Occupational Stress in Australian Universities: A National Survey 2002

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A Report to the Vice Chancellors, National Tertiary Education Union, Faculty and Staff of Australian Universities, and The Ministers for Education and Health

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Acknowledgment

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Universities

CQU	Central Queensland University
Murdoch	Murdoch University
Adelaide	University of Adelaide
USQ	University of Southern Queensland
QUT	Queensland University of Technology
Newcastle	University of Newcastle
Melbourne	University of Melbourne
UWA	University of Western Australia
New England	University of New England
Deakin	Deakin University
UTS	University of Technology Sydney
Canberra	University of Canberra
Swinburne	Swinburne University of Technology
USA	University of South Australia
Macquarie	Macquarie University
James Cook	James Cook University
RMIT	RMIT University

Psychological Measures

GHQ	General Health Questionnaire

Miscellaneous

NTEU	National Tertiary Education Union
DEETYA	Department of Employment, Education, Training and Youth Affairs
ATN	Australian Technology Network
HEW	Higher Education Worker (job classification)

EXECUTIVE SUMMARY

Results of a national survey of occupational stress in Australian university staff are summarised below. The survey was conducted in late 2000. Responses were received from 8732 staff members of 17 participating Australian universities (a 25% response rate). Statistical analyses suggest that the sample was representative.

Occupational stress was defined as the combination of high levels of psychological strain and low levels of job satisfaction. The survey addressed three main questions:

1. What is the level of occupational stress among Australian university staff?
2. Which groups of university staff experience most stress?
3. What are the principal factors that contribute to stress among university staff?

Key findings:

- Approximately 50% of the Australian university staff taking part in the study were at risk of psychological illness, compared with only 19% of the Australian population overall. This finding cannot be explained in terms of personality factors (the sample was normal on a measure of neuroticism).
- Job satisfaction in academic staff was low, relative to other occupational groups, but average in general staff.
- Most academic staff were dissatisfied with five aspects of their job: university management, hours of work, industrial relations, chance of promotion, rate of pay. In contrast, most general staff reported dissatisfaction with only one aspect of their job, chance of promotion.
- Psychological strain was highest and job satisfaction lowest among Level B and C academics (Lecturers and Senior Lecturers), particularly those working in the Humanities and Social Studies.
- For academic staff, job satisfaction was higher at the old than at the newer universities. For general staff, job satisfaction was unrelated to university type or age.
- More than 30% of academics reported working more than 55 hours per week.
- At the university level, psychological strain was predicted by financial pressures (university income for academic staff, percentage cuts in government grants for general staff), while job satisfaction was predicted by staffing pressures (current student/staff ratio for academic staff, percentage staff cuts and grant cuts for general staff).
- At the individual level, the organisational factors that best predicted psychological strain were job insecurity and work demands. The best predictors of job satisfaction were procedural fairness, trust in heads, trust in senior management, and autonomy.
- Trust in senior management and perceptions of procedural fairness, (both predictors of job satisfaction) were both low.

Conclusions:

Australian university staff, particularly academic staff, are highly stressed. Diminishing resources, increased teaching loads and student/staff ratios, pressure to attract external funds, job insecurity, poor management and a lack of recognition and reward are some of the key factors driving the high level of stress.

Recent overseas research has shown that very long working hours are associated with physical ill-health. Other recent research has shown that job satisfaction and organisational commitment lead to better organisational outcomes, such as profitability and customer satisfaction.

Recommendations:

These recommendations are preliminary, and are based on phases 1 and 2 of the study. More detailed recommendations will be made following phase 3, based on longitudinal comparisons. Recommendations are as follows:

- Review the fairness of procedures and processes related to promotion, redundancy, and performance appraisal, with the aim of increasing staff perceptions of the fairness of such procedures.
- Promote increased awareness of Employee Assistance Programs among individual staff members.
- Review the adequacy of current pay, promotion, reward and recognition systems. Are there more or better ways that good performance can be recognised and rewarded? Do the processes recognise excellence in teaching and administration, as well as research? Are there clear promotion paths for general staff?
- Review teaching and research demands, particularly for Level B and C academics. Are the workloads and expectations appropriate and sustainable? Are there ways to balance workloads more effectively and avoid periods of intense work pressure?
- Develop processes and programs to reduce job insecurity, and/or assist staff to cope with job insecurity. For example, develop standardised communication processes to ensure that staff receive adequate notice of renewal or non-renewal of their contracts, develop outplacement services for staff on non-continuing contracts.
- Develop leadership capabilities. There is clearly a mismatch between staff expectations of university leadership and the quality of leadership they perceive is being provided. Effective leadership development requires an understanding of what constitutes good leadership within each university, identifying the gaps between current and expected leadership practices, and tailoring training and development to meet the identified needs. It is recommended that processes guiding the selection, training and mentoring of academic staff for leadership positions be reviewed, along with the processes used for motivating, recognising and rewarding good leadership practices.
- At the policy level, devise strategies to increase the financial and staffing resources available to universities. A lack of financial and staffing resources is a key factor affecting the stress and well-being of university staff. Political decisions need to be made about whether the current level of government funding is appropriate and sufficient to support the research and teaching demands placed on the Australian university system. Are the resources that are provided by the government allocated in the most appropriate manner? Is the current system of university funding the most efficient? Are there ways to increase university revenue and funding from non-government sources?

OVERVIEW

A national survey of occupational stress and well-being within Australian Universities was conducted. Anonymous questionnaires were sent to all general and academic non-casual staff (34,855) at 17 universities in late 2000. A total of 8732 respondents completed the survey (a response rate of 25%). Analyses showed that the sample was representative of the population of university staff.

The survey is the second phase of a larger project which investigates:

1. The level of occupational stress experienced by Australian university staff.
2. Which staff groups are experiencing the highest levels of occupational stress.
3. Work-related factors that contribute to occupational stress.
4. The effect of occupational stress on health, well-being and quality of work.
5. Organisational and personal factors that assist staff to manage occupational stress (i.e., moderators).
6. Strategies for stress prevention and reduction.
7. Competing theories of occupational stress.

The survey addressed the first three aims of the project. The main indicators of stress and well-being were psychological strain and job satisfaction, respectively. Staff ratings on nine other work-related measures commonly associated with stress and well-being are also reported. The findings relating to the three aims are summarised below, the implications of these results are discussed, and preliminary recommendations for intervention are proposed.

What is the level of strain and job satisfaction in Australian universities?

The overall level of strain reported by Australian university staff was very high by comparison with national and occupational norms. Using a well-validated indicator of psychological strain (the General Health Questionnaire), 50% of staff were identified as being *at risk* of developing a psychological illness, such as anxiety or depression. By contrast, a recent national survey of mental health in Australia reports a corresponding rate of 19% amongst the general adult population (Andrews et al., 1999) and a recent study of Australian correctional officers reported a rate of 38% (Dollard et al., 1992). The level of strain found in the current study was also higher than that reported in comparative studies of both university and non-university staff in Australia and overseas. The higher level of strain reported by university staff compared to these norms was not due to personality factors. University staff are similar to the general population on personality traits that have been shown to be related to stress and well-being.

The job satisfaction reported by academic staff was low, and the job satisfaction reported by general staff was average, compared with a range of Australian and UK occupational samples (e.g., engineers, school teachers, nurses, human services workers). Only 61% of academic staff were satisfied with their job as a whole, while a third (33%) were dissatisfied. In contrast, 74% of general staff were satisfied with their job as a whole, and a fifth (21%) were dissatisfied.

Aspects of the job with which all staff were most satisfied were: fellow workers, freedom to choose own method of working, variety, and amount of responsibility.

Most academic staff (50% or more) expressed dissatisfaction with five aspects of their job (university management, hours of work, industrial relations, chance of promotion, rate of pay). In contrast, most general staff reported dissatisfaction with only one aspect of their job (chance of promotion).

Half of staff (52%) reported feeling committed to their university. Only a third of staff reported a high level of involvement in their job. Most staff felt pressured for time in doing their job (78%) and half experienced a high level of conflict between work and home commitments (52%).

In regard to the way the university is managed, it is of concern that only 19% of staff agreed that senior management is trustworthy (i.e., act with integrity, competence, openness and concern for staff), while almost half of staff (48%) reported that senior management is untrustworthy. In contrast, half of staff (53%) agreed that their Department Head is trustworthy. About one third of staff (32%) agreed that their university's procedures relating to performance appraisal, appointment, promotion, redundancy and consultation were fair, while about the same number (35%) disagreed that these procedures were fair.

Which staff groups are most at risk?

The following staff groups had the highest levels of strain and lowest levels of job satisfaction:

• Academic staff involved in teaching, or research and teaching
• Middle-ranked (level B and C) academic staff
• Academic staff in the Humanities and Social Studies

Academics involved in teaching reported that the number of hours they spent on teaching and related activities had increased in the recent past. Those also involved in research reported that they did not have enough time to perform quality research and that they felt under pressure to attract external funding. In terms of differences across universities, academics at the old universities rated higher on job satisfaction, autonomy, procedural fairness and trust in senior management, than academics at the newer universities.

What workplace factors predict individual strain, job satisfaction and organisational commitment in Australian universities?

The strongest predictors of **Psychological strain** were:

• Job insecurity
• Work pressure
• Lower levels of autonomy
• Teaching and research demands (academics only)
• Procedural fairness (general staff only)

The strongest predictors of **Job satisfaction** were:

• Procedural fairness
• Trust in Head of Department
• Higher levels of autonomy

The strongest predictor of staff **Commitment to the university** was:

• Trust in senior management

What predicts differences in strain and job satisfaction across the 17 universities?

Differences in **Psychological strain** across the universities were predicted by:

- percentage cut in government grants to the university (r=.42, general staff)
- investment income (r=-.52, academic staff)

Differences in **Job satisfaction** across the universities were predicted by:

- percentage cut in full-time staff in the university (r=-.52, general staff)
- student-staff ratio (r=-.44, academic staff)

These results indicate that the average level of strain is higher in universities that are under greater financial pressure, and job satisfaction is lower in universities that are under greater staffing pressures. This suggests that economic decisions about university funding and staffing impact on the overall psychological health and well-being within universities.

How do these results compare with other studies on stress in universities?

The findings of this national survey are consistent with the message of other recent studies of stress and well-being in Australian university staff. Together these studies indicate that there is a serious and growing problem affecting the job satisfaction, morale and mental health of Australian university staff. The results are consistent with the five causes of occupational stress within universities identified in phase 1 of the project. These were: (1) insufficient funding and resources; (2) work overload; (3) poor management practice; (4) job insecurity; and (5) insufficient recognition and reward.

What are the implications?

The findings have important implications for the physical health of staff, their job performance, and the performance of the universities.

Health problems

Higher levels of psychological strain and lower levels of job satisfaction were significantly associated with the greater incidence of self-reported stress-related health symptoms (r=.39, r=-.35), such as sleeping difficulties, headaches, viral and cold infections. These symptoms were in turn significantly associated with the number of stress-related medical conditions reported by staff (r=.36), such as migraines, hypertension and coronary heart disease. These findings are consistent with the body of research indicating that psychological stress, when left unmanaged, has a detrimental effect on physical health.

Recent research has concluded that there is a reliable link between long work hours (e.g., greater than 48 hours per week) and ill-health (Sparks et al., 1997). One study has shown that men who work 11 hours or more per day have a risk of heart attack that is 2.5 times that of men working an 8-hour day (Sokejima & Kagamimori, 1998). Approximately 30% of academic staff in the current study reported working more than 55 hours per week (i.e., more than 11 hours per day), suggesting that these staff are at an increased risk of illness.

Job performance issues

Chronic and high levels of stress, left unchecked, have been shown to lead to increases in absenteeism, stress related injuries, and staff turnover (Cooper & Cartwright, 1994). The research literature also demonstrates strong, reliable links between job satisfaction and individual job performance, particularly in high complexity jobs such as academia (r=.52 Judge et al., 2001), and strong relations between unit-level employee satisfaction and business-unit outcomes, such as productivity, profit, customer satisfaction and employee turnover (Harter et al., 2002). Moreover, the evidence suggests that it is the human resource outcomes (employee satisfaction and organisational) that influence the organisational performance outcomes, rather than the other way around (Koys, 2001).

This research suggests that interventions aimed at enhancing job satisfaction and reducing stress within universities, will in turn enhance individual and organisational productivity. Importantly, informed intervention will improve the ability of universities to retain high quality staff and deliver satisfaction to their customers.

Interventions: How to reduce stress and enhance well-being in university staff

This report serves as the first stage in providing information to guide interventions. Confidential individual reports of the findings for each university are currently being prepared, and will provide more specific information to assist universities in designing interventions to meet their unique needs and circumstances. Phase III of this research involves surveying all staff at the participating universities in late 2002. This will enable stronger recommendations to be made on the basis of longitudinal comparisons.

The findings of this project to date suggest that interventions at the individual, department, university, and government policy levels are required to reduce stress and enhance well-being within universities. Preliminary recommendations based on the results to date are summarised below. These are in line with the recommendations made by staff in Phase 1 of the project (see Gillespie et al., 2001).

Interventions at the individual level

The majority of staff (82%) who reported being counselled through their university's Employee Assistance Programs (EAP) reported that it was helpful. However, just over half of staff did not know whether their university provided an EAP, suggesting that increased staff awareness of such programs is required. EAPs can effectively contribute to employees' ability to manage their stress through education, training, personal counselling and coaching. However, to produce change that is maintained over time, such individual interventions need to be supported by, and not contradicted by, the university's processes and procedures, the organisational culture, and management directives.

Workplace interventions

- **Review the fairness of procedures** and processes related to promotion, redundancy, and performance appraisal, with the aim of increasing staff perceptions of the fairness of these procedures.
- **Review the adequacy of current pay, promotion, reward, and recognition systems.** Are there more or better ways that good performance can be rewarded and recognised? Do the processes recognise excellence in teaching and administration, as well

as research? Are there clear promotion paths for general staff?

- **Review teaching and research demands, particularly for Level B and C academics.** Are the workloads and expectations appropriate and sustainable? Are there ways to balance workloads more effectively and avoid periods of intense work pressure (e. g. exam grading deadlines)?

- **Develop processes and programs to reduce job insecurity, and/or assist staff to cope with job insecurity.** For example, develop standardised communication processes that ensure staff receive adequate notice of renewal or non-renewal of their contracts, develop outplacement services for staff on non-continuing contracts.

- **Develop leadership capabilities.** There is clearly a mismatch between staff expectations of university leadership and the quality of leadership they perceive is being provided. Effective leadership development is complex and first requires an understanding of what constitutes good leadership within each university, identifying the gaps between current and expected leadership practices, and then tailoring training and development to meet the identified needs. It is recommended that the processes guiding the selection, training and mentoring of academic staff for leadership positions be reviewed, along with the processes used for motivating, recognising, and rewarding good leadership practices.

Policy and university level interventions

- **Devise strategies to increase the financial and staffing resources** available to universities. A lack of financial and staffing resources is a key factor affecting the stress and well-being within universities. Political decisions need to be made about whether the current level of government funding is appropriate and sufficient to support the research and teaching demands placed on the Australian university system. Are the resources provided by the government allocated in the most appropriate manner? Is the current system of university funding the most efficient? Are there ways to increase university revenue and funding from non-government sources?

Conclusion

The findings of this study offer a timely insight and important challenge for the Australian Higher Education sector. It is evident that Australian university staff - particularly academics involved in teaching only, or both teaching and research - are experiencing very high levels of occupational stress, and only low to moderate job satisfaction and commitment to their universities. The findings offer a somewhat pessimistic view of the future ability of universities to maintain and attract high quality staff - and hence the future quality of research and teaching of the sector - if the current conditions and levels of stress are left unaddressed. To address the situation, universities and the Federal and State governments need to work together to develop and implement strategies that address the causes of occupational stress and enhance the quality of work life within Australian universities.

Introduction

Changes in the university sector

Universities play a vital role in the economic and social life of Australia. They train the nation's scientists, engineers, lawyers, doctors and other professionals and produce much of its cutting-edge research. In order to fulfil this role successfully they need to attract and retain high quality staff and provide a supportive working environment. Their ability to do so has been threatened over the past decade by deteriorating working conditions resulting from cuts to their operating grants. There is growing evidence that Universities no longer provide the low stress working environments that they once did (AUT, 1990; Boyd & Wylie, 1994; Winefield, 2000).

The current situation in Australia in relation to staff stress and morale has been documented in a recently released Senate Committee Report "Universities in Crisis" (Senate Committee Report, 2001). Government statistics show that, despite increases in student enrolments, the Commonwealth government's contribution to University operating grants has declined, in absolute terms (i.e. unadjusted for inflation) from $m4772 in 1994 to $m4461 in 2000. Moreover, the student to (academic) staff ratio has gradually increased from 12.9 in 1990 to 18.8 in 2000 (Figure 1).
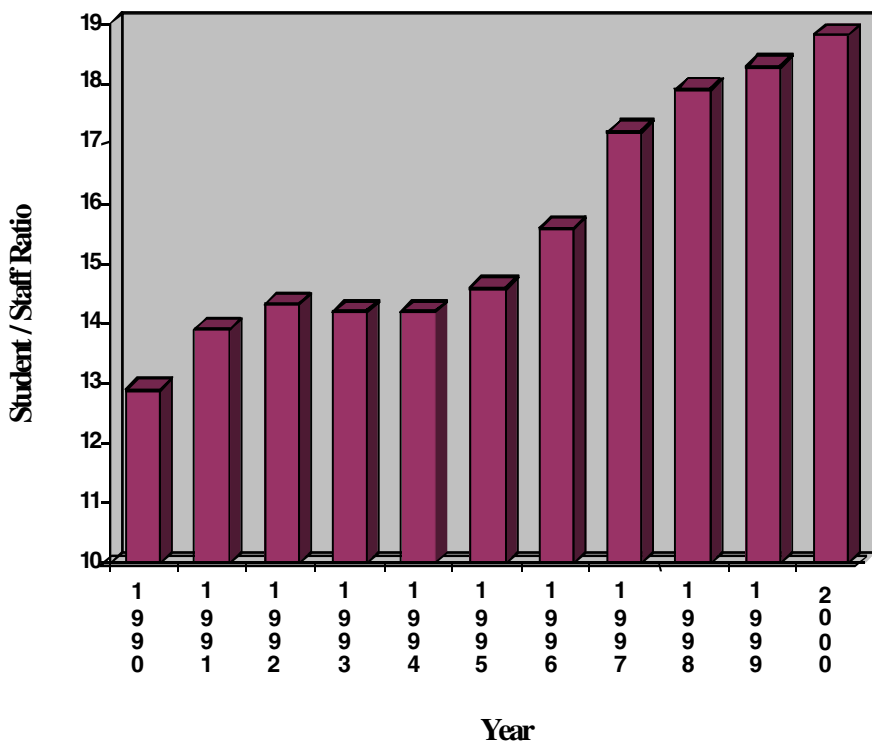
Figure 1: Student/Staff ratios from 1990 to 2000 in Australian universities (DEETYA, 2001).

The 17 universities sampled in the present study have all experienced significant cuts to their government funded operating grants since 1996 (DEETYA, 2000). From 1996-1999, the average decline in government funded operating grants (as a % of the university's total income) across the 17 universities was 15.9%, ranging from 9.3% to 24.9% (DEETYA, 2000). The decline in funding for each university is shown in Figure 2. During this same period, the average level of full-time equivalent staff cuts was 7.5%, with a range of 0.2% to 33.6% (DEETYA, 2000). These staff cuts are shown in Figure 3. Only one university (CQU) experienced a growth in full time staff numbers (4.8%) during this period.

It is clear from this brief analysis that the working environment within many Australian universities has undergone significant change in the past decade, in response to diminishing resources. The significant downsizing and financial decline in higher education institutions is not unique to Australia. Rather it mirrors a pattern occurring across the globe (Crespo, 2001). For example, in a study of 334 higher education institutions in the US, Cameron & Smart (1998) report that "The amount of cutback, downsizing, and decline in U.S. higher education is at unprecedented levels and equals the prevalence of downsizing in the corporate sector" (p.65).

Occupational stress and well-being among university staff

Over the past two decades, research from across the globe indicates that the phenomenon of occupational stress in universities is widespread and increasing. In his review of the literature, Seldin (1987) states that the academic environment in the United States during the 1980's imposed surprisingly high levels of job stress on academics, and that the level of stress will continue to increase in future decades. Similarly, The United Kingdom Association of University Teachers study (AUT, 1990) found that 49% of university employees reported that their jobs were stressful and 77% reported an increase in occupational stress over recent years. Closer to home, in a study on faculty stress in seven New Zealand universities, Boyd and Wylie (1994) report that half of the academics in their sample "often or almost always" found their work stressful, and 80% believed their workload had increased and become more stressful in recent years. In addition, 46% expected further increases in workload in the future.

In the early 1990s, the Carnegie Foundation for the Advancement of Teaching sponsored an international survey of the academic profession in which 14 countries participated (Australia, Brazil, Chile, England, Germany, Hong Kong, Israel, Japan, Korea, Mexico, The Netherlands, Russia, Sweden, United States). The data were collected from 1991-1993 (Altbach, 1996). According to Altbach:

> *For a number of years, the professoriate has been undergoing change and has been under strain almost everywhere. Fiscal problems for higher education are now evident in all of these fourteen countries....In most of the nations, the somewhat unprecedented phenomenon of increasing enrolments has been allowed to supersede allocated resources...At the same time, professors in a number of countries are being asked to be more entrepreneurial – for example, in bringing research grants and contracts to their institutions.* (pp. 4-5).

A major source of dissatisfaction was institutional leadership: "An unusually large number express dissatisfaction with and doubts about the quality of the leadership provided by top-level administrators at their colleges and universities." (Altbach, pp. 28-29).
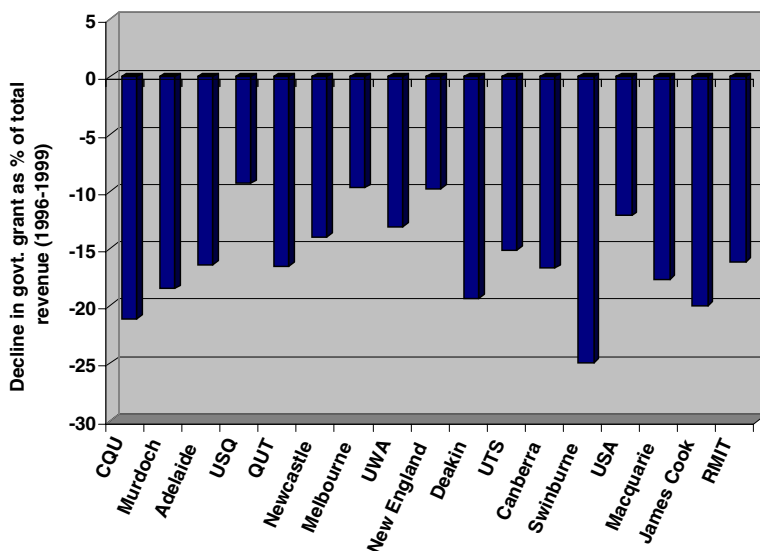
Figure 2: Decline in government grant as % of total revenue (1996-1999).
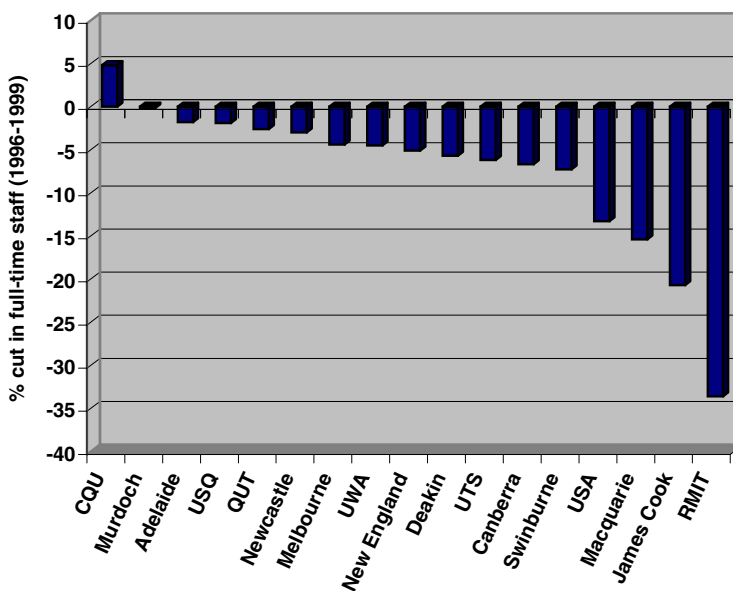
Figure 3: Decline in full-time equivalent staff (1996-1999).

