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Unravelling the minds of healers: A longitudinal journey into the mental health of resident doctors

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Introduction

"On the thirteenth day of his internship… Dr. K went to a fifth floor hospital lounge where he was observed…pacing for several minutes periodically touching the thicker inner pane of window glass separated from an outer pane by a venetian blind…A few minutes later, when alone in the lounge, he lunged toward the window and dove through both panes to his death 60 feet below" (1)**.**

– *From Suicide and the Stress of Residency Training: A Case Report and Review of the Literature. Psychological Reports, 1989 (Kirsling et al., 1989)* (1)**.**

India's medical field has made remarkable strides over the years, with dedicated doctors working tirelessly to improve healthcare for all. As we celebrate July 1st as Doctors' Day, it is crucial to pay tribute to the unwavering efforts of these medical professionals who strive to cure illnesses, extend lives, and alleviate suffering in our communities. However, amidst their commitment and dedication, it is important to remember that doctors are not invincible and can also be vulnerable to mental health challenges, including common yet debilitating disorders like depression (2). In fact, one in every 20 Indians is said to be suffering from depression. This raises the concern of what happens when doctors themselves face such mental health issues, particularly during their rigorous medical training and residency (2). In this context, it is essential to recognize the impact of stress, anxiety, and depression on resident doctors' mental well-being and its potential implications for patient care and the healthcare system.

The stressful nature of medical training and residency

Medical training, especially during residency, is known to be a highly stressful period for doctors. The increased expectations and responsibilities placed on resident doctors can lead to overwhelming stress (3). While stress is a normal physical reaction to internal or external pressure, extended periods of stress can have detrimental effects on the body, contributing to a range of physical and mental health issues such as depression, heart disease, stroke, ulcers, and more. Resident doctors, in particular, face a unique set of stressors due to the nature of their work, which can involve patient care, academics, research, and administrative responsibilities. The combination of these roles can be challenging and emotionally taxing (4).

The prevalence and impact of depression and anxiety

Depression is a significant mental health concern worldwide, ranked as the fourth leading cause of disability by the World Health Organization. Studies have indicated that the prevalence of depression among doctors, especially resident doctors, is higher than that of the general population. Factors such as chronic sleep deprivation, stressful personal life events, and long duty hours have been found to be significantly associated with depression in medical trainees. Depression not only affects doctors' personal and family lives but can also have a direct impact on patient care. High rates of depression have been linked to self-reported medical errors among residents, raising concerns about the quality of care provided (5).

The impact on patient care and the health-care system

Beyond the personal toll on doctors, mental health challenges among medical professionals have consequences for patient care and the overall healthcare system. Depressed and stressed doctors may experience impaired decision-making, reduced empathy, and diminished communication skills, potentially leading to medical errors and compromised patient outcomes (6). Thus, addressing the mental health of doctors is not only essential for their well-being but also crucial for maintaining a high standard of healthcare delivery to the community.

The need for recognizing and addressing mental health

The passage emphasizes the under-recognition of anxiety and depression in medical trainees and highlights the importance of comprehensive studies to assess the prevalence and risk factors associated with mental health disorders among resident doctors in India. Longitudinal studies like the one mentioned in the passage can provide valuable insights into the challenges faced by resident doctors and help in developing effective interventions and support systems.

Methodology

This study embarks on a significant and comprehensive longitudinal investigation, delving into the intricate domain of resident doctors' mental health over the course of one year. The primary objective is to shed light on the prevalence of depression, anxiety and stress, among first-year resident doctors in a prominent tertiary care teaching hospital situated in western Gujarat. Concurrently, the study endeavours to meticulously assess the various risk factors associated with these mental health challenges, aiming to unravel the complex interplay between stressors and the well-being of these medical professionals. In pursuit of these objectives, a cohort of 156 first-year resident doctors was thoughtfully selected, each participant willingly providing their consent to participate in the research. Study period was August 2021 to October 2022 after getting ethical clearance from institutional ethics committee.

To gather pertinent data, the researchers employed pre-validated questionnaires that capture essential information encompassing the participant's demographics, stressors faced during their residency, as well as their mental health status. The Depression, Anxiety, and Stress Scale (DASS-42) (7) was proficiently employed to gauge the intensity of depression, anxiety, and stress experienced by the resident doctors. The careful selection and utilization of these standardized questionnaire are vital in ensuring the accuracy and reliability of the data collected throughout this study.

