Why do managers allocate resources to workplace health promotion programmes in countries with national health coverage?

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SUMMARY

There is extensive evidence that worksite health promotion (WHP) programmes reduce healthcare costs and improve employee productivity. In many countries, a large proportion of healthcare costs are borne by the state. While the full benefits of WHP are still created, they are shared between employers and the state, even though the employer bears the full (after-tax) cost. Employers therefore have a lower incentive to implement WHP activity. We know little about the beliefs of managers with decision responsibility for the approval and implementation of WHP programmes in this context. This article reports the results of a study of the attitudes of Canadian senior general managers (GMs) and human resource managers (HRMs) in the auto parts industry in Ontario, Canada towards the consequences of increasing discretionary spending on WHP, using Structural Equation Modelling and the Theory of Planned Behaviour. We identified factors that explain managers’ intentions to increase discretionary spending on wellness programmes. While both senior GMs and HRMs are motivated primarily by their beliefs that WHP reduces indirect costs of health failure, GMs were also motivated by their moral responsibility towards employees (but surprisingly HRMs were not). Importantly, HRMs, who usually have responsibility for WHP, felt constrained by a lack of power to commit resources. Most importantly, we found no social expectation that organizations should provide WHP programmes. This has important implications in an environment where the adoption of WHP is very limited and cost containment within the healthcare system is paramount.

Key words: worksite health promotion; structural equation modelling; Theory of Planned Behaviour

INTRODUCTION

Controlling the cost of healthcare in the developed world is a major public policy challenge. In the USA, for example, healthcare consumed 15% of GDP ($5635 per capita) in 2003 (compared to 11.9% in 1990), and will rise further as the population ages (OECD, 2005). Figures are similar in countries with a high proportion of state-funded healthcare; the comparable figures for Canada are 9.9% in 2003 to 9.0% in 1990, and in the UK, 7.7% in 2003 to 6.0% in 1990 (OECD, 2005). The Canadian Institute for Health Information (CIHI) estimated that Canadians spent a total of 10.1% of GDP or approximately $3884 per capita on healthcare in 2003 (CIHI, 2005).

Concomitant with the increase in the proportion of GDP being consumed by healthcare costs is growth in worksite health promotion (WHP) strategies. WHP is a highly effective approach to reduce the system-wide demand for healthcare services, since at its core is the notion of prevention and detection—preventing
mortality, morbidity and trauma (injury), and detecting and addressing work- and lifestyle-related health risk factors (Musich et al., 2000; Ozminkowski et al., 2002; Aldana et al., 2005). Employers can be key players in this prevention process (Gilmartin, 2002; Arneson and Ekberg, 2005; Coulter, 2006). Indeed, the US Department of Health and Human Services has established a goal of having 75% of all firms provide comprehensive wellness programmes by 2010 (US Department of Health and Human Services, 2000).

Researchers exploring the demand for healthcare have attempted to measure the ability of WHP to reduce the cost of employee health failure from physiological, mental, emotional, spiritual and social factors. While most authors generally agree that WHP’s effects are positive and long term, they are difficult to measure (Deitz et al., 2005). Opatz (Opatz, 1994), Kaman (Kaman, 1995) and Chapman (Champan, 2003; Champan, 2005) provide excellent summaries of this research. American-based studies find that WHP has a significant positive effect on the direct costs (health insurance) and indirect benefits (e.g. lower absenteeism and turnover, and increased productivity and employee morale) of employee health failure (Musich et al., 2000; Serxner et al., 2001; Ozminkowski et al., 2002; Aldana et al., 2005). For example, Musich et al. (Musich et al., 2000) in a 6-year longitudinal study found that participation in a comprehensive WHP programme reduced medical costs, however, they did not report the cost of the programmes. The Atlantic Health and Wellness Institute found that returns per dollar ranged from $1.64 to $3.98 based on employee risk factors after 3 months of intervention (Spencer and Associates, 2002). BC Hydro claims to have saved $3 for every $1 spent (Wosnick and Kalbfeisch, 2000).

Although not widespread in Canada, employers are increasingly looking to health promotion as a means of controlling employee benefit costs (Taylor, 1996). For example, in our study of Canadian firms, we found that 88% of responding firms had at least one health promotion activity in place, but only 6% had fully incorporated wellness as a corporate value, and only 3% had taken an integrated approach to health (Downey, 2000). In contrast, 34% of all American firms in 1999 had a comprehensive WHP programme at work-sites with 50 or more employees (US Department of Health and Human Services, 2000).

