Over Time Effects of Role Stress on Psychological Strain among Malaysian Public University Academics

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Abstract

The main objective of this study is to test the over time effects of three role stressors (role overload, role ambiguity, role conflict) on psychological strain among Malaysian public university academics. Based on Lazarus transactional model of stress (Lazarus, 1990) it is hypothesized that the three role stressors will predict changes in psychological strain over time. Time 1 data were collected from 310 academic from five big public universities in Malaysia. Time 2 data were collected six month later from the consented respondent at Time 1 yield 194 academics. The study used hierarchical regression analyses to obtain the result. The study found that role overload and role ambiguity predict strain over time but not role conflict.

Keywords: Role stress, Role Overload. Role Ambiguity, Role Conflict, Strain, Moderator

Introduction

Role-related demands, lack of resources, lack of support and insufficient time to keep abreast with overall job demands are frequently reported as the sources of stress among academics (Gillespie et al., 2001). Work-related stress is of growing concern because it has significant economic implications for universities through academics' dissatisfaction, lowered productivity and lowered emotional and physical health (Dua, 1994). Stressed academics were reported as showing withdrawal behaviors such as a cynicism toward work, lack of organizational commitment and intention to leave the university (Taris et al., 2001). University management, on the other side, emphasizes academic excellence, responsibility, accountability and competitiveness. Stressed academics are a cost to a university in terms of absenteeism, tardiness and turnover. Specifically, a higher level of stress among academics may affect the quality of graduates, research and publications. It is generally believed that moderate levels of strain can stimulate creativity and encourage effort, while excessive levels of stress are liable to inhibit creativity and dissipate effort. Strain may unlock hidden reserves of energy for contingencies and emergencies. However, strain, which is very far from the optimum level, will lead to lower productivity and this is a threat to the organizational competitiveness. Given the critical importance of the issue well-being among academics, research indicates that academics are experiencing higher level of strain compared to other occupational group (Winefield, 2000; Kinman & Jones, 2004).

Therefore the general aim of the study is to investigate the effect of work-related stressors on strain. However, most studies to investigate stress process mainly based on cross-sectional design (Maxwell & Cole, 2007). One of the disadvantages of this method is, any casual interpretation of empirical relations between predictor and outcome variable is dubious. The cause and effect relations could also be of reversed direction. Furthermore, self reports of predictor and outcome variable may be related because of an underlying common third variable (Dwyer, 1983). Moreover, the result of cross-sectional design study may be affected by common method variance (Lindell & Whitney, 2001). Common method variance is a type of spurious internal consistency which occurs when the apparent correlation among indicators or even constructs is due to their common source (Spector, 2006). For instance, if the data source is self-reports, the correlation may be due the propensity of the subject to answer similarly to multiple items even when there is no true correlation of constructs. Thus, the ambiguities in the interpretation of empirical result could be reduced with longitudinal studies. Therefore, I used longitudinal approach to examine the effects of predictor variables on criterion variables in order in infer longitudinal relations. Peiro et al. (2001) suggest that the effect of role stressors on strain is longitudinal because strain is induced by role stressors in a process that unfolds overtime.

Literature Review

Conceptualization of Role Stressor

A role stressor can be defined as the pressure experienced by an individual as a result of organizational and job-specific factors in the form of demands and constraints that have been placed on them (Kahn, Wolfe, Quinn, & Snoek, 1964). Role stress theory states that organizational factors generate role expectations among role senders, who then transmit these as role pressures to the person. Experienced and prolonged pressure creates symptoms of ill health (Kahn et al., 1964).

Role attributes have various effects on different individuals. People are willing to accept roles because they provide important psychological benefits such as status, ego gratification, and increased self-esteem (William & Alliger, 1994). However, there are also potential costs associated with the roles when individuals are not able to perform those roles as expected. Whenever individuals do not have clear guidelines regarding their role's authority and responsibility, they will experience stress, become dissatisfied, and perform less effectively (Lee & Schular, 1980). Employees are concerned about their work roles and goals because their rewards are based on the accomplishment of the work goals and fulfillment of role expectations (Ashforth & Lee, 1990). When goals, roles and performance criteria are ambiguous, employees may perceive these ambiguities as threatening their interests. Subsequently, this will lead to the feeling of strain.

