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Work characteristics and employee health and well-being: Test of a model of healthy work organization

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This paper presents an initial test and validation of a model of healthy work organization. A questionnaire based on the proposed model was completed by 1,130 employees of a national retailer. The instrument measured 29 first-order constructs underlying the six higher-order domains of the model. The overall model fit and relationships among the second-order factors were examined using AMOS structural equation-modelling procedures. The structural analyses presented here support the proposed model. An acceptable overall fit was demonstrated, and all second-order, and second- to first-order, relationships were significant. Employees' perceptions of their organization affect their perception of the climate, which impacts the way people relate to their job and see their future in the organization, ultimately impacting their work adjustment, health and well-being. This model has implications for both research and practice.

Work organization has emerged as a priority topic among those who study the work-health relationship. Work organization generally refers to the way work processes are structured and managed, such as job design, scheduling, management, organizational characteristics, and policies and procedures (NIOSH, 1996). Inherent in this definition is the idea that the structure and fabric of the organization, and how it functions, can have a wide-ranging impact on the health and well-being of employees, and ultimately the effectiveness of the organization itself. The term 'healthy work organization' is a logical extension of work organization and presupposes that it should be possible to distinguish healthy from unhealthy work systems (e.g., Cooper & Williams, 1994;

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Cox, 1988; Danna & Griffin, 1999; Landsbergis, 2003; Lowe, Schellenberg, & Shannon, 2003; NIOSH, 2002; Smith, Kaminstein, & Makadok, 1995; Sparks, Faragher, & Cooper, 2001).

In many respects, healthy work organization represents the convergence of research and thinking in several related areas of workplace research. For example, researchers in the human resources/organizational development area have focused on identifying the traits of healthy companies or organizations (e.g., Delery & Shaw, 2001; Ferris, Hochwarter, Buckley, Harrell-Cook, & Frink, 1999; Jaffe, 1995; Ostroff & Bowen, 2000; Rosen & Berger, 1991) and exploring the characteristics of high-performance work systems (e.g., Arthur, 1994; Huselid, 1995). Researchers in job stress have long been interested in delineating the job and organizational attributes that characterize healthy or low-stress work environments. But increasingly, attention has shifted toward organizational or contextual factors in diagnosing and remedying the causes of stress within organizations (e.g., Cartwright, Cooper, & Murphy, 1995; Cooper & Cartwright, 1994; Lindstrom, 1994; Peterson & Wilson, 2002; Sparks *et al*., 2001). A similar shift is evident among occupational safety and health researchers, especially the expanding literatures on climate/culture factors (e.g., Cheyne, Cox, Oliver, & Tomas, 1998; Cox & Howarth, 1990; DeJoy, Searcy, Murphy, & Gershon, 2000; Griffin & Neal, 2000; Lowe *et al*., 2003; NIOSH, 2002) and organization- or systems-level error (e.g., Hofmann, Jacobs, & Landy, 1995; Landsbergis, 2003; Pate-Cornell, 1990; Reason, 1990, 1995). Finally, health-promotion researchers have turned to social–ecological models and integrative or multilevel programming models (e.g., DeJoy & Southern, 1993; DeJoy & Wilson, 2003; Pelletier, 1984; Stokols, 1992), and have shown an increased interest in examining covariations between employee and organizational outcomes (e.g., Goetzel, Jacobson, Aldana, Vardell, & Yee, 2000; Ozminkowski *et al*., 1999).

Expanding the work–health relationship

The common thread in all of this work is the need to expand the work–health relationship beyond the immediate job–worker interaction, and to provide a more systematic accounting of macro-organizational influences (e.g., Cox, Leather, & Cox, 1990; Danna & Griffin, 1999; DeJoy & Southern, 1993; Sauter, Lim, & Murphy, 1996; Shannon, Robson, & Sale, 2001; Smith *et al*., 1995). Although there has been considerable discussion of healthy work organization, there have been relatively few attempts to develop or test actual models of healthy work organization. Cox and colleagues (1990) and DeJoy and Southern (1993) are representative of some of the earlier work on this topic. Cox and associates were among the first to argue that the study of work and health needs to be expanded to include the organizational context. They identified three primary sources of work demands: the work itself, the tools and technologies used in the work, and the social–organizational and physical environments in which the work is performed. DeJoy and Southern outlined a conceptual model consisting of three sets of nested factors, beginning with the immediate worker–job interface and moving outward to include the more inclusive social–organizational environment, and finally to social–cultural factors and other extra-organizational influences. More recently, Danna and Griffin (1999) proposed an antecedent-consequences model that featured three sets of antecedent factors: work setting (primarily safety and health risks), personality traits, and occupational stress factors. In this model, occupational stress factors encompass both job demands as well as broader organizational characteristics such as climate and career development opportunities.

Very few researchers have tried to test their conceptualizations of healthy work organization. In one preliminary study, Sauter and colleagues (1996) examined the contribution of three sets of organizational factors: management practices, organizational culture/climate, and organizational values. Using previously collected data on approximately 5,000 employees of a large manufacturing concern, separate regression analyses were performed for each category of factors. Measures of perceived organizational effectiveness and perceived stress served as dependent variables. From the regression coefficients presented, the strongest results were found for continuous improvement and career-development practices, climate dimensions involving conflict resolution and fostering a sense of belonging, and organizational values related to embracing technology and facilitating employee growth and development.

Smith and colleagues (1995) analysed data from a large service organization and examined five organizational factors: organization–person balance, organizational treatment, discrimination, decision-making climate, and quality of supervision. Using regression techniques and a health symptom index as the dependent measure, demographic factors accounted for about 4% of the variance, and the addition of organization–person balance, organizational treatment, and discrimination brought the total explained variance to 20%. Lowe and colleagues (Lowe *et al*., 2003) sought to identify the correlates of employees' perceptions of healthy work organization. In this cross-sectional study of 2,500 Canadian workers, psychosocial factors, especially those pertaining to interpersonal relations, communications, and social support, were found to be key ingredients in delineating a healthy workplace.

