Building health promoting work settings: identifying the relationship between work characteristics and occupational stress in Australia

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SUMMARY

Occupational stress is a serious threat to the health of individual workers, their families and the community at large. The settings approach to health promotion offers valuable opportunities for developing comprehensive strategies to prevent and reduce job stress. However, there is evidence that many workplace health promotion programs adopt traditional, lifestyle-oriented strategies when dealing with occupational stress, and ignore the impact that the setting itself has on the health of employees. The aim of the present study was to address two of the barriers to adopting the settings approach; namely the lack of information on how psycho-social work characteristics can influence health, and not having the confidence or knowledge to identify or address organizational-level issues. A comprehensive occupational stress audit involving qualitative and quantitative research methods was undertaken in a small- to medium-sized public sector organization in Australia. The results revealed that the work characteristics ‘social support’ and ‘job control’ accounted for large proportions of explained variance in job satisfaction and psychological health. In addition to these generic variables, several job-specific stressors were found to be predictive of the strain experienced by employees. When coupled with the results of other studies, these findings suggest that work characteristics (particularly control and support) offer valuable avenues for creating work settings that can protect and enhance employee health. The implications of the methods used to develop and complete the stress audit are also discussed.

Key words: health promoting settings; occupational stress; workplace health promotion

INTRODUCTION

Chronic occupational stress is regarded as both a serious public health concern and a major impediment to organizational success. In human terms, chronic job stress is associated with a range of physical (e.g. sleep deprivation), psychological (e.g. depression), social (e.g. interpersonal conflict) and behavioural (e.g. alcohol and other drug abuse) health problems (Levi, 1996). For organizations, occupational stress can contribute to a number of outcomes which are critical to organizational success, including absenteeism, labour turnover and job performance (Motowidlow et al., 1986; Yagil, 1998). The human and economic costs of job stress strongly suggest that it is in everybody’s interests—employees, employers and the community at large—that steps be taken to build healthier and less stressful working environments.

The settings approach to promoting health at work

The settings approach to health promotion provides an intuitively sustainable framework for addressing stress in the workplace. The settings approach focuses on the physical, social and
organizational environments in which people spend their time and aims to create settings (i.e. schools, hospitals, workplaces and communities) that support and enhance health (Baric, 1993; Chu et al., 1997). In essence, the settings approach to health promotion aims to build a health promoting setting. This approach represents a significant shift from traditional health promotion methods that seek to use settings as a venue for promoting healthier lifestyles. On the whole, these latter programs focus on the behaviours and attitudes of individuals, and ignore the impact that the environment has on people’s health or their ability to adopt ‘healthier’ lifestyles. The settings approach to health promotion does not discount the value of traditional, individual-focused methods, but emphasizes that these strategies should complement (not replace) efforts to identify and address settings-based sources of ill-health (Noblet and Murphy, 1995). When applied to stress in the workplace, the settings approach would aim to eliminate/reduce the sources of job strain, while at the same time equipping workers with the knowledge, skills and supportive resources to cope better with demanding and sometimes stressful working conditions.

Despite its intuitive appeal, there is little evidence that the settings approach to health promotion has been adopted when dealing with occupational stress. Reviews of job stress interventions indicate that the most common approach is to focus on the individual workers and provide them with training on stress management techniques such as muscle relaxation, meditation and cognitive–behavioural skills, and a combination of these techniques (Murphy, 1988; Giga et al., 2003). Although there are signs that more attention is being paid to identifying and dealing with working conditions that give rise to job stress (Cartwright et al., 2000; Bond and Bunce, 2001), the traditional approach to health promotion appears to be the most common strategy for addressing occupational stress. The reluctance to adopt a more settings-based approach contradicts recent research showing that comprehensive job stress strategies involving both individual- and organizational-level interventions were more likely to lead to improvements in employee health and business performance (Cartwright et al., 2000; Bond and Bunce, 2001). In contrast, strategies that focused on individual employees tended to result in shorter-term psychological benefits that were not sustainable over a longer period of time (Michie, 1992; Whatmore et al., 1999).

