

Outcomes of occupational stress in a higher education institution

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ABSTRACT

The objectives of this study were to determine the occupational stressors for support staff at a higher education institution in the North West Province and to investigate the relationship between occupational stress, ill health, organisational commitment and organisational outcomes. An Organisational Screening Tool (ASSET) and a biographical questionnaire were administered. The results showed that, compared with normative data, support staff overall demonstrated average levels of occupational stress. However, Job Control, Resources, Communication and Work Relationships were found to be problematic stressors that mainly influenced organisational commitment. The prediction of losses suffered by the higher education institution due to absenteeism, presenteeism and turnover intention indicate that occupational stress is costly to the institution.

Key words: occupational stress, individual and organisational commitment, physical and psychological ill health, intention to quit, productivity, presenteeism, absenteeism

INTRODUCTION

Occupational stress should not only be considered as a problem of the individual, but as a serious consideration for organisations. According to Levi (1996), symptoms of stress have a significant effect on absenteeism and productivity within organisations. During a survey in 2000, employers in the United Kingdom (UK) indicated that

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absenteeism costs UK businesses approximately £10.5 billion per annum and that stress was the second highest cause of absence among non-manual employees (CBI/PPP 2000). Furthermore, the *Health and Safety Executive* (HSE) estimates that 13.4 million working days were lost in Britain in 2001/02 due to stress, depression or anxiety ascribed to work-related stress (HSE 2002). In the Netherlands, mental health disorders were the largest diagnostic group for work incapacitation (32%), followed by musculoskeletal disorders. Inspection revealed that 80% of these mental health cases suffered from job stress and burnout. The relationship between occupational stress and ill health is well documented in the literature (Cooper & Cartwright 1997; Cooper, Dewe & O'Driscoll 2001; Winefield, Gillispie, Stough, Dua, Hapuarachichi & Boyd 2003). Recent studies show that two-thirds of sick leave may be attributed to job stress (Houtman, Bongers, Smulders & Kompier 1994; Stichting van de Arbeid 2002) and that high levels of occupational stress will lead to mental and physical ill health, job dissatisfaction, absenteeism, stress-related injuries, turnover and intention to quit (Siu 2002; Winefield et al. 2003).

Organisational commitment, defined as the psychological attachment of workers to their organisation, is considered to be an important consequence or moderator of occupational stress (Siu 2002). The commitment of employees to the organisation seems to be related to work outcomes such as organisational citizenship, job satisfaction, job involvement and job performance and is negatively related to absenteeism and turnover (Finegan 2000; Organ & Ryan 1995). According to Siu (2002), organisational commitment interacts with sources of stress at work to determine its outcomes. Individuals are therefore protected from the negative effect of stress because it enables them to see direction in and attach meaning to their work. Various studies have shown that employees who experience little job satisfaction and organisational commitment are more frequently absent than those with great job satisfaction and commitment (Cohen 1991; Sagie 1998).

Occupational stress, ill health and low organisational commitment pose a serious threat to higher education institutions. Higher education institutions in South Africa have in the recent past been subjected to a series of mergers. In business firms, restructuring is reported to cause uncertainty, anxiety, loss of motivation, lower morale and higher levels of accidents and work errors (Hellriegel, Slocum & Woodman 2001), which often result in overt and covert resistance to the changes brought about by restructuring (Hellriegel et al. 2001). Overt resistance to change manifests itself in strikes, reduced productivity, inferior work and even sabotage, while covert resistance is often expressed by increased tardiness and absenteeism, requests for transfer, resignation, loss of motivation, lower morale and higher levels of accidents and work errors.

The transformation that has been taking place worldwide at higher education institutions over the last two decades has resulted in significant changes in the nature of work at institutions and therefore increased pressure on staff (Dua 1996; Fisher 1994; Winefield 2000). Among the possible causes of this rise in job stress is transformation, which includes increased domestic and international competition, restructuring, downsizing, cuts in government funding, and changes in management style and structure (Gillespie, Walsh, Winefield, Dua & Stough 2001). The competition has also been characterised by lay-offs, mergers, rapidly changing technology and ever-increasing demands for higher quality products and services. The higher levels of stress result in lower productivity, increased absenteeism and turnover, and a variety of other employee problems, including alcoholism, drug abuse, hypertension and cardiovascular problems.

Taken together, it seems important to investigate the occupational stressors experienced by support personnel in a higher education institution. Furthermore, it is important to investigate the influence of occupational stress on physical and psychological ill health as well as on the commitment levels of these employees and to determine the relationship between ill health and commitment, and important organisational outcomes. Finally, the financial implications of unhealthy and less committed employees who are absent from work, unproductive and show high turnover intention should also be determined.

OBJECTIVE

The objectives of this study were to determine the occupational stressors for support staff at a higher education institution in the North West Province, and to investigate the relationship between occupational stress, ill health, organisational commitment and organisational outcomes.

OCCUPATIONAL STRESS

The most common definitions of stress may be categorised into three types, namely stimulus-based, response-based and stressor-strain interaction (Beehr & Franz 1987). The stimulus-based approach regards stress as external forces (situational or environmental) impinging on the organism (individual) in a disruptive way. The response-based approach defines stress as an individual's psychological or physiological response to the environment or situational forces. The stressor-strain interaction approach brings together the concepts, as explained in the first two definitions, in the sense that it defines stress as both a stimulus (sources of

stress or stressor) and the response (outcomes or manifestation of stress and strain). Occupational stress has also been defined by many researchers as a negatively perceived quality which, as a result of inadequate coping with sources of stress, has negative mental and physical health-related consequences (Cox 1978; Cummings & Cooper 1979). Theories based upon this definition are usually considered to be superior, since they offer a more complete view of the dynamics of stress and can account for documented differential experiences within a single situation (Arnold, Cooper & Robertson 1998).

