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Disability Management Practices in Education, Hotel/Motel, and Health Care Workplaces

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Background *The high costs and the impact of work disability have become a growing concern for workplaces. As a result, workplace disability management approaches have been developed to lower disability costs, protect the employability of workers, and promote early return to work.*

Methods *A stratified random sample of 455 employers in education (n = 157), hotel/motel (n = 110), and health care (n = 188) sectors who completed a mailed Organizational Policies and Practices (OPP) questionnaire is reported. The OPP questionnaire asked questions about eight workplace disability management practices. The article examined the multi-dimensionality, internal consistency, and discriminant validity of the OPP and compares disability management practices across the three sectors.*

Results *The OPP questionnaire showed good internal consistency (Cronbach's alpha = 0.95) and discriminant validity. A one-way analysis of variance (ANOVA) for each of the eight subscales demonstrated that there were statistically significant differences between the sectors in ergonomic practices ($F(2,452) = 15.8$, $P < 0.001$), disability case management ($F(2,452) = 4.6$, $P < 0.01$), return to work ($F(2,452) = 10.3$, $P < 0.001$), and people-oriented culture ($F(2,452) = 4.5$, $P < 0.01$).*

Conclusions *On examining disability management practices in education, hotel/motel, and health care sectors, the OPP seems to be a promising instrument that can be used to assess and monitor how employers are managing disability.* Am. J. Ind. Med. 47:217–226, 2005. © *2005 Wiley-Liss, Inc.*

KEY WORDS: disability management; organizational behavior; rehabilitation; measurement; surveys

INTRODUCTION

The high costs and impact of work-related injuries and resulting disability have become a growing concern for workplaces [Hunsley, 1996; Millington and Strauser, 1998; Salkever et al., 2000]. As a result, various disability management approaches have been adopted or developed to lower disability costs, protect the employability and productivity of workers and promote safe and timely return to work for injured and disabled workers [Scully et al., 1999; Brooker et al., 2000; Watson Wyatt Worldwide, 2000]. Workplace injuries can result in substantial financial losses to employers through disability insurance premiums, workers' compensation premiums, and worker replacement costs [Brooker et al., 2000; Boden et al., 2001]. Moreover, the longer injured workers are off work, the less likely they are to

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return to work [Krause and Ragland, 1994; Scheer et al., 1995; Rondinelli et al., 1997; Johanning, 2000; Strunin and Boden, 2000].

Disability management programs are pro-active, employer-based approaches to: (a) prevent and limit disability; (b) provide early intervention for health and disability risk factors; and (c) foster coordinated disability management administrative and rehabilitative strategies to promote cost effective health restoration and return to work [Habeck et al., 1991; National Institute of Disability Management and Research (NIDMAR), 2000]. The primary goal of managing disability is safe and early return to work. Work-related injuries are the result of a complex interaction of several factors such as the worker's condition and how it is managed both clinically and at the workplace; ergonomic workplace demands; the worker's physical capabilities; safety conditions at the workplace; a wide range of psychosocial factors; and the broader social, economic, and legislative environment [Shrey, 1996; Brooker et al., 2000; NIDMAR, 2000]. Research has shown that certain disability management approaches by employers, insurers, and workers' compensation agencies can result in successful return to work [Brooker et al., 2000; McLellan et al., 2001]. Effective disability management programs often include modified work programs, reduced hours, vocational rehabilitation, medical case management, integrated pro-active return to work programs, and employee-supportive communication among employers [Habeck et al., 1991, 1998; Daly and Bound, 1996; Frank et al., 1996; Krause et al., 1998, 2001].

Most of the literature on managing disability in the workplace has been obtained primarily from the manufacturing industry and from workplaces that have more than 100 employees [Habeck et al., 1991, 1998; Watson Wyatt Worldwide, 2000]. Habeck et al. [1998] conducted a survey with a random sample of 220 Michigan firms and using a 95-item questionnaire examined the relationships of people-oriented culture, safety leadership, safety training, safety diligence, ergonomic practices, disability case management, return to work, and wellness orientation to the incidence and duration of injury claims. They showed that safety diligence, a pro-active return to work program, and people-oriented culture were related to lower claim rates and duration. Using the dataset from the Habeck et al. [1998] study. Amick (personal communication)[1] shortened the 95-item instrument by dropping the wellness orientation subscale and including a subscale of joint health and safety climate.

