OCCUPATIONAL STRESS AND JOB SATISFACTION AMONG RADIOGRAPHERS IN ZIMBABWE

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Abstract:

Occupational stress and job satisfaction are concepts that have received widespread attention from researchers because the salient role they play both in organizational life and personal life. The current paper reports the findings of a study on occupational stress and job satisfaction among radiographers in Zimbabwe. A self report questionnaire was administered to 43 radiographers. The questionnaire contained items on a Likert Scale ranging from 1 to 5. The findings revealed a high prevalence of occupational stress and rampant job dissatisfaction among radiographers. High workload and shortage of functional working equipment were significant stressors. The radiographers reported that they had high job control and decision latitude. There were strong correlations between occupational stress and job dissatisfaction. Furthermore, strong positive correlations were found between occupational stress and toxicity of work relationships, and occupational stress and role ambiguity and role conflict. Age and social support tended to ameliorate occupational stress.

Key Words: Occupational stress, job satisfaction, role ambiguity, role conflict, workload, social support

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Between the years 2000 and 2009 Zimbabwe was blighted by an economic plague of gargantuan proportions. The currency collapsed, inflation exceeded previous world records and the economy literally imploded. The economic implosion had grave ramifications on the healthcare industry chief among them being an acceleration of brain drain as healthcare workers sought greener pastures, an increased patronization of public health facilities as private healthcare became unaffordable for most people, reduction of government investment in healthcare due to a depletion of economic resources, an increase in the disease burden as the population became poorer and general health status declined and a preponderance of dysfunctional and obsolete equipment. This cocktail of maladies imposed a significant strain on healthcare professionals both physically and psychologically. The healthcare professionals were not insulated from the economic hardships and at the same time they have to practice their art under very adverse conditions. These conditions predispose them to occupational stress.

A link has been established between occupational stress and a gamut of adverse physical and mental effects, including insomnia, depression, cardiovascular disease and anxiety[1]. Stressful working conditions have also been reported to impact negatively on employee well-being by directly contributing to negative health habits or by limiting an individual's ability to make positive changes to lifestyle, such as smoking and sedentary behaviours[2].

Healthcare workers are at high risk of developing burn out, occupational stress and job dissatisfaction[3, 4]. This has been attributed to the increased risk of infection, high job demands, compassion fatigue, understaffing, inadequate resources, a lack of control and/or participation in planning, and a lack of work security. All these attributes are prevalent in the Zimbabwe healthcare system[5]. The negative consequences of occupational stress on work performance, job satisfaction and turn-over intention have also been reported[6, 7]. However, occupational stress and job satisfaction among Zimbabwean radiographers have not been studied. The current study addresses that gap in knowledge.

The objectives of this study are to describe the relationship between job satisfaction and occupational stress, and also the relationship between job satisfaction and a number of stressors namely decision latitude, workload, adequacy of work resources, workplace support, role ambiguity, role conflict and toxicity of work relationships.

Materials and Methods:

All diagnostic radiographers working in government referral hospitals in Harare and Chitungwiza were enrolled onto the study. Harare and Chitungwiza were selected for this study because of easy accessibility, high patient through put and because conditions in these hospitals are not too dissimilar to conditions in other government referral hospitals. These hospitals were therefore deemed suitable for an exploratory study of this nature.

Forty three questionnaires were hand delivered to the radiographers employed at Parirenyatwa hospital, Harare hospital and Chitungwiza hospital between December 2011 and January 2012. The data collection instrument was a quantitative questionnaire arranged in four sections.

The first section elicited information on demographic data namely age group, gender, marital status, years of professional experience and tenure in present job. The second section was designed to measure global professional satisfaction and satisfaction with the present workplace. Previous studies reported the usefulness of global measures or even single item measures for job satisfaction[8]. Two were used in this study; one for measuring professional satisfaction and the other to measure satisfaction with current workplace. These were: 1) To what extent are you satisfied with radiography as a profession and 2) To what extent are you satisfied with the working conditions in your current workplace. The respondents were asked to indicate their degree of satisfaction on a five point Likert Scale whose options ranged from very dissatisfied, dissatisfied, neither satisfied nor dissatisfied, satisfied and very satisfied. For analytical purposes very dissatisfied was scored as one and very satisfied as five, while dissatisfied was scored as two and satisfied as four with the neutral response scored as three. Furthermore, three categories of satisfaction were created from the responses gleaned from the above questions. These categories are dissatisfaction comprising all radiographers that scored 1 or 2, moderate satisfaction made up of those that scored 3 and high satisfaction created with those with the high scores 4 and 5.

