

Moderating Roles of Job Characteristics in the Relationship between Job Stress and Job Involvement among Nurses

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Abstract: *Considering the theoretical assumptions of the job demand-resources model (Bakker & Demerouti, 2007) suggesting that resources are not only necessary to deal with job demands, but they also are important in their own right as earlier supported by Hackman and Oldham (1980) job characteristics model, this cross-sectional survey investigated the moderating roles of job characteristics in the relationship between job stress and job involvement among nurses in Enugu urban. One hundred nurses comprising 94 females and 6 males between the ages of 25 to 60 years ($M = 33.42$, $SD = 9.45$) were sampled using multi-stage sampling (cluster and purposive sampling techniques). Hackman and Oldham (1975) 21-item job characteristics scale, Lodahl and Kejner (1965) job involvement scale and Kahn, Wolfe, Quinn, Snoek and Rosenthal (1965) job tension scale were administered for data collection. The results revealed that skill variety $\beta = -.25$, $P < .05$ level of significance was negatively related to job involvement. However, only task significance with $\beta = .22$, $p < .05$ level of significance moderated the relationship between job stress and job involvement, though negatively. The findings were discussed in line with previous studies.*

Keywords: *job characteristics, job stress, job involvement, nurses*

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I. Introduction

Nursing profession as found in other health care professions is saddled with numerous responsibilities such as caring for patients. And in Nigeria, despite the numerous responsibilities of nurses, they also find themselves discharging their duties with little or no proper facilities. These challenges are likely to result in job stress which may relate to their job involvement, hence this present study. Studies (e.g. Singh, 1991) have shown a negative relationship between job stress and job involvement while others (e.g. Yenhui, 2009) found positive relationship. And this relationship could be moderated by factors such as job characteristics (Williams & Cooper, 1998).

Job Involvement is simply a person's psychological identification with a job, and it reflects the level of importance the job plays in the person's life (Brown & Leigh, 1996, Kanugo 1976, 1982a, 198b). Decarufel and Schaan (1990) noted that an individual with a high degree of job involvement would place the job at the center of his/her life's interest. Job involvement is theorized to have important outcomes, such as motivation (Hackman & Lawler 1971; Pfeffer, 1994). For example, Chen and Chiu (2009) postulated that employees with high job involvement are more independent and self confident that they not only conduct their work but are also more likely to do theirs in accordance with the employees' perception of their own performance. Besides, people with high job involvement focus most of their attention on their jobs (Hackett, Lapiere & Hanschorf, 2001). Salanova, Agut and Reiro, (2005) defined job involvement as the degree to which an employee is engaged in and enthusiastic about performing the work. Moreover, job involvement is a consequence of work situations and individual differences; hence socio demographic and psychological variable such as job stress can affect job involvement.

Job stress refers to negative stimuli that are associated with the job (Hepburn & Knepper 1993). Job stress is a major organizational concern (Fox & Spector, 2006). Situations that create job stress include factors such as downsizing, technology, violence, one part of the current business environment (Defrank & Ivancevich, 1998). Further sources of stress in the workplace include work load, incompetent supervisors, role ambiguity and lack of recognition, among others. According to Divyer and Ganster (1991), it is a wide and popularly accepted proposition that stressful work conditions generate significant cost time.

Stress is defined as "a state of worry that arises from an actual or apparent demand that calls for a change in behavior (Lazarus, 1996). While some workplace is normal, excessive stress can interfere with one's productivity and performance, impact physical and emotional health and affect relationship and home life. Perhaps, now more than ever before, job stress poses a threat to the health of workers such as nurses. However,

studies have revealed that job characteristics are predictors of job stress (Blegen, 1993), hence could serve as moderator.

Job characteristics are aspects specific to a job such as knowledge and skills, mental and physical demands, and working conditions that can be recognized, defined and assessed, also called job factors. According to Hackman and Oldham (1975), job characteristics are set of environmental variables such as skill variety, task significance, task identity, autonomy and feedback that are widely thought to be important causes of employees' behavior.