In spite of the limited empirical data, interest in healthy work organization continues to grow. For example, basic aspects of healthy work organization and broad-based assessment of organizational influences have shown up in recent reviews of research on occupational safety and health issues (e.g., Shannon *et al*., 2001), in studies of employee burnout (e.g., Demerouti, Bakker, Nachreiner, & Schaufeli, 2001), and in the current debate over health-care quality and patient safety (e.g., Sainfort, Karsh, Booske, & Smith, 2001). What is clearly lacking at this point is a direct and systematic test of a comprehensive model of healthy work organization. A frequent lament in previous discussions of healthy work organization is that progress has been severely hampered by the lack of comprehensive and testable models (e.g., Cox *et al*., 1990; Danna & Griffin, 1999; DeJoy & Wilson, 2003; NIOSH, 2002; Sauter *et al*., 1996; Smith *et al*., 1995). Indeed, relevant work has been largely piecemeal and typically confined to tests of individual job or work factors and narrowly defined employee outcomes. Also, much of this research has been compartmentalized in various subspecializations such as job stress or organizational design, and this has served to impede cross-fertilization even between closely related areas of inquiry (DeJoy & Wilson, 2003; Vandenberg, Park, DeJoy, Wilson, & Griffin-Blake, 2002). Although considerable empirical support can be found for virtually all of the linkages featured in the previous conceptualizations of healthy work organization, there have been virtually no attempts to systematically test comprehensive models of healthy work organization. The model proposed below seeks to capture the themes inherent in previous work and provide a framework for empirical testing. The following working definition of healthy work organization guided model development: A healthy organization is one characterized by intentional, systematic, and collaborative efforts to maximize employee well-being and productivity by providing well-designed and meaningful jobs, a supportive social–organizational environment, and accessible and equitable opportunities for career and work–life enhancement.

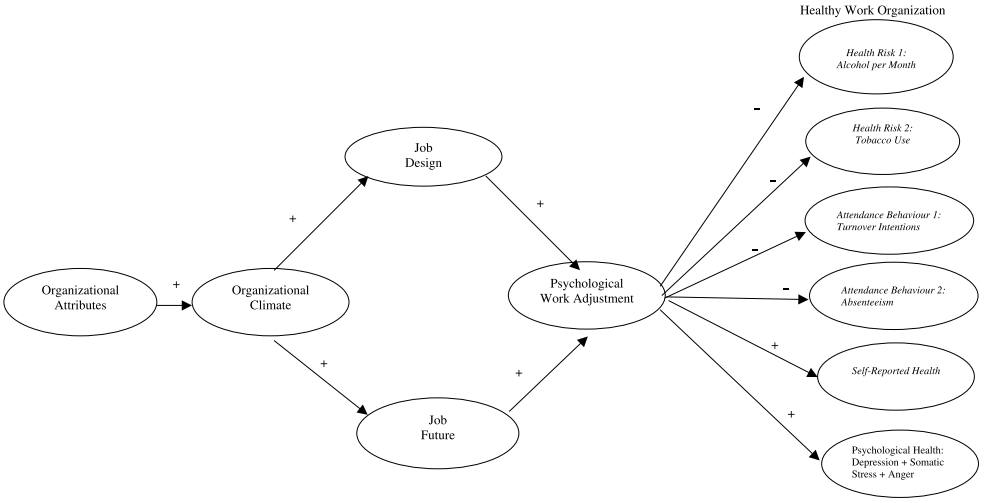

Figure 1. Analytical model indicating the hypothesized associations among only the latent variables. All variables except those with *italicized* labels were second-order latent variables. Given that they were operationalized with responses to single items, the exceptions were treated as first-order indicator variables in the analysis.

Proposed theoretical model of healthy work organization

The model shown in Fig. 1 attempts to incorporate the core aspects of healthy work organization. The model conceptualizes healthy work organization as consisting of six interrelated components. Reviewing the diverse literature discussed earlier, there is surprising agreement on the basic content domains of healthy work organization. In one form or another, three rather distinct domains of work life stand out and consequently play an integral role in the model. *Job design* emphasizes employees' individual perceptions of their immediate work tasks. *Organizational climate* emphasizes the social and interpersonal aspects of the work situation, while *job future* concentrates on job security, equity, and career developments. In one way or another, previous models of healthy work organization have made reference to these three general domains.

The literature on job stress and health provides much of the basis for identifying specific dimensions within the job-design component (Lindstrom, 1994; Parker & Wahl, 1998; Sauter, Murphy, & Hurrell, 1990; Warr, 1994). Based on this literature, six dimensions were selected to represent the job design domain: *workload, control/autonomy, job content, role clarity, environmental conditions*, and *work schedule*. There is less consensus for delineating the dimensions of organizational climate, but organizational or management support appears to play a key role in shaping the climate of the organization (Ribisl & Reischl, 1993). Communication and opportunities for meaningful participation are also frequently highlighted (James & McIntyre, 1996). We selected the following dimensions to comprise organizational climate: *organizational support, coworker support, participation and involvement, communication*, and *health and safety climate*. Job Future represents a multidimensional domain that is more complex than simple job security (Sauter *et al.*, 1990). Career development, organizational fairness, and work-life balance are important aspects of today's employment relationship. The dimensions chosen to represent this domain

include: *job security, pay and promotion equity, learning opportunities*, and *flexible work arrangements*.

The remaining components include: *core organizational attributes, psychological work adjustment*, and *employee health and well-being*. Almost without exception, previous writing on healthy work organization has emphasized the importance of organization-level action in creating and maintaining healthy work organizations. The core organizational attributes seek to delve into the culture and leadership orientation of the organization at three different levels (Sauter *et al*., 1996; Schien, 1990). Presumably, well-designed jobs, supportive organizational climates, and positive career development options exist largely as a result of the visible policies established and actions taken by the leaders of the organization. It also follows that *policies and procedures* derive from the deeper *beliefs* and *value structures* of the organization. Psychological work adjustment underscores the importance of subjective evaluation and individual meaning in understanding the effects of various job and organizational factors on employee health and well-being (Lindstrom, 1994). Four dimensions were selected to represent employee work adjustment: *job satisfaction, organizational commitment, psychological empowerment*, and *perceived job stress*. And finally, pertinent to the present study, Fig. 1 includes several employee health and well-being outcomes.

The healthy work organization concept centres on the premise that it should be possible to identify the job and organizational characteristics of healthy organizations and that such organizations should have healthier and more productive workers. As noted earlier, although several authors have tried to identify and describe the job and organizational characteristics associated with healthy organizations (e.g., Cooper & Williams, 1994; Danna & Griffin, 1999; Sauter *et al*., 1996; Smith *et al*., 1995), there has been relatively little direct empirical research and no systematic analysis of a model of healthy work organization conducted to date. Moreover, the specific dimensions comprising the major components of previous models have been either only minimally specified or not specified at all. In the few instances when actual data have been used to evaluate formulations of healthy work organization, the data came from existing data sets and/or were collected for other or multiple purposes. The use of existing data sources typically necessitates partial tests and/or the use of surrogate or approximate measures of important model constructs. The purpose of this research was to conduct an initial test of a comprehensive healthy work organization model.