Following the baseline assessment, the research team embarked on a follow-up journey, connecting with the same cohort of 156 first-year resident doctors after the passage of one year. During this subsequent phase, the aim is to meticulously investigate any alterations or fluctuations in the prevalence of depression, anxiety and stress experienced by the participants. Furthermore, the research endeavours to delve into any potential shifts in significant stressors that may have occurred during this one-year interval. This longitudinal, non-interventional approach is poised to offer valuable insights into the dynamic and evolving nature of resident doctors' mental well-being, affording a more profound understanding of the challenges they encounter throughout their medical journeys.

By unearthing the complexities surrounding the mental health of resident doctors, this study seeks to bolster efforts to support and safeguard the well-being of these vital healthcare professionals. The findings gleaned from this research endeavour are primed to contribute significantly to the development of targeted interventions and support mechanisms, ultimately fostering a healthier and more resilient medical community. With the data collected and insights gained, there is potential for positive change, leading to a healthier, more balanced, and ultimately more effective workforce in the demanding realm of healthcare.

Results

Socio demographic data at baseline and follow up as shown in Table 1. Pre-existing depression in a first year of residency was reported by 32.05% students at baseline. This proportion decreased to 17.31% after 1 year during follow up indicating an almost 2 fold significant higher depression tendencies in 1st year of residency as compared to senior year (p=0.003).

Out of 32.05% resident doctors at baseline had depression in which 12.18% had mild, 9.62% had moderate, 7.69% had severe and 2.56% had extremely severe depression.

Out of 17.31% resident doctors at follow up had depression in which 10.90% had mild, 4.49% had moderate, 1.28% had severe and 0.64% had extremely severe depression.

ASSOCIATION

Socio economic factors and its association

Baseline

- Depression: Age group 29-33 had significantly higher depression (55.32%) compared to 24-28 age group (22.00%) (p<0.001). Female residents had higher depression (39.29%) than male residents (23.60%) (p=0.03). Upper-class participants showed significantly higher depression (63.15%) than upper-middle-class (22.03%) (p<0.001).
- Anxiety: Age group 29-33 had higher anxiety (42.55%) than 24-28 age group (33.95%). Upper-class residents had significantly higher anxiety (52.63%) than upper-middle-class (31.36%) (p=0.01).
- Stress: Higher age group (29-33) and being married were significantly associated with stress.

Follow-up

- Depression: Age group 29-33 had higher depression (23.53%) than 24-28 age group (14.28%). Female residents had higher depression (21.43%) than male residents (12.50%). Upper-class residents had higher depression (21.06%) than upper-middle-class (16.10%).
- Anxiety: Age group 29-33 had higher anxiety (39.22%) than 24-28 age group (12.38%). Female residents had higher anxiety (23.81%) than male residents (18.06%). Upper-class residents had significantly higher anxiety (55.26%) than upper-middle-class (10.17%).
- Stress: Similar to baseline, higher age group (29-33) and being married were significantly associated with stress.

In summary, age group 29-33, female gender, and belonging to the upper-class were consistently associated with higher rates of depression, anxiety, and stress. Being married was significantly linked to depression and stress. However, some associations varied between baseline and follow-up, highlighting the dynamic nature of these factors.

Association of postgraduate training related factors with mental health

Baseline findings

- Depression: Non-Gujarati students had significantly higher depression (54.9%) compared to Gujarati students (20.95%) ($p<0.01$). Working for more than 12 hours was associated with higher depression (50.79% vs. 19.35%) ($p<0.01$). Perceiving the department as strict was linked to higher depression (37.94%) compared to neutral (16.13%) and lenient (11.10%) ($p<0.01$).
- Anxiety: Non-Gujarati residents had significantly higher anxiety (82.35%) than Gujarati residents (14.30%) ($p<0.01$). Working for more than 12 hours was associated with higher anxiety (60.30% vs. 20.40%) ($p<0.01$). Perceiving the department as strict was linked to higher anxiety (44.80%) compared to neutral (12.90%) and lenient (11.10%) ($p<0.01$).
- Stress: Non-Gujarati residents had significantly higher stress (43.1%) than Gujarati residents (14.3%) ($p<0.01$). Diploma course residents had significantly higher stress (42.1%) compared to degree course (21.2%) ($p<0.01$). Working for more than 12 hours was associated with higher stress (44.4% vs. 9.7%) ($p<0.01$).