Stimulus-response (interactive) definitions conceive stress as resulting from interactions between environmental stimuli (stressors) and individual responses (in the form of strain). Therefore, an interactive definition is more complex than either stimulus or response definitions, because the stressor-response interaction can take a variety of forms, depending on both the nature of the stressor and the response (Sulsky & Smith 2005). During the past decade, researchers have increasingly focused on the nature of person–environment interaction, and, more importantly, the psychological process through which it takes place (Dewe 1992). As a result, contemporary views on how stress should be defined require researchers to think of stress as the result of a transaction between the individual and the environment (Lazarus 1990). The term ‘transaction’ implies that stress is neither in the person nor in the environment but in the relationship between the two (Lazarus 1990). Stress arises when the individual appraises the demands of a particular encounter as being about to tax or exceed the resources available, thereby threatening well-being and necessitating a change in individual functioning to ‘manage’ the encounter (Lazarus 1991). Stress therefore occurs when the magnitude of the stressor exceeds the individual’s capacity to resist. The transaction would be (1) identifying the processes that link the different components, (2) recognising that stress does not reside solely in the individual or solely in the environment but in the conjunction between the two, and (3) accepting that no single component can be said to constitute stress, because each is part of a process and should be understood within that context. According to Cartwright and Cooper (2002), the stress arena has been entered when individuals perceive that the demands made upon them exceed their ability to cope with them.

Occupational stress, ill health, organisational commitment and negative organisational outcomes

Physical strain is a physiological reaction of the stress process, which can be divided into long-term and short-term strain (Frese & Zapf 1999). A long-term strain is a physical illness, such as heart disease, which has been suggested as an outcome of

stress (Burke, Greenglass & Schwarzer 1996). Short-term strains are physiological reactions, such as high blood pressure or suppression of the immune responses. Psychological ill health includes anxiety/panic attacks, irritability, difficulty in decision-making, loss of sense of humour, becoming easily angered, constant tiredness, feeling unable to cope, avoiding contact with other people, mood swings and inability to listen to others (Jackson & Rothmann 2006). Research has shown that occupational stress has a negative impact on the physical and psychological ill health of both academic and support staff (Boyd & Wylie 1994; Barkhuizen 2005; Mahomed & Naudé, 2006).

Organisational commitment is often considered as one of the most researched employee attitudes in the organisational environment (Meyer 1997). Organisational commitment is defined as the relative strength of an individual's identification with and involvement in an organisation and the desire to stay with the organisation (Porter, Steers, Mowday & Boulian 1974; Mowday, Porter & Steers 1982). Thus, an intention to remain with the organisation may be seen as a consequence of commitment rather than as a defining characteristic.

Several researchers have indicated that occupational stress has a negative influence on organisational commitment. Coetzee and Rothmann (2005) report that employees perceive characteristics of their jobs and control as a big source of stress, and as a result perceive the organisation as less committed to them; they therefore also become less committed to the organisation. Jackson and Rothmann (2006) report that secondary school educators generally experienced more stress because of workload and job characteristics, and therefore have lower organisational commitment and more symptoms of ill health. According to Bakker, Demerouti, De Boer and Schaufeli (2003), poor and lacking resources preclude actual goal accomplishment, which is likely to cause failure and frustration and therefore may lead to withdrawal from work, and reduced motivation and commitment.

The changes in the work environment due to occupational stress can have costly implications for organisations, impacting on staff morale, turnover and absenteeism rates, and could also lead to reduced employee performance, poor quality control and a fall in production (Siu, Donald & Cooper 1997). The negative effects of occupational stress include impaired performance or a reduction in productivity, diminishing levels of customer service, health problems, absenteeism, turnover, industrial accidents, alcohol and drug use, and purposefully destructive behaviours (Quick, Quick, Nelson & Hurrell 1997; Wright & Smye 1996).

Ill health (strain) and organisational outcomes

Tytherleigh, Webb, Cooper & Ricketts (2005) report that organisations suffer financially because of increased absenteeism and sickness resulting from lowered employee well-being. Bakker et al. (2003) report that job demands are the most important predictor of health problems, which in turn are related to sickness absence. Furthermore, absenteeism is generally considered to be an important consequence of burnout at the organisational level (Bakker et al. 2003). High absenteeism is also associated with higher intention to leave and subsequent resigning, which has further financial implications for the organisation (Hackett 1989; Price & Mueller 1986). Thus, an explanation for absenteeism is that absence behaviour is a reaction to job stress, where stress is conceived as a failure to cope with job demands (Bakker et al. 2003).

Recent research indicates that presenteeism is one of the biggest drains of productivity due to people 'working sick' (Hemp 2004; Miodonski 2004; Ruez 2004). Presenteeism is defined as the time lost by persons who are at work, but unable to perform duties due to health conditions (Hemp 2004; Miodonski 2004; Ruez 2004). Presenteeism appears to be a much costlier problem than absenteeism. Hemp (2004) reports that two studies published in the *Journal of the American Medical Association* found that employees that showed up for work while suffering from pain or depression were three times less productive than people with the same conditions who were absent. According to Ruez (2004), the key drivers of presenteeism are workplace stress, employee health and work–life balance.

Stress and ill health are associated with serious financial implications for organisations. A study commissioned by the Health and Safety Executive estimated that stress-related illness was responsible for the loss of 13.4 million working days in Britain during the 2001/02 year (HSE 2002). A recent survey of employers in the UK revealed that absenteeism costs the UK around £10.5 billion per annum and that stress is the second highest cause of absence among non-manual employees (CBI/PPP 2000).

