OCCUPATIONAL STRESS, ORGANISATIONAL COMMITMENT AND ILL HEALTH OF EMPLOYEES AT A UNIVERSITY OF TECHNOLOGY

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- This mini-dissertation is submitted in the form of a research article. The name of the study leader appears on the article, as it has been submitted for publication.

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ABSTRACT

Subject: Occupational stress, organisational commitment and ill health of employees at a university of technology

Key Words: Occupational stress, organisational commitment, higher education, technikons, universities of technology

Higher education is important to the country's economic growth. Due to globalisation, it is important for higher education institutions to keep up with change. The introduction of universities of technology in response to this places a new demand on academic institutions in South Africa, creating more occupational stress on employees. Other expectations, for example demands for more research and publication exert more pressure on staff, which escalates these stress levels. Workload of staff fluctuates between higher and lower and with this, a change of fluctuating periods of stress from acute to chronic is described. This chronic stress has a negative impact on the individuals' physical and psychological health, their interpersonal relationships at work and the quality of their work, as well as on workplace morale.

The objectives of the study were to establish how occupational stress, ill health and commitment are conceptualised in the literature; to establish what the occupational stress levels of staff at a university of technology are and to assess the mutual relationships among occupational stress, organisational commitment and ill health of employees at the specific institution.

The research method consisted of a brief literature review and an empirical study. A cross-sectional survey design was used. A stratified random sample was taken of academic and support staff at a specific university of technology ($N = 334$). The ASSET Organizational Stress Screening Tool and a biographical questionnaire were administered on the personnel. Cronbach alpha coefficients were used to determine the significance of dimensions of the ASSET. Exploratory factor analysis was used to investigate the factor structure of the occupational stress items of the ASSET. Pearson correlation coefficients were used to specify the relationship between the variables. Standard multiple regression analyses were used to assess whether occupational stress predicts ill health and organisational commitment.

The results showed that two occupational stressors, namely control and work relationships were higher than the norm. Physical and psychological ill health was predicted by occupational stress due to job demands and lack of organisational support. Occupational stress because of job demands had a significant effect on both affective and behavioural commitment of employees.

Recommendations for future research were made.

OPSOMMING

Onderwerp: Beroepstres, organisasieverbondenheid en swak gesondheid van werknemers aan 'n universiteit van tegnologie.

Sleutelwoorde: Beroepstres, organisasieverbondenheid, hoër onderwys, technikons, universiteite van tegnologie.

Hoër onderwys is belangrik vir die land se ekonomiese groei. As gevolg van globalisering is dit belangrik vir hoëronderwysinstellings om by te hou by verandering. Die bekendstelling van universiteite van tegnologie, as reaksie hierop, plaas nuwe druk op akademiese instansies in Suid-Afrika, wat weer meer beroepstres by werknemers meebring. Ander verwagtinge, byvoorbeeld die vereiste dat meer navorsing gedoen moet word en meer gepubliseer moet word, plaas meer druk op personeel. Werkslading van personeel fluktueer tussen hoog en laag, en hiermee saam is 'n verandering van fluktuerende stresperiodes tussen akute en kroniese stres beskryf. Hierdie kroniese stres het 'n negatiewe uitwerking op die individue se fisieke en psigologiese gesondheid, hul interpersoonlike verhoudings by die werk en die gehalte van hul werk asook op die moreel in die werksplek.

Die doelstellings van hierdie navorsing was om te bepaal hoe beroepstres, swak gesondheid en betrokkenheid in die literatuur gekonseptualiseer word; om te bepaal wat die beroepstresvlakke is van personeel wat by 'n universiteit van tegnologie werksaam is en vas te stel wat die onderlinge verwantskap tussen beroepstres, organisatoriese betrokkenheid en swak gesondheid by die spesifieke inrigting is.

Die navorsingsmetode bestaan uit 'n kort literatuuroorsig en 'n empiriese studie. 'n Dwarsdeursnee-opnameontwerp is gebruik. 'n Gestratifiseerde ewekansige steekproef van die akademiese en ondersteunende personeel by die spesifieke universiteit van tegnologie werksaam ($N = 334$), is gebruik. Die "ASSET Organizational Stress Screening Tool" en 'n biografiese vraelys is op personeel afgeneem. Cronbach se alfakoëffisiënte is gebruik om die beduidendheid van dimensies op die ASSET te bepaal. Verkennende faktoranalise is gebruik om die faktorstruktuur van die stres-items van die ASSET te ondersoek. Pearson korrelasiekoëffisiënte is gebruik om die verwantskap tussen veranderlikes te spesifiseer.

Standaard meervoudige regressie-analise is gebruik om te bepaal of swak gesondheid en organisasieverbondenheid deur beroepstres voorspel word.

Die resultate het aangetoon dat twee beroepstressore, naamlik kontrole en werksverhoudinge hoër as die norm was. Fisieke en psigologiese ongesondheid is voorspel deur beroepstres (a.g.v. werksdruk en 'n gebrek aan organisatoriese ondersteuning). Beroepstres het 'n betekenisvolle uitwerking op die affektiewe en gedragsverbondenheid van werknemers gehad.

Aanbevelings vir toekomstige navorsing is aan die hand gedoen.

CHAPTER 1

INTRODUCTION

This chapter deals with occupational stress, organisational commitment and ill health of employees of a University of Technology in South Africa.

In this chapter, the motivation for the research is discussed in terms of the problem statement and aims of the research. Thereafter the research method and division of chapters are discussed.

1.1 PROBLEM STATEMENT

Higher education is crucial to economic growth (Skolnik, 2002). Institutions of higher education are now more important to the country's economy than factories, mines and other manufacturing institutions (Florida, 2002). Therefore the government's policy for education and training is a matter of national importance, as stated by Minister Bengu in the Whitepaper on Education and Training (Department of Education, 1995), the importance of education and training is "of vital interest to every family and to the health and prosperity of our national economy" (p. 30).

In South Africa, the provision of education and training in higher education occurs primarily in colleges, technikons, universities of technology, and universities. According to Florida (2002), higher education institutions are important in this creative age, because it contributes to technology, talent and tolerance. The traditional technology transfer theory of higher education is affected by these institutions, not only through acting as generators but also as consumers, helping to shape its applications. As for talent and tolerance, these institutions act as magnets, attracting people who want to be near new ideas and thereby produce an even more attractive environment for others. It is therefore important for institutions of higher education to keep up with change, to drive change in society and to be subject to the forces of change in the community and the world (Egron-Polak, 2002; Schutte & Steyn, 2002). In this regard, Bloom (2002) introduced three preconditions: that higher education is no longer a luxury; that globalisation makes higher education reform necessary; and that implementation of policy must be considered from its inception.

In 1995, Minister Bengu pointed out in the White paper on Education and Training (Department of Education, 1995) that, education and training, the central activities of our society, must change to support the needs of the future (Schutte & Steyn, 2002). In a letter to the Minister, COSATU (2000) also stated their policy that higher education should be transformed. In this they identified higher education transformation as a critical component of the reconstruction and development process of the country. Higher education institutions that are directly responsible for the management of tertiary teaching and learning are now an environment of considerable uncertainty, especially while transformation is under way (Skolnik, 2002). The higher education policy of the new South African government is intended to address the apartheid legacy of an unequal, inefficient and ineffective system. Subotszky (2002) points out that the government's attention was focused on reducing the number of higher education institutions during the period 1997 and 2001 neglecting the issues of equity and redress.

The name University of Technology has been used for a certain group of higher education institutions in South Africa since 2004. Before then, these institutions were known as technikons. For purposes of this study, it therefore is important to define the concept of a technikon in order to understand what a university of technology in South Africa entails. Technikons in South Africa are the equivalent of universities of technology, technological universities, technical universities or institutions of technology found in countries such as the USA, Britain, Australia, New Zealand and Hungary, the Hogescholen in Belgium and the Netherlands, or the *fachhochshule* in Germany. They are administered by the Higher Education section of the National Department of Education, along with universities.

Technikons in South Africa, according to Du Pré (2000), have grown considerably in the past seven years. From 1993 to 1999, university first-time enrolments were up by 15%, while those at technikons grew by 46%. Department of Education statistics show that universities drew 50 523 first-time undergraduate enrolments, compared to the 42 682 of technikons. By 1998, technikons had bypassed the universities, attracting 62 309 first-time undergraduates, as opposed to the 60 801 of the universities. The newest statistics are, however, not available at this stage. To define a technikon for purposes of this research, the description of Du Pré (2000) will be used.

Du Pré (2000) stated that technikons are public institutions of higher education which provide and promote, in co-operation with the private and public sectors, quality career and technology education and research for the developmental needs of a transforming South Africa and the changing world. Their tertiary educational programmes cover a variety of specialised occupations and careers in the applied engineering, biological, chemical and physical sciences, and applied commercial sciences, humanities, arts and teacher education. Courses offered place markedly greater emphasis on subjects with definite vocational and professional links. Co-operative education (on-the-job training) is a powerful and unique element in the technikon education paradigm, allowing students to benefit from both formal education and training at technikons, along with first-hand work experience in the marketplace.

Already in 1998, Lategan predicted that if the international trend was to be followed for higher education institutions to be transformed into technological universities (Lategan, 1998), it would be the technikons and not classic universities which would be transformed into technological universities. If this is the case, it is then important to investigate the relation between a technikon and a university.

According to Lategan (1998, 2004) it was (until about ten years ago) fairly easy to distinguish the nature of a university from the nature of a technikon as they differed regarding various aspects. The main difference was in the field of research. Universities were characterised in accordance with the research they conducted, while technikons were not engaged in research at all. Universities and technikons also differed with regard to the way in which programmes were offered. Universities undertook vocationally/career-relevant teaching and technikons concentrated on vocationally/career-directed teaching. Another difference - which was more a question of emphasis - was that technikons had a teaching/learning technological focus, compared to the classic teaching/learning focus of universities. Universities were entitled to award degrees, while technikons only issued diplomas.

Presently, the above-mentioned differences between these institutions belong to the past. The main difference between universities and technikons, namely the research being conducted, no longer exists. Lately, technikons are also engaged in doing research, although the research conducted at technikons concentrates more on practical applications (Lategan, 1998, 2004).

Lategan (2004) stated that there was some hesitance in offering university status to all technikons. Some technikons do not comply with the notions of a university, some are not engaged in research and some prefer to remain institutions offering career-directed education. This resulted into only a few technikons in South Africa transforming to technological universities and they will be referred to as technological universities in this study from here on.