Skill variety is the degree to which a job requires a variety of different activities in carrying out the work, which involves the use of a number of different skills and talents of the person. Task significance is the degree to which the job has a substantial impact on the lives or work of other people whether in the immediate organization or in the external environment. Autonomy is the degree to which the job provides substantial freedom, independence, and discretion to the individual in scheduling the work and in determining the procedures to be used in carrying it out. Task identity is the degree to which the job requires completion of a whole and identifiable piece of work; that is, doing a job from beginning to end with a visible outcome. Feedback is the degree to which carrying out the work activities required by the job result in the individual obtaining direct and clear information about the effectiveness of his or her performance. Studies (e.g. Fried & Ferris 1987) suggest that five core job dimensions including skill variety, task significance, task identity, autonomy and feedback are moderators of job stress and job investment. On the contrary, the absence of these characteristics leads to the experience of undesirable work outcomes such as decreased job involvement (Evans, Kigundu, & House, 1979) and higher levels of job stress (Maslach, Schaufeli, & Leiter, 2001), increased work absenteeism (Hackman & Oldham, 1975).

Stress in the nursing profession is an ongoing worldwide problem of all health care professions; nurses have been found to have especially high levels of stress which leads to lower job involvement (Butterworth, Carson, Jeacock, White & Clements 1999; Bourbonnais, Comeau, Vezina & Gulaine, 1998), hence the interest of this present study.

Theoretical overview and hypotheses development

The theoretical assumptions of job demand-resources model (Bakker & Demerouti, 2007) offer strong basis for understanding the moderating role of job characteristics in the link between job stress and job involvement. According to this theory, resources are not only necessary to deal with job demands, but they also are important in their own right. This is in line with Hackman and Oldham's (1980) job characteristics model that emphasizes the motivational potential of job resources at the task level, including autonomy, feedback and task significance. Accordingly, resources are valid in their own right because they are means to achieve or protect other valued resources. Job resources may be located at the macro-organizational level (e.g. salary or wages, career opportunity, job security), the interpersonal level (supervisor and co-worker support, team climate), the specific job position (e.g. role clarity, participation in decision making) and at the task level (e.g. skill variety, task identity, task significance, autonomy and performance feedback).

Every occupation has its own specific risk factors associated with job-related stress. For example, when an employee faces high job demand with limited resources it results to job stress, leading to lower job involvement. In contrast, job involvement is most likely when job resources are high. In an organization, when an employee has high job demands such as emotional and work demands, which can lead to strain, job resources such as role clarity and autonomy can cushion off this strain and still enhance job involvement. This is because when an employee knows what is required of him by the job and has autonomy in the job it lowers job stress and increases job involvement. In support of this, job demand-control theory (Karasek & Theorell 1979) suggests that workplace stress is a function of how demanding a person's job is and how much control (discretion authority or decision latitude etc) the person has over the job responsibilities. According to this theory, job demands represent the psychological stressors in the work environment. In this model, if the individual does not have control in his workplace, it increases job stress and leads to lower job involvement. When employees have authority relative to their strain levels, and thus will presumably participate more in the definition and management of tasks, it lowers job stress and increases job involvement.

Job Stress and Job Involvement

Previous studies have demonstrated the link between job stress and job involvement. For example, Ouyang (2009) in a survey of three hundred and sixty three (363) participants found a positive relationship between job stress and job involvement. The same positive relationship was found by Yenhui (2009). In contrast, Lambert and Paoline (2010) in a study of two hundred (200) participants found negative relationship between job stress and job involvement. And Dhanesha (2013) found correlation between the two variables. Amid these controversies it has been hypothesized that

Hypothesis 1: Job stress will negatively predict job involvement.

Job Characteristics and Job Involvement

Sal (2007) in a study found that job characteristics were better predictors of job involvement. In another study, autonomy and task identity were found to be significant predictors of job involvement, whereas feedback and skill variety did not predict (Huma, 2013).

Khulida (2016) in a study of 256 public servants found job characteristics to have significant influence on job involvement. Following these, it was hypothesized:

Hypothesis 2: Job characteristics will positively predict job involvement.

Moderating role of Job Characteristics

Akerboom and Maes (2004) in a study of eight hundred and four (804) registered nurses found job stress to be moderated by job characteristics. And a similar study involving 1425 registered nurses found job characteristics as predictors of job stress (Cooper, Dewe, & O'Driscoll, 2001). And Upasna and Agarwal (2006) in a study of 1,302 participants found job characteristics as moderators of job involvement. Considering these, this study hypothesized that:

Hypothesis 3: Job characteristics will moderate the negative relationship between job stress and job involvement.

