
Prevalence and Pattern of Work-related Stress and Fatigue Among Workers at the University of Port Harcourt.

Nkporbu a. K¹ , Douglas K. E²

¹Department of Neuropsychiatry,

² Department of Preventive and Social Medicine, University of Port Harcourt Teaching Hospital, Port Harcourt

Correspondence; Dr Nkporbu A.K (MBBS, M.Sc Pharmacol, MPH, FWACP)

ABSTRACT

BACKGROUND: Work and work environment are important influences on both health and productivity. Psychosocial hazards, including work place stress and fatigue may be assuming a deleterious trend in occupational health and safety, especially in developing countries like Nigeria

AIM: The study was to assess the prevalence and pattern of work –related psychosocial stress and fatigue among Workers at the University of Port Harcourt, Nigeria.

METHODOLOGY: Following approval from the Ethical Committee of the University, 600 consenting staffers of the University were recruited by systematic random sampling and pretested structured closed ended self-administered questionnaires were distributed among them including a work through survey. Results were presented using descriptive and analytical methods.

RESULTS: The prevalence of work-related stress was 62.2% while of the factors studied under work-related fatigue, environment stress was the most prevalent with 56.0% , followed by mentally and physically demanding work with 34.1%. Work-related stress was regular with 8.6%. and under work-related fatigue, environmental stress was most regular with 9.9% (n=), followed by Mentally & physically demanding work, with 2.5% regular in occurrence.

Conclusion: Work-related stress and fatigue among workers at the University of Port Harcourt is common. There is need to institute appropriate occupational health and safety measures to reduce work –related stress and fatigue.

Keywords: Work-related-stress, Fatigue, Workers, Tertiary Institution.

INTRODUCTION

Recently, workplace environments in both public and private sectors have been increasingly characterized by heightened pressure on employees to perform at progressively higher levels, sometimes with longer working hours, reduced staff strength, insecure employment patterns and employer empowerment, with unmatched reward system^{1,2,3,4,5}. There is also pressures of

competitions among organizations as they aim to maximize profit and minimize costs⁶. This however places on the employees increased demand for higher productivity, greater accountability and profitability^{7,8,9,10}.

All these factors have been identified to invariably contribute to creating a stressful and an unfriendly work environment and hence increase the risks of psychological problems¹¹. Stress is now recognized in health and safety legislation as a workplace hazard, namely a 'psychosocial hazard'^{12,13}. Issues such as work-related stress and fatigue are now widely recognized as major challenges to and in occupational health and safety¹⁴. This has made workplace stress and employee's optimal functionality, performance and wellbeing, areas of growing importance for organizations, regulators and indeed occupational health and safety^{14,15}.

Psychosocial hazards also refer to the mental stresses of work^{16,17}. It equally includes the generally known sources and areas of fatigue and stress that are present in nearly all work places^{18,19}. Psychosocial hazards are inherent in the total stress caused by work, work structure, design and regulation, and therefore is an integral part of an overall assessment of risks at work places²⁰⁻²³.

The impact of these hazards exert enormous on the worker as well as the workplace^{16,18}. They impact negatively on the health and safety of employees and the healthiness and vibrancy of organizations in terms of, among other things, productivity, quality of products and services and general organizational climate^{17,24-29}. Psychosocial hazards go hand in hand with the experience of work-related stress. Work-related stress has equally been looked at as the response people may have when presented with work demands and pressures that are not matched to their knowledge and abilities and which challenge their ability to cope and function effectively and productively at work²⁹⁻³⁴. The performance of any organization is as good as the health and wellbeing of its workers^{7,21}. The performance of the workers is the unit of measurement of the success of any organization.

Workers often may become stressed when faced with work demands and pressures that are not matched to their knowledge, experience and technical abilities and which challenge their ability to cope^{24-29,35}. Stress is often aggravated when employees feel they have little support from supervisors and colleagues or little control over work, absence of some measure of independence or how they can cope with its demands and pressures. While stress can gradually accumulate over time, it can also occur following specific incidents involving bullying, occupational violence and trauma^{19, 36}. This is how the World Health Organization describes stress in its publication *Work Organization & Stress*³⁷.