Literature has established the relationship between role stressors and the feeling of strain (Lee & Ashforth, 1996; Fogarty, Singh, Rhoads, & Moore, 2000; Peiro et al., 2001; Posig & Kickul, 2003). According to Posig and Kickul (2003), strain occurs mainly because of fatigue that results from pressure to comply with the set of demands. Researchers agree that role stressors are made up of three separate but related contructs: role overload, role ambiguity and role conflict (Kahn, 1980**;** Schaubroeck Cotton & Jennings, 1989; Kelloway & Barling, 1990; Peiro et al., 2001). Role overload exists when role expectations are greater than the individual's abilities and motivation to perform a task (Schaubroeck, et al., 1989; Spector & Jex, 1998; Conley & Woosley, 2000). Role ambiguity arises when individuals do not have clear authority or knowledge about how to perform the assigned jobs (Rizzo, House & Lirtzman, 1970; Ivancevich & Matteson, 1980; Ashforth & Lee, 1990). Role conflict refers to incompatibility of expectations and demands associated with the role (Rizzo et al., 1970; Ivancevich & Matteson, 1980; Ashforth & Lee, 1990).

With regard to the experience of role stressors in academics, literature provides clear evidence that academics are experiencing role overload (Dua, 1994; Gillespie et al., 2001; Taris et al., 2001). For example, academics were described as having difficulty in completing their assigned jobs properly due to task overload (Giliespie et al., 2001). This finding is consistent with prior research (Gmelch et al., 1984; Dua, 1994; Sharpley, Reynolds, Acosta & Dua, 1996). New academic members especially strongly felt the pressure of role overload and Lease (1999) reported this is a significant predictor of strain. Being new in the job, they tend to have a low level of perceived ability to handle teaching and research. In his meta-analysis, Winefield (2000) concluded that increased stress levels in academics were associated with increased workload and reduced rewards.

There is also evidence that academics are experiencing role ambiguity. Sharpley et al. (1996) reported that lack of regular feedback about how well academics were doing was the highest source of stress. The lack of regular feedback received by academics was reported earlier by Dua (1994). Feedback is important to enable the academics to evaluate their performance on the job and how they are progressing in their effort toward task accomplishment. Since positive feedback may serve as reinforcement to the self-efficacy belief that leads to higher performance and less stress, academics who do not receive regular feedback may experience considerable uncertainty about their role performance (Bandura & Locke, 2003). Higher ambiguity may also arise due to lack of clarity regarding how to juggle different academic activities of teaching, research and professional services that are necessary for the successful accomplishment of academic role. Regular, formal, direct, verbal and written feedback from a supervisor and informal feedback throughout the year may reduce role ambiguity, which in turn reduces stress.

A line of stress studies has also detected the experience of role conflict among academics (Dua, 1994; Sharpley et al., 1996; Gillespie et al., 2001; Taris et al., 2001). Academics with role conflict can be characterized by those: without adequate resources; who have to bend a rule or policy; and who receive conflicting requests (Rizzo et al., 1970). For example, in order to accomplish the assigned task under inadequate resources, academics sometimes are forced to violate organizational policies and procedures. To certain extent, some academics were reported as having to reconcile the task of teaching and research (Rowley, 1996). For example, the pressures that were put on academics to focus simultaneously on quality of teaching and research under higher demands but tighter resource constraints have created strain (Rowley, 1996). As evidenced earlier, with the combination of higher teaching loads, tighter resources and higher demands from various stakeholders, there are potential to lead to greater strain.

The Conceptualization of Strain

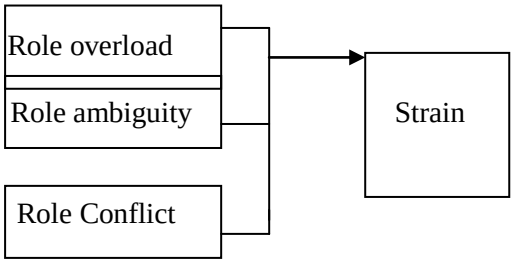
Lee and Ashforth (1996) defined strain as affective, feeling states of the individual characterized by depleted emotional resources and lack of energy. There are many ways to explain the feeling of strain. Lazarus' transactional theory uses the concept of strain to explain the pain which is experienced by individuals when environmental factors are perceived as overtaxing and exceeding their ability to cope with them (Lazarus & Folkman, 1984).