Since ‘managers are at the forefront of any changes in an organization, [and are] actively involved in the decision-making process and [are] responsible for the consequences of any changes made’ (Sparks et al., 2001), successful WHP programmes require management commitment. The literature that has included attempts to understand management motivation to implement WHP is dated and has been limited to a focus on managers as champions (Wilson, 1989; Huston, 1990; Violette, 1991).

Given the extensive evidence in the American environment that reports the return on investment of WHP, it appears that, where state-funded health programmes are absent, cost of providing health insurance to employees is the driver of WHP because most of the benefits of WHP programmes accrue to employers, who bear the cost of experience-based employee health insurance. In contrast, in countries where governments provide universal healthcare, the incentive for firms to adopt wellness programmes is lower: the employer bears the cost, while the healthcare system reaps much of the benefits. Nevertheless, WHP exists in countries with state-funded healthcare systems (Downey, 2000). Although corporate accounting information systems are easily able to identify the costs of WHP, the benefits are more difficult to measure and these are shared with the state. In the absence of hard evidence of a high-level of payoff to firms, managerial beliefs about the benefits of WHP are an important starting point for understanding, motivation for implementing or enhancing WHP programmes.

This article explores the beliefs about WHP of senior general managers (GMs) and human resource managers (HRMs), both of whom play key roles in WHP decision-making, in the context of a state-funded healthcare system. GMs are responsible for formulating corporate strategies that determine whether the organization embraces responsibility for the well-being of its employees, while HRMs, who have responsibility for planning and controlling the cost of employee benefit plans, are most aware of the impact of employee health failure on absenteeism and turnover and are often the key administrators of corporate wellness programs (Downey, 2000).
RESEARCH DESIGN AND DATA

Model

We employ the Theory of Planned Behaviour (TPB) to better understand the intentions of managers. Although widely used in marketing and psychology, this model has only recently been used in a health context. TPB has been used to explain healthy eating habits (Bogers et al., 2004; Verbeke and Vackier, 2005), the behaviour of patients diagnosed with coronary heart disease (Johnston et al., 2004), binge drinkers (Armitage et al., 2002; Johnston and White, 2003), safe sex and drinking and driving (Armitage et al., 2002). This study tests the TPB in a new and broader context focusing on strategic managerial intention to implement WHP rather than individual participation in WHP.

TPB employs four constructs to predict behavioural intention: Attitude, Subjective Norm, Volitional Control and Moral Responsibility (Ajzen and Fishbein, 1969; Ajzen, 1988; Gorsuch and Ortberg, 1983; Ajzen, 1991; Beck and Ajzen, 1991). Attitude towards a behaviour is an individual favourable or unfavourable evaluation of the outcomes arising from the behaviour in question. Subjective Norm captures the perceived social pressure to perform (or not) the behaviour. Volitional Control measures an individual's perception of the ease or difficulty of performing the behaviour based on experience and anticipated future obstacles. Moral Responsibility is an individual's feeling of personal moral obligation to perform the behaviour. It therefore follows that each experiment requires the creation of a customized instrument. The model is shown in Figure 1.

Attitude has two antecedent components, behavioural belief and outcome evaluation. The behavioural belief is a respondent's perceived likelihood that identified outcomes of WHP will actually result from increased discretionary spending on health promotion. It is measured using a seven-point Likert scale, anchored by 1 (unlikely) and 7 (likely). The outcome evaluation is the perceived desirability (or undesirability) of each of the identified outcomes of WHP. It is captured on the seven-point Likert scale anchored by +3 (desirable) and -3 (undesirable). Thus, a zero-centred scale permits both positive and negative evaluations, giving an undesirable outcome item a negative score, reducing the overall attitude score. Ajzen ([Ajzen, 1991] p. 193) suggests that ‘it is permissible to apply any linear transformation to the respondents’ ratings without altering the measure’s scale properties’.

To measure an individual’s attitude, each item of the behavioural belief is multiplied by its corresponding outcome evaluation (desirability). For example, reduced absenteeism was identified in the literature as one outcome from WHP. A respondent might believe that this outcome is very likely (and therefore score 7 on the belief scale), and also very desirable (scoring +3 on the evaluation scale). This results in a score of +21 for this attitude item. In contrast, another respondent might also believe that the outcome is likely (+7), but that it is very undesirable (-3), resulting in a score of -21 on this item. The attitude score is the sum of these multiplied item scores.