Stress can lead to the following; frustration, emotional symptoms like anxiety, distress and emotional exhaustion^{25,38-39}, physical symptoms such as headaches, tiredness, shortness of breath, heart palpitations, sweating, indigestion, blurred vision, muscle tension or aching neck and shoulders; behavioural change such as irritability, excessive worrying and difficulty sleeping, leaving work early and/or working late, taking work home, absenteeism or increased sickness

absence; and confusion and difficulty concentrating or making decision, poor attention to details and muddled thinking^{18,36,40,41,42}.

Fatigue is an acute or chronic state of tiredness that can affect employee performance, safety, health and wellbeing. It affects the physical and mental capacities needed for optimum work performance, increasing the risk of workplace incidents, mistakes of omissions and commission, and eventual decline in organizational productivity.

Fatigue can also add to workplace conflict, absenteeism, poor performance and mistakes that result in physical injuries or compromised client care^{37,39}. When the brain is fatigue, the rate of assimilation and comprehension reduces, so the worker is unable to listen to and pay attention to details and directive from bosses. Similarly the capacity to recall simple and complex work steps and procedures reduces. All these make the work prone to making mistakes. Again, tolerance level of the employee decreases with increased irritability level. These often cause unnecessary disaffections among workers and disrupt interpersonal relationships²⁴.

Work related fatigue affects not only employee health and safety, but the health and safety of others as well. Many potential causes of fatigue are present in community services work places. These may include: mentally and physically demanding work; long periods of time awake (e.g. long hours of work extended by long commuting times); inadequate amount or quality of sleep (e.g. when 'on-call'); regular work at night; environmental stresses (e.g. noise, heat); and work requirements or systems of reward (pay, recognition or promotion) that provide incentives to work longer and harder than may be safe.

Prolonged stress and fatigue can have detrimental effects on physical and mental health⁴²⁻⁴³⁵. These include: sleep disorders; gastrointestinal complaints; headaches; nausea; depression, mood disturbances; and other psychiatric disturbances, cardiovascular disease; irregular menstrual cycles; and problems associated with the disruption of medication regimes for medical conditions (for example, insulin for diabetes)^{46,47}. Prolonged stress and fatigue have also been documented to affect the immunity of those so exposed. This may tend to expose workers to infectious diseases. The study was to assess the prevalence and pattern of work –related psychosocial stress and fatigue among Workers at the University of Port Harcourt.

MATERIALS AND METHODS

3.1 Study Area

This study was conducted among workers of the University of Port Harcourt (UNIPOINT). The University of Port Harcourt, formally known as University College Port Harcourt, is a federal tertiary institution of learning and covers a large catchment area including the neighbouring states. As the capital of Rivers State and the hub of oil exploration, Port Harcourt is highly industrialized and cosmopolitan in nature, harbouring people of different ethnic backgrounds.

The University currently has a staff strength of about four thousand six hundred and fifty five (4655) workers catering for a student's capacity of between 60,000 to 70,000.

3.2 Study Design/Population

This is a descriptive cross-sectional study. The study group consisted of permanent staff of the University of Port Harcourt. They consisted of randomly selected permanent staff of all cadres in the work places, made up of both junior and senior staff, who have worked in their respective Departments and Units for at least a period of two years.

3.5 Sample size

The sample size 600 was calculated using the formula for comparison of proportions by Araoye⁴⁸.

3.7 Study Instruments

These include

1. A well-structured open ended socio-demographic and study questionnaire: The structured questionnaire was written in simple English and contained sections on socio-demography and psychosocial hazards.
2. A Walk through Survey, using an adopted checklist. It is an on the spot, impromptu, unannounced, uninformed, immediate assessment of any work place to access work place conditions, safety, risk assessment and possible hazards, further investigations and remediation. Most hazards and risks identified during a Walk Through can be directly or indirectly linked or associated with occupational diseases or work related ill-health.

3.12 Data Presentation

Data were presented using tables, figures and graphs.

3.14 Ethical Consideration

Ethical clearance to conduct the study was obtained from the ethical and scientific committee of the University of Port Harcourt. Every participant in the project was informed adequately about the nature, extent, and purpose of the research. They were required to sign a Consent Form and were enlisted only after they had given their consent. Any affected staff or cases of negative finding during the Walk through Survey were treated with utmost confidentiality. Participants needed not disclose their identity and neither the identity of involved bosses and subordinates as perpetrators. Any such affected individual was offered counseling and other forms of psychosocial supports with informed consent.