Materials and methods

Sample and data collection

The sample consisted of 1,130 employees from nine stores of one retail organization. The stores were located in the south-eastern United States, and varied in size from 150 to 375 employees. The 1,130 respondents represented 53% of all employees in the nine locations. Surveys were administered onsite during two consecutive work days. Questionnaire responses were completely anonymous, and participation was encouraged but voluntary. As an incentive, employees were given time on the clock to participate, and provided a relatively quiet environment (a training room) in which to complete the survey. Completed questionnaires were deposited in locked storage boxes by the respondents to reinforce the confidentiality of the information.

Measures

One instrument was used to operationalize all six higher-order components underlying the theoretical model. For purposes of this study, 194 items representing 29 first-order constructs were used from the instrument. The development and validation of the questionnaire consisted of a four-step process which included: (1) selection of candidate measures from the scientific literature, (2) content validation by three subject matter experts from the National Institute for Occupational Safety and Health, (3) exploratory factor analyses, and (4) confirmatory factor analyses (details are available from the authors by request). The description of the scales below follows the order of the categories from left to right in Fig. 1. The description begins with the exogenous variables (organizational attributes) and ends with the outcome variables (employee health and well-being). Unless otherwise indicated, all measures were scaled on a 5-point Likert scale.

Organizational attributes

From the theoretical model, core organizational attributes are conceptualized in terms of three dimensions: organizational values, organizational beliefs, and organizational policies and practices. These three dimensions address the fundamental importance of organization-level action in creating and maintaining healthy work organization.

Values

Values refer to the internalized normative beliefs, which guide behaviour and desired end-states within organizations (Rokeach, 1979). While there are different 'value sets' (e.g., people, production, etc.), the instrument focused on what O'Reilly, Chatman, and Caldwell (1991) referred to as values with an employee orientation (e.g., tolerance). The six-item measure asked respondents: 'thinking about your company or organization as a whole, how characteristic are each of the following traits', and they were subsequently presented the six traits (alpha = .89).

Beliefs

Beliefs entail employees' perceptions as to how the strongly the organization views its commitment to and responsibility for employee health and well-being (Ribisl and Reischl, 1993; Sandroff, Bradford, and Gilligan, 1990). An example from the nine-item scale includes 'employees should have a say in decisions that affect how they do their jobs' (α = .90).

Policies and practices

An important attribute to reinforcing certain organizational values and beliefs is the broad (i.e., organizational) policies and practices perceived by employees as the true boundary conditions, which guide their actions. This study focused on three themes underlying policies and practices, which were based largely on the work of Jamieson and O'Mara (1991), and of Vandenberg, Richardson, and Eastman (1999). All items regardless of theme asked respondents 'to what extent does your company or organization as a whole have specific policies and/or programs in place for…'. The first theme was policies and practices for high involvement work practices and consisted of 10 items ('incorporating changes or innovations suggested by employees or employee groups', α = .93). The second theme focused on policies and practices facilitating

employees' abilities to balance work and nonwork issues ('offering EAPs to help employees deal with stress, family problems, substance abuse, etc.', $\alpha = .85$). The third theme was policies and practices reinforcing safety and health practices ('providing applicable occupational safety and health training', $\alpha = .90$). The scales for both the last two themes consisted of four items each.

Organizational climate

This component emphasized the perceptions of employees about their overall work environment, particularly in terms of the climate for support, communication, and involvement. Six dimensions were included in this component.

Organizational support

Organizational support was defined as the actions undertaken at the organizational level that encourage, bolster, or assist the employees in undertaking their tasks and responsibilities. Eisenberger, Huntington, Hutchison, and Sowa's (1986) nine-item global measure was used in this study ('the organization really cares about my well-being', $\alpha = .91$).

Coworker support

This variable focuses on the informal social/interpersonal relationships that develop among peers. Ribisl and Reischl's scale (1993) was used to measure this construct ('my coworkers care about me as a person', $\alpha = .92$).

Participation with others and with supervisors

Participation, in general, refers to a climate in which employees are encouraged to involve themselves in some meaningful way with the people in the organization. The three-item involvement with supervisors scale (Vroom, 1959) included items such as 'do you feel you can influence decisions of your immediate supervisor regarding things about which you are concerned?' ($\alpha = .77$). The three-item involvement with others scale (Caplan, Cobb, French, Harrison, & Pinneau, 1975) included items such as 'I take part with others at my workplace in making decisions that affect me' ($\alpha = .88$).

Communication

This is the extent to which employees see an effective information exchange within the organization. The eight-item communication climate scale was adapted from Vandenberg and colleagues (1999) and included items such as 'management gives enough notice to employees before making changes in policies and procedures' ($\alpha = .86$).

Safety and health climate

This involves the degree to which a climate for the safety and health of employees is promoted in the work environment. The seven-item scale used in the current study was a version of the NIOSH Safety Climate Scale (DeJoy, Murphy, & Gershon, 1995). An item from the scale included 'there are no significant shortcuts taken when workplace safety and health are at stake' ($\alpha = .90$).

Job design

Six dimensions derived largely from reviews of the job stress literature (Cooper & Cartwright, 1994; Lindstrom, 1994; Sauter *et al*., 1990) were included as part of the job design component.

Workload

An employee's workload consists of the daily demands of the work situation. This construct was measured with four items taken from a task demand scale developed by Klitzman, House, Israel, and Mero (1990). An example of items included: 'I am asked to do an excessive amount of work' ($\alpha = .78$).

Control/autonomy

Autonomy is the degree to which the job provides substantial freedom, independence, and discretion to the individual in scheduling the work and in determining the procedures to be used in carrying it out. The three-item scale contained in the Job Diagnostic Survey (Hackman & Oldham, 1975) was adapted for the current study (e.g., 'my job permits me to decide on my own how to go about doing the work', $\alpha = .77$).

Job content

Job content is the extent to which the job is viewed as being meaningful, valuable, and worthwhile. A six-item scale (House, McMichael, Wells, Kaplan, & Landerman, 1979) was used to measure this construct ('I have an opportunity to develop my own special skills and abilities', $\alpha = .80$).

Role clarity

Role clarity is the extent to which an employee's work goals and responsibilities are clearly communicated and whether the individual understands the processes required to achieve these goals (Sawyer, 1992). The four-item scale used to measure this construct was adapted from Rizzo, House, and Lirtzman (1970). A sample item included 'there are clear, planned goals and objectives for my job' ($\alpha = .82$).

Environmental and physical work conditions

Based both on the work of Johansson, Johnson, and Hall (1991), and 'walk throughs' of the store's work environment conducted by the authors, two scales were created to assess the employees' working conditions. The seven-item environmental conditions scale encompassed employees' perceptions of the potential hazards found in their immediate work areas such as noise and poor lighting ($\alpha = .84$). The five-item physical work demands scale assessed factors such as lifting and repetitive motion ($\alpha = .82$).