In a continuous battle to fight strain, the individuals adjust or manage their cognition, emotion and behaviour to adapt to the perceived stressors. In the case of the failure to handle these stressors, strain will occur. In order to avoid strain individuals need resources to provide the strength to face the stressors. From the perspective of COR theory, strain occurs when individuals are lacking the power to obtain, retain and protect valued resources (Hobfoll, 1989). In a more serious situation, the strained individuals feel that they no longer have necessary resources to predict, understand and control the stressors confronting them (Wright & Hobfoll 2004).

The feeling of strain is associated with psychological and physiological reactions. Psychological strain refers to a particular form of emotional distress arising in response to a situation involving perceived threat to a person's well-being. Transactional models of stress emphasize the perceptual nature of stress-produced emotions (Cox, 1978; Folkman & Lazarus, 1988). Emotion can takes positive and negative forms. Examples of the positive emotions are happiness, pride, relief and love. The negative emotions include anger, fright, anxiety, shame, guilt, sadness, envy, jealousy and disgust. Psychological stress centers on negative emotions, though positive emotion often serve as breathers (a break from stress), sustainers and restorers (replenishing damaged resource) (Lazarus & Folkman, 1980). Anger, anxiety, frustration, and depression are among the most important forms of negative emotion reported in the literature (Smith & Lazarus, 1993). Figure 1 presents the hypothesized model of the study.

Theoretical Model and Hypothesis

Figure 1: Theoretical model



The proposed model (Figure 1) illustrates that role overload, role ambiguity, and role conflict are directly related to strain. Role overload was defined earlier as having too much to do in a given amount of time (Conley & Woosley, 2000). It is generally accepted that an optimum level of job demands will encourage individuals to endeavor the challenging tasks. As long as the quantitative demands are within their capability, academics will work hard to accomplish the given tasks that lead to increased productivity. However, when job demands are excessive, a sense of overburdenment will develop and subsequently lead to strain. The second role stressor in the model is role ambiguity, which occurs when academics experience a lack of clear and specific information regarding work role requirements (Rizzo et al., 1970). Fundamentally, role ambiguity is due to unclear plans and goals, a lack of clarity of one's duties, and uncertainty about the amount of authority granted to perform tasks (Rizzo et al., 1970). I posit that a certain amount of ambiguity creates a creative environment. Cognitively, a certain level of ambiguity fosters creative decision-making as academics are looking for possible solutions to resolve ambiguities. For an academic, role ambiguity may arise when he or she does not know how to start a research project, how to prioritize the given tasks, what the expected behaviour of an academic is, and what the performance evaluation criteria are.

The renewed emphasis on research represents something of a shift from the previous focus on teaching. Staff who normally were evaluated for their contribution to teaching and course development can feel threatened and may see their promotion prospects diminished. The situations above, that are not knowing what to do and unclear expectations may put academics in difficult situations that can lead to strain. The third role stressor in the proposed model is role conflict. Role conflict was defined earlier as the imposition of incompatible expectations. These unreasonable expectations can result in both inter-role conflict and intra-role conflict. Inter-role conflict refers to academic's experience of conflict among multiple roles in his or her academic job. Intra-role conflict occurs within a single role, such as an academic receives conflicting messages from multiple 'role senders' about how to perform a certain role.

The hypotheses for the direct effect of role stressors on strain are as follows:

H1a: Role overload predicts strain over time.
H1b: Role ambiguity predicts strain over time.
H1c: Role conflict predicts strain over time.

