

EFFECT OF WORKPLACE STRESS ON THE PERCEIVED HEALTH OF RESIDENT DOCTORS IN NIGERIA

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ABSTRACT

Background: Resident doctors' health and wellbeing has recently become the focus of international concern, as they are very important members of the healthcare system. The medical workplace is a complex environment where the doctors respond differently.

Objective: The objective of this study was to assess workplace stress among the resident doctors, examine their perceived health status, and determine the effect of workplace stress on their perceived health status.

Method: The study was a cross-sectional study conducted among resident doctors at University College Hospital (UCH), Ibadan, Nigeria across all the specialties over a three-month period, from 1st March to 31st May, 2019. Two hundred and thirty-two eligible and consenting resident doctors were selected by stratified random sampling and data was collected using interviewer-guided self-administered questionnaire. Data was analyzed using the Statistical Package for the Social Sciences (SPSS) version 23.

Results: The result showed that 144 (62.1%) of the resident doctors experienced workplace stress and 108 (46.6%) resident doctors perceived their health as poor. Workplace stress, years in residency program, designation, and work hours on least busy day at work were all significantly associated with perceived health status of the resident doctors, however, only workplace stress could independently predict poor perceived health status of the resident doctors.

Conclusion: It is therefore important to prevent and manage workplace stress in order to improve the perceived health status of resident doctors.

Keywords: Workplace; Stress; Perceived health; Resident doctors.

INTRODUCTION

Residency training program is a very stressful period in medical profession.¹ The level of stress among resident doctors has been found to be high in several studies conducted both locally and internationally.^{2,3,4,5} Resident doctors experience high level of stress at work largely because the medical profession is inherently stressful due to, long working hours, conflicting demands, difficult patients ethical dilemmas, among other challenges.^{2,6} The residency training program is associated with frequent exposure to diseases, dying, and deaths of patients, thereby producing a great deal of anxiety and self-doubt.⁷ Consequently, the residency training can be extremely stressful and may contribute to feelings of burnout, and distress.⁷

The World Health Organisation (WHO) defines work-related stress, also known as workplace stress or job stress, as "the response people may have when presented with work demands and pressures that are not matched to their knowledge and abilities, which challenges their ability to cope".⁸ The International

Labour Organization (ILO) also defines stress as the harmful physical and emotional response caused by an imbalance between the perceived demands and the perceived resources and abilities of individuals to cope with those demands.⁹

The prevalence of workplace stress among resident doctors in the literature ranges between 18% and 54.7%.^{2,3,4,10} Although female doctors are more susceptible to higher stress than male doctors it is noteworthy that women and men respond to and manage stress in different ways.^{9,11} They attempt to manage stress and perceive their ability to do so in distinctly different ways.⁹

Resident doctors' health and well-being and that of other medical doctors have recently become the focus of international concern as they are important 'citizens' of the healthcare system, therefore, their wellness is crucial to its function.¹² The medical workplace is a complex environment where medical doctors respond

differently; some are contented and inspired to work while some may experience burnout and feel stressed at work.⁶ Residency training-induced stress can endanger the health of a resident doctor's which then negatively affects productivity, efficiency, quality of patient care and physician preservation.^{2,12}

Perceived health is defined as the perception of a person's health in general, either by the persons themselves or, in the case of proxy response, by the person responding.¹³ Perceived health status reflects people's overall perception of their health, including both physical and psychological dimensions,¹⁴ while health means not only the absence of disease or injury but also the presence of physical, mental and social wellbeing.¹⁵

Perceived health status, quality of life (QoL), and health-related quality of life (HRQoL) are often used interchangeably.¹⁶ The WHO, quality of life as "individuals' perceptions of their positions in life within the context of their culture and value systems in which they live, and in relation to their goals, expectations, standards, and concerns".¹⁶ Quality of life is also "the product of the interplay between social, health, economic, and environmental conditions, which affect human and social development".¹⁶ Self perceived health is a powerful indicator of health status and it is significantly influenced by stress which could be workplace stress.^{17,18} Idubor *et al.* in 2015 also reported a relationship between the levels of stress experienced and health status.¹⁹