There are a number of factors that are thought to explain why the traditional health promotion approach tends to be adopted when addressing occupational stress. Shain examined the strategies adopted by workplace health promotion committees throughout Canada, and found that there was a strong tendency to avoid settings-based strategies that included modifications to the design and organization of work (Shain, 1995). The major barriers to developing and implementing these organization-level strategies included: (i) a lack of information on how psychosocial work characteristics can influence health; (ii) feeling that organizational interventions are the exclusive domain of management and that recommending these interventions may be trespassing on management rights; and (iii) not having the confidence or the knowledge to identify or address organizational-level issues. These barriers were foreshadowed, to a certain extent, by Baric, who emphasized that training and support would be needed to help health promotion practitioners make the shift from doing health promotion in a setting to building a health promoting setting (Baric, 1993). There is a particular need to initiate and support intervention studies that provide practitioners with a greater understanding of how the settings approach can be implemented (Baric, 1993).

The aim of this study is to address some of the barriers to adopting the health promoting settings approach when tackling occupational stress. In particular, it is hoped that individuals and groups involved in workplace health promotion can use the results of the present study to help overcome the lack of information on the relationship between work characteristics and health, and the not having the knowledge or confidence to identify and address organizational-level issues. A comprehensive employee stress audit involving qualitative and quantitative research methods will be undertaken to identify the work characteristics that make significant contributions to the stress experienced by employees in a medium-sized, public sector organization. In addition, this study will also summarize the processes and tools that can be used to identify these characteristics.

The Job Strain Model

The Job Strain Model (JSM) will be used to help identify the work characteristics that contribute
to job stress. The JSM is one of the most widely used theoretical models underpinning large-scale occupational stress research (Fox et al., 1993). The JSM proposes that the risk of psychological and physical illness (referred to as strain) increases when the demands of a situation exceed the levels of job control and social support available to the individual (Karasek et al., 1981). High-strain jobs therefore represent those situations where the demands are not matched by adequate levels of decision-making authority and/or support from supervisors and colleagues.

While the JSM has been found to offer key insights into the work–strain relationship, this and other generic models (e.g. the Full Mediation Generic model) have been criticized for focusing too heavily on a narrow range of generalized work characteristics, while ignoring more situation-specific variables (Sparks and Cooper, 1999). These views are supported by recent studies indicating that combined generic and situation-specific models accounted for significantly larger proportions of strain than if the generic model was used alone [e.g. (Sparks and Cooper, 1999; Beehr et al., 2000)]. On the basis of this research, the present study will investigate both the generic variables contained within the JSM and stressors that are specific to the organization under investigation. Identifying and measuring these two sets of variables will maximize opportunities for identifying work characteristics that are particularly influential in the strain experienced by employees involved in the present study.

Two outcome variables that are frequently used to measure strain are psychological health and job satisfaction (Warr, 1990). Psychological health refers to the feelings people have irrespective of any particular setting (i.e. context-free well-being), while job satisfaction captures the feelings people have about themselves in relation to their job (i.e. job-specific well-being). Low levels of psychological health and job satisfaction are an indication of high strain (Warr, 1990).

METHODS

Sample

The participants in this study were staff from a medium-sized, public sector organization located in a large Australian city. The organization employed 306 employees, the vast majority of whom worked in professional, administrative and clerical positions. A corporate health program had been in operation within the organization for >5 years, and generally included activities such as healthy eating workshops, lunch-time exercise groups, yoga and other relaxation activities. Although the corporate health program was generally well received by staff, organizers felt that it failed to address the impact that social and organizational factors (e.g. communication systems and workload) were having on the health of employees. Anecdotal evidence also suggested that stress levels among employees were high and that this was having an adverse effect on absenteeism, staff retention rates and general work performance. A planning committee consisting of members of the corporate health team, human resource management personnel, and occupational health and safety staff contacted the author and sought his assistance in undertaking an occupational stress audit. This audit would consist of a staff survey that was informed by a small qualitative study. The overall aim of this audit was to identify the work characteristics that were contributing to the job strain experienced by employees. The results of this audit would then be used to help create work settings that protect and promote employee well-being.

Out of 306 employees, 210 (69%) staff members completed and returned their survey questionnaires. To summarize the demographic characteristics of the sample, there were slightly more female (51%) than male (45%) participants. Over 72% of respondents were aged >31 years and the vast majority (79%) had been employed with the organization for <5 years. There was at least one respondent from each of the 22 departments within the organization, although a relatively large number of respondents (11%) chose not to answer this question.

Measures

The questionnaire used in the present study was designed to measure the following dependent and independent variables.

Psychological health

The GHQ-12 consists of two sets of six items that are designed to measure self-perceived psychological health (Goldberg and Williams, 1988). The first set of items deals with healthy functioning (e.g. been able to concentrate) and
the second set deals with abnormal functioning (e.g., losing self-confidence). Participants were asked to rank items on a 4-point scale ranging from ‘not at all’ (scored as 0) to ‘much more than usual’ (scored as 3). Higher scores indicated higher levels of perceived health. The scale had a Cronbach’s alpha of 0.82.