Follow-up findings

- Depression: No significant association with Gujarati/non-Gujarati, clinical/non-clinical, or job satisfaction was observed. Working for more than 12 hours was linked to higher depression (24.48% vs. 14.01%). Diploma course residents had significantly higher depression (63.20%) compared to degree course (10.90%) ($p<0.01$).
- Anxiety: Non-Gujarati residents had significantly higher anxiety (35.30%) compared to Gujarati residents (14.30%) ($p<0.01$). Diploma course residents had significantly higher anxiety (57.89%) compared to degree course (16.06%) ($p<0.01$). Working for more than 12 hours was associated with higher anxiety (36.50% vs. 10.75%) ($p<0.01$).

Table 1. Socio demographic presentation of study population at baseline and at time of follow up as well

Characteristics		Baseline		Follow up	
		N (156)	%(100)	N (156)	% (100)
Age	24-28 29-33	109 47	69.87 30.13	105 51	67.30 32.70
Gender	Male Female	72 84	46.15 53.85	72 84	46.15 53.85
Socio economic status of family	Upper middle Upper	38 118	24.35 75.65	38 118	24.35 75.65
Relationship status	Engaged Married	37 08	23.72 05.13	53 12	33.97 07.70

- Stress: No significant association with Gujarati/ non-Gujarati or job satisfaction was observed. Clinical residents had significantly higher stress (36.89%) compared to non-clinical (13.20%) ($p<0.01$). Diploma course residents had significantly higher stress (52.60%) compared to degree course (25.50%) ($p<0.01$). Working for more than 12 hours was associated with higher stress (48.98% vs. 19.6%) ($p<0.01$).

In summary, non-Gujarati students, working for more than 12 hours, and being in the clinical branch were consistently associated with higher rates of depression, anxiety, and stress. Additionally, diploma course residents reported higher stress levels. These findings underscore the impact of postgraduate training-related factors on the mental health of residents.

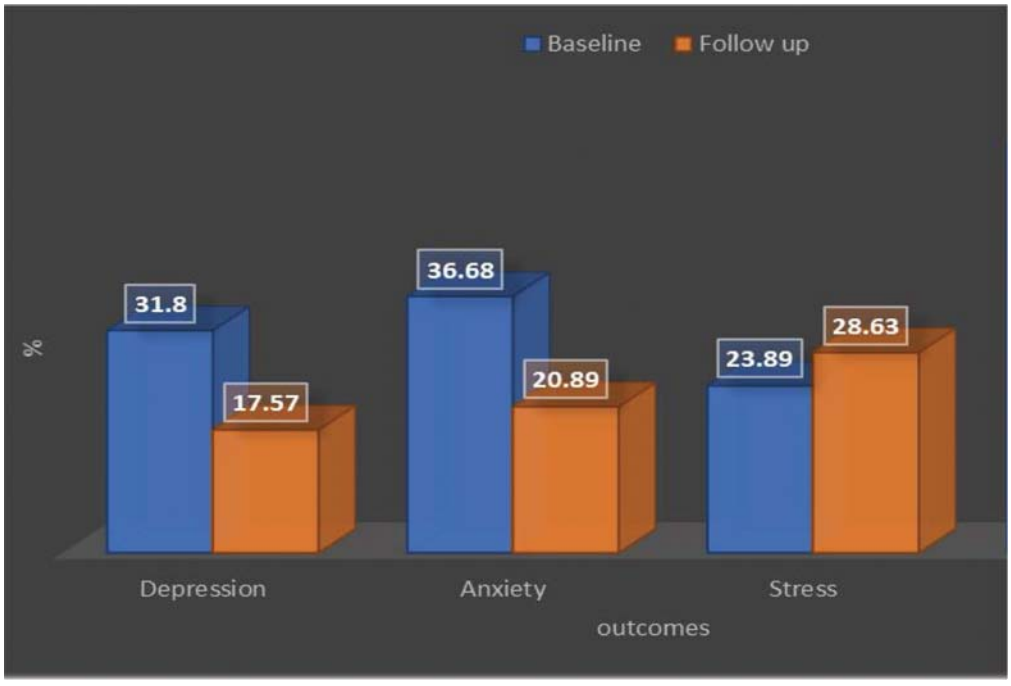
Association of personal factors

Baseline findings

- Substance Use and Depression: Participants who use addictive substances had higher depression rates (50%) and were more likely to suffer from depression. Low sleep duration (<6 hours) was significantly associated with depression (44.68%). Having hobbies was protective against depression (31.07%), although it was only significant in follow-up.
- Sleep and Anxiety: Less sleep (<6 hours) consistently contributed to anxiety (64.50%). Family responsibility was a significant factor for anxiety (44.07%). Substance use was significantly associated with anxiety in follow-up (36.07%) but not at baseline (42.86%).
- Other Medium of Schooling and Stress: Other medium of schooling (42.86%) and less sleep (<6 hours) were significant contributors to stress (46.81%) at baseline.