Low socioeconomic status, physical disability and poor access to good healthcare services have been noted to be associated with poor perceived health status among resident doctors.^{20,21} Poor sleep quality and sleep duration, either being too short or too long, are also related to a poor health status in all ages

There is a relationship between job stress and various physical and psychological diseases.²² Job stress influences health of an employee negatively in many ways like physical, psychological, emotional and behavioural.²² Most doctors work long hours and even work night shifts and both can have negative health outcomes.²² When a person is having trouble dealing with the stress, the individual may experience physical, psychosocial, cognitive and behavioural problem.²²

Job stress and lack of enabling work environment can culminate in ill-health of resident doctors,²² but how they actually perceive their health has not been well documented in the literature, especially in Nigeria. It is therefore worthwhile to study the perceived stress

among resident doctors and how this affects their physical health perception, because they are a unique group of doctors responsible for the care of patients.²³ As a result of paucity of articles on workplace stress among resident doctors and how they perceived their health, this study focused on these two aspects and their association.

The Objective of this study therefore is to determine the effect of workplace stress on the perceived health status of the resident doctors.

MATERIALS AND METHODS

Study Area:- The University College Hospital (UCH), Ibadan was established in 1957 and located in the south-western part of Nigeria. It is as an eight hundred and fifty bed teaching hospital and had 460 resident doctors in the six medical and eight surgical specialties of the hospital as at the time of data collection. The medical specialties include Family Medicine, Internal Medicine, Pediatrics, Psychiatry, Laboratory Medicine, and Community Medicine while the surgical specialties include Surgery, Anesthesia, Otorhinolaryngology, Ophthalmology, Radiotherapy, Obstetrics and Gynaecology, Radiology, and Dentistry. The hospital serves as a major referral centre in the south-western part of Nigeria for patients who need specialized care.

Sample Size:- This was calculated by using the Leslie Kish formula for cross-sectional studies,²⁴ using the prevalence of 54.7% for workplace stress reported among resident doctors of Lagos University Teaching Hospital by Oridota *et al.* in 2014.²

Sampling Technique:- Stratified random sampling technique was used to select samples from the population and proportional allocation was done for each department. The participants in each department were selected randomly through computer-generated random numbers. Numbers were serially assigned to names on the list of resident doctors as obtained from the Human Resources Department of UCH, Ibadan and these numbers were randomly selected by the computer. The resident doctors whose names are attached to the corresponding random generated numbers were approached for participation in the study after consent was obtained.

Pregnant Resident doctors and Resident doctors with acute illness, or not available as at the time of data collection were excluded.

Measures:- Data were collected using the interviewer-guided self-administered questionnaire which contained the socio-demographic details, Work-Related Quality

of Life (WRQoL) scale for measurement of workplace stress, and Short Form-36 version 2 (SF-36v2) for measurement of perceived health.

The WRQoL is reliable and has a Cronbach's Alpha score of 0.94. It is available in the public domain for use by researchers. All responses in the six subscales were recorded on a five point Likert scale and scored as: 1 = strongly disagree; 2 = disagree; 3 = undecided; 4 = agree; 5 = strongly agree²⁵ except for items 7, 9 and 19 that were reverse-scored, giving a total score of 115.²⁵ Overall scores between 1 and 71 indicated lower quality of working life, hence presence of workplace stress, 72-84 indicated average quality of working life and ≥ 85 indicated higher quality of working life.²⁵ In this study, respondents with scores < 72 (lower quality of working life) were classified as having workplace stress while those with scores ≥ 72 were classified as not having workplace stress.²⁵

The original SF-36 has been validated with high Cronbach's alpha scores of over 0.78.^{26,27} The QualityMetric Health Outcomes Scoring Software 5.0 for SF-36v2 was used to score each respondent, after permission for use was obtained from OptumInsight Life Sciences, Inc. The scores are calibrated so that 50 is the average score or norm²⁸ and an overall score that is above or below 50 can be considered above or below the population average health status.²⁹ This means that resident doctors who scored 50 and above perceived their health as better than others while those who scored below 50 perceived their health as worse than others.