Job satisfaction

Job satisfaction was measured using a 15-item scale developed by Warr and colleagues (Warr et al., 1979). This scale was designed to measure the satisfaction/dissatisfaction felt by participants in relation to various aspects of work (e.g., physical conditions, management, salary and job security). Minor changes were made to the terms used in the scale to ensure it reflected the language used by study participants. Participants responded on a 7-point scale ranging from ‘very dissatisfied’ to ‘very satisfied’ (the higher the score, the higher the satisfaction). The scale had a Cronbach’s alpha of 0.91.

Control

Participant perceptions of the amount of control they experienced at work were measured using the nine-item decision latitude scale developed by Karasek (Karasek, 1985). The scale consists of two theoretically distinct subdimensions, skill discretion and decision authority (Karasek et al., 1998). Participants were asked to respond using a 5-point scale ranging from ‘strongly disagree’ to ‘strongly agree’ (i.e. the higher the score, the higher the level of agreement). The scale had a Cronbach’s alpha of 0.79.

Job demand

The Quantitative Workload Scale (Caplan et al., 1980) was used to measure job demands. This was an 11-item scale that encompassed both psychological and physical job demands. Participants were asked to respond on a 5-point scale ranging from ‘rarely’ to ‘very often’. The scale had a Cronbach’s alpha of 0.89.

Social support

Support from colleagues and supervisors was measured by using the work-based component of the social support scale developed by Etzion (Etzion, 1984). This component consisted of nine items that covered four major forms of social support; namely, emotional, instrumental, informational and appraisal support. Participants recorded their response on a 7-point scale ranging from ‘always present’ to ‘never present’. The Cronbach’s alpha for the work support scale was 0.87.

Job-specific stressors

Participants were asked to respond to a 20-item, job-specific stressors scale, which required them to indicate the extent to which each of the situations listed was a source of stress in their job (see Table 1). A 5-point scale ranging from ‘not at all’ to ‘major source of stress’ was used. The job-specific stressors scale was based on the results of a qualitative study involving a cross-section of staff members. In this study, two semi-structured focus groups were assembled to identify the sources of stress experienced by participants. Twenty-three occupational health and safety representatives, who collectively represented 16 different departments, took part in these focus groups. The results revealed 20 separate stressors that were experienced by participants. Member validation checks and comparisons with the occupational stress literature [e.g. (Cox and Cox, 1993)] indicated that the overall analysis had satisfactory levels of internal and external validity.

Procedures

All staff members were invited to take part in the survey. Indoor staff, who generally had good access to a computer, were invited to complete a web-based questionnaire that was hosted on a university website. Outdoor staff who had little or no computer access completed a hard-copy questionnaire, and were asked to return their completed questionnaires to the author in a stamped, self-addressed envelope. Reminder notices were sent to employees 3 and 6 days after the initial distribution.

RESULTS

All statistical analyses were undertaken using SPSS 8.0 for Windows (SPSS, Inc., 1998). Pre-analysis screening revealed that there were no patterns identified in the missing data, and the missing data was treated using listwise deletion (Roth, 1994).

The descriptive statistics and correlations are shown in Table 2. The correlations were conducted to highlight the pattern of relationships between six job-specific stressors and the generic conditions represented in the JSM (i.e. job
The six job-specific stressors used in the bivariate correlations were selected by taking those stressors that were rated by at least 40% of respondents as being a moderate, large or major source of stress (i.e. a score of 3, 4 or 5 on the 5-point scale). There was a clear gap between the top six job-specific stressors and the next most common source of stress. The purpose of identifying the most common stressors was to ensure that the selected sources of stress were relevant to as many of the respondents as possible (see Table 1 for a full list of the job-specific stressors and the percentage of respondents who rated each stressor as a moderate to major source of stress).