Whilst it is recognised that some degree of stress is a normal and inevitable part of daily living (Costa & McCrae, 1985), many studies suggest that a significant proportion of university staff are experiencing maladaptive levels of stress (Armour, Caffarella, Fuhrmann, & Wergin, 1987; Bowen & Schuster, 1985; Boyd & Wylie, 1994; Sharpley, 1994; Sharpley, Reynolds, Acosta & Dua, 1996). These studies indicate that these high levels of stress are affecting the individual physical and psychological health of staff, their interpersonal relationships at work, the quality of their work, and work-place morale.

These findings are consistent with the broader literature, which suggests that occupational stress is on the increase (Cooper, 1998). Some common factors that contribute to this increase are summarised by Cooper (1998):

> *Not only is workplace stress costly, but it is a growing problem as organizations throughout the Western world and beyond dramatically downsize, outsource, and develop less secure employment contracts. Many organizations are now smaller, with fewer people doing more and feeling much less secure. New technology has added the burden of information overload as well as accelerating the pace of work with demands for a greater immediacy of response (e.g., WWW, faxes, emails, etc.).* (pp. 1-2).

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 their health, well-being, and morale (e. g., Calabrese, Kling & Gold, 1987; Everly, 1990; Matteson & Ivancevich, 1987; Nowack, 1989; Osipow & Spokane, 1991). Research has also established that high levels of occupational stress result in substantial costs to organisations and the community through health care expenses, compensation payments, lost productivity and turnover (Cooper & Cartwright, 1994; Johns, 1995).

In summary, it is clearly important for Australian universities to manage and protect their staff from increasing stress levels to preserve staff well-being, organisational performance and the intellectual health of the nation. In order to do this, we first need to understand staff's experience of stress in the university sector, including the level of stress, its antecedents and the factors that help staff cope with stress.

Conceptualisation of occupational stress

It is well recognised that stress is a complex and dynamic process (Lazarus, 1990; Lazarus, DeLongis, Folkman & Gruen, 1985). Stress can be defined as the imbalance between people's perceived environmental demands and their perceived ability to cope with these demands (Cox, 1978; McGrath, 1970). Stress is recognized to be predominantly subjective in nature, rather than an objective phenomenon.

A comprehensive understanding of stress involves assessing each important facet of the stress process (Lazarus, 1990). This includes the key environmental and personal antecedents (e.g., demands, resources), the intervening processes (e.g., coping, personality), indicators of the immediate stress response (e.g., subjective experience of psychological distress), and the longer-term consequences of stress for individuals and the workplace (e.g., physical health, commitment to the organisation). A conceptual model of occupational stress and well-being guiding this project is outlined in Figure 4.

It is now recognized that a complete understanding of stress in the workplace, requires understanding the positive experiences and emotions staff experience at work, in addition to the negative experiences and emotions (e.g., Hart & Wearing, 1995). For this reason, we incorporated a measure of staff well-being (job satisfaction) into our conceptual model. Contrary to common intuition, there is emerging evidence that psychological distress and well-being are not opposite ends of the same continuum, but are qualitatively different (e.g., Agro, Price & Mueller, 1992; Hart & Wearing, 1995). That is, employees may experience high, moderate or low levels of strain coupled with either high, moderate or low levels of job satisfaction.

Three theories of occupational stress are drawn on in this report. These are: (1) Karasek's (1979) Demands-Control theory; (2) French, Caplan and Harrison's (1984) Person-Environ-

Consequences

Individual Consequences

š Physical symptoms & illness
š Psychological consequences
š Behavioural consequences

Organisational Consequences

š Productivity & absenteeism
š Commitment & turnover
š Health insurance costs
š Stress claims, compensable disorders, lawsuits

Health & Well-being in the Workplace

š Psychological Health
š Physical/Physiological Health
š Job Satisfaction

Interventions

Antecedents

Individual Differences

š Coping style
š Negative affectivity
š Extraversion
š Conscientiousness
š Hardiness
š Job involvement

Workplace Factors

š Work demands
š Work resources
š Organizational processes eg procedural fairness
š Organisational climate, e.g., trust, job insecurity
š Work/home Conflict

Figure 4: A Conceptual Framework of occupational stress and well-being in the workplace. (Adapted from Danna & Griffin, 1999).

ment Fit; and (3) Siegrist's (1998) Effort-Reward Imbalance model.

According to Karasek's (1979) Demands-Control Theory, jobs that combine high levels of demand with low levels of autonomy, control, or decision latitude are the most stressful. In the past, academic jobs would clearly not have fallen in this category. However, as Fisher (1994) has said: "The demands on academics have risen rapidly over the last ten years...there has been a steady erosion of job control. All the signs are that this will continue" (p. 61). If Fisher is correct, then increases in academic stress can be explained in terms of Karasek's model. A recent review shows there is considerable support for this theory (Van der Doef & Maes, 1999).

Another influential theory of occupational stress is the person-environmental fit model proposed by French, Caplan and Harrison (1984). This theory views stress as arising from a misfit (either objective or subjective) between the requirements of the job and the skills and traits of the individual.

A third influential theory is the effort-reward imbalance model proposed by Siegrist (1998). According to this model, the combination of high effort and low reward at work results in adverse health effects. For example, "having a demanding, but unstable job or achieving at a high level without being offered any promotion prospects, are examples of particularly stressful working contexts" (p. 193). Siegrist presents evidence showing that job stress (defined as effort-reward imbalance) can increase the risk of coronary heart disease.

According to each of these theories, an increase in the stress experienced by academics would be the result of changes to the nature of academic work or the academic working environment. There are good reasons to believe that such changes have occurred. During the past fifteen years many of the advantages and attractions of academic work have been eroded. Academic salaries have fallen in relative terms in countries such as the UK, Australia and New Zealand. For example, according to the recent Senate Committee Report, average weekly earnings in Australia increased by 26% from 1995-2000, whereas academic salaries increased by only 20% over the same period (Senate Committee Report, 2001, p. 306). Increasing numbers of academic positions are now untenured, workloads have increased, and academics are under increased pressure to attract external funds for their research and to 'publish or perish'. The demands on individual academics have been driven in part by the increasing demands placed on universities to obtain funding. External 'quality' audits are now conducted that examine the quality and quantity of research output and teaching of universities and academic departments, with future funding support influenced by the outcomes of such audits.

Aims of the University Staff Stress Project

The aims of the University Staff Stress Project are:
1. To examine the level of occupational stress experienced by Australian university staff.
2. To determine if staff in different categories experience different levels of occupational stress.
3. To identify individual, workplace and organisational factors that contribute to occupational stress.
4. To examine the impact of occupational stress on individual and organisational outcomes.
5. To identify individual (e.g., coping strategies used by staff to deal with their stress),

workplace (e.g., social support at work) and organisational factors (e.g., organisational support) that moderate the occupational stress experienced by staff.

This report addresses the first three aims of the project. The project builds on an earlier study conducted at the University of Adelaide in 1994 (Winefield, 2000; Winefield & Jarrett, 2001) and uses some of the same survey measures to enable comparisons to be made across time. This earlier study and the full background to the current project are described in the preliminary report that was circulated to all participating universities in April 2001 (Winefield, et al. 2001). It is also available on the following website:

http://www.unisa.edu.au/psychology/Winefield/survey.htm.

The current project consists of three phases.

Phase 1 (Completed March 2000)

In phase one, twenty-two focus groups were conducted with a representative sample of 178 academic and general staff from 15 of the participating universities. The aim of these focus groups was to understand staff's experience of occupational stress, and their perceptions of the antecedents, consequences and moderators of stress, and document their recommendations for reducing stress.

The findings indicated that both general and academic staff reported a dramatic increase in stress during the past 5 years. However, as a group, academic staff reported higher levels of stress than general staff. The following five major antecedents of stress were identified:

- insufficient funding and resources
- work overload
- poor management practice
- job insecurity
- insufficient recognition and reward

The majority of groups reported that job-related stress was having a deleterious impact on their professional work and personal welfare. Aspects of the work environment (support from co-workers and management, recognition and achievement, high morale, flexible working conditions), and personal coping strategies (stress management techniques, work/non-work balance, tight role boundaries and lowering standards), were reported to help staff cope with stress in the workplace. Recommendations for reducing stress included (in order of frequency):

- Increase staff consultation and transparency of management
- Increase staff numbers and improve facilities and resources
- Improve communication within the university
- Develop management skills
- Develop promotion, recognition and reward processes
- Provide greater job security
- Review workloads

Gillespie et al., (2001) detail the methodology and findings of this phase of the research.

Phase 2 (Current)

In late 2000, the University Staff Stress Survey Questionnaire was circulated to all staff at the 17 participating universities. This report focuses on describing the methodology and major findings of this survey.

Phase 3 (To commence October 2002)

In September 2002, a follow up survey will be sent to all staff in the participating universities. This second survey is very important for realizing the project's objectives as it provides longitudinal data that enables the assessment of change within individuals over time. Longitudinal designs enable a stronger and more plausible test of causal relationships than are possible on the basis of cross-sectional (different participants over time) data alone. We will be applying for further funding to support the ongoing longitudinal assessment of stress within Australian universities.

Aims of this Report

The specific aims of this report are:

1. To describe the overall level of psychological strain and job satisfaction reported by staff.
2. To identify the staff groups and university groups experiencing the highest levels of strain and/or the lowest levels of job satisfaction.
3. To examine differences in psychological strain and job satisfaction across university groups.
4. To identify the demographic, individual and workplace factors that predict the psychological strain, job satisfaction and organisational commitment of university staff.

The results presented in this report focus on the key indicators of stress (Psychological Strain) and well-being (Job Satisfaction) used in the study. Nine other work-related measures commonly associated with stress and well-being are also reported.

This report is organized into the following three parts.

Part I focuses on the <u>overall results from all 17 universities</u>. It compares the results across staff categories such as academic and general, male and female, and staff at different levels of seniority.

Part II compares <u>results across four types of universities</u>: Old (three universities established between 1853 and 1911); Middle (6 universities established between 1954 and 1974); New (4 universities established between 1988 and 1992, mainly former Colleges of Advanced Education); and Australian Technology Network (ATN) universities (4 universities established between 1988 and 1992, mainly former Institutes of Technology).

Part III identifies the <u>key predictors</u> of staff's experience of stress, job satisfaction and commitment to the university.

After the dissemination of these results, we plan to conduct more detailed and sophisticated analyses testing the relationships between antecedents, moderators and outcomes of stress and well-being as described in the conceptual model. After the completion of phase 3 of the project, we plan to develop a set of recommendations and strategies for managing occupational stress within the university sector and enhancing the quality of work life for university staff, in partnership with the universities, the NTEU, and the state and federal government.

METHOD

Sample

Anonymous questionnaires were sent to 34,855 general staff and academic staff at 17 universities representing almost half of Australia's universities. Casual staff were not surveyed. The overall response rate was 25% with 8,732 responses returned. The response rate across the universities ranged from 17% to 31%, and the sample size ranged from 216 to 1033. The sample included 3753 academic staff (43%) and 4714 general staff (54%), with 265 (3%) respondents who did not identify their work area.

Measures

The 17 survey measures focused on in this report are described in turn below. The internal reliability (Cronbach alpha) coefficients for the 11 main work-related measures are shown on the diagonal of Table 1. These coefficients ranged from .70 to .96, indicating that all measures had acceptable reliability. Each of the survey measures used a 5-point response scale, with three exceptions. Work pressure and psychological strain used a 4-point scale, and job satisfaction used a 7-point scale.

1. Psychological Strain

Psychological strain was measured using the 12-item version of the General Health Questionnaire (GHQ-12) developed by Goldberg and Williams (1988). It is a measure of psychological health symptoms and has been widely used as an indicator of psychological distress in both occupational studies and population studies (Andrew et al, 1999). The GHQ-12 was recommended by Banks, Clegg, Jackson et al. (1980) as a valid indicator of mental ill-health (termed psychological strain in this report) in occupational studies.

An example item is "Have you recently felt constantly under strain?" The items were rated using a 4-point Likert scale. Items were also scored using binary coding for the identification of "cases" at risk of psychological illness (a score of 0 indicates absence of symptom and a score of 1 indicates presence of symptom for each of the 12 possible symptoms). A score of 2 or more is taken to indicate possible 'caseness' and a score of 4 or more is taken to indicate possible 'severe caseness'.

2. Job Satisfaction

The 15-item scale developed by Warr, Cook and Wall (1979) was used to assess satisfaction towards 15 work features, including the level of responsibility, recognition, autonomy, pay, hours, physical conditions and management. An example item is "How satisfied or dissatisfied do you feel with … your hours of work." Each item was rated on a 7-point scale (1=Extremely Dissatisfied, 7=Extremely Satisfied). An additional 16th item (not part of the scale) assessed global job satisfaction ("Now, taking everything into consideration, how do you feel about your job as a whole?").

Table 1: Inter-Correlations Among the 11 Work-Related Measures and Negative Affectivity (All respondents from the 17 Universities)

	Measure	1	2	3	4	5	6	7	8	9	10	11	12
1.	Psychological Strain	(.90)											
2.	Job Satisfaction	-.41	(.88)										
3.	Organisational Commitment	-.20	.48	(.84)									
4.	Work Pressure	.25	-.26	-.06	(.79)								
5.	Work-Home Conflict	.37	-.38	-.09	.66	(.86)							
6.	Job Insecurity	.25	-.40	-.19	.07	.14	(.72)						
7.	Job Involvement	.06	.08	.26	.27	.34	-.04	(.76)					
8.	Autonomy	-.25	.57	.34	-.13	-.18	-.26	.11	(.70)				
9.	Fairness	-.30	.69	.42	-.15	-.23	-.36	.11	.53	(.84)			
10.	Trust in Heads	-.23	.56	.27	-.07	-.15	-.28	.10	.45	.54	(.96)		
11.	Trust in Senior Management	-.24	.55	.48	-.24	-.27	-.28	.03**	.39	.58	.29	(.96)	
12.	Negative Affectivity	.47	-.23	-.14	.07	.19	.19	.03*	-.13	-.16	-.13	-.11	(.87)

Note1. $*p < .05$; $**p < .01$; all other correlations are significant at $p < .001$.
Note 2. Reliability coefficents (alphas) are given in parentheses on the diagonal.
Note 3. Effect sizes - small: $r \leq .1$; small-medium: $.1 < r < .3$; medium-large: $.3 \leq r < .5$; large: $r \geq .5$.

3.   Organisational Commitment

Organisational commitment was measured using 6-items from Porter, Steers, Mowday and Boulian's (1974) well-known scale. An example item is, "I am willing to put in a great deal of effort beyond that normally expected in order to help this university be successful." Each item was rated on a 5-point scale (1=Strongly Disagree, 5=Strongly Agree).

4.   Work Pressure

Three questions from the scale developed by Beehr, Walsh and Taber (1976) were used. An example item is, "I'm rushed in doing my job." The items were rated on a 4-point scale (1=Definitely False, 4=Definitely True).

5.   Work-Home Conflict.

This comprised 3 items drawn from the scale developed by Frone and Yardley (1996). An example item is, "My family dislike how often I am preoccupied with my work while I am at home." Each item was rated on a 5-point scale (1=Never, 5=Very Frequently).

6.   Job Insecurity.

Four items from Ashford, Lee and Boboko's (1989) measure of job insecurity were used. This scale asked staff to rate how likely it was that they would lose their job, be moved to a different department, find their department's future uncertain, or be pressured to accept early retirement. Each item was rated on a 5-point scale (1=Very unlikely, 5=Very likely).

7.   Job Involvement

This 6-item scale, developed by Lodahl and Kejner (1965), measures the extent to which staff are involved in their work. An example item is "The major satisfaction in my life comes from my job." Each item was rated on a 5-point scale (1=Strongly Disagree, 5=Strongly Agree).

8.   Job Autonomy

The 9-item autonomy sub-scale from the Moos Work Environment Scale (Moos & Insel, 1974) was used. This measured the level of autonomy in the workplace. An example item is, "Staff are encouraged to make their own decisions." Each item was rated on a 5-point scale (1=Strongly Disagree, 5=Strongly Agree).

9.   Procedural Fairness

This 8-item scale asked staff to rate the fairness of performance appraisal, appointment, promotion and redundancy procedures in their workplace. The items were developed from focus group discussions (see Gillespie et al., 2001). An example item is, "Promotions procedures are fair." Each item was rated on a 5-point scale (1=Strongly Disagree, 5=Strongly Agree).

10. Trust in Head of Department

This 8-item scale developed from Mayer and Davis (1999) and Butler (1991) assessed staff perceptions of the trustworthiness of their Head of Department, School or Unit, in terms of their integrity, competence and concern for staff. An example item is, "My Head of Department/School/Unit deals honestly with staff." Each item was rated on a 5-point scale (1=Strongly

Disagree, 5=Strongly Agree).

11. Trust in Senior Management

The same 8-item scale used for Trust in Heads was used to assess trust in senior management of the university. The focus group study revealed that staff typically associate senior management of the university with the Vice Chancellor and his/her office and the senior administrators of the university.

12. Negative Affectivity and Personality measures

Negative affectivity refers to "the disposition to experience negative emotions." Negative affectivity was assessed using the Neuroticism factor of the NEO Five Factor Personality Model (Costa & McCrae, 1992), which assess the disposition to experience negative emotions such as anxiety, depression, and vulnerability.

Previous research shows that people with higher negative affectivity experience higher levels of stress. Watson, Pennebaker and Folger (1987) have suggested that individuals high in negative affectivity tend to report high levels of distress, even in the absence of objective stressors. This has led some researchers to advocate that negative affectivity should be controlled (or statistically removed) in stress research. This view has been challenged recently (Spector et al., 2000) by research showing that during a heightened level of distress, anxiety or depression, some individuals report levels of negative affectivity higher than their normal trait level. All researchers are agreed, however, that it needs to be measured. It is usually measured either by tests of trait anxiety or by tests of trait neuroticism. We have used the latter approach.

Two other personality scales, Extraversion and Conscientiousness, have also been related to occupational stress and well-being in the literature. These two scales were also measured by the NEO Five Factor Personality Model (Costa & McCrae, 1992). This uses a 5-point scale (1=Strongly Disagree, 5=Strongly Agree).

13. Stress related symptoms and medical conditions

Staff were asked to indicate the frequency with which they suffered from eleven physical symptoms shown to be associated with stress in previous research (e. g., headaches, muscle pain, breathing difficulties). Each symptom was rated on a 5-point scale (1=Never/hardly ever, 5=All/nearly all the time).

Staff were also asked to indicate whether they had been diagnosed with a list of ten medical conditions shown in the literature to be associated with stress (e. g., coronary heart disease, hypertension, migraine). Staff also indicated the severity of the condition. Each condition was rated on a 4-point scale.

14. Satisfaction with Resources (rated by academics only)

This five-item scale assessed academics' satisfaction with the current level of resources across four areas (research funding, teaching resources, support services, professional development) in addition to a general category (resources required to perform your job well). The scale

was developed from the focus group study. A 5-point response scale was used (1=Very dissatisfied, 5=Very satisfied).

15. Perceptions of the academic work environment (rated by academics only)

This 11-item scale assessed academics' perceptions of their current teaching environment (eg class sizes, hours spent teaching, number of courses taught, quality of teaching) and research environment (eg quality of research, pressure to attract funding, pressure to do research). It was developed based on the focus group study. An example item is "The number of courses I am expected to teach is manageable." A 5-point scale was used (1=Strongly disagree, 5=Strongly agree).

Coping and Hardiness

Individuals experience stress when they come to perceive they lack the resources to deal with the pressures or demands confronting them. The demands or pressures, therefore, may be viewed as Stressors (potential causes of stress). Stress experienced by the individual may cause Strain, that is, poor emotional health, poor physical health, and poor quality of work.

As we know, not all individuals, when faced by Stressors, experience either Stress or Strain. This is because a number of individual and environmental variables act as mediators or moderators of Stress, Strain, and the Stress-Strain relationship. Examples of these variables are the following:

16. Coping

Coping strategies are said to mediate the Stressors-Stress and Stress-Strain relationship. Coping is defined as efforts or behaviours by people to solve their problems, deal with demands or pressures, or establish a sense of mastery over their environment. Generally, coping is presumed to be a set of actions that assist individuals to adapt to their environment (e.g., Folkman & Lazarus, 1985). Although coping strategies that are designed to solve the problems faced by individuals (Problem-focused Coping) are expected to reduce stress and strain, some other coping strategies are known to be counterproductive. For example, Negative Coping (e.g., negative thoughts and self-blame) has been found to be associated with high stress and poor health.

Nowak's (1990) 10-item measure of coping was used to assess how often staff used problem focused and negative focused coping with problems. Previous research suggests that problem focused coping is predictive of lower levels of occupational stress. Example items are "Develop an action plan and implement it to cope more effectively with the situation in the future" (problem focused) and "Dwell on what I should have done or not done in a particular situation" (emotion focused). Each item was rated on a 5-point scale (1=Never, 5=Always).

17. Hardiness

The moderating role of a variable may be clarified by using Hardiness as an example. Kobasa (1979) described Hardiness as a combination of Control, Commitment, and Challenge. According to Kobasa, hardy individuals perceive that things are under their control, treat each problem/task as a challenge, and are committed to whatever they do. Studies by Kobasa and colleagues have found that hardy individuals experience less stress and enjoy better health.

Thus, a person's Hardiness has a direct beneficial (or moderating) effect on Stress and Strain and indirect beneficial (or moderating) effect on Strain through its role in the Stress-Strain relationship.

Hardiness was measured using a 20-item measure from Nowak (1990). An example item is, "I expect some things to go wrong now and then, but there is little doubt in my mind that I can cope with just about anything that comes my way." A 5-point scale was used (1=Strongly disagree, 5=Strongly agree).

Demographics

The survey form also sought general demographic information (eg university and campus, age, sex) as well as a code identifier. The purpose of the code identifier was to enable later longitudinal comparisons while protecting the anonymity of respondents.

Procedure

The Vice Chancellor and NTEU at each university were requested to nominate a person to act as their representative for the project. The Vice Chancellors typically nominated a senior member of the administration, such as the Director of Human Resources. The NTEU typically nominated one of the union representatives. A draft of the questionnaire was circulated to the two representatives at each university for discussion and feedback. All comments received were discussed by the research team in the development of the final version of the questionnaire. Every effort was made to ensure that the questionnaire was as brief as possible and could be completed within 30 minutes.