We present the first data on the use of the revised Organizational Policies and Practices (OPP) questionnaire, with a sample of Ontario, Canada employers in the education, hotel/motel, and health care sectors. This article examines the multi-dimensionality, internal consistency, and discriminant validity of the OPP questionnaire and compares disability management practices across the three sectors.

[1] A copy of the Organizational Policies and Practices (OPP) questionnaire can be obtained from Dr. Amick at benjamin.c.amick@uth.tmc.edu.

MATERIALS AND METHODS

Workplaces

One thousand and four workplaces in Ontario, Canada in the education, hotel/motel, and health care sectors were randomly selected from a list of workplaces provided by the Ontario Workplace Safety and Insurance Board. To obtain a representative sample, these workplaces were stratified according to type or size. Education was stratified according to type of facility (school boards, publicly and privately funded elementary and secondary schools, colleges, and universities); hotel/motel workplaces were stratified according to size (small = less than 20 employees; medium = 21–100 employees; large = greater than 101 employees; and unknown); and health care workplaces were stratified according to the type of facility (hospitals, private clinics, nursing homes, and community clinics). This multi-staged stratified sampling procedure ensured that there were enough workplaces in each category.

Survey Instrument

The OPP questionnaire (Amick, personal communication) with some changes was used in this study. An additional item was added to the ergonomic practices subscale—*your workplace provides educational sessions on ergonomics to minimize the risk of injury.* Item #3 in the Safety Training subscale was changed from *"OSHA"* to *"WHMIS"* material safety datasheet to reflect the local terminology. In addition, the wording in the "*Labor Management and Health and Safety Committee*" subscale was changed to "*Joint Health and Safety Climate*." These modifications resulted in a 52-item questionnaire. The OPP asks employers to rate each item, on a 5-point Likert scale from 1 (0% or never) to 5 (100% or always), the extent to which their workplace achieves the following eight activities: safety diligence (7 items), safety training (4 items), ergonomic practices (8 items), disability case management (6 items), return to work (8 items), safety leadership (7 items), people-oriented culture (9 items), and joint health and safety climate (3 items).

Also included were demographic questions in the survey. They were: how many full-time employees work at your workplace? How many part-time employees work at your workplace? Are your employees members of unions? Does your workplace have formal disability management policies in place? Does your workplace purchase disability management services from outside resources? If your workplace purchases disability management services, what services are purchased?

The study was approved by the Research Ethics Board, McMaster University, Hamilton, Ontario, Canada. Prior to administering the OPP questionnaire, it was pilot tested with approximately 10 employers in each sector. The OPP also was examined by a group of employers, human resources, and union personnel who were part of the research project's Steering Committee. A copy of the questionnaire is presented in the Appendix.

Data Collection Procedures

Prior to mail-out, a telephone call was made to each workplace to introduce the survey, to acquire, if possible, the name of the contact person who would complete the OPP and to obtain the workplace's permission to participate. Since the three sectors have different busy times during the year and to maximize the response rate, the sectors were surveyed one at a time. The education sector, was surveyed first, followed by the hotel/motel sector and then health care workplaces. A total of 63 workplaces (31 in education, 25 in hotel/motel, and 7 in health care) were removed from the sample because they had gone out of business, were incorrectly identified or were unreachable. They were replaced, where possible, with a workplace that was sampled by the same process described above.

The OPP questionnaire was mailed to employers in education (principals of elementary and secondary schools—both publicly and privately funded, human resources managers at school boards, human resources managers/directors in universities and colleges), hotel/motel (managers, human resources managers), and health care (supervisors/managers in health care facilities, human resources managers in hospitals) workplaces between February 2001 and September 2001. Two rounds of follow-up reminder letters and telephone calls, as well as additional OPP questionnaires, were mailed or faxed to the non-respondents. Thank you letters were mailed to all respondents.