A prominent feature of Table 2 is the large number of significant correlations between the dependent and independent variables. All the components of the JSM and the job-specific stressors were correlated with psychological health. Similarly, all but one of the independent

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**Table 1: Job-specific stressors and percentage of respondents who rated each stressor as a moderate, large or major source of stress**

<table>
<thead>
<tr>
<th>Source of stress</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of time to do your job as well as you would like</td>
<td>52</td>
</tr>
<tr>
<td>Unrealistic deadlines</td>
<td>48</td>
</tr>
<tr>
<td>Salary not as good as other staff who do similar work</td>
<td>44</td>
</tr>
<tr>
<td>Other people not pulling their weight</td>
<td>42</td>
</tr>
<tr>
<td>Dealing with difficult customers/clients</td>
<td>41</td>
</tr>
<tr>
<td>Difficulty balancing work and non-work commitments</td>
<td>41</td>
</tr>
<tr>
<td>Lack of feedback on how you’re performing</td>
<td>37</td>
</tr>
<tr>
<td>Insufficient time to plan or prepare future work</td>
<td>37</td>
</tr>
<tr>
<td>Lack of resources to accomplish tasks</td>
<td>37</td>
</tr>
<tr>
<td>Long working hours</td>
<td>36</td>
</tr>
<tr>
<td>Unrealistic customer expectations</td>
<td>35</td>
</tr>
<tr>
<td>Not having enough say in decisions that affect your job</td>
<td>34</td>
</tr>
<tr>
<td>Poor physical working conditions (e.g. noisy equipment, cramped office)</td>
<td>28</td>
</tr>
<tr>
<td>Lack of support when you have experienced, or are experiencing, a difficult situation</td>
<td>24</td>
</tr>
<tr>
<td>Not being informed about what’s happening in other parts of the council</td>
<td>21</td>
</tr>
<tr>
<td>Disagreements/conflict with other staff</td>
<td>19</td>
</tr>
<tr>
<td>Lack of training to do your job properly</td>
<td>17</td>
</tr>
<tr>
<td>Having your work closely monitored</td>
<td>16</td>
</tr>
<tr>
<td>Abuse or threats of violence from customers/clients</td>
<td>15</td>
</tr>
<tr>
<td>Unfair treatment from other staff</td>
<td>13</td>
</tr>
</tbody>
</table>

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**Table 2: Descriptive statistics and correlations among study variables**

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Job satisfaction</td>
<td>72.58</td>
<td>13.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2. Psychological health</td>
<td>20.19</td>
<td>5.28</td>
<td>0.55</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3. Social support</td>
<td>41.89</td>
<td>9.99</td>
<td>0.58</td>
<td>0.42</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>4. Job control</td>
<td>32.89</td>
<td>5.46</td>
<td>0.42</td>
<td>0.29</td>
<td>0.29</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5. Job demand</td>
<td>42.94</td>
<td>7.07</td>
<td>0.29</td>
<td>0.20</td>
<td>0.20</td>
<td>0.04</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>6. Lack of time</td>
<td>2.77</td>
<td>1.27</td>
<td>0.11</td>
<td>0.11</td>
<td>0.11</td>
<td>0.11</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>7. Unrealistic deadlines</td>
<td>2.54</td>
<td>1.23</td>
<td>0.29</td>
<td>0.29</td>
<td>0.29</td>
<td>0.29</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Salary not as good</td>
<td>2.49</td>
<td>1.41</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
<td></td>
</tr>
<tr>
<td>9. People not pulling their weight</td>
<td>2.42</td>
<td>1.28</td>
<td>0.32</td>
<td>0.32</td>
<td>0.32</td>
<td>0.32</td>
<td>0.32</td>
<td>0.32</td>
<td>0.32</td>
<td>0.32</td>
<td>0.32</td>
<td></td>
</tr>
<tr>
<td>10. Dealing with difficult customers</td>
<td>2.26</td>
<td>1.05</td>
<td>-0.16</td>
<td>0.16</td>
<td>0.16</td>
<td>0.16</td>
<td>0.16</td>
<td>0.16</td>
<td>0.16</td>
<td>0.16</td>
<td>0.16</td>
<td></td>
</tr>
<tr>
<td>11. Difficulty balancing work/non-work</td>
<td>2.33</td>
<td>1.23</td>
<td>-0.11</td>
<td>-0.11</td>
<td>-0.11</td>
<td>-0.11</td>
<td>-0.11</td>
<td>-0.11</td>
<td>-0.11</td>
<td>-0.11</td>
<td>-0.11</td>
<td></td>
</tr>
</tbody>
</table>

* p < 0.01; ^p < 0.05
variables were significantly correlated with job satisfaction. Also of note are the many significant correlations between the JSM variables and the job-specific stressors. From these correlations alone it is not possible to determine the relative importance of the generic and job-specific stressors. Multiple regression was therefore used to clarify the predictive capacity of the JSM and the job-specific stressors.

