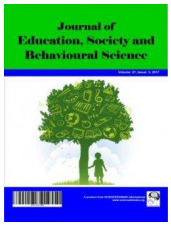

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Occupational Psychosocial Stress among Staff of the University of Health and Allied Sciences, Ho, Ghana

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Authors' contributions

This work was carried out in collaboration between all authors. Authors DDA, SK, JKA, FWMY, JOY, Eric Agboli, FKN, ASR, EKO, DA, ROM, BT and Enos Azada designed the study, performed the statistical analysis and wrote the first draft of the manuscript. Authors DDA, SK, JKA, FWMY, JOY, FKN and Enos Azada managed the analyses of the study. Authors DDA, SK, JKA, FWMY, JOY, FKN, Eric Agboli, ASR, EKO, DA, ROM, BT and Enos Azada managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Aim: This study was conducted among the staff of a new public university that provides health and related sciences education in Ghana. The aim of this research was to find information on the prevalence and patterns associated with occupational stress among the tutorial and administrative staff of the University of Health and Allied Sciences.
Methods: Using a descriptive survey, the study employed the Effort-Reward Imbalance scale to solicit information from both the tutorial and administrative staff of the university. Questionnaires were used to collect information from 59 respondents consisting of 45 males and 14 females.
Results: The study population presented a stress prevalence rate of 44.07% which was higher among the female respondents (64.29%). Staff with Diploma (50.00%) and First Degrees (50.00%) presented high levels of stress. Staff performing dual roles and those performing only administrative roles recorded high prevalence of 55.56% and 50.00% respectively. Regarding the component stressors, there was a high record of Effort-Promotion Imbalance (61.02%), Effort-Esteem Imbalance (50.00%) and Over Commitment-Promotion Imbalance (62.50%) predominantly among respondents who were less than 30 years old. In this study, high levels of occupational psychosocial stress exist, which is mainly influenced by gender, age, level of education and work roles.
Conclusion: The creation of an enabling working environment with clearly defined expectations and rewards will help university staff to appreciate whatever return they receive for their outputs.

Keywords: Effort-Reward Imbalance scale; stress; component stressors; university staff; Ghana.

1. INTRODUCTION

Gandi and his colleagues have posited that stress involves cognitive appraisals, physiological reactions and behavioural tendencies that occur in response to a perceived disparity between situational demands and the resources needed to cope with them [1]. Thus, it is a display of how the human body reacts to the need for mental amendment. Work-related stress includes a variety of conditions, such as overwork, unemployment or job insecurity, and lack of work-family balance [2]. Job stress has been linked to a range of adverse physical and mental health outcomes, such as cardiovascular diseases, insomnia, depression, and anxiety [2]. It must also be emphasised that stressful working settings can directly or subtly influence the well-being of employees, which may also lead to poor health behaviours or restrain workers' ability to positively amend their lifestyle behaviours, such as smoking, and sedentary behaviours [2,3]. Even though stress is generally adaptive, Hasson and Gustavsson have asserted that long-term exposure to stress without sufficient recovery may cause various adverse health consequences and diseases [4]. Ample studies have shown the relationship between stress and an increased jeopardy of impoverished mental and physical health outcomes among workforces [5–8]. Psychosocial risks and work-related stress are among the most perplexing concerns in the corporate enterprise, impacting exclusively not only on the well-being of individuals, but also on the structure of organisations, and businesses as well as on national economies [9].

Chronic stress results from a disparity in personal traits, resources and the demands placed upon an individual by social and occupational situations [10]. It has been reported that female managers in Ghana are more likely to experience stress in the workplace than their male counterparts [11]. In a study on job stress and job satisfaction among security officers, Agyemang and Arkorful observed that officers in preventive services were found to have experienced greater job stress compared to officers in custom and excise services [12].

In educational institutions, stress has been mentioned as a major concern bothering workers all over the world [13]. Atindanbila reported that the school environment was the major stressor for university lecturers [14]. Various disparities in stressors have been reported among employees in newly created higher educational institutions compared to old established ones [15,16]. Winefield and colleagues in a national survey of stress among Australian universities reported that employees in newly established universities suffer from higher levels of job insecurity, work–home conflict, and lower levels of organizational

commitment [16]. Among the spectrum of stressors identified in a nationwide survey of stress among universities in the United Kingdom, Tytherleigh and friends reported that workers in new universities experienced higher levels of stress from their job overall, lower levels of commitment from their universities, and lower physical health [15]. Thus, different dynamics may be at play in the occupational psychosocial stress in new universities compared to older ones.