Data Analysis:- Data was analyzed using the Statistical Package for Social Sciences (SPSS) version 20 (IBM Corporation, 2011).

Written consent was obtained from all participants, and Ethical approval for the study was sought and obtained from the Institute for Advanced Medical Research and Training UI/UCH Ethics Committee, Ibadan.

RESULTS

Two hundred and thirty-two eligible resident doctors were recruited for the study between March and May, 2019.

The socio-demographic and work characteristics of the 232 resident doctors who participated in the study are depicted in Table 1. One hundred and forty-eight resident doctors (63.8%) were males and the male to female ratio was about 1.8:1. The modal age group of the resident doctors was 31 – 40 years. Two hundred and ten (90.5%) respondents practiced Christianity and 166 (71.6%) were of Yoruba ethnicity. One hundred and eighty-nine (81.5%) were married.

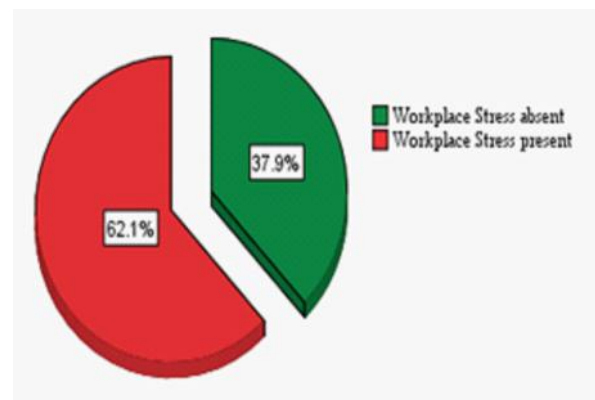


Figure 1: Prevalence of workplace stress among resident doctors

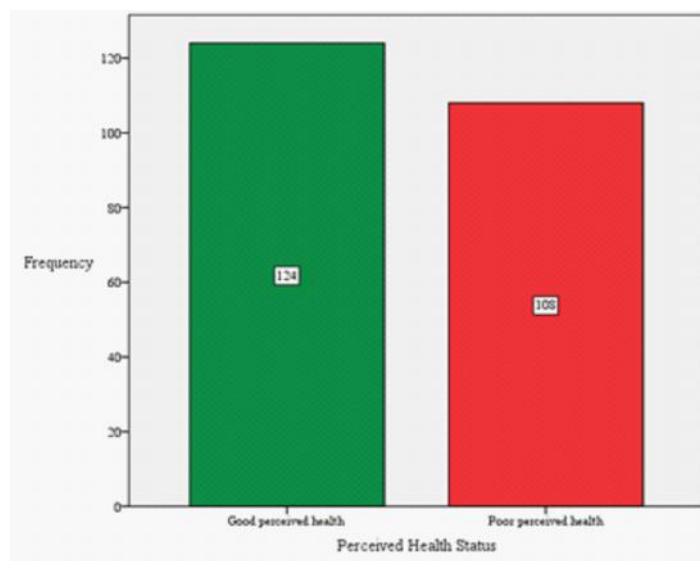


Figure 2: Perceived health of resident doctors

Table 1: Socio-demographic and work characteristics of resident doctors

Socio-demographic characteristics	Frequency (N = 232)	Percentage (%)
Gender		
Male	148	63.8
Female	84	36.2
Age group (years)		
≤ 30	11	4.7
31 – 40	208	89.7
> 40	13	5.6
Religion		
Christianity	210	90.5
Islam	21	9.1
Others	1	0.4
Ethnic group		
Yoruba	166	71.6
Igbo	33	14.2
Hausa	7	3.0
Others	26	11.2
Marital status		
Single	42	18.1
Married	189	81.5
Separated/Divorced/Widowed	1	0.4
Designation		
Registrar	56	24.1
Senior Registrar	176	75.9
Department		
Medical specialties (n = 107)		
Community Medicine	18	7.8
Family Medicine	18	7.8
Internal Medicine	24	10.3
Laboratory Medicine	21	9.0
Paediatrics	16	6.9
Psychiatry	10	4.3
Surgical specialties (n = 125)		
Anaesthesia	16	6.9
Dentistry	25	10.8
Obstetrics and Gynaecology	16	6.9
Ophthalmology	12	5.2
Otorhinolaryngology	5	2.2
Radiology	16	6.9
Radiotherapy	3	1.3
Surgery	32	13.8
Hours of work on busiest day of the week		
≤ 8	20	8.6
> 9 - 12	65	28.0
> 12	147	63.4
Hours of work on least busy day of the week		
≤ 8	97	41.8
> 9 - 12	94	40.5
> 12	41	17.7