A two-step hierarchical regression was performed for each of the target variables: psychological health and job satisfaction. The JSM variables, job demand, job control and work support, were entered in the first step so as to ascertain their main effects on the independent variables. The evaluation of assumptions, particularly when investigating collinearity and multicollinearity, indicated that the data were robust to the assumptions of normality, linearity and homoscedasticity of residuals inherent to the multiple regression analyses (Tabachnick and Fiddell, 1996).

The results of the multiple regression analysis in Table 3 indicate that job control, support from work sources and unrealistic deadlines were significant predictors of both psychological health and job dissatisfaction. The overall equation shown in Table 3 significantly explains the variance in psychological health \( R^2 = 0.371, F(9,166) = 12.457, p < 0.001 \). The overall equation was also significant for the outcome measure of job satisfaction \( R^2 = 0.525, F(9,169) = 22.819, p < 0.001 \). In terms of the relative contribution of the two sets of independent variables, the components of the JSM accounted for 73% of the explained variance in psychological health and 94% of the explained variance in job satisfaction. Swapping the order of the blocks of predictor variables achieved the same results.

**DISCUSSION**

The aim of this study was to identify the work characteristics that made significant contributions to the stress experienced by employees in a small- to medium-sized organization, and to describe the processes and tools that were used to adopt this more settings-based approach to promoting health at work.

**Relationships between work characteristics and well-being**

The results of the regression analyses indicate that the work characteristics ‘job control’ and ‘social support’ were both closely linked to the well-being of employees. Both of these variables accounted for large proportions of the explained variance in psychological health and job satisfaction, and suggest that control and support offer valuable opportunities for creating work settings that can enhance the health of workers.

The predictive capacity of work-based support adds weight to a growing number of studies that have shown strong associations between the advice, assistance and feedback received from colleagues and supervisors, and employee

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Psychological health</th>
<th>Job satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SEB</td>
</tr>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job demand</td>
<td>-0.03</td>
<td>0.06</td>
</tr>
<tr>
<td>Job control</td>
<td>0.21</td>
<td>0.07</td>
</tr>
<tr>
<td>Support</td>
<td>0.11</td>
<td>0.04</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of time</td>
<td>-0.24</td>
<td>0.42</td>
</tr>
<tr>
<td>Unrealistic deadlines</td>
<td>-0.87</td>
<td>0.41</td>
</tr>
<tr>
<td>Salary not as good</td>
<td>-0.18</td>
<td>0.25</td>
</tr>
<tr>
<td>People not pulling their weight</td>
<td>-0.29</td>
<td>0.30</td>
</tr>
<tr>
<td>Dealing with difficult customers</td>
<td>-0.40</td>
<td>0.35</td>
</tr>
<tr>
<td>Difficulty balancing work/non-work</td>
<td>-0.70</td>
<td>0.32</td>
</tr>
</tbody>
</table>

\( ^a p < 0.001 \); \( ^b p < 0.01 \); \( ^c p < 0.05 \).
well-being [e.g. (Beehr et al., 1990; Leong et al., 1996)]. Supervisors and more senior personnel are a particularly valuable source of support since they are often the ones who have the authority and the knowledge to address the specific work-related needs of employees (Beehr et al., 1990). Mechanisms, such as regular feedback sessions and work unit meetings, need to be established to ensure that the workloads of employees are being monitored and that staff are receiving the informational and appraisal support they need (House, 1981). The positive relationship between job control and both measures of employee well-being also parallels previous research. A number of experimental and longitudinal studies have strengthened the view that control is an important causal determinant of job strain (e.g. Jackson, 1983; Bosma et al., 1997). Together this research indicates that having a say in what happens in the workplace helps employees to generate greater ownership over their work, to address or avoid stressful situations and, overall, to achieve higher levels of well-being.

While job-specific stressors did not account for a large percentage of the explained variance in job satisfaction, they did account for one-quarter of the variance in psychological health. The job-specific stressor that was found to be closely associated with both psychological health and job satisfaction was unrealistic deadlines. This stressor is similar to another common source of stress—lack of time to do your job as well as you would like—and indicates that time-related pressures were strongly linked to the strain experienced by a large number of employees involved in the present study. The stress associated with excessive time pressures appears to be closely linked to another common source of stress—difficulty balancing work/non-work commitments. This stressor was only predictive of psychological health at the $p < 0.05$ level. However, $>40\%$ of employees indicated that the work/non-work conflict was a moderate to major source of stress, and thus the impact of this stressor should not be overlooked. Excessive time pressures and rigid working arrangements compound the difficulty associated with meeting family and educational commitments (Pierce and Delahaye, 1996), and can place enormous strain on employees’ relationships with their partners and children (Worrall and Cooper, 1999).