The Subjective Norm construct measures the importance of approval of the behaviour by an individual’s referent groups. Similar to the Attitude construct, Subjective Norm is formed by two multiplicative antecedent components, Normative Belief and Motivation to Comply. Normative Belief is the subjective evaluation of the extent of a referent group’s approval for the behaviour, in this case the implementation of WHP. Items capturing an individual’s perceived approval of WHP was coded using the seven-point Likert scale anchored by 7 (likely) and 1 (unlikely). Motivation to Comply is a measure of the importance of each referent group to the individual, and was anchored by +3 (very much) and -3 (not at all). For example, a respondent might believe that a peer thinks that the respondent should commit resources to activities that attempt to modify employees’ health behaviour (+7) but that the peers’ opinions are unimportant to the respondent (-3). This would result in a Subjective Norm score of -21 for this item.

Volitional Control (also known as perceived or behavioural control) is a measure of an individual’s perception of how much control he/she has over increasing discretionary spending on WHP. Items capturing an individual’s perceived control were anchored by 7 (complete control) and 1 (very little control).

Although some versions of the TPB omit Moral Responsibility, Gorsuch and Ortberg (Gorsuch and Ortberg, 1983) recommend that, in situations with a moral dimension, the Moral
Responsibility construct should be included. We therefore included four positive statements of an individual’s moral obligation towards employees’ well-being based on Hart’s (Hart, 1961) criteria for moral decisions: (i) that the benefits of WHP to society outweigh the cost; (ii) that since employees spend so much time at work, it is only fair that management look after their well-being (iii) that the firm has a moral obligation to improve employees’ well-being and (iv) that the firm should support employees’ wellness because other firms do so. The items were anchored by 1 (agree) and 7 (disagree). Table 1 shows a list of the items included in the instrument.

**SURVEY INSTRUMENT DEVELOPMENT**

Although the TPB has been used and tested extensively, its use in health promotion research is limited. Using the WHP literature and suggestions from health promotion experts, the items measuring the constructs of the model
were first identified, and then pilot-tested with 18 managers at six firms (not included in the subsequent survey). Table 1 lists the items included in the instrument.

**Sample and data**

The sample size was based on the modest requirements of our statistical tool, Partial Least Squares (PLS). Chin (Chin, 1988) suggests that the sample size should at least equal either 10 times the greatest number of formative indicators in a construct or 10 times the greatest number of structural paths leading to a particular construct in the model. Therefore, 40 responses from each management group are sufficient for our model.

In order to control industry and regional effects, the sample was selected from one industry, the automotive parts manufacturing industry (SIC 3465 and 3714) in Ontario, Canada. Questionnaires were sent to all 213 automotive parts firms in Ontario listed in Scott’s Directory of Canadian Manufacturers. We telephoned each firm to confirm the name and fax number of the managers of interest. We received responses from 58 senior GMs, of whom 12 declined to participate and 46 returned a completed instrument (22% response rate); and 79 senior HRMs, of whom 12 declined to participate and 67 returned a completed instrument (33% response rate). The survey was faxed overnight to respondents. Although large companies are more likely than smaller companies to have health promotion programmes in place, developing a healthy workforce does not require large budgets (Chenoweth, 1994; Lewis, 1995; Downey, 2000). Our sample therefore included managers from companies of all sizes (with a minimum requirement of 50 employees) since both small and large firms can, and often do, develop health promotion programmes.

**Statistical method**

We adopted a structural equation modelling approach, using PLS for this exploratory study. PLS models are more suited to exploratory studies than maximum likelihood methods such as LISREL, as they provide a closer fit to observations, resulting in successful applications for real-world data (Wold, 1972). PLS uses a