The third section of the questionnaire contained six items designed to measure occupational stress on a Likert Scale. These are; Work commitments are affecting my social relationships; I am so busy I find it increasingly difficult to concentrate on the job at hand; I am often exhausted in the morning at the thought of work; I find it difficult to control my emotions; I feel so tired

during the day, when at work and I feel that I experience stress at work. These questions were based on factors and signs that lead to stress which are fatigue, dread of work, lack of emotional control, no time for social relationships and being overwhelmed by work. The options available to the respondents ranged from strongly agree (indicating the severity of the stressor) to strongly disagree (indicating the absence of the stressor). The sixth item, "When I am at work I feel that my work stresses me out", was also designed as an indicator of global occupational stress.

Furthermore, a scoring system was devised in which, strongly disagree was given a value of one with strongly agree given the maximum value of five. Thus the higher the individual score, the more severe the exposure to the stressors hence the more stressed the individual. This means that the total score for an extremely stressed person would be thirty (from 5*6=30) and the least stressed person would score a total of six (from 6*1=6).

The fourth and final section of the questionnaire contained items whose goal was to measure the strength of known stressors namely decision latitude, work resources, workplace support role ambiguity, role conflict, workload and work relationships. All items were on a Likert Scale and the analytical approach used in the previous sections was also adopted for this section. Cronbach's alpha statistics were calculated for each scale and for the overall questionnaire as a test of internal consistency and therefore, reliability. The results are presented in Table 1 below. The alpha value for the overall scale was 0.752, while the least alpha was 0.650 for workplace support and the highest alpha was 0.801 for workplace satisfaction. All the scales were deemed reliable.

Table 1: Reliability Statistics

	Cronbach's Alpha for Item
stress	.729
Global stress	.741
Decision Latitude	.718
Workload	.713
Workplace support	.650
Work Resources	.752
Work Relations	.694
Professional satisfaction	.767
Workplace satisfaction	.801
Role ambiguity	.740
Role conflict	.713
Overall Scale	.752

Results

Sample Statistics

A total of 43 questionnaires were delivered to the radiographers and 38 valid questionnaires were returned yielding a response rate of 88.4% which was deemed acceptable. Table 2 below is a summary of the sample composition.

The majority of the participants were female making up, 58% of the population and there was a preponderance of participants in the age band 21-29 years constituting 68% of the study population. Forty two percent of the participants were married and 58% were single. Fifty percent of the radiographers have professional experience of less than two years while 63% have been working in their current workplace for two years or less.

Table 2: Demographic characteristics of sample.

Variable	Frequency	Percentage
Age Band		
20-29 yrs	26	68.4
30-39 yrs	8	21.1

40-49 yrs	1	2.6
Above 50 yrs	3	7.9
Marital Status		
Married	16	42.1
Single	22	57.9
Gender		
Male	22	57.9
Female	16	42.1
Tenure in Current Workplace		
Less than 1 year	8	21.0
1-2 years	16	42.0
2-5 years	3	8.0
5-10 years	8	21.0
Above 10 years	3	8.0
Professional Experience		
Less than 1 year	5	13.2
1-2 years	14	36.8
2-5 years	6	15.8
5-10 years	5	13.2
Above 10 years	8	21.0

Global Professional and Workplace Satisfaction:

Twenty seven percent of the radiographers indicated that they were either very dissatisfied or dissatisfied with radiography as a profession. These were classified in the dissatisfaction category. 13.5% reported moderate satisfaction and the remaining 50.5 % were placed in the high satisfaction group. Fifty percent of the radiographers in this sample reported that they were either very dissatisfied or just dissatisfied, thus belonging to the "dissatisfied" category, while only 2.8% was in the moderate satisfaction category and 47.2% were in the high satisfaction category.