Senior registrars were more and constituted 75.9% of the respondents and the highest number of the respondents, 32 (13.8%) was from the Department of Surgery. In addition, one hundred and forty-seven resident doctors (63.4%) worked for more than 12hrs in a day on their busiest day while 12 (5.2%) worked for > 12hrs on the quietest day at work.

A total of 144 (62.1%) resident doctors experienced workplace stress as depicted in Figure 1 while 108

(46.6%) resident doctors perceived their health as poor. Chi square analysis showed that there was a significant association between workplace stress and the perceived health of the resident doctors as shown in Table 2. Further analysis with logistic regression revealed that workplace stress could independently predict poor perceived health of resident doctors ($X^2 = 17.895$, $p < 0.01$) as shown in Table 3. Those who had workplace stress were 3.7 times more likely to have poor perceived health. Furthermore, number of years in residency

Table 2: Associations between the characteristics of the resident doctors, and perceived health

	Perceived Health Status		Chi Square (p-value)
	Good (%)	Poor (%)	
Workplace Stress			26.467 (0.01)*
Absent	66 (75.0)	22 (25.0)	
Present	58 (40.3)	86 (59.7)	
Gender			1.139 (0.29)
Male	83 (56.1)	65 (43.9)	
Female	41 (48.8)	43 (51.2)	
Age Group (Years)			1.611 (0.45)
≤ 30	5 (45.5)	6 (54.5)	
31 – 40	110 (52.9)	98 (47.1)	
≥ 41	9 (69.2)	4 (30.8)	
Ethnic group			2.387 (0.50)
Yoruba	88 (53.0)	78 (47.0)	
Igbo	15 (45.5)	18 (54.5)	
Hausa	4 (57.1)	3 (42.9)	
Others	17	9 (34.6)	
Marital Status			2.198 (0.33)
Single	19 (45.2)	23 (54.8)	
Married	104 (55.0)	85 (45.0)	
Divorced	1 (100.0)	0 (0.0)	
Religion			2.241 (0.10)
Christianity	115 (54.8)	95 (45.2)	
Islam	9 (42.9)	12 (57.1)	
Others	0 (0.0)	1 (100.0)	
Years in Residency (Years)			8.073 (0.01)*
2 nd – 4 th	28 (39.4)	43 (60.6)	
≥ 5 th	96 (59.6)	65 (40.4)	
Designation			5.951 (0.02)*
Registrar	22 (39.3)	34 (60.7)	
Senior registrar	102 (58.0)	74 (42.0)	
Type of Specialty			0.228 (0.63)
Medical Specialty	59 (55.1)	48 (44.9)	
Surgical Specialty	65 (52.0)	60 (48.0)	
Work hours on busiest day at work (hours)			1.174 (0.28)
≤ 8	13 (65.0)	7 (35.0)	
> 8	111 (52.4)	101 (47.6)	
Least busy day at work			7.448 (0.01)*
≤ 8	86 (60.6)	56 (39.4)	
> 8	38 (42.2)	52 (57.8)	