Econometric analyses show that healthcare expenditure in the United States has increased almost 50% for workers who perceive their jobs as stressful and almost 200% for those reporting high levels of stress and depression (Sauter & Hurrell 1999). Experts claim that stress-related disorders cost US industry in excess of \$150 billion per year and that stress-related claims account for more than 14% of all insurance compensation claims (Pelletier & Lutz 1991). Stress-related outcomes, including physical injuries at work and absenteeism, cost organisations as much as \$75 billion per year and have been shown to be directly related to high staff turnover, decreased productivity and decreased job satisfaction (Sauter, Hurrell, Fox, Tetrick & Barling

1999). Furthermore, it is also estimated that US industry loses approximately 550 million working days annually due to stress-related absenteeism (Danna & Griffin 1999). Rothmann (2006) also reports that a variance of 14% in physical ill health and 25% in psychological ill health can be explained by occupational stress through studies conducted at various organisations.

COMMITMENT AND ORGANISATIONAL OUTCOMES

Linkages between organisational commitment and other organisationally relevant variables, such as absenteeism and turnover intentions, have been consistently demonstrated (Mathieu & Zajac 1990; Shore, Barksdale & Shore 1995). Low organisational commitment levels have negative implications for job performance and intent to resign among staff (Arnolds 2005). Furthermore, Pierce and Dunham (1987) report significant negative relationships between organisational commitment and three measures of turnover, namely thinking of quitting, intent to search for new employment, and intent to quit. Research has also consistently shown a strong negative relationship between organisational commitment and employee turnover (Miner 1992; Shore, Newton & Thornton 1990).

Research showed a constantly strong and negative relationship between organisational commitment and employee turnover (Miner 1992). A study conducted by Pearson (1995) reveals that excessive turnover can have significant direct and indirect costs for organisations. The direct and indirect costs are generally related to the recruitment and training process of personnel to replace employees that have left the organisation. Chow (1990) reports that employees that are highly committed also have higher productivity and are willing to assume responsibility, while Arnolds and Boshoff (2004) reveal that organisational commitment is positively related to performance intentions and negatively related to intent to resign. Lincoln and Kalleberg (1990) argue that the rewards offered by an organisation may have a powerful effect on employees' attitudes towards their job and the company for which they work. Finally, individuals who are highly committed to their organisations will be less likely to think about leaving their jobs (Mathieu & Zajac 1990).

The following research hypotheses are formulated:

- H₁: Occupational stressors predict physical ill health of support staff in a higher education institution.
- H₂: Occupational stressors predict psychological ill health of support staff in a higher education institution.
- H₃: Occupational stressors lead to low commitment to the organisation in a higher education institution.

- H₄: Ill health leads to absenteeism and presenteeism of support staff in a higher education institution.
- H₅: Low organisational commitment leads to turnover intention of support staff in a higher education institution.

METHOD

Participants and procedure

This study used a stratified sample of the population of university support staff ($N=292$) at a higher education institution in the North West Province in South Africa. The researcher scheduled a meeting with the management of the higher education institution to request approval to conduct this research. Permission was granted to conduct the study. The purpose and objectives of the research were explained to the respondents, and they were assured that all results would be treated with the strictest confidentiality. The researcher emphasised that the process was voluntary and that anyone who felt uncomfortable with the process would not be pressurised to participate. The employees were requested to complete the questionnaire in private and then to post it in a special box in their departments. The characteristics of the participants are shown in Table 1.

Table 1: Characteristics of the respondents

Item	Category	Frequency	Percentage (%)
Gender	Male	77	26.40
	Female	210	71.90
	Missing values	5	1.70
Age	18-30 years	55	18.80
	31-40 years	75	25.70
	41-50 years	71	24.30
	51-60 years	71	24.30
	61-70 years	9	3.10
	Missing values	11	3.80
Qualification	School education	176	60.30
	3-year degree	70	24.00
	4-year degree or honours	3	1.00
	5- to 7-year degree	24	8.20
	Master's degree	13	4.50
	Doctorate	1	0.30
	Missing values	5	1.70

Table 1 shows that approximately 72% of the respondents were female. The participants were distributed between the age of 21 and 60 years. A total of 176 (60.30%) of the participants had a school education, while 116 (41) (39.7%) had a postgraduate degree.

Measuring instruments

An Organisational Screening Tool (ASSET) (Cartwright & Cooper 2002) was used to measure the levels of occupational stress, ill health and organisational commitment among support staff. Cartwright and Cooper (2002) developed ASSET as an initial screening tool, based on a large body of academic and empirical research, to help organisations assess the risk of stress among their workforce. ASSET measures potential exposure to stress in respect of a range of common workplace stressors and provides important information on current levels of physical health, psychological well-being and organisational commitment. Furthermore, ASSET provides data with which the organisation can be compared.

ASSET is divided into four questionnaires. The first questionnaire measures the individual's perception of his or her job. This subscale includes questions relating to eight potential sources of stress, namely work relationships, work-life balance, overload, job security, control, resources and communication, job overall, and pay and benefits. The second questionnaire measures the individual's attitude toward his or her organisation and includes questions relating to perceived levels of commitment, both from and to the organisation. The third questionnaire focuses on the individual's health, aimed at specific outcomes of stress, and includes questions relating to both physical and psychological health. The fourth questionnaire focuses on supplementary information and includes questions relating to factors that can affect stress. Reliability is based on the Guttman split-half coefficient. All but two factors returned coefficients in excess of 0.70, and the range was 0.60 to 0.91 (Cartwright & Cooper 2002).

Organisational outcomes (including absenteeism, presenteeism and productivity) were measured by means of a separate questionnaire. Absenteeism was measured using items such as 'Have you had any significant illnesses in the last 6 months?', 'Over the last 3 months, how would you rate your overall health?', and 'Over the last 3 months, how many working days in total have you been off work through illness or injury?' Presenteeism was measured using items such as 'During the last 3 months, have you ever taken sick leave whilst ill and/or returned before you were well due to pressure from work?' Productivity was measured using items such as 'Over the last 3 months, roughly how productive have you felt in your job?' Turnover intention was measured with items such as 'To what degree do you agree with the statement: "I consider quitting my job?"' and 'How frequently do you consider quitting your job?' Absenteeism, resignations and the average total cost to company statistics for

the support staff at the higher education institution were obtained from the human resources department for 2003, 2004 and 2005.