Global Occupational Stress:

An analytical framework for categorization of stress levels according to self reported responses was created. Under this system, a score of 12 or less would mean that the person is experiencing insignificant occupational stress; a total score between 13 and 18 would indicate moderate stress

and a total score above 18 would mean the presence of significant occupational stress. The rationale for this was that for a total score of 12 or less the bulk of the participant's responses would have to be strongly disagree and agree which had 1 and 2 points respectively. Similarly, a participant whose responses were equivocal would on average choose "neither agree nor disagree" corresponding to 3*6. Any score above 18 indicates that the respondent is above the equivocal zone and therefore is experiencing significant occupational stress. Table 3 below presents a summary of the prevalence of occupational stress.

Table 3: Prevalence of occupational stress among radiographers.

Stress Category	No of Participants in Stress Category	Prevalence
Insignificant Stress	7	18.4%
Moderate Stress	12	31.6%
Significant Stress	19	50%

It is noteworthy that 50% of the radiographers reported experiencing significant occupational stress.

An extra item was included in the questionnaire. The purpose of this item was two-fold. First, it was designed to measure, once off, global occupational stress and second it served the purposed of checking the validity of the first items as measures of occupational stress. The respondents were presented with a statement reading, "When I am at work I feel that my work stresses me out", and asked to indicate the extent to which they concurred with the statement. The proportion of the radiographers that indicated that they agreed or strongly agreed that they were experiencing stress at work was 71.1%. There was a strong positive correlation between this item and the global occupational score calculated using the first five items (pearson's co-efficient=0.423; p=0.009). This lends further credence to the content validity of the global occupational satisfaction measure.

Job Control and Decision Latitude:

Three items were used to measure global job control and decision latitude. These are: I do not have control of the pace of my work; I do not have a say over the way I work and I do not have an opportunity to make any in-put into any decisions at work. Any analytical framework consists of three variables namely low decision latitude, moderate and high decision latitude. Since there were three items scores between 3 and six were indicative of high decision latitude since the respondents would be disagreeing with the notion that they do not have control over the decision making process in their workplace. Scores between 7 and 9 were indicative of moderate decision latitude and scores above nine were deemed to reflect low decision latitude. Using this analytical framework 44.7% of the radiographers had high decision latitude, 34.2 reported moderate

Decision latitude and 21.1 % were of the view that their decision latitude was low.

Workload:

Three items were also used to measure the radiographers' perceptions of their workloads. These are: I feel that the workload is sometimes too much; I think there is need for more radiographers in our department; and I rarely get time for all my scheduled breaks, i.e tea break, lunch e.t.c. An analytical framework similar to that used to analyse decision latitude was devised. 5.1% of the radiographers were in the low concurrence group indicating that they did not necessarily agree with the notion that the workload was too much; 7.7% were in the moderate concurrence group and an overwhelming 79.5% were in the high concurrence group. This indicates that the vast majority of the radiographers are of the view that the workload is too much for them.

Adequacy of Work Resources:

The emphasis in this section was on the adequacy and functionality of the radiographic equipment in the hospitals. The radiographers were presented with two items viz: I do not have all the essential accessories (i.e. positioning pads, gloves etc) that I need to do my job and The equipment I am using is not fully functional. Adopting an analytical framework similar to the one used with previous variables 21.1 % of the radiographers were in the low concurrence category, 20% in the moderate concurrence and 58.9% in the high concurrence category. This

indicates that the majority of the radiographers concur that they do not have adequate functional equipment available to them.

Workplace Support:

The purpose of this sub scale was to measure the degree of perceived support that radiographers receive from colleagues and supervisors in the course of the duties. This was measured by the three items namely: "My supervisor is not too supportive to any problems or concerns I may have at work", "When I encounter difficulties with work, I don't get any assistance from my colleagues and 'I do not get the help and support I need from colleagues at work". The previously employed analytical approach was also used. 44.7% reported high support from colleagues, 31.6% indicated moderate support and 23.7% of the radiographers were in the low support group.

Role Ambiguity:

The extent of role ambiguity in the radiographers' jobs was determined by the single item, "I am not clear about what my duties and responsibilities are". 91.9% indicated that they were in disagreement with the statement and only 2.7% felt that they were not clear about their responsibilities.