Method

Participants and Data Collection

A questionnaire with a stamped, addressed envelope was sent out to 2000 academics from the five chosen public universities in Malaysia. There were about 9951 academics in the target universities. The study excluded tutors in the sampling frame. After the exclusion of tutors and the academic who were on study and sabbatical leaves there were about 6,000 academics available during the time of the data collection period. In order to ensure that every academic in a sample frame has an equal chance of being selected for the sample, this study used stratified sampling. Stratification refers to the process of grouping academics into their particular university. The study further stratified the samples from each university according to the school/faculty. One in every three names in the telephone directory book of each university were selected yielded 2000 names. The first stage of data collection started in February 2005. A total of 357 academics out of 2000 returned the questionnaire in the first stage of data collection with a response rate of 17%. A coded questionnaire helped the study to resend again the similar set of questionnaire to the consented respondents. The second wave of data collection was carried out in July 2005 with a six-month lag time. In the second wave 210 respondents returned the questionnaires contributed to 59% response rate.

The study paired 202 samples for time 2 with sample at Time 1. The total sample for Time 1 was 339 after deleting 18 sample with serious data missing and samples for Time 2 was 205 after deleting five samples with serious data missing. The attrition rate was 41%. The demographic variable section in the questionnaire helped the study to match the respondent at Time 1 and Time 2. The name and the faculty/school names provided by the respondents eased the study to match the questionnaire at Time 1 with the questionnaire at Time 2. The study was not able to match eight samples for Time 2 due to lack of information and error in the coding process.

Measures

The study used Spector and Jex's (1998) Quantitative Workload Inventory (QWI) to measure role overload among academics ("How often does your job require you to work very fast?). The five-item QWI represents the elements of quantity of work, amount of workload and time pressure. This scale had internal reliabilities of .88 at Time 1 and .87 at Time 2. The study used Rizzo, House, and Lirtzman's (1970) six-item scale to measure role ambiguity. The scale measured the level of academics' perceived ambiguity about their role's authority and responsibility, their work objective, necessary information about the job, and the expectation of others of them ('My job has clear, planned goals and objectives"). The study reverse coded all the items of this measure so that they would reflect ambiguity. This scale had internal reliabilities of .85 at Time 1 and .84 at Time 2. Role conflict was measured by Rizzo et al.'s (1970) eight-item scale ("I work with two or more groups who operate quite differently").

The scale was intended to measure the perception of resource adequacy, conflicting requests, group interdependence and different working styles experienced by academics. All items were assessed using 6-point response scales (1 = Strongly disagree, 6 = strongly agree) and scale scores were obtained by computing mean responses toward all component items in a measure. The internal consistencies for the scale were .88 at Time 1 and .84 at Time 2. Goldberg's (1978) twelve-item General Health Questionnaire (GHQ12) was selected to measure the feeling of strain (sample item: "Been able to concentrate on what you are doing?"). This measure is a screening instrument covering a range of psychiatric symptoms: somatic, anxiety, depression, self-esteem, stress, negative affectivity and social dysfunction (Tait, French & Hulse, 2003). The respondents were asked to rate the frequency with which they had experienced each situation on six-point scale (1 = Never, 6 = All the time). The internal reliabilities of this scale were .83 at Time 1 and .82 at Time 2. Correlations between variables are presented as in Table 2

Table 1: Means, standard deviations, and correlations among study variables at Time 1 and Time 2

Variable	Time	Mean	SD	1	2	3	4
1. Strain	1	2.74	.605	1			
	2	2.61	.527	1			
2. Role Overload	1	3.85	.799	.21**	1		
	2	3.61	.706	.23**	1		
3. Role ambiguity	1	2.15	.788	.46**	.11	1	
	2	2.24	.725	.33**	.22**	1	
4. Role Conflict	1	3.21	.974	.33**	.28**	.31**	1
	2	3.09	.805	.30**	.28**	.36**	1

Statistical Analysis

The study used longitudinal design to investigate the causal effects of role stressors on strain. A series of hierarchical regression analyses was also performed to examine the effect of role overload, role ambiguity and role conflict on strain over time. In these analyses, strain that was measured at Time 2 was considered as the dependent variable. These hierarchical regressions involved three steps. In step 1, strain at Time 1 was entered as control variable. In step 2, predictor variable at Time 1 such as role overload at Time 1 was entered into the regression equation. In step 3, the role stressor at Time 2 was entered into the equation. The R^2 change in step 3 determined the statistically significant increment in the proportion of explained variance of strain at Time 2. The results of the hierarchical regression analyses were displayed in Table 2.