RESULTS

Table 1: Socio Demographic Characteristics of Respondents

Variables	Frequency	% experienced	% not experienced	Statistical Analysis (ANOVA)
<u>Age</u>				
18-25 yrs	50	26(52%)	24(48%)	df = 5 p= 0.041
26-35	101	69(68%)	32(32%)	
36-45	199	136(68.3%)	63(31.7%)	
46-55	148	98(66.2%)	50(33.9%)	
56-65	41	16(39%)	25(61%)	
66-75	19	6(31.6%)	13(68.4%)	
<u>Gender</u>				
Male	299	187(62.5%)	112(37.5%)	df = 1 p= 0.972
Female	259	209(80.7%)	50(19.3%)	
<u>Marital status</u>				
Married	452	273(60.4%)	179(39.7%)	df = 4 p= 0.740
Single	71	49(69%)	22(31%)	
Separated	7	5(71.4%)	2(28.6%)	
Divorced	15	12(80%)	3(20%)	
Widowed	13	8(61.5%)	5(38.5%)	
<u>Level of Education</u>				
Primary	12	5(41.7%)	7(58.3%)	df = 2 p= 0.001
Secondary	45	34(75.6%)	11(24.4%)	
Tertiary	501	308(61.5%)	193(38.5%)	
<u>Religion</u>				
Christianity	523	318(60.8%)	205(39.2%)	df = 2 p = 0.07
Islam	35	19(54.3%)	16(45.7%)	
Traditional	-	-		
<u>Tribe</u>				
Ikwerre	117	77(65.8%)	40(34.2%)	df = 4 p = 0.038
Ogoni	64	41(64.1%)	23(35.9%)	
Ijaw/Kalabari	59	33(55.9%)	26(44.1%)	
Etche/Ogba	34	15(44.1%)	19(55.9%)	
Others	284	181(63.8%)	103(36.3%)	
<u>Living place</u>				
Urban	245	136(55.5%)	109(44.5%)	df = 2 p = 0.236
Semi Urban	211	125(59.2%)	86(40.8%)	
Rural	102	82(80.4%)	20(19.6%)	

The most prevalent age group was 36-45 with 199 (35.7%). Out of the total respondents, 299 (53.6%) were male while 259 (46.4%) were female. See table 1 above

Table 2: Showing various Categorizations of workers at the University of Port Harcourt

Variables	Frequency	% experienced	% not experienced	Statistical Analysis (ANOVA)
Place of work				
College of Health Sciences	58	32(55%)	26(45%)	df = 16 p = 0.678
College of Engineering	57	41(72%)	16(28%)	
College of Natural and Applied Sciences	58	47(81%)	11(19%)	
College of Continuous Education	42	31(73.8%)	11(26.2%)	
Faculty of Law	35	19(54%)	16(46%)	
Faculty of Humanities	37	18(49%)	19(51%)	
Faculty of Education	37	16(43.2%)	21(56.8%)	
Faculty of Management	36	21(58.3%)	15(41.7%)	
Faculty of Social Sciences	35	21(60%)	14(40%)	
Faculty of Agriculture	34	17(50%)	17(50%)	
School of Graduate Studies	29	16(55.2%)	13(44.8%)	
School of Basic Studies	34	18(52.9%)	16(47.1%)	
Central admin	51	42(82.4%)	9(17.6%)	
Bursary	5	2(40%)	3(60%)	
Information and Communication Studies	4	3(75%)	1(25%)	
Security	4	1(25%)	3(75%)	
Works	3	2(66.7%)	1(33.3%)	
Employment Rank				
Academic	481	283(58.9%)	198(41.2%)	df = 1 p = 0.968
Non Academic	77	54(70.1%)	23(29.9%)	
Category of Academic Staff				
Graduate Assistant	36	17(47.2%)	19(52.8%)	df = 8 p = 0.668
Assistant Lecturer	61	34(55.7%)	27(44.3%)	
Lecturer II	122	85(69.7%)	37(30.3%)	
Lecturer I	132	98(74.2%)	34(25.8%)	
Senior Lecturer	96	36(35.5%)	60(62.5%)	
Reader	9	4(44.4%)	5(55.6%)	
Professor	17	7(41.2%)	10(58.8%)	
Contract Staff	5	2(40%)	3(60%)	
Staff on Sabbatical	3	0(0%)	3(100%)	
Category of Non Academic Staff				
Cleaner	15	11(73.3%)	4(26.7%)	df = 7 p = 0.618
Technician	5	3(60%)	2(40%)	
Dispatcher	10	6(60%)	4(40%)	