Role Conflict

The extent of role conflict was also established using a single item measure; the item being "I feel that my job often clashes with that of other professionals who may have similar responsibilities". 68.4% reported Low role conflict, 10.5% indicated moderate role conflict while 21.1% had high role conflict.

Toxicity of Work Relationships:

A three item scale was employed to establish the existence and extent of toxic relationships in the workplace. The three items were, "There is friction or anger between my colleagues", "My supervisor does not respect me" and "Other health professionals I interact with during work, do not respect me and my profession". 44.7% of the radiographers reported low toxicity, 21.1% reported moderate toxicity while 34.2% reported high toxicity in their workplace.

Table 4: Relationship between professional satisfaction and stressors

	Pearson's Correlation Co-efficient	P Value
Occupational Stress	0.271	0.104
Decision Latitude	0.074	0.665
Workload	-0.275	0.1
Adequacy of Work Resources	-0.354	0.031
Workplace Support	0.049	0.772
Role Ambiguity	0.032	0.853
Role Conflict	0.146	0.397
Toxicity of Work Relationships	-0.340	0.04

Correlation analysis was applied to establish the significance and the direction of the relationship between the various stressors and professional experience. With 0.05 as the cut off point for significance two stressors namely Toxicity of Work Relationships and Adequacy of Work Resources had significant howbeit negative correlations with professional satisfaction as depicted in Table 4 above.

Table 5 Correlation between Job Satisfaction and Various Stressors

	Pearson's Correlation Co-efficient	P Value

Occupational Stress	**0.119**	**0.49**
Decision Latitude	**-0.097**	**0.575**
Workload	**-0.548**	**0.01**
Adequacy of Work Resources	**-0.571**	**0.00**
Workplace Support	**-0.513**	**0.01**
Role Ambiguity	**-0.355**	**0.03**
Role Conflict	**-0.093**	**0.59**
Toxicity of Work Relationships	**-0.663**	**0.00**

Table 5 above presents the results of correlation analysis of the various stressors and workplace satisfaction. Toxicity of work relationships, role ambiguity, adequacy of work resources and work overload revealed significant and negative correlations with workplace satisfaction with 0.05 as the threshold for significance.

Correlation between Global Occupational Stress and Stressors

Table 6 Correlation between occupational stress and different stressors

	Pearson's Correlation Co-efficient	**P Value**
Decision Latitude	**-0.346**	**0.036**
Workload	**0.229**	**0.173**
Adequacy of Work Resources	**0.014**	**0.943**
Workplace Support	**-0.449**	**0.005**

Role Ambiguity	**0.504**	**0.001**
Role Conflict	**0.454**	**0.005**
Toxicity of Work Relationships	**0.076**	**0.65**

As shown in Table 6 above there were significant positive correlations between the occupational stress and role conflict and role ambiguity. There were also significant negative correlations between occupational stress and workplace support as well as decision latitude.

Professional Experience and Job Satisfaction:

Correlation analysis of professional experience and tenure in present workplace, professional satisfaction and workplace satisfaction was performed. There were significant positive correlations between professional experience and professional satisfaction (pearson co-efficient=0.38, p=0.02), workplace satisfaction (pearson co-efficient=0.520,p=0.001) and tenure in present workplace (pearson co-efficient=0.857, p=0.00).

Correlation between Age, Job Satisfaction and Occupational Stress:

There was a significant and positive correlation between age and professional satisfaction (pearson co-efficient =0.437 p=0.007) and workplace satisfaction (pearson co-efficient=0.5 p=0.002). However, there was no significant correlation between age and occupational stress (pearson co-efficient=0.093 p=0.58). There was also a strong positive correlation between tenure in current workplace and age (pearson co-efficient =0.716, p=0.00).

Discussion:

In this paper we report on an exploratory research on job satisfaction and occupational stress among diagnostic radiographers working in government hospitals in Harare, Zimbabwe. This is the first published report of its kind. The exploratory nature of the study informed the selection of the sample. Furthermore, since the delimitation of the study is narrow in its circumference the findings cannot be generalized to include the whole gamut of diagnostic radiographers. There are many radiographers employed by the numerous private radiology facilities dotted around Harare,

where the conditions of service are significantly atypical to those obtaining in public referral hospitals. Extrapolation to other public hospitals outside Harare is, however, possible, as the conditions in these institutions are not too dissimilar to those in Harare referral hospitals.