Analysis

Chi-square analyses were used to determine if the response rate differed for the three sectors and if other characteristics varied across responders by sector. Mean scores, varying between 1 and 5, were computed for each of the eight subscales in the OPP. Floor and ceiling effects were examined by determining the percent of responses that clustered at ''1'' and at ''5,'' respectively of the scale. Eighty percent or higher endorsement indicates a floor or ceiling effect [Streiner and Norman, 1995]. In scale development, it is important to examine ceiling effects to determine if social desirability has occurred [Streiner and Norman, 1995]. Social desirability is a tendency for people to present themselves in a socially desirable manner to achieve the approval of others [DeVellis, 1991]. Floor effects are examined to detect items that are not relevant and should not be included in the scale [Streiner and Norman, 1995]. Internal consistency via Cronbach's alpha was used to determine the item reliability. An acceptable level of Cronbach's alpha is 0.7 [Streiner, 1993]. Inter-subscale correlations using the Pearson correlation coefficient were calculated. Scaling success rates [McHorney et al., 1994] were examined to further establish the magnitude of the Cronbach's alphas for each of the eight subscales. Scaling success measures subscale-item correlations (corrected for overlap) so that the degree to which each item correlates with the subscale (excluding the item under investigation) can be determined. In scaling success, two criteria must be met: an item should correlate more strongly with the subscale it is supposed to belong to than with another subscale, and the item-total correlations for each subscale must yield a value of greater than 0.4. If these are both met for at least 90% of the items in a subscale, then scaling success is achieved.

A separate one-way analysis of variance (ANOVA) for each of the eight subscales was calculated to determine if there were statistically significant differences in the practices among the three sectors. For the significant ANOVA results, a series of post-hoc paired mean comparisons using Scheffe's test were used to determine which workplace activities were significantly different between sector pairs [Kleinbaum et al., 1988].

RESULTS

A total of 455 out of 1,004 eligible employers responded (45%). One hundred and fifty-seven out of 333 education workplaces (47%), 110 out of 335 hotels/motels (33%), and 188 out of 336 health care facilities (56%) returned completed questionnaires. Response rates varied significantly by sector ($\chi^2 = 13.8$, df = 2, $P < 0.001$).

The characteristics of the respondent workplaces across the three sectors are shown in Table I. There were statistically significant differences among the three sectors with regard to being unionized ($\chi^2 = 92.74$, df = 2, $P < 0.001$), having formal disability management policies ($\chi^2 = 28.54$, df = 2, $P < 0.001$), and purchasing disability management services ($\chi^2 = 24.04$, df = 2, $P < 0.001$). There was a statistically significant association between being unionized and having formal disability management policies for the sectors (education: $\chi^2 = 10.15$, df = 1, $P < 0.001$; hotel/motel: $\chi^2 = 15.14$, df = 1, $P < 0.001$; health care: $\chi^2 = 25.21$, df = 1, $P < 0.001$). There also was a statistically significant association between having formal disability management polices in place and purchasing disability management services for education ($\chi^2 = 16.55$, df = 1, $P < 0.001$) and health care ($\chi^2 = 8.84$, df = 1, $P = < 0.01$) but not for the hotel/motel sector.

Mean scores for the total sample as well as each sector are displayed in Table II. The scale item responses were well

TABLE I. Workplace Characteristics in Education, Hotel/Motel, and Health Care (n = 455); Canada

	Education (n = 157) mean (SD)	Hotel/motel (n = 110) mean (SD)	Health care (n = 188) mean (SD)
Number of full-time employees at the workplace	1,257 (4,462)	104.3 (135.0)	561 (1,219)
Number of part-time employees at the workplace	173 (755)	2.0 (4.4)	38 (185)
	n (%)	n (%)	n (%)
Employees are members of unions*			
Yes	145 (92)	42 (38)	126 (67)
No	10 (7)	68 (62)	60 (32)
Missing	2 (1)	0 (0)	2 (1)
Workplace has formal policies*			
Yes	107 (68)	35 (32)	116 (62)
No	47 (30)	53 (48)	47 (25)
Missing	3 (2)	22 (20)	25 (13)
Workplace purchases disability management services*			
Yes	41 (26)	6 (6)	40 (21)
No	104 (66)	84 (76)	125 (67)
Missing	12 (8)	20 (18)	23 (12)
Disability management services that are purchased[a]			
Case management	4 (n/a)	0 (n/a)	0 (n/a)
Physical demands analysis	2 (n/a)	0 (n/a)	3 (n/a)
Functional abilities evaluation	3 (n/a)	0 (n/a)	2 (n/a)
Independent medical evaluations	4 (n/a)	0 (n/a)	23 (n/a)
Short/long term insurance carriers	14 (n/a)	2 (n/a)	14 (n/a)
Rehabilitation services	10 (n/a)	2 (n/a)	6 (n/a)
Workers Safety and Insurance Board	1 (n/a)	2 (n/a)	1 (n/a)
Employee assistance program	1 (n/a)		1 (n/a)
Missing	118 (n/a)	104 (n/a)	138 (n/a)

n/a, not applicable.
*All P values < 0.001 using χ^2 test.
[a]Workplaces could provide more than one answer.