Even though there is an increasing research output on occupational stress and its causes, effects and management, there is a dearth of literature on occupational stress among university workers in Ghana. The setting for the current study is a newly established university without any policy on occupational stress and coping strategies for it employees. However, an important initial step in prioritising, formulating and implementing any successful policy intervention and strategies is the assessment and establishment of the current levels of occupational psychosocial stress among the employees. Therefore, this descriptive study, sought to establish the occupational psychosocial stress among both tutorial and administrative workers in a newly established public university in Ghana. It further sought to identify the various psychosocial stress components and how they interact to balance the stress level of workers.

2. METHODS AND MATERIALS

This descriptive survey used self-administered questionnaires containing various demographic data including age, gender, marital status, job description, educational background, and the number of children under 13 years a respondent has. It also used a previously validated self-administered questionnaire which sought information on prevalence and pattern of associated job psychosocial stress (Effort-Reward Imbalance Scale – ERI) [17]. The ERI scale was used to assess the self-perceived work-related stress of respondents in this study. The scale included almost all the stressors encountered by the respondents. This scale included three (3) parts (Effort, Reward and Over-Commitment) with 22 items. The Effort part includes 6 items, with Reward containing 10 items and Over-Commitment involving 6 items. Respondents were asked to indicate on a four-point Likert scale how frequently they experienced such stressful situations at work. The scores were from 1 (Strongly disagree) to 4 (Strongly agree). This survey had a population comprising administrative and tutorial staff of the University. In total, 59 out of 98 eligible staff, representing response rate of 60.20% participated.

2.1 Ethical Considerations

The research work was anonymous and non-linked. Confidentiality of response was assured. All participants read and understood the objectives of the study and consented by writing to participate in the study.

2.2 Effort-Reward Imbalance (ERI) Model

Over the years, various models have been used to measure and understand work-related stress. These models enable researchers to do theory-based assessments and occupational interventions to prevent the adverse effects of stress [18]. Frequently used models to measure stress include the Effort–Reward Imbalance (ERI) model by Siegrist, which conceptualises stressful working conditions as efforts exceeding rewards [19]. The Job-Demand-Control (JDC) model by Karasek and Theorell, also defines work-stress as high job demands paired with low job control [20]. Again, the Organizational Justice (OJ) model by Cropanzano and colleagues, view stress to be unfair organizational characteristics in terms of procedures, social interactions, and distribution of rewards [21].

The ERI model is a theoretical framework that has been extensively exploited to evaluate the connections between perceived psychosocial work-stress and health through ascertaining the discrepancy between job demands (Efforts) and benefits (Rewards) in a work environment [22]. Proponents of the ERI define the psychosocial work environment into three main components to include Efforts, Rewards (these two represent the situational/structural factors) and Over-Commitment, which represents personal factors [19]. In the ERI model, efforts at work denote the demands and obligations that are imposed on an employee while occupational rewards symbolise job resources and benefits provided to the employee which may include money, esteem, and career opportunities [23]. Both efforts and rewards may predict poor health and well-being of an individual. However, the imbalance between high efforts and low rewards (ER-ratio > 1) have stronger predictive effect on poor health

and well-being over and above the effects of each single component [22]. Siegrist has explained over-commitment as a personal trait that defines individual coping pattern, with high efforts and low rewards condition at work [19]. People who depict high work-related over-commitment incline to have strong crave for control, esteem and approval at work [24]. This makes high related over-committed people to underestimate the demands at work and overestimate their own potentials and in the long run, making them more likely to experience reward frustration and exhaustion [25].

2.3 Data Analysis

Four (4) Effort-Reward Imbalance ratios comprising (Effort-Reward Imbalance, Effort-Esteem Imbalance, Effort-Job Security Imbalance and Effort-Job Promotion Imbalance) and four Over-Commitment Reward Imbalance ratios, which included (Over-Commitment-Reward Imbalance, Over-Commitment-Esteem Imbalance, Over-Commitment-Job Security Imbalance and Over-Commitment-Job Promotion Imbalance) were calculated [26]. All total scores and sub-scores were converted into percentages for standardization. Effort / over-commitment / reward ratios, as well as component sub-ratios of esteem, job security and job promotion, were calculated by dividing the percentage of effort/over-commitment score by the corresponding reward percentage score. Ratios greater than one (>1) were considered as imbalance.

3. RESULTS

The study was made up of 59 respondents, including 45(76.27%) male majority population. Most of the respondents had obtained a second degree 32(54.24%). Majority of the respondents were administrative staff 32(54.24%). A greater proportion of the respondents 32(54.24%) were married people with at least a child under thirteen (13) years of age. Most of the respondents 32(54.24%) were between 30 and 44 years of age (See Table 1).