The findings of our study indicate that about 50% of the radiographers are dissatisfied with radiography as a profession, and a similar proportion is dissatisfied with their current workplaces. This has profound ramifications. It can be posited that if the radiographers are dissatisfied with radiography as a profession, then they are likely to be experiencing cognitive dissonance. The prevailing economic climate, with unemployment rate above 80%, means that many people count it a privilege to hold a formal job such as being a radiographer. On the other hand, the high levels of dissatisfaction with both the workplaces and the profession introduces a conflictual schizophrenic dilemma to the radiographers. According to the theory of cognitive dissonance, faced with dissonant conditions people seek dissonance reduction in three ways, namely lowering the importance of one of the discordant factors, adding consonant elements and changing one of the dissonant factors.

The utility of the cognitive dissonance theory is in its predictive value. In this case radiographers in government hospitals would seek to change the dissonant factor which is dissatisfaction with the employer. In part this could explain the high attrition rate of radiographers in the government hospitals in Zimbabwe. Our findings reveal that 50% of the radiographers have less than two years professional experience while 63% have been with the current employer for less than two years. Where have all the experienced radiographers gone and why are radiographers not staying long in the public hospitals? Our thesis is that job dissatisfaction is behind the high attrition rate in government hospitals. The negative consequence of these statistics is that the relatively inexperienced radiographers preponderant in the hospitals have few mentors to call upon. This negatively impacts on the professional development of the radiographers, the quality of the service offered by the hospitals and patient satisfaction.

50% of the radiographers in our study reported experiencing significant occupational stress, while 31.6% reported experiencing moderate stress. Although there was no significant correlation between aggregate occupational stress and global job dissatisfaction; there were significant correlations between job dissatisfaction and the Toxicity of work relations and "The adequacy of working resources" sub scales. In our study "Workload" was significantly

correlated to neither occupational stress nor job dissatisfaction. Prima facie this would appear counter intuitive. However, since the long queues are a permanent feature of the landscape in government radiology departments in Zimbabwe it is possible that prolonged exposure to this particular stressor has resulted in radiographers developing coping mechanisms. The radiographers have learnt to live as if the long queues and heavy workload does not exist. For this reason it is not uncommon for these radiographers to sneak out and engage in private work for other organizations while leaving the benches full of patients. This is a variant of an abnormal reaction to an abnormal situation, which when practiced long enough becomes normal behavior.

The significant positive correlations between occupational stress and role conflict and role ambiguity as well the negative correlations between occupational stress and workplace support and decision latitude were in keeping with expectations and extant literature. Role ambiguity breeds both anxiety and confusion which feed into occupational stress. The mediation roles of decision latitude and support from colleagues in reducing occupational stress is well documented and is a cardinal tenet of the Job Demands Control and Support Model of measuring occupational stress[11, 12,] . The more social support the radiographers get from colleagues the less susceptible they are to stress, and the more decision latitude they are able to exercise the less stress they report. The radiographers in this study reported high levels of social support and high decision latitude. Furthermore, there were low levels of relationship toxicity. This is indicative of positive team work and collaboration in the departments.

The significant positive correlations between age and professional satisfaction and workplace satisfaction (pearson co-efficient=0.5 p=0.002) seem to indicate that as the radiographers get older they tend to be more satisfied with their workplaces. However, in this sample the older and more experienced radiographers also tended to be occupying supervisory and managerial roles. There was also a very strong positive correlation between tenure in current workplace and age. The major import of this finding is that as the radiographers stay longer in the same workplace, they move into managerial positions and become more satisfied with both the job and the workplace. The pyramid structure of the government referral hospitals places just a few radiographers at the apex. Those at the apex on near the apex tend to stay longer with the same employer while the attrition rate is higher with those at the lower rungs.

The finding that there was no significant correlation between age and occupational stress points to the non selective nature of occupational stress. Radiographers regardless of age band and gender reported high levels of occupational stress. This reveals that the sources of the stress are systemic and ubiquitous in the departments that were studied.

This study reports high levels of occupational stress and job dissatisfaction. To counter the deleterious effects of occupational stress it is recommended that stress management programs should be introduced to help capacitate radiographers to deal with the stressors they encounter at work.

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