e-ISSN: 0975-1556, p-ISSN:2820-2643

Available online on www.ijpcr.com

International Journal of Pharmaceutical and Clinical Research 2023; 15(4); 147-154

Original Research Article

To Study the Impact of Residency on Physical Health of Residents during the Period of Post-Graduation

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Received: 12-01-2023 / Revised: 13-02-2023 / Accepted: 28-03-2023
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Conflict of interest: Nil

Abstract

Background: Medical post-graduation period constitute health risk for resident doctors. The learning curve is improved at the cost of resident's own health. Not only physical but mental and social health of residents get compromised. This also impacts the interpersonal relationship with friends and family. The repercussions of all these factors are faced by patients as their treatment and care might get compromised in the form working errors due to excessive wear and tear of resident's health.

Aim: To study the impact of residency on physical health and lifestyle of residents.

Method: A questionnaire which included 15 questions was given to residents of various departments of Gandhi medical college during the month of November 2022. The first 100 responders during the study duration (November 2022-January 2023) were included under the study. Questionnaire included sociodemographic characteristics like age, sex, weight, height (in m), BMI, marital status, branch of post-graduation. It also included information regarding certain parameters like sleep, meal, water intake, addiction, new medication, new disease diagnosed, weight loss and comparison was done on some of these parameters before and after joining residency. Data was compiled using MS excel. All the data analysis was performed using IBM SPSS version 20 software and appropriate statistical tests were applied.

Results: Study revealed that sleep was affected 1 year after joining residency as revealed by the significant p value of 0.027. Breakfast intake was also affected after joining residency as revealed by the significant p value of <0.001. Study showed that out of 91 residents who were having 2litres of water intake per day before joining, in 58 (63.7%) of them it has reduced post 1 year of joining residency. There was a statistically significant increase in the pack of cigarettes smoked per day, mean alcohol intake per week and amount of sweetened beverages intake per day by the residents after joining residency. After 23.12 hours of continuous duty working error occurred and mean weight loss after joining residency was 5.04kgs in 6.09 months.

Conclusion: Post graduation is highly stressful and results in several changes in the lifestyle of the residents, which has serious impact on their physical and mental health.

Keywords: Physical Health of Residents, Lifestyle Changes, Stress During Postgraduation.

Introduction

Post-graduation/ specialization course of medical services strives to produce competent physicians. But during this process the physical and mental health and quality of life of residents gets severely compromised. Because of long duty hours the basic necessities of residents like proper meals, sleep and personal and mental well-being gets hampered.

Postgraduate medical residency programs are laborious and time-intensive, and can be physically, intellectually and emotionally demanding. [1]

Detrimental effects of residency include alcohol and tobacco addiction, sleep and meal deprivation, emotional stress, psychiatric illnesses, home sickness which results in errors while work, driving incidents, poor interpersonal relationship and makes the resident prone for life style diseases like diabetes, hypertension cerebrovascular accidents.

All the above-mentioned effects results from excessive stress faced by residents. Stress of not only long working hours but also of the responsibility towards the lives of the patients. Stress leads to medical error which may negatively impact the quality of patient care. [2] Hence, it not only affects health care providers but also affects patients. [3]

This study highlights how the basic needs of residents like meal, sleep gets affected during their post-graduation.

Materials and methods

The present study is a cross-sectional observational study which was conducted on 100 resident doctors who are pursuing post-graduation medical course after MBBS at Gandhi Medical College and associated Hamidia Hospital, Bhopal.

Inclusion Criteria

Resident doctors of various department who are pursuing post-graduation medical course after MBBS at Gandhi Medical College and associated Hamidia Hospital, Bhopal and who are willing to give consent for the study.

Exclusion Criteria

Resident doctors who are not giving consent to be a part of the study.

Study duration: November 2022 to January 2023.

Methodology

After institutional ethics committee approval and informed consent from participants, a questionnaire was prepared which had two sections.

Section A included sociodemographic characteristics like age, sex, weight, height (in m), BMI, marital status, branch of post-graduation.

Section B included information regarding certain parameters like sleep, meal, water intake, addiction, new medication and comparison was done on these parameters before and after joining residency. It included 15 questions which was given in the form of questionnaire to residents of various departments of Gandhi medical college during the month of November 2022. The first 100 responders during the study duration (November 2022 - January 2023) were included under the study.

Permission for the study was taken from the respondents and the confidentiality of information was ensured. The respondents were informed of their right to decline or withdraw from the study at any time without any adverse consequences. No harm was inflicted on participants because of participation in this study.