STATISTICAL ANALYSIS

The statistical analysis was carried out using the SPSS programme (SPSS 2003). Exploratory factor analyses and Cronbach alpha coefficients were used to assess the validity and reliability of the constructs measured in this study. Pearson and Spearman correlation coefficients were used to specify the relationship between the variables. In terms of statistical significance, it was decided to set the value at a 95% confidence interval level ($p \leq 0.05$). Multiple regression analyses were conducted to determine the proportion of variance in the dependent variable that is predicted by the independent variables. The value of R^2 was used to determine the proportion of the total variance of the dependent variable that is explained by the independent variables. The F-test was used to test whether there was a significant regression between the independent and dependent variables.

The risk factor analysis was conducted following the procedure suggested by Clarke and Cooper (2000), who propose that the level of risk (or risk factor) associated with the likely negative effects of a given stressor may be calculated by weighting the sample mean (perceived level of a stressor) by the sample correlation (between the stressor and a stress outcome). Thus, E is the perceived level of the stressor (exposure) and C is the correlation between the stressor and stress outcome (consequences). A stress audit instrument, which measures the level of perceived stress, can be used to obtain E for a particular sample. It is necessary that the standardised scale scores, rather than raw scores, be used. Values of C (consequences) are obtained by calculating the correlation between the stressors and stress outcomes, and converting R into R^2 . ASSET includes measures of outcome variables (physical and psychological ill health and organisational commitment), allowing the calculation of correlations between the stressor and some stress outcomes. The weighting of the stress level (E) by its correlation with a stress outcome (C) gives an estimate of the risk associated with exposure to that stressor.

RESULTS

Factor analyses, descriptive statistics and reliability of the measuring instruments

The percentage of variance explained by each factor, the descriptive statistics, reliability and internal consistencies of the questionnaires are reported in Table 2.

Table 2: Descriptive statistics and Cronbach alpha coefficients using ASSET

Variable	Sten (Norm)	Mean	SD	% Variance explained	α	r (mean)
1. Work-life Balance	5	9.42	4.02	49.47	0.66	0.31
2. Resources and Communication	5	9.86	4.04	56.58	0.74	0.42
3. Work Relationships	6	19.12	6.88	43.26	0.80	0.34
4. Overload	5	9.81	3.96	60.48	0.78	0.47
5. Job Insecurity	5	10.10	3.98	47.72	0.62	0.29
6. Job Characteristics	3	18.57	5.67	33.18	0.65	0.21
7. Pay and Benefits*	5	3.48	1.64			
8. Job Control	5	11.11	4.63	58.41	0.75	0.44
9. Physical Ill Health	6	13.96	4.21	44.42	0.74	0.33
10. Psychological Ill Health	5	21.90	6.90	45.50	0.89	0.39
11. Commitment (Individual to Organisation)	6	22.08	4.78	60.80	0.83	0.50
12. Commitment (Organisation to Individual)	6	18.42	3.42	57.16	0.73	0.42

* The Pay and Benefits scale consists of a single item, and therefore no alpha coefficient is reported for this scale.

Note:

Low sten scores for variables 1 to 10 indicate low stress and/or ill health. Low sten scores for variables 11 and 12 indicate low commitment.

Overall, the Cronbach alpha coefficients of the scales are acceptable compared with the guideline of $\alpha > 0.70$ (Nunnally & Bernstein 1994), although the Work-life Balance, Job Insecurity and Job Characteristics scales ranged from 0.62 to 0.66. The inter-item correlations of all the scales were also acceptable compared with the guideline of $0.15 \leq r \leq 0.50$ (Clark & Watson 1995). Table 2 also shows that individuals experience Job Characteristics as a low source of stress (sten = 3). Sten scores between 4 and 7 indicate average sources of stress. Individuals experience average levels of stress with regard to Work-life Balance (sten of 5), Resources and Communication (sten = 5), Work Relationships (sten = 6), Overload (sten = 5), Job Insecurity (sten = 5), Physical Ill Health (sten = 6) and Psychological Ill Health (sten = 5). Furthermore, individuals also experience average levels of Commitment to the Organisation (sten = 6) and Commitment from the Organisation (sten = 6).

Relationship between occupational stress, strain and occupational outcomes

Pearson product-momentum correlation coefficients are given in Table 3.

Table 3: Correlation coefficients between the measuring instruments

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Work-life Balance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Resources and Communication	0.18*	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Work Relationships	0.28*	0.71**	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Overload	0.54**	0.44*	0.51**	-	-	-	-	-	-	-	-	-	-	-	-
5. Job Insecurity	0.22*	0.43*	0.45*	0.33*	-	-	-	-	-	-	-	-	-	-	-
6. Job Control	0.20*	0.73**	0.68**	0.45*	0.47*	-	-	-	-	-	-	-	-	-	-
7. Job Characteristics	0.26*	0.56**	0.66**	0.45*	0.46*	0.57**	-	-	-	-	-	-	-	-	-
8. Individual Commitment	-0.02	-0.44*	-0.38*	-0.12*	-0.23*	-0.45*	-0.41*	-	-	-	-	-	-	-	-
9. Organisational Commitment	0.02	-0.37*	-0.28*	-0.07	-0.18*	-0.32*	-0.32*	0.79**	-	-	-	-	-	-	-
10. Physical Ill Health	0.06	0.25*	0.27*	0.23*	0.23*	0.29*	0.26*	-0.24*	-0.20*	-	-	-	-	-	-
11. Psychological Ill Health	0.09	0.34*	0.34*	0.32*	0.23*	0.36*	0.34*	-0.28*	-0.22*	0.62**	-	-	-	-	-
12. Intention - Quit	0.07	0.29*	0.38*	0.22*	0.24*	0.38*	0.41*	-0.48*	-0.29*	0.25*	0.32*	-	-	-	-
13. Frequency - Quit	0.02	0.29*	0.37*	0.22*	0.20*	0.35*	0.35*	-0.44*	-0.26*	0.25*	0.33*	0.94**	-	-	-
14. Productivity	0.01	-0.08	-0.04	-0.02	-0.04	-0.15*	-0.06	0.08	0.05	-0.10	-0.14*	-0.12*	-0.12	-	-
15. Presenteeism	0.16*	0.18*	0.23*	0.30*	0.17*	0.23*	0.17*	-0.15*	-0.13*	0.30*	0.22*	0.21*	0.17*	0.03	-
16. Absenteeism	-0.07	0.16*	0.11	-0.01	0.14*	0.17*	0.16*	-0.18*	-0.17*	0.31**	0.13*	0.09	0.09	0.01	-0.26*