Method

Participants and Procedure

A cross-sectional survey of 100 nurses comprising 94 females and 6 males between the ages of 25 to 60 years ($M = 33.42$; $SD = 9.45$) served as participants. The researchers using multi-stage sampling technique (cluster and purposive) drew the participants from the Nursing Departments in a University Teaching Hospital in Enugu State, Nigeria after obtaining a letter of permission from the Deputy Director Nursing services of the hospital.

More so, the researchers identified with the Chief Nursing Officer of each of these Departments and the Heads of units of the Departments. This administration was carried out in seven Departments in the University Teaching Hospital which comprised seven clusters. The Departments were Patient Care Service, Microbiology, Dermatology, GOPD (general out-patient department), Radiation Medicine, Physiotherapy, Accident and Emergency. A total of 118 copies of the questionnaire were administered within one month and instructions given to the nurses. They were allowed to go home with the copies and returned in a later date. Of the 118 copies administered, 11 were not returned and 7 copies were discarded due to errors in completion, hence 100 (84.75%) copies that were properly completed and returned were scored and analyzed in testing the hypotheses.

Measures

Three scales were used in this study. They include Hackman and Oldham (1975) 21-item job characteristics scale (JCS), Lodahl and Kejner (1965) 20-item job involvement scale (JI) and Kahn, Wolfe, Quinn, Snoek, and Rosenthal. (1964) 15-item job tension scale (JT).

Job Characteristics Scale

Job characteristics were measured using Hackman and Oldham (1975) 21-item job characteristics scale. The scale has seven subscales measuring seven (7) principal job characteristics (skill variety, task identity, task significance, autonomy, feedback from the job, feedback from agents and dealing with others). Sample item for skill variety reads 'The job requires me to use a number of complex or high level skills'. Task identity reads 'The job provides me the chance to completely finish the pieces of work I begin'. Task significance reads 'The outcomes of my work can affect other people in very important ways'. Autonomy reads 'The job gives me almost complete responsibility for deciding how and when the work is done. Feedback from job reads 'The job is set up so that I get almost constant "feedback" as work, about how well I am doing'. Feedback from agents reads 'People almost always let me know how well I am doing on the job'. Dealing with others reads 'Dealing with other people is an absolutely essential and crucial part of doing job'. There are both direct scoring and reverse scoring items. Each of the sub-scales could be scored separately. Ratings were made using 7-point scale, ranging from 1 (very inaccurate) to 7 (very accurate) with internal consistency values of .71, .59, .66, .66, .71, .78 and .59 for the seven subscales reported by Hackman and Oldham (1975). The researchers reported Cronbach Alpha of .24.

Job Involvement Scale

Job involvement was measured using Lodahl and Kejner (1965) 20-item job involvement scale (JIS) designed to measure the extent to which a person is attached and engrossed in his/her general employment circumstances. Sample item reads "I will stay overtime to finish a job, even if I am not paid for it". There are both direct scoring and reverse scoring items. Ratings were made using 5-point scale, ranging from 1 (strongly

disagree) to 5 (strongly agree) with Spearman-Brown internal reliability coefficients of .72 (females), .80 (males) and test-retest reliability of .90 reported by Lodahl and Kejner (1965). The researchers reported Cronbach Alpha of .67.

Job Tension Scale

Job stress was measured using Kahn, Wolfe, Quinn, Snoek, and Rosenthal, (1964) 15-item job tension questionnaire (JTS). The instrument was designed to assess the job stress a worker experiences as a result of the social and physical circumstances of the work setting. Sample item reads “Feeling that you have too heavy a work load, one that you can’t possibly finish during an ordinary work day”. There are only direct scoring items. Ratings were made using 5-point scale, ranging from 1(Never) to 5 (Nearly all the time) with internal reliability coefficients of .78 and .39 reported by Oseghare (1988). The researchers reported Cronbach Alpha of .63.

II. Results

Table 1: Summary Table of Descriptive Statistics and Correlations among the Study Variables (N = 100)

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11
1 Job Involvement	45.85	6.75	1										
2 Age	33.42	9.45	-.20*	1									
3 Gender	1.94	.24	-.02	.08	1								
4 Job Stress	2.60	.53	.03	-.09	.05	1							
5 Skill Variety	4.99	1.42	-.22*	.03	-.01	-.27	1						
6 Task Identity	4.72	1.46	-.11	.02	-.05	.02	-.04	1					
7 Task Significant	5.34	1.34	-.04	.05	-.19	-.05	.07	.08	1				
8 Autonomy	6.03	1.19	-.11	.05	.10	-.22	.17	.18	.03	1			
9 Feedback from Job	2.92	.73	.07	.13	.09	-.09	.16	.00	.03	.03	1		
10 Feedback from Agents	5.15	1.31	-.05	-.24	.17	-.12	.01	.11	.15	.46	-.07	1	
11 Dealing with Others	5.13	1.17	-.22*	-.02	-.02	.00	.00	.27	.15	.07	-.10	.19	1

Note: * = $P < .05$ (2-tailed), ** = $P < .01$ (2-tailed). Gender was coded 1= Male, 2 = Female.