Work scheduling

The scheduling of work time encompasses a variety of options such as full or part time, fixed or rotating schedules, and day versus other shift arrangements. The five-item work schedule scale used in this study consisted of items from Morrow, McElroy, and Elliott (1994) with additional items developed by the investigators to reflect scheduling issues unique to the participating company ('my work hours are unpredictable from one week to the next', $\alpha = .84$).

Job future

Industry restructuring, globalization, changes in employee benefits, and other factors have altered the traditional employer–employee relationship (Rousseau, 1997). To reflect these trends, five dimensions were included in the job-future component (the discussion of two, procedural and distributive equity, is collapsed for brevity).

Job security
This variable consists of the employees' perceptions about the likely continuity of their employment with the organization. A five-item scale (Kuhnert, Sims, & Lahey, 1989) was used to measure this variable ('I am afraid of losing my job', $\alpha = .79$).

Procedural and distributive equity
Equity refers, in general, to perceived fairness. From its long and rich research history, two principal forms of equity have emerged as important in the study of organizations. Distributive equity represents the perceived fairness attached to the amount of rewards (e.g., merit pay increases) and their allocation along some performance criterion. The current study used the four-item distributive equity scale from Bavendam, Boyer, and Sorensen (1986). An example item is 'I am fairly rewarded considering my responsibilities' ($\alpha = .95$). Procedural equity entails the perceived fairness of how the 'rules' are applied across people. The six-item procedural equity scale by Greenberg (1986) was used and included items such as 'when pay and promotion decisions are made, all sides affected by the decisions have a say' ($\alpha = .95$).

Learning opportunities
Learning opportunities entail employees' beliefs about available opportunities to learn new skills or keep current skills updated. Five items adapted from Vandenberg *et al*. (1999) were used to assess this dimension ('I am given a real opportunity to improve my knowledge and skills', $\alpha = .90$).

Flexible work arrangements
This variable involves the extent to which job requirements limit employees' ability to fulfil various non-work obligations and activities. Bohen and Viveros-Long's (1981) six-item scale was used to measure this construct ('how easy or difficult is it to arrange time to do each of the following on a typical workday?' with items including 'go to a health care appointment' and 'respond to the needs of your children or other family members', $\alpha = .87$).

Psychological work adjustment
The five dimensions for this component were selected on the premise that satisfied, committed, high efficacy, and 'low stress' employees contribute positively to organizational effectiveness and are reflective of healthy work organization.

Job satisfaction
This construct examines how satisfied employees are with their specific work situation, tasks, demands, and responsibilities. The five-item scale (Hackman & Oldham, 1975, 1980) included items such as 'generally speaking, I am very satisfied with my job' ($\alpha = .81$).

Organizational commitment
Organizational commitment is the strength of employees' attachment to the company. The nine-item version of the Organizational Commitment Questionnaire (Mowday, Steers, & Porter, 1979) was used to measure this construct ('I am willing to put in a great deal of effort beyond that normally expected in order to help this organization be successful', $\alpha = .92$).

Efficacy
Efficacy involves a person's sense of mastery and confidence in their work role. Adapting Spreitzer's (1995) perspective and operationalizations, we utilized two forms

of efficacy. Self-efficacy refers to a person's own sense of confidence in their ability to effectively work at their job. This was measured with Spreitzer's three-item scale ('I am confident about my ability to do my job', $\alpha = .81$). The second form, impact, refers to a person's perception about their ability to meaningfully influence their workgroup or team. Again, Spreitzer's (1995) three-item measure was used ('my impact on what happens in my workgroup is large', $\alpha = .88$).

Job stress

Job stress focused on the employee's perceptions and reactions to stressors at work. The six-item scale was adapted from Cohen, Kamarck, and Mermelstein (1983), and included items such as 'in the last month, how often have you been upset because of something that happened unexpectedly at work?' ($\alpha = .88$).

Employee health and well-being

For this study, this component included measures of employees' perceived general health, psychological health, attendance behaviour (e.g., likelihood of turnover), and engagement in health risk behaviours (e.g., tobacco use).

Employee health

Self-reported health was assessed using a single-item adapted from the SF-36 Health Survey (Ware & Sherbourne, 1992). The question asked respondents to rate their overall health from 'poor' to 'excellent.'

Psychological health

Three measures were used here. The first two, adapted from Ilfeld (1978), assessed depressive symptoms, and anger/hostility. Depressive symptoms were represented using seven items (e.g., feel downhearted and blue, feel lonely; $\alpha = .86$), and anger was operationalized with four items (e.g., feel easily annoyed, feel critical of others; $\alpha = .87$). Respondents were asked to report how often they had experienced these symptoms or feelings during the past month, using a four-point scale: 'never', 'once in a while', 'fairly often', 'very often'. The third measure, somatic symptoms, included seven symptom states generally associated with stress and/or anxiety (e.g., headache, heart beating hard, sweaty hands). Respondents indicated how often they had experienced these symptoms during the past month ($\alpha = .89$). The term 'psychological health' was used to denote a positive connotation as opposed to a negative connotation such as psychological dysfunction. Low scores on these measures indicate high levels of psychological health.

Health risk behaviours

Two measures were adapted from the US Centers for Disease Control and Prevention's Behavioral Risk Factor Surveillance Survey to assess alcohol and tobacco use. The alcohol measure provided an overall measure of alcohol consumption during a 30-day period. It was the combination of responses to drinking frequency (number of days alcohol consumed per month) multiplied by quantity (number of drinks typically consumed on a day that alcoholic beverages were consumed). Tobacco use was assessed using 'yes' or 'no' responses to a question asking respondents whether they currently used tobacco (cigarettes, cigars/pipes, or chewing or smokeless tobacco).

Attendance behaviours

This component was operationalized through employees' self-rated turnover intentions, and their frequency of absences. Turnover intention was captured with a

single item that queried respondents about their likelihood of leaving the company within the next 12 months. The five response categories were in percent likelihood intervals: 0–20% (not likely), 21–40% (somewhat likely), and so forth. Absenteeism was also assessed with a single item that asked respondents to indicate the number of days they had missed work during the previous 3 months (excluding vacations, holidays, and other scheduled leave).