The level of stress was 26(44.07%) among the general study population, higher among the female population 9(64.29%). Among the female respondents, the component level of stress was highest in the Effort-Promotion Imbalance 10(71.43%), Effort-Esteem Imbalance 7(50.00%) and was least in the Over Commitment-Esteem Imbalance 4(28.57%) (See Table 2).

Table 1. Sociodemographic and work characteristics of respondents

Categories	Parameters	Frequency (59)	Percentage (100)	Rank
Gender	Male	45	76.27	1st
	Female	14	23.73	2nd
Marital status	Married	32	54.24	1st
	Single	27	45.76	2nd
Level of education	Second Degree	32	54.24	1st
	First Degree	14	23.73	2nd
	Diploma	8	13.56	3rd
	PhD	5	8.47	4th
Job description	Administrative	32	54.24	1st
	Tutorial	18	30.51	2nd
	Both	9	15.25	3rd
Age	>=30, <45	32	54.24	1st
	<30	16	27.12	2nd
	>=45	11	18.64	3rd
Children under 13	More than a child	32	54.24	1st
	No child	27	45.76	2nd

Data is presented as figure, percentage and position

Table 2. Prevalence of job stress among male and female respondents

Parameters	Total 59(100)	Male 45(76.27)	Female 14(23.73)
E-RI	26(44.07)	17(37.78)	9(64.29)
E-EI	23(38.98)	16(35.56)	7(50.00)
E-PI	36(61.02)	26(57.78)	10(71.43)
E-SI	23(38.98)	17(37.78)	6(42.86)
Oc-RI	21(35.59)	16(35.56)	5(35.71)
Oc-EI	19(32.20)	15(33.33)	4(28.57)
Oc-PI	28(47.46)	21(46.67)	7(50.00)
Oc-SI	18(30.51)	13(28.89)	5(35.71)

Data is presented as figure with corresponding percentage in parenthesis. E-RI: Effort-Reward Imbalance, E-EI: Effort-Esteem Imbalance, E-PI: Effort-Promotion Imbalance, E-SI: Effort-Job Security Imbalance, Oc-RI: Over Commitment-Reward Imbalance, Oc-EI: Over Commitment-Esteem Imbalance, Oc-PI: Over Commitment-Promotion Imbalance, Oc-SI: Over Commitment-Job Security Imbalance

Table 3. Prevalence of job stress among single and married respondents

Parameters	Single 27(45.76)	Married 32(54.24)
E-RI	12(44.44)	14(43.75)
E-EI	11(40.74)	12(37.50)
E-PI	19(70.37)	17(53.13)
E-SI	9(33.33)	14(43.75)
Oc-RI	6(22.22)	15(46.88)
Oc-EI	6(22.22)	13(40.63)
Oc-PI	11(40.74)	17(53.13)
Oc-SI	4(14.81)	14(43.75)

Data is presented as figure with corresponding percentage in parenthesis. E-RI: Effort-Reward Imbalance, E-EI: Effort-Esteem Imbalance, E-PI: Effort-Promotion Imbalance, E-SI: Effort-Job Security Imbalance, Oc-RI: Over Commitment-Reward Imbalance, Oc-EI: Over Commitment-Esteem Imbalance, Oc-PI: Over Commitment-Promotion Imbalance, Oc-SI: Over Commitment-Job Security Imbalance

It was observed that effort-reward imbalance was high among the married population 14(43.75%). This might have been accounted for by the effort-promotion imbalance, 17(53.13%) and the over commitment-promotion imbalance 17(53.13%) components which were found to be higher among the married group (See Table 3).

With regards to educational background, it was observed that respondents with Diploma 4(50.00%) and First Degrees 7(50.00%) exhibited higher levels of occupational psychosocial stress. Imbalances in the ratio between Effort and Promotion 7(87.50%), Effort and Esteem 4(50.00%) and Effort and Job Security 4(50.00%) were the main stress sub components for respondents with Diploma. Among respondents with First Degrees, imbalances between Effort and Promotion 10(71.43%), and Over Commitment and Promotion 10(71.43%) were found to be the main contributors to occupational psychosocial stress (See Table 4).

Among the various job classifications, those offering both administrative and tutorial services recorded 5(55.56%) of occupational psychosocial stress, 16(50.00%) for those offering only administrative services and 5(27.78) for those offering only tutorial services. Effort-promotion imbalance was the among the highest stressor component in all three categories of workers, whilst over-commitment security imbalance was the least stressor component in the group (See Table 5).