* Statistically significant: $p \leq 0.05$

+ Practically significant correlation (medium effect): $0.30 \leq r \leq 0.49$

** Practically significant correlation (large effect): $r \geq 0.50$

Table 3 provides the correlation coefficients of the study variables. Physical Ill Health was statistically significantly related to all the stressors, except for Work–life Balance. However, the effects were small. Physical Ill Health was also significantly related to both Presenteeism and Absenteeism ($p \leq 0.05$; $r \geq 0.30$). Psychological Ill Health was statistically and practically significantly related to the following stressors (all medium effects): Resources and Communication, Work Relationships, Overload, Job Control and Job Characteristics. Psychological Ill Health was also significantly related to Frequency and Intensity of Quit Intentions ($p \leq 0.05$; $r \geq 0.30$). Individual Commitment to the Organisation was statistically and practically significantly related to the following stressors (all medium effects): Resources and Communications, Work Relationships, Job Control and Job Characteristics. Individual Commitment to the Organisation was significantly related to Frequency and Intensity of Quit Intentions ($p \leq 0.05$; $r \geq 0.30$). Perceived Commitment of the Organisation to the Individual was statistically and practically significantly related to the following stressors (all medium effects): Resources and Communications, Job Control and Job Characteristics.

Multiple regression analyses

To determine which occupational stressors predict ill health (both physical and psychological) and commitment (from the Individual to the Organisation, and from the Organisation to the Individual), four standard multiple regression analyses, using the enter method, were performed. In these four regressions, the contribution of occupational stressors to (1) Physical Ill Health, (2) Psychological Ill Health, (3) Commitment from the Individual and (4) Commitment from the Organisation were assessed.

In Table 4, the regression of occupational stressors upon Physical Ill Health produced a statistically significant model ($F = 5.44_{(7,290)}$; $p \leq 0.01$), accounting for 12% of the variance. However, none of the individual predictors were statistically significant. The entry of occupational stressors in the regression analysis for Psychological Ill Health also produced a statistically significant model ($F = 9.35_{(7,290)}$; $p \leq 0.01$), accounting for 19% of the variance. Table 4 shows that Job Overload ($\beta = 0.22$; $p \leq 0.01$) was the only significant predictor of Psychological Ill Health.

When occupational stressors were regressed upon Individual Commitment, a statistically significant model ($F = 15.67_{(7,290)}$; $p \leq 0.01$), accounting for 28% of the variance, was produced. In this model, it seems that the main predictors of (low) Individual Commitment were Job Resources ($\beta = -0.19$; $p \leq 0.05$), Overload ($\beta = 0.16$; $p \leq 0.05$) and Job Control ($\beta = -0.24$; $p \leq 0.01$). Finally, a statistically signifi-

Table 4: Standard multiple regression analyses

Variable	Unstandardised coefficient		Standardised coefficient	t	p	F	R ²	R
	B	SE	Beta					
Physical Ill Health						5.44*	0.12	0.34
(Constant)	9.60	0.92		10.44	0.00			
Work-life Balance	-0.10	0.07	-0.97	-1.45	0.15			
Job Resources	0.00	0.10	0.00	0.04	0.97			
Job Overload	0.14	0.08	0.14	1.80	0.07			
Job Security	0.10	0.07	0.10	1.38	0.17			
Job Control	0.13	0.08	0.14	1.54	0.13			
Work Relationships	0.02	0.06	0.04	0.41	0.68			
Psychological Ill Health						9.35*	0.19	0.43
(Constant)	14.23	1.55		9.20	0.00			
Work-life Balance	-0.22	0.12	-0.12	-1.86	0.06			
Job Resources	0.12	0.16	0.07	0.75	0.45			
Job Overload	0.42	0.14	0.22	3.10	0.00*			
Job Security	0.02	0.12	0.00	0.13	0.90			
Job Control	0.20	0.14	0.13	1.47	0.14			
Work Relationships	0.06	0.10	0.05	0.60	0.55			
Commitment (Individual to Organisation)						15.67*	0.28	0.53
(Constant)	28.63	0.95		30.31	0.00			
Work-life Balance	0.05	0.07	0.04	0.65	0.52			
Job Resources	-0.23	0.10	-0.19	-2.35	0.02*			
Job Overload	0.20	0.08	0.16	2.40	0.02*			
Job Security	0.03	0.07	0.03	0.44	0.66			
Job Control	-0.25	0.08	-0.24	-3.00	0.00*			
Work Relationships	-0.02	0.06	-0.03	-0.34	0.73			
Commitment (Organisation to Individual)						9.19*	0.19	0.43
(Constant)	21.89	0.72		30.52	0.00			
Work-life Balance	0.04	0.06	0.05	0.76	0.45			
Job Resources	-0.25	0.07	-0.30	-3.38	0.00*			
Job Overload	0.13	0.06	0.15	2.08	0.04*			
Job Security	0.00	0.06	0.00	0.07	0.94			
Job Control	-0.07	0.06	-0.09	-1.01	0.31			
Work Relationships	0.02	0.04	0.04	0.40	0.70			

* $p \leq 0.05$ statistically significant

cant model ($F = 9.19_{(7.290)}$; $p \leq 0.01$) was produced when occupational stressors were regressed upon Organisational Commitment, explaining 19% of the variance. In this model, it seems that Job Resources ($\beta = -0.30$; $p \leq 0.01$) and Overload ($\beta = 0.15$; $p \leq 0.05$) were the main predictors of (low) Organisational Commitment.