*Significant at $p < 0.05$

Table 3: Predictors of poor perceived health status

	Odds ratio	95% CI	P value
Workplace Stress	3.7	2.0 – 6.8	0.01*
Years in residency program	0.6	0.2 – 1.6	0.28
Designation	1.1	0.3 – 3.5	0.89
Work hours on least busy day at work	1.7	0.9 – 3.0	0.08

*Significant at $p < 0.05$

program, designation, and work hours on least busy day were also significantly associated with perceived health status of the resident doctors but they could not independently predict poor perceived health among the resident doctors as shown in Tables 2 and 3.

DISCUSSION

Adeolu *et al.* in 2016 reported 32% prevalence rate of workplace stress among junior doctors of UCH,

Ibadan which included the resident doctors, medical officers and house officers while Owolabi *et al.* in 2012 reported 26.2% prevalence rate of workplace stress among health workers of a mission hospital in Ogbomoso, Nigeria.^{3,10} Both studies were cross-sectional studies similar to this study but total sampling method was used in those studies as compared to stratified random sampling method used in this present study. In South Africa, a workplace stress prevalence rate of 78% was reported among the medical doctors

while in Mumbai, a prevalence rate of 37.3% was reported among resident doctors.^{4,30} Furthermore, a workplace stress prevalence of 66.5% was reported among the physicians in China while 66.2% of doctors and nurses reported workplace as stressful in Ahmedabad, India.^{31,32} In another study by Dave *et al.* in 2018, a workplace stress prevalence of 24.24% was reported among resident doctors at another medical institute in Ahmedabad, India. The prevalence rates of workplace stress in these studies ranged from 26.2% to 66.5%, and the prevalence found in this study was within the range. This variability in the prevalence rates of workplace stress in the above studies can be attributed to different samples sizes, different measurement instruments, and methodological approaches in the studies. The prevalence of workplace stress in this study among the resident doctors of UCH, Ibadan was 62.1%. This is slightly higher than the 54.7% reported in a cross-sectional study conducted among consultants, resident doctors and house officers by Oridota *et al.* in 2014 at the Lagos University Teaching Hospital (LUTH), Idi-Araba, Lagos.² This difference in prevalence rates might be because of the inclusion of other group of doctors (consultants and house officers) in the study by Oridota *et al.*²

One hundred and eight (46.6%) of the resident doctors perceived their health as poor. A much lower prevalence of poor perceived health status (21%) was reported by Miron *et al.* in a cross-sectional study conducted among Israeli physicians in 2019.¹² There is scanty literature on the prevalence rate of perceived health status of resident doctors but Chen *et al.* in 2013, in a systematic review, noted that the doctors' general physical health has been reported to be worse than that of the general population in China.⁵

In addition, from the results there was a significant association between workplace stress and perceived health status of the resident doctors. This is in agreement with what has been known in the literature that workplace stress negatively affects the health of an individual.^{5,12,22}

About 60% of registrars, those who are still young in the residency program, and who also spend more than eight hours at work on least busy day, perceived their health status as poor significantly. This was likely due to more workload for this group of doctors or other factors that may have contributed to their experience of workplace stress and indirectly affecting their perceived health status. This finding could not be compared with other studies due to dearth of related articles addressing the topic, however it is understandable how these factors are significantly

associated with perceived health status, even though they could not independently predict poor perceived health status.

CONCLUSION

The aim of the study was to determine the effect of workplace stress on the perceived health of the resident doctors at UCH, Ibadan. The study shows that the prevalence of workplace stress was 62.1% while the prevalence of poor perceived health was 46.6%. The study results also established that workplace stress had significant effect on the perceived health of the resident doctors at UCH, Ibadan.

Limitations of the Study

This study is also limited by its cross-sectional nature which hindered the establishment of causality between Workplace Stress and the Perceived Health Status. In addition, some other factors outside the workplace may have influenced the perception of workplace stress and their perceived health status among the resident doctors in this study.