Occupational psychosocial stress was found to be highest among the younger employees 10(62.50%), followed by those who were 45 years and above 5(45.45%) and those between the ages of 30 and 44 years 11(34.38%). Effort-promotion imbalance was the highest sub component stressor irrespective of the age of the respondent, whilst over commitment-security imbalance was among the least sub component stressor (See Table 6).

Table 4. Prevalence of job stress among respondents categorized according to levels of education

Parameters	Diploma 8(13.56)	1st Degree 14(23.73)	2nd Degree 32(54.24)	Ph.D. 5(8.47)
E-RI	4(50.00)	7(50.00)	13(40.63)	2(40.00)
E-EI	4(50.00)	4(28.57)	13(40.63)	2(40.00)
E-PI	7(87.50)	10(71.43)	17(53.13)	2(40.00)
E-SI	4(50.00)	5(35.71)	13(40.63)	1(20.00)
Oc-RI	2(25.00)	6(42.86)	11(34.38)	2(40.00)
Oc-EI	3(37.50)	4(28.57)	10(31.25)	2(40.00)
Oc-PI	3(37.50)	10(71.43)	13(40.63)	2(40.00)
Oc-SI	2(25.00)	6(42.86)	9(28.13)	1(20.00)

Data is presented as figure with corresponding percentage in parenthesis. E-RI: Effort-Reward Imbalance, E-EI: Effort-Esteem Imbalance, E-PI: Effort-Promotion Imbalance, E-SI: Effort-Job Security Imbalance, Oc-RI: Over Commitment-Reward Imbalance, Oc-EI: Over Commitment-Esteem Imbalance, Oc-PI: Over Commitment-Promotion Imbalance, Oc-SI: Over Commitment-Job Security Imbalance

Table 5. Prevalence of job stress among respondents categorized according to job descriptions

Parameters	Tutorial 18(30.51)	Administrative 32(54.24)	Both 9(15.25)
E-RI	5(27.78)	16(50.00)	5(55.56)
E-EI	6(33.33)	12(37.50)	5(55.56)
E-PI	8(44.44)	23(71.88)	5(55.56)
E-SI	7(38.89)	12(37.50)	4(44.44)
Oc-RI	7(38.89)	11(34.38)	3(33.33)
Oc-EI	5(27.78)	11(34.38)	3(33.33)
Oc-PI	8(44.44)	16(50.00)	4(44.44)
Oc-SI	5(27.78)	10(31.25)	3(33.33)

Data is presented as figure with corresponding percentage in parenthesis. E-RI: Effort-Reward Imbalance, E-EI: Effort-Esteem Imbalance, E-PI: Effort-Promotion Imbalance, E-SI: Effort-Job Security Imbalance, Oc-RI: Over Commitment-Reward Imbalance, Oc-EI: Over Commitment-Esteem Imbalance, Oc-PI: Over Commitment-Promotion Imbalance, Oc-SI: Over Commitment-Job Security Imbalance

Table 6. Prevalence of job stress among respondents categorized into ages

Parameters	<30 16(27.12)	>=30, <45 32(54.24)	>=45 11(18.64)
E-RI	10(62.50)	11(34.38)	5(45.45)
E-EI	8(50.00)	10(31.25)	5(45.45)
E-PI	13(81.25)	17(53.13)	6(54.55)
E-SI	6(37.50)	13(40.63)	4(36.36)
Oc-RI	6(37.50)	11(34.38)	4(36.36)
Oc-EI	5(31.25)	11(34.38)	3(27.27)
Oc-PI	10(62.50)	13(40.63)	5(45.45)
Oc-SI	5(31.25)	10(31.25)	3(27.27)

Data is presented as figure with corresponding percentage in parenthesis. E-RI: Effort-Reward Imbalance, E-EI: Effort-Esteem Imbalance, E-PI: Effort-Promotion Imbalance, E-SI: Effort-Job Security Imbalance, Oc-RI: Over Commitment-Reward Imbalance, Oc-EI: Over Commitment-Esteem Imbalance, Oc-PI: Over Commitment-Promotion Imbalance, Oc-SI: Over Commitment-Job Security Imbalance