According to Lategan (1998, p. 13), a technological university can then be defined as an: "... academic institution at which technologically founded research is conducted and technologically focused teaching/learning is offered within the organized cadre of the mutual intercourse between lecturer and student, and supported by various staff and technological academic-related activities to fulfil the technological teaching/learning and technological research assignments."

The nature of a technological university will firstly show that technologically-focused or technologically-driven programmes are offered, where the intent of these sciences is not to collect knowledge, but to develop technology. Secondly, all research at a technological university should be of a technologically-founded nature. Thirdly, the value of programmes offered at a technological university is that their contents can be applied directly in the world of work. Looking at the ever changing labour market, it seems that the new globalised economy is in need of people who can directly apply their newly gained knowledge in practice. The advantage of this is that newly employed graduates do not need to be retrained for a particular job, which is often the case with graduates from a classic university. Lastly, a technological university can address the needs of the market-place and the industry, and offer a way for the market-place and the industry to contribute to the teaching/learning of the learners at a technological university. In this context, one can refer to the notion of co-operative education (not internship). By co-operative education is meant that education should be understood as a combination of learning in the classroom and learning in the workplace. It is an opportunity to expand the learner's academic learning environment beyond the traditional classroom and laboratory. It could also be defined as hands-on learning for learners and should be linked to experiential learning. Experiential learning (not internship) is achieved through the interaction created by the joint presentation of a programme by the institution and industry. This form of learning expands the knowledge of an academic field,

exploring opportunities for future careers and provides the opportunity to gain practical experience.

Many of the diploma and degree programmes offered at technikons and technological universities have a requirement that each student must have experiential learning before they can obtain their degree, which forces them to be in constant contact with potential employers. This way, commerce and industry are vital partners of technological universities in providing top-level manpower for South Africa and make direct inputs into the planning of programmes. This ensures that education is constantly relevant and keeps up with contemporary movements in all the fields of study offered (Du Pré, 2000). An important challenge facing South Africa today is to become a major player in global markets. The key success lies in innovation and entrepreneurship. A visionary step has been taken by technikons and technological universities to include entrepreneurship and entrepreneurial skills as a compulsory module across the entire spectrum of courses. This will empower students of these institutions to create wealth and prosperity in our country and to become the job creators of the future (Du Pré, 2000).

If the description above is taken into account, it is clear that technikons and technological universities, as a specific education sector and also as an integral part of higher education, have a unique and important contribution to make with regard to the challenges facing South Africa, particularly within the framework of reconstruction and development. The development of the required human resources, and appropriate expertise development through research and development, are central to all programmes (Du Pré, 2000).

Changes in the higher education sector of South Africa place high demands on staff of higher education institutions bringing about accompanying higher stress levels (Schutte & Steyn, 2002). These stress levels are escalated by other expectations, for instance those of COSATU (2000). It indicated that the country requires institutions with well-resourced high quality predominantly undergraduate teaching institutions oriented towards the production of graduates with the knowledge, competencies and skills to contribute to the economic and social development of the country. Excellence and the quality of the graduates of these institutions will fundamentally determine whether South Africa will grow, develop and create a better quality of life for its entire people. COSATU (2000) also agrees with the Council of Higher Education's (CHE's) (2000) proposal that the horizontal and vertical mobility of

students between institutions with different missions and mandates must be facilitated. It must also enable staff mobility for purposes of teaching and research. Thus, academics that have recognised specialist expertise in particular disciplines and fields should have opportunities to teach and supervise students of, and at, other institutions.

Apart from the above research, new universities of technology place high demand on staff, as emphasized by Birgeneau (2002) when he pointed out the importance of basic research in the "new economy". He furthermore accentuates that research universities are a major source of new knowledge - the long-term economic impacts of which are often unforeseen. Universities are now seeking to engage more effectively with society, and they face several challenges in this objective (Birgeneau, 2002; Bringle & Hatcher 2002; Duderstadt, 2002; Hanrahan, Ryan, & Duncan, 2001; Hulchanski, 2002). Birgeneau (2002) poses the question as to how institutions of higher education will be able to meet their obligations to educate students from the local community and still produce top-class research. Duderstadt (2002) notes that higher education institutions will have to develop models to reflect and lead the society in which they find themselves in the future. The diversity of the global population and the role of nationality and ethnicity must be reflected. Today, higher education institutions are confronted by additional challenges in the form of increasing liability, new processes and ways of educating, a decrease in resources, reduced grants and an increase in diversity (Pienaar, 2005). No wonder the Deputy Minister of Education, Mr. R. Schoeman, in the Whitepaper on Education and Training (Department of Education, 1995, p. 36) already hinted that "the road to travel in higher education is a difficult one."

University teaching, according to Gillespie, Walsh, Winefields, Dua, and Stough (2001) has traditionally been regarded as a low stress occupation, even though academics were not highly paid compared to professionals in commercial sectors. Fisher (1994) (as cited in Gillespie et al., 2001) stated that academics have been envied for their tenure, light work loads, flexibility, 'perks' such as overseas trips for study and/or conference purposes, and the freedom to pursue their own research interests. However, during the past two decades many of these advantages have disappeared. Academic salaries have dropped, increasing numbers of academic positions are now untenured, workloads have increased and academics are under increasing pressure to attract external funds, and 'publish or perish.' (Fisher, 1994, as cited in Gillespie et al., 2001).

Research on stress among academics and general staff at institutions for higher education across the globe indicates that the phenomenon of occupational stress in universities is alarmingly widespread and still increasing (Gillespie et al., 2001), and will continue to increase in future. The reason for this, according to Kinman (2001), is that workers involved in high levels of personal interaction, such as teachers, are more vulnerable to occupational stress than those in product-orientated organisations. Therefore it clearly is important that institutions of higher education should manage and protect their staff against increasing levels of stress in order to preserve staff well-being, organisational performance and the intellectual health of the nation. In order to do this, we first need to understand the stress staff within the higher education sector experience (Gillespie et al., 2001).

If the above is taken into account, and to get a clear picture of occupational stress in higher education, it is essential that the sources of occupational stress be explored. Vakola and Nikolaou (2005) stated that occupational stress and organisational change are, in recent years, widely accepted as two major issues in organisational life and can be experienced as a very stressful experience by the individual. In this regard, having done research on the Australian university sector, Gillespie et al. (2001) found large scale organisational change, including restructuring, downsizing, and cuts in government funding. Gillespie et al. (2001) found five major sources of stress as identified by both academic and general staff once they had undergone these large-scale organisational changes. These five sources, as also indicated by other researchers, are: insufficient funding (Gillespie et al., 2001; Kinman, 2001) and resources (Gibbons, 1998; Gillespie et al., 2001, Kinman, 2001); work overload (Fuller et al., 2003; Faragher, Cooper, & Cartwright, 2004; Gillespie et al., 2001; Taris, Schreurs, & van Iersel-van Silfhout, 2001; Wissing, Du Toit, & Rothmann, 2002;); poor management practice (Gibbons, 1998; Gillespie et al., 2001; Schutte & Steyn, 2002); job insecurity (Gibbons, 1998; Gillespie et al., 2001; Schutte & Steyn, 2002); and inadequate recognition (Gibbons, 1998; Gillespie et al., 2001) and reward (Gillespie et al., 2001).

Other key factors commonly associated with stress among academic and general staff in higher education such as time constraints influencing time for research negatively (Blix Cruise, Mitchell, & Blix, 1994; Gibbons, 1998; Gillespie et al., 2001; Hanrahan et al., 2001; Doyle & Hind, 1996; Kinman, 2001; Wissing et al., 2002) were also identified. This suggests that some sources of stress may be unique to an academic environment. The majority of academics in the study of Gillespie et al. (2001) reported that job-related stress was having a

negative impact on their professional work and personal welfare. Even though universities have become environments which the workforce perceives to be highly stressful, it is necessary to note that staff reports a considerable degree of flexibility and autonomy (Kinman, 2001). While Doyle and Hind (1998) also found that female university lecturers who reported long working hours and high levels of burnout, still found their jobs intrinsically motivating, enjoyable and potentially rewarding.

Several staff members in the studies of Gillespie et al. (2001) as well as in the research of Wissing et al. (2002) described fluctuating levels of stress throughout the year, associated with periods during which workloads fluctuate between higher and lower. However, many staff members in the studies of Gillespie et al. (2001) described a change from fluctuating periods of acute stress, to constant high chronic stress. Chronic stress, without periods of relief, was perceived to be more difficult to manage and to have more severe negative consequences than acute phases of stress. This chronic stress then has a negative impact on their individual physical and psychological health (Kinman, 2001), their interpersonal relationships at work, the quality of their work, as well as on workplace morale. Such stress results negatively on academics' work performance and also on their morale, leaving them feeling angry, embittered, devalued and abandoned (Fuller et al., 2003; Gillespie et al., 2001; Schutte & Steyn, 2002). In their research, Gillespie et al. (2001) found in this regard that, on average as a group, academic staff reported higher levels of stress than general staff, while general staff reported a wider range of stress levels.

In recent years, researchers showed wide-spread acceptance that the work-place can be damaging to health (Johnson, Cooper, Cartwright, Donald, & Taylor, 2005; Faragher et al., 2004; Gillespie et al., 2001; Kinman, 2001). Blix et al. (1994) also indicated that occupational stress is considered to be one of the ten leading work-related health problems. According to researchers, the economic impact of stress disorders on industry leads to the loss of many millions of rands due to decreased productivity, absenteeism and disability (Blix et al., 1994). Stress consequences have a negative impact on the workers' physical health, e.g. headaches, coronary heart disease (Blix et al., 1994; Coetzee & Rothmann, 2004; Faragher et al., 2004); psychological health: e.g. depression (Faragher et al., 2004), low self-esteem (Blix et al., 1994), burnout (Blix et al., 1994; De Jager, 2002; Gillespie, et al., 2001; Maslach, 1993; Taris et al., 2001; Wissing et al., 2002;) and behaviour: alcohol abuse, smoking (Blix et

al., 1994; Coetzee & Rothmann, 2004) and dietary habits (Coetzee & Rothmann, 2004) and thus also impact on the organisational life and interpersonal life.

Academic staff plays a vital role in the creation and development of knowledge and innovation in addition to education and training. It is well documented that high levels of occupational stress, left unchecked and unmanaged, undermine the quality, productivity and creativity of employees' work, in addition to employees' health, well-being, and morale (Gillespie et al., 2001; Nowack, 1989). Research has also established that those high levels of occupational stress result in substantial costs to organisations and the community through health care expenses, compensation payments, lost productivity and turnover (Gillespie et al, 2001).