Result

Table 2: Hierarchical regression analyses of Time 2 strain onto Time 1 strain, and Time 2 role overload, role ambiguity and role conflict.

Predictors	Step 1	Step 2	Step 3
Strain Time 1	.541**	.533**	.539**
Role overload Time 1		.049	-.024
Role overload Time 2			.149*
R^2	.292**	.295**	.312**
R^2 change		.00	.017*
Strain Time 1	.541**	.540**	.511**
Role ambiguity Time 1		.00	-.108
Role ambiguity Time 2			.241**
R^2	.292**	.292**	.335**
R^2 change		.00	.042**
Strain Time 1	.54**	.50**	.49**
Role conflict Time 1		.103	.056
Role conflict Time 2			.098
R^2	.292**	.302**	.309**
R^2 change		.01	.01

Note: The numbers in the first three lines of each block are standardized regression coefficients.
* indicate significant at 5% significant level
** indicate significant at 1% significant level

The results of the study showed that role overload and role ambiguity predicted change in strain over time but not role conflict. The regression estimates of the influence of role overload at Time 1 obtained in step 2 showed that role overload has no significant impact on changes in strain between Time 1 and Time 2. But the new estimate obtained in step 3 ($B = .149$, $p < .05$) points out that changes in role overload over time significantly predicts change in strain, so that an increment in role overload over time is associated with an increment in strain over time. The inclusion of role overload at Time 2 into the regression produces a statistically significant increment in the proportion of explained variance of strain at Time 2 (R^2 change = .017, $p < .05$). The same pattern of effect prevails for role ambiguity. The estimate that was obtained in step 3 ($B = .241$, $p < .05$) points out that change in role ambiguity over time significantly predicts change in strain over time. Role ambiguity at Time 2 produces a statistically significant increment in the proportion of explained variance of strain at Time 2 (R^2 change = .042, $p < .05$). Unfortunately, role conflict at Time 1 does not predict change in strain ($B = .056$, $p > .05$). The inclusion of role conflict at Time 2 into the regression equation in step 3 yields a non-significant increment of 1% in the percentage of explained variance of strain at Time 2 (R^2 change = .01, $p > .05$).

Discussion and Conclusion

The stress studies were repleted with the investigation of the direct effect of role stressors on strain. This study substantiated the previous study within the context of Malaysian public university academics. In the cross-sectional analysis, the study found that role overload and role ambiguity at Time 2 were related to strain at Time 2. This is consistent with the findings of the previous research (Lee & Ashforth, 1996; Fogarty et al., 2000; Peiro et al., 2001; Posig & Kickul, 2003), which found that role stressors were related to strain. The earlier studies have also established the linkage between role ambiguity with strain (Kahn et al., 1964; Bedeian & Armenakis, 1981; Jackson & Schuler, 1985; Lieter & Maslach, 1988; Parasuraman & Alutto, 1984; Kemery et al., 1985; Schaubroeck et al., 1989). The results from cross-sectional analyses suggest that academics were less tolerable with role ambiguity as compared to role overload and role conflict. Higher level of tolerance for role overload and role conflict might help to offset the negative effect on strain. However, lower level of tolerance for role ambiguities make the academic susceptible to strain.

Tolerance for ambiguity was defined as the tendency of individual to see ambiguous situation as desirable (Ivancevich & Donnely, 1974; Wright & Thomas, 1982). Thus, those people with a high tolerance for role ambiguity would be less affected by role ambiguity than those with low tolerance of ambiguity. Since western researchers have found this to be the case in numerous studies (Ivancevich & Donnely, 1974; Keenan & McBain, 1979; Wright & Thomas, 1982). This study views similar phenomena is also happening in the Malaysian scenario. It appeared to be that the local academics are also looking for clearer guidelines from their superiors. A more innovative cause and effect were obtained from the longitudinal analysis. The results of the study suggested that there was a slight difference regarding the effects of role stressors on strain. In this analysis, role overload and role ambiguity predicted changes in strain within the six months lag time. Role conflict did not predict change in strain over time within the six months lag time. The direct effects of role overload and role ambiguity were detected earlier using cross-sectional analysis. The result of this study is in agreement with the model of Leiter and Maslach (1988). Interestingly, a main cross-sectional effect of role conflict on strain existed, but a lagged main effect was however lacking. There are two possibilities for this phenomenon. First, role conflict might have an immediate effect on strain.