Recommendations

Considering the high prevalence rate of workplace stress among the resident doctors, it is recommended that workplace stress be addressed among resident doctors who are essential medical workforce in various healthcare institutions. This would help to improve their perceived health status, and healthcare services being rendered to patients.

It is also recommended that a multicenter assessment of the perceived health status of resident doctors be carried out across the Nigeria and Africa in order to increase its knowledge and compare the perceived health status, with the aim to improve the health status of the resident doctors.

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Conflict of Interest

There is no financial or personal relationship that may have inappropriately influenced the writing this article.

Authors Contribution

All authors contributed to the design and implementation of the research, the analysis of the results, and the writing of the manuscript.

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Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy and ethical restrictions.

REFERENCES

1. **Bangal VB**, Shinde KK, Gavhane SP. Stress at the workplace during residency training. *International journal of biomedical research*. 2012;3(9):381.
2. **Oridota E**, Owolabi T, Akanmu O, *et al*. Stress Patterns and its Coping Strategies Among Physicians in a Teaching Hospital in Nigeria. *UNILAG Journal Basic Medical Sciences*. 2014;2(1):3–6.
3. **Adeolu JO**, Yussuf OB, Popoola OA. Prevalence and Correlates of Job Stress Among Junior Doctors in the University College Hospital, Ibadan. *Annals of Ibadan Postgraduate Medicine*. 2016;14(2):92–98.
4. **Govender I**, Mutunzi E, Okonta HI. Stress among medical doctors working in public hospitals of the Ngaka Modiri Molema district (Mafikeng health region), North West province, South Africa. *South African Journal of Psychiatry*. 2012;18 (2): 42–46.
5. **Chen X**, Tan X, Li L. Health problem and occupational stress among Chinese doctors. *Chinese Medicine*. 2013;4(March):1–6.
6. **Aslam HD**, Mansoor N, Suleman Q. Analysis of Level of Stress among Doctors in Public and Private Hospitals of Pakistan. *International Journal of Learning & Development*. 2014;3(2):109–35.
7. **Ogunnubi OP**, Ojo TM, Oyelohunnu MA, *et al*. Stress and training satisfaction among resident doctors in Nigeria: Any justification for a change in training policy? *Journal of Clinical Sciences*. 2018;15(1):32–40.
8. World Health Organisation. Stress at the workplace [Internet]. Stress at the workplace. 2015 [cited 2017 Mar 8]. Available from: http://www.who.int/occupational_health/topics/stressatwp/en/#
9. International Labour Organization (ILO). Workplace Stress: a Collective Challenge [Internet]. Cambridge University Press. 2016. 1–30 p. Available from: www.ilo.org/safeday
10. **Owolabi AO**, Owolabi MO, Olaolorun AD, Olofin A. Work-related stress perception and hypertension amongst health workers of a mission hospital in Oyo State, south-western Nigeria. *African Journal of Primary Health Care and Family Medicine*. 2012;4(1):1–7.
11. **Adisa TA**, Mordi C, Mordi T. The Challenges and Realities of Work-Family Balance among Nigerian Female Doctors and Nurses. *Economic Insights - Trends & Challenges*. 2014;66(3):23–37.
12. **Miron RW**, Malatskey L, Rosen LJ. Health-related behaviours and perceptions among physicians: Results from a cross-sectional study in Israel. *BMJ Open*. 2019;9(9):1–8.
13. OECD. Perceived health status [Internet]. Health at a Glance 2015: OECD Indicators. 2015 [cited 2016 Dec 6]. p. 62–3. Available from: http://www.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-2015/perceived-health-status_health_glance-2015-14-en
14. Organization for Economic Cooperation and Development. Health at a Glance 2013 Demographic trends [Internet]. OECD Publishing. 2013 [cited 2017 Feb 22]. 170 p. Available from: <https://www.oecd.org/els/health-systems/Health-at-a-Glance-2013.pdf>
15. **Ruitenburt MM**, Frings-Dresen MHW, Sluiter JK. The prevalence of common mental disorders among hospital physicians and their association with self-reported work ability: a cross-sectional study. *BMC health services research*. 2012;12(1):292–298.
16. **Araújo EF**, Viana RT, Teixeira-Salmela LF, *et al*. Self-rated health after stroke: A systematic review of the literature. *BMC Neurology*. 2019;1–14.
17. **Machón M**, Vergara I, Dorronsoro M, *et al*. Self-perceived health in functionally independent older people: Associated factors. *BMC Geriatrics*. 2016;16(1):1–9.
18. **Bonner WIA**, Weiler R, Orisatoki R, *et al*. Determinants of self-perceived health for Canadians aged 40 and older and policy implications. *International Journal for Equity in Health*. 2017;16(1):1–9.
19. **Idubor E**, Aihie JO, Osariyekemwen G. The effect of occupational stress on health status of public officers/: The case of Nigeria police. *International Journal of Development and Sustainability*. 2015;4(4):398–414.
20. **Kraja F**, Kraja B, Cakerri L, Burazeri and. Socio-demographic and Lifestyle Correlates of Self-perceived Health Status in a Population-based Sample of Albanian Adult Men and Women. *Materia Socio Medica*. 2016;28(3):173.
21. **Paul P**, Hakobyan M, Valtonen H. The association between self-perceived health status and satisfaction with healthcare services: Evidence from Armenia. *BMC Health Services Research*. 2016;16(1):1–13.