Organisational commitment can be described as a state in which an individual identifies with a particular organisation and its goals with a willingness to work hard for the organisation and a desire to maintain membership in order to facilitate these goals (Sui, 2002; Vakola & Nikolaou, 2005). Along with this commitment, individuals come to organisations with certain needs, skills and expectations and they hope to find a work environment where they can use their abilities and satisfy their needs. When an organisation can provide these opportunities, the likelihood of growing commitment is increased. But organisational commitment has a moderating effect on the relationship between occupational stress and attitudes towards change (Vakola & Nikolaou, 2005) in the sense that it affects the individual's ability to cope with the change event. According to Sui (2002), commitment affects employees positively and due to their positive attitudes, committed employees are less distressed by occupational stressors and therefore they perceive less stress.

Furthermore, the study of Tytherleigh, Webb, Cooper, and Ricketts (2003) reported Higher Education Institution employees also showed significantly higher levels of stress relating to work relationships, control, and resources and communication, and significantly lower levels of commitment both from and to their organisation, while the results of a study of Sui (2002) showed a positive relation between organisational commitment and well-being.

To ensure the well-being of personnel and prevent occupational stress and burnout and to build engagement at the university of technology, it is important to initiate a staff survey (Maslach & Leiter, 1997) to evaluate their tendencies towards occupational stress.

Based on the above-mentioned description of the research problem, the following research questions can be formulated:

- How are occupational stress, ill-health and commitment conceptualised in the literature?
- What are the occupational stress levels of staff, academics and general staff at the specific University of Technology?
- What are the mutual relationships among occupational stress, organisational commitment and ill health?

1.2 RESEARCH OBJECTIVES

The objectives of the research contain a general objective and specific objectives.

1.2.1   General objective

The general objective of this study is to determine the occupational stress levels, physical and psychological ill health and levels of commitment of staff at a University of Technology.

1.2.2   Specific objectives

- To conceptualise occupational stress, ill health and commitment from the literature.
- To determine the occupational stress levels of staff, academics and general staff, at the specific University of Technology.
- What are the mutual relationships among occupational stress, organisational commitment and ill health?

1.3 RESEARCH METHOD

The research method consists of a literature review and an empirical study.

1.3.1 Literature review

The literature study focuses on occupational stress, ill health and commitment of staff at higher education institutions and specifically universities of technology.

1.3.2 Empirical study

In an empirical study, the following aspects are analysed: a research design, participants, measuring battery and research procedure.

1.3.2.1 Research design

A survey design will be conducted. Welman and Kruger (2001) describe a survey design as the type of research by means of which the relationship is examined that was found between two or more variables. This relationship is examined without any planned intervention.

1.3.2.2 Participants

A stratified, random sample ($N = 950$) will be taken from the academic staff and support staff at the university of technology.

1.3.2.3 Measuring battery

The ASSET Organizational Stress Screening Tool (Cartwright & Cooper, 2002) will be used to measure the levels of occupational stress of academics in higher education institutions. Cartwright and Cooper (2002) designed the ASSET as an initial screening tool, based on a large body of academic and empirical research, to help organisations assess the risk of stress in their workforce. It measures potential exposure to stress in respect to a range of common workplace stressors. It also provides important information on current levels of physical health, psychological well-being and organisational commitment and provides data with which the organisation can be compared. The 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 relationship; work-life balance; overload; job security; control; resources and communication; job*

overall; and pay and benefits. The second questionnaire measures the individual's **attitude towards 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,** i.e. the background information with specific reference to academics in higher education institutions, and includes questions relating to factors which can affect stress.

The structure of each of the three main sections of the ASSET questionnaire (perception of your job; attitudes towards your organisation; and your health) was examined in detail, using the responses obtained from 2 544 respondents. Each of the three main sections was then subjected to an exploratory factor analysis to explore the latent structure of the scale items (Cartwright & Cooper, 2002). Furthermore, the authors obtained inter-item-correlations of low to moderated magnitude between the factors of the "Perceptions of jour Job" scale. Inter-item-correlations of moderate magnitude were obtained for factors of the "Attitudes to your Organisation" scale, concluding that the items largely measure different concepts. The correlation between the psychological well-being and physical health factors was high (r=0.66), indicating the difficulty often experienced in distinguishing between physical and psychosomatic symptoms (Cartwright & Cooper, 2002). However, validity is still to be completed (Cartwright & Cooper, 2002). Reliability is based on the Guttman split-half coefficient. All but two factors returned coefficients in excess of 0.7, ranging from 0.60 to 0.91 (Cartwright & Cooper, 2002).

1.3.2.4 Research procedure

The researcher will obtain permission from the management of the specific University of Technology to do the study. Having obtained permission, the heads of different departments at the University of Technology will be contacted to obtain permission to assess their personnel and then the questionnaires will be administered on the staff. When all the questionnaires are completed and collected, data will be captured and statistical analysis done.

1.3.5 Data analysis

The data analysis will be carried out with the help of the SPSS programme (SPSS Inc., 2003). The SPSS programme will be used to carry out statistical analysis regarding descriptive statistics, analysis of variance, correlation coefficients and standard multiple regression analysis.

Descriptive statistics (e.g. means, standard deviations, range, skewness and kurtosis) and inferential statistics will be used to analyse the data. A cut-off point of $p = 0,05$ will be set for the statistical significance of the results. Effect sizes (Cohen, 1988) will be used to decide on the practical significance of the findings. Pearson product-moment correlation coefficients will be used to specify the relationships between the variables. A cut-off point of $d = 0,30$ (medium effect, Cohen, 1988) will be set for the practical significance of correlation coefficients.

Standard multiple regression analyses were conducted where the predictors (independent variables) were tested alternatively to determine which among the set of predictors are the most important in explaining the variance of the dependent variables.

1.4 DIVISION OF CHAPTERS

Chapter 1:   Introduction
Chapter 2:   Article
Chapter 3:   Conclusions, Limitations and Recommendations.

1.5 CHAPTER SUMMARY

In this chapter the problem statement, the aims of the research and the research method were discussed. A prospective chapter division was also indicated.

Chapter 2 contains the research article.

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OCCUPATIONAL STRESS, ORGANISATIONAL COMMITMENT AND ILL HEALTH OF EMPLOYEES AT A UNIVERSITY OF TECHNOLOGY

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ABSTRACT

The objectives of the study were to investigate the occupational stress, organisational commitment and ill health of staff at a University of Technology, and to assess the relationship between occupational stress, organisational commitment and ill health. A cross-sectional survey design with a stratified random sample of academic and support staff ($N = 334$) working at a University of Technology was used. An Organisational Stress Screening Tool (ASSET) and a biographical questionnaire were administered. Two stressors were found to be high, namely Control and Work Relations. The results showed that physical and psychological ill health existed when job demands are high and when there is a lack of organisational support. Results on commitment indicate that the employees of the institution see their own levels of commitment as above average, while they see the organisation's commitment as average.

OPSOMMING

Die doelstellings van hierdie studie was om te bepaal of personeel wat aan 'n spesifieke Universiteit van Tegnologie werksaam is, tekens van beroepstres en swak gesondheid toon en te bepaal wat die verhouding tussen beroepstres, betrokkenheid en swak gesondheid is. 'n Dwarssnee opname-ontwerp met 'n gestratifiseerde ewekansige steekproef van die akademiese en ondersteuningspersoneel ($N = 334$) werksaam by 'n Universiteit van Tegnologie is gebruik. 'n Organisatoriese stres-siftingshulpmiddel (ASSET) en 'n biografiese vraelys is toegepas. Twee stressore, naamlik Kontrole en Werksverhoudings is hoog bevind. Die resultate het aangetoon dat fisieke en psigiese ongesondheid manifesteer wanneer werksdruk hoog is en wanneer min organisatoriese ondersteuning gegee word. Resultate ten opsigte van verbondenheid het aangetoon dat werknemers by die instelling hul eie vlakke van verbondenheid as bogemiddeld beskou en dié van die organisasie as gemiddeld.

Higher education is crucial to economic growth (Skolnik, 2002) and institutes of higher education are now more important to the country's economy than factories, mines and other manufacturing institutions (Florida, 2002). Therefore Minister Bengu points out in the Whitepaper on Education and Training (Department of Education, 1995) that education and training, the central activities of our society, must change to support the needs of the future (Schutte & Steyn, 2002). In a letter to the Minister, COSATU (2000) also stated their policy that higher education should be transformed and identify higher education transformation as a critical component of the reconstruction and development process of the country. Higher education institutions that are directly responsible for the management of tertiary teaching and learning are now an environment of considerable uncertainty, especially while transformation is under way (Skolnik, 2002).

In South Africa, the provision of education and training in higher education occurs primarily in colleges, technikons, universities of technology, and universities. According to Florida (2002), higher education institutes are important because it contributes the essential '3 T's': technology, talent and tolerance. Where technology not only refers to generating new knowledge but also to consumers thereof, and talent and tolerance act as magnets attracting people who wish to be near new ideas and thereby producing an even more attractive environment for others. It is therefore important for institutes of higher education to keep up with change, to drive change in society and to subject themselves to the forces of change in the community and the world (Egron-Polak, 2002; Schutte & Steyn, 2002).

Since 2004, the name University of Technology is used for a certain group of higher education institutions in South Africa. Before then, these institutions were known as technikons. They are administered by the Higher Education section of the National Department of Education, along with universities. As early as 1998, Lategan predicted that, if the international trend was to be followed for higher education institutions to be transformed into technological universities, it would be the technikons and not classic universities which would be transformed into technological universities (Lategan, 1998). Lategan (2004) stated there was some hesitance in offering university status to all technikons, because some technikons do not comply with the notions of a university. The reason for that is that some technikons are not engaged in research and others prefer to remain institutions offering career-directed education. This resulted in only a few technikons in South Africa being transformed into technological universities.

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According to Lategan (1998, p. 13), a technological university can then be defined as an: "academic institution at which technologically founded research is conducted and technologically focused teaching/learning is offered within the organized cadre of the mutual intercourse between lecturer and student, and supported by various staff and technological academic-related activities to fulfil the technological teaching/learning and technological research assignment."

The nature of a technological university will firstly show that technologically-focused or technologically-driven programmes are offered, where the intent of these sciences are not to collect knowledge, but to develop technology. Secondly, all research at a technological university should be of a technologically-founded nature. Thirdly, the value of programmes offered at a technological university is that their contents can be applied directly in the world of work. Looking at the ever changing labour market, it seems that the new globalised economy is in need of people who can directly apply their newly gained knowledge in practice. The advantage of this is that newly employed graduates do not need to be retrained for a particular job, which is often the case with graduates from a classic university. Lastly, a technological university can address the needs of the market-place and the industry and offer a means for the market-place and the industry to contribute to the teaching/learning of the learners at a technological university. Therefore technological universities, as a specific education sector and also as an integral part of higher education, have a unique and important contribution to make with regard to the challenges facing South Africa, particularly within the framework of reconstruction and development (Du Pré, 2000).