Follow-up findings

- Substance Use and Depression: Substance use continued to be associated with depression (32.80%) at follow-up. Low sleep duration (<6 hours) remained significant for depression (41.46%). Having hobbies remained protective against depression (5.50%) with significant results in follow-up.
- Sleep and Anxiety: Less sleep (<6 hours) continued to contribute to anxiety (58.50%) at follow-up. Family responsibility's significance decreased (23.70%) compared to baseline. Substance use became significant for anxiety (36.07%) at follow-up.
- Other Medium of Schooling and Stress: Other medium of schooling (32.77%) and less sleep (<6 hours) (41.46%) remained significant contributors to stress at follow-up.



p Value	0.003	0.002	0.34

Figure 1. Prevalence of depression, anxiety and stress at baseline and follow-up.

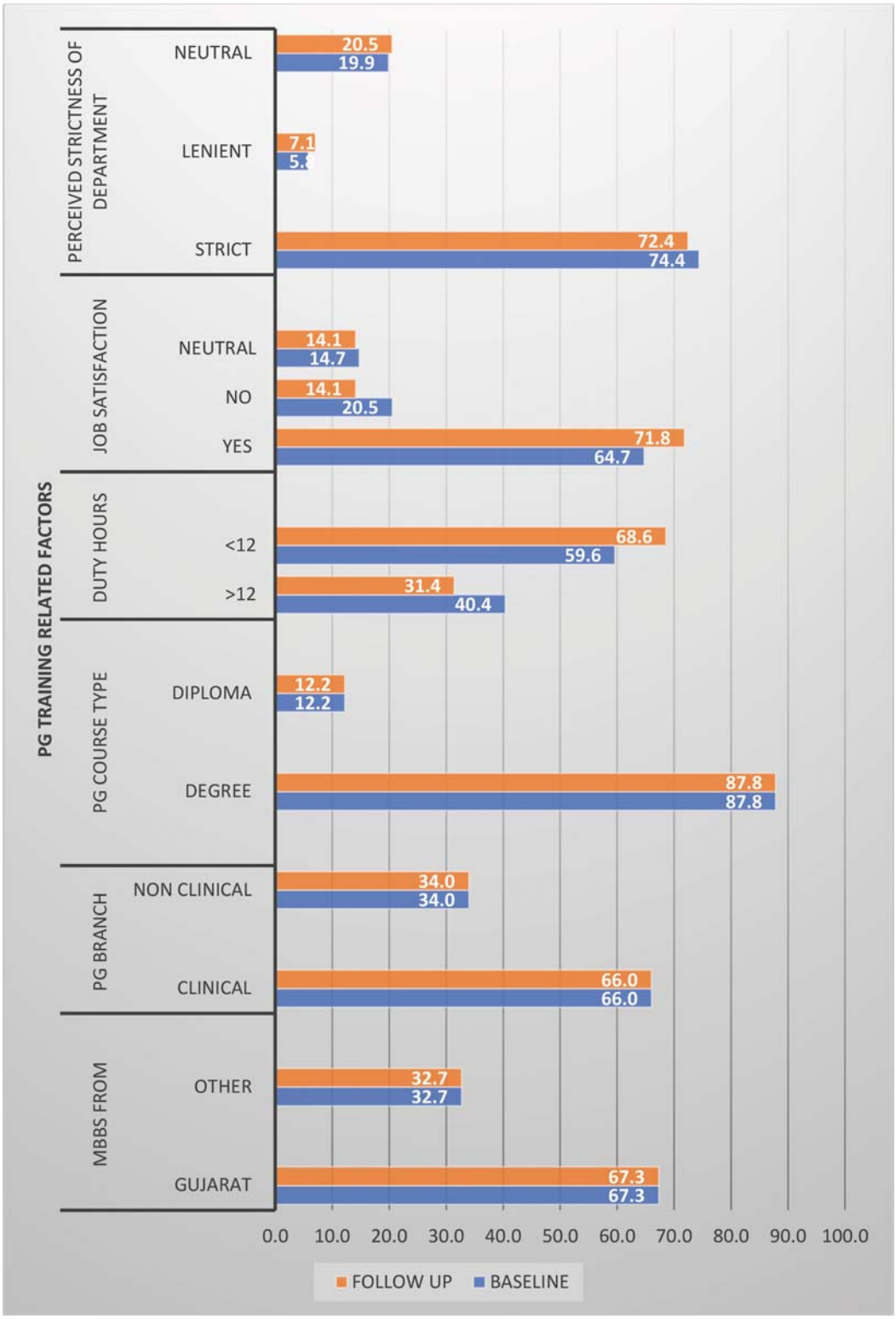


Figure 2. PG training related factors at baseline and follow up.

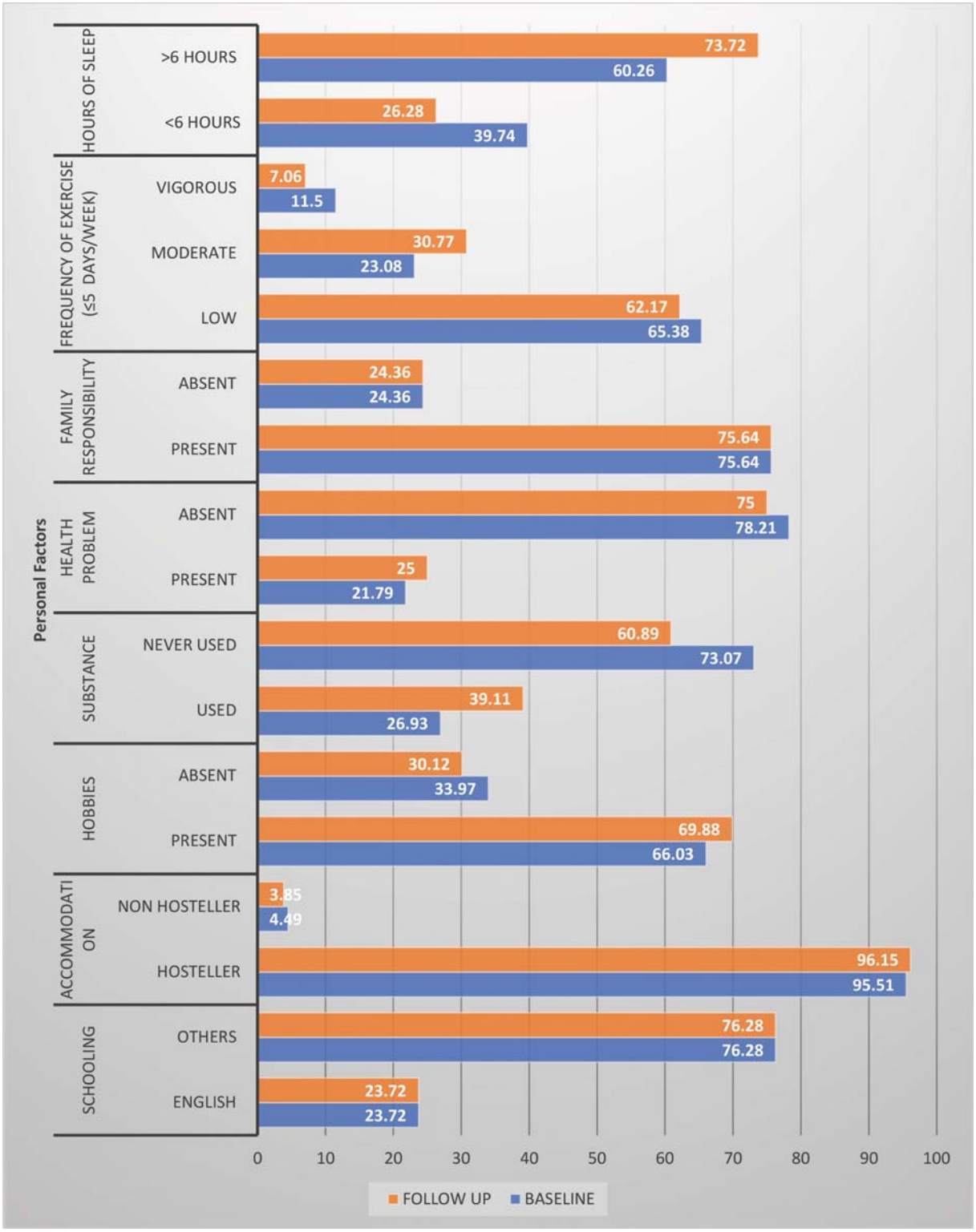


Figure 3. Personal factors at baseline and follow up.