Analytical procedure

The analyses were guided by the two-stage process outlined in Gerbing and Anderson (1987): (1) tests of the measurement models followed by (2) the tests of the hypothesized associations among the constructs. This process is based on the premise that you must know what you are measuring first before you can test any substantive hypothesis among the constructs represented through the measures. This was particularly appropriate in our case because of the complexity resulting from the number of different scales used in the study. All analyses were undertaken using the AMOS structural equation-modelling program (Arbuckle & Wothke, 1999) and utilizing the variance/covariance matrix. Taking into consideration the complexity of the model, six fit indices were used: chi-square goodness of fit test, chi-square to degrees-of-freedom ratio, standardized root mean square residual (SRMSR), root mean square error of approximation (RMSEA; Steiger, 1990), Tucker–Lewis Index (TLI; Tucker & Lewis, 1973), and the Relative Noncentrality Index (RNI; McDonald & Marsh, 1990). The expected maximization (full information maximum likelihood) multiple imputation procedure (LISREL Version 8.5; Du Toit & Du Toit, 2001) was applied to impute the missing values. As a point of reference, only 4% of the total number of responses were missing.

Inferring support for the hypotheses was a two-step process. The first step was to examine the overall fit of the model to the data. This is an omnibus test that in practical terms asks whether or not the specification of the paths as conceptually supported is a reasonable reflection of the theoretical process underlying the variables. Assuming that it is, the second step is to examine the statistical significance of each of the hypothesized paths to infer direct support for each expectation. It does not make sense to infer the statistical significance of the hypothesized paths without first asking whether the model itself is reasonable.

The same indices as above were used to infer fit. Note, however, that the complexity is even greater at this point. That is, there is now a layer of second-order latent variables on top of the layer of 34 first-order dimensions defined by the 194 items. This added complexity will have an impact on the fit indices that penalize model complexity such as the TLI and RNI. Therefore, while the other fit indices may indicate a good fit, the latter ones may be less than ideal.

Results

The means, standard deviations and correlations among the primary variables are reported in Table 1 The diagonal elements represent the internal consistency reliability coefficients. All were above .75.

The seven tests of the measurement models are represented by the first seven rows of Table 2. Looking first at the tests of the six major model components, generally a good fit may be inferred among the different model components when the dimensions of the components are tested relative to one another. An exceptionally strong fit was

Table 1. Study means, standard deviations, and correlations

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
1. Values	3.75	.82	(.89)									
2. Beliefs	4.27	.55	.33	(.90)								
3. Involvement Policies	3.57	.81	.69	.26	(.93)							
4. Balance Policies	3.36	.93	.54	.21	.72	(.85)						
5. Safety Policies	3.99	.81	.55	.39	.64	.56	(.90)					
6. Workload	2.77	.65	−.30	−.15	−.26	−.25	−.19	(.78)				
7. Autonomy	3.17	.57	.44	.13	.43	.36	.32	−.17	(.77)			
8. Content	3.97	.72	.53	.17	.54	.43	.42	−.20	.62	(.80)		
9. Clarity	3.88	.78	.47	.16	.50	.38	.33	−.30	.43	50	(.82)	
10. Schedule	3.04	.91	.38	.09	.39	.39	.21	−.27	.38	.36	.40	(.84)
11. Physical Demands	3.56	1.00	−.11	−.04	−.13	−.13	−.11	.33	−.16	−.16	−.13	−.24
12. Environmental Conditions	2.58	.96	−.33	−.09	−.36	−.32	−.33	.38	−.25	−.32	−.26	−.25
13. Organizational Support	3.40	.75	.70	.22	.73	.57	.51	−.31	.52	.65	.53	.42
14. Coworker Support	3.35	.79	.48	.20	.47	.33	.37	−.30	.29	.41	.41	.27
15. Involvement w/ Others	3.14	1.10	.37	.13	.46	.34	.29	−.01	.40	.41	.36	.32
16. Involvement w/ Superv.	3.27	.88	.43	.13	.49	.38	.29	−.18	.47	.46	.43	.34
17. Communication	3.34	.69	.62	.23	.67	.53	.52	−.28	.45	.52	.54	.35
18. Health/Safety	3.91	.72	.57	.34	.55	.45	.61	−.24	.35	.46	.39	.25
19. Security	3.76	.79	.55	.25	.41	.32	.32	−.26	.34	.38	.36	.26
20. Procedural Equity	3.12	.96	.61	.19	.63	.47	.44	−.28	.39	.48	.46	.38
21. Distributive Equity	3.04	1.04	.53	.17	.61	.47	.38	−.31	.43	.50	.43	.40
22. Learning Opportunities	3.75	.82	.63	.27	.64	.51	.53	−.24	.45	.59	.48	.36
23. Flexible Arrangements	3.09	.91	.34	.09	.39	.38	.26	−.27	.29	.31	.31	.51
24. Job Satisfaction	3.56	.78	.61	.25	.57	.46	.45	−.28	.50	.63	.47	.45
25. Organizational Commitment	3.87	.72	.62	.38	.56	.44	.50	−.17	.42	.59	.40	.32
26. Stress	2.67	.86	−.45	−.14	−.38	−.30	−.28	.51	−.28	−.32	−.32	−.32
27. Efficacy	4.32	.61	.15	.36	.07	.08	.16	−.03	.11	.10	.16	.11
28. Impact	3.50	.89	.45	.19	.46	.35	.31	−.05	.48	.42	.43	.35
29. Alcohol Use	18.86	41.35	−.05	−.04	−.02	−.03	−.07	.10	−.04	−.08	−.06	−.05
30. Tobacco Use	.36	.48	−.05	.01	−.09	−.05	−.06	.03	−.01	.01	−.06	−.08
31. General Health	3.59	.86	.15	.08	.14	.09	.10	.01	.11	.11	.07	.08
32. Turnover Intentions	1.59	1.13	−.29	−.08	−.29	−.21	−.19	.13	−.24	−.39	−.23	−.23
33. Absenteeism	1.74	.95	−.11	−.04	−.12	−.07	−.10	.06	−.09	−.13	−.08	−.08
34. Somatic Symptoms	1.40	.65	−.20	−.16	−.12	−.08	−.17	.10	−.11	−.12	−.10	−.11
35. Depression	1.50	.55	−.22	−.06	−.22	−.16	−.17	.05	−.18	−.28	−.16	−.14
36. Anger	1.73	.64	−.21	−.04	−.20	−.14	−.17	.15	−.13	−.20	−.14	−.10

Table 1. (continued)