Statistical analysis

Data was compiled using MS excel. All the data analysis was performed using IBM SPSS version 20 software. Frequency distribution and cross tabulation was performed to prepare the tables. Quantitative data was expressed as mean and standard deviation whereas categorical data was expressed as proportions. Descriptive analysis was performed to obtain the characteristics of the study population. Means were compared using student t- test and ANOVA whereas Chi Square test was performed to obtain significance between categorical variables. P value of <0.05 was considered to be significant.

Results

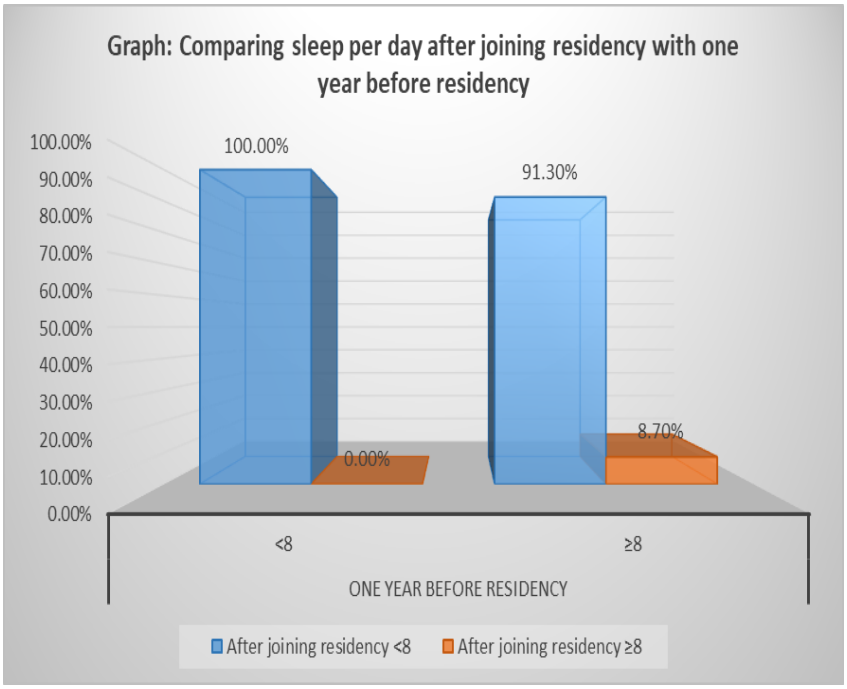
A total of 100 responders who gave consent were taken for this study. The study included 56 male (56%) and 44 females (44%). Mean age was 29.62 years. Residents of all three years of residency were included in the study. Out of 100 residents 70(70%) were of clinical branches and 30(30%) were of non-clinical branches.

Table 1 denotes demographic characteristics of the study population.

Descriptive Statistics					
	N	**Minimum**	**Maximum**	**Mean**	**SD**
Age (years)	100	25	38	29.62	3.034
Sex (male/female)	56/44				
Weight (Kg)	100	49	89	69.76	8.54
Height (meters)	100	1.50	1.84	1.68	0.098
BMI (Kg/m^2)	100	19.2	31.0	24.406	2.65
Year of residency	100	1	3	1.91	0.81
Marital status (married/unmarried)	39/61				
Ongoing medication before residency (yes/no)	19/81				
Clinical/non clinical branches	70/30				

Table 2: Comparing sleep per day after joining residency with one year before residency

			One year before residency		**Total**	**P value**
			<8	**≥8**		
After joining residency	<8	Count	54	42	96	0.027
		%	100.0%	91.3%	96.0%	
	≥8	Count	0	4	4	
		%	0.0%	8.7%	4.0%	
Total		Count	54	46	100	
		%	100.0%	100.0%	100.0%	