The questionnaire forms were distributed via internal mail in late 2000 at each campus with the assistance and co-operation of the university and union representatives. Pre-addressed reply-paid envelopes were supplied to enable participants to return the questionnaire directly to the Chief Investigators.

Statistical significance and effect size criteria

We examine the effect size as well as the statistical significance when interpreting the meaning of analyses. This is because analyses based on large sample sizes, such as the sample used in this study, are so powerful that even trivial effects often reach statistical significance (Tabachnick & Fidell, 2001). Statistical significance indicates the *reliability* of associations between measures, or differences between groups. The effect size indicates the *strength* of the association, or the meaningfulness of the association or difference between groups. Specifically the effect size indicates the proportion of the variance in the outcome measure that is predictable from knowledge of the levels of the predictor variable.

In line with the recommendations made by Cohen (1988), we use the following four levels of effect size: small (e.g., $r \leq .1$); small to medium (e.g., $r > .1$ and $< .3$); medium to large (e.g., $r \geq .3$ and $< .5$); and large (e.g., $r \geq .5$). In regards to differences between groups, we report effect size measures in terms of d or η^2. Again, we use the cut-offs recommended by Cohen for defining small, medium and large effects. Thus for d, we use the cut-offs of .2, .5, and .8 and for η^2 we use .01, .06 and .14. Where an effect is not statistically significant we do not report an effect size. In general, we ignore effects that are small or statistically insignificant and focus on those that are small-medium, medium-large, or large.

It should be noted that interventions that decrease staff stress, organisational commitment,

employee well being, productivity etc to even a small degree may have important consequences for each university or for the university sector Australia wide. For instance, we found that Trust in Senior Management predicted 23% of the variance in the level of staff Organisational Commitment. Therefore even modest improvements in trust in senior management may offer enormous enhancements to staff commitment, and associated factors such as intentions to leave the organisation.

RESULTS

Part I: Understanding the Results Across the Entire University Sector

How representative is the sample?

The number of responses received from each university, as well as the response rate for each, are shown in Table 2.

Table 2: Response Rates for Each University.

University	Type	Total sent	Total received*	Overall %
NSW				
Macquarie	Middle	1550	327	21%
Newcastle	Middle	2202	615	28%
UTS	ATN	2050	342	17%
UNE	Middle	1450	312	22%
VICTORIA				
Deakin	Middle	2300	679	30%
Melbourne	Old	5296	1033	20%
RMIT	ATN	3422	937	27%
Swinburne	New	1200	266	22%
QUEENSLAND				
James Cook	Middle	1219	343	28%
CQU	New	1047	326	31%
QUT	ATN	2726	722	26%
USQ	New	1250	299	24%
WA				
Murdoch	Middle	1250	311	25%
UWA	Old	2723	730	27%
SA				
Adelaide	Old	2300	661	29%
USA	ATN	2020	602	30%
ACT				
Canberra	New	850	216	25%
Unidentified			11	
TOTAL		**34855**	**8732**	**25%**

The overall response rate of 25% is reasonable for a national survey. The sample is broadly representative of the overall university population. The percentage of academic and general staff (44% and 55%, respectively) are remarkably close to those quoted in the DEETYA Higher Education Report for the 1999-2001 triennium (DEETYA, 2001) of 46% and 54%, respectively.

Of the respondents, 4792 (55%) identified themselves as female and 3700 (42%) as male, with 240 (3%) who did not identify their sex. That is, of those who identified their gender, 56% were women and 44% were men. As Table 3 shows, the proportion of women in our sample was higher than in the sector overall. This applied both to academic staff (43% in the sample versus 35% in the population) and to general staff (67% versus 59%). However, the sample mirrored the general pattern of more male than female academic staff (57% vs. 43%), and more female than male general staff (67% vs. 33%), reflected in the overall population of university staff. The percentages of men and women academic and general staff members in our sample are illustrated in Figure 5 and corresponding percentages for all Australian universities are shown in Table 3.

There are two ways the sample may have been biased (unrepresentative) in relation to the response rate. The most stressed and/or dissatisfied staff may have been more likely to respond. An equally plausible hypothesis is that the most stressed were less likely to respond due to a lack of time and/or extreme work pressures. The first hypothesis would be supported by a positive correlation between response rate and the average psychological strain across the 17 universities, whereas the second hypotheses would be supported by a negative correlation. In fact the observed correlations were very close to zero, $r(15) = 0.01$, $p > .05$ (strain), suggesting that the sample was not biased in either direction.

Table 3: Comparison of the Demographic Profile of All University Staff (DEETYA, 2000) and the Sample of Staff Obtained in This Study.

Classification of Respondents by Staff Category - % (n in parentheses)							
	All Staff		Academic		General		Unspecified
Sex	DEETYA	This Study	DEETYA	This Study	DEETYA	This Study	This Study
Male	51% --	44% (3700)	65% --	57% (2103)	41% --	33% (1496)	(101)
Female	49% --	56% (4792)	35% --	43% (1560)	59% --	67% (3094)	(138)
Unspecified	--	(240)	--	(90)	--	(124)	(26)
Total		(8732)	46% --	44% (3753)	54% --	(56%) (4714)	(265)
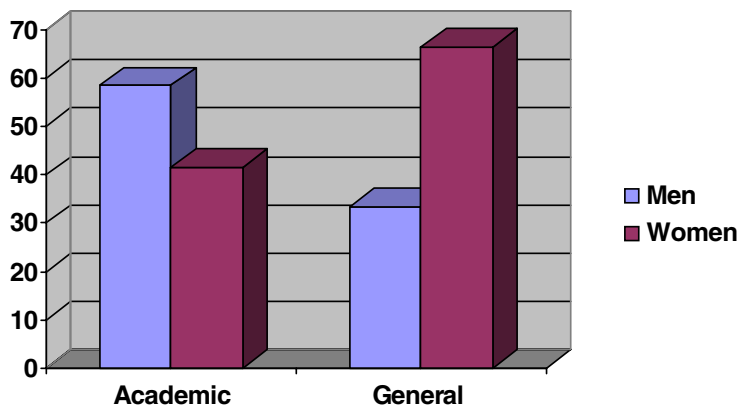
Figure 5: Percentages of men and women in academic and general staff groups.

Overall ratings

Table 4 shows the average scores across the total sample for psychological strain, job satisfaction and the other variables associated with occupational stress and well-being. Table 4 also shows the percentage of staff rating 'low', 'unsure' and 'high' on each of these measures. Scores below the neutral point were classified as 'low' and scores above the neutral point was classified as 'high'.

The majority of staff (58%) were satisfied with their jobs.[1] However the majority also reported time pressure on the job (78%), and conflict between their work and home commitments (68%). Just over half of staff reported high commitment towards their university (52%) and high trust in their Head of Department/Unit (53%). In contrast, only 19% of staff reported high trust in their senior management.

Only a third of staff reported a high level of involvement in their job, with more (44%) reporting low involvement. Staff were evenly divided about procedural fairness in their university, about a third rated autonomy as low and 42% rating autonomy as high. Only 28% of staff reported high levels of job insecurity, with the majority (55%) reporting low job insecurity.

When average scores on these measures are compared with their 'neutral' point, a similar pattern of findings emerges. In particular, the means for Work Pressure and Organisational Commitment were considerably higher than the midpoint, whereas Trust in Senior Managers was considerably below the midpoint.

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[1] This figure is based on the average of the 15 items, however, the figure for the global item ("How do you feel about your job as a whole …") was higher (68%).

Table 4: Means and Percentages for 10 Work-Related Measures for Total Sample (n=8722)

Variable	Neutral	Mean	p<	Effect size d	Effect size	% Low	% Unsure	% High
Job Satisfaction	60.0	65.4	.001	0.38	s-m	32	10	58
Org. Commitment	3.0	3.4	.001	0.54	m-l	21	27	52
Work Pressure	2.5	3.2	.001	1.02	large	22	--	78
Work-Home Conflict	3.0	3.2	.001	0.23	s-m	32	--	68
Job Insecurity	3.0	2.6	.001	0.45	s-m	55	17	28
Job Involvement	3.0	2.8	.001	0.28	s-m	45	21	34
Autonomy	3.0	3.1	.01	0.10	s	34	24	42
Fairness	3.0	2.9	.001	0.16	s	35	33	32
Trust in Heads of Dept.	3.0	3.3	.001	0.28	s-m	27	20	53
Trust in Senior Management	3.0	2.5	.001	0.52	m-l	48	33	19

Psychological Strain

Table 5 presents normative data on Psychological Strain (as measured by the General Health Questionnaire) and Negative Affectivity (measured by the trait neuroticism scale). As Table 5 shows Psychological Strain was higher in the current study than others reported in the literature, but Negative Affectivity was very similar. The latter finding is important because it demonstrates that the high Psychological Strain scores cannot be explained by the suggestion that the respondents in this study had a higher disposition to experience negative emotional states (higher "negative affectivity").

As shown in Table 5, the overall levels of psychological strain (GHQ) reported by both academic and general staff in this study are higher than those reported in any of the comparative studies using the GHQ. These comparison studies have been conducted with both university and non-university staff. The levels of strain reported in the current study are closest to, but still higher than, those reported by prison officers.

The General Health Questionnaire can be used as a psychiatric screening tool for identifying individuals who are at risk of psychological illness (possible "cases"). Applying binary scoring to the GHQ-12, a person scoring 2 or more is classified as a "possible case".

Table 6 shows the results of other large Australian and UK studies (Mullarkey et al., 1999) using the GHQ-12 with binary scoring. The Andrews et al., (1999) study is a national survey of mental health based on a sample size of 10,600 people (of whom 2,097 were educated and employed). Examining the last three columns of Table 6 reveals a large and alarming difference in the reported level of psychological strain in the current study compared to the national survey. The percentage of "possible cases" in the university sample was 49.7%, compared to 19.2% (or 19.9%) reported in the national survey, using the 1/2 cut-off, 39.6% compared with 12.1% (or 12.4%) using the 2/3 cut-off, and 32.9% compared with 9.2% (or 9.4%) using the 3/4 cut-off.

Comparing our results with those reported in large UK samples (of comparable occupations), we see that that the percentage of possible cases defined by the 2/3 cut-off ranges from 29.8% (clerical and secretarial) to 39.0% (professional) and the percentage defined by the 3/4 cut-off ranges form 23.5% to 31.4% in the UK studies. The percentages that we found were slightly higher than these. (Mullarkey at al. did not report percentages for the 1/2 cut-off).

Given that the incidence of mental illness is similar in the UK and Australia it is surprising that the percentages reported by Andrews et al. (1999) are so much lower than those reported by Mullarkey et al. (1999) and by those found in our own study.

Table 5: Normative Data for Psychological Strain, Job Satisfaction and Negative Affectivity

Study	Sample	N	Mean	SD
Psychological Strain				
Non-university staff				
Moyle & Parkes (1999)	UK Supermarket employees	175	11.5	6.3
Dollard, et al. (1992)	Australian Correctional officers	419	12.2	7.2
University Staff				
Parkes (1990)	University Teachers	157	9.1	5.2
Daniels & Guppy (1992)	British University staff	221	11.3	4.7
Winefield & Jarrett (2001)	Adelaide University staff	1961	12.2	5.9
Current study (2002)	Australian University general staff	4714	12.8	6.0
Current study (2002)	Australian University academic staff	3753	13.7	6.0
Global Job Satisfaction (Single Item)				
Non-university staff				
Warr et al. (1979)	UK male blue collar employees	200	5.2	1.5
Dollard et al. (1992)	Australian Correctional officers	416	4.2	1.6
Clark, Oswald & Warr (1996)	UK employees	5192	5.5	1.5
University Staff				
Current study (2002)	Australian University staff	8700	4.6	1.4
Current study (2002)	Australian University general staff	4714	4.8	1.4
Current study (2002)	Australian University academic staff	3753	4.4	1.4
Negative Affectivity				
Non-university staff				
Costa & McCrae (1985)	US Men and women	1000	19.1	7.7
Costa & McCrae (1985)	US Men	500	17.6	7.5
Costa & McCrae (1985)	US Women	500	20.5	5.8
University staff				
Current study (2002)	Australian University staff	8732	19.3	7.7
Current study (2002)	Australian University male staff	3700	18.3	7.7
Current study (2002)	Australian University female staff	4792	20.0	7.7

Table 6: Percentages of Non-Clinical "Cases" (0 or 1) and Possible "Cases" (≥ 2, ≥ 3, ≥ 4) of Psychological Illness Identified by the GHQ in Large Australian and UK Samples

Source	Sample	N	% = 0 / 1	% ≥ 2	% ≥ 3	% ≥ 4
Andrews at al. (1999)	Australian sample	10 600	80.8	19.2	12.1	9.2
Andrews at al. (1999)	Australian educated employed sample	2 097	80.1	19.9	12.4	9.4
Current study (2002)	All university staff	8 606	50.3	49.7	39.6	32.9
Current study (2002)	University academic staff	3 711	46.2	53.8	43.1	35.7
Current study (2002)	University general staff	4 655	53.5	46.5	37.1	30.4
Mullarkey et al (1999)	UK managers and administrators	4 959	-	-	38.3	31.1
Mullarkey et al 1999)	UK professional	5 030	-	-	39.0	31.4
Mullarkey et al (1999)	UK associate professional & technical	14 608	-	-	35.3	28.1
Mullarkey et al (1999)	UK clerical & secretarial	5 213	-	-	29.8	23.5

Job Satisfaction

By summing the scores from the average responses to the 15 items in the job satisfaction scale, a measure of total job satisfaction was calculated. According to this measure, 58% of staff were satisfied with their jobs, and almost a third of staff (32%) reported dissatisfaction. To understand staff satisfaction in more detail, we examined the percentage of staff reporting satisfaction and dissatisfaction with 15 features of the job (see Table 7).

Features of the job that staff were most satisfied with included 'your fellow workers', 'freedom to choose your own method of working', 'variety in your job' and 'the amount of responsibility you are given'. More than 70% of staff were satisfied with these three features.

Features of the job that staff were most dissatisfied with were 'the way the university is managed', 'your chance of promotion', 'your rate of pay' and 'industrial relations between managers and staff'. Between 44% and 55% of staff were dissatisfied with these four features.

A significant proportion of staff (between 34-38%) were also dissatisfied with their working hours, recognition for good work, and attention paid to their suggestions.

Whilst the majority of staff (between 58-67%) were satisfied with their immediate boss, their opportunity to use their abilities, their job security and the physical working conditions, between 25-31% of staff were dissatisfied with these features.

Some researchers (e.g., Wanous, Reichers & Hudy, 1997) recommend the inclusion of a single-item measure of global job satisfaction, such as the final item in Table 7 ("How do you feel about your job as a whole?"). Responses to this item were more favourable than the average responses to the job satisfaction scale. More than two-thirds (68%) reported overall job satisfaction (42% moderately satisfied, 23% very satisfied, 3% extremely satisfied), whereas only a quarter (26%) reported overall job dissatisfaction (3% extremely dissatisfied, 7% very dissatisfied, 16% moderately dissatisfied). [The 68% figure is almost identical to the 67% reported in the DEETYA (1998) report]. Our single-item measure of global job satisfaction item was highly correlated with the job satisfaction scale ($r = .8$).

Table 7: Overall Satisfaction With 16 Aspects of Job: All Staff.

Job Satisfaction item	Mean rating*	% Dissatisfied	% Unsure	% Satisfied
1. Your fellow workers	5.2	12	5	83
2. The freedom to choose your own method of working	5.2	13	4	83
3. The amount of variety in your job	5.0	17	6	77
4. The amount of responsibility you are given	4.9	20	6	73
5. Your immediate boss	4.8	26	7	67
6. The physical work conditions	4.6	31	3	66
7. Your opportunity to use your abilities	4.6	30	5	64
8. Your job security	4.4	28	13	58
9. Your hours of work	4.2	39	6	55
10. The recognition you get for good work	4.2	37	8	54
11. The attention paid to suggestions you make	4.1	34	18	48
12. Your rate of pay	4.0	45	4	51
13. Industrial relations between managers and workers	3.5	44	30	26
14. Your chance of promotion	3.4	53	19	28
15. The way the university is managed	3.3	55	21	24
**How do you feel about your job as a whole?	4.6	26	6	68

* 4=neutral point (Unsure), Dissatisfied = 1-3, Satisfied = 5-7
** not part of scale

Tables 8 and 9 show the percentages for academic and general staff respectively. Comparing responses to the global item, we see that 74% of general staff but only 61% of academic staff expressed overall job satisfaction. It is also interesting to look at the specific items on which more than 50% of each group expressed satisfaction or dissatisfaction. From Table 8, we see that 50% or more of the academic staff expressed satisfaction with only 8 of the 15 items, whereas 50% or more of the general staff expressed satisfaction with 12 of the 15 items.

In terms of dissatisfaction, more than 50% of academic staff expressed dissatisfaction with 5 of the 15 items: "The way the university is managed" (65%); "Your hours of work" (60%); "Industrial relations between managers and workers" (52%); "Your chance of promotion" (51%); and "Your rate of pay" (50%). In contrast, more than 50% of general staff reported dissatisfaction with only 1 of the 15 items: "Your chance of promotion" (56%).

Table 8: Overall Satisfaction With 16 Aspects of Job: Academic Staff.

Job Satisfaction item	Mean rating*	% Dissatisfied	% Unsure	% Satisfied
1. Your fellow workers	5.2	13	6	81
2. The freedom to choose your own method of working	5.1	14	4	82
3. The amount of variety in your job	5.0	15	7	78
4. The amount of responsibility you are given	4.9	21	7	72
5. Your immediate boss	4.6	29	8	63
6. The physical work conditions	4.4	36	3	62
7. Your opportunity to use your abilities	4.6	31	5	65
8. Your job security	4.2	34	12	54
9. Your hours of work	3.4	60	7	33
10. The recognition you get for good work	4.0	42	9	49
11. The attention paid to suggestions you make	3.9	39	21	40
12 Your rate of pay	3.8	50	4	47
13. Industrial relations between managers and workers	3.3	52	27	21
14. Your chance of promotion	3.5	51	18	31
15. The way the university is managed	3.0	65	16	18
**How do you feel about your job as a whole?	4.4	33	7	61

* 4=neutral point (Unsure), Dissatisfied = 1-3, Satisfied = 5-7
** not part of scale

Table 9: Overall Satisfaction With 16 Aspects of Job: General Staff.

Job Satisfaction item	Mean rating*	% Dissatisfied	% Unsure	% Satisfied
1. Your fellow workers	5.4	11	4	86
2. The freedom to choose your own method of working	5.3	12	4	84
3. The amount of variety in your job	5.0	18	5	78
4. The amount of responsibility you are given	5.0	20	5	75
5. Your immediate boss	4.9	24	6	71
6. The physical work conditions	4.7	27	3	70
7. Your opportunity to use your abilities	4.6	29	6	65
8. Your job security	4.5	24	14	62
9. Your hours of work	4.8	23	5	73
10. The recognition you get for good work	4.3	34	7	59
11. The attention paid to suggestions you make	4.3	30	16	54
12 Your rate of pay	4.1	41	5	54
13. Industrial relations between managers and workers	3.7	37	33	30
14. Your chance of promotion	3.3	56	19	25
15. The way the university is managed	3.5	48	24	28
**How do you feel about your job as a whole?	4.8	21	5	74

* 4=neutral point (Unsure), Dissatisfied = 1-3, Satisfied = 5-7
** not part of scale

Differences between male and female staff

Table 10 compares the means reported for male and female staff. Three differences are worth mentioning. Women showed greater Job Satisfaction, less Job Involvement, and greater Negative Affectivity than the men. This last finding is consistent with normative data. As shown at the bottom of Table 6, females generally report slightly higher Negative Affectivity than males (Costa & McCrae, 1985). In regard to job satisfaction, about 5% more females than males report being satisfied with their jobs.

Differences between academic and general staff

Table 11 compares the means for Academic and General staff. There were three medium-large effects and three small-medium effects. Looking first at the medium-large effects, academic staff were higher on Work Pressure, Work-Home Conflict and Job Involvement than general staff. Specifically, 87% of academics compared to 72% of general staff report high work pressure, 83% of academics compared to 58% of general staff report conflict between work and home commitments, and 43% of academics compared to 27% of general staff report high involvement in their jobs.

With respect to the small-medium effects, academic staff reported less Job Satisfaction, Organisational Commitment and Trust in Senior Management, compared to general staff.

Table 10: Mean Scores, Differences and Percentages for 11 Work-Related Measures and Negative Affectivity: Males and Females.

Measure*	Mean Scores and Differences					% Low / Medium (or Unsure) / High					
	Means		Significance of Difference			Males			Females		
	Males	Females	p <	Effect size η^2	Effect size	Low (%)	Medium (Unsure) (%)	High (%)	Low (%)	Medium (Unsure) (%)	High (%)
Psychological Strain	13.2	13.1	ns	--	--	--	--	--	--	--	--
Job Satisfaction	63.5	67.1	.001	.016	s-m	35	10	54	30	10	60
Org. Commitment	3.3	3.4	.001	.005	s	24	25	51	19	28	53
Work Pressure	3.2	3.1	.001	.005	s	19	--	81	24	--	76
Work-Home Conflict	3.3	3.2	.001	.007	s	27	--	73	35	--	65
Job Insecurity	2.6	2.6	.001	.002	s	53	18	29	58	16	27
Job Involvement	2.9	2.7	.001	.013	s-m	41	22	40	48	21	31
Autonomy	3.0	3.1	.05	.001	s	35	25	41	35	23	43
Fairness	2.9	2.9	ns	--	--	36	32	33	34	35	32
Trust in Heads	3.3	3.3	ns	--	--	27	21	52	27	20	53
Trust in Snr. Mgt.	2.5	2.6	.001	.005	s	52	29	19	44	36	20
Negative Affectivity	18.3	20.0	.001	.012	s-m	--	--	--	--	--	--

*Except for Psychological Strain, Job Satisfaction and Negative Affectivity the mean for each measure is averaged over the number of items. Differences between males and females are identified as small (s), small-medium (s-m), medium-large (m-l) and large.

Table 11: Mean Scores, Differences and Percentages for 11 Work-Related Measures and Negative Affectivity: Academic and General Staff.

Measure*	Mean Scores and Differences					% Low / Unsure / High					
	Mean		Significance of Difference			Academic			General		
	Academic	General	$p <$	Effect size η^2	Effect size	Low	Unsure	High	Low	Unsure	High
Psychological Strain	13.7	12.8	.001	.005	s	--	--	--	--	--	--
Job Satisfaction	62.7	67.6	.001	.029	s-m	37	10	53	29	10	61
Org. Commitment	3.3	3.5	.001	.018	s-m	26	25	48	17	28	55
Work Pressure	3.4	3.0	.001	.082	m-l	13	--	87	28	--	72
Work-Home Conflict	3.7	2.9	.001	.133	m-l	18	--	52	43	--	58
Job Insecurity	2.6	2.7	.001	.003	s	57	16	27	54	17	29
Job Involvement	3.1	2.6	.001	.096	m-l	36	21	43	52	21	27
Autonomy	3.1	3.1	ns	--	--	34	24	42	35	23	42
Fairness	2.9	2.9	.01	.001	s	36	33	31	34	34	33
Trust in Heads	3.3	3.3	ns	--	--	27	19	53	27	21	53
Trust in Snr. Mgt.	2.4	2.7	.001	.022	s-m	56	28	16	42	36	21
Negative Affectivity	18.7	19.7	.001	.004	s	37	10	53	29	10	61

*Except for Psychological Strain, Job Satisfaction and Negative Affectivity the mean for each measure is averaged over the number of items. Differences between academic and general staff are identified as small (s), small-medium (s-m), medium-large (m-l) and large.