Variable	11	12	13	14	15	16	17	18	19	20	21	22
1. Values												
2. Beliefs												
3. Involvement Policies												
4. Balance Policies												
5. Safety Policies												
6. Workload												
7. Autonomy												
8. Content												
9. Clarity												
10. Schedule												
11. Physical Demands	(.82)											
12. Environmental Conditions	.45	(.84)										
13. Organizational Support	−.17	−.41	(.91)									
14. Coworker Support	−.14	−.29	.57	(.92)								
15. Involvement w/ Others	−.09	−.14	.48	39	(.88)							
16. Involvement w/ Superv.	−.20	−.26	.55	.41	.49	(.77)						
17. Communication	−.14	−.38	.69	.51	.38	.48	(.86)					
18. Health/Safety	−.13	−.41	.57	.46	.32	.40	.61	(.90)				
19. Security	−.15	−.29	.47	.30	.29	.41	.44	.42	(.79)			
20. Procedural Equity	−.14	−.35	.66	.46	.39	.41	.61	.51	.45	(.95)		
21. Distributive Equity	−.22	−.36	.67	.43	.37	.44	.52	.43	.39	.60	(.95)	
22. Learning Opportunities	−.16	−.37	.68	.43	.38	.45	.62	.57	.46	.61	.59	(.90)
23. Flexible Arrangements	−.23	−.30	.39	.24	.22	.27	.37	.25	.25	.36	.36	.34
24. Job Satisfaction	−.23	−.38	.66	.43	.37	.45	.55	.50	.43	.55	.58	.59
25. Organizational Commitment	−.09	−.26	.64	.36	.34	.39	.51	.51	.41	.50	.52	.58
26. Stress	.22	.41	−.43	−.37	−.12	−.29	−.41	−.33	−.33	−.39	−.40	−.36
27. Efficacy	01	.02	.08	.03	.09	.09	.11	.18	.13	.05	.03	.13
28. Impact	−.12	−.16	.50	.32	.49	.50	.41	.32	.35	.39	.41	.41
29. Alcohol Use	.12	.11	−.04	−.05	−.01	−.01	−.05	−.09	−.04	−.01	−.07	−.01
30. Tobacco Use	.08	.04	−.04	−.05	−.03	−.02	−.03	−.02	−.05	−.07	−.07	−.05
31. General Health	.07	−.09	.12	.08	.08	.01	.13	.10	.15	.11	.10	.08
32. Turnover Intentions	.17	.16	−.34	−.19	−.20	−.26	−.25	−.23	−.21	−.27	−.29	−.29
33. Absenteeism	.05	.13	−.14	−.11	−.04	−.03	−.14	−.11	−.07	−.11	−.13	−.14
34. Somatic Symptoms	.06	.21	−.16	−.12	.02	−.08	−.17	−.19	−.17	−.13	−.10	−.15
35. Depression	.05	.22	−.25	−.17	−.15	−.18	−.24	−.15	−.17	−.19	−.21	−.25
36. Anger	.01	.25	−.23	−.20	−.07	−.10	−.18	−.16	−.09	−.18	−.19	−.16

Table 1. (continued)

Variable	23	24	25	26	27	28	29	30	31	32	33	34	35	36
1. Values														
2. Beliefs														
3. Involvement Policies														
4. Balance Policies														
5. Safety Policies														
6. Workload														
7. Autonomy														
8. Content														
9. Clarity														
10. Schedule														
11. Physical Demands														
12. Environmental Conditions														
13. Organizational Support														
14. Coworker Support														
15. Involvement w/ Others														
16. Involvement w/ Superv.														
17. Communication														
18. Health/Safety														
19. Security														
20. Procedural Equity														
21. Distributive Equity														
22. Learning Opportunities														
23. Flexible Arrangements	(.87)													
24. Job Satisfaction	.40	(.81)												
25. Organizational Commitment	.30	.69	(.92)											
26. Stress	−.32	−.49	−.37	(.88)										
27. Efficacy	.08	.19	.34	−.05	(.81)									
28. Impact	.28	.45	.49	−.16	.33	(.88)								
29. Alcohol Use	−.04	−.07	−.07	.11	−.08	−.01	(–)							
30. Tobacco Use	−.11	−.06	−.04	.07	−.01	−.04	.21	(–)						
31. General Health	.08	.10	.07	−.15	.07	.05	−.06	−.11	(–)					
32. Turnover Intentions	−.21	−.48	−.46	.20	−.02	−.19	.10	.02	.05	(–)				
33. Absenteeism	−.12	−.16	−.16	.16	−.07	−.06	.04	.07	−.15	.11	(–)			
34. Somatic Symptoms	−.16	−.21	−.19	.34	−.15	−.07	.10	.04	−.21	.09	.20	(.89)		
35. Depression	−.22	−.31	−.23	.32	−.08	−.14	.12	.07	−.19	.15	.16	.44	(.86)	
36. Anger	−.19	−.24	−.22	.42	−.05	−.10	.23	.07	−.21	.10	.17	.36	.59	(.87)

Note. $N = 1027$; absolute correlations of .06 or higher are significant at $p \leq .05$ level; parenthetical values represent internal consistency reliability coefficients; – : no reliability value due to single-item status

Table 2. Fit statistics for the measurement and structural models

Model	$\chi^2(df)$	$\chi^2(df)$	SRMSR	RMSEA	TLI	RNI
Measurement Model for Organizational Attributes (5 factors; values—policies)	2372.35 (454)	5.2	.05	.06	.90	.91
Measurement Model for Job Design (7 factors; content—environmental conditions)	1886.53 (506)	3.7	.06	.05	.90	.91
Measurement Model for Organizational Climate (6 factors; organizational support—health/safety climate)	2248.54 (614)	3.7	.04	.05	.92	.93
Measurement Model for Job Future (5 factors; security—flexible arrangements)	1151.72 (289)	4.0	.03	.05	.95	.96
Measurement Model for Work Adjustment (5 factors; job satisfaction—job stress)	1689.50 (289)	5.8	.06	.07	.90	.91
Measurement Model for Employee Health and Well-being(6 factors; somatic symptoms—retention)	800.67 (216)	3.7	.04	.05	.93	.94
Measurement Model for All Dimensions (34 factors; values—anger)	30886.41 (15015)	2.0	.04	.03	.86	.87
Hypothesized Model	34607.89 (15538)	2.2	.06	.04	.84	.84

Note. $\chi^2(df)$: chi-square (degrees of freedom); SRMSR: standardized root mean square residual; RMSEA: root mean square error of approximation; TLI: Tucker–Lewis Index; RNI: relative non-centrality index.

observed for the job future and health and well-being components. In contrast, the fit was least strong, but still acceptable, for the work adjustment and organizational attributes components of the model, as indicated particularly by their chi-square to degrees-of-freedom ratios.