22. **Sohail M.** Stress and Health at the Workplace-A Review of the Literature. *Journal of Business Studies Quarterly*. 2015;6(3):94–121.
23. **Issa BA,** Yussuf AD, Olanrewaju GT, Oyewole AO. Stress in Residency Training as Perceived by Resident Doctors in a Nigerian University Teaching Hospital. *European Journal of Scientific Research*. 2009;30(2):1450–216.
24. **Singh A,** Masuku M. Sampling Techniques & Determination of Sample Size in Applied Statistics Research: an Overview. *International Journal of Economics, Commerce and Management*. 2014;II(11):1–22.
25. **Easton S,** Laar D Van. Work-Related Quality of Life (WRQoL) Scale. A Measure of Quality of Working Life. First Edition. Portsmouth: University of Portsmouth; 2012.
26. **Oyeyemi AY,** Sedenu BU. Perceived Health Status of Nigerian Immigrants in New York City. *Fizyoterapi Rehabilitasyon*. 2010;21(2):87–95.
27. **Bolarinwa O,** Ameen H, Sanya E, *et al.* Pattern and predictive factors of health-related quality of life of patients with hypertension, diabetes and concomitant hypertension with diabetes in Ilorin, Nigeria. *Nigerian Postgraduate Medical Journal*. 2016;23(4):182.
28. Optum (United Health Group - formerly Quality Metric). SF Health Surveys [Internet]. Campaign Optum.com. 2016 [cited 2017 Mar 24]. Available from: <https://campaign.optum.com/optum-outcomes/what-we-do/health-surveys/sf-36v2-health-survey.html>
29. **Maruish ME.** New SF36v2 User Guide. [Internet]. 3rd Editio. 2011. 325 p. Available from: <https://fta2.qualitymetric.com/courier/web/1000@/wmDownload.html>
30. **Sahasrabuddhe AG,** Suryawanshi SR, Bhandari S. Stress Among Doctors Doing Residency/ : a Cross-Sectional Study at a Tertiary Care Hospital in the City of Mumbai. *National Journal of Community Medicine*. 2015;6(1):21–4.
31. **Wang Z,** Xie Z, Dai J, *et al.* Physician burnout and its associated factors: A cross-sectional study in Shanghai. *Journal of Occupational Health*. 2014;56(1):73–83.
32. **Parmar K,** Solanki C, Parikh M, Vankar GK. Gender Differences in Stress at Work Place among Doctors and Nurses. *GCSMC Journal of Medical Sciences*. 2015;4(2):108–13.