Differences between staff in different functional roles: Academic staff

Table 12 shows the means for academic staff in five functional roles: Research Only, Teaching Only, Teaching and Research, Heads of Department, and Deans or above. There were significant group differences for all areas, with the largest effects being for work pressure and work-home conflict. In these two domains, Heads of Department, Deans or above and Teaching and Research staff all reported significantly higher levels than did teaching only and research only staff. It is noteworthy that in the area of psychological strain, Teaching and Research staff obtained significantly higher strain scores than any other group, while Deans or above obtained the lowest scores. Conversely, for job satisfaction Deans or above obtained significantly higher scores than all other groups, while both Teaching and Research, and Teaching Only staff obtained significantly lower scores than Research Only staff, Heads of Department and Deans or above. Interestingly, Deans or above and heads of department had significantly lower levels of negative affectivity than did staff in the other three groups.

Overall, the results shown in Table 12 show that in terms of the main outcome measures (psychological strain and job satisfaction) the worst off on both measures were the academics involved in both teaching and research (the bulk of academics) followed by those involved in teaching only. This may reflect the increased difficulty faced by academic staff in balancing their research activity with ever increasing student numbers, and higher student-staff ratios.

Differences between staff in different functional roles: General staff

Table 13 shows the means for general staff in four functional roles: Professionals (e.g., accountant), Clerical/Administrative, Technical, and Service (e.g., cleaners, security, hospitality. Generally, the differences among groups of general staff were less clear-cut than those for academic staff. There were no overall differences for psychological strain. Professional staff had significantly higher levels of job satisfaction than did technical and service staff, even though they also scored higher on work pressure and work-home conflict. Service and technical staff reported higher levels of job insecurity than the professional and clerical/administrative staff. This is because professional staff are more like academic staff in the degree of autonomy attached to the management of their workload.

Table 12: Mean Scores on 11 Work-Related Measures and Negative Affectivity (Academic Staff by Category)

Measure	Total	Teaching & Research	Teaching Only	Research Only	Head of Dept.	Dean or Above	p <	Effect size η^2	Effect size
Psychological Strain	13.7	14.0	13.4	12.4	12.8	11.5	.001	.011	s-m
Job Satisfaction	62.7	61.4	60.9	67.8	67.7	74.1	.001	.042	s-m
Org. Commitment	3.3	3.2	3.2	3.4	3.6	3.9	.001	.025	s-m
Work Pressure	3.4	3.4	3.2	2.9	3.6	3.4	.001	.083	m-l
Work-Home Conflict	3.7	3.8	3.5	3.0	3.9	3.6	.001	.065	m-l
Job Insecurity	2.6	2.6	2.7	2.6	2.4	2.2	.001	.005	s
Job Involvement	3.0	3.1	2.9	2.9	3.2	3.3	.001	.024	s-m
Autonomy	3.1	3.0	3.1	3.2	3.2	3.3	.001	.023	s-m
Fairness	2.9	2.8	2.8	3.0	3.2	3.8	.001	.056	s-m
Trust in Heads	3.3	3.3	3.3	3.4	3.6	3.6	.001	.010	s-m
Trust in Sen. Mgt.	2.4	2.3	2.4	2.8	2.7	3.2	.001	.056	s-m
Negative Affectivity	18.7	18.9	18.8	18.9	17.2	14.0	.001	.009	s

Table 13: Mean Scores on 11 Work-Related Measures and Negative Affectivity (General Staff by Category)

Measure	Total	Professional	Clerical/ Admin.	Technical	Service	p <	Effect size η^2	Effect size
Psychological Strain	12.8	12.5	12.8	13.0	13.2	ns	--	--
Job Satisfaction	67.6	69.0	67.8	65.3	65.9	.001	.009	s
Org. Commitment	3.5	3.5	3.5	3.4	3.5	.001	.003	s
Work Pressure	3.0	3.1	2.9	3.0	2.8	.001	.018	s-m
Work-Home Conflict	2.9	3.0	2.8	2.9	2.6	.001	.01	s-m
Job Insecurity	2.6	2.6	2.6	2.8	3.0	.001	.012	s-m
Job Involvement	2.6	2.7	2.5	2.7	2.6	.001	.015	s-m
Autonomy	3.0	3.1	3.0	3.1	3.0	.001	.008	s
Fairness	2.9	3.0	2.9	2.8	2.8	.001	.018	s-m
Trust in Heads	3.3	3.4	3.3	3.1	2.9	.001	.017	s-m
Trust in Sen. Mgt.	2.7	2.7	2.7	2.6	2.6	.001	.005	s
Negative Affectivity	19.7	18.7	20.3	19.4	19.8	.001	.008	s

Note. *n* = 46 - 2628.

Differences between work areas

Tables 14 and 15 show mean scores for different academic and general staff organisational units[2]. For the academic areas there were no large or medium-large effects, however there were small-medium effects for 4 measures: Work Pressure, Work-Home Conflict, Job Insecurity, and Trust in Senior Management. Work Pressure was greatest for staff working in the Humanities and Social Studies; Work-Home Conflict was highest for staff working in the Humanities, followed by Social Studies, Mathematics /Computing and Education; Job Insecurity was highest for staff working in Agriculture/Renewable Resources, Built Environment and Humanities; and Trust in Senior Management was lowest for staff working in Social Studies and Humanities. These findings indicate that academics in the Humanities and Social Studies are generally the worst off. In these discipline areas, student-staff ratios increased significantly between 1989 and 2000. In Humanities and Education, the increase was 36%, Social Studies 26%, Mathematics/Computing 55%, and Agriculture/Renewable resources 55%. Contributing to the increase in most of these disciplines was a reduction of staff positions concurrent with increased student numbers, which may have contributed to staff perceptions about job security.

Comparing the four general staff areas, there were six small-medium differences (see Table 15). These were in the areas of job satisfaction, commitment, job insecurity, procedural fairness, trust in Heads and trust in senior management. Staff working in the Central Administration tended to be the best off and staff working in Operations Support tended to be worst off across the measures. This may be a reflection of the devolution of responsibilities from central administration to faculties, which has occurred progressively since 1996.

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[2] The DEETYA classifications were used to define academic organisational units.

Table 14: Mean Scores on 11 Work-Related Measures and Negative Affectivity (Total Sample; by DEETYA Academic Workplace Classification).

Measure	Total	Hum.	Soc. St.	Ed.	Sc.	Maths/Comp.	Eng/Proc	Hlth. Sc.	Bus./Econ./Law	Built Env.	Ag./Ren. Res.	p <	Effect size η²	Effect size
Psychological Strain	13.3	14.0	13.7	13.4	13.2	13.1	13.1	13.0	13.3	13.3	13.2	ns	--	--
Job Satisfaction	64.2	62.1	63.6	62.9	63.8	63.9	64.2	66.2	64.2	63.9	67.2	.001	.009	s
Org Commitment	3.3	3.2	3.2	3.3	3.4	3.3	3.4	3.4	3.3	3.3	3.4	.001	.009	s
Work Pressure	3.2	3.4	3.4	3.3	3.3	3.3	3.2	3.2	3.1	3.2	3.2	.001	.014	s-m
Work-Home Conflict	3.4	3.6	3.6	3.5	3.4	3.6	3.3	3.4	3.3	3.4	3.3	.001	.011	s-m
Job Insecurity	2.6	2.8	2.5	2.7	2.7	2.3	2.6	2.4	2.4	2.8	2.9	.001	.034	s-m
Job Involvement	2.9	3.1	3.0	2.9	3.0	3.0	2.9	2.9	2.9	2.9	2.9	.001	.010	s
Autonomy	3.1	3.0	3.0	3.0	3.1	3.1	3.1	3.1	3.1	3.1	3.3	.001	.010	s
Fairness	2.9	2.8	2.8	2.8	2.9	2.9	2.9	2.9	2.9	2.7	3.0	.001	.010	s
Trust in Heads	3.3	3.3	3.4	3.3	3.4	3.4	3.2	3.3	3.3	3.0	3.5	.001	.007	s
Trust in Snr. Mgt.	2.5	2.3	2.2	2.4	2.4	2.4	2.5	2.6	2.5	2.4	2.7	.001	.026	s-m
Negative Affectivity	19.1	20.4	19.6	19.0	19.0	19.0	18.0	19.0	19.2	19.2	18.6	.001	.005	s

Note: Hum. = Humanities; Soc Sc. = Social Sciences; Ed. = Education; Maths/Comp. = Maths & Computing; Eng./Proc. = Engineering & Processing; Bus./Econ./Law = Business, Economics & Law; Built Env. = Built Environment; Ag./Ren. Res. = Agriculture & Renewable Resources.

Note. Cases with multiple workplace areas excluded from the analyses.

Table 15: Mean Scores on 11 Work-Related Measures and Negative Affectivity (Total Sample; by Non-Academic Workplace Classification)

Measure	Total	Non-Academic Workplace				$p <$	Effect size η^2	Effect size
		Central Admin.	Library	Operations Support	Student Services			
Psychological Strain	12.8	12.8	12.5	13.4	12.6	.01	.004	s
Job Satisfaction	67.5	68.6	67.8	65.1	68.4	.001	.011	s-m
Org. Commitment	3.5	3.6	3.4	3.4	3.4	.001	.018	s-m
Work Pressure	3.0	3.0	3.0	3.0	3.1	ns	--	--
Work-Home Conflict	2.9	2.9	2.7	3.0	3.0	.001	.010	s
Job Insecurity	2.7	2.6	2.6	2.8	2.7	.001	.017	s-m
Job Involvement	2.6	2.6	2.5	2.6	2.6	.01	.005	s
Autonomy	3.0	3.0	3.0	3.0	3.1	ns	--	--
Fairness	2.9	3.0	3.0	2.8	2.9	.001	.017	s-m
Trust in Heads	3.3	3.3	3.4	3.0	3.3	.001	.023	s-m
Trust in Snr. Mgt.	2.7	2.8	2.7	2.6	2.6	.001	.014	s-m
Negative Affectivity	19.4	19.2	20.3	19.6	19.1	.05	.004	s

Note. Cases with multiple workplace areas excluded from the analyses.

Differences between junior and senior staff

Table 16 shows mean scores for different general staff job classification levels. The findings suggest that the most junior and the most senior staff are better off than staff at intermediate levels. For example, the HEW1 general staff and the HEW10 general staff were higher in Job Satisfaction, Organisational Commitment, Job Involvement, Trust in Senior Management, and Fairness than the intermediate ranks (HEW2-HEW9). These effects were all small-medium. The two largest effects (both medium-large) were for Work Pressure and Work-Home Conflict. For both of these measures, scores were higher in the senior ranks (HEW 8-10) than in the junior ranks (HEW 1-3).

A similar pattern emerged for the academic ranks as is shown in Table 17. The most junior rank (Level A) and the most senior ranks (Levels D and E) were higher in Job Satisfaction, Organisational Commitment, Trust in Senior Management, and Trust in Heads, than the intermediate ranks (Levels B and C). Table 14 shows that the most senior grade (Level E) was better off than the more junior grades on all the measures apart from two: Work Pressure and Work-Home Conflict. All of the effects mentioned so far were small-moderate. The only medium-large effect was for Procedural Fairness, on which the more senior ranks (D and E) were more positive than the junior ranks (A, B, and C).

The finding that senior staff, both academic and general, had more positive perceptions of job satisfaction than middle-ranked staff may be a reflection that they enjoy greater autonomy and are closer to senior management, and this influences both their perceptions of senior management on the one hand, and their job involvement, satisfaction and organisational commitment on the other. Entry-level staff may also have relatively positive perceptions, because of their relatively short employment history, and the influence that this has on their expectations of work.

**Table 16: Mean Scores on 11 Work-Related Measures and Negative Affectivity
(Total Sample; by General Staff Classification Level)**

Measure	Classification Level (General Staff)											p <	Effect Size η^2	Effect Size
	Total	HEW1	HEW2	HEW3	HEW4	HEW5	HEW6	HEW7	HEW8	HEW9	HEW10			
Psychological Strain	12.8	11.0	13.3	12.6	12.8	12.5	13.2	13.1	13.1	12.6	12.6	ns	--	--
Job Satisfaction	67.4	72.2	63.9	65.7	66.6	68.1	66.8	67.4	67.7	69.8	73.5	.001	.014	s-m
Org Commitment	3.5	3.8	3.4	3.4	3.4	3.5	3.5	3.4	3.5	3.6	3.7	.001	.012	s-m
Work Pressure	3.0	2.6	2.7	2.7	2.8	3.0	3.1	3.2	3.2	3.3	3.3	.001	.093	m-l
Work-Home Conflict	2.9	2.4	2.4	2.5	2.7	2.9	3.0	3.1	3.2	3.3	3.3	.001	.068	m-l
Job Insecurity	2.7	2.8	2.7	2.8	2.7	2.6	2.6	2.6	2.6	2.7	2.4	.01	.005	s
Job Involvement	2.6	2.7	2.3	2.4	2.5	2.6	2.7	2.7	2.7	2.8	2.9	.001	.036	s-m
Autonomy	3.0	3.2	2.9	3.0	3.0	3.1	3.1	3.0	3.0	3.1	3.3	.001	.010	s
Fairness	2.9	3.0	2.8	2.9	2.8	2.9	2.9	2.9	2.9	3.1	3.3	.001	.019	s-m
Trust in Heads	3.3	3.5	3.1	3.2	3.3	3.3	3.2	3.2	3.3	3.4	3.7	.001	.010	s
Trust in Sen. Mgt.	2.6	3.1	2.7	2.8	2.6	2.7	2.6	2.6	2.6	2.7	3.0	.001	.015	s-m
Negative Affectivity	19.7	20.9	21.6	21.5	20.8	19.7	19.3	19.1	18.6	18.1	17.3	.001	.020	s-m

**Table 17: Mean Scores on 11 Work-Related Measures and Negative Affectivity
(Total Sample; by Academic Staff Classification Level)**

Measure	Classification Level (Academic Staff)						$p <$	Effect Size η^2	Effect Size
	Total	Level A	Level B	Level C	Level D	Level E			
Psychological Strain	13.8	13.2	14.2	13.9	13.7	12.6	.001	.006	s
Job Satisfaction	62.6	63.5	61.1	61.2	64.5	68.7	.001	.028	s-m
Org Commitment	3.3	3.3	3.2	3.2	3.4	3.5	.001	.017	s-m
Work Pressure	3.4	3.2	3.4	3.4	3.5	3.5	.001	.033	s-m
Work-Home Conflict	3.7	3.4	3.7	3.8	3.8	3.8	.001	.018	s-m
Job Insecurity	2.5	2.6	2.6	2.6	2.5	2.3	.001	.008	s
Job Involvement	3.1	2.9	3.0	3.1	3.3	3.3	.001	.040	s-m
Autonomy	3.1	3.2	3.1	3.0	3.0	3.2	.001	.014	s-m
Fairness	2.9	2.8	2.7	2.8	3.1	3.3	.001	.061	m-l
Trust in Heads	3.3	3.4	3.2	3.3	3.3	3.6	.001	.009	s
Trust in Snr. Mgt.	2.4	2.5	2.3	2.3	2.5	2.7	.001	.024	s-m
Negative Affectivity	18.7	19.4	19.7	18.5	17.9	15.7	.001	.021	s-m

Differences between staff on different employment contracts

Table 18 shows mean scores for both Full-time and Part-time staff, and Permanent and Fixed term staff. The only differences worthy of mention are that Full-time staff reported greater Job Involvement and more Work-Home Conflict than Part-time staff.

Differences between Indigenous and Non-Indigenous staff

Mean scores for Indigenous and Non-Indigenous staff are shown on Table 19. One hundred and twenty staff identified themselves as Indigenous. There were no meaningful differences between these groups.

Differences between Non-native English and native English speakers

Table 19 also shows the means for Non-native English and native English speakers. Eight hundred and fifty participants identified as non-native English speakers. There were no meaningful differences between these two groups.

Table 18: Mean Scores on 11 Work-Related Measures and Negative Affectivity:
(Total Sample; by Full-time vs Part-time and Permanent (Perm) vs Fixed Employment Status)

Measure	Means					Main Effect						Interaction		
		Full-Time		Part-Time		Full-Time vs Part-Time			Permanent vs Fixed					
	Total[a]	Perm.[b]	Fixed[c]	Perm.[d]	Fixed[e]	$p <$	Effect Size η^2	Effect Size	$p <$	Effect Size η^2	Effect Size	$p <$	Effect Size η^2	Effect Size
Psychological Strain	13.2	13.3	13.3	12.5	12.6	.001	.002	s	ns	--	--	ns	--	--
Job Satisfaction	65.6	64.8	67.1	67.7	67.8	.001	.002	s	.05	.001	s	.05	.001	s
Org. Commitment	3.4	3.4	3.4	3.4	3.4	ns	--	--	.05	.001	s	ns	--	--
Work Pressure	3.2	3.2	3.1	3.0	2.9	.001	.009	s	.001	.004	s	ns	--	--
Work-Home Conflict	3.3	3.3	3.2	2.8	2.9	.001	.018	s	ns	--	--	.05	.001	s
Job Insecurity	2.6	2.6	2.6	2.6	2.7	ns	--	--	.05	.001	s	ns	--	--
Job Involvement	2.8	2.8	2.9	2.5	2.7	.001	.013	m-l	.001	.003	s	.001	.001	s
Autonomy	3.1	3.0	3.2	3.1	3.2	.01	.001	s	.001	.006	s	ns	--	--
Fairness	2.9	2.9	3.0	2.9	3.0	ns	--	--	.001	.002	s	ns	--	--
Trust in Heads	3.3	3.3	3.4	3.3	3.5	.05	.001	s	.001	.003	s	ns	--	--
Trust in Snr. Mgt.	2.6	2.5	2.7	2.7	2.8	.001	.002	s	.001	.005	s	ns	--	--
Negative Affectivity	19.2	19.2	19.3	19.9	19.4	ns	--	--	ns	--	--	ns	--	--

Note. [a]$N = 6919$-7268; [b]$n = 4784$-5027; [c]$n = 1185$-1238; [d]$n = 629$-666; [e]$n = 321$-348.

Table 19: Mean Scores on 11 Work-Related Measures and Negative Affectivity:
(Total Sample; Indigenous vs. Non-Indigenous; English Speaking vs. Non-English Speaking Background)

Measure	Total	Group					Group				
		Indigenous	Non-Indigenous	$p <$	Effect Size η^2	Effect Size	English Background	Non-English Background	$p <$	Effect Size η^2	Effect Size
Psychological Strain	13.2	12.1	13.2	ns	--	--	13.3	13.1	ns	--	--
Job Satisfaction	65.6	68.3	65.4	.05	.001	s	62.9	65.7	.001	.004	s
Org Commitment	3.4	3.5	3.4	ns	--	--	3.5	3.4	.001	.003	s
Work Pressure	3.2	2.9	3.2	.001	.003	s	3.0	3.2	.001	.004	s
Work-Home Conflict	3.2	2.9	3.2	.001	.002	s	3.2	3.2	ns	--	--
Job Insecurity	2.6	2.6	2.6	ns	--	--	2.7	2.6	.001	.001	s
Job Involvement	2.8	2.7	2.8	ns	--	--	3.0	2.8	.001	.005	s
Autonomy	3.1	3.1	3.1	ns	--	--	3.0	3.1	.001	.004	s
Fairness	2.9	2.9	2.9	ns	--	--	2.8	2.9	.001	.002	s
Trust in Heads	3.3	3.3	3.3	ns	--	--	3.2	3.3	.001	.002	s
Trust in Sen Man	2.5	2.8	2.5	.01	.001	s	2.6	2.5	ns	--	--
Negative Affectivity	19.2	19.4	19.2	ns	--	--	19.6	19.2	ns	--	--

Differences between union and non-union members

We assessed whether there were any differences in our variables between union members and non-union members. As Table 20 shows, non-union members reported greater Job Satisfaction and Organisational Commitment than union members. The same pattern was evident for both academic and general staff, as shown in Tables 21 and 22.

The existence of lower levels of job satisfaction and organisational commitment in union members is not surprising. It is quite common for staff members who are experiencing problems at work to join a union for support and protection. The NTEU as the main union representing academic staff is aware of many such instances.

Other possible reasons include the following:

- Union members tend to be concentrated in the larger work units (for example, libraries and large teaching departments) whereas non-members tend to be concentrated in the smaller work units, where objective factors work against staff solidarity and union recruitment is more difficult. It may also be that job satisfaction is lower in the largest work units.
- Union membership is lower among those who have (or perceive themselves to have) a senior management role. This may be relevant to organisational commitment
- There is always a lag in recruiting new employees in new or expanding areas which are likely to be better resourced giving rise to higher levels of job satisfaction and organisational commitment. On the other hand, areas that are contracting or threatened are likely to be older and have had many years during which the union could recruit staff. This would add to the other relevant factor, namely that staff in such areas would be more likely union members because of concerns about job security.

**Table 20: Strain, Job Satisfaction and Organisational Commitment for
Union Members and Non-Members: All Staff.**

Scale	Members vs. non-members	N	Mean	SD	Effect size d	Effect size
Psychological Strain*	Non-member	3798	12.7	5.9	0.16	s
	Union member	4449	13.6	6.1	--	--
Job Satisfaction*	Non-member	3639	68.3	13.6	0.38	s-m
	Union member	4197	63.0	14.1	--	--
Org.Commitment*	Non-member	3805	3.5	0.7	0.28	s-m
	Union member	4462	3.3	0.7	--	--

*Difference between means significant (p<.001)

**Table 21: Strain, Job Satisfaction and Organisational Commitment for
Union Members and Non-Members: Academic Staff**

Scale	Members vs. non-members	N	Mean	SD	Effect size d	Effect size
Psychological Strain*	Non-member	1306	13.1	5.8	0.17	s
	Union member	2264	14.1	6.1		
Job Satisfaction*	Non-member	1246	65.8	13.5	0.36	s-m
	Union member	2135	60.9	13.8		
Org. Commitment*	Non-member	1311	3.4	0.7	0.26	s-m
	Union member	2262	3.2	0.8		

*Difference between means significant (p<.001)

**Table 22: Strain, Job Satisfaction and Organisational Commitment for
Union Members and Non-Members: General Staff**

Scale	Members vs. non-members	N	Mean	SD	Effect size d	Effect size
Psychological Strain*	Non-member	2400	12.4	6.0	0.13	s
	Union member	2069	13.2	6.1		
Job Satisfaction*	Non-member	2307	69.5	13.4	0.31	s-m
	Union member	1956	65.3	14.0		
Org. Commitment*	Non-member	2402	3.6	0.7	0.25	s-m
	Union member	2082	3.4	0.7		

*Difference between means significant (p<.001).

The effect of financial dependants and different living arrangements

Although there were some statistically significant correlations between the number of financial dependants and some of the measures, all of the associations were small. This suggests that staff with financial dependants are no more likely to report stress or low job satisfaction, than those with no financial dependants.