The stressor ‘salary not as good as other people doing similar work’ is connected to two key expectations that employees have when they begin employment with an organization; that they will be treated fairly and that they will be recognized for the work they do (Giga, 2001). Policies and procedures that appear to discriminate unfairly between employees, or are perceived to value some employees more than others, breach these expectations and are a common source of dissatisfaction and resentment. The challenge for the organization involved in the present study is to address the perception of salary inequity and ensure that employees feel they are fairly recognized and rewarded for their work.

**Methods and tools that can support the settings approach**

In addition to examining the relationship between work characteristics and employee well-being, this study also sought to describe the research methods and tools that can support a health promoting settings approach to identifying work-based factors that contribute to occupational stress. Two features of the research methods used in this study were the assessment of generic and job-specific work characteristics, and the use of qualitative and quantitative data collection techniques.

The predictive capacity of both the generic components of the JSM and job-specific stressors suggests that both sets of variables need to be considered when identifying the work characteristics that contribute to employee health. In terms of the JSM, the many parallels between the results of this study and previous occupational stress research reflects the ubiquitous nature of support and control, and indicates that these variables need to be assessed regardless of the specific context in which employees work. However, the results of the regression analyses, particularly in relation to psychological health, support the view that the narrow scope of the JSM is a limitation of the model and that more job-specific variables should also be measured when investigating the sources of job strain (Sparks and Cooper, 1999).

Another feature of the methods used to implement the settings approach to job stress was the use of qualitative and quantitative research methods. Two focus groups involving occupational health and safety representatives were undertaken to identify the range of stressors that were specific to the organization and its employees. The results of the focus groups
were then used to develop a quantitative instrument—a sources of stress inventory—that was tailored to the needs and experiences of employees participating in the present study. The large proportion of explained variance in psychological health that was attributed to job-specific stressors, combined with the large percentages of employees who indicated these job-specific stressors were a moderate to major source of stress, indicate that the sources of stress inventory had a high degree of relevance for the employees involved in the present study. This result supports the view that qualitative methods, such as focus groups and in-depth one-on-one interviews, can be an invaluable means for developing quantitative surveys that capture the unique needs and circumstances of staff (Jex et al., 1997).

There are two limitations that need to be kept in mind when assessing the results of the present study. The study employed a cross-sectional design and therefore the results are limited to the period for which the participants were surveyed. The ability to develop firm conclusions regarding the predictive capacity of the JSM and job-specific stressors would be strengthened by a longitudinal study. The second limitation relates to the reliance on the subjective views of the participants and the subsequent concern this raises about common method variance. This concern applies more to the dependent, rather than the independent variables. In terms of perceptions of working conditions, studies have shown a high correlation between expert ratings of job conditions and subjective assessments (Karasek et al., 1981; Spector, 1992). However, additional objective measures of the outcome variables would have enhanced the validity of the findings.

CONCLUSIONS

The present study provides an example of how a workplace health promotion program that focused predominantly on lifestyle-related factors was expanded to include a settings-based occupational stress audit. The results have been presented to the planning committee involved in the present study and will be used to help create work settings that promote employee health. The first step in this process will be to undertake systematic analyses of the key issues raised in the survey. Follow-up focus groups and interviews will be used to better understand the individual and organizational factors that contribute to the key issues, and to identify strategies that can minimize the impact of common stressors. At the same time, existing policies and procedures relating to employee support, decision-making systems, unrealistic deadlines and other issues raised in this survey will be reviewed to identify where and how these could better meet the needs of employees. The information gathered via these sources will then be used to generate relevant and achievable goals, and to develop a comprehensive range of strategies that can achieve these targets.

Beyond the organization participating in the present study, it is hoped that individuals and groups involved in workplace health promotion can use the findings to help overcome two of the key barriers to adopting the health promoting settings approach. These barriers are: (i) a lack of information on the relationship between work characteristics and employee health; and (ii) not having the confidence or knowledge to identify and address organizational-level issues. Both qualitative and quantitative methods were employed in the audit, and the results revealed that there was a close relationship between several work characteristics and employee well-being. Work-based support, job control and time-related pressures were identified as three work characteristics that offer valuable opportunities for boosting the health-promoting value of the organization participating in the present study.

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