Results in table 1 indicate that age as control variable was significant and inversely related to job involvement among nurses ($r = -.20, p < .05$) while gender did not. Meaning that increase or decrease in age as a control variable and the two predictor variables do significantly related to increase or decrease in the criterion variable (job involvement), thou negatively. Job stress was found not to be related to job involvement ($r = .03, p > .05$). Whereas only skill variety($r = -.22, p < .05$) and dealing with others ($r = -.22, p < .05$) dimensions of the moderating variable (job characteristics) were significantly and negatively related to job involvement. Meaning that increases or decreases in these two dimensions significantly related to increase or decrease in the criterion variable (job involvement) in an inverse manner.

Table 2: Moderated Hierarchical Multiple Regression analysis showing the Moderating role of Job Characteristics in the Relationship between Job Stress and Job Involvement

Variable	Step 1 B	Step 2 B	Step 3 B
Age	-.20*	-.23*	-.16
Gender	-.00	.00	.06
Job Stress		-.06	.02
Skill Variety		-.25*	-.24*
Task Identity		-.06	-.04
Task Significance		.03	.08
Autonomy		-.03	-.13
Feedback from Job		.11	.11
Feedback from Agents		-.05	-.05
Dealing with Others		-.19	-.17
Skill Variety x Job Stress			.09
Task Identity x Job Stress			.01
Task Significance x Job Stress			-.22*
Autonomy x Job Stress			.09
Feedback from Job x Job Stress			.01
Feedback from Agents x Job Stress			.14
Dealing with Others x Job Stress			.01
Adjusted R^2	.020	.066	.084
ΔR^2	.040	.120	.081
F	2.04	1.70	1.54
ΔF	2.04	1.59	1.25

* = $p < .05$, ** = $p < .01$.

From table 2 above, in the first step of Moderated Hierarchical Multiple regression, two demographic variables were entered: age and gender. This model was not significant $F(2, 97) = 2.04, p > .05$ as it only explained 2.0% of the variance in job involvement. In the same block, however, only age as a single variable yielded a significant but negative relationship with the criterion variable- job involvement ($\beta = -.020, p < .05$). In step 2, when the predictor variable (job stress) was entered, it did not predict job involvement ($\beta = -.06, p > .05$), hence disconfirmation of hypothesis 1. In the same block 2, job stress, skill variety, task identity, task significance, autonomy, feedback from job, feedback from agents, and dealing with others were entered, as a block, they only added 12.0% of the variance in job involvement ($\Delta R^2 = .120, p > .05$) which was found not to be significant as hypothesis 2 was rejected. Independently, only skill variety ($\beta = -.25, p < .05$) contributed significantly in negative direction.

Again, moderating variables were entered in step 3, as a block, they added only 8.1% in explaining the variance in the relationship between job stress and job involvement ($\Delta R^2 = .081, p > .05$) which is not significant. More so, the two-way interacting terms, individually did not yield any significant interaction outcomes: skill variety and job stress ($\beta = .09, p > .05$), task identity and job stress ($\beta = .01, p > .05$), autonomy and job stress ($\beta = .09, p > .05$), feedback from job and job stress ($\beta = .01, p > .05$), feedback from agents and job stress ($\beta = .14, p > .05$) and dealing with others ($\beta = -.01, p > .05$) respectively. This implies that, there were no significant relationships between these moderating variables (skill variety, task identity, autonomy, feedback from job, feedback from agents and dealing with others) and the predictor variable (job stress) regarding the variance in the criterion variable (job involvement) among nurses. These findings indicated that skill variety, task identity, autonomy, feedback from job, feedback from agents and dealing with others failed to moderate the predictor variables' relationship with the criterion variable, thus failed to confirm hypothesis 3. However, only task significance ($\beta = -.22, p < .05$) remarkably moderated the relationship between job stress and job involvement, though negatively.