Changes in the higher education sector of South Africa place high demands on staff of higher education institutes bringing about accompanying higher stress levels (Schutte & Steyn, 2002). These stress levels are escalated by other expectations, for instance those of COSATU (2000) that indicated that the country requires institutions with well-resourced high quality predominantly undergraduate teaching institutions oriented towards the production of graduates with the knowledge, competencies and skills to contribute to the economic and social development of the country. COSATU (2000) also agree with the Council of Higher Education's (2000) proposal that academics that have recognised specialist expertise in particular disciplines and fields should have opportunities to teach and supervise students off, and at, other institutions.

Apart from the above, research, as a part of the new universities of technology, places high demand on staff as emphasized by Birgeneau (2002). He further accentuates that research universities are a major source of new knowledge, which will have a long-term economic impact, something that is often unforeseen. Universities are now seeking to engage more effectively with society, and they face several challenges in this objective (Birgeneau, 2002; Bringle & Hatcher 2002; Duderstadt, 2002; Hanrahan, Ryan, & Duncan, 2001; Hulchanski, 2002). Today, higher education institutions are further confronted with additional challenges in the form of increasing liability, new processes and ways of educating, a decrease in resources, reduced grants and an increase in diversity (Pienaar, 2005). It is no wonder the Deputy Minister of Education, Mr R Schoeman, already implied in the Whitepaper on Education and Training (Department of Education, 1995, p. 36), that "the road to travel in higher education is a difficult one."

The aim of the study was to investigate occupational stress, organisational commitment and ill health of staff working at a university of technology, and to assess the relationship between occupational stress, organisational commitment and ill health.

Occupational stress

Blix, Cruise, Mitchell, and Blix (1994) define occupational stress as the inability of the individual worker to cope effectively with various work demands. Other studies have demonstrated a temporal association among daily stressors (e.g., role juggling, and daily hassles), perceived stress and strains (e.g., emotional exhaustion), and negative mood (Fuller et al., 2003). Several theoretical models to measure the fit between the expectations of the worker and the organisation such as the Person-Environment (PE) Fit model (French, Kaplan, & Harrison, 1982) have been developed. According to this PE-Fit model, occupational stress arises from a misfit between the worker and the work environment. A 'poor' fit may lead to various types of strain which, if consistent, may produce a variety of physical illnesses, psychiatric ailments and behavioural outcomes (Blix et al., 1994). Another approach towards understanding the stress responses in occupational settings is Karasek's Demand-Control Model (Karasek & Theorell, 1990) where the model looks at the interaction between the demands of the situation and the individual's freedom to decide whether or not to meet the job requirements (Naudé & Rothmann, 2003).

University teaching, according to Gillespie, Walsh, Winefields, Dua, and Stough (2001), has traditionally been regarded as a low stress occupation, even though academics were not highly paid compared to professionals in commercial sectors. This aspect has changed, however, and research on stress among academic and general staff at institutes for higher education across the globe indicates that the phenomenon of occupational stress in universities is alarmingly widespread and is still increasing (Gillespie et al., 2001), and that it will continue to increase in future. In this case it has been argued for some time that workers involved in high levels of personal interaction, such as teachers, are more vulnerable to occupational stress than those in product-orientated organisations (Kinman, 2001). Therefore it is clearly important that institutes of higher education must manage and protect their staff from increasing levels of stress in order to preserve staff well-being, organisational performance and the intellectual health of the nation. In order to do this, we first need to understand the experience of stress on staff within the higher education sector (Gillespie et al., 2001).

On the one hand, according to Taris, Schreurs, and van Iersel-van Silfhout, (2001), teaching makes up only part of the tasks of university staff; another part of their tasks, that may be considered a healthy diversification of their jobs, could also involve research to a substantial degree, as well as management tasks. On the other hand, however, combining such diverse tasks may be an important cause of job stress and strain. It is probable that many academics see themselves foremost as researchers and as lecturers second. If this is correct, one possible important stressor might be that academic staff has to reconcile the very different (and often time-consuming) tasks of teaching and conducting research (Hanrahan, et al., 2001). Teaching usually comes first, simply because classes have to be scheduled well in advance. Therefore, any flexibility that may be needed often occurs at the expense of the time available for research (Hanrahan et al., 2001; Wissing, Du Toit, & Rothmann, 2002).

If the above is taken into account and to get a clear picture of occupational stress in higher education, it is essential that the sources of occupational stress be explored. Occupational stress and organisational change are now widely accepted as two major issues in organisational life and that the individual can experience it as very stressful (Vakola & Nikolaou, 2005). In this regard, having done research on the Australian university sector, Gillespie et al. (2001) found large scale organisational change, including restructuring, downsizing, and government funding cuts. Gillespie et al. (2001) then found five major

sources of stress as identified by both academic and general staff. These five sources, as also indicated by other researchers, are: insufficient funding (Gillespie et al., 2001; Kinman, 2001) and resources (Gibbons, 1998; Gillespie et al., 2001, Kinman, 2001); work overload (Gillespie et al., 2001; Taris et al., 2001; Wissing et al., 2002; Fuller et al., 2003; Faragher, Cooper, & Cartwright, 2004); poor management practices (Gibbons, 1998; Gillespie et al., 2001; Schutte & Steyn, 2002); job insecurity (Gibbons, 1998; Gillespie et al., 2001; Schutte & Steyn, 2002); and inadequate recognition (Gibbons, 1998; Gillespie et al., 2001) and reward (Gillespie et al., 2001).

Research conducted in the UK, USA, New Zealand and Australia has identified several other key factors commonly associated with stress among academic and general staff in higher education. These include: time constraints (Blix et al., 1994; Doyle & Hind, 1996; Gibbons, 1998; Gillespie et al., 2001; Hanrahan et al., 2001; Kinman, 2001; Wissing et al., 2002) especially finding time for research and striving for publication (Kinman, 2001); lack of promotion opportunities (Blix et al., 1994; Doyle & Hind, 1996; Gibbons, 1998; Gillespie et al., 2001; Kinman, 2001); inadequate salary (Blix et al., 1994; Doyle & Hind, 1996; Gillespie et al., 2001; Kinman, 2001); changing job role (Blix et al., 1994; Doyle & Hind, 1996; Gillespie et al., 2001); role ambiguity (Kinman, 2001); role overload (Kinman, 2001); inadequate participation in management (Blix et al., 1994; Doyle & Hind, 1996; Gillespie et al., 2001) alienation from management (Gibbons, 1998); understaffing (Fuller et al., 2003); communication problems (Gorman, 2003) especially poor faculty communication (Kinman, 2001); role conflict (Kinman, 2001); unexpected interactions (Wissing et al., 2002), student interaction (Blix et al., 1994; Doyle & Hind, 1996; Gillespie et al., 2001) and diversity of demands throughout the academic year (Kinman, 2001).

More sources of stress such as high self-expectations (Doyle & Hind, 1996; Gillespie et al., 2001; Kinman, 2001); increases in administration (Gibbons, 1998; Wissing et al., 2002; Kinman, 2001); lack of community and poor interactions with colleagues (Gillespie et al., 2001; Kinman, 2001); inequality in the system (Gillespie et al., 2001); frequent interruptions at work (Kinman, 2001); pressure to develop new courses (Gibbons, 1998); worries over amalgamations (Gillespie et al., 2001); threats of redundancy (Gibbons, 1998; Schutte & Steyn, 2002); lack of human and technical support (Gillespie et al., 2001; Kinman, 2001); the competing demands of career and family life (Kinman, 2001); long working hours – both on and off campus (Kinman, 2001) and lack of regular performance feedback (Gillespie et al.,

2001) have been highlighted in a few studies. Another suggested technological advancement is found in the automation of many work practices, which led to the creating of inflexible jobs that offer employees less control over their workload (Faragher et al., 2004) and results in more stress. This suggests that some sources of stress may be unique to an academic environment. The majority of academics in the study of Gillespie et al. (2001) reported that job-related stress was having a negative impact on their professional work and personal welfare. Even though universities have become environments that the workforce perceives to be highly stressful, it is necessary to note that workers report a considerable degree of flexibility and autonomy (Kinman, 2001), while Doyle and Hind (1998) also found that female university lecturers, who reported long working hours and high levels of burnout, still found their jobs intrinsically motivating, enjoyable and potentially rewarding.

While it is recognised that some degree of stress is a normal and an inevitable part of daily living, the study of Gillespie et al. (2001) suggests that a significant proportion of university staff are experiencing maladaptive levels of stress. Tytherleigh (2003, p. 102) indicated that higher education institution staff (academic as well as general staff) "reported statistically significantly lower levels of stress in relation to work-life balance, overload and job overall". Several staff members in the studies of Gillespie et al. (2001) as well as in the research of Wissing et al. (2002) described fluctuating levels of stress throughout the year, associated with periods where workloads fluctuate between higher and lower. However, many staff members in the studies of Gillespie et al. (2001) described a change from fluctuating periods of acute stress, to constant high chronic stress. This chronic stress then has a negative impact on their individual physical and psychological health (Kinman, 2001), their interpersonal relationships at work, the quality of their work, and workplace morale. Such stress impacts negatively on academics' work performance and also on their morale, leaving them feeling angry, embittered, devalued and abandoned (Gillespie et al., 2001; Schutte & Steyn, 2002; Fuller et al., 2003) and it will have a negative effect on the overall organisational efficiency and effectiveness (Vakola & Nikolaou, 2004). In their research, Gillespie et al. (2001) found in this regard that on average, as a group, academic staff reported higher levels of stress than general staff, while general staff reported a wider range of stress levels.

It is obvious from the discussion above that occupational stress is significant for both the people and organisations (De Jager, 2002; Maslach & Leiter, 1997). For employees, the issue is a job that diminishes the quality of their lives and their potential for a productive growing

career. For organisations the issue is a workforce that no longer provides the dedication, creativity and productivity that it once did.

Occupational stress and ill health

In recent years, researchers showed wide spread acceptance that the work-place can be damaging to health (Faragher et al., 2004; Gillespie et al., 2001; Johnson, Cooper, Cartwright, Donald, & Taylor, 2005; Kinman, 2001; Tytherleigh, 2003). In this respect, many developed industrial countries have already produced, or are actively considering, legislation intended to make organisations accept greater responsibility for the physical and mental well-being of their work-force. In the UK, for example, the Health and Safety at Work Act (1974) and the Management legal obligations with respect to employee health issues (Faragher et al., 2004).