Computer Operator	20	15(75%)	5(25%)	
Secretariat Staff	-	-	-	
Account Staff	-	-	-	
Admin Staff	12	10(83.3%)	2(16.7%)	
Senior Admin Staff	15	9(60%)	6(40%)	
Category of Staff				
Junior Staff	42	35(83.3%)	7(16.7%)	df = 1
Senior Staff	516	312(60.5%)	204(39.6%)	p = 0.985
Duration of Employment				
2-10	301	194(64.5%)	107(35.5%)	
11-20	190	129(67.9%)	61(32.1%)	
21-30	53	21(39.6%)	32(60.4%)	df = 5
31-40	14	3(21.4%)	11(78.6%)	p = 0.944
41-50	-	-		
>50	-	-		

College of natural and applied sciences has the highest number of workers who had experienced work-related stress with 47(81%) n=58, followed by college of continuous studies with 31(73.8%) n=42. Experience of work-related stress was more among the non academic staff with 54(70.1%) as well as junior staff with 35(83.3%) compared to academic and senior staff respectively. See table 2 above.

Table 3: Showing the Prevalence of Psychosocial Hazards among Workers at University of Port Harcourt

S/N	Psychosocial hazards n = 558	% of people who have experienced psychosocial hazards	% who have not experienced psychosocial hazards	Of the number who has experienced psychosocial hazards	
				Junior Staff n = 42	Senior Staff n = 516
5.	Work-related stress				
	a. Work-related stress	347 (62.2)	211(37.8)	41(97.7)	306(59.3)
7.	Work-related fatigue				
	a. Mentally & physically demanding work.	190 (34.1)	368(65.9)	31(73.8)	159(30.9)
	b. Long periods of time at work.	47 (8.5)	511(91.6)	41(97.6)	6(1.2)
	c. Inadequate amount of quality sleep.	43 (7.7)	515(92.3)	36(85.8)	7(1.3)
	d. Regular work at night.	27 (4.8)	531(95.2)	19(45.2)	8(1.5)
	e. Environmental stress.	312 (56)	246(44.1)	38(90.5)	274(53.1)

The prevalence of work-related stress was 62.2% (n=349).For psychosocial hazards that fall under work related fatigue, environmental stress had the highest occurrence with 312 (56%), followed by mentally & physically demanding work with 190 (34.1%), while regular work at night was the least with 4.8% (n=27). See table 3 above.

Table 4: Showing the frequency of occurrence of psychosocial hazards among workers of University of Port Harcourt

S/N	Psychosocial hazards		Very Regular	Regular	Occasional	Rare (does not occur)
5.	Work-related stress b. Work-related stress	558	0(0.0)	48(8.6)	299(53.6)	211(37.8)
7.	Work-related fatigue a. Mentally & physically demanding work. b. Long periods of time awake. c. Inadequate amount of quality sleep. d. Regular work at night. e. Environmental stress.	558 558 558 558 558	2(0.4) 0(0.0) 2(0.4) 1(0.2) 5(0.9)	14(2.5) 11(2.0) 9(1.6) 3(0.5) 55(9.9)	174(31.2) 36(6.5) 32(5.7) 23(4.1) 252(45.2)	368(65.9) 511(91.6) 515(92.3) 531(95.2) 246(44.1)

Work-related stress was regular with 8.6%. Under work-related fatigue, environmental stress was most regular with 9.9%(n=), followed by Mentally & physically demanding work, with 2.5%..See table 4 above.