The perceived role conflict such as the perception of resources inadequacy, conflicting requests, or different working styles were appraised by the academics as threatening to their well being and this created strain. For example, resource inadequacy in the workplace directly and instantaneously disturbed work processes and job outcomes. The second possibility is that role conflict might need a longer time lag to affect strain. The perceived role conflict might take more than six month lag time to have an effect on strain. The question may arise as why academics, over time are more tolerable with role conflict as compared to role overload and role ambiguity. The possible explanation might be centered on rewards and recognition. Academics with the sense of role conflict have the opportunity to work with the limited resources by displaying their creativity and receiving the recognition and appreciation from the organization. The effect is however more severe in the case of role ambiguity. Role ambiguity that was characterized by unclear goals and objectives, unclear expectations and uncertainties with the amount of authority seemed detrimental to personal functioning as an academic. Without clear goals and objectives, it was difficult for an academic to perform his or her duty. In this case, role ambiguity was appraised by the academics as the stumbling block to important job outcomes. For example, inability of an academic to start a research project reduced his or her self-esteem. This situation will be appraised as a threat to performance evaluation as it is a requirement for individual advancement in the organization.

Study Limitations

Results of the study need to be viewed in light of the study limitations. First, the samples are drawn from five big public universities in Malaysia. Thus, this study represented a conservative of old universities. Despite the fact that these universities set the standard for Malaysian higher education, generalization of the finding will require an assessment of a wider array of settings. Second, the size of the sample may not have had sufficient statistical power to detect the over time effects. The third limitation is regarding six months lag time that was used in this study to examine the effect of predictors on outcomes. Literature indicated that there were no theoretical argument nor were there enough empirical evidences for specifying the appropriate lag time for the effects of variables on one another (Finkel, 1995). This study used six months lag time because it constitutes a full cycle of an academic semester that was adopted by all of the targeted universities. Future research should test the effect of the role stressor on strain using lag time of more than six months.

Policy and Social Implication

The first practical implication is the detection of psychological well-being or strain. The centrality of strain to the component of job stress points to avenues for reducing academic intention to leave the university. By identifying academics whose strain is relatively high, management could concentrate on actions to reduce this negative influence on the academics. The findings of the study suggested that minimizing the sense of role overload, role ambiguity, and role conflict can contribute to reducing strain. A reduced level of strain is believed to be beneficial in reducing adverse consequences of strain such as diminished organizational commitment and increased turn over intention. In considering the specific aspect of action such as reducing role ambiguity among the academics, it is evidenced that role ambiguity is more influential to cause strain. The study could not imagine the situation in which the academics were ambiguous of their role in the university and the professional identities were ill defined. For that an academic should be equipped with the necessary resources to face with role ambiguities such as skill variety, autonomy, feedback and task identity. In the process of mentoring newly appointed academic staff, Beeby (2000) proposed several steps to reduce role ambiguities: 1) give more attention to briefing and training; 2) preserve 'off-line' principle; 3) resolve formal-informal paradox; and 4) allocation of time by supervisor.

In a specific example of conducting research, Neumann and Neumann (1990) found that goal setting through goal specification assisted in reducing uncertainty and role ambiguity in producing research publications

Future Research

Future research that is based on the results of the study may proceed towards the methodological and contextual directions. Methodologically, analysis of variance showed that role stressors only explained a small portion of variance in strain in this study. Since strain has been associated with a wide variety of work and non-work conditions, these findings suggested the need for future research to identify additional variables that involve academics and other occupations. Contextually, recommendation for future research includes further work with broader based population of academics in other public universities or may be in other occupations. Conceivably, academics at the newer and smaller universities have different needs and expectation to their fellow academics in the big universities. It would be invaluable to determine if the nature of role stressors is similar or different when the wider array of setting are considered.

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