Impact of absenteeism, presenteeism and turnover intention on the organisation

A regression analysis was conducted to determine the proportion of variance in sickness absence (over a three month period, as reported by participants) that

is predicted by Physical Ill Health (as measured by ASSET). Physical ill health because of stress statistically significantly predicted sickness absenteeism ($F = 26.06$; $p \leq 0.01$; $R^2 = 0.09$). The R^2 value did not change statistically significantly when Psychological Ill Health was entered into the regression equation. Psychological Ill Health (as measured by ASSET) explained 38% of the variance in Physical Ill Health (as measured by ASSET) ($F = 154.11$; $p \leq 0.01$).

Tytherleigh et al. (2005) report that organisations suffer financially because of increased absenteeism and sickness resulting from employee illness. Absenteeism statistics and the average total cost-to-company statistics were obtained from the human resources department for the support staff at a higher education institution for 2003, 2004 and 2005. The results are reported in Table 5.

Table 5: Absenteeism: Loss to the institution

Item	2003	2004	2005
Total days sick	4.975	3.125	6.175
Percentage variance	9%	9%	9%
Days absent due to stress	448	282	556
Average cost to the university (per day)	R769.46	R985.26	R896.92
Total loss (stress related)	R344 525.72	R277 104.38	R498 463.29

Table 5 indicates that 4 975 days were lost due to sickness during 2003, 3 125 days were lost due to sickness in 2004 and 6 175 days were lost due to sickness during 2005. Therefore, the total days absent (prediction) as a result of stress were 448 during 2003, 282 during 2004 and 556 during 2005. The total estimated loss to the university over the three years thus amounts to R1 120 093.39. Given the fact that we assume that 9% of the variance in sickness absenteeism could be explained by physical ill health, it can be deduced that R31 007.32 of the cost of sickness absenteeism can be attributed to physical symptoms of ill health.

It should be noted that this calculation is given only for the purposes of illustration and has various limitations. Firstly, the sickness absenteeism that was measured by self-reports might be less reliable than the objective sickness absenteeism statistics gathered by the organisation. Indeed, an analysis showed that the objective sickness absenteeism statistics that were gathered by the organisation (over one year) appeared to be much higher than the self-report statistics over three months. Secondly, the period of the self-report sickness absenteeism was only three months, which results in less reliable data than data that were gathered over a one-year period. Thirdly,

the calculations only include the average cost to the university (employee salary) and not costs such as staff replacements and loss of productivity because of sickness absenteeism.

Another problem in trying to predict sickness absenteeism from physical and psychological ill health is that employees often return to work before they have recovered from ill health (which is referred to in the literature as 'presenteeism'). A total of 89 employees (33.2%) reported that they had returned to work while they were ill. Although it is clear that presenteeism will result in lower productivity, it is difficult to estimate the costs thereof. According to Hemp (2004), the possible loss to productivity ranges from less than 20% to more than 60% of a company's total health-related costs. A total of 37% of employees who returned to work while they were still ill indicated that they were less than 80% productive in their jobs.

According to Pierce and Dunham (1987), significant negative relationships exist between organisational commitment and three measures of turnover, namely thinking of quitting, intent to search for new employment, and intent to quit. Arnolds (2005) reported that low organisational commitment levels have negative implications for job performance and intent to resign among staff. During this study, the intention to quit was measured by self-reports. A total of 75 employees (27.6%) reported that they considered quitting their job; 51 of these employees (18.8%) indicated that they considered quitting their job as result of stress. The statistics obtained from the human resources department revealed that 92 support employees resigned during 2003, 35 employees resigned during 2004 and 63 employees resigned during 2005. Cascio (2006) reports that the cost of turnover in a chain of restaurants in Singapore was more than 75% of an employee's annual salary. Among managers, the salary multiple is 1.5 to 2.5, excluding the cost of lost customer contracts and productivity. Turnover intention can therefore be costly to the organisation.

Next, the relationship between occupational stress, organisational commitment and turnover intention were analysed. For the purposes of this analysis, turnover intention was calculated as the product of the frequency and intensity of employees' thoughts about quitting their jobs. The intensity of turnover intention was measured by the question "To what degree do you agree with the statement: "I consider quitting my job?" The frequency of turnover intention was measured by the question 'How frequently do you consider quitting your job?' A total of 43 employees (14.73%) in the sample showed high turnover intention. Discriminant analysis was used to investigate whether occupational stress and organisational commitment would predict turnover intention. The results showed that occupational stress and organisational commitment significantly predicted turnover intention (Wilks' Lambda = 0.90; $\chi^2 = 31.65$, $df = 9$; $p \leq 0.01$). The standardised canonical discriminant function coefficients are reported in Table 6.

Table 6: Standardised canonical discriminant function coefficients

Item	Coefficient
Work-life Balance	-0.25
Resources and Communication	-0.15
Work Relationships	0.42
Overload	0.04
Job Insecurity	0.13
Job Characteristics	0.44
Job Control	0.08
Individual Commitment	-0.45
Organisational Commitment	0.07

Based on the results in Table 6, it can be deduced that the occupational stressors of Work Relationships, Job Characteristics and Individual Commitment (inverse) predicted turnover intention. The classification results show that 70% of the low turnover intention group (174 cases) and 65% of the high turnover intention group (28 cases) were predicted correctly.