distributed and did not exhibit floor or ceiling effects. A one-way ANOVA for each of the eight subscales showed that there were statistically significant differences for ergonomic practices, disability case management, return to work, and people-oriented culture across the three sectors. As can be seen in this table, health care organizations scored the highest for ergonomic practices, disability case management, and return to work, while the education sector achieved the

TABLE II. Mean Scores for the Organizational Policies and Practices (OPP) Questionnaire in Education, Hotel/Motel, and Health Care Workplaces; Canada

Practices	Total sample (n = 455) mean (SD)	Education (n = 157) mean (SD)	Hotel/motel (n = 110) mean (SD)	Health care (n = 188) mean (SD)	$F(2,452)$	P
Safety diligence	4.2 (0.6)	4.2 (0.6)	4.3 (0.5)	4.2 (0.5)	2.2	0.10
Safety training	4.0 (0.9)	4.0 (0.9)	4.0 (1.0)	4.0 (0.8)	0.2	0.83
Ergonomic practices	3.3 (0.9)	3.1 (0.9)	3.0 (0.9)	3.5 (0.8)	15.8	<0.0001
Disability case management	3.9 (1.1)	3.7 (1.1)	3.8 (1.3)	4.1 (1.0)	4.6	<0.01
Return to work	3.4 (1.1)	3.1 (1.2)	3.4 (1.2)	3.7 (.9)	10.3	<0.0001
Safety leadership	3.9 (0.1)	3.9 (1.0)	3.9 (1.1)	4.0 (0.9)	0.9	0.61
People-oriented culture	3.8 (0.7)	4.0 (0.7)	3.7 (0.6)	3.8 (0.6)	4.5	<0.01
Joint health and safety climate	4.1 (0.9)	4.1 (0.7)	4.1 (0.9)	4.2 (1.0)	0.5	0.58
Total	3.8 (0.6)	3.8 (0.6)	3.8 (0.7)	3.9 (0.5)	3.9	0.02

Scores are based on the 5-point scale (never = 1; always = 5).

highest score for people-oriented culture. All respondents rated safety diligence the highest while ergonomic practices were rated the lowest.

Post-hoc comparisons (Scheffe's test) showed health care workplaces were significantly better than those in education for ergonomic practices, disability case management, and return to work approaches. The education sector, though, was significantly better than hotels/motels for people-oriented culture. Health care workplaces were significantly better than hotels/motels in their ergonomic practices.

Cronbach's alpha for the total OPP questionnaire was 0.95 indicating high internal consistency. Cronbach's alphas for the eight subscales (Table III) varied from 0.69 (safety diligence) to 0.92 (return to work). When the items in each of the subscales were removed sequentially, the recalculated alphas dropped minimally, suggesting that each item makes some unique contribution to the subscale. For each subscale, the item-to-subscale correlations were greater than 0.4. In every case, the items correlated highest with the subscale to which they were hypothesized to belong. Therefore, scaling success was 100% for all subscales indicating strong discriminant validity.

Inter-subscale correlations are displayed in Table IV. The Pearson correlation coefficients varied from low to moderate ($r = 0.11–0.72$), suggesting that most subscales were measuring different and unique aspects of disability management.