Blix et al. (1994) also indicate that occupational stress is considered to be one of the ten leading work-related health problems. According to researchers the economic impact of stress disorders on industry leads to the loss of many millions of rands due to decreased productivity, absenteeism and disability (Blix et al., 1994). Stress consequences have a negative impact on physical and psychological ill health and have an impact on the organisational life and interpersonal life as found by researchers and shown hereafter.

Physical ill health includes (Blix et al., 1994; Gillespie et al., 2001; Maslach & Schaufeli, 1993): headaches, coronary heart disease (Blix et al., 1994; Coetzee & Rothmann, 2004; Faragher et al., 2004), migraines, colds and viral infections (Coetzee & Rothmann, 2004; Faragher et al., 2004), back and chest pains, gastrointestinal disturbances (Faragher et al., 2004) high blood pressure or hypertension (Coetzee & Rothmann, 2004; Faragher et al., 2004; Jackson & Rothmann, 2006), suppression of the immune system (Jackson & Rothmann, 2006) health complaints (Taris et al., 2001). While psychological ill health can be found in: depression, irritability and mental illness (Faragher et al., 2004), low self-esteem (Blix et al., 1994), burnout (Blix et al., 1994; De Jager, 2002; Gillespie et al., 2001; Maslach, 1993; Taris et al., 2001; Wissing et al., 2002). Behavioural problems show in: alcohol abuse, smoking (Blix et al., 1994; Coetzee & Rothmann, 2004) and poor dietary habits (Coetzee & Rothmann, 2004) and organisational problems in: absenteeism (Blix et al., 1994; Maslach & Schaufeli, 1993), disability (Blix et al., 1994), turnover (Gillespie, 2001; Maslach &

Schaufeli, 1993; Schutte & Steyn, 2002) and premature retirement (De Jager, 2002), low productivity (Blix et al., 1994) low job satisfaction (Taris et al., 2001) and low commitment (Taris et al., 2001) role conflict and a lack of social support from colleagues and supervisors (Maslach & Schaufeli, 1993). Other health aspects which were also implied by researchers are: emotional health, family relationships and leisure activities (Gillespie et al., 2001); Interpersonal relationships in the form of reduced levels of sensitivity, warmth, consideration, altruism and tolerance (Jackson & Rothmann, 2006); and cognitive health e.g., poorer quality decision making, lower levels of creativity and impaired memory (Jackson & Rothmann, 2006).

Academic staff plays a vital role in the creation and development of knowledge and innovation in addition to education and training. It is well documented that high levels of occupational stress, left unchecked and unmanaged, undermine the quality, productivity and creativity of employees' work, in addition to employees' health, well-being, and morale (Gillespie et al., 2001; Nowack, 1989). Research has also established that those high levels of occupational stress result in substantial costs to organisations and the community through health care expenses, compensation payments, lost productivity and turnover (Gillespie et al., 2001).

Stress among teachers is linked to burnout, showing that academics that experience greater demands on their time, attention, and energy than others while receiving fewer rewards and recognition, run the risk of becoming exhausted and alienated from their work lives (Maslach & Leiter, 1999; Taris et al., 2001).

However, when job demands are high, but autonomy/control is low, strain appears, according to Karasek's model (Shen & Gallivan, 2004). High strain will therefore be related to mental strain symptoms: work exhaustion and depression resulting in more sick days and more pill consumption (De Jonge, Dollard, Dormann, Le Blanc, & Houtman, 2000; Shen & Gallivan, 2004). According to these researchers, jobs that combine high (but not overwhelming) demands as well as high control (i.e., active jobs) provide the context for workers to have some latitude regarding how and when to deal with current and new challenges. This context then leads to active behaviour in workers, to new learning, to challenge, to a sense of mastery, and to self-efficacy (the active learning hypothesis of Karasek & Theorell, 1990). There is also some empirical evidence showing that the combination of high job demands and

low job control is an important predictor for psychological strain and illness, for example cardiovascular disease (De Jonge et al., 2000).

Taris et al. (2001) predicted that employees who experience the lowest well-being are those people who work in jobs characterized by high demand, low control and low organisational commitment, and low social support/isolation. This implies that the impact of occupational stress and burnout may have serious risks for the health and well-being of educators. Job demands they experience may threaten resources and trigger stress (Gibbons, 1998). Prolonged exposure to such job demands will result in strain in the form of emotional exhaustion (the core dimension of burnout) (Maslach & Leiter, 1997; Taris et al., 2001). Seeing that higher education plays an important role in South Africa and the role of technological universities becomes more important, as discussed previously, it is important to evaluate the well-being of personnel in these institutions.

To ensure the well-being of personnel and prevent occupational stress and burnout and build engagement at the university of technology, it is important to initiate a staff survey (Maslach & Leiter, 1997) in order to evaluate their tendencies towards occupational stress and ill health.

Organisational commitment

Organisational commitment can be described as a state in which an individual identifies with a particular organisation and its goals (Sui, 2002; Vakola & Nikolaou, 2005) and with a willingness to work hard for the organisation (Sui, 2002), and has a desire to maintain membership in order to facilitate these goals (Sui, 2002; Vakola & Nikolaou, 2005). In this commitment, individuals come to organisations with certain needs, skills and expectations and they hope to find a work environment where they can use their abilities and satisfy their needs. When an organisation can provide these opportunities, the likelihood of increasing commitment is increased. According to Vakola and Nikolaou (2005), commitment can be characterised by at least three related factors; a strong acceptance of the organisation's values and goals, a willingness to exert considerable effort on behalf of the organisation and a strong desire to maintain membership in the organisation. As a result, commitment is determined by a range of organisational and individual factors such as personal characteristics, structural characteristics, work experience and role related features.

More recently (1991) a three-component model has been developed by Meyer and Allen, including affective commitment, continuance and normative commitment (Döckel, 2003; Sui, 2002). Affective commitment refers to the employee's emotional attachment to or involvement with the organisation (Döckel, 2003), continuance to the awareness of what it will cost the individual if he/she leaves the organisation and normative commitment to "a feeling of obligation to continue employment" (Döckel, 2003, p.37).

Furthermore, there is evidence that commitment dimensions develop during employment in the organisation. Generally, commitment is targeted at an entity (union, organisation, career or job) or at behaviour (attainment of organisational goals) (Döckel, 2003). In this way a positive relationship develops between organisational commitment and attitudes to change (Vakola & Nikolaou, 2005).

There is evidence in the change management literature identifying the role of organisational commitment in a change context. Many authors indicated that organisational commitment plays an important role in employees' acceptance of change — that organisational commitment brings about a calming effect between the relationship of occupational stress and attitudes towards change (Vakola & Nikolaou, 2005). Lau and Woodman (1995, as cited in Vakola & Nikolaou, 2005) argued that a highly committed employee is more willing to accept organisational change if it is perceived to be beneficial. But other researchers indicated that a highly committed employee may resist change if he/she perceives it as a threat to his/her own benefit. These findings suggest that there might be an influence of organisational commitment on attitudes to organisational change.

Furthermore, the study of Tytherleigh, Webb, Cooper, and Ricketts (2003) reported Higher Education Institution employees also show significantly higher levels of stress relating to work relationships, control, and resources and communication, and significantly lower levels of commitment both from and to their organisation. The results of a study by Sui (2002) showed a positive relation between organisational commitment and well-being.

METHOD

Research design

A cross-sectional survey design was used. Welman and Kruger (2001) describe a survey design as the type of research in which the examination of a relationship between two or more variables, without any planned intervention, takes place.

Participants

A stratified, random sample (N = 334) was taken from the academic staff and support staff at a university of technology. Questionnaires (950) were delivered by hand to the offices of all the staff of the University of Technology and later collected from the secretaries of each department, of which 334 completed were returned - a total of 35%.

The sample consists mainly of Afrikaans-speaking (64,1%), married (62,9%) males (42,5%) and females (54,5%) who are satisfied with their relationship (in their marital status at the moment) (73,9%). They are employed on a permanent basis (71,9%), received at least one job promotion in the last five years (60,2%), always take full entitlement of annual leave (71%) and have encountered a stressful event over the past six months that have had an important effect on the individual (60,8%). Table 1 presents some of the characteristics of the participants.

Table 1 also indicates that academic staff forms 36,9% of the sample and support staff 64%. Qualifications of the sample are between primary school (1,2%), secondary school (15,6%), tertiary qualification (M+1 – M+3) (26,4%) and Post Graduate (53.4%). (For the sake of this study Post Graduate Qualifications are seen as staff with Honnours or B.Tech Degrees as well as Master's and Doctoral Degrees).

Table 1

Characteristics of the Participants

Item	Category	F	Percentage
Home Language	Afrikaans	214	64,1
	English	30	9,0
	Sesotho	45	13,5
	Sepedi	4	1,2
	Setswana	15	4,5
	Tsivenda	1	0,3
	IsiZulu	4	1,2
	IsiNdebele	1	0,3
	IsiXhosa	13	3,9
	Xitshonga	1	0,3
Main Job Category			
Academic Staff	Assistant Technical/Mechanical/Laboratories)	6	1,8
	Researcher	2	0,6
	Sport Manager	2	0,6
	Part Time Lecturer	15	4,5
	Junior Lecturer	28	8,4
	Lecturer	23	6,9
	Senior Lecturer	11	3,3
	Programme Head	14	4,2
	Head of Department	24	3,3
	Director	10	2,4
	Professor & Dean	3	0,9
Support Staff	Management	25	7,5
	Financial	23	6,9
	Secretarial	33	9,9
	Security	6	1,8
	Human Resources	15	4,5
	Library	12	3,6
	Administrative	59	17,7
	Catering	1	0,3
	Information Technology	18	5,4
	Student Support	18	5,4
	Technical	5	1,5
	Cleaning/Manual/ Estate workers	2	0,6
Qualifications	Grade 4 – Grade 9	6	1,2
	Grade 10 – Grade 11	11	3,3
	Grade 12	41	12,3
	Certificate (1 or 2 year)	14	7,8
	National & National Higher Diploma	39	9,7
	Degree (3 or 4 years)	30	9,0
	Degree + Higher Education Diploma	3	0,9
	Honours or B.Tech. Degree	88	26,4
	Master's Degree	56	16,8
	Doctoral Degree	34	10,2
Basis of Employment	Permanent	240	71,9
	Temporary	17	5,1
	Fixed Term	39	11,7
	Hourly Paid	16	4,8
Gender	Male	142	42,5
	Female	182	54,5
Marital Status	Single	65	19,5
	Married	210	62,9
	Divorced/Separated/Widow(er)	33	9,9
	Remarried	2	0,6
	Engaged/ In relationship	23	6,9

Procedure

Permission to do the study was obtained from the Vice-Chancellor and the Chief Director: Higher Education Policy of the specific University of Technology. Having obtained permission in writing, the various Heads of Departments were contacted to do presentations regarding the objectives of the study and to ask permission to distribute questionnaires

amongst their staff. A letter explaining the objectives was attached to each questionnaire, and questionnaires were delivered to every office by hand. The completed questionnaires were left with the secretaries of each department, where the researcher collected it.