Table 7 indicates that 92 support staff (8.5% of total support staff) actually resigned during 2003, 35 resigned during 2004 and 63 resigned during 2005. Thus, 8.5% of the total support staff resigned during 2003, in comparison with 14.73% determined through the sample. As already calculated, 65% of the high turnover intention group was predicted correctly and the total actual resignations as a result of stress and low commitment were therefore predicted as 60 employees during 2003, 23 employees during 2004 and 41 employees during 2005. The total estimated loss to the university over the three-year period thus amounts to R20 612.02.

Table 7: Turnover intention: loss to the institution

Item	2003	2004	2005
Actual resignation	92	35	63
Percentage variance	65%	65%	65%
Resignation due to stress	60	23	41
Average cost to the university (75% of annual salary)	R150 069	R192 866	R174 926
Total loss (stress related)	R9 004.14	R4 435.92	R7 171.97

It should be noted that this calculation is given only for the purposes of illustration and has various limitations. Firstly, the turnover intention of employees was measured by self-reports that might be less reliable than the actual resignation

statistics gathered by the organisation. Indeed, an analysis showed that the actual resignation statistics that were gathered by the organisation (over one year) appeared to be higher than the self-report statistics over three months. Secondly, the calculations were based on the assumption that the cost of resignations could be set at 75% of the average annual salary of support staff (cost to company), as suggested by Cascio (2006). The real costs of resignations depend on the job levels of employees who resigned. It is very difficult to estimate the total costs due to the resignation of employees, because of various cost elements, such as lost of expertise, productivity, recruitment and training.

DISCUSSION

The objectives of this study were to determine the occupational stressors for support staff at a higher education institution in the North West Province ($N = 292$), and to investigate the relationship between occupational stress, ill health, organisational commitment and organisational outcomes. Compared to normative data, support staff overall demonstrated average levels of occupational stress. Occupational stressors impacted more on organisational commitment (rather than ill health) in this study. Three stressors, namely job control, resources, communication and work relationships, impacted significantly on organisational commitment. The prediction of losses suffered by the higher education institution due to absenteeism, presenteeism and turnover intention show that occupational stress is costly.

Although the literature (Barkhuizen 2005; Coetzee & Rothmann 2005; Mahomed & Naudé 2006; Tytherleigh et al. 2005) indicates that support and academic staff at higher education institutions experience high levels of stress (with respect, for example, to job security, work relationships and a lack of control), compared to the normative data, support staff overall in this study experienced average levels of occupational stress. Furthermore, support staff also experience average levels of commitment both from and towards the organisation.

In order to determine the best predictors of ill health and commitment, four multiple regression analyses were conducted, with the occupational stressors included as predictors, and ill health and commitment as dependent variables. Although a statistically significant model was produced when occupational stressors were regressed upon physical ill health, the results show that none of the occupational stressors were significant predictors. However, it should be mentioned that job overload almost reached statistical significance ($p = 0.07$) and could therefore, if not attended to, result in physical ill health in the longer term. Hypothesis 1, which stated that occupational stressors would predict physical ill health, is therefore rejected.

As far as the relationship of occupational stressors and psychological ill health is concerned, a statistically significant model was produced, where the main predictor was overload. It seems that when support staff feel particularly stressed with unmanageable workloads and with time constraints placed upon them, they will be more inclined to show symptoms of psychological ill health. People who suffer from an extreme overload will therefore show symptoms of anxiety and depression. These results are similar to those of Coetzee and Rothmann (2005), who report that job overload is a significant source of stress for higher education staff in South Africa. The findings of a survey from the Industrial Society (2001) also indicate that the second most influential cause of stress was unrealistic deadlines and constant time pressure. As a result, job overload should be considered as a major contributor to high levels of strain, anxiety, depression and job performance (Cooper & Roden 1985; Westman & Eden 1992). Based on these results, hypothesis 2, which stated that occupational stressors would predict psychological ill health, is accepted (but only with respect to job overload).

Regarding the relationship between the occupational stressors and individual commitment towards the organisation, a statistically significant model was also produced, in which the main predictors were resources and communication, job overload and job control. With regard to resources and communication, it seems that stress because of communication processes within the organisation, a lack of adequate feedback, and a lack of the appropriate training and equipment result in reduced commitment to the organisation. These results are in line with the findings of previous studies at higher education institutions (Coetzee & Rothmann 2005; Tytherleigh et al. 2005).

Furthermore, the results support the findings of Bakker et al. (2003) that poor and lacking resources preclude actual goal accomplishment, which is likely to cause failure and frustration and may therefore lead to withdrawal from work and reduced commitment. With regard to job overload, it seems that support staff would also experience increased levels of stress, ill health and reduced commitment to the organisation. This confirms the findings of Jackson and Rothmann (2006), who report that secondary school educators generally experience more stress because of workload and therefore experience lower organisational commitment and more symptoms of ill health. Lastly, with regard to job control, it seems that support staff feel that they have little control over many aspects of their jobs (which is experienced as a lack of autonomy) and have little or no influence over their performance targets. Individuals who experience little control would therefore experience stress and be less committed to the organisation. This finding is supported by Coetzee and Rothmann (2005), who show that employees perceive control as a large source of

stress and thus perceive the organisation as less committed to them; they therefore also become less committed to the organisation.

The relationship between the occupational stressors and perceived commitment from the organisation also produced a statistically significant model, in which the main predictors were job overload, and job resources and communication. In this research, it became evident that support staff feel particularly stressed because they experience job overload and a lack of resources and communication. Consequently, individuals will perceive the organisation as less committed to them, and their response would be to consider resigning. This supports the findings of Arnolds (2005), who reports that low organisational commitment levels have negative implications for job performance and intent to resign of staff. Likewise, Jackson and Rothmann (2006) report that employees experiencing more stress because of workload will indicate lower organisational commitment. Based on these results, hypothesis 3, which stated that occupational stressors lead to reduced organisational commitment, is accepted.