DISCUSSION

The study showed that there were significant differences in workplace disability management practices among education, hotel/motel, and health care workplaces. More specifically, health care was significantly better than education in ergonomic practices, disability case management, and return to work. The education sector was significantly better than the hotel/motel sector in people-oriented culture, and health care was significantly better than hotels/motels in ergonomic practices. The findings for the health care sector are not surprising given the high incidence of on-the-job musculoskeletal injuries among these workers [Canadian Institute of Health Information, 2001; Sibbald, 2002]. Nurses are especially susceptible to musculoskeletal injuries when moving and lifting patients and are at risk for other hazards such as needle-stick injuries, illnesses, stress, and workplace abuse [Trinkoff et al., 2003]. In 2002, health care workers, compared to workers in other sectors, were one and a half times more likely to miss work because of illness and disability than workers in other sectors [Canadian Institute of Health Information, 2001; Sibbald, 2002]. It seems that the health care sector has realized that if the costs of work-related injuries are to be reduced, more effective disability management practices need to be put into place, and consequently they have made changes to their practices and policies. The findings that the education sector was significantly better than the hotel/motel sector in people-oriented culture is difficult to explain. One explanation may be that the majority of education workplaces (92%) are unionized and the unions have considerable impact on how injuries and disability are managed, which may have a positive influence on employer and employee relationships. Health care was significantly better than the hotel/motel sector in ergonomic practices. While there is no literature to which we can compare these findings, this could be due to the influence of occupational health and safety procedures in implementing ergonomic practices. It could also be due to the availability of research evidence demonstrating the effectiveness of ergonomic practices on reducing musculoskeletal injuries, decreasing work absenteeism, and promoting safe and early return to work [Bohr et al., 1997; Loisel et al., 2001; Trinkoff et al., 2003].

It is interesting to note that all respondents rated safety diligence the highest while ergonomic practices were rated the lowest. Amick et al. [2000], (p 30) defines safety

TABLE III. Cronbach's Alphas for the Subscales in the Organizational Practices and Policies Questionnaire in Education, Hotel/Motel, and Health Care Workplaces; Canada

Practices	Number of cases	Number of items in each subscale	Alpha	Spearman Brown for 52-item scale[a]
Safety diligence	400	7	0.69	0.94
Safety training	394	4	0.78	0.98
Ergonomic practices	379	8	0.87	0.98
Disability case management	391	6	0.89	0.99
Return to work	383	8	0.92	0.99
Safety leadership	390	7	0.89	0.98
People-oriented culture	378	9	0.86	0.97
Joint health and safety climate	429	3	0.84	0.99

[a]Spearman Brown Prophesy was used to adjust for the unequal number of items in each subscale.

TABLE IV. Inter-Subscale Correlations for the OPP Questionnaire in Education, Hotel/Motel, and Health Care Workplaces; Canada

	Safety diligence	Safety training	Ergonomic practices	Disability case management	Return to work	Safety leadership	People-oriented culture	Joint health and safety climate
Safety dilligence	1.00	0.49*	0.35*	0.11*	0.11*	0.46*	0.40*	0.30*
Safety training		1.00	0.51*	0.34*	0.35*	0.56*	0.29*	0.37*
Ergonomic practices			1.00	0.42*	0.51*	0.57*	0.35*	0.33*
Disability case management				1.00	0.72*	0.46*	0.17*	0.36*
Return to work					1.00	0.51*	0.12*	0.34*
Safety leadership						1.00	0.36*	0.52*
People-oriented culture							1.00	0.28*
Joint heath and safety climate								1.00

*Significance of Pearson correlation coefficient, $P < 0.01$.

diligence as ''the practices that company personnel engage in to protect employee safety. They include maintaining safe work environments and taking action to redress unsafe conditions.'' This would suggest that all sectors perceive themselves as carrying out good safety practices within their workplaces. It could be argued that since provincial legislation [Ontario Ministry of Labor, 1997] emphasizes the importance of safety diligence with respect to workplace safety practices, the respondents felt that they needed to endorse safety diligence so that they would appear to be conforming to the standards. The Workplace Safety Insurance Board Act [Ontario Ministry of Labor, 1997] states that its purpose is to prevent and reduce the occurrence of workplace injuries and occupational diseases, and the Act clearly places the responsibility for monitoring and acting on safety concerns on employers.

The finding that ergonomic practices were rated the lowest is surprising. Ergonomics is the study of people and work, and involves the evaluation of conditions that arise from a mismatch between physical demands of a job and the physical limitations of the worker [Workers' Compensation Board of Manitoba, 2003]. Ergonomics began as an examination of the ''man/machine'' interface and has expanded over the years to include all factors involved in the task of carrying out work (e.g., organization of work, hours of work) [Kumar, 2000]. Lincoln et al. [2000] in a systematic review of 24 studies related to work-related upper extremity disorders (WRUED) found that ergonomic interventions that covered redesign, task rotation, and training were correlated with a decrease in the incidence of WRUEDs. As discussed above, other studies support the use of ergonