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Stress and Coping Strategies during Residency Training: Survey of a Teaching Hospital in Southwestern Nigeria

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Abstract:
Background Information: Residents in developing countries work under difficult physical and social conditions and therefore examining stress is important when addressing social and mental well-being, quality of care, working conditions and self fulfillment.
Methodology: This was a cross sectional descriptive study carried out in LAUTECH Teaching Hospital, Ogbomoso using a semi structured pre-tested questionnaire. All residents were included but those on outside posting were excluded. No sampling was carried out. Data was analysed using SPSS version 17.
Results: Majority of respondents 32 (47.8%) felt the volume of academic work is the main stressor, others perceived that clinical and field work 31(46.3%), Harassment 18 (26.9%), family responsibility 13 (19.4%) and fear of failure 6 (9.0%) were stressors to them in their residency training. Also, more males coped with stress through self encouragement and by the presence of an understanding and supportive senior while more females coped with stress with the help of friends and involvement with religious activities
Conclusion: The consequence of work place related stress could be grave which could lead to decrease efficiency and overall poor performance. Therefore, making the workplace conducive for residents training would in the long run benefit both the service provider and the patients.

Keywords: *stress, coping strategies, residency training, teaching hospital*

1. Introduction

Workplace related stress is a common occurrence found in every occupation and represents an imbalance between personal and professional life[1-3]. Job stress can be direct as in the work load and rigorousness or indirect as in unconducive work environment like noise, heat, lack of electricity; as well as personal and family issues[3]. Work place stress not only has health consequence on the worker but often lead to decrease efficiency, increase incidence of mistakes and overall poor performance[4-6]. The implication is more pronounce in the health sector particularly in the hospitals where workers deal with life directly. It has been documented that residency is a time of stress and challenge[7-9], but it does not have to be a time of suffering. Residency involves rigorous academic study, clinical procedures, running clinics, taking ward rounds, staying up during on-call nights, presenting at grand rounds/seminars, field postings and community outreaches. Although there is no way to escape the stressors of residency, we can try to avoid more serious effects such as burnout and depression. Some level of stress is not harmful but may actually be necessary for motivation and performance; high stress could have negative consequences[9,10]. High stress has grave effects including burnout which is a syndrome of decreased enjoyment and effectiveness at work and includes emotional exhaustion, depersonalization, and a sense of low personal

accomplishment[11,12], substance abuse, depression, aggression and even suicide[13]. Health professionals especially doctors have been documented to have little or no time for leisure, relaxation and recreation[13,14]. It seems to have been the tradition since medical school where students do not have a break throughout the clinical years and sometimes seen as unavoidable modern living[15].
Residents in developing countries work under difficult physical and social conditions and therefore examining stress is important when addressing social and mental well-being, quality of care, working conditions and self fulfilment. People not only differ in their stress thresholds, coping and being able to handle stress differs from person to person.

2. Methodology

Study Area: The study was carried out in the Lautech Teaching Hospital (LTH), Ogbomoso, Oyo state, South-western Nigeria. The hospital came into functional existence in 2010 to offer clinical services to the community and also serve as the tertiary referral centre to neighbouring states. Being a teaching hospital, it trains medical students as well as resident doctors in all clinical specialty and most of the subspecialty. There were about 120 residents in the hospital in various disciplines. There was no functioning hospital accommodation for the residents as the time of this study.
Study Design: This was a cross-sectional descriptive study among the resident doctors.
Study Population: All resident doctors were included in this study including those working as supernumerary but excluding resident doctors on outside posting during the survey and those that are less than one year in the service of LTH were however excluded for a more objective assessment of their experience for a more objective assessment of their experience. All consenting residents were interviewed. No sampling was carried out. The residents were categorized as in Medical line (Internal Medicine, Paediatrics, Community Medicine, Family Medicine, Psychiatry); Surgical (General sub-specialty Surgery, Obstetrics and Gynaecology, Anaesthesia, Radiology, Ophthalmology, Ear/Nose/Throat) and Laboratory/Pathology.
Instrument for Data Collection: Semi-structured pre-tested questionnaire developed by the researchers was used in data collection. It was checked for completeness by thorough literature search. The questionnaire sought for information as personal data, perception of stress in their training, perceived stressors, coping strategies and suggestions for eliminating stress in their training.
Data Collection Technique: It was self-administered by individual residents who were approached through the Association of Resident Doctors and the chief Resident of each department/specialty.
Ethical Consideration: Information obtained was kept confidential as promised during the data collection and so no one will be victimized as a result of information supplied. Nobody was coerced to respond or accept to participate.
Data Analysis: Questionnaire were manually sorted out and checked for completeness and validity. Data were then entered into computer and analysed with Statistical Package for Social Scientist software version 17. Frequency tables and summaries were generated. Bivariate analysis was done with Chi square to determine association between variables and p-value was set at 0.05 level of significance. Various items for stress were used to calculate outcome measures for level of stress by getting the mean stress value. Respondents that had scores below the mean were said to have low stress and those that have score of mean and above were graded as having high level of stress.
Limitation of Study: Being a cross-sectional study, information was based only on self-reported stress. Also, the small study population used might limit interpretation of the work.

3. Results

Sixty seven respondents participated in the study. Majority of the respondents, 55(82.1%), were in their thirties with a mean of 33.42 + 4.32 years. Males were more than the female with a ratio of 1: 0.56. Sixty two (92.5%) of the respondents were married with 27 (43.5%) of them having their spouses in the medical profession. Thirty (48.4) of the residents live or have their family live within the city of practice. More than half of the respondents are in the medical speciality (36, 53.7%), 22, 32.8% in the surgical speciality and 9, 13.4% in the laboratory speciality. A larger percentage, 82.1% of respondents were junior residents while 17.9% were senior residents. Half of the respondents had only spent a year in residency, 32.8% were two years in to the training and 16.4% were three years into the training. (Table 1)
Table 2 shows that a higher percentage of respondents, 36 (53.7%) perceived the stress associated with residency as moderate, 15 (22.4) perceived the stress as mild while 16 (23.9%) felt that the stress of residency training is high. Majority of respondents 32 (47.8%) felt the volume of academic work is the main stressor, others perceived that clinical and field work 31(46.3%), Harassment 18 (26.9%), family responsibility 13 (19.4%) and fear of failure 6 (9.0%) were stressors to them in their residency training. Majority of respondents 55 (82.1%) felt they have little time for relaxation while 12 (14.6%) felt that time for relaxation/hobby was almost non existence.
Twenty six (38.8%) of respondents have a close but not cordial relationship with their consultants while 24 (35.8%), 15 (22.4%), 2 (3.0%) have a close and cordial, strictly official but not hostile and hostile relationship with their consultants respectively.
Majority of respondents 48 (92.3%) felt having an understanding and supporting spouse is an important factor that can assist in coping with stress during residency while 54 (80.6%) coped with stress through self-encouragement. Others were having understanding and supportive senior colleagues 33 (49.3%) and friends and religious brotherhood 30 (45.4%).Concerning factors that can prevent stressful events, 12 (24.0%), 10 (20.0%), 9 (18.0%) felt self-encouragement, reduced mental stress and revised schedule of work were probable options respectively.
More males professed to be able to cope with stress compared with their female counterparts. Also, more males coped with stress through self encouragement and by the presence of an understanding and supportive senior while more females coped with stress with the help of friends and involvement with religious activities. Majority of the males perceived that the stress during residency training

is moderate and also most of the males perceived that the volume of academic work makes their training stressful. However, more females felt that family responsibility makes their training stressful which was statistically significant (p=0.009).

Majority of respondents29 (52.7%) within the age bracket 30-39 had a high level of stress and males 25, (58.1) had a high level of stress compared to the female counterparts 13 (54.2%). Majority of those with high level of stress were married, 36 (58.1%). A higher percentage of those with high level of stress were junior residents, 30 (54.5%). There was however no statistical significance among the variables and the level of stress.

There was no statistical significant difference between the level of stress among respondents and most of the selected variables except the perception of stress in training (p=0.000). Twenty two (61.1%) of respondents that are not associated with friends and religious brotherhood had a high level of stress while 30 (55.6%) of those who applied self -encouragement also experienced high level of stress. Among those that perceived that stress in residency training is moderate,22 (61.1%) actually had high level of stress while all the respondents [15 (100%)] that perceived stress during residency training as mild, had low level of stress.

4. Discussion

The mean age of 33.4 $\pm$ 4.3 years in this study is similar to findings in other parts of South-western and Northern Nigeria and is also not different from the report over a decade ago where the mean was found to be 33.0 $\pm$ 3.1 years[12]. Also, most other socio-demographic characteristics are in consonant to previous studies[2,5,12]. Above 75% of the respondents perceived their residency training as been moderately to highly stressful. This is well above the 50% found in Ogun[16] state of Nigeria but much lower than 94.5% found in Ilorin[12]. This difference may be explained by the fact that our study area is a new teaching hospital and that of possibility of different instrument used and the fact that perception of stress is person specific. Again, what someone perceived as stressful may not be to another. Also, training methods and supervisors attitudes to residents differ from one institution to another in addition to supports from the management in reducing stressful conditions.

The volume of respondents' post-graduate academic work and the load of clinical and field work which constituted the highest percentage of what they consider as stressors are also what were reported elsewhere both in Africa and industrialized countries[3,5,6,14]. Sometimes, this may be due to inadequate number of residents in the units to cater for the number of patients to be attended to in the hospital making them to overwork.

The findings in this study showed that stress was more common among medical category resident doctors, followed by surgical category and lastly residents in laboratory medicine. This is in contrast with a meta-analysis study which was on burnout during residency training; stress found out to be commoner among the obstetrics-gynaecology followed Internal Medicine, Ophthalmology, Dermatology, General surgery, Psychiatry lastly family medicine[17]. This may be associated with the number of residents in each of the concern unit at the time of the various studies. Our study however did not look at the number of staff in residents or other staff in relation with the workload. It also has to do with patient load in each of the units. So it might be difficult to conclude that one specialty is more stressful than other based on a straight forward cross-sectional study as this.

In a previous study, perceived stress factors among resident doctors in a Nigerian teaching hospital, it was found out that high patient load, poor work environment, distant accommodation and lack of recreational facilities within the hospital[5,12]. However, this study, the perceived volume of academic work followed by clinical and field work were the identified stressors among resident doctors. Provision of recreational facilities and other social activities could reduce stress at workplace to a large extent. Furthermore, with less than 40% claiming their relationship with their consultant was not as cordial as expected will ordinarily create some tension. Those that have relate well with their boss will have their stress relieved to certain extent. Lack of adequate relationship with medical consultants have been associated with poor motivation to learning and decreased stress among junior doctors[5]. Another study that showed almost three quarters of the doctors who had positive professional relationship felt they were being supported by their consultants[8]. A good trainee/trainer relationship has been recommended as a positive motivator in mentoring.

Having a supportive and understanding spouse was the major factor identified by respondents to assist cope with stress followed by self encouragement. In a study on Postgraduate medical training[2], stress, and marriage, the marital state was shown to be related to lowered levels of stress. Our study showed that nine in ten of respondents who had a good relationship with their spouses were able to cope with stress. This is not unexpected as a good marital relationship can afford he resident doctor the privilege to share experiences and challenges with his/spouse which can invariably modify the problem: A problem shared is half solved!

Although not statistically significant, more males were able to cope with stress compared to the females. However, more females coped with stress by relating with friends and religious acquaintances than their male counterparts which was statistically significant. This is not surprising as females tend to be naturally more accommodating and outspoken than males and will therefore tend to share their burden with people around them.

More females in this study felt their family responsibilities makes their training stressful compared to the male counterpart, which was statistically significant. This is in line of another study done by Kelner[18]. This is not surprising as the work of a woman at home cannot be underestimated. She is saddled with the responsibilities of taking adequate and appropriate care of the husband as well as the children. This on its own could be burdensome. If these family responsibilities are again combined with the tedious demand of residential, stress at work will definitely be inevitable if not handled properly.

Variable	Frequency	Percentage
Age		
20 – 29	6	9.0
30 – 39	55	82.1
≥ 40	6	9.0
Mean age (years)	33.42 + 4.32	
Sex		
Male	43	64.2
Female	24	35.8
Marital status		
Married	62	92.5
Never married	5	7.5
Spouse occupation		
Medical	27	43.5
Non - medical	35	56.5
Family residence (n = 62)		
Within city of practice	30	48.4
Within 1 hour drive	18	29.0
More than 1 hour drive	12	19.4
Abroad	2	3.2
Speciality		
Medical	36	53.7
Surgical	22	32.8
Laboratory	9	13.4
Level of Training		
Junior Residency	55	82.1
Senior Residency	12	17.9
Number of years in training		
1	34	50.7
2	22	32.8
3-4	11	16.4

Table 1: Socio-demographic data of the respondents (n=67)

Variable	Frequency	Percentage
Perception		
Mild	15	22.4
Moderate	36	53.7
High	16	23.9
Stressors		
Volume of academic work	32	47.8
Clinical and field work	31	46.3
Fear of failure	6	9.0
Harassment	18	26.9
Family responsibility	13	19.4
Time for relaxation/hobbies		
Very adequate	0	0
Little	55	82.1
Almost non existence	12	14.6

Table 2: Perception of Stress (n=67)

Variable	Frequency (N = 67)	Percentage
How is your relationship with your consultant		
Cordial and close	24	35.8
Cordial, not close	26	38.8
Strictly official but not hostile	15	22.4
Hostile	2	3.0

Table 3: Respondents' relationship with consultants

Variable	Frequency (N = 67)	Percentage
Understanding and supportive spouse (n=52)	48	92.3
Understanding and supportive senior colleagues	33	49.3
Friends and Religious brotherhood	30	45.4
Self encouragement	54	80.6
Other factors	14	17.1

Table 4: Factors assisting coping with stress

Variable	Frequency (N = 50)	Percentage
Mentoring	5	10.0
Relaxation	6	12.0
Self encouragement	12	24.0
Reduce mental stress	10	20.0
Favourable working environment	2	4.0
Revised Schedule of work	9	18.0
Understanding oneself	6	12.0

Table 5: Reported factors that can prevent stressful events

Variable	Sex		X^2	P – value
	Male (n=43)	Female (n=24)		
Can cope with stress				
Yes	22	11	0.18	0.676
No	21	13		
Friends and religious brotherhood				
Yes	14	16	6.844	0.009*
No	28	8		
Self encouragement				
Yes	36	18	0.749	0.387
No	7	6		
Understanding and supportive senior				
Yes	24	9	2.067	0.204
No	19	15		

Table 6: Relationship between sexual status and coping with stress

Variable	Sex		X^2	p – value
	Male (n=43)	Female (n=24)		
Perception of stress in training				
Mild	13	2	5.48	0.065
Moderate	19	17		
High	11	5		
Volume of academic work makes my training stressful				
Yes	24	8	3.12	0.077
No	19	16		
Clinical and field posting makes my training stressful				
Yes	20	11	0.003	0.957
No	23	13		
Failure rate in exams makes my training stressful				
Yes	3	3	0.576	1
No	40	21		
Harassment from seniors makes my training stressful				
Yes	9	9	2.152	0.142
No	34	15		
Family responsibility makes my training stressful				
Yes	4	9	7.831	*0.009
No	39	15		

Table 7: Relationship between gender and perception of stress in training and some stressors
**Statistically significant*

		Stress			p - value
		Low	High	Total	
Age Group (in years)					**0.026***
	20 – 29	3 (50.0)	3 (50.0)	6	
	30 – 39	26 (47.3)	29 (52.7)	55	
	40 and above	0 (0.0)	6 (100.0)	6	
	Total	**29 (43.3)**	**38 (56.7)**	**67**	
Sex					**0.753**
	Male	18 (41.9)	25 (58.1)	43	
	Female	11 (45.8)	13 (54.2)	24	
	Total	**29 (43.3)**	**38 (56.7)**	**67**	
Marital Status					**0.433**
	Married	26 (41.9)	36 (58.1)	62	
	Never Married	3 (60.0)	2 (40.0)	5	
	Total	**29 (43.3)**	**38 (56.7)**	**67**	
Specialty					**0.116**
	Medicine	7 (70.0)	3 (30.0)	10	
	O & G	5 (45.5)	6 (54.5)	11	
	Lab Medicine	3 (33.3)	6 (66.7)	9	
	Paediatrics	6 (75.0)	2 (25.0)	8	
	Family Medicine	3 (37.5)	5 (62.5)	8	
	Community Medicine	3 (30.0)	7 (70.0)	10	
	Surgery	2 (18.2)	9 (81.8)	11	
	Total	**29 (43.3)**	**38 (56.7)**	**67**	
Level of Training					**0.443**
	Junior	25 (45.5)	30 (54.5)	55	
	Senior	4 (33.3)	8 (66.7)	12	
	Total	**29 (43.3)**	**38 (56.7)**	**67**	
Spouses occupation (n=26)					**0.004***
	Lecturing/ Teacher	12 (70.6)	5 (29.4)	17	
	Medical Personnel	12 (44.4)	15 (55.6)	27	
	Civil Servants	0 (0.0)	6 (100.0)	6	
	Accountant/ Business	2 (16.7)	10 (83.3)	12	
	Total	**26 (41.9)**	**36 (58.1)**	**62**	

Table 8: Relationship between Socio – demographic Characteristics and Stress

Variable		Stress			p - value
		Low	High	Total	
Friends and Religious Brotherhood					**0.365**
	Yes	15 (50.0)	15 (50.0)	30	
	No	14 (38.9)	22 (61.1)	36	
	Total	**29 (43.9)**	**37 (56.1)**	**66**	
Self-Encouragement					**0.696**
	Yes	24 (44.4)	30 (55.6)	54	
	No	5 (38.5)	8 (61.5)	13	
	Total	**29 (43.3)**	**38 (56.7)**	**67**	
Understanding and Supportive Senior					**0.889**
	Yes	14 (42.4)	19 (57.6)	33	
	No	15 (44.1)	19 (55.9)	34	
	Total	**29 (43.3)**	**38 (56.7)**	**67**	
Coping with Stress					**0.180**
	Yes	17(51.5)	16 (48.5)	33	
	No	12 (35.3)	22 (64.7)	34	
	Total	**29 (43.3)**	**38 (56.7)**	**67**	
Perception of Stress in Training					**0.000***
	Mild	15 (100.0)	0 (0.0)	15	
	Moderate	14 (38.9)	22 (61.1)	36	
	High	0 (0.0)	16 (100.0)	16	
	Total	**29 (43.3)**	**38 (56.7)**	**67**	

Table 9: Relationship between some selected variables and Stress

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