The seventh row of Table 2 contains the fit indices for the test of the measurement model including all dimensions. Three of the fit indices suggested a very strong fit: the chi-square to degrees-of-freedom ratio, the RMSEA, and SRMSR. In contrast, the TLI and RNI fell somewhat below the .90 standard to infer strong fit. The values for the TLI and RNI were not unexpected, as these particular indices heavily penalize complex models. However, the research literature provides no agreed upon standards for how much of a drop in those two indices is required before observing true model misspecification (the aspect these indices are purportedly sensitive to) versus a sensitivity of these indices to anomalous study characteristics (model complexity in this case). Given that the drop was not dramatic (to .80 or less), and that the other fit indices indicated an improved fit relative to the other models, it was concluded that the measurement model with all 194 items and 34 dimensions had a strong fit. In practical terms, this meant that each dimension was adequately represented through its respective item set, and that there was not enough overlap between dimensions to be concerned about misspecifications due to multicollinearity or conceptual redundancy.

The last row in Table 2 provides the fit indices for the tests of hypothesized associations among the model components presented in Figure 1. As indicated there, the addition of 523 more degrees of freedom (representing the difference in *df* from the 'big' measurement model to the hypothesized one) had little impact on the values of the fit indices relative to those observed from testing the 'big' measurement model.

The increased complexity had as expected the biggest impact on the TLI and RNI. All in all, while taking into consideration the complexity of the hypothesized model, it generally fitted the data, and thus, there was little concern that the model was misspecifying the relationships among the variables. As such, the path coefficients could be meaningfully interpreted.

In this vein and turning now to the top two-thirds of Table 3, the results indicate that the specification of the second-order variables was very successful. In brief, all of the first-order dimensions had statistically significant loadings on their respective second-order factors, and the signs of the obtained estimates were all in the expected directions. Strong support, therefore, was observed for specifying a common overriding, second-order latent construct for each set of the first-order dimensions. That is, there was a systematic source of common variation across each of the dimensions within a set after accounting for the systematic variance within a dimension, and that would have normally been pushed into the error term if the tests of hypotheses had only been conducted at the first-order level (i.e., the traditional test). Consequently, we felt confident that the tests of hypotheses could proceed in that the second-order variables were meaningfully representing the common attribute underlying all variables within a set.

As observed in the bottom third of Table 3, all of the hypothesized associations among the second-order variables were completely supported. Specifically, the second-order organizational attribute component had statistically significant and positive associations with the second-order component of organizational climate (r^2 = .95), which had significant, positive associations with the second order components of job design (r^2 = .78) and job future (r^2 = .93). Hence, as organizations strengthen their attributes (i.e., their policies regarding employee involvement, safety and health, values concerning people, etc.), they can expect to see a corresponding strengthening of perceptions regarding the climates in the organization (i.e., for communication, involvement, etc.). In turn, as employees' perceptions regarding the climates within the organization are raised, there is an associated increase regarding the way people relate to the job (i.e., the degree of autonomy, etc.), and their future in the organization (i.e., job security, opportunities to learn new things, etc.).

Similar support was observed for the relationships from job design and job future to work adjustment (r^2 = .83). Therefore, a strengthening in job design (i.e., increasing its positive attributes such as autonomy and decreasing its negative attributes such as workload) is associated with a strengthening in psychological work adjustment (i.e., increases in its positive attributes such as job satisfaction and decreases in its negative attributes such as job stress). Similarly, a strengthening in job future (i.e., increasing job security, learning opportunities, etc.) would be associated also with a strengthening in psychological work adjustment.

Additionally, as we strengthen psychological work adjustment (i.e., increase its positive attributes such as job satisfaction and decrease its negative attributes such as job stress), corresponding decreases in alcohol consumption (r^2 = .01), tobacco use (r^2 = .01), intentions to quit (r^2 = .24), and absenteeism (r^2 = .04), and increases in psychological health (r^2 = .17) and perceptions of general health (r^2 = .02) are evident. Indeed, an examination of the unstandardized coefficient for alcohol consumption (−4.7) indicates that for every unit of strengthening in work adjustment, employees consume approximately five less drinks per month. That is not to imply that there is a cause-effect relationship between work adjustment and alcohol consumption, just that there is a strong relationship between the two. In a similar vein, tobacco use gets

Table 3. Study structural model estimates and fit statistics

Parameter	Estimate (standard error)	*t*-value
Standardized factor loadings of the second-order latent to first-order latent constructs		
Attributes to Values	.86 (RI)	
Attributes to Beliefs	.34 (.04)	9.24
Attributes to Involvement Policies	.93 (.06)	19.18
Attributes to Balance Policies	.80 (.07)	17.76
Attributes to Safety Policies	.73 (.06)	17.19
Job Design to Job Content	.84 (RI)	
Job Design to Autonomy	.68 (.05)	17.09
Job Design to Work Schedule	.61 (.06)	14.68
Job Design to Role Clarity	.66 (.05)	15.45
Job Design to Workload	−.35 (.05)	−8.87
Job Design to Physical Demands	−.27 (.05)	−7.09
Job Design to Environmental Conditions	−.52 (.05)	−11.22
Climate to Organizational Support	.93 (RI)	
Climate to Coworker Support	.65 (.04)	16.63
Climate to Involvement with Others	.56 (.05)	14.96
Climate to Involvement with Supervision	.70 (.04)	16.60
Climate to Communication	.84 (.05)	18.49
Climate to Health/Safety	.72 (.04)	16.54
Job Future to Job Security	.62 (RI)	
Job Future to Procedural Equity	.79 (.10)	14.22
Job Future to Distributive Equity	.77 (.10)	14.51
Job Future to Learning Opportunities	.85 (.09)	14.33
Job Future to Flexible Work Arrangements	.49 (.07)	10.86
Work Adjustment to Job Satisfaction	.95 (RI)	
Work Adjustment to Organizational Commitment	.84 (.03)	15.44
Work Adjustment to Self-Efficacy	.30 (.02)	8.59
Work Adjustment to Impact	.59 (.03)	15.59
Work Adjustment to Stress	−.58 (.04)	−16.58
Self-Rated Health[*]	(SI)	
Health Risk Factors 1: Alcohol Use[a]	(SI)	
Health Risk Factors 2: Tobacco Use[a]	(SI)	
Attendance 1: Turnover Intentions[a]	(SI)	
Attendance 2: Absenteeism[a]	(SI)	
Psychological Health to Somatic Symptoms	.55 (RI)	
Psychological Health to Depression	.90 (.11)	12.44
Psychological Health to Anger	.76 (.08)	12.68
Hypothesized associations among the latent variables in Fig 1		
Attributes to Climate	.92 (.07)	18.07
Climate to Job Design	.90 (.04)	19.11
Climate to Job Future	.97 (.05)	14.20
Job Design to Work Adjustment	.61 (.09)	8.16
Job Future to Work Adjustment	.33 (.11)	4.61
Work Adjustment to Alcohol Use	−.09 (1.7)	−2.77
Work Adjustment to Tobacco Use	−.07 (.02)	−2.20
Work Adjustment to Psychological Risk	−.41 (.02)	−9.29
Work Adjustment to Self-Rated Health	.13 (.04)	3.95
Work Adjustment to Turnover Intentions	−.49 (.04)	−15.84
Work Adjustment to Absenteeism	−.20 (.04)	−6.04

Note. RI = reference indicator, and hence, no standard error and *t*-value are calculated. SI: single item indicator where the item was treated as a manifest variable only, and hence, there are no latent-to-manifest parameters to estimate.
[a]Variables modelled as first-order manifest variables only.

closer to zero (the unstandardized coefficient was −.04) with a corresponding unit strengthening in work adjustment.