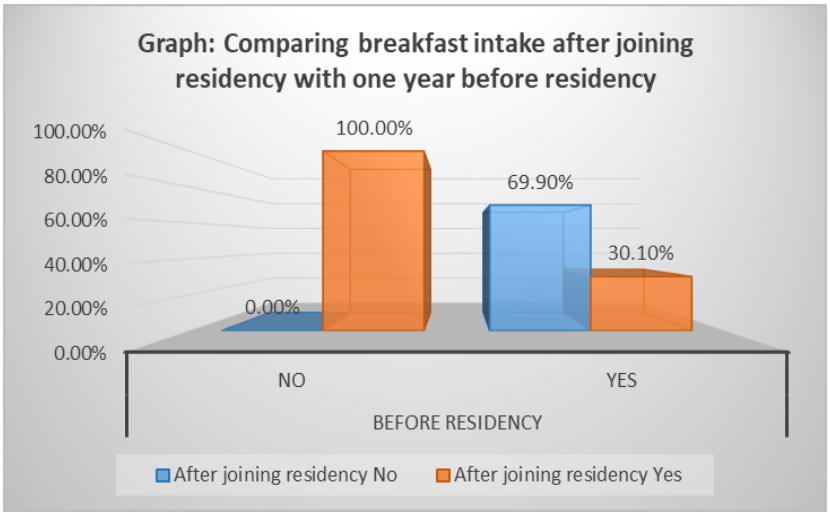


Graph1: Comparing sleep per day after joining residency with one year before residency.

Table 2, graph1 shows that sleep was affected 1 year after joining residency as revealed by the significant p value of 0.027. Out of 46 resident who were having ≥8 hours of sleep, 42 (91.3%) started taking sleep <8 hours after joining.

Table 3: Comparing breakfast intake after joining residency with one year before residency

			Before residency		Total	P value
			No	Yes		
After joining residency	No	Count	0	65	65	<0.001
		%	0.0%	69.9%	65.0%	
	Yes	Count	7	28	35	
		%	100.0%	30.1%	35.0%	
Total		Count	7	93	100	
		%	100.0%	100.0%	100.0%	



Graph 2: Comparing breakfast intake after joining residency with one year before residency

Table 3, Graph 2 shows that breakfast intake was affected after joining residency as revealed by the significant p value of <0.001. Out of 93 resident who were having regular breakfast before joining, 65 (69.9%) stopped taking regular breakfast post 1 year of joining residency.

Table 4: Comparing lunch intake after joining residency with one year before residency

			Before residency	Total	P value
			Yes		
After joining residency	No	Count	21	21	NA
		%	21.0%	21.0%	
	Yes	Count	79	79	
		%	79.0%	79.0%	
Total		Count	100	100	
		%	100.0%	100.0%	

Table 4 shows no change was observed in taking lunch before and after joining residency.

Table 5: Comparing dinner intake after joining residency with one year before residency

			Before residency		Total	P value
			No	Yes		
After joining residency	No	Count	1	25	26	0.090
		%	100.0%	25.3%	26.0%	
	Yes	Count	0	74	74	
		%	0.0%	74.7%	74.0%	
Total		Count	1	99	100	
		%	100.0%	100.0%	100.0%	

Table 5 shows that out of 99 resident who were having regular dinner before joining, 25 (25.3%) stopped taking regular dinner post 1 year of joining residency. P value of 0.09 denotes it to be statistically insignificant.

Table 6: Comparing two liters of water intake per day after joining residency with one year before residency

			Before residency		Total	P value
			No	Yes		
After joining residency	No	Count	5	58	63	0.628
		%	55.6%	63.7%	63.0%	
	Yes	Count	4	33	37	
		%	44.4%	36.3%	37.0%	
Total		Count	9	91	100	
		%	100.0%	100.0%	100.0%	

Table 6, shows that out of 91 residents who were having 2 liters of water intake per day before joining, in 58 (63.7%) of them it has reduced post 1 year of joining residency. P value of 0.628 denotes it to be statistically insignificant.

Table 7

		Mean	N	SD	SEM	P value
Packs of cigarettes per day	Before residency	0.0925	100	0.215	0.021	<0.001
	After residency	0.3600	100	0.488	0.048	
Alcohol intake per week(ml)	Before residency	38.50	100	60.659	6.066	<0.001
	After residency	161.00	100	152.352	15.235	
Sweetened beverages per day(ml)	Before residency	58.50	100	73.874	7.387	<0.001
	After residency	203.00	100	159.199	15.920	

Table 7 shows that:

A. Mean pack of cigarettes smoked by residents per day before joining residency was 0.0925 and after joining residency was increased to 0.3600 with a p value of <0.001 which is statistically significant.
B. Mean alcohol intake per week by residents before joining residency was 38.50 ml and after joining residency was increased to 161ml with a p value of <0.001 which is statistically significant.
C. Mean intake of sweetened beverages per day by residents before joining residency was 58.50 ml and after joining residency was increased to 203ml with a p value of <0.001 which is statistically significant.

Study also revealed that:

A. 0.41 residents were exposed to accidental pricks of infected patients.
B. After 23.12 hours of continuous duty working error occurred.
C. Mean weight loss after joining residency was 5.04kgs in 6.09 months.
D. 17 out of 100 residents were on medication for certain diseases before joining residency and out of those 17, in 15 of them the dosage of medications were increased after joining residency.
E. Out of 100 residents in 23 of them new disease was diagnosed during the period of residency.
F. Out of 100 residents 82 suffered from some kind of emotional stress after joining residency and 66 of them showed alteration in personality and working characteristics.

Discussion

Medical training has reportedly been found stressful, which may be further increased during residency training as a result of increased expectations and responsibilities. [4,5]

The aim of this study was to study the impact of residency on physical health and lifestyle of residents.

This study enrolled 100 resident doctors of Gandhi Medical College, Bhopal (MP), India and gathered the data regarding their sleep, eating and drinking habits, addictions, diseases and what changes were observed in these parameters after joining residency.

In our study mean age ranged from 25-38 years, 56% males and 44% females. In the study conducted by David L. Perrin et al. [1] 45 participants were taken out of which 68.8% were males and 31.2% were females which was similar to our study.

Because of long hectic night shifts and heavy work load the sleep time of the residents gets reduced.In our study we found out that sleep was affected after joining residency as revealed by the significant p value of 0.027. Out of 46

resident who were having ≥8 hours of sleep, 42 (91.3%) started taking sleep <8 hours after joining. In the study conducted by DeWittC. Baldwin [6] et al on post graduate residents it was found that average sleep hours per night was 5.7 hrs during first yr residency and 5.98 hrs during second year residency which is in concordance with our study.

Increased burden of work and staying in hostels during the medical postgraduation period leads to decrease dietary intake by residents. They are not able to have even the three basic meals in a day. In our study we found out that breakfast intake was affected after joining residency as revealed by the significant p value of <0.001. Out of 93 residents who were having regular breakfast before joining, 65 (69.9%) stopped taking regular breakfast post 1 year of joining residency. In the study conducted by Nupura A. Vibhute et al [7] it was found out that out of 130 students from medical university, only 83 had breakfast daily which was in concordance with our study.

In our study we found out that out of 91 residents who were having 2litres of water intake per day before joining, in 58 (63.7%) of them it has reduced post 1 year of joining residency. This finding is similar to the study conducted by Sima Balaghi et al [8] in which it was found out that among 245 students of medical university, the mean daily fluid intake of subjects,especially water was lower than the recommended values.

Undergraduate and postgraduate medical students are exposed to daily stressors, which can lead to substance use and abuse. [9]. In our study it was found out that mean pack of cigarettes smoked by residents per day before joining residency was 0.0925 and after joining residency was increased to 0.3600 with a p value of <0.001 which is statistically significant. Also, alcohol intake per week by residents before joining residency was 38.50 ml and after joining residency was increased to 161ml with a p value of <0.001 which is statistically significant.

During the period of medical post-graduation residents are subjected to long duty hours. This poses them to commit erros while working which results in sub optimal patient care. In our study it was found out that after 23.12 hours of continuous duty working errors occurred. According to the study conducted by Clare Anderson et al [10] it was found out that chronic sleep deficiency caused progressive degradation in residents neurobehavioral performances which is similar to our study. In the study conducted by Christopher P. Landrigan et al [11] it was found that residents in whom extended shifts were eliminated made more serious error than residents who were assigned with extended shifts which is contrary to the result of our study.

Both weight loss and weight gain is seen among residents during the medical postgraduation period.The reason of weight gain being decreased sleep,stress.increase alcohol intake and junk food intake.The same stress can lead to weight loss and apart from that skipping of meals results in weight loss.In our study it was found out that mean weight loss after joining residency was 5.04kgs in 6.09 months.

There are a variety of stressors in medical workplace. Along with this the residents face the stress of living away from the family or home sickness and can land up into depression and emotional fragility and change in working characteristics. In our study out of 100 residents, 82 suffered from some kind of emotional stress after joining residency and 66 of them showed alteration in personality and working characteristics. According to the study conducted by Sedigheh Ebrahimi et al [12] it was found out that occupational stress affects residents quality of life negatively. [13]

Limitation:

1. Restricted to students of only one medical college so results couldn't be generalized.

2. Small sample size.

Declaration of Interest: None

Conclusion

Post-graduation is highly stressful and results in several changes in the lifestyle of the residents, which has serious impact on their physical and mental health.

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