Measuring instruments

A biographical questionnaire was designed to gather information regarding gender, qualification, position, age, marital status and basis of employment.

The *ASSET Organizational Stress Screening Tool* (hereafter referred to as ASSET) was used to measure the levels of occupational stress of support staff and academics in the Technological University. Cartwright and Cooper (2002) designed the ASSET as an initial screening tool, based on a large body of academic and empirical research, to help organisations assess the risk of stress in their workforce. It measures potential exposure to stress in respect to a range of common workplace stressors. It also provides important information on current levels of physical health, psychological well-being and organisational commitment and provides data to which the organisation can be compared. The ASSET is divided into four questionnaires. The first questionnaire (37 items) measures the individual's perception of stressors in his or her job. This questionnaire consists of seven subscales relating to seven potential sources of stress, namely: W*ork Relationship; Work-Life Balance; Overload; Job Security; Control; Resources and Communication and Job Characteristics.* The second questionnaire (nine items) measures the individual's commitment (attitude) toward his or her organisation. The third questionnaire (19 items) 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 (24 items) focuses on supplementary information, i.e. the background information with specific references to academics in higher education institutions and includes questions relating to factors which can affect stress.

The ASSET has an established set of norms from a database of responses from 9 188 workers in public- and private-sector organisations in the United Kingdom. The ASSET presents scores in sten (standardised ten) format. A sten is a standardised score based on a scale of 1 to 10, with a mean of 5,5 and a standard deviation of 2. The sten system enables meaningful comparison to the norm group. Most people (68%) score between sten 3 and sten 8. Scores

that fall further from the mean (either in the high or the low direction) are considered more extreme. Approximately 16% score at the low end, and another 16% at the high end.

Reliability of the scale is based on the Guttman split-half coefficient. All but two factors returned coefficients in excess of 0,70, ranging from 0,60 to 0,91 (Cartwright & Cooper, 2002). Tytherleigh (2003) used the ASSET as an outcome measure of job satisfaction in a nationwide study of occupational stress levels in 14 English higher education institutions. The alpha coefficients of the scales of the ASSET ranged from 0,64 to 0,94.

Statistical analysis

The SPSS program (SPSS Inc., 2003) was used to compute descriptive statistics, factor analysis, correlations, and multiple regression analysis. Chronbach alpha coefficients were used to determine the significance of dimensions of the ASSET. Pearson product-moment correlation coefficients were used to specify the relationship between the variables. In terms of statistical significance, it was decided to set the values at $p < 0,05$. Effect sizes (Steyn, 1999) were used to decide on the practical significance of the findings. A cut-off point of 0,30 (medium effect, Cohen, 1988) was set for practical significance of correlation coefficients).

Exploratory factor analyses were carried out to investigate the construct validity of the ASSET. First, a simple principal component analysis was conducted. The eigenvalues and scree plot were studied to determine the number of factors. Second, a principal component analysis with a direct oblimin rotation was conducted if factors were related, and a principal component analysis with a varimax rotation was used if the obtained factors were not related (Tabachnick & Fidell, 2001).

Standard multiple regression analyses were conducted where the predictors (independent variables) were tested alternatively to determine which among the set of predictors are the most important in explaining the variance of the dependent variables (Sekaran, 2000). In terms of statistical significance, it was decided to set the values at $p < 0,05$.

RESULTS

Descriptive statistics and reliability of the ASSET

The descriptive statistics of the ASSET items are presented in Table 2.

Table 2

Descriptive Statistics and Cronbach Alpha Coefficients of the ASSET

Dimension/Item	Sten	Mean	SD	Skewness	Kurtosis	α
Work-Life Balance	2	10,53	4,59	0,53	-0,42	0,74
Overload	3	9,88	3,71	0,69	0,49	0,64
Job Security	1	9,78	3,78	0,47	-0,49	0,44
Control	7	13,85	4,06	-0,13	-0,49	0,64
Resources and Communication	2	11,12	3,92	0,55	0,53	0,58
Job Aspects	4	22,82	6,04	0,25	0,13	0,60
Work Relationships	6	22,82	6,04	0,25	0,13	0,74
Affective Commitment	5	19,93	5,41	-0,52	-0,19	0,82
Behavioural Commitment	7	17,31	4,24	-0,86	0,44	0,77
Physical Ill Health	8	14,86	4,27	-0,23	-0,58	0,78
Psychological Ill Health	10	22,48	7,20	0,26	-0,59	0,92

Table 2 illustrates that the 11 dimensions of the ASSET are normally distributed in the sample, with low skewness and kurtosis. The Cronbach Alpha Coefficients compare well with the guideline of 0,70 (0,55 in basic research). In this case alphas can be found between 0,44 and 0,92 – with Overload, Job Security, Control, Resources and Communication, and Job Aspects lower than the recommended value. Job Security and Resources and Communication have low alphas.

Inspection of Table 2 indicates that, in the total sample, only a few of the stressor dimensions are perceived as moderately stressful. Dimensions with low stens are Work-Life Balance (2), Overload (3), Job Security (1) and Resources and Communication (2), which indicate that these dimensions are perceived as low sources of stress among the population. Only two stressors, namely Control (7) and Work Relationships (6) show higher than average sten

scores. In this case, control implies that the individual is not feeling in control over many aspects of his/her own job or decisions affecting the persons own job, i.e. he/she has low control over his/her job. The sten of 6 on the dimension Work Relationships indicates that the participants feel they do not have good relationships within the organisation, that their work relations exert stress on them.

Behavioural Commitment (Commitment from the Individual to the Organisation) indicates that the employees see their own levels of commitment to the organisation as above average (sten of 7), while they see commitment of the organisation to the employee as average (sten of 5). Physical Ill Health (sten of 8) and Psychological Ill Health (sten of 10), as illustrated by the sten scores and compared to other dimensions of the ASSET, prove to be major sources of stress. At the physical level, it included items such as "Insomnia/sleep loss", "Headaches", "Muscular tension/aches/pains" and "Feeling nauseous/sick". At the Psychological level, it includes aspects such as "Panic/anxiety attacks", "Feeling/becoming angry easily", "Constant tiredness", "Feeling unable to cope", "Avoiding contact with other people" and "Mood swings".

Exploratory factor analysis

The alpha coefficients of the stress factors as measured by the ASSET were lower than expected. Therefore it was decided to conduct a principal component analysis for purposes of the remaining analyses.

A simple principal component analysis on the 37 items of the ASSET resulted in 10 components with eigenvalues larger than one. These 10 components explained 60,37% of the total variance. The scree plot showed that three factors (which explained 37,48% of the total variance) could be extracted.

Next, a principal component analysis with a direct oblimin rotation was carried out on the 37 occupational stress items of the ASSET. The pattern matrix with the items mentioned above is presented in Table 3.

Table 3

Pattern Matrix of the Stressors on the ASSET

	Component		
	F1	F2	F3
I am set unrealistic deadlines	**0,69**	0,10	0,29
I do not have the proper equipment or resources to do my job	**0,63**	0,18	0,03
My work is dull and repetitive	**0,62**	0,02	0,26
I have to deal with difficult customers/ clients	**0,60**	-0,12	0,16
I do not enjoy my job	**0,59**	0,22	-0,16
My job skills may become redundant in the near future	**0,58**	0,07	-0,02
I am not adequately trained to do many aspects of my job	**0,57**	0,18	-0,01
My organization is constantly changing for the sake of changing	**0,56**	-0,11	-0,07
My job is likely to change in the future	**0,55**	0,00	-0,16
Others take the credit for what I have achieved	**0,55**	-0,14	0,02
I am given unmanageable workloads	**0,54**	-0,16	0,07
I do not have time to do my job as well as I would like to	**0,52**	-0,19	0,09
I have little or no influence over my performance targets	**0,52**	-0,13	0,25
My relationships with my colleagues are poor	**0,50**	-0,06	-0,12
My pay and benefits are not as good as other people doing the same or similar work	**0,47**	-0,04	-0,01
My boss is forever finding fault with what I do	**0,39**	-0,25	-0,15
My physical working conditions are unpleasant (e.g., noisy, dirty, poorly designed)	**0,36**	-0,07	0,14
I am not involved in decisions affecting my job	0,27	-0,08	0,18
I work longer hours than I choose or want to	-0,19	**-0,78**	0,21
I am never told whether I am doing a good job	-0,03	**-0,78**	-0,16
Other people at work are not pulling their weight	0,15	**-0,73**	-0,12
My work interferes with my home and personal life	0,02	**-0,72**	0,19
I work unsocial hours e.g., weekends, shift work, etc.	-0,22	**-0,69**	0,24
I am not sure what is expected of me by my boss	0,16	**-0,64**	-0,14
I have little control over many aspects of my job	0,24	**-0,49**	0,22
I do not receive the support from others (boss/colleagues) that I would like to	0,40	**-0,41**	0,09
My ideas or suggestions about my job are not taken into account	0,33	**-0,38**	-0,32
I feel isolated at work, e.g., working on my own or lack of social support from others	0,27	**-0,36**	-0,22
I do not feel I am informed about what is going on in this organization	0,25	**-0,33**	0,09
The technology in my job has overloaded me	0,26	**-0,32**	0,01
I may be doing the same job for the next 5 to 10 years	0,04	-0,28	-0,27
My performance at work is closely monitored	0,11	-0,13	0,08
My job is insecure	0,14	-0,14	**0,61**
My job is not permanent	-0,12	-0,01	**0,61**
My boss behaves in an intimidating and bullying way towards me	0,40	-0,04	**0,49**
I spend too much time travelling in my job	0,07	-0,19	**0,39**
My job involves the risk of actual physical violence	0,27	-0,06	**0,35**

F1 = Factor 1: Job Demands
F2= Factor 2: Lack of Organisational Support
F3= Factor 3: Other Stressors

Items which loaded on Job demands refer to a situation where the staff feel they cannot cope with what is expected of them in the sense that the deadlines which are set are unrealistic and that they have unmanageable workloads, they also do not have the proper equipment and resources to do the job and they do not have time to do the job as well as they would have liked to, have little or no influence over their performance targets; furthermore, the job is dull and repetitive while they have to deal with difficult customers and clients; their job skills may become redundant in the near future and they do not feel adequately trained to do many aspects in their job; the organisation keeps changing simply for the sake of changing, which means that their jobs will change in the near future; others take credit for what they have achieved, their relationship with colleagues are poor and the boss is constantly finding fault with what they do; and their pay and benefits are not as good as those of others doing the same or similar work.

