94.23	27	58.7	28.99	<0.001
	Married	6	5.77	19	41.3		
Residing in	Hosteller	93	89.42	25	54.35	23.380	<0.001
	Day scholar	11	10.58	21	45.65		
Type of family	Nuclear	65	62.5	31	67.39	0.488	0.784
	Joint	39	37.5	15	32.61		
Socio-economic status	Upper	49	47.12	25	54.35	5.357	0.147
	Upper middle	46	44.23	15	32.61		
	Lower middle	9	8.65	6	13.04		
Past h/o psychiatric illnesses		10	9.62	7	15.21	0.996	0.318
Family h/o psychiatric illnesses		16	15.38	7	15.22	0.001	0.979
Present stressful situation in family		23	22.12	8	17.39	0.434	0.510
Past stressful situation in family		29	27.884	8	17.39	1.890	0.169
Prevalence of substance abuse among residents		55	52.88	10	21.73	12.599	<0.001
Prevalence of tobacco abuse among residents		51	49.04	10	21.73	9.851	0.002
Prevalence of alcohol abuse among residents		42	40.38	7	15.22	9.184	0.002

[Table/Fig-1]: Socio-demographic profile of residents.

The results of the present study demonstrated a predominance of anxiety disorders among clinical branch residents compared to other than clinical branch residents (p=0.011) [Table/Fig-2]. However, authors could not establish a significant prevalence of depression among clinical branch residents compared to other than clinical branch residents (p=0.633) [Table/Fig-3].

HAM-A score	Normal		Mild		Mild to moderate		Moderate to severe		χ^2-value	p-value
	n	%	n	%	n	%	n	%		
Clinical branches	39	37.50	42	40.38	21	20.19	2	1.92	11.175	0.011
Other than Clinical branches	28	60.86	7	15.21	11	23.91	0	0		

[Table/Fig-2]: Hamilton Anxiety Rating Scale (HAM-A) Score among residents.

Mean scores in the physical health domain, social relationship domain, and environment domain scores were significantly higher in other than clinical residents compared to clinical residents (p<0.05). The present study established that the Quality of Life (QoL) was better among residents from other than the clinical branch compared to those from the clinical branch in the physical health, social, and environment domains [Table/Fig-4].

HDRS score	Normal		Mild		Moderate		Severe		Very severe		χ^2-value	p-value
	N	%	N	%	N	%	N	%	N	%		
Clinical branches	52	50	32	30.76	13	12.50	6	5.76	1	0.09	2.567	0.633
Other than clinical branches	29	63.04	10	21.73	5	10.87	2	4.34	0	0		

[Table/Fig-3]: HDRS Score among residents.

Comparison of means of domains of WHO-QOL BREF	Clinical	Other than clinical	p-value
Physical health domain	64.586±14.960	70.173±15.869	0.040
Psychological domain	62.625±16.775	69.521±19.057	0.958
Social domain	61.625±21.544	69.521±21.008	0.039
Environment domain	63.826±16.115	70.587±15.066	0.017

[Table/Fig-4]: Comparison of the mean of domains of WHO-QoL BREF among residents.

DISCUSSION

Out of the total 150 postgraduates included in the present study, 108 (72%) were male residents and 42 (28%) were female residents, with 125 (83.33%) being unmarried and 118 (78.67%) residing in the hostel. The findings of the present study are in line with a previous study from Maharashtra conducted by Naseer Al et al., 2020. They reported that among residents, 60.9% were male, 83.33% were unmarried, and 65.2% were hostellers. The present study's results also showed that clinical branch residents were mostly unmarried and hostellers (94.23% and 89.42%), which was significantly higher compared to the other group (p<0.001). This may be because clinical residents have longer duty hours and less time for family responsibilities and leisure time [11].

Most of the residents, 134 (89.33%), were Hindus, followed by 13 (8.67%) Muslims. These findings were similar to a study from Karnataka conducted by Bullappa A and Kengnal P where 97.22% were Hindus and 2.77% were Muslims [12].

The present study results showed that 96 (64%) residents belonged to nuclear families, and 54 (36%) belonged to joint families. A similar study from Maharashtra conducted by Deshpande JD et al., 2013, showed that 60% belonged to nuclear families and 32% belonged to joint families. These findings suggest a rising trend of nuclear families, causing increasing stress in people [13]. The present study showed that the majority of residents, 74 (49.33%), were from upper socio-economic status, followed by 61 (40.67%) from upper-middle socio-economic status. The present is in line with a study from Gujarat conducted by Dave S et al., 2018, in which 68.83% belonged to upper socio-economic status and 31.17% belonged to upper-middle socio-economic status [5].

The present study results showed that 23 (15.33%) residents had a positive family history of psychiatric illnesses, slightly higher than in a study conducted in Nepal by Pokhrel NB et al., 2020, where 8.4% had a family history of psychiatric illnesses [14]. The present study results also showed that 17 (11.33%) had a past history of psychiatric illnesses, slightly more than seen in a study conducted in Gujarat by Dave S et al., 2018, where 4.55% had a past history of psychiatric illnesses [5].

The present study resulted in 65 (43.33%) residents using substances (alcohol or tobacco or both), 61 (40.67%) residents using tobacco (cigarettes), and 49 (32.67%) residents using alcohol. A similar study by Pokhrel NB et al., 2020, from Nepal showed that 61.14% of residents were using substances (alcohol or tobacco or both), which was higher than the present study's result. A total of 37.1% of residents were using tobacco in the form of cigarettes, and 60.4% were using alcohol, which is higher than observed in the present study. This may be because Nepal is a hilly area where substance abuse is relatively more common. The present study observes that tobacco use is socio-culturally accepted among medical professionals regardless of specialty. Hence, multipronged and large-scale programs should be initiated to limit the use of substances [14].

The present study results showed a prevalence of anxiety among clinical branch residents of 65 (62.5%), which was statistically significantly higher than the other than clinical group, 18 (39.13%) (p=0.011). This finding aligns with a previous study from Maharashtra conducted by Shete AN and Garkal KD in which the prevalence of anxiety was 72% in the clinical group and 24% in the preclinical group (p=0.0001). Directly dealing with patients, their health, and caretakers could contribute to these findings. The feelings of moral obligation, ethical commitment, and the burden of public pressure may have caused the increase in anxiety [15].

The present study also compared the prevalence of depression among clinical residents and other than clinical residents. This finding aligns with a previous study from Gujarat conducted by Dave S et al., 2018 [5]. They found that the prevalence of depression among clinical residents was 29.80% and 20.38% among other than clinical residents (p=0.32).

The study results showed that the mean score of physical health, social, and environment domains in the Quality of Life (QoL) scale was significantly higher (p<0.05) in the other than clinical group compared to the clinical group. A similar finding was shown by Bullappa A and Kengnal P from Karnataka, where the mean score in physical health, social, and environmental domains was higher in the Para-clinical group compared to the clinical group [12].

The study results showed a non significantly high mean score in the psychological domain in the other than clinical group compared to the clinical branches (p=0.958). Similar findings have been shown by Bullappa A and Kengnal P in Karnataka (p=0.343). Similar studies from the literature have been tabulated in [Table/Fig-5] [5,12,15].

S. No.	Author's name and year	Place of study	No. of subjects	Groups compared	Parameters assessed	Conclusion		
1	Shete AN and Garkal KD [15] 2015	Maharashtra	50 (clinical-25, preclinical-25)	Clinical and preclinical	Stress, anxiety and depression		Clinical	Preclinical
						Anxiety	72%	24%
						Depression	36%	04%
2	Dave S et al., [5] 2018	Gujarat	462 (clinical-359, other than clinical-103)	Clinical and other than clinical	Stress, depression, and anxiety		Clinical	Other than clinical
						Depression	29.80%	20.38%
						Anxiety	39.55%	26.21%
3	Bullappa A and Kengnal P [12] 2017	Karnataka	108 (clinical-84, para-clinical-24)	Clinical and para-clinical	Quality of Life (QoL)		Clinical	Para-clinical
						Physical	61.56±14.76	70.99±13.18
						Psychological	59.99±15.11	63.29±14.38
						Social	40.70±21.05	45.36±19.36
						Environmental	58.89±16.39	64.04±17.08

4	Present study	Uttar Pradesh	150 (clinical-104, other than clinical-46)	Clinical and other than clinical	Anxiety, depression, Quality of Life (QoL)		Clinical	Other than clinical
						Anxiety	62.5	39.13%
						Depression	50%	36.95%
						QoL	Clinical	Other than clinical
						Physical	64.58±14.96	70.17±15.86
						Psychological	62.62±16.77	69.52±19.05
						Social	61.62±21.54	69.52±21.00
						Environmental	63.82±16.11	70.58±15.06

[Table/Fig-5]: Comparison of findings of the present study with previous similar studies [5,12,15].

Overall, in the present work, there was a significant difference in the social relationships and the environmental domain of QoL between clinical and other than clinical residents. This difference may be due to the intrinsically heavy workload, high moral responsibility towards patients and their family members, as well as public pressure in Government hospitals. All these factors should be addressed by the government and other stakeholders to decrease anxiety and improve the QoL of clinical residents, not only for their health but also for the overall betterment of the quality of care for patients.

Limitation(s)

A convenient sample was chosen rather than a randomised sample to accommodate the varied duties of the student researchers. The study was cross-sectional in nature. Depression and anxiety levels, as measured, may depend on the situation the residents were exposed to at the time of assessment, rather than truly representing the overall depression and anxiety faced by these residents. Hence, authors were unable to establish the causal factors.

CONCLUSION(S)

The present study showed that the prevalence of anxiety and depression among residents was 55.3% and 46%, respectively. Anxiety was significantly higher in clinical branch residents. Substance abuse, both tobacco and alcohol, was found to be four times higher in clinical branch residents. QoL was better in other than clinical branch residents. Residents and their respective institutions should be aware of key symptoms of burnout, and they should be actively involved in programs that attempt to deal with the aforementioned issues. Furthermore, well-designed interventional studies are the need of the hour to improve the QoL and mental health of medical doctors in training.

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