The results of the risk factor analysis indicate that individual commitment to the organisation is strongly affected by occupational stressors. The specific stressors that obtained relatively high scores on the risk factor index of individual commitment to the organisation include job control, resources and communication, and work relationships. Cooper and Cartwright (1994) report that relationships with people at work could be potentially stressful as a consequence of poor communication and mistrust, which in turn could result in poor psychological health. This has also been supported by recent research findings indicating that work relationships are one of the major occupational stressors at higher education institutions (Coetzee & Rothmann 2005; Tytherleigh et al. 2005). Furthermore, these stressors also seem to impact moderately on the perceived commitment of the organisation to the individual. Thus, stressors such as job control (autonomy), resources and communication, and work relationships might result in lower commitment towards the institution, which could in turn result in employee turnover and withholding of discretionary effort. Similar findings were made by Arnolds (2005), who reports that low organisational commitment levels have negative implications for job performance and intent to resign among staff. This is also supported by Pierce and Dunham (1987), who describe significant negative relationships between organisational commitment and turnover intention.

An evaluation of the Spearman correlations of the ASSET dimensions showed that physical ill health was significantly related to both presenteeism and absenteeism. Furthermore, physical ill health as a result of stress statistically significantly predicted sickness absenteeism. Therefore, the total predicted days absent as result of stress were 448 during 2003, 282 during 2004 and 556 during 2005. The total estimated loss

for the university during the three years amounts to R1 120 093.39. This corresponds with findings by Clarke and Cooper (2000) that organisations suffer business loss through lost working days and absenteeism.

Furthermore, the Spearman correlations also showed that psychological ill health was significantly related to frequency and intensity of quit intentions. A total of 75 employees (27.6%) reported that they were considering quitting their job; of these, 51 employees (18.8%) indicated that they were considering quitting their job as result of stress. Actual statistics obtained from the human resources department revealed that 92 support employees resigned during 2003, 35 in 2004 and 63 in 2005. Thus, the total estimated loss to the university over the three-year period amounts to R20 612 024. These findings can therefore be supported and are in line with Clarke and Cooper's (2000) conclusion that organisations also suffer business loss, staff turnover, lowered performance, and the associated costs of training replacement staff. Moreover, research indicates that presenteeism is one of the biggest drains on productivity due to people 'working sick' (Hemp 2004; Miodonski 2004; Ruez 2004). This phenomenon was also found in this study, in which a total of 37% of employees indicated that they had returned to work while they were still ill and that they were less than 80% productive in their jobs because of that. Based on these results, hypothesis 4 (that ill health leads to absenteeism and presenteeism of support staff in a higher education institution and hypothesis 5 (that low organisational commitment leads to turnover intention of support staff in a higher education institution) are accepted.

LIMITATIONS AND RECOMMENDATIONS

This study had several limitations. The first limitation was that a cross-sectional design was used, which implies that causal inferences cannot be made. Longitudinal designs could help to clarify the relationships between variables in this study with regard to the findings on ill health and organisational commitment. Another limitation was that certain data were collected through self-report questionnaires, and it is thus possible that respondents may have spuriously inflated the observed relationships; introducing what is termed 'method variance' or 'nuisance'. The third limitation of the present study was that the sample size ($N = 292$) was relatively small, which therefore implies that the findings cannot be generalised to all higher education institutions or to other industries. Furthermore, only one higher education institution was involved, and the responses could thus have been influenced by the particular organisational culture. The results could also not be generalised to other contexts.

Higher education institutions should intervene to reduce occupational stress among support staff. According to Cooper et al. (2001), efforts to combat job-related strain have been conceptualised as primary interventions, secondary interventions and tertiary interventions. Primary interventions are based on the assumption that the most effective way to combat strain is to eliminate, or at least reduce, the source of strain in the work environment, therefore alleviating the pressure placed upon individual employees. With regard to support staff, changes in decision-making processes could be made to increase employee participation in relevant decisions and reduce stress levels concerning job control. Furthermore, employees' job tasks could be redesigned (through task enrichment and enlargement) to increase employee autonomy and control over job functions and work schedules. Since work relationships may also lead to stress and health problems, the provision of a more supportive climate (including more constructive feedback on job performance) may reduce stress regarding work relationships. In addition, overload also plays a central role regarding occupational stress and strain, and reducing overload therefore seems warranted.

Secondary level interventions focus on stress management training to alleviate the impact that environmental stressors exert on workers, rather than making changes to work conditions. Such interventions can therefore be implemented for support staff that are already showing symptoms of stress in order to prevent them from getting sick, to increase their awareness of their levels of strain and to enhance their personal coping strategies. The organisation may find it useful to provide stress management training for support staff in order to introduce them to more appropriate ways of managing stress. Techniques that ought to be considered include relaxation training, biofeedback, cognitive restructuring, time management and conflict resolution strategies. The tertiary level of stress management intervention is concerned with the rehabilitation of individuals that have suffered ill health or reduced well-being as a result of strain in the workplace. Tertiary interventions are necessary to deal with the physical and psychological ill health of support staff.

Future research in South Africa needs to focus on the relative occurrence of occupational stress in various occupations. The differences in levels of occupational stress found between occupational groups may help identify occupations that are most at risk of the negative outcomes of occupational stress. It is recommended that future studies of occupational stress and its outcomes should take cognisance of the multicultural context of the South African workforce. Further research should be conducted to develop a human resources costing and accounting model for the South African environment, so as to effectively determine the financial implications of absenteeism, presenteeism and turnover intentions on the organisation due to occupational stress.

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