Items which loaded on Lack of Organisational Support refer to a situation where management is expecting of staff to work too long hours (including unsocial hours and over weekends), not giving feedback for a job well done, not distributing work evenly or supervising to see that all the staff are pulling their weight, not giving clear and direct instructions and staying consequent, not giving the necessary support to staff and making sure staff are not feeling isolated, not listening to the ideas or suggestions of staff or inform all the staff of what is going on and not making sure whether the staff are feeling overloaded with new technology.

The items in Factor 3 did not make sense, when it was put together as a separate factor. The reason for it could be that the participants did not understand the items clearly, or did not feel the items were important enough. Because of this the researcher decided not to use this factor further in this study.

The descriptive statistics and alpha coefficients of the two extracted factors are reported in Table 4.

Table 4

Descriptive Statistics and Cronbach Alpha Coefficients of the ASSET

Dimension/Item	Mean	SD	Skewness	Kurtosis	A
Job Demands	46,47	13,52	0,46	0,63	0,86
Lack of Organisational Support	35,59	11,52	0,32	-0,56	0,85

Table 4 illustrates that the scores on the two factors are normally distributed with low skewness and kurtosis. The Cronbach Alpha Coefficients compare well with the guideline of 0,70 (Nunnally & Bernstein, 1994). In this case between 0,86 and 0,85 for Job Demands and Lack of Organisational Support respectively, which prove to be highly significant.

The product-moment correlation coefficients between the ASSET dimensions and extracted factors are reported in Table 5.

Table 5

Product-Moment Correlation Coefficients of the ASSET dimensions

	Item	1	2	3	4	5
1	Job Demands	-	-	-	-	-
2	Lack of Organisational Support	$0,61^{*++}$	-	-	-	-
3	Affective Commitment	$-0,50^{*++}$	$-0,26^{*}$	-	-	-
4	Behavioural Commitment	$-0,39^{*+}$	$-0,19^{*}$	$0,73^{*++}$	-	-
5	Physical Ill Health	$0,28^{*}$	$0,34^{*+}$	$-0,15^{*}$	$-0,07$	-
6	Psychological Ill health	$0,43^{*+}$	$0,45^{*+}$	$-0,34^{*+}$	$-0,23^{*}$	$0,68^{*++}$

$* p < 0,05$
$+ r > 0,30$ – practically significant (medium effect)
$++ r > 0,50$ – practically significant (large effect)

Table 5 shows Lack of Organisational Support has a practically significant relation with Physical Ill health on the 1% level. The effect size shows that this relation is practically significant with a medium effect. The related value between the two given dimensions (Lack of Organisational Support and Physical Ill health) is positive.

Table 5 further indicates that Psychological Ill Health is practically significantly related to stress because of Job Demands, Lack of Organisational Support, Affective Commitment, Behavioural Commitment and Physical Ill Health on the 1% level. The effect size shows that this relation is practically significant with a medium effect for Job Demands, Lack of Organisational Support, and Affective Commitment and practically significant with a large effect for Physical Ill Health.

Inspection of Table 5 further indicates that Lack of Organisational Support is practically significantly related to Job Demands on the 1% level with a large effect. Furthermore, Affective Commitment shows a negative practically significant relationship to a large effect to Job Demands on the 1% level. It is also indicated that Behavioural Commitment is practically significantly positively related to Affective Commitment with a large effect on the 1% level and negatively to Job Demands with a medium effect.

To assess whether occupational stress and organisational commitment predict Physical and Psychological Ill Health of employees at a university of technology, a series of standard multiple regression analyses were carried out as illustrated in Table 6.

First, as shown in Table 6, Physical Ill Health was used as the dependent variable with four independent variables, namely Lack of Organisational Support, Job Demands, Behavioural Commitment, and Affective Commitment as predictors. The results in Table 6 show that occupational stress and organisational commitment (as measured by the ASSET) explained 13% of the variance of Physical Ill Health. The regression coefficient of one occupational stressor, namely Lack of Organisational Support was statistically significant ($p < 0,05$). The same four independent variables explained 25% of the variance in Psychological Ill Health. In this case, the regression coefficients of two occupational stressors, namely Job Demands and Lack of Organisational Support, were statistically significant.

Table 6

Standard Multiple Regression Analyses

Variable	Non-standardised coefficients		Standardised coefficients	t	p	F	R^2
	B	SE	Beta				
Physical Ill Health						8,85*	0,13*
Constant	10,16	1,97		5,14	0,00		
Lack of Organisational Support	0,89	0,03	0,25	3,16	**0,00***		
Job Demands	0,38	0,03	0,13	1,42	0,16		
Behaviour Commitment	0,09	0,09	0,09	1,05	0,29		
Affective Commitment	-0,10	0,08	-0,13	-1,28	0,20		
Psychological Ill Health						17,73*	0,25*
Constant	16,51	3,27		5,05	0,00		
Lack of Organisational Support	0,15	0,05	0,25	3,26	**0,00***		
Job Demands	0,11	0,04	0,20	2,41	**0,01***		
Behaviour Commitment	-0,14	0,15	0,01	-0,08	0,93		
Affective Commitment	-0,22	-0,13	-0,17	-1,69	0,09		
Affective Commitment						44,97*	0,27*
Constant	28,94	1,11		26,14	0,00		
Job Demands	0,05	0,03	0,11	1,58	**0,00***		
Lack of Organisational Support	-0,23	0,03	-0,59	-8,38	0,12		
Behavioural Commitment						25,09*	0,17*
Constant	22,71	0,91		24,94	0,00		
Job Demands	-0,14	0,02	-0,46	-6,25	**0,00***		
Lack of Organisational Support	0,03	0,03	0,09	1,19	0,23		

* $p < 0,05$

Furthermore, Table 6 indicates that occupational stress (as measured by the ASSET) explained 27% of the variance in Affective Commitment. The regression coefficient of one occupational stressor, namely Job Demands, was statistically significant ($p < 0,01$). Lastly, it is indicated in Table 6 that occupational stress (as measured by the ASSET) explained 17% of the variance in Behavioural Commitment. The regression coefficient of one occupational stressor, namely Job Demands, was statistically significant ($p < 0,01$).

DISCUSSION

The aim of the study was to establish what the occupational stress levels of staff at a university of technology are and to assess the relationships among occupational stress, organisational commitment and ill health of employees at the specific institution.

Reliability analysis revealed that the scales of the ASSET with the exception of Overload, Job Security, Control, Resources and Communication and Job Aspects were sufficiently internally consistent. Therefore the results regarding these dimensions should be interpreted with caution. Analysis of the sten scores of the ASSET dimensions indicated that Affective Commitment was the only dimension with an average score.

Two stressors, namely control and work relationships, showed higher than average sten scores. In this case, control implies that the individual is not feeling in control over many aspects of his/her own job or decisions affecting the persons' own job, i.e. he/she has low control over his/her job. When job demands are high, however, but autonomy/control is low, strain appears, according to Karasek's model (Shen & Gallivan, 2004). High stress will therefore be related to mental strain (psychological ill health) symptoms, resulting in more sick days and more pill consumption (De Jonge et al., 2000; Shen & Gallivan, 2004).

The high sten on work relationships indicates that the participants feel they do not have good relationships within the organisation and that their work relations exert stress on them. The commitment to the organisation was reported as above average, while commitment of the organisation to the employee was seen as average. On the other hand, scores obtained for the effects of stress were high for physical ill health and very high for psychological ill health. Work-life balance, overload, job security and resources and communication were experienced as less stressful.

An employee's level of commitment to an organisation makes him/her more eligible to receive both extrinsic (e.g., wages and benefits) and psychological (e.g., intrinsic job satisfaction and relationship with co-workers) rewards associated with membership (Sui, 2002, p. 541). According to Sui (2002), commitment protects individuals from negative effects of stress because it enables them to attach direction and meaning to their work. Results indicated that affective commitment had a negative relationship with a lack of organisational support, in other words, it protects the employees against the negative effect of lack of support from management in the organisation and stress that usually goes with it. Sui (2002) stated that organisational commitment can also provide people with stability and a feeling of belonging.

The results further indicate that there is a relationship between the two stress factors, namely lack of organisational support and job demands. Lack of organisational support refers to a situation in which the support of the management of the organisation is not what it should be. In other words if the support of management is poor, it is more difficult for the staff to cope with the job demands. Analyses showed that when stressful job demands and stress because of a lack of organisational support become higher, it has a strong effect on the psychological ill health of the employees, including a tendency to be irritable, to lose their sense of humour, to become angry with others too easily or to constantly feel tired.

The results of the regression analyses showed that occupational stress (because of a lack of organisational support, and job demands) and organisational commitment explained a substantial part of the variance in physical ill health. Furthermore, it was clear that a lack of organisational support was the most important factor which contributed to physical ill health. The results also showed that occupational stress (because of a lack of organisational support, and job demands) and organisational commitment explained part of the variance of psychological ill health. A lack of organisational support and job demands were the most important factors which contributed to psychological ill health.

The results showed that occupational stress (because of a lack of organisational support and job demands) explained a part of the variance in affective commitment. However, stressful job demands were the only statistically significant predictor of affective commitment. Occupational stress (because of a lack of organisational support and job demands) explained a moderate part of the variance in behavioural commitment. Again, stressful job demands, was the only statistically significant predictor of behavioural commitment. Smith (1997) indicates that job demands, where there was low employee participation (control) and poor supervisory practices, show the largest correlation with psychic symptoms, fatigue, psychosomatic complaints, musculoskeletal disorders and a significant decrease in job satisfaction.

In the University of Technology it seems that a problem is experienced with job demands and that the staff does not receive the support they need from the supervisory staff. Further they do not have autonomy or control to make their own decisions on their own work and this causes an immense amount of strain. This strain leads to high levels of psychosomatic complaints or to psychological and physical ill health in the organisation. These ill health

problems in turn lead to organisational problems in the form of absenteeism, turnover or early retirements.