III. Summary of Results

Considering the results in relation to the demographic variables (age and gender) entered in step 1, only age was able to explain a significant variance in the criterion variable (job involvement) whereas gender did not.

In step 2, the predictor variable (job stress) did not predict job involvement. And in the same block, job characteristics (task identity, task significance, autonomy, feedback from job, feedback from agents and dealing with others) did not predict job involvement. Skill variety dimension of job characteristics as an independent factor negatively predicted job involvement.

Furthermore, only task significance dimension of job characteristics moderated the relationship between job stress and job involvement while the other dimensions did not.

IV. Discussion

Incongruence with the first hypothesis, job stress did not significantly predict job involvement. This indicates that the extent to which a nurse was attached and engrossed in his/her work (job involvement) had nothing to do with the feelings of tension, discomfort, uncertainty, indecisiveness and distress that a nurse experienced as a result of the social and physical circumstances of the work setting (job stress). This is contrary to previous studies (e.g. Ouyang, 2009; Yen-hui, 2009; Lambert & Paoline, 2010) which found both positive and negative relationships between job stress and job involvement.

Contrary to hypothesis 2, only skill variety dimension of job characteristics significantly and negatively predicted job involvement while the other characteristics did not. This negative prediction indicates that the degree to which the job of a nurse requires a variety of different activities in carrying out the work, which involves the use of a number of different skills and talents of the person (skill variety) moved in opposite direction with the extent to which a nurse was attached and engrossed in his/her work (job involvement). While previous studies (e.g. Sal, 2007; Khulida, 2016) have been supported by the present study which found negative relationship between skill variety and job involvement, the inability of the other dimensions of job characteristics to predict job involvement has given credence to previous studies (e.g. Huma, 2013).

The findings of this study also led to the disconfirmation of the third hypothesis as only task significance significantly and negatively moderated the relationship between job stress and job involvement while other components of job characteristics did not. Among these nurses, the degree to which the job of a nurse had a substantial impact on the lives or work of other people whether in the immediate organization or in the external environment (task significance) negatively moderated the relationship between the extent to which a nurse was attached and engrossed in his/her work (job involvement) and the feelings of tension, discomfort, uncertainty, indecisiveness and distress that a nurse experienced as a result of the social and physical circumstances of the work setting (job stress). This negative moderation strongly supports the third hypothesis and demonstrates the role of task significance in reducing job stress and increasing job involvement among nurses. Following this, if the job responsibilities of nurses are designed to have substantial impacts on the lives

or work of other people whether in the immediate organization or in the external environment (task significance), then it will likely reduce the feelings of tension, discomfort, uncertainty, indecisiveness and distress they experience as a result of the social and physical circumstances of the work setting (job stress), hence increasing the extent to which they are attached and engrossed in their work (job involvement). This moderation is in line with previous studies (e.g. Akerboom & Maes, 2004; Upasna & Agarwal, 2006) and has also given credence to job demand-resources (Bakker & Demerouti, 2007) and job characteristics (Hackman & Oldham, 1980) models.

Implications of the Study

The findings of this study demonstrated the theoretical and practical roles of job demand-resources (Bakker & Demerouti, 2007) and job characteristics (Hackman & Oldham, 1980) models in enhancing job-related behavior of workers especially nurses. To this end, if the policy makers in the health sector can design the job responsibilities of nurses to have substantial impacts on the lives or work of other people whether in the immediate organization or in the external environment (task significance), then it will likely reduce the feelings of tension, discomfort, uncertainty, indecisiveness and distress they experience as a result of the social and physical circumstances of the work setting (job stress), hence increasing the extent to which they are attached and engrossed in their work (job involvement). This among other factors will help to improve the job involvement of nurses resulting in enhanced health care delivery.

Limitations of the Study

Due to time and financial constraints, it was not possible to study all the nurses in Enugu State, Nigeria. This led to the relative small sample size used in this study. Future studies in this area should be properly funded and more time dedicated in order to widen the scope of such studies.

The use of cross-sectional survey, self report and moderated hierarchical multiple regressions based on the assumptions of correlation could not allow cause-effect relationship. Longitudinal studies and experimentation are likely to provide better data and more robust findings.

V. Conclusion

The task significance dimension of job characteristics negatively moderated the relationship between job stress and job involvement, hence the need to pay attention to job design in order to reduce job stress and thus enhance job involvement among nurses.

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