We next compared staff in different kinds of living arrangements. The only difference was in regard to work-home conflict. As shown in Figure 6, respondents living with one or more people (and with no partner) reported significantly less work-home conflict than each of the other three groups. Not surprisingly, respondents living with a partner and with others reported significantly more work-home conflict than each of the other groups. There was no significant difference between those living alone and those living with a partner only.
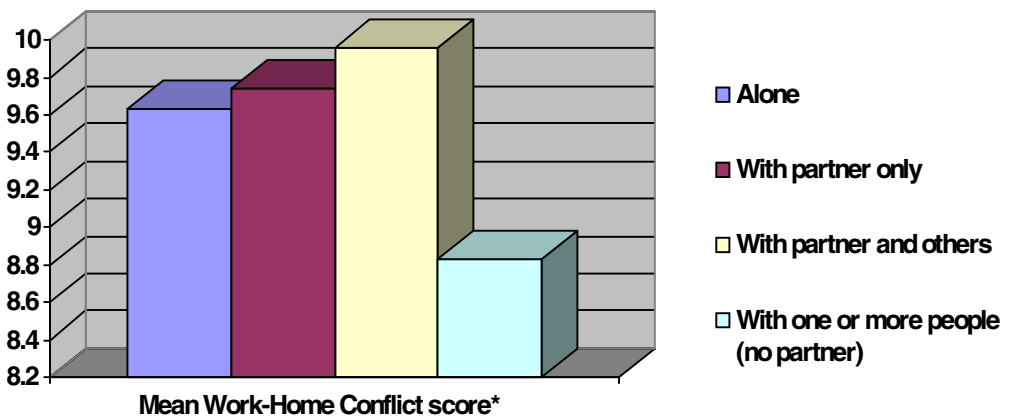
Figure 6: Mean Work-Home Conflict scores for 4 different kinds of living arrangement.

Awareness and support of Employee Assistance Programs

The majority of staff (53%) reported that they did not know whether their University provides an Employee Assistance Program (EAP) for staff counselling. The remaining staff were aware that their university either did or did not have an EAP. Nine percent of staff reported using the EAP provided through their university. Of these staff, 60% reported being counselled internally, and the remainder reported being counselled externally. Of the staff who had received counselling, 82% reported that it was somewhat helpful to very helpful.

Average work hours of university staff

Both general and academic staff were asked whether they wished to change their formal working hours. As can be seen from Table 23, the vast majority (70%) of staff did not wish to change their formal working hours. Almost all of the remaining staff (27%) wished to decrease their formal hours, with only 3% wanting to increase their hours. Overall more general

staff were satisfied with their working hours (76%) than academic staff (62%), with 35% of academic staff wishing to decrease their work hours.

Table 23: Attitudes to Working Hours

Do you wish to change your formal working hours?	Academic		General		Total	
	N	%	N	%	N	%
No	2227	62	3275	76	5502	70
Yes, increase hours	92	3	162	4	254	3
Yes, decrease hours	1269	35	888	21	2157	27
Total	3588	100	4325	100	7913	100

Comparing full-time with part-time staff, the percentages not wishing to change their working hours were fairly similar (61% vs. 67% for academic staff; 77% vs. 73% for general staff). However, for those wishing to change their working hours, more full-time staff wished to reduce them rather than increase them (38% vs. 1% for academic staff; 22% vs. 1% for general staff), whereas the reverse was true for part-time staff. For part time academic staff 19% wanted to increase their hours compared with 14% who wanted to decrease them. The corresponding figures for part-time general staff were 17% and 10%, respectively.

Table 24 shows the estimated number of working hours for the 5 grades of academic staff. On average academic staff estimated working 50 hours per week. There was a significant increase in hours as seniority increased. Level E academics reported working an average of 13 hours per week longer than Level A academics. It is interesting to compare these figures with those contained in a recent government report (DEETYA, 1998, Table 2) showing increases in estimated working hours by Professors (Level E), Associate Professors/Readers (Level D), Senior Lecturer (Level C) and Lecturers (Level B) in 1977 and 1993. Figure 7 illustrates the increases in working hours for these 4 groups, including the current (2000) figures. As shown, during this period, average weekly working hours increased from 47 to 56 for Level E, from 46 to 55 for Level D, from 45 to 52 for Level C, and from 45 to 48 for Level B employees.

Table 24: Hours Worked per Week by Different Academic Grades.

Appointment	N	Mean	SD	$F_{(4, 3196)}$	$p <$	Effect size η^2	Effect size
Level A	446	43.4	12.5	87.66	.001	.099	m-l
Level B	1098	48.4	11.9				
Level C	967	51.8	11.2				
Level D	402	54.7	10.1				
Level E	288	56.4	10.9				
Total	3201	50.2	12.1				
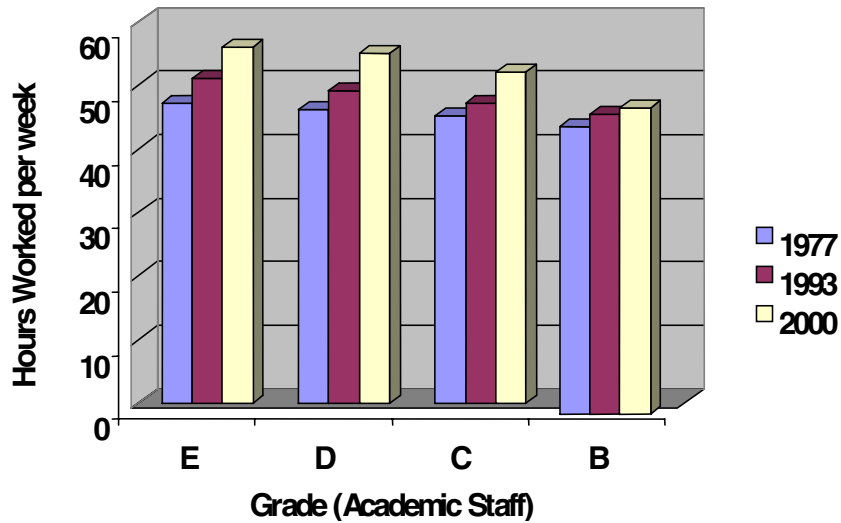
Figure 7: Working hours of academic staff 1977-2000.

Academic staff were also asked how often they needed to work after hours (i.e., weekends and evenings) in order to meet deadlines. As Table 25 shows a substantial number reported needing to work after hours on most days (47.4%) with a further 33.9% reporting that they needed to work after hours once or twice a week. Only 5.9% reported that they rarely or never needed to work after hours. Overall, 30% of academic staff reported working more than 55 hours per week.

Table 25: After-Hours Work: Academic Staff.

How often do you need to work after hours (i.e., weekends or evenings) to meet deadlines?	Frequency	Percent	Mean (Hours)	SD
Never	24	1	33.4	11.0
Rarely or occasionally	186	5	37.2	10.4
Once or twice per month	461	13	41.1	10.7
Once or twice per week	1210	34	46.8	9.9
Most days	1692	48	56.1	11.1
Total	3573	100	--	--

General staff were also asked to indicate how many hours they worked after hours, during the last full week they worked. They were also asked to indicate how many of those hours they did or will receive overtime pay for. The majority (82%, 3844 staff) reported working after hours, however only 31% (1207 staff) of those working overtime reported being paid for their after hours work.

The relationship between stress and physical health

The link between unmanaged stress and negative impact on health and wellbeing is well demonstrated in stress research. Psychological stress can lead to severe physical consequences, some of which can be fatal (Brady, et al., 1958; Seligman et al. 1971; Selye, 1956; Weiner, 1992; Weiss, 1970; 1971a; 1971b). Researchers suggest that the degree of coping and control available to an individual determines the stressfulness of an event and the physical reactions to it.

Psychological stress is usually accompanied by negative emotions and associated maladaptive behaviours, including depression, hostility, anger and aggression. In addition, stress and the associated negative emotions typically cause arousal of the sympathetic-nervous system (with the release of hormones such as adrenalin) that may be damaging to the cardiovascular system and detrimental to effective immune function if maintained for long periods. Perhaps even more injurious to health, prolonged exposure to stressors causes arousal of the pituitary-adrenal-cortical axis, with the release of cortisol. Cortisol causes other kinds of immune suppression beyond those associated with sustained sympathetic arousal. These negative emotions (and long-term stress exposure) appear to be related to immune function and health outcomes.

Staff were asked to indicate 'how often' they suffered from 11 stress related symptoms adopted from the stress and health literature (Table 26). These symptoms included headaches, muscle pain, colds/ virus infections, chest pain or discomfort, sleeping difficulties, back/ neck pain, tiredness, skin problems, gastrointestinal problems (e.g., indigestion, nausea, diarrhoea), breathing difficulties and feeling dizzy/ light-headedness. They were then asked to indicate whether they are diagnosed with any medical conditions. These medical conditions are currently known or widely implicated as stress related. They were Coronary Heart Disease, hypertension (high blood pressure), rheumatoid/ rheumatic/ osteoarthritis, cirrhosis (liver problems potentially due to excessive use of alcohol) asthma/ allergies, diabetes, thyroid disease, migraine, gastric/ peptic ulcers and pruritus (itching sensation). The participants were asked to rate the severity of the problem (from mild, moderate, severe – see Table 27).

Of the respondents, 92% reported tiredness 'sometimes' to 'nearly all the time', 72% back and neck pains, 63% sleeping difficulties, 62% headaches, 61% muscle pain, 51% colds and virus infections, 38% gastrointestinal problems, 35% skin problems, 28% dizziness or light-headedness 20% chest pains or discomfort, and 17% breathing difficulties (see Table 24). In comparison, relatively few respondents reported being diagnosed with medical conditions (potentially stress related). The most frequent medical conditions were asthma/allergies (30%), migraine (20%), and hypertension (16%) (see Table 27). There were no significant differences between general and academic staff for either the presence of symptoms or diagnosed medical conditions.

Table 26: Percentages of Responses Relating to Frequency of *Presence or Experience* of Symptoms

Symptom	Never (%)	Rarely (%)	Sometimes (%)	Often (%)	Nearly all the time (%)	N
Headache	15	24	37	22	3	8641
Muscle pain	14	24	33	23	5	8630
Colds/ viruses	10	39	38	12	1	8632
Chest pain or discomfort	49	31	15	4	1	8605
Sleeping difficulties	14	23	30	24	9	8627
Back/ neck pain	12	17	30	30	11	8629
Tiredness	2	6	26	45	21	8637
Skin problems	38	28	20	10	5	8612
Gastrointestinal problems	31	31	23	12	3	8626
Breathing difficulties	56	27	12	4	1	8626
Dizziness/ lightheadedness	42	30	21	7	1	8631

Table 27: Percentages of Responses for *Presence* and *Severity* of the Diagnosed Medical Conditions.

Diagnosed medical conditions	Presence and Severity				
	None (%)	Mild (%)	Moderate (%)	Severe (%)	N
Coronary Heart Disease (CHD)	98	1	1	0	8607
Hypertension (High Blood Pressure)	84	9	6	1	8627
Rheumatoid/ Rheumatic/ Osteo- Arthritis	89	7	4	1	8621
Cirrhosis (Liver problems)	99	1	0	0	8604
Asthma/ Allergies	69	19	10	1	8616
Diabetes	98	1	1	0	8605
Thyroid disease	97	1	1	1	8606
Migraine	79	12	6	2	8616
Gastric/ Peptic Ulcers	93	4	2	1	8605
Pruritus (itching sensation)	91	7	2	1	8596

Relationships between work variables and health-related symptoms

The number of negative health symptoms experienced by staff was significantly associated with many of the work related measures, suggesting a complex interaction between work processes and health related symptoms. The number of health-related symptoms experienced was significantly associated with psychological stress (r= .39), negative affectivity (r= .39), work-home conflict (r= .38), negative coping (r= .31), work pressure (r= .24), and job insecurity (r= .24). The number of health-related symptoms experienced was also negatively associated with job satisfaction (r= -.35), procedural fairness (r= -.28), job autonomy (r=-.21), trust in senior management (r= -. 23), and trust in the head of school (r= -.20). These correlations are either small-moderate or moderate-large in size and have important consequences for the amount of sick days and job performance of employees within the university sector. These results suggest that interventions aimed at lowering occupational stress and enhancing job satisfaction may play an important role in reducing the negative health-related symptoms experienced by university staff.

Relationships between work variables and diagnosed medical conditions

Overall there were fewer significant relationships between the work-related measures and medical conditions than perceived negative health symptoms. Medical conditions that are stress related are likely to occur less frequently than negative health symptoms. However, chronic levels of stress over long periods of time will lead to an increase in medical conditions due to stress. This is indicated in our own data set with a moderate-large correlation between the report of negative health symptoms and the number of medical conditions (r= .36).

Future longitudinal work will be able to detect causal influences of work related stress variables on health symptoms and medical conditions. Given the size of some of these correlations, there is cause to be concerned about the impact of occupational stress within the university sector on the physical health of university staff.

Part II: Understanding the Results for Different University Groups

Differences across university groups

The 17 participating universities were divided into 4 categories for comparison purposes (see Table 2). "Old" universities are those established between 1853 and 1911. "Middle" universities are those established between 1954 and 1974. "New" universities refer to those established between 1988 and 1992. New universities are further divided into those that were, for the most part, former Colleges of Advanced Education and those that were formerly (mainly) Institutes of Technology and are part of the Australian Technology Network (ATN). For convenience the former are referred to as 'New' and the latter as 'ATN' universities.

Table 28 reports the mean scores on the 11 work measures and Negative Affectivity for each of the 4 different groups of universities. As the table shows, all of the differences were small.

Table 28: Differences Between University Groups on 11 Work-Related Measures and Negative Affectivity (Total Sample; University Type - All Staff).

Measure	University Type (All Staff)					$p <$	Effect Size η^2	Effect Size
	Total	Old	Middle	New	ATN			
Psychological Strain	13.2	12.8	13.1	13.3	13.4	.01	.002	s
Job Satisfaction	65.4	66.9	65.1	65.6	64.4	.001	.005	s
Org Commitment	3.4	3.5	3.4	3.4	3.3	.001	.005	s
Work Pressure	3.2	3.1	3.2	3.1	3.2	.001	.004	s
Work-Home Conflict	3.2	3.2	3.3	3.2	3.3	.001	.002	s
Job Insecurity	2.6	2.6	2.6	2.5	2.7	.001	.004	s
Job Involvement	2.8	2.9	2.8	2.8	2.8	.001	.004	s
Autonomy	3.1	3.1	3.0	3.0	3.0	.001	.009	s
Fairness	2.9	3.0	2.9	2.9	2.9	.001	.007	s
Trust in Heads	3.3	3.4	3.3	3.4	3.2	.001	.005	s
Trust in Sen Man	2.5	2.7	2.5	2.5	2.6	.001	.008	s
Negative Affectivity	19.3	19.4	19.0	19.4	19.2	ns	--	--

Differences across university groups for academic staff

Table 29 shows the results for academic and general staff in the four university groups. In contrast to the results for all staff, there were six small-medium effects for academic staff only. Academic staff in the old universities scored higher than other university groupings on Job Satisfaction, Autonomy, Fairness, Trust in Senior Management, and Organisational Commitment. By contrast, academic staff at the ATN universities scored lower than the other university groupings on Trust in Heads, and Organisational Commitment. These differences are illustrated in Figure 8, below.
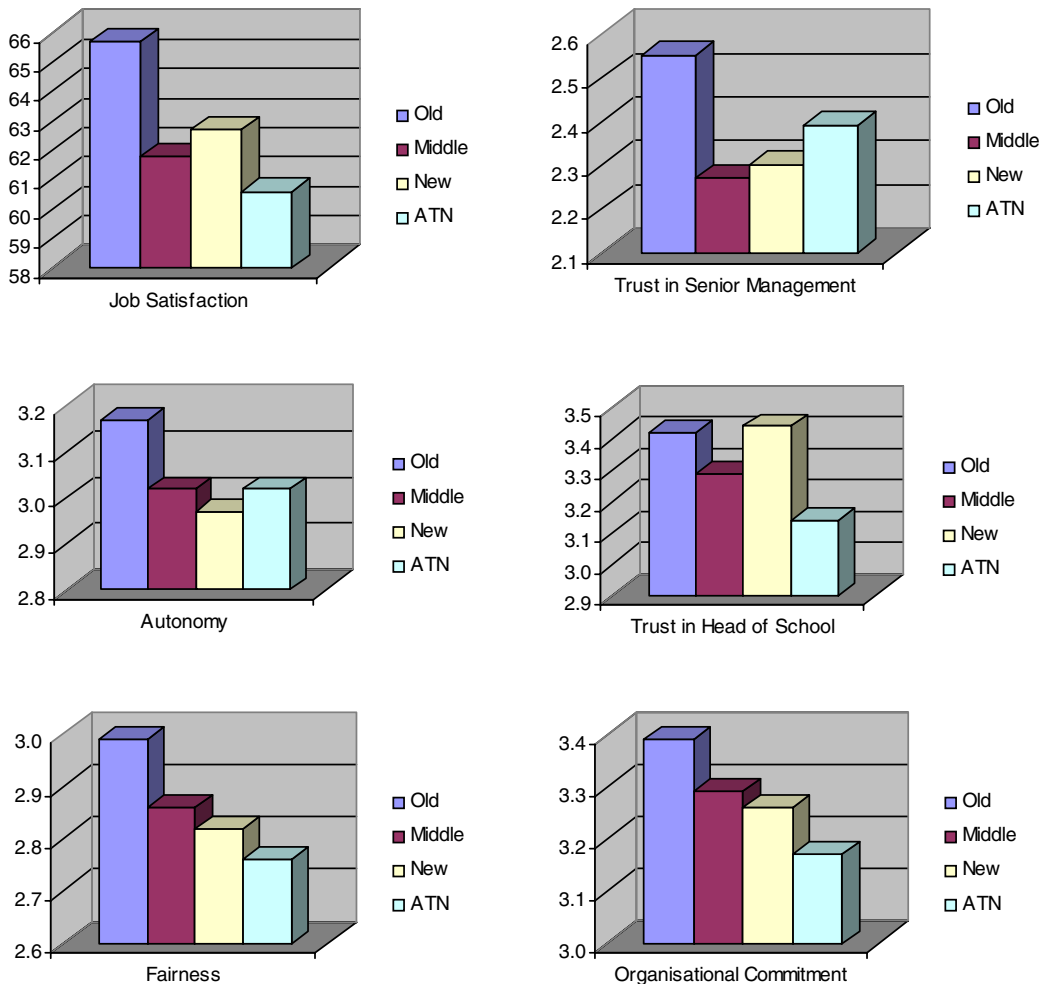
Figure 8: Mean scores on 6 work-related variables for the four university groups: Academic staff.

**Table 29: Mean Scores on 11 Work-Related Measures and Negative Affectivity
(Total Sample; University Type - Academic Staff; University Type - General Staff).**

Measure	University Type (Academic Staff)								University Type (General Staff)						
	Total	Old	Middle	New	ATN	$p <$	Effect Size η^2	Effect Size	Old	Middle	New	ATN	$p <$	Effect Size η^2	Effect Size
Psychological Strain	13.2	13.1	13.8	13.9	13.9	.001	.004	s	12.6	12.5	12.8	13.1	.05	.002	s
Job Satisfaction	65.4	65.7	61.8	62.7	60.6	.001	.022	s-m	68.0	67.5	67.8	67.2	ns		
Org Commitment	3.4	3.4	3.3	3.3	3.2	.001	.012	s-m	3.5	3.5	3.5	3.4	.001	.004	s
Work Pressure	3.2	3.3	3.4	3.4	3.4	.001	.010	s	3.0	3.0	2.9	3.1	.001	.004	s
Work-Home Conflict	3.2	3.6	3.7	3.7	3.7	.001	.006	s	2.9	2.9	2.8	3.0	.001	.004	s
Job Insecurity	2.6	2.5	2.5	2.6	2.6	.001	.006	s	2.6	2.7	2.5	2.7	.001	.011	s-m
Job Involvement	2.8	3.1	3.1	3.0	3.0	.001	.008	s	2.6	2.6	2.6	2.6	ns		
Autonomy	3.1	3.2	3.0	3.0	3.0	.001	.018	s-m	3.1	3.0	3.0	3.1	.001	.004	s
Fairness	2.9	3.0	2.9	2.8	2.8	.001	.017	s-m	3.0	2.9	2.9	2.9	.001	.004	s
Trust in Heads	3.3	3.4	3.3	3.4	3.1	.001	.012	s-m	3.4	3.3	3.4	3.2	.05	.002	s
Trust in Sen Man	2.5	2.6	2.3	2.3	2.4	.001	.015	s-m	2.7	2.6	2.7	2.7	.001	.005	s
Negative Affectivity	19.3	18.5	19.0	18.7	18.7	ns			20.2	19.0	20.0	19.0	.01	.003	s

Academic staff also rated their satisfaction with resources and their perceptions of the academic work environment. These are reported in Tables 30 and 31, respectively. Examining Table 30 first, we see that academics in all university groupings were moderately dissatisfied with the level of funding allocations for research, the level of funding for support services (e.g., technical support, library services etc), and the level of resource allocations for teaching. On average, academics reported being slightly dissatisfied with their access to resources that are required "to do their job well".

The only meaningful difference in the ratings across the university groupings was for satisfaction with access to professional development. Staff in new and ATN university groupings reported less satisfaction with their access to professional development opportunities, than staff in old and middle universities.

Table 30 shows perceptions of the academic work environment as rated by academic staff involved in both teaching and research. On average, teaching and research staff reported that the number of hours they spent on teaching-related activities had increased in the recent past, that the introduction of new teaching modalities (e.g., web-based teaching) had increased their workload, that they did not have enough time to perform quality research, and that they felt pressured to attract external research funding. They disagreed that the amount of administration they were expected to do is manageable.

Overall, academics expressed no general agreement as to whether they felt pressure to do research, that the number of courses they were required to teach was manageable, or that their class sizes were manageable. They were not generally agreed that the time spent teaching had increased due to an increasing number of students with language difficulties, or that the quality of their students work had declined in the recent past. Whether this perception held by staff reflects institutional practices and standards is a matter that will be more closely examined in the near future. While McInnis (2000) concluded that the quality of teaching and research is threatened by increased workloads and decreased job satisfaction, no conclusive data have yet emerged to test this contention. A new study, which is near completion "Changes in the Academic Workrole" (Anderson, D. personal communication), has examined the issue of standards and their relationship to workload changes, and will be provided to DEST in coming weeks. In addition, the role of the Australian Universities Quality Agency in conducting institutional audits may further illuminate whether changes within the university sector have affected standards.

Table 30: Mean Scores on Measures of Academic Resources (Academic Staff Involved in Teaching and Research - Total Sample; by University Type)

Measure	University Type					$p <$	Effect Size η^2	Effect Size
	Total	Old	Middle	New	ATN			
Access to Resources	2.7	2.8	2.7	2.9	2.7	.05	.004	s
Research Funding	2.2	2.2	2.2	2.3	2.2	ns	--	--
Teaching Resources	2.3	2.3	2.2	2.3	2.2	ns	--	--
Funding for Support Services	2.3	2.2	2.2	2.3	2.3	ns	--	--
Professional Development	3.0	3.2	3.1	2.7	2.8	.001	.020	s-m
Total Academic Resources Score	2.5	2.6	2.5	2.5	2.4	ns	--	--

*Neutral point is 3.00 for all.

Table 31: Mean Scores on Measures of Academic Work Environment (Academic Staff Involved in Teaching and Research - Total Sample; by University Type).