4. DISCUSSION

Universities or institutions of higher learning provide important services to the society. As a result, their staff require high levels of skills, teamwork and innovations to achieve the ultimate goals of these institutions. These demands make their staff potentially susceptible to stress [13,27]. In the current study, 44.07% of university staff have occupational psychosocial stress. The level of occupational psychosocial stress in the current study is high compared to similar reports from Malaysia where the prevalence was 22.1% [28]; 23.3% [29] and 22.2% [30]. However, in comparison with works from other jurisdictions, the prevalence of occupational psychosocial stress in this current study can be said to be low when compared to prevalence of 91.0% in China [31]; 81.0% in Botswana [32]; and 75.8% in Nigeria [33]. The variations in prevalence rates among these studies may be as a result of the different systems and cultures that exist in these countries that might have given different perception to the work-related stressors [34]. Moreover, the use of different instruments (Job Content Questionnaire [JCQ], Depression, Anxiety and Stress Scale-21 [DASS-21], Personal Strain Questionnaire [PSQ] and the Effort Reward Imbalance [ERI]) for the different studies might be the contributing factor for the varying prevalence rate.

The study revealed a high level of stress among the female population (64.29%). This is in tandem with early findings [11,35,36]. This agrees with the hypothesis of differential vulnerabilities which expects women to be more responsive to work stressors than men, probably because of the biological differences, as well as other socio-demographic factors [37]. However, a study by Omoniyi and Ogunsanmi in South West Nigeria on stress of academic staff, did not report any significant difference in stress prevalence between men and women [38].

Among the identified contributors to job stress is work/family conflict [39–41]. In the current study, the levels of stress were found to be higher among the married population (See Table 3). This arises as a result of demands for attention by family members including spouses, children etc which may conflict with work schedules, thus the potential for stress increases as married workers struggle to balance the demands of family and work [41].

Qualifications of the respondents had influence on levels of stress (See Table 4). High stress levels were reported among Diploma (50.00%) and First Degree (50.00%) holders. Factors such as ones' position and professional background including, education, influence the level of psychological stress [42]. Zaghloul has also argued that different work set up displays different levels of exposure to stressors [43].

It was realised that the roles of respondents in the work set up influenced the level of stress (see Table 5). Those performing "administrative roles" and those performing "both administrative and tutorial roles" presented high levels of occupational psychosocial stress (50.00% and 55.56% respectively). This agrees with the findings of earlier works both in Ghana and other jurisdictions [12,44,45]. Mukosolu and colleagues

posited that non-academic staff are forced to work harder to provide high quality administrative service for their clients, which may incur an adverse effect on their health and well-being [46]. Overall, the present findings suggest that age may be one of the potential factors of occupational psychosocial stress. Consistent with [47,48], this study reported a high level of Effort-Reward Imbalance among the respondents who were less than 30 years (see Table 6). Mosadeghrad identified conflicting demands, insufficient training, lack of job security, role ambiguity, and too much responsibility, as some factors that mostly contribute to young employees' occupational stress [49].

Under the component stressors, this study recorded high levels of Effort-Promotion stress, Effort-Esteem and Over Commitment-Promotion imbalances among the study population, particularly among respondents who were less than 30 years old (see Tables 2 and 6). This is a possible indication of restricted space for vertical mobility [50,51]. Among the reasons articulated for stress among academics is the demanding requirement for promotion [28]. The high record of Effort-Promotion Imbalance among Diploma holders (87.50%) and First-Degree holders (71.43%) might be a confirmation of the limited career progression. Moreover, the high levels of over commitment-promotion imbalance (71.43%) among First Degree holders may be attributed to the harbouring of a set of attitudes, behaviours and emotions that reflect excessive endeavour combined with a strong desire for approval and esteem [26]. The findings also revealed a high level of Effort-Esteem and Effort-Promotion imbalances (55.56%) for those performing "both tutorial and administrative roles". This finding may be attributed to the rapidly changing global scene which is increasing the pressure of university workforce to perform maximum output in order to enhance competitiveness [52].

5. CONCLUSION

In this new Ghanaian tertiary educational work environment, high levels of occupational psychosocial stress exist. Occupational psychosocial stress was mainly influenced by gender, age, level of education and work roles. The creation of an enabling working environment with clearly defined expectations and rewards will help university staff to appreciate whatever return they receive for their outputs. In terms of limitations to our study, it was conducted in a limited setting of one institution with a small population size and therefore extrapolation of the current findings beyond study site is not plausible. Further research can show the representativeness of findings across different settings aside educational environments. Secondly, future research also needs to consider longitudinal studies that measure work-stress over a period of time. However, the value of the findings of this study lies in the depth of narrative, data collected and the insight it affords with regard to contemporary work within higher education institutes. The results presented may provide both a starting point for further discussion and may also promote an increased openness on issues of stress, coping strategies and stress management in the workplace.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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