<table>
<thead>
<tr>
<th>Construct name</th>
<th>Item</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude (Outcome evaluation)</td>
<td>Improved employee morale</td>
<td>0.6945</td>
</tr>
<tr>
<td></td>
<td>Increased discretionary spending</td>
<td>0.3036</td>
</tr>
<tr>
<td></td>
<td>Increased productivity</td>
<td>0.8723</td>
</tr>
<tr>
<td></td>
<td>Increased life span — increasing pension costs</td>
<td>0.3402</td>
</tr>
<tr>
<td></td>
<td>Decrease employee absenteeism</td>
<td>0.8340</td>
</tr>
<tr>
<td></td>
<td>Increase awareness for disability claims</td>
<td>0.4421</td>
</tr>
<tr>
<td></td>
<td>Decrease employee turnover</td>
<td>0.8727</td>
</tr>
<tr>
<td>Subjective Norm (Referent groups)</td>
<td>Supervisor</td>
<td>0.8058</td>
</tr>
<tr>
<td></td>
<td>Peers</td>
<td>0.8202</td>
</tr>
<tr>
<td></td>
<td>Customers/clients</td>
<td>0.6995</td>
</tr>
<tr>
<td></td>
<td>Shareholders/owners</td>
<td>0.4938</td>
</tr>
<tr>
<td></td>
<td>Subordinates</td>
<td>0.8453</td>
</tr>
<tr>
<td></td>
<td>Other Businesses</td>
<td>0.3782</td>
</tr>
<tr>
<td></td>
<td>Community</td>
<td>0.7729</td>
</tr>
<tr>
<td>Volitional control</td>
<td>Control over implementation of WHP programmes</td>
<td>0.8666</td>
</tr>
<tr>
<td></td>
<td>Control over discretionary spending</td>
<td>0.8889</td>
</tr>
<tr>
<td></td>
<td>Influence on budget for wellness activities</td>
<td>0.9276</td>
</tr>
<tr>
<td></td>
<td>Extensiveness of budget participation</td>
<td>0.6021</td>
</tr>
<tr>
<td>Moral responsibility</td>
<td>Benefits to society outweigh costs</td>
<td>0.7403</td>
</tr>
<tr>
<td></td>
<td>Moral obligation to improve employee well-being</td>
<td>0.9049</td>
</tr>
<tr>
<td></td>
<td>Fairness to employees</td>
<td>0.9167</td>
</tr>
<tr>
<td></td>
<td>Societal norm — other firms do WHP</td>
<td>0.3733</td>
</tr>
</tbody>
</table>

The bolded loadings indicate items that reliably measure their respective constructs and were included in the trimmed model.
combination of principal-components factor analysis, regression and canonical correlation to create path coefficients that are standardized regression coefficients and loadings of the items on the constructs that are factor loadings (Barclay et al., 1995). We used the 1998 version of PLS graph (291.03.04) developed by Chin and Frye in this analysis.

Assessing the measurement and structural models

PLS estimates the outer (measurement) and inner (structural) parameters simultaneously, but the first step is to validate the measurement model. It is important to ensure that the manifest variables are reliable and valid measures of the constructs before drawing conclusions about the nature of the relationships among the constructs (Hulland, 1995). The loading of the items on their respective constructs assesses the reliability of the items. Loadings much under 0.70 indicate that the item should be dropped from further analysis. We used Fornell and Larker’s (Fornell and Larker, 1981) measure of internal consistency in place of the more usual Cronbach alpha, as it is more applicable in PLS analysis, because it takes the weightings of the individual items measuring a construct into account, whereas Cronbach alpha assumes equal weighting (Barclay et al., 1995). Similar to Cronbach alpha, the critical value of Fornell and Larker’s measure of internal consistency is 0.70, indicating reasonable reliability. Items loading at 0.7 and above, together with budget participation in the Volitional Control construct (which, although loading at 0.60, had strong theoretical support), were included in the trimmed model for further analysis. See Table 1 for item loadings.

We verified discriminant validity, first by examining the cross loading matrix to ensure that no item loads more highly on another construct than it does on the construct it is supposed to measure. Secondly, Average Variance Extracted (AVE) determines the average variance shared between a construct and its measures. According to Fornell and Larker (Fornell and Larker, 1981), a construct should share more variance with its measures than it shares with other constructs in the model. Discriminant validity is adequate if the square root of the AVE is significantly greater than the correlation coefficient (Barclay et al., 1995). These tests of reliability, internal consistency and discriminant validity assure that the trimmed measurement model was sound. See Table 2 for discriminant validity test.

RESULTS

With the reliability and validity of the measurement model established, the trimmed structural model can identify the factors influencing GMs’ and HRMs’ intention to increase discretionary spending on workplace wellness programmes. We ran the trimmed model separately for each management group, using jack-knifing (Fornell and Barclay, 1983) to test the significance of the paths. Table 3 presents the standardized weights and loadings of the measurement model. The table shows that for HRMs’ Volitional Control, all three measurement items had negative weightings.

Figure 2, the structural model, shows that the TPB model explains nearly 60% of the variance in HRMs’ intention, and 42% of the variance in GMs’ intention to increase discretionary spending on health promotion programmes.