Measure	University Type					$p <$	Effect Size η^2	Effect Size
	Total*	Old	Middle	New	ATN			
Teaching related								
Class Sizes Too Big	2.8	2.7	2.8	2.7	3.0	.001	.009	s
Increased Teaching Hours	4.1	4.0	4.1	4.0	4.1	ns		
Too Many Courses	2.9	2.7	2.9	2.9	3.0	.001	.013	s-m
Decline in Quality of My Teaching	2.7	2.6	2.8	2.7	2.8	.05	.004	s
Decline in Quality of Students' Work	3.2	3.0	3.3	3.1	3.1	.001	.006	s
More Students With Language Problems	3.0	2.9	3.0	3.1	3.2	.001	.013	s-m
New Teaching Modalities Increase Workload	4.0	3.8	4.0	4.1	4.1	.001	.019	s-m
Research related								
Pressure to Do Research	3.2	3.1	3.2	3.2	3.2	.05	.004	s
Pressure to Attract External Research Funding	3.9	4.1	4.0	3.7	3.8	.001	.023	s-m
No Time for Quality Research	4.0	3.9	4.1	4.1	4.2	.001	.014	s-m
Administration related								
Too Much Administration	3.5	3.4	3.6	3.5	3.7	.001	.015	s-m
Total Workload Score	3.4	3.3	3.4	3.4	3.5	.001	.017	s-m

*Neutral point is 3.00 for all.

There were six meaningful differences in perceptions of the academic work environment across university types. The total score at the bottom of Table 31 shows that on average, teaching and research staff at the old universities reported the most positive academic work environment and staff at the ATN universities reported the most negative work environment. Academics involved in both teaching and research in old and middle universities reported greater pressure to attract external research funding than did academics in the new and in the ATN universities. Staff at ATN universities reported the worst conditions in relation to large class sizes, students with language problems, an increase in workload due to new teaching modalities, time to perform quality research and amount of administration (see Table 29).

Differences across university groups for general staff

Returning to Table 29 (see columns to the right of centre), we find that the pattern of results for general staff at the 4 different university groups was somewhat different from that for academic staff. The only meaningful difference for general staff between the university groups was for job insecurity. General staff in middle and ATN universities reported more job insecurity than general staff at old and new universities. This effect is represented graphically in Figure 9.
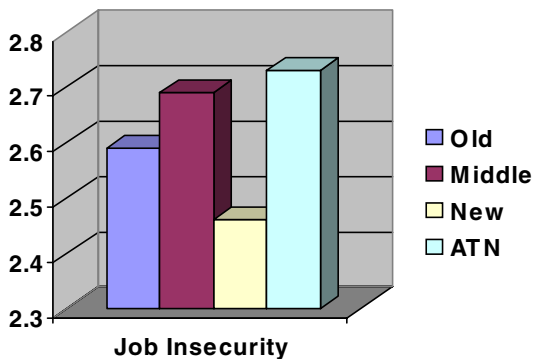
Figure 9: Job Insecurity scores across four university groups: General staff.

Differences between regional and urban universities

Several of the submissions to the Senate Inquiry (Senate Committee Report, 2001) drew attention to the particular problems faced by regional universities, particularly their ability to attract students. It seemed plausible to assume, therefore, that the stress levels of staff in the regional universities might be higher and job satisfaction lower, than those of staff in the urban universities.

In our sample of 17 universities, the three old universities and the four ATN universities were all urban (apart from the small Whyalla campus at the USA). However there were some regional as well as urban universities within the other two groups. Of the 6 middle universities, 3 were regional (James Cook, Newcastle and New England) and 2 were urban (Macquarie and Murdoch). The 6th, Deakin, has 2 urban campuses (Melbourne and Toorak) and 3 regional campuses (Geelong, Geelong Waterside, and Warrnambool). Finally, of the 4 new universities,

2 were regional (Central Queensland and Southern Queensland) and 2 were urban (Canberra and Swinburne).

We carried out analyses comparing (a) Regional middle with Urban middle universities (with Deakin represented in both groups), and (b) Regional new with Urban new universities on our two main outcome measure (Psychological Strain and Job Satisfaction) for both academic and general staff.

In the first set of analyses, none of the differences between Regional middle and Urban middle universities even approached statistical significance. In the second set of analyses, general staff in the Urban new universities expressed significantly greater Job Satisfaction (mean = 69.6) than general staff in the Regional new universities (mean = 65.3), $t(600) = 3.50$, $p< .001$ (small-moderate effect size of $d= .29$). There were no other statistically significant differences.

Part III: What Predicts Occupational Stress and Well-being in Australian Universities?

Predictors at the university level: Objective financial and staff indicators

We turn now to examine the impact that objective financial and staffing levels within the universities have had on occupational stress and well-being. Four objective indicators were used: Funding cuts (cut in government grant from 1996 to 1999, as a % of total revenue); Staff cuts (% cut in full-time equivalent staff from 1996 to 1999); the Student-staff ratio (1999); and the Investment income[3] of the university. These objective indicators for the 17 participating universities were obtained from the most recent 2001 DEETYA publications, and are displayed in Table 32. The first three objective indicators are also illustrated in Figures 1, 2, and 3.

As shown in Table 32, the cut in government funded operating grants from 1996 to 1999 across the 17 universities ranged from 9.3% to 24.9%. The range in full-time staff cuts during this same period ranged from 0.2% to 33.6% (DEETYA, 2000), with one university experiencing a growth in full time staff numbers (4.8%). The average student-staff ratio in the universities in 1999, ranged from 13.6 to 25.7, and the average university investment income in 1999 ranged from $895 to $38,542 million.

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[3] After the preliminary report was released showing that psychological strain was lower and job satisfaction higher in the old universities, we were contacted by a Vice Chancellor of one of the participating universities pointing out that the old universities were much wealthier than the newer ones and could therefore absorb financial cuts more easily. After much deliberation, we chose 'investment income' as our measure of wealth, although many others were suggested to us.

Table 32: Student/Staff Ratios, % Cut in Full-Time Staff, Investment Income, and Decline in Government Grants for Each University (1999).

University	Student/staff ratio (1999)	% cut in full-time staff* (1996-1999)	Investment income (1999) ($'000)	Decline in govt. grants‡ (1996-1999)
NSW				
Macquarie (M)	22.8	15.4	4,893	17.7
Newcastle (M)	18.5	3.0	4,759	14.0
UTS (ATN)	18.5	6.2	1,869	15.1
UNE (M)	19.0	5.1	1,130	9.8
VICTORIA				
Deakin (M)	19.0	5.7	3,523	19.3
Melbourne (O)	17.0	4.4	21,308	9.7
RMIT (ATN)	21.0	33.6	3,011	16.1
Swinburne (N)	25.6	7.3	1,107	24.9
QUEENSLAND				
James Cook (M)	20.4	20.7	3,470	20.0
CQU (N)	25.7	−4.8	2,136	21.1
QUT (ATN)	21.0	2.6	7,534	16.5
USQ (N)	22.7	1.9	1,089	9.3
WA				
Murdoch (M)	20.6	0.2	895	18.5
UWA (O)	15.0	4.5	38,542	13.1
SA				
Adelaide (O)	13.6	1.8	9,471	16.4
USA (ATN)	22.1	13.3	2,007	12.1
ACT				
Canberra (N)	18.5	6.7	958	16.7
Overall average	**20.1**	**7.5**	**6,335**	**15.9**
Overall median	**20.4**	**5.1**	**3,011**	**16.5**

*The student/staff ratio is the ratio of students to academic staff.
* A negative score implies an increase in the % of full-time staff.
‡ As a percentage of total income.

As shown in Table 32, the investment income of the old universities (such as Western Australia and Melbourne) is much greater than that of the other universities in the sample. Such extreme scores can skew the distribution and bias the strength of correlations. This is reflected by the average being greater than the median, as shown in Table 30. A similar situation with percentage staff cuts, with RMIT, James Cook, Macquarie and USA skewing the distribution. We therefore re-ran all the correlations using Spearman rank correlation coefficients, which minimises the impact of extreme scores on the correlations. The non-significant Spearman correlations, despite significant Pearson correlations, (as well as the significant Spearman but non-significant Pearson correlations) are displayed in parenthesis in Table 33-35.

The only correlations that we feel confident about are those that were statistically significant on both the Pearson and the Spearman tests. These (Pearson correlations) are shown in the shaded cells in Tables 33-35.

Table 33 shows the correlations between each of the objective indicators and the ratings from all staff aggregated to the university level on the 11 main work-related measures. Seven of the work-related measures correlated significantly with the objective indicators. The four that were not correlated were psychological strain, job insecurity, job involvement and fairness. There was a different pattern of correlations for academic and general staff, hence these are reported separately in Tables 34 and 35 respectively, and are discussed below.

The correlations for academic staff are shown in Table 34. All four objective indicators correlated with at least one of the work measures: (1) staff cuts correlated with work-home conflict, work pressure, and trust in heads; (2) investment income correlated with autonomy and psychological strain; (3) the current student/staff ratio correlated with autonomy and job satisfaction; (4) % cuts in government grants correlated with trust in senior management.

A somewhat different pattern of results emerged for general staff, as shown in Table 35. For general staff: (1) staff cuts correlated with job satisfaction, work-home conflict and trust in heads, and (2) % cuts in government grants correlated with job satisfaction and trust in senior management.

It is important to note that these correlations indicate relationships between the objective indicators and the *average* level of strain, job satisfaction and other work-related measures *in the universities*. They do not give an accurate indication of the association between the objective indicators and *individual* levels of strain, job satisfaction and the other measures. Further analyses that are beyond the scope of this report are required to examine whether these objective indicators predict strain and other outcomes for individual staff.

Table 33: Pearson (and Conflicting Spearman) Correlations Between 'Objective' Staffing and Financial Statistics and Work-Related Measures Aggregated Over 17 Universities: All Staff.

Measure	Student/staff ratio	Staff cut (%)	Investment income	Grant cut (%)
Psychological Strain	.36	.30	−.48* (-.33)	.31
Job Satisfaction	−.38	−.53*	.56* (.27)	−.52*
Organisational Commitment	−.33	−.41* (-.35)	.49* (.12)	−.52*
Work Pressure	.12	.53*	−.30	.11
Work-Home Conflict	.23	.59*	−.29	.20
Job Insecurity	−.18	.03	−.07	.07
Job Involvement	−.33	.04	.37 (.44*)	−.08
Autonomy	−.46	−.28 (-.44*)	.69**	−.45*
Fairness	−.20	−.33	.55* (.19)	−.38
Trust in Heads	−.05	−.58*	.26	−.26
Trust in Sen. Mgt.	−.30	−.07	.38	−.47*

p < .05; **p* < .01; (1-tailed).
Note: Correlations that are statistically significant on both measures are shaded. Correlations in parenthesis indicate conflicting Spearman correlations.

Table 34: Pearson (and Conflicting Spearman) Correlations Between 'Objective' Staffing and Financial Statistics and Work-Related Measures Aggregated Over 17 Universities: Academic Staff.

Measure	Student/staff ratio	Staff cut (%)	Investment income	Grant cut (%)
Psychological Strain	.20	.22	−.52*	.05
Job Satisfaction	−.44*	−.34	.69** (.26)	−.29
Org Commitment	−.30	−.32	.56** (.06)	−.22
Work Pressure	.12	.53*	−.30	.11
Work-Home Conflict	.23	.59**	−.29	.20
Job Insecurity	−.13	−.07	−.09	.07
Job Involvement	−.34	−.15	.39	.14
Autonomy	−.55*	−.09	.76***	−.40
Fairness	−.34	−.20	.55* (.10)	−.39
Trust in Heads	−.04	−.44*	.12	−.12
Trust in Sen. Mgt.	−.37 (-.41*)	−.01	.44* (.28)	−.45*

p < .05; **p* < .01; *p* < .01*** (1-tailed).
Note: Correlations that are statistically significant on both measures are shaded. Correlations in parenthesis indicate conflicting Spearman correlations.

Table 35: Pearson (and Conflicting Spearman) Correlations Between 'Objective' Staffing and Financial Statistics and Work-Related Measures Aggregated Over the 17 Universities: General Staff.

Measure	Student/staff ratio	Staff cut (%)	Investment income	Grant cut (%)
Psychological Strain	.30 (.44*)	.15	−.22	.42*
Job Satisfaction	−.18	−.52*	.34	−.56**
Org Commitment	−.23	−.32	.28	−.57** (-.33)
Work Pressure	.12	.39	−.30	.11
Work-Home Conflict	.23 (.41*)	.59**	−.29	.20
Job Insecurity	−.17	.11	−.04	.02
Job Involvement	−.10	.01	.20	−.39 (-.45*)
Autonomy	−.26	−.37 (-.57*)	.45* (.26)	−.41* (-.31)
Fairness	−.03	−.37	.45* (.29)	−.30
Trust in Heads	.07	−.48*	.32	−.30
Trust in Sen. Mgt.	−.24	−.10	.33	−.49*

*p < .05; **p < .01; (1-tailed).
Note: Correlations that are statistically significant on both measures are shaded. Correlations in parenthesis indicate conflicting Spearman correlations.

Predictors at the staff level

How are the 11 work-related measures inter-related?

We return now to Table 1 (page 27) to examine the inter-correlations for the 11 work-related measures and negative affectivity. We discuss the inter-correlations in terms of the correlates of psychological strain, job satisfaction and commitment to the university.

Psychological strain was most strongly related to lower levels of job satisfaction and higher levels of negative affectivity and work-home conflict. Strain was also weakly associated with higher levels of work pressure and job insecurity, and lower levels of perceived fairness, autonomy, trust in heads, trust in senior management, organisational commitment and job involvement.

Job satisfaction was strongly related to higher levels of perceived fairness, autonomy, trust in Heads, trust in senior management, organisational commitment and lower levels of job insecurity and work/life conflict. Satisfaction also had a weak association with work pressure.

In addition to its associations with job satisfaction and strain, commitment to the university was most strongly correlated with higher levels of perceived fairness, trust in senior management and autonomy. Commitment also had weak associations with greater trust in heads and job involvement, and lower levels of job insecurity.

The predictive model

To identify the strongest predictors of psychological strain, job satisfaction and commitment to the university (organisational commitment), we conducted hierarchical multiple regression analyses. Figure 10 displays the predictive model tested in these analyses. As can be seen in this figure, we grouped the predictors into three categories: (1) Demographic information (e.g., gender, occupational level etc.), (2) Individual differences (e.g. personality, coping style etc.), and (3) Workplace factors (e.g., job insecurity, work hours, procedural fairness etc.). We did not include psychological strain, job satisfaction and commitment as predictors of each other. It is clear from the correlations however that job satisfaction is a significant predictor of both psychological strain and organisational commitment.

To enable us to identify which set of predictors are most important, we used a three-step approach. Demographic predictors were entered into the regressions first, followed by the individual difference predictors, and then the workplace predictors. Separate analyses were conducted for academic and general staff groups. The sets of predictors were the same for both academic and general staff, with a few notable exceptions. Only academic staff completed the measures of satisfaction with resources, perceptions of the academic work environment, and work hours. Hence these measures were only included in the regressions for academic staff. In regard to work hours, academic staff estimated the number of hours they worked in an average week, and the frequency with which they worked after hours to complete deadlines.

Table 36 summarises the significant predictors for each of these outcomes, and the percentage of the variance that was predicted by the set of demographic, individual difference and workplace factors, respectively. The predictors are listed in order of importance. The full regression analyses are reported in Tables 37-42.

Table 36 shows that the demographic factors play only a small role in predicting the psychological strain, job satisfaction and commitment of university staff. Individual differences such as personality were the strongest predictors of psychological strain, whereas workplace factors were the strongest predictors of job satisfaction. Both individual and workplace factors played an important role in predicting staff commitment to the university. Overall the three set of predictors explained job satisfaction best, predicting 62-70% of the variance, compared to 34-38% of the variance in psychological strain and organisational commitment.
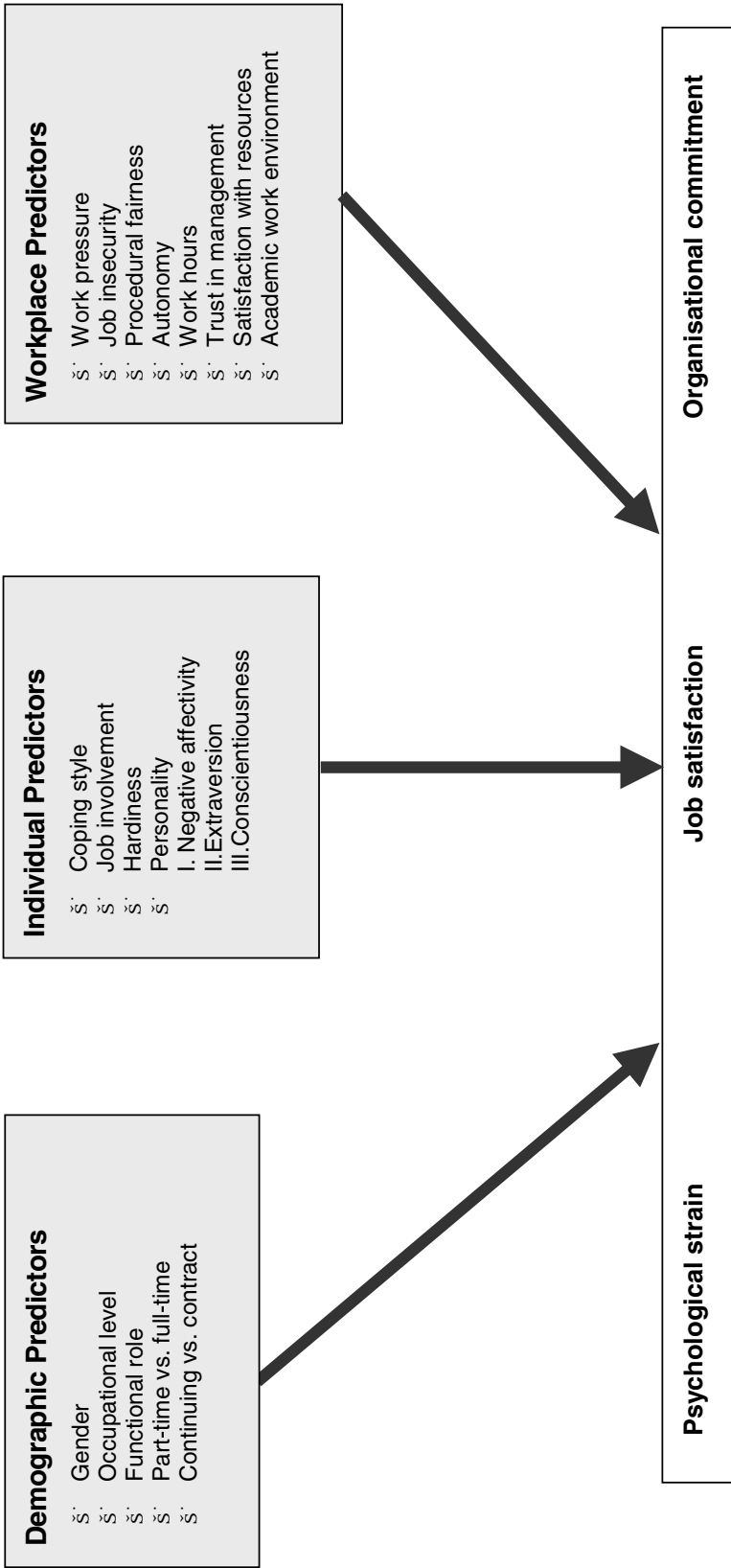
Figure 10: Conceptual model of the predictors of psychological strain, job satisfaction and organisational commitment among academic and general university staff.

Table 36: Significant Predictors of Psychological Strain, Job Satisfaction and Organisational Commitment for Academic (acad) and General Staff (gen).

Psychological Strain	Job Satisfaction	Organisational Commitment
Workplace Factors: 8% (acad) 6% (gen)	Workplace Factors: 54% (acad) 44% (gen)	Workplace Factors: 21% (acad) 16% (gen)
Job insecurity	Procedural fairness	Trust in Senior Management
Work pressure	Trust in Heads of Department and Senior Management	Procedural fairness
Autonomy	Autonomy	*Autonomy*
Trust in Heads of Department	*Job insecurity*	*Trust in Heads*[#]
Teaching and research demands[+]	*Teaching and research demands*[+]	Work pressure[#]
Procedural fairness[#]	*Resources*[+]	Resources[+]
	Working hours[+]	
	Work pressure[#]	
Individual Differences: 25% (acad) 30 (gen)	Individual Differences: 11% (acad) 15% (gen)	Individual Differences: 14% (acad) 19% (gen)
Hardiness	Hardiness	Hardiness
Negative affectivity	Job involvement	Extraversion
Extraversion[#]	Problem focused coping[#]	*Negative affectivity*[+]
Negative coping[#]		*Conscientiousness*[#]
		Job involvement
Demographics: 1% (acad) 0% (gen)	Demographics: 5% (acad) 3% (gen)	Demographics: 3% (acad) 1% (gen)
Occupational level[#]	Gender - female (vs male)	*Occupational level*[+]
Fixed (vs. continuing) employment[+]	Occupational level	
	Full-time vs. part-time[+#]	
	Functional role[#]	
Total: 34% (acad) 36% (gen)	**Total: 70% (acad) 62% (gen)**	**Total: 38% (acad) 36% (gen)**

[+] Predictive for academic staff only.
[#] Predictive for general staff only.
Only predictors that were significant at the p<.01 level were included.
Variables in italics indicate negative relationships, all others reflect a positive relationship.

After controlling for both demographic and individual differences, we found that several workplace factors predicted all three outcomes. Specifically, higher levels of procedural fairness, autonomy, and staff trust in management, and lower levels of work pressure, predicted lower levels of strain and higher levels of job satisfaction and commitment. Higher levels of job insecurity also predicted greater psychological strain and lower job satisfaction. For academic staff, greater teaching and research demands and lower satisfaction with resources also predicted higher levels of strain and lower job satisfaction.

The following sections describe in more detail the significant predictors of psychological strain, job satisfaction and commitment, in turn. We focus on workplace factors, as these factors are typically easier to change than demographic or individual difference factors.

Predictors of psychological strain

In total, 34% and 36% of the variability in the psychological strain reported by academics and general staff respectively, was predicted by demographic, individual difference and workplace factors (Tables 37 and 38). Strain was best predicted by the set of individual difference predictors, which together accounted for 25% and 30% of the variability in psychological strain for academic and general staff, respectively. The strongest predictors of strain were hardiness and negative affectivity. Staff who are more "hardy" report lower strain, and those that have a disposition to experience negative emotions (e.g., anger, depression, anxiety) report higher levels of strain. This may reflect that staff under high levels of strain report higher than their normal level of negative affect. There is considerable overlap in the items assessing hardiness and the items assessing strain, suggesting that the relationship between hardiness and strain may be inflated. The extent to which general staff use maladaptive coping practices and were extraverted, also contributed to the prediction of strain. In contrast, demographic variables accounted for a negligible amount of strain reported by staff.

After statistically controlling for the effects of demographic and individual difference factors, the set of workplace factors predicted a further 8% of academics' strain, and 6% of general staff strain. Job insecurity, work pressure, autonomy and trust in the HOD were significant predictors of strain for both academic and general staff. Staff who report higher levels of job insecurity and greater time pressure, report more strain. Staff who report less autonomy in their workplace and have less trust in their HOD, also report significantly higher levels of strain.