4.10 Results of Walkthrough Survey

This was carried out within the University work place. As a background, the Walkthrough showed that the University has some facilities like medical centre, nursery, primary and secondary schools, two filling stations, senior staff club, a gym, information and communication technology centres, a drama theater, swimming pool, a mosque and two chapels for worship. The University is also equipped with five different banks spread across the three campuses that cater for the financial transaction needs of both students and workers. There is also a food stuff and general commodities market called Choba Market located adjacent both Choba and Delta Park campuses. The benefits of all these facilities will include among others to ease life around and within the campuses, reduce the stress of having to travel long distances to access these facilities and services.

The researchers found work schedule, guidelines for staff appointment and promotion and ascertained its fairness. Some of the offices have air-conditioners while a good number do not have. Almost all the classrooms and lecture halls were without air conditioner and most of the ceiling fans have broken down. The number of classrooms and lecture halls were still not adequate relative to the number of students and the different programmes being run by the University. Many of the general administrative and academic staff offices were occupied by average of 5 staff per office. However, offices of the principal and very senior staff of the University were adequately furnished and made conducive. There were a number of high rising buildings but none of them has lift facilities.

Many of the staff interacted with during the work-through survey remarked that power supply in the University is still inadequate and as a result they work under hot and unfriendly atmosphere. Majority of the internal roads were good while very few were in deplorable conditions. All the gates leading to the three campuses are mounted by security official. Cleaning is equally contracted to a private security firm.

The University operates some welfare packages including overtime and leave bonuses, travel allowances for principal officers, Christmas packages, staff biological children admission concession, small scale credit loan facilities and conferences sponsorship for staff. However, some of the welfare packages have not been consistent and very effective.

After the work-through survey, separate meetings were held with the representatives of the University management, staff union, and a third meeting with both groups. During the meetings, a detail report of the work-through was presented. In the meeting with the staff representative, purpose of the meeting, aim of the study and the need for the work-through were all explained to the attendees. They made their contributions, commendations and pointed out areas of short falls as well as displeasures^{7,26,49}.

4.11 Discussion

From the study, the age group that had the highest prevalence of psychosocial hazards was age of 36-45 years, followed by that of 26-35 years. This are also the age groups that were most represented in the study. This is expected because this age ranges from the most active age of the work force, with possibly the highest experience and as such, they may be under active pressure to perform and deliver as well as passing on the skills to others. It suffices to mention that most employers make this age range a criterion for employment (Wegman, 2006). There was a statistically significant relationship between age and experience of psychosocial hazards ($p=0.041$).

Males were predominant in the study. This is supported by previous study.⁵³ This may equally simply reflect the recruitment pattern of the University. However, more females tended to have experienced psychosocial hazards reflecting reports in available literature⁵⁰⁻⁵³. This relationship however was not statistically significant ($p = 0.972$). Despite the fact that majority of the respondents were married, the single appeared to have recorded the highest prevalence of experiences of psychosocial hazards. This may reflect the fact that singlehood may offer some subtle higher vulnerability to exposure to the different forms of psychosocial hazards^{50,54}. However, the relationship between marital status and experience of psychosocial hazards was not statistically significant ($p=0.740$).

Majority of the respondents had tertiary education reflecting the fact that this is a tertiary institution of learning and as such most of the recruitment will be based on possession of a tertiary level degree. This may also be related to why majority of the respondents were academic staff.

The study found that those with lower level of education (lower academic qualification refers to primary and secondary education) experience higher prevalence of psychosocial hazards compared to those who possess higher academic qualification. The relationship between level of education and experience of psychosocial hazards was found to be statistically significant ($p=0.001$). This finding is consistent with previous studies which have noted that experience of psychosocial hazards is more prevalent in lower socioeconomic occupations and disadvantaged occupational classes⁵⁵. It also supports earlier studies that have recognized socio-economic inequalities among workers and experience of work place stress and fatigue, adding that indeed, the lower the socioeconomic class, the higher the risk of exposure to adverse and stressful working conditions^{30,31}, with consequent increased vulnerability to poorer health⁵⁵. This may also reflect the fact those with higher level of education will naturally be placed at higher position and as such would play the role of bosses and have tendency to give order, command and possibly exert rulership which may sometime be unfriendly over their subordinates.