Discussion

The results are consistent with, and provide support for, the proposed healthy organization model. Clearly, work characteristics influence psychological work adjustment factors that ultimately affect employee health and well-being. Although considerable previous research has supported the association between certain work characteristics and various measures of health and well-being, this research is the first to provide empirical support for a comprehensive model that explains the nature of the relationships among these highly researched constructs. Owing to the cross-sectional design of the study and the complexity of the interrelationships among the proposed variables, a cause–effect relationship should not be inferred from these findings. However, this is an important first step to understanding how organizational actions impact employees. The proposed model demonstrated a good fit overall as well as significant associations among all of the hypothesized second-order latent variables. Rarely does one see a complex model of this nature where all hypothesized associations among second-order constructs and second- to first-order constructs demonstrate statistical significance.

Even though the cross-sectional design restricts conclusions about causality, the study clearly supports the crucial role that employees and their perceptions and expectations play in organizational outcomes, particularly health and well-being outcomes. Policies, procedures, and actions that an organization takes to improve efficiency and effectiveness are filtered through the employees and reflected in their satisfaction with, and commitment to, the job and organization. Hence, any efforts to impact organizational effectiveness must include strategies targeted toward employees to, at a minimum, facilitate their understanding and buy-in. Strategies that involve open communication (DeJoy *et al.*, 1995; McAfee & Winn, 1989; Schurman & Israel, 1995) and broad-based participation (Vandenberg *et al.*, 1999) have been shown to be important. Considerable interest has been generated around the use of high-involvement work processes as a means of fostering employee involvement in organizational initiatives (Eastman & Vandenberg, 1998; Edwards & Wright, 2001; Lawler, 1992; Riordan, Vandenberg, & Richardson, 2003; Vandenberg *et al.*, 1999).

This study also supports the fundamental role organizational climate plays in the effectiveness of an organization. The dimensions included in the climate domain are all related to providing support for employees, either directly, such as through coworker support and participation with others and supervisors, or indirectly through a supportive environment. Clearly, this reinforces the importance of the interpersonal aspects of work and emphasizes how much they influence the nature of work and the employment relationship. This social domain of work is probably the most intriguing and least understood of the constructs studied and yet has a major influence on the efficiency and effectiveness of the organization.

One possible limitation of the present study is that all data were collected from the same respondents using the same instrument–making common method variance a potential problem. However, we feel that this issue was not a significant factor for two reasons. First, reviewing the correlations among first-order constructs in Table 1 indicates that, across (i.e., as opposed to within) second-order constructs, all first-order constructs were only weakly to moderately correlated. This level of correlation suggests that inflation due to common method variance is not a problem. In other words,

if substantial common method variance was present, one would expect many, if not most, of the constructs to be very highly correlated (i.e., |.80| or higher). Second, recent empirical research has indicated that this inflation due to common method variance is not as widespread as initially thought (Crampton & Wagner, 1994). In fact, many of the variables that Crampton and Wagner cite in their analysis are similar to the variables used in this study (e.g., pay and benefits, career advancement, organizational culture, job involvement).

A second possible limitation was related to the level of analysis. This model test was conducted at the individual level. However, the underlying conceptual premises of the model could suggest the need to examine the model at the organizational level. For example, historically the term 'climate' denotes a higher level in that it conveys a sense that each unit varies with respect to the degree in which it promotes stronger communication, participation, and other elements within that particular unit, suggesting that the organizational level of analysis would be most appropriate. At the same time, other dimensions, such as those in the job-design domain, (job content, autonomy, etc.) are clearly conceptualized at the individual level, as were many of the outcome variables (i.e., depression, anger, alcohol use, absenteeism). Since it was not possible to conduct the analysis at both levels, the data were collected from one organization, and the variables were measured at the individual level, it made the most sense to conduct the analysis at the individual level. Future research needs to examine these constructs across multiple organizations and/or address this conceptual quandary.

Finally, these findings have implications for both research and practice. For researchers, this model provides an integrated conceptual framework from which to study healthy work organization. The subject of organization of work and health has yet to become a cohesive field of study (NIOSH, 2002). As indicated in our literature review, multiple disciplines have contributed to the current state of knowledge on the various dimensions of healthy work organization, yet little cross-fertilization exists among the disciplines. This proposed model was an endeavour to draw the knowledge base of work organization together and to provide an initial test of a comprehensive model. An interdisciplinary approach to the study of healthy work organization can result in the leaps of knowledge that are necessary to move this field of study forward and keep pace with the constantly changing conditions of work in the private sector.

Considerable work lies ahead in validating the measures and establishing cause–effect relationships among the proposed first- and second-order latent variables. Additional testing and model refinement are an important next step to provide the confidence necessary for extended organizational application. The model should also be tested in various settings with other organizational outcomes of interest. For example, health-care organizations are concerned with nurse retention and vacancy rates while public-sector organizations look at the provision of services as a measure of effectiveness. In addition, the model needs to be tested using financial variables as a measure of organizational effectiveness. Demonstrating a relationship between the healthy work organization dimensions and the financial success of the organization would provide a strong argument to business for investing in healthier workplaces.

For managers, the findings indicate that organizational action is central to creating or maintaining a healthy work organization. Policies and procedures reflective of the organization's values and beliefs serve as the foundation for organizational change. At the same time, multiple factors must be impacted to effect organizational change. Simply modifying the work environment or increasing employee pay will not of and by themselves create the genesis necessary to significantly impact organizational

effectiveness. The proposed model can provide a foundation for intervention as well, helping organizations identify problem areas and providing a framework for tackling tough issues. Ideally, interventions should foster broad-based participation on the part of employees throughout the organization encouraging open communication, empowering employees to take action to make a difference in their organization, and recognizing and rewarding them for their efforts.

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