Firstly, a cross-sectional survey design was used, which makes it impossible to prove the causality of the obtained relationships. It is necessary to study the relationships between occupational stress, organisational commitment and ill health in a longitudinal design. Secondly, the sampling procedure can be a limitation on this study as it prevents the generalisation of the findings to the general population. Future studies should be done on more than one university of technology and concentrate on either the support staff or the academic staff - not both. Thirdly, the fact that the home language of only 9% of the sample group was English could have influenced the way the sample group answered the questionnaire, especially considering the difference in perceived language knowledge between the academic and general support staff.

RECOMMENDATIONS

It is recommended that the specific University of Technology investigate the possibility of interventions to lower the possibility of physical and psychological ill health at their institution. Possible actions can include investigations regarding the feelings of staff concerning the factors: Job demands, and Lack of organisational support. Implementation of leadership training programs for all supervisors can be of great value to the institution. The University of Technology could further implement stress intervention and stress release programmes for their staff, including time management, conflict resolution and relaxation techniques, and coping strategies.

The study should be expanded to the other universities of technology in South Africa to obtain a sample which is more reliable and a study that could be more generalizable to the population. It is further recommended that the study is repeated on one of the subgroups on its own, academic or support staff, and that not both groups are used together in order to estimate the effect of stress on a specific group or on each group separately in this organisation. In this way the organisation the organisation can decide better where to focus stress intervention and stress release programmes.

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CHAPTER 3

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

In this chapter, the conclusions drawn on the basis of the literature and the findings of the empirical study are set out. In addition, the limitations of the research are discussed. Finally, recommendations are made for the technological university in terms of related future research.

3.1 CONCLUSIONS

The aims of the study were to establish what the occupational stress levels of staff at a university of technology are and to assess the mutual relationships among occupational stress, organisational commitment and ill health of employees at the specific institution. The aims will subsequently be used as direction to lead the discussion.

Reliability analysis revealed that the scales of the ASSET, with the exception of Overload, Job Security, Control, Resources and Communication and Job Aspects, were sufficiently internally consistent. The results regarding these dimensions should therefore be interpreted with caution.

Gillespie, Walsh, Winefield, Dua, and Stough (2001) claim that the phenomenon of occupational stress among academic and general staff of universities from across the globe is alarmingly widespread and that it is still increasing. However, results at this university of technology indicated that most of the stressors on the ASSET, namely: Work-Life Balance (e.g., Work longer hours than I choose to; Work interferes with home and personal life), Overload (e.g., Set unrealistic deadlines; technology in my job has overloaded me), Job Security (e.g., Job is insecure; My job is likely to change in the future) and Resources and Communication (e.g., I do not feel I am informed about what is going on in this organisation; I do not have the proper equipment or resources to do my job) were experienced as less stressful. Kinman (2001), on the other hand, found that overload, job security and resources and communication are reasons for stress among university staff. The stressor Job Aspects (e.g., I may be doing the same job the next 5 to 10 years; my organisation is constantly

changing for the sake of changing; my work is dull and repetitive) was experienced as moderately stressful.

Two stressors, namely control and work relationships, were more than moderately stressful. In this case, control implies that the individual is not feeling in control of many aspects of his/her own job or of decisions affecting his/her own job, i.e. he/she has low control over his/her job. When job demands are high, however, but autonomy/control is low, strain appears according to Karasek's model (Shen & Gallivan, 2004). High strain will consequently be related to mental strain (psychological ill health) symptoms: work exhaustion and depression resulting in more sick days and more pill consumption (De Jonge, Dollard, Dormann, Le Blanc, & Houtman, 2000; Shen & Gallivan, 2004).

The implication of the high stress on the dimension Work Relationships is that the participants feel they do not experience a good relationship within the organisation. They feel that their work relations exert stress on them in the sense that they feel their boss behaves in an intimidating and bullying way towards them. There is also a feeling that they do not receive the support from others (boss/colleagues) that they would like. According to Boyd and Wylie (1994, as cited in Gillespie et al., 2001), this situation results in increasing workloads and work-related stress and in less academic time spent on research, publishing and professional development. It then brings down teaching and research standards, and therefore leads to increasing interpersonal conflict in academic staff relationships.

Next, conclusions will be made regarding the relationships among occupational stress, organisational commitment and ill health.

An employee's level of commitment to an organisation makes him/her more eligible for receiving both extrinsic (e.g., wages and benefits) and psychological (e.g., intrinsic job satisfaction and relationship with co-workers) rewards associated with membership (Sui, 2002, p. 541). Therefore in affective commitment, seen as a form of psychological reward, the employee begins to link to the organisation emotionally. According to Sui (2002), it protects these kinds of committed individuals from negative effects of stress because it enables them to attach direction and meaning to their work, while Faragher, Cooper, and Cartwright (2004) suggest that commitment is not directly linked to health but acts as a mediating factor. At the specific university of technology, employees reported their own

levels of commitment to the organisation as above average, while they perceived the commitment of the organisation to the employees as average. Furthermore, scores obtained for the effects of stress were high for physical ill health and very high for psychological ill health. Faragher et al. (2004) suggest further that job control correlates with psychological ill health, therefore the fact that control as a stressor was high must be taken into account. Job control however does not correlates with physical health and only correlates moderately with the extent to which employees feel committed to their organisation, but weakly associated with the commitment by the organisation to the employees (Faragher et al., 2004).

Results further indicated that affective commitment had a negative relationship with stress because of a lack of organisational support. In other words it protects the employees against the negative effect of stress. Sui (2002) stated that organisational commitment can also provide people with stability and a feeling of belonging.

The results further indicated a relationship between stress because of a lack of organisational support and job demands. Lack of organisational support refers to a situation where the support of the management of the organisation is not what it should be. In other words if managerial support is poor, it is more difficult for the staff to cope with the job demands. In this respect, it is important to bear in mind that the specific university of technology presently is subjected to a great deal of change, and according to literature, a relationship exists between change and workload (job demand) (Gillespie et al., 2001). When stressful job demands are higher, support of staff will be lower and in this regard Woodward et al. (1999, as cited in Vakola & Nikolaou, 2005) indicated that supportive colleagues play an important role in employees' efforts to cope with stress during organisational change - times when job demands are high.

Analyses showed that when stressful job demands and stress because of a lack of organisational support become higher, it has a strong effect on the psychological ill health of the employees, including a tendency to be irritable, to lose their sense of humour, to become angry with others too easily or to constantly feel tired. Mallinckrodt and Fretz, (1988, as cited in Vakola & Nikolaou, 2005) stated that individuals with more social support tend to experience higher levels of physical and mental health during stressful life events. But if employees show a high tendency for physical ill health (lack of appetite or over-eating, indigestion or heartburn, insomnia, headaches, muscular tension/aches and pains, feeling

nauseous or being ill) it also shows a tendency for high psychological ill health or vice versa. Lindfors and Lundburg (2002) confirmed this statement when they declare that "findings concerning the negative aspects of human functioning suggest that psychological well-being may influence physiological processes, and vice versa, and consequently effect long-term health."

The results of the regression analyses showed that occupational stress (because of a lack of organisational support, and job demands) and organisational commitment explained a substantial part of the variance in physical ill health. Furthermore, it was clear that a lack of organisational support was the most important factor which contributed to physical ill health. The results also showed that occupational stress (because of a lack of organisational support, and job demands) and organisational commitment explained part of the variance of psychological ill health. A lack of organisational support and job demands were the most important factors which contributed to psychological ill health.

The results showed that occupational stress (because of a lack of organisational support and job demands) explained a part of the variance in affective commitment. However, stressful job demands were the only statistically significant predictor of affective commitment. Occupational stress (because of a lack of organisational support and job demands) explained a moderate part of the variance in behavioural commitment. Again, stressful job demands was the only statistically significant predictor of behavioural commitment. Smith (1997) indicates that job demands, where there was low employee participation (control) and poor supervisory practices, show the largest correlation with psychic symptoms, fatigue, psychosomatic complaints, musculoskeletal disorders and a significant decrease in job satisfaction.

Lastly, it is important to note that it is possible for organisations to experience further indirect costs as a result of stress, for example low morale, low job satisfaction, faulty decision-making, aggression and violence amongst workers (Johnson & Cooper, 2003). Therefore it clearly is important that universities manage and protect their staff from increasing levels of stress in order to preserve staff well-being, organisational performance and the intellectual health of the nation (Gillespie et al., 2001)

3.2 LIMITATIONS

A cross-sectional survey design was used in this study, which makes it impossible to prove the causality of the obtained relationships. It is necessary to study the relationships between occupational stress, organisational commitment and ill health in a longitudinal design.

The sampling procedure can be a limitation on this study as it prevents the generalisation of the findings to the general population. Future studies should be done on more than one university of technology and concentrate on either the support staff or the academic staff - not both. The fact that the home language of only 9% of the sample group was English could have influenced the way the sample group answered the questionnaire, especially considering the difference in perceived language knowledge between academic and general support staff.

3.3 RECOMMENDATIONS

3.3.1 Recommendations for the university of technology

The following recommendations, based on the findings, should be considered and implemented:

- The University of Technology must investigate the possibility of interventions to lower the possibility of physical and psychological ill health at their institution. Possible actions can include investigations regarding the feelings of staff concerning the factors: Job demands and lack of organisational support.
- Investigate vacancies and fill them as soon as possible to lower workloads of staff.
- Investigate training needs of staff, development and implementation of programs to satisfy those needs.
- Implement leadership training programs for all supervisors. It can be of immense value to the institution. Focus in the programs on setting deadlines, giving feedback, variety in work allocation and fair supervision practices.
- The specific university of technology could further implement stress intervention and stress release programmes for their staff, including time management, conflict resolution and relaxation techniques, and coping strategies.

- Make sure that changes in the organisation are really necessary and well thought through and investigated before being implemented.
- Make sure staff is informed.
- Give staff more autonomy.
- Work on a support system from colleagues and the boss to each other, i.e. to also become person orientated and not only be task orientated.

3.3.2 Recommendations for future research

The following recommendations for future research are made based on the findings:

- The study could be expanded to the other universities of technology in South Africa to obtain a sample which is more reliable and a study that could be more generalizable to the population.
- The study could be repeated on one of the subgroups on its own, academic or support staff - not both groups together. In that way the organisation will be able ton estimate the effect of stress on a specific group or on each group separately. The organisation can then decide better where to focus stress intervention programmes.
- Future research could study the effect of external variables that could lead to stress, e.g. new legislation by the Minister of Education.

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