There were also predictors specific to academic and general staff. Academics who reported a more negative academic environment (e.g., unmanageable class sizes, increased teaching hours) reported more strain. For general staff, the fairer the performance, promotion, redundancy and change procedures and processes, the less strain they reported[4]. The number of overtime hours worked in the week of completing the questionnaire was also a positive predictor of the strain experienced by general staff[5].

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[4] We surmise that this procedural fairness was not a significant predictor of academic staff strain because of the inclusion of indicators of teaching and research demands in the regressions for academic staff.

[5] There was substantial missing data for this variable, therefore it was not included in the main set of regression analyses.

Table 37: Hierarchical Multiple Regression Analyses for Psychological Strain: Academic Staff.

Academic staff	B	Beta	t	R^2	Adj R^2	F
Step 1: Demographic information				.01	.01	3.21*
Gender (0 = Male; 1 = Female)	−0.01	−.01	−0.45			
Occupational level (A-E)	0.02	.04	1.92			
Functional role: Teaching and research	−0.08	−.06	−0.84			
Functional role: Teaching only	−0.04	−.02	−0.35			
Functional role: Research only	−0.13	−.07	−1.35			
Functional role: HoD (or equivalent)	−0.09	−.05	−0.94			
Full-time vs part-time (0 = p/t; 1 = f/t)	0.00	.00	0.04			
Continuing vs fixed (0 = F; 1 = C)	−0.05	−.04	−2.12*			
Step 2: Individual differences				.27	.26	50.24**
Problem–focused coping	0.02	.02	0.97			
Maladaptive coping	0.02	.02	0.75			
Job involvement	0.00	.00	0.00			
Negative Affectivity	0.18	.23	7.36***			
Extraversion	0.04	.04	1.81			
Conscientiousness	0.04	.04	1.83			
Hardiness	−0.27	−.24	−8.38***			
Step 3: Work-place factors				.35	.34	44.74***
Autonomy	−0.05	−.06	−2.49**			
Trust in Heads of Departments	−0.02	−.05	−2.15*			
Trust in Senior Management	−0.01	−.02	−0.87			
Job insecurity	0.06	.10	5.20***			
Procedural fairness	−0.02	−.03	−1.21			
Work pressure	0.07	.08	3.53***			
Academic working hours/week	0.00	−.03	−1.13			
Time worked after hours	0.02	.03	1.29			
Teaching and research demands	0.12	.13	5.69***			
Academic resources	−0.01	−.01	−0.64			

*p < .05. **p < .01. ***p < .001.

Table 38: Hierarchical Multiple Regression Analyses for Psychological Strain: General Staff

General staff	B	Beta	t	R^2	Adj R^2	F
Step 1: Demographic information				.00	.00	1.04
Gender (0 = Male; 1 = Female)	0.01	.01	0.57			
Occupational level (1-10)	0.01	.05	2.93**			
Functional role: Gen. Professional	−0.01	−.01	−0.28			
Functional role: Gen. Clerical	−0.02	−.02	−0.37			
Functional role: Gen. Technical	−0.02	−.02	−0.42			
Full-time vs part-time (0 = p/t; 1 = f/t)	0.03	.02	1.34			
Step 2: Individual differences				.30	.30	104.89***
Problem–focused coping	0.03	.03	1.80			
Maladaptive coping	0.07	.09	4.23***			
Job involvement	−0.01	−.01	−0.67			
Negative Affectivity	0.21	.27	11.05***			
Extraversion	0.07	.07	3.82***			
Conscientiousness	0.00	.00	−0.02			
Hardiness	−0.25	−.22	−9.28***			
Step 3: Work-place factors				.36	.36	93.21***
Autonomy	−0.06	−.07	−3.92***			
Trust in Heads of Departments	−0.02	−.05	−2.76**			
Trust in Senior Management	−0.01	−.01	−0.83			
Job insecurity	0.04	.06	3.94***			
Procedural fairness	−0.05	−.07	−3.46**			
Work pressure	0.10	.13	8.14***			

*$p < .05$. **$p < .01$. ***$p < .001$.

Predictors of job satisfaction

In contrast to strain, job satisfaction was best predicted by workplace factors (Tables 39 and 40). Of the 70% of the variability in job satisfaction for academic staff predicted by the model, demographic variables predicted 5%, individual difference factors predicted 11%, and the set of workplace factors predicted a further 54%. Similarly, of the 62% of the variability in job satisfaction for general staff predicted by the model, 3% was predicted by demographic factors, 15% by individual difference factors, and 44% by workplace factors.

The strongest predictor of job satisfaction was procedural fairness. That is, the fairer the performance, promotion and redundancy procedures and the better the consultation and communication in the university, the more satisfied academics and general staff were with their jobs. Staff members' trust in their Head of Department and senior management, and their autonomy at work also positively predicted job satisfaction, whereas job insecurity was associated with lower job satisfaction.

Academics' job satisfaction was also related to their satisfaction with resources. Teaching and research demands, long working weeks and frequently working after hours to meet deadlines were also weakly associated with lower academic job satisfaction. Time pressure in one's work was associated with lower levels of job satisfaction for general staff only.

In terms of the individual difference factors, staff that report higher levels of hardiness and involvement in their work, report greater job satisfaction. In addition, general staff who use greater levels of problem focused coping, report more satisfaction with their jobs. In terms of demographic variables, female staff reported greater job satisfaction than males, and staff in higher occupational levels reported greater satisfaction than those in lower levels. Full time academics reported more job satisfaction than part-time academics, whereas full-time general staff reported less job satisfaction than part-time staff.

Table 39: Hierarchical Multiple Regression Analyses for Job Satisfaction: Academic Staff

Academic staff	B	Beta	t	R^2	Adj R^2	F
Step 1: Demographic information				.05	.05	13.06***
Gender (0 = Male; 1 = Female)	0.13	.07	5.09***			
Occupational level (A-E)	0.05	.06	4.12***			
Functional role: Teaching and research	0.11	.05	0.96			
Functional role: Teaching only	0.15	.04	1.18			
Functional role: Research only	0.12	.03	0.95			
Functional role: HoD (or equivalent)	0.10	.03	0.83			
Full-time vs part-time (0 = P; 1 = F)	0.15	.04	2.92**			
Continuing vs fixed (0 = F; 1 = C)	0.03	.01	0.87			
Step 2: Individual differences				.17	.16	26.43***
Problem–focused coping	0.00	.00	0.07			
Maladaptive coping	0.04	.03	1.59			
Job involvement	0.05	.04	2.71**			
Negative Affectivity	0.00	.00	0.03			
Extraversion	0.03	.02	1.25			
Conscientiousness	−0.06	−.03	−2.51*			
Hardiness	0.24	.12	5.94***			
Step 3: Work-place factors				.70	.70	185.67***
Autonomy	0.26	.15	9.71***			
Trust in Heads of Departments	0.15	.17	11.58***			
Trust in Senior Management	0.16	.15	9.49***			
Job insecurity	−0.13	−.13	−9.15***			
Procedural fairness	0.33	.25	13.21***			
Work pressure	−0.02	−.01	−0.83			
Academic working hours/week	0.00	−.05	−2.75**			
Time worked after hours	−0.05	−.05	−3.02**			
Teaching and research demands	−0.22	−.13	−8.34***			
Academic resources	0.12	.12	7.61***			

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 40: Hierarchical Multiple Regression Analyses for Job Satisfaction: General Staff

General staff	B	Beta	t	R^2	Adj R^2	F
Step 1: Demographic information				.03	.03	14.98***
Gender (0 = Male; 1 = Female)	0.14	.07	5.35***			
Occupational level (1-10)	0.03	.07	4.85***			
Functional role: Gen. Professional	−0.24	−.11	−3.46**			
Functional role: Gen. Clerical	−0.16	−.09	−2.39*			
Functional role: Gen. Technical	−0.18	−.08	−2.76**			
Full-time vs Part-time (0 = P; 1 = F)	−0.08	−.03	−2.89**			
Step 2: Individual differences				.18	.18	51.19***
Problem–focused coping	−0.07	−.03	−2.61**			
Maladaptive coping	0.01	.01	0.46			
Job involvement	0.14	.10	8.15***			
Negative Affectivity	−0.05	−.04	−1.91			
Extraversion	−0.04	−.02	−1.75			
Conscientiousness	0.02	.01	0.88			
Hardiness	0.27	.13	6.87***			
Step 3: Work-place factors				.62	.62	264.73***
Autonomy	0.32	.19	13.45***			
Trust in Heads of Departments	0.19	.21	14.92***			
Trust in Senior Management	0.12	.11	7.84***			
Job insecurity	−0.12	−.11	−8.71***			
Procedural fairness	0.40	.30	17.69***			
Work pressure	−0.13	−.09	−7.00***			

*$p < .05$. **$p < .01$. ***$p < .001$.

Predictors of commitment to the university

The set of workplace factors were the best predictors of academics' commitment to the university, accounting for 21% of the variance (Table 41). Demographic and individual difference factors accounted for 3% and 14% of the variance respectively. For general staff, on the other hand, the set of individual difference factors were slightly more predictive of commitment (19%) than the set of workplace factors (15%) (Table 42).

Focusing on the workplace factors, staff trust in senior management, the procedural fairness in the university, and autonomy were strong predictors of commitment to the university. In addition, academic staff who were more satisfied with their work-related resources reported greater commitment. For general staff, work pressure and trust in the HOD were also associated with commitment to the university.

In terms of individual difference factors, higher levels of hardiness, job involvement and extraversion, predicted higher levels of commitment. Academics with higher negative affectivity, and general staff who were more conscientious, both reported greater commitment. Academics at higher occupational levels also reported greater commitment than those at lower occupational levels. This may be a function of the relationship of commitment to rewards structures and job satisfaction, and may also reflect the differing expectations held by academic and general staff about the level of autonomy that they experience. These perceptions are in part determined by the experience of staff in relation to organisational change, for example many of the changes in work practices since 1996 have impacted on the autonomy of senior academics. The extent to which these factors predict commitment to the university will be further tested when the sample is re-surveyed in late 2002.

Table 41: Hierarchical Multiple Regression Analyses for Organisational Commitment: Academic Staff

Academic staff	B	Beta	t	R^2	Adj R^2	F
Step 1: Demographic information				.03	.03	8.61***
Gender (0 = Male; 1 = Female)	−0.03	−.02	−0.87			
Occupational level (A-E)	−0.04	−.06	−2.76**			
Functional role: Teaching and research	−0.03	−.01	−0.19			
Functional role: Teaching only	−0.02	−.01	−0.15			
Functional role: Research only	−0.11	−.04	−0.73			
Functional role: HoD (or equivalent)	0.02	.01	0.15			
Full-time vs Part-time (0 = P; 1 = F)	−0.02	−.01	−0.26			
Continuing vs Fixed (0 = F; 1 = C)	−0.02	−.01	−0.63			
Step 2: Individual differences				.18	.18	30.35***
Problem–focused coping	0.03	.02	0.98			
Maladaptive coping	0.00	.00	−0.14			
Job involvement	0.21	.18	9.41***			
Negative Affectivity	0.13	.11	3.76***			
Extraversion	0.29	.20	9.26***			
Conscientiousness	0.05	.03	1.63			
Hardiness	0.17	.10	3.62***			
Step 3: Work-place factors				.39	.38	51.65***
Autonomy	0.13	.09	4.23***			
Trust in Heads of Departments	0.01	.02	0.96			
Trust in Senior Management	0.23	.28	12.21***			
Job insecurity	0.01	.01	0.36			
Procedural fairness	0.16	.15	5.54***			
Work pressure	0.02	.02	0.80			
Academic working hours/week	0.00	.02	0.90			
Time worked after hours	0.03	.04	1.61			
Teaching and research demands	−0.03	−.03	−1.14			
Academic resources	0.07	.08	3.62***			

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 42: Hierarchical Multiple Regression Analyses for Organisational Commitment: General Staff

General staff	B	Beta	t	R^2	Adj R^2	F
Step 1: Demographic information				.01	.01	4.39***
Gender (0 = Male; 1 = Female)	−0.04	−.02	−1.46			
Occupational level (1-10)	−0.01	−.02	−1.26			
Functional role: Gen. Professional	−0.04	−.03	−0.63			
Functional role: Gen. Clerical	0.01	.00	0.11			
Functional role: Gen. Technical	−0.04	−.03	−0.69			
Full-time vs Part-time (0 = P; 1 = F)	0.00	.00	0.09			
Step 2: Individual differences				.20	.20	61.89***
Problem–focused coping	0.01	.01	0.41			
Maladaptive coping	0.04	.04	1.99*			
Job involvement	0.27	.25	16.26***			
Negative Affectivity	0.02	.01	0.59			
Extraversion	0.17	.13	7.44***			
Conscientiousness	0.14	.10	6.02***			
Hardiness	0.14	.09	3.79***			
Step 3: Work-place factors				.36	.36	93.94***
Autonomy	0.08	.07	3.73***			
Trust in Heads of Departments	0.04	.05	2.97**			
Trust in Senior Management	0.23	.27	15.41***			
Job insecurity	0.02	.02	1.32			
Procedural fairness	0.14	.14	6.45***			
Work pressure	0.07	.07	4.26***			

*$p < .05$. **$p < .01$. ***$p < .001$.

DISCUSSION

This study examined the occupational stress and well-being of a representative sample of 8732 university staff from 17 Australian universities. This report focused on two main indicators of stress and wellbeing, namely psychological strain and job satisfaction. In addition, staff ratings on nine work-related measures commonly associated with stress and well-being were reported, including staff commitment to the university, work pressure, work-home conflict, and job insecurity.

The report addressed three specific aims: (1) to describe the level of psychological strain and job satisfaction reported by staff, (2) to identify staff groups and university groups experiencing the highest levels of strain and/or the lowest levels of job satisfaction, and (3) to identify the predictors of stress and well-being within the universities.

We discuss the findings in relation to each of these aims in turn. We then integrate the results with key theories and previous studies on occupational stress and well-being. We conclude with the challenges and implications of the findings for the Australian Higher Education sector, and the next steps required to move towards interventions aimed at improving the health and well-being of staff within Australian universities.

What is the level of stress and well-being in Australian universities?

The overall level of psychological strain reported by Australian university staff was very high. Using a well validated indicator of psychological strain (the General Health Questionnaire), 50% of staff were identified as being at risk of psychological illness. By contrast, in a recent national survey of mental health and well-being in Australia, Andrews et al., (1999) reported a corresponding rate of 19%. The level of strain reported by the university staff in the current study was also high by comparison with previous occupational studies conducted with both university and non-university staff, in both Australia and overseas. Even correctional officers, widely acknowledged as a high stress occupational group, reported a lower rate (38%, see Dollard et al 1992).

In contrast to the high level of psychological strain, the level of overall job satisfaction was moderate. Overall, 68% of staff were satisfied with their jobs. A quarter (26%) of staff reported dissatisfaction with their jobs. Areas of greatest satisfaction were fellow colleagues, freedom and variety on the job, and the level of responsibility. ***Staff were most dissatisfied with the way the university is managed, their chance of promotion, their rate of pay and industrial relations.*** More than 35% of staff reported dissatisfaction with their working hours and the recognition they received for good work.

In regard to working hours and pay, academic staff worked an average of 50 hours per week. As occupational levels increased, so did working hours, with Level D and E academics reporting an average of 55-56 hours per week. The large majority of academics (81%) reported that they had to work after hours either most days, or at least one or two days a week, in order to meet deadlines. Overall, more than 30% of academic staff reported working more than 55 hours per week.

Around 35% of academic staff and 24% of general staff wished to decrease their working hours. The large majority of general staff (82%) reported working overtime in the last full week they worked, but less than a third (31%) reported that they would be paid for this

overtime.

The facts that Level D and E academics report working 55-56 hours per week (or 11 hours a day) and that 30% of all academic staff report working more than 55 hours per week are of particular concern in view of recent findings reported by Japanese researchers who found that men who worked 11 hours a day had around 2.5 times the risk of a heart attack compared with men working an 8 hour day (Sokejima & Kagamimori, 1998). Moreover a recent meta-analysis by Sparks et al. (1997) concluded that there is a reliable link between long work hours (more than 48 hours per week) and ill-health.

These results, indicating that staff are experiencing high levels of strain coupled with long work hours, are consistent with the finding that most staff feel pressured for time in doing their job (78%) and experience a high level of conflict between work and home commitments (52%).

In regards to the way the university is managed, it is concerning that only 19% of staff agree that senior management is trustworthy, whilst almost half of staff (48%) report that senior university management is untrustworthy. In contrast about half of staff (53%) agree their Head of Department is trustworthy. It is also of concern that about a third of staff (35%) disagreed that their university's procedures relating to performance appraisal, appointment, promotion, redundancy and consultation were fair.

Our findings support the body of research indicating that ***psychological stress, when left unmanaged, has a detrimental effect on physical health***. In this study, psychological strain, in addition to several work place factors such as work pressure, job insecurity, job satisfaction and work-home conflict, was significantly associated with the number of stress-related health symptoms experienced by staff (eg back and neck pain, sleeping difficulties, headaches, viral and cold infections etc). These symptoms were in turn found to be significantly correlated with the number of stress-related medical conditions reported by staff, such as migraines, hypertension and coronary heart disease.

What staff groups are most at risk?

Our analyses identified several categories of staff who reported particularly high levels of psychological strain and/or low levels of job satisfaction. In particular, middle-ranked (level B and C) academic staff involved in both teaching and research, and academics in the Humanities and Social Studies are particularly vulnerable.

Academic staff reported slightly higher levels of psychological strain and slightly lower levels of job satisfaction than general staff. Specifically, 54% of academic staff were identified as being at risk of psychological illness compared to 47% of general staff, and 61% of general staff were satisfied with their job compared to 53% of academic staff. Academic staff also reported greater work/home conflict, work pressure, and job involvement, and less commitment and trust in senior management than general staff. Academic and general staff in the middle occupational levels reported lower job satisfaction and organisational commitment than those at the lowest and highest occupational levels.

On average, academics involved in teaching reported the highest strain and lowest job satisfaction, and Academic Deans (or above) reported the lowest strain and the highest job satisfaction. Academics involved in teaching and research also reported that the number of hours they spent on teaching related activities had increased in the recent past, that they did not have enough time to perform quality research and that they felt under pressure to attract

external funding. Academics working in the newer (less affluent) universities reported less job satisfaction than those working in the old (more affluent) universities

In terms of work areas, academics working in Humanities and Social Studies, and General staff working in Operations Support, tended to be worse off. In terms of differences across university types, academics at the middle, new and ATN universities generally fared worse than academics at the old universities, rating lower on job satisfaction, commitment, autonomy, fairness and trust in senior management. Academics in the ATN universities also reported less favourable academic work conditions than academics at the old universities. For general staff, those at the middle and ATN universities reported more job insecurity than those in the middle universities.

What predicts stress and well-being in Australian universities?

We examined predictors of stress and well-being at two levels. We used survey responses to predict stress and well-being at the individual staff level. We used objective indicators of the financial and staffing levels at each university to predict stress and well-being across the universities.

At the individual level, we used three sets of predictors: demographic factors (eg gender, occupational level), individual difference factors (eg personality, coping style), and workplace factors (eg procedural fairness, work pressure, job insecurity), to predict staff strain, job satisfaction and commitment to the university. Psychological strain was best predicted by the individual difference factors, followed by workplace factors, whereas job satisfaction was best explained by workplace factors. Organisational commitment was well predicted by both individual and workplace factors. In contrast the demographic factors were weak predictors.

Our analyses indicate that the strongest predictors of ***psychological strain*** were hardiness and negative affect. Staff lower in hardiness and staff more disposed to experience negative emotions showed higher levels of strain. However, this may reflect that staff under high levels of strain report higher than their normal level of negative affect. In addition, there is considerable overlap in the items assessing hardiness and strain, suggesting that this relationship may be inflated. Of the workplace factors, ***job insecurity, work pressure, and lower levels of autonomy were significant predictors of the strain*** experienced by both academic and general staff. In addition, the level of teaching and research demands was an important predictor of academics' strain, and the fairness of university procedures was an important predictor of general staff strain.

The single best predictor of staff ***job satisfaction*** was procedural fairness. That is, ***the fairer the performance, promotion and redundancy procedures and the better the consultation and communication in the university, the more satisfied academics and general staff were with their jobs***. Staff members' trust in their Head and senior management, and their autonomy at work also positively predicted job satisfaction, whereas job insecurity was associated with lower job satisfaction. Academics' job satisfaction was also predicted by their access to resources and lower levels of teaching and research demands. Time pressure in one's work was associated with lower levels of job satisfaction for general staff.

Trust in senior management was an important predictor of employee commitment to the university. Procedural fairness and job autonomy were also strongly predictive of commitment. In terms of individual differences, job involvement and extraversion were important predictors. Academics' access to resources was also predictive of their commitment

to the university, and less time pressure on the job was associated with greater commitment for general staff.

At the university level, we found that objective indicators of the financial status and staffing levels in the universities predicted differences in the stress and well-being reported across the universities.

With regard to the financial indicators, the results show that the level of *investment income* in the university predicts the average level of psychological strain and autonomy reported by academics in the university. For general staff, the extent of recent *cuts to government grants* to the university was predictive of their average level of psychological strain, job satisfaction, commitment and autonomy in the university. ***These results emphasise that the average level of strain is greater in universities that are under greater financial pressure.***

With regard to staffing levels, the *student/staff ratio* in the university predicted the average level of job satisfaction and autonomy reported by academics in the university, whereas recent *staff cuts* predicted the average level of work pressure and work-home conflict reported by both academic and general staff. Staff cuts also predicted the average level of job satisfaction in the university, as reported by general staff. ***These results emphasise that the average level of job satisfaction is lower in universities that are under greater staffing pressures.***

It is also noteworthy that for both academic and general staff, *cuts to government grants* predict the average level of trust in senior management within the university, whereas *staff cuts* predict the average level of trust in Heads. This suggests that staff expect senior university management to negotiate with the government and other external stakeholders and manage the university in a manner that ensures adequate ongoing financial resources for the university. It also suggests that cutting staff numbers reduces trust towards Department Heads.

In sum, these results suggest that universities experiencing lesser funding and staff cuts, smaller student/staff ratio and higher investment income, typically provide a better quality of work life for their staff. They also suggest that ***government decisions about university funding, and staffing decisions made by university management, both affect the overall levels of psychological health and well-being of staff within the universities***.

Understanding the results from a theoretical perspective

We relate the findings of this study to three influential theories of occupational stress.

According to Karasek's Demand-Control theory high stress jobs are defined as those combining high demands with low control or autonomy. Universities in Australia (and overseas) have experienced major organisational changes in recent years with academic decision-making becoming less collegial and more managerial and autocratic (Coady, 2000; Molony, 2000). This has resulted in a shift of control from academics to university senior managers. At the same time, demands have increased as a result of pressures brought about through decreased funding and increased demands for accountability (Senate Report, 2001). These changes may account for the high levels of stress reported by staff in this study.

According to the Person-Environment Fit model of job stress (French, Caplan & van Harrison, 1984), job stress can be a consequence of two kinds of mismatch: a mismatch between the requirements of the job and the ability of the worker to meet those requirements; and a mismatch between the worker's expectation of what the job involves and what it actually

involves. The changing nature of academic work suggests that both kinds of mismatch may be increasing for those academics who entered their profession some time ago.