Discussion

The study investigated the prevalence of depression, anxiety and stress among resident doctors and explored potential contributing factors. The findings have significant implications for understanding the mental health challenges faced by this population and identifying strategies for improvement.

In the present study, we observed a trend of depression prevalence among postgraduate year 1 (PGY-1) residents, with a 30.2% rate of depressive symptoms. As training progressed, the prevalence of depression decreased in subsequent years. These findings are consistent with Reuben DB(8)'s study. However, unlike Akhil D (9)'s study, we did not observe a significant increase in depression scores among medical students at the one-

year follow-up. Additionally, our results align with Francesca Th'ng (10)'s findings, indicating a higher prevalence of anxiety (36.54%) in PGY-1 residents, with a statistically significant reduction at follow-up (21.15% for anxiety). Our study supports the notion that as residents gain better understanding and knowledge of the residency program, the prevalence of anxiety tends to decrease over time.

The prevalence of depression is significantly higher than that among the normal population of the same age grouped students in India, which is 18.5% as per a study by Sahoo et. al. (11) This difference is probably due to the fact that resident doctors have a dual responsibility of a student as well as a skilled professional clinician. The prevalence of depression was almost at par with a meta analysis survey done by Mata et. al. (12) spanning multiple countries, which had a prevalence of depression of 28.3% among medical and surgical residents.

Present study shows more percentage of female residents had depression compare to male residents during baseline and follow up. In some studies (13,14,15,16,17) the female participants were more likely to experience depression similar to our findings at baseline but it was not significantly associated in follow-up. This may be due to delayed adjustment with new working environment and place of residence in females. However, several other studies like studies (16,18,19,20,21,22,23) did not find any significant relationship between gender and depression.

Duty hours more than 12 hour a day is highly associated with depression at baseline which is similar to finding of studies conducted by Dave S. et.al. (3), N. K. Thomas et.al (24) and Veasey S et. al. (25) but it is not at follow up in our study. This might be due to reason that after a year, long working hours become second nature for the individual, but for the first-year resident, it is exhausting to work for more than 12 hours a day.

Study done by Pasqualucci, PL (26) reported significant association of job satisfaction with depression which is similar to our study findings. In some studies like study by Dave S et.al. (3), N. K. Thomas et.al. (24) and Veasey S et.al. (25) where significant association between working hours and anxiety was also found.

As per our observation prevalence of stress was significantly higher among residents of clinical branch and residents who are working for more than 12 hours. While some studies like study (3,26) found non-significant association between branch and stress, few studies (3,24,26) found similar association for working hours and stress. Hence working for more than 12 hours a day could lead to significant stress among resident doctors.

At both baseline and follow up, participants who use addictive substances are more likely to suffer from depression or we can put it this way, those who suffer from depression are more likely to use substances. Low frequency of doing exercise is also associated with higher depression at both time zones. Hence, exercise can be considered a protective factor.

Depression was significantly associated with residents getting sleep for less than 6 hours a day in our study both at baseline and follow-up. Similar finding was observed by studies done by Dave et.al. (3) and Pokhrel et. al. (27) where higher prevalence was seen among same group of residents

Presence of hobbies was protective against depression both at baseline and follow-up, though only significant in follow-up. Similar result was noted by Dave et. al. (3). Hence getting less than 6 hours sleep a day and habit of substance use could be considered as predictor of depression among resident doctors as per our result. Additionally, it can be inferred that having hobbies and inculcating exercise in routine could be protective against depression.

Conclusion

This study assessed mental well-being in resident doctors during postgraduate training, revealing significantly higher rates of depression, anxiety and stress than the general population. Factors such as overwhelming duty hours, clinical specialties, migration, and lack of coping strategies contributed to the issue. However, mental health improved over time, possibly due to adaptation to the workload. Encouraging coping strategies and work-life balance is essential.

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