<table>
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<tr>
<th>Table 2: Discriminant validity test</th>
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<tbody>
<tr>
<td>Construct</td>
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<tr>
<td>Attitude</td>
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<tr>
<td>Subjective norm</td>
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<tr>
<td>Moral responsibility</td>
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<tr>
<td>Volitional control</td>
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<tr>
<td>Intention</td>
</tr>
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</table>

The bold diagonal elements are the square roots of the variance shared between the constructs and their measures (i.e. the AVE). Off-diagonal elements are the correlations between constructs. For good discriminant validity, the diagonal elements should be larger than any other corresponding row or column entry.
For the constructs that have significant paths to Intention, the Attitude construct captures the importance of the outcomes to each group, and was the most important driver of both GMs’ (51.3% of variance explained) and HRMs’ (51.1% of variance explained) intentions to implement WHP. However, Moral Responsibility was a significant predictor of Intention for GMs (37.2% of variance explained), but not for HRMs. After Attitude, HRMs intention is predicted by Volitional Control (23.7% variance explained). As noted previously, the antecedent construct Subjective Norm did not significantly explain either of the groups’ intention to implement health promotion programmes.

In summary, for GMs, Attitude and Moral Responsibility were the only two significant predictors of Intention, accounting for over 88% of the variance explained, with Attitude being the more important predictor. HRMs have a higher $r^2$ than the management group, indicating that this model captured more of the explanation for their intention to implement health promotion programmes than GMs. The Attitude construct captures over 51% of the variance explained for the HRM group with an additional 24% accounted for by the Volitional Control construct. A notable finding was that the Moral Responsibility construct was not significant for HRMs. In addition, volitional control was not significant for GMs, but this may be because

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**Fig. 2:** Individual management groups’ structural models.
control is not an issue for them, but an assumed condition of their position.

DISCUSSION

In the measurement model of HRMs’ Volitional Control, all three measurement items had negative weightings. It is interesting that HRMs, who are most closely associated with the design and implementation of health promotion programmes, are negatively influenced by the amount of control, they perceive, they have in increasing expenditure to implement health promotion programmes. Volitional Control appears to be capturing senior HRMs’ perceived ‘powerlessness’ to impact spending in the area of health promotion. The ‘powerlessness’ of HRMs to control increased discretionary spending may have important negative implications for the successful implementation of health promotion programmes in many firms. This finding supports the importance of Yeo’s (Yeo, 1993) advocacy of empowerment (or enabling) in the context of WHP.

Organizational behaviour experts we consulted were not surprised by the lack of importance for HRMs’ Moral Responsibility construct. They suggest that, in today’s business environment, the role of HRMs is very outcome-oriented. HRMs are increasingly concerned with the ‘bottom line’ of their function and are, therefore, likely to be motivated not by moral responsibility, but by outcomes linked to cost-savings. This is supported by the results of this study, where the outcomes of WHP on employee productivity, morale, absenteeism and turnover account very significantly for HRMs’ intention to implement health promotion programmes.

This finding suggests that there is currently little or limited society-wide expectation in Canada for the existence of health promotion programmes in the workplace. In addition, this finding is reinforced by the failure to load of the item regarding societal norm for the Moral Responsibility construct and the shareholders and other business items on the Subjective Norm construct.

Both management groups place heavy emphasis on WHP outcomes, but differ on moral responsibility and volitional control. This suggests that education regarding the impact of health promotion programmes may have to take a different focus for each management group.

A significant limitation of this study is that it was restricted to a single industry, in a single region of one country. Future studies could explore the extent to which our findings are generalizable beyond the auto parts industry, and beyond Ontario, Canada.

The use of PLS was an advantage in this study, where access to busy subjects was difficult, in that its data demands are very modest. Further studies could benefit from this parsimonious statistical method. While a response rate in the region of 25% is low by many standards, and increases the possibility of selection bias, it is very high by the standards of manager samples, and was achieved by personal telephone contact with each company prior to faxing the instrument.

This study applied the TPB to the exploration of an important resource allocation decision in firms — spending on employee health promotion or wellness — in the context of a state-funded healthcare system. TPB was able to explain significant variance in the intention to commit resources to wellness programmes. We found significant, and surprising, differences in the attitudes of two key management groups — GM and HRM professionals. An understanding of these differences will help in the design of informational programmes in firms that plan to implement WHP activities.

In a state-funded healthcare environment, a greater challenge is to align government policies towards reduction in the demand for health services. Although prevention is increasingly a public policy priority, currently WHP has limited support in Canada. Most importantly, our inability to find any social expectation that organizations should provide WHP programmes is of concern. This has important implications in the Canadian environment, where the adoption of WHP is very limited and cost containment within the healthcare system is paramount.

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