For example a job demand that has been increasing in recent years has been the expectation that academics should attract external funding through research grants, fee-paying students or research consultancies. Traditionally academics were not expected to generate external income and thus may not necessarily possess the kinds of entrepreneurial skills that are required to do so. This is particularly true in the Humanities, where outstanding scholars in disciplines such as History or Philosophy for example, could produce first class research without needing large research grants. In the current study we found that the academic areas where job satisfaction was lowest and psychological strain was highest were the Humanities and Social Studies. Winefield and Jarrett (2001) reported the same finding based on an earlier study of stress within an established Australian university.

The effort-reward imbalance model (Siegrist, 1998) proposes that the combination of high effort and low reward at work results in adverse health effects. Our findings indicate that academic staff are putting in high levels of effort, as evidenced by long working weeks (30% working more than 55 hours per week), high levels of work pressure and work-home conflict, but are receiving low rewards, as evidenced by their dissatisfaction with pay, promotion, work hours, and recognition for good work. The finding that only a third of general staff report that they will be paid for their overtime work, further indicates the mismatch between effort and reward.

In conclusion, the high level of strain reported by academic teaching staff in this study is consistent with the predictions of each of these theories of stress. Together these theories propose that that features of the current university environment, such as high and increasing work demands and work pressure, decreasing autonomy and influence over decision making, the increasingly entrepreneurial nature of academic work, and the decline in pay and rewards by external standards, will result in increased occupational stress.

Integrating our results with earlier studies

The findings of this study corroborate previous research conducted in the US, UK, and New Zealand which reveals an alarming and increasing level of stress amongst university staff (eg Armour et al., 1987; Boyd & Wiley, 1994; Daniels & Guppy, 1994; Fisher, 1994). They are also consistent with other recent surveys of Australian university staff (e.g. McInnis, 1999; National Tertiary Education Union, 2000; Sharpley et al., 1996; Winefield & Jarret, 2001) indicating that there is a serious and growing problem affecting the job satisfaction, morale and mental health of Australian university staff.

The results of this survey study also confirm the five antecedents of stress identified in the focus group study conducted in phase 1 of the project (Gillespie, et al. 2001). These were (1) insufficient funding and resources; (2) work overload; (3) poor management practice; (4) job insecurity; and (5) insufficient recognition and reward. Together these studies suggest that the funding cuts experienced in recent years, resulting in increased work loads and diminishing resources, are taking their toll.

Although we did not study job performance in this study, a body of research documents the negative impact of stress and the positive impact of job satisfaction and organisational commitment on job performance and organisational productivity. For example, a recent meta-analysis indicates that job satisfaction correlates .30 with job performance, and .52 with job performance in high complexity jobs (Judge et al. 2001). Another recent meta-analytic study

(Harter et al., 2002) based on 7,939 business units in 36 companies in the United States reported generalizable relationships "large enough to have substantial practical value" between unit-level employee satisfaction-engagement and business-unit outcomes, such as productivity, profit, customer satisfaction and employee turnover (p. 268). Chronic and high levels of stress, left unchecked, have been shown to lead to increases in absenteeism, stress related injuries, and staff turnover (e.g. Cooper & Cartwright, 1994).

A recent study by Koys (2001) attempted to shed light on the causal link between human resource (HR) outcomes (employee satisfaction, organisational citizenship behaviour, and turnover) and business outcomes (profitability and customer satisfaction) by means of cross-lagged panel correlational analyses of unit-level longitudinal data. His results supported the conclusion "that HR outcomes influence business outcomes, rather than the other way around" (p. 101).

These studies suggest that interventions aimed at enhancing the job satisfaction and commitment of staff, and reducing stress within universities, will in turn enhance the productivity and the quality of teaching and research, and the ability of universities to retain high quality staff.

Interventions for enhancing staff well-being within Australian universities

The findings of this current study, coupled with the results of phase 1 of the project, suggest that interventions at the individual, department, university and government policy levels are required to reduce occupational stress and enhance well-being within Australian universities. Preliminary recommendations based on the findings to date are summarised below. These are in line with the recommendations made by staff in phase 1 of the project (see Gillespie et al., 2001).

At the individual level, the results suggest that comprehensive Employee Assistance Programs (EAP) aimed at enhancing the stress management and coping abilities of staff, through education, training, personal counselling and coaching may be effective. The majority of staff (82%) who reported being counselled through their university's EAP, reported that it was helpful. However, just over half of staff did not know whether their university provided an EAP, suggesting that increased staff awareness of such programs is required. To produce change that is maintained over time, such individual interventions need to be supported, and importantly not contradicted, by workplace procedures, processes, the organisational climate and management directives.

At the work place level, the results suggest four key areas for intervention. First, the results suggest that interventions aimed at increasing the perceived and actual fairness of procedures and processes related to promotion, redundancy, performance appraisal, consultation and communication will enhance job satisfaction and staff commitment to the university. The high levels of dissatisfaction regarding promotion opportunities and pay suggest the need to review the adequacy and fairness of current practices. The finding that academic Deans and above have a more positive perception of procedural fairness compared to all other staff groups suggests the need for staff consultation into these issues.

Second, the results indicate that interventions aimed at reducing work pressure and the teaching and research demands on academics, will reduce strain and work-home conflict and

enhance both job satisfaction and commitment to the university. Third, the results suggest that interventions aimed at increasing job security will reduce strain and enhance job satisfaction for a proportion of staff.

Finally at the university and policy level, the findings indicate that interventions aimed at increasing the financial and staffing resources of the universities will enhance the overall levels of well-being and reduce overall levels of strain within the universities.

Next steps and future monitoring

This report serves as the first stage in the development of strategies to reduce and minimize university staff stress. Individual reports of the findings have been sent to each of the participating university Vice Chancellors in confidence. These reports will provide more specific information that will assist universities to tailor interventions to their unique needs and circumstances.

Phase III of this research program involves re-surveying all staff at the participating universities. Further analysis incorporating longitudinal comparisons and using more sophisticated statistical techniques (e.g. cross-lagged correlational analyses, structural equation modelling, and hierachical linear modelling), will be conducted during this phase of the project. This will enable a more definitive and detailed set of recommendations to be made about interventions for enhancing staff well-being.

The research team wishes to work with individual universities and the Federal Government to assist them in developing effective staff stress interventions. Hand in hand with this is the ongoing monitoring of staff stress in the Australian Higher Education sector. Towards these goals we wish to resample this population in 2004, in addition to 2002, and will be applying for further funding to enable such ongoing assessment. This has the advantage of enabling interventions implemented between 2002 and 2004 to be monitored and evaluated.

Concluding comments

In conclusion, the findings of this study offer an important challenge for the Australian Higher Education sector. It is evident that Australian university staff are experiencing very high levels of occupational stress, and only moderate job satisfaction. Taken together, these two main findings offer a somewhat pessimistic view on the quality of research and teaching of the sector if the causes of stress are left unchecked. We urge universities, unions and the Federal and State governments to use the information provided in this report as a base for developing and implementing interventions aimed at addressing the causes of occupational stress within universities and enhancing staff well-being.

As many of these interventions can only be achieved at the level of individual universities, each university must take on a high level of responsibility for ensuring that its staff members work in healthy environments. Nonetheless, any future Federal Government cuts to university funding are likely to have a perilous effect on any university based intervention to reduce staff stress. Clearly universities and the Federal Government must work side by side to develop an integrated approach to university staff stress.

REFERENCES

Abouserie, R. (1996). Stress, coping strategies and job satisfaction in university academic staff. Educational Psychology, 16, 49-56.

ACTU (1997). Stress at work: Not what we bargained for. Unpublished report.

Agho, A.O, Price, J.L., & Mueller, C.W. (1992). Discriminant validity of measures of job satisfaction, positive affectivity and negative affectivity. Journal of Occupational and Organizational Psychology, 65, 185-196.

Altbach, P.G. (Ed.). (1996). The International Academic Profession. Princeton, N.J.: Carnegie Foundation for the Advancement of Teaching.

Andrews, G., Hall, W., Teeson, M, & Henderson, S. (1999). Mental Health of Australians. Canberra: Mental Health Branch, Commonwealth Department of Health and Aged Care.

Armour, R.A., et al. (1987). Academic burnout; faculty responsibility and institutional climate. New Directions for Teaching and Learning, 29, 3-11.

Ashford, S.J., Lee, C., & Bobko, P. (1989). Content, causes, and consequences of job insecurity: A theory-based measure and substantive test. Academy of Management Journal, 32, 803-829.

AUT (1990). Goodwill under stress: Morale in UK universities. London: Association of University Teachers

Banks, M.H., Clegg, C.W., Jackson, P.R., Kemp, N.J., Stafford, E.M. & Wall, T.D. (1980). The use of the General Health Questionnaire as an indicator of mental health in occupational studies. Journal of Occupational Psychology, 53, 187-194.

Beehr, T.A.., Walsh, J.T., & Taber, T.D. (1976). Relationship of stress to individually and organizationally valued states: Higher order needs as a moderator. Journal of Applied Psychology, 61, 41-47.

Blix, A.G., Cruise, R.J., Mitchell, B.M., & Blix, G.G. (1994). Occupational stress among university teachers. Educational Research, 36, 157-169.

Bowen, H. R., & Schuster, J. H. (1985). American professors: A national resource imperiled.

Boyd, S. & Wylie, C. (1994). Workload and stress in New Zealand universities. Auckland: New Zealand Council for Educational Research and the Association of University Staff of New Zealand.

Brady, J.V., Porter, R.W., Conrad, D. G., & Mason, J.W.(1958). Avoidance behaviour and the development of gastrointestinal ulcers. Journal of the Experimental Analysis of Behavior, 1, 69-72.

Bradley, J., & Eachus, P. (1995). Occupational stress within a U.K. Higher Education Institution. International Journal of Stress Management, 2, 145-158.

Butler, J.K. (1991). Toward understanding and measuring conditions of trust: Evolution of a conditions of trust inventory. Journal of Management, 17, 643-663.

Calabrese, J.R., Kling, J.R., & Gold, P.W. (1987). Alterations in immunocompetence during stress, bereavement, and depression: Focus on neuroendocrine regulation. American Journal of Psychiatry, 144, 1123-1134.

Cameron, K., & Smart, J. (1998). Maintaining effectiveness amid downsizing and decline in institutions of higher education. Research in Higher Education, 39, 65-86.

Clark, A., Oswald, A., & Warr, P. (1996). Is job satisfaction U-shaped in age? Journal of Occupational and Organizational Psychology, 69, 57-81.

Coady, T. (2000). Universities and the ideals of inquiry. In T. Coady (Ed.), Why universities matter (pp. 3-25). St Leonards, NSW: Allen & Unwin.

Cohen, J. (1988). Statistical power analysis for the behavioral sciences. Hillsdale, N.J.:Erlbaum.

Cooper, C.L.. (Ed.) (1998).Theories of organizational stress. Oxford: Oxford University Press.

Cooper, C. L., & Cartwright, S. (1994). Healthy mind; healthy organization:A proactive approach to occupational stress. Human Relations, 47, 455-471.

Cox,T. (1978) . Stress. London: Macmillan.

Costa, P.T. & McCrae, R. R. (1985a). Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory NEP-FFI. Professional Manual. Psychological Assessment Resources, Inc. Florida USA.

Costa, P.T. & McCrae, R. R. (1985b). Hypochondriasis, neuroticism, and aging:When are somatic complaints unfounded? American Psychologist, 40, 19-28.

Costa, P.T. & McCrae, R. R. (1987). Neuroticism, somatic complaints and disease: Is the bark worst than the bite? Journal of Personality, 55, 299-316.

Costa, P.T., & McCrae, R. R. (1992). Normal personality assessment in clinical practice:The NEO Personality Inventory. Psychological Assessment, 4, 5-13.

Crespo, M. (2001). Current trends of public policy in higher education – comparative analysis. Canadian Public Policy – Analyse de Politiques, 27, 279-295.

Danna, K., & Griffin, R.W. (1999). Health and well-being in the workplace:A review and synthesis of the literature. Journal of Management, 25, 357-384.)

Daniels, K. & Guppy,A. (1992). Control, information-seeking preferences, occupational stressors and psychological well-being. Work and Stress, 6, 347-353.

DEETYA (1998). Change and continuity in academic work. Canberra: Commonwealth of Australia.

DEETYA (1999). Higher Education: Report for the 1999 to 2001 triennium. Canberra: Common-wealth of Australia.

DEETYA (2001). Characteristics and performance indicators of higher education institutions. Canberra: Commonwealth of Australia.

(http://www.deetya.gov.au/archive/highered/statistics/characteristics/)

Digman (1990). Personality structure: Emergence of the five-factor model. Annual Review of Psychology, 41, 417-440.

Dollard, M. F. (1996).Work stress: Conceptualisations and implications for research methodology and workplace intervention. PhD dissertation.Whyalla, South Australia:Work & Stress Research Group, University of South Australia.

Dollard, M. F.,Winefield,A. H., & McGuirk, E.T. (1992). Study into stress among Correctional Services Officers.Adelaide, South Australia:Techsearch.

Dollard, M. F.,Winefield, H. R., & Winefield,A. H. (2001). Occupational strain and efficacy in human service workers. Dordrecht,The Netherlands: Kluwer Academic Publishers.

Dua,J.K. (1994). Job stressors and their effects on physical health, emotional health, and job satis-faction in a university. Journal of Educational Administration, 32, 59-78.

Everly, G. S. (1990). Occupational health promotion. In K. D. Craig & S. M.Weiss (Eds.) Health enhancement, disease prevention, and early intervention: Biobehavioral perspectives, (pp. 78-93). New York; Springer Publishing Co.

Fisher, S. (1994). Stress in academic life. Buckingham, UK:The Society for Research into Higher Education and Open University Press.

Folkman, S. & Lazarus, R.S. (1985). If it changes it must be a process: Study of emotion and coping

during three stages of a college examination. Journal of Personality and Social Psychology, 48, 150-170.

French, J.R.P. Jr., Caplan, R.D., & van Harrison, R. (1984). The Mechanisms of Job Stress and Strain. New York: Wiley.

Frone, M.R. & Yardley, J.K. (1996). Workplace family-supportive programmes; Predictors of employed parents' importance ratings. Journal of Occupational and Organizational Psychology, 69, 351-366.

Gillespie, N.A., Walsh, M.J., Winefield, A.H., Stough, C.K. & Dua, J.K. (2001). Occupational stress within Australian universities: staff perceptions of the determinants, consequences and moderators of work stress. Work and Stress, 15, 53-72.

Gillespie, N.A., Winefield, A.H., Mann, L., & Stough, C.K (2001). Downsizing and cost-cutting in universities: the role of trust in management. Paper presented Academy of Management Conference, Washington D.C.

Gmelch, W.H., Wilke, P.K., & Lovrich, N.P. (1986). Dimensions of stress among university faculty: Factor-analytic results from a national study. Research in Higher Education, 24, 266-286.

Goldberg, D.P. & Williams, P. (1988). A user's guide to the GHQ. London: NFER, Nelson.

Hart, P.M. & Wearing, A.J. (1995). Occupational stress and well-being: a systematic approach to research, policy, and practice. In P. Cotton (Ed.) Psychological health in the workplace. (pp. 185-216). Carlton, Vic.: Australian Psychological Society.

Harter, J.K., Schmidt, F.L.. & Hayes, T.L.. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis. Journal of Applied Psychology, 87, 268-279.

Henderson, S., Duncan-Jones, P., Byrne, D.G., Scott R., & Adcock, S. (1979). Psychiatric disorder in Canberra: A standardised study of prevalence. Acta Psychiatrica Scandinavica, 60, 355-374.

Iaffaldano, M.T., & Muchinsky, P.M. (1985). Job satisfaction and job performance: A meta-analysis. Psychological Bulletin, 97, 251-273.

Judge, T.A., Thoreson, C.J., Bono, J.E. & Patton, G.K. (2001). The job satisfaction-job performance relationship: A qualitative and quantitative review. Psychological Bulletin, 127, 376-407.

Johns, G. (1995). Occupational stress and well-being at work. In P. Cotton (Ed.) Psychological health in the workplace. (pp. 3-6). Carlton, Vic: Australian Psychological Society.

Karasek, R.A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. Administrative Science Quarterly, 24, 285-308.

Kobasa, S.C (1979). Stressful life events, personality, and health: An inquiry into hardiness. Journal of Personality and Social Psychology, 37, 1-11.

Koys, D.J. (2001). The effects of employee satisfaction, organizational citizenship behavior, and turnover on organizational effectiveness: A unit-level longitudinal study. Personnel Psychology, 54, 101-113.

Lazarus, R. S. (1990). Theory-based stress measurement. Psychological Inquiry, 1(1), 3-13.

Lazarus, R. S., DeLongis, A., Folkman, S., & Gruen, R. (1985). Stress and adaptational outcomes: The problem of confounded measures.

Lazarus, R.S. & Folkman, S. (1984). *Stress, Appraisal and Coping*. New York: Springer.

Lodahl, T., & Kejner, M. (1965). The definition and measurement of job involvement. Journal of Applied Psychology, 49, 24-33.

Matteson, M.T., & Ivancevich, J.M. (1987). Controlling work stress: Effective human resource management strategies. San Francisco: Jossey-Bass Inc.

Mayer, R.C., & Davis, J.H. (1999). The effect of the performance appraisal system on trust for management: A field quasi-experiment. Journal of Applied Psychology, 84, 123-136.

McConville, G., & Allport, C. (2000). Unhealthy places of learning: Working in Australian universities. Melbourne: NTEU.

McGrath, J. (1970). Social and psychological factors in stress. New York: Holt, Rinehart, & Winston.

McInnis, C. (1999). The work roles of academics in Australian universities. Canberra: Department of Education, Training and Youth Affairs.

McLean, J., & Andrew, T. (2000). Commitment, satisfaction, stress and control among social services managers and social workers in the UK. Administration in Social Work, 23, 119-

Molony, J. (2000). Australian universities today. In T. Coady (Ed.), Why universities matter (pp. 72-84). St Leonards, NSW: Allen & Unwin.

Moos, R.H., & Insel, P.N. (1974). Work Environment Scale. Palo Alto, CA: Consulting Psychologists Press.

Moyle, P. & Parkes, K. (1999). The effects of transition stress: A relocation study. Journal of Organizational Behavior, 20, 625-646.

Mullarkey, S., Wall, T.D., Warr, P.B., Clegg, C.W., & Stride, C.B. (1999). Measures of job satisfaction, mental health and job-related well-being: A bench-marking manual. Sheffield, UK: Institute of Work Psychology.

National Tertiary Education Union (2000). Unhealthy places of learning: Working in Australian Universities. South Melbourne: NTEU.

Nowack, K. M. (1990). Initial development of an inventory to assess stress and health risk. American Journal of Health Promotion, 4, 173-180.

Nowack, K. M. (1989). Coping style, hardiness, and health status. Journal of Behavioral Medicine, 12, 145-158.

Osipow, S. H., & Spokane, A. R. (1991). Measuring occupational stress, strain, and coping. Applied Social Psychology Annual, 5, 67-86.

Parkes, K.R. (1990). Coping, negative affectivity, and the work environment: additive and interactive predictors of mental health. Journal of Applied Psychology, 75, 399-409.

Porter, L.W., Steers, R.M., Mowday, R.T., & Boulian, P.V. (1974). Organizational commitment, job satisfaction, and turnover among psychiatric technicians. Journal of Applied Psychology, 59, 603-609.

Richard, G.V. & Krieshok, T.S. (1989). Occupational stress, strain and coping strategies in university faculty. Journal of Vocational Behaviour, 34, 117-132.

Seldin, P. (1987). Research findings on causes of academic stress. In P. Seldin (Ed.), Coping with faculty stress (pp. 13-24). San Francisco: Jossey Bass.

Seligman, M. E. P., Maier, S., & Solomon, R. L. (1971). Unpredictable and uncontrolable aversive events. In F. R. Brush (Ed.) Aversive conditioning and learning (pp. 347-400). New York: Academic Press.

Selye, H. (1956). The stress of life. New York: McGraw-Hill.

Senate Committee Report (Employment, Workplace Relations, Small Business, Education References) (2001). Universities in Crisis. Canberra: Commonwealth of Australia.

Sharpley, C.F. (1994). Differences in pulse rate and heart rate and effects on the calculations of heart rate reactivity during periods of mental stress. Journal of Behavioral Medicine, 17, 99-109.

Sharpley, C.F., Reynolds, R., Acosta, A., & Dua, J. K. (1996). The presence, nature and effects of job

stress on physical and psychological health at a large Australian university. Journal of Educational Administration, 34, 73-86.

Siegrist, J. (1998). Adverse health effects of effort-reward imbalance at work. In C.L. Cooper (Ed). Theories of organizational stress. Oxford: Oxford University Press.

Sokejima, S., & Kagamimori, S. (1998). Working hours as a risk factor for acute myocardial infarction in Japan: Case-control study. British Medical Journal, 317, 775-771.

Sparks, K., Cooper, C., Fried, Y., & Shirom, A. (1997). The effects of hours of work on health: A meta-analytic review. Journal of Occupational and Organizational Psychology, 70, 391-408.

Spector, P.E., Zapf, D., Chen, P.Y. & Frese, M. (2000). Why negative affectivity should not be controlled in job stress research: don't throw out the baby with the bath water. Journal of Organizational Behaviour, 21, 79-95.

Tabachnick, B.J. & Fidell, L.S. (2001). Using multivariate statistics. Boston: Allyn & Bacon.

Van der Doef, M., & Maes, S. (1999). The Leiden quality of work questionnaire: Its construction, factor structure and psychometric properties. Psychological Reports, 85, 954-1003.

Wanous, J. P., Reichers, A. E., & Hudy, M. J. (1997). Overall job satisfaction: How good are single-item measures? Journal of Applied Psychology, 82(2), 247-252.

Warr, P.B., Cook, J., & Wall, T.D. (1979). Scales for the measurement of some work attitudes and aspects of psychological well-being. Journal of Occupational Psychology, 52, 129-148.

Watson, D., Pennebaker, J.W., & Folger, R. (1987). Beyond negative affectivity: measuring stress and satisfaction in the workplace. In J.M. Ivancevich and D.C. Ganster (Eds.). Job stress: from theory to suggestion (pp. 141-157). New York: Haworth Press.

Webster, I.W., Porritt, D.W., & Brennan, P.J. (1983). Reported health, lifestyle and occupational stress in prison officers. Community Health Studies, 7, 266-277

Weiner, H. (1992). Perturbing the organism: The biology of stressful experience. Chicago: University of Chicago Press.

Weiss, J. M. (1970). Somatic effects of predictable and unpredictable shock. Psychosomatic Medicine, 32, 397-408.

Weiss, J. M. (1971a). Effects of coping behaviour in different warning-signal conditions on stress pathology in rats. Journal of Comparative and Physiological Psychology, 77, 1-13.

Weiss, J. M. (1971b). Effects of coping behaviour with and without feedback signal on stress pathology in rats. Journal of Comparative and Physiological Psychology, 77, 22-30.

Wilkinson, J. & Joseph, S. (1995). Burnout in university teaching staff. The Occupational Psychologist, 27, 4-7.

Winefield, A.H. (2000). Stress in academe: Some recent research findings. In D.T. Kenny, J.G. Carlson, F.J. McGuigan & J.L. Sheppard (Eds.), Stress and health. Amsterdam: Harwood Academic Publishers.

Winefield, A.H. & Jarrett, R.J. (2001). Occupational stress in university staff. International Journal of Stress Management, 8, 285-298.