Similar explanation goes why the academic staff had lower prevalence of psychosocial hazards compared with non academic staff. This finding may be considered along the line that non academic staff most time battle to contain the pressures from both students and the academic staff as well. Some of them are junior staff and may even serve in the capacity of subordinate to bosses who most often may be an academic staff. As such, they may be bound to take directives from their bosses, even when such directives are not very pleasant to them.

Additionally, those of them that are still junior staff may not be opportuned to enjoy the luxuries of life compared to the academic staff. These may include remunerations, certain allowances and mobility. Also, in majority of cases, they carry higher work load and directly bear the burden of pressures from students compared to the academic staff. These may combine to put them in a more vulnerable position to experience greater psychosocial hazards compared to the academic staff^{44,45,50,57}.

Majority of the respondents were indigenes of Rivers State. This may simply be a reflection of the fact that the University is situated in Rivers State. However, there was a statistical relationship between ethnicity and experience of psychosocial hazards in this study ($p=0.038$). This finding agrees with earlier documentation that for minority groups, ethnic discrimination is a stronger predictor of health outcomes than are traditional job stresses⁵⁸.

From the study, the prevalence of work-related stress was 62.2% ($n=349$). Work related stress was studied as a single item and finding from the study indicated that it is common among workers at the University of Port Harcourt. Work-related stress could occur from several factors at the work place due to discrepancies between abilities, skills, job demands and expectation, poor management practices, lack of participation in decision-making, faulty working tool and equipment, hostile environment and many others.

Without doubt, one of the most researched long-term consequences from exposure to psychosocial risk factors is work-related stress⁵⁹. Stress among Workers has been conceived as

the result of detrimental working conditions,^{5,22,60,61} but also as causing poor physical and mental health^{59,62}. Stress is sometimes caused by poor match between workers and their work^{63,64} by conflicts between our roles at work and outside it, and by not having a reasonable degree of control over our own life⁶⁴.

A strong association exist between work place stress and development of physical²⁸ and psychological illnesses.⁴⁴ Although this study did not assess the physical health of the respondents, physical illnesses may accompany particularly persistent and prolonged exposure to psychosocial hazards,^{43,45,47} and they have all been found to have great negative impact on work performance and productivity.⁶¹ Psychosocial hazards including workplace stress equally affect the workers wellbeing and quality of life.⁵⁰

For psychosocial hazards that fall under work related fatigue, environmental stress was most prevalent, followed by mentally& physically demanding work while regular work at night was the least. This finding may simply be a reflection of the fact that ninety five percent of the staff of the university undertakes day time work and only about less than five percent do night work, and these are the security staff. This is expected as environmental stress has continued to constitute major setback to many workplaces. These may be brought about by many deficient conditions including poor power supply both to work with and to reduce the heat experienced in the offices, poor maintenance and replacement culture, which make workers strain themselves to while working. Working with poor performing equipment has being found to predispose to both physical and psychological disorders⁴³⁻⁴⁵. Earlier studies have shown evidence that exposure to poor equipment and work station design, in conjunction with poor task design and work organization give rise to work- related upper limb disorders⁴².

The above finding is equally also significant as studies have earlier noted that prolonged fatigue can have detrimental effects on physical and mental health^{42,44,45,56,57}. These include sleep disorders; mood disturbances; gastrointestinal complaints; headaches; nausea; depression and other psychiatric disturbances, cardiovascular disease; irregular menstrual cycles; and problems associated with the disruption of medication regimes for medical conditions (for example, insulin for diabetes).

Conclusion

Conclusion: Work-related stress and fatigue among workers at the University of Port Harcourt is common. There is need to institute appropriate occupational health and safety measures to reduce work –related stress and fatigue.

5.3 Recommendations

1. It is recommended that periodic in-service training (PIT) for staff of the University organised. Such training will focus on psychosocial hazards and occupational safety at workplaces.

2. Also strong consideration of establishment of an Occupational Risk and Hazard Management/ Occupational Rehabilitation Centre that will carry out periodic awareness-raising campaigns, and educational activities on prevailing occupational risk factors and how they can be avoided.

5.5 **Limitation of the Study**

1. There have been very few studies on this subject in this environment, as such; it was difficult to find studies with which to compare the findings in this study.

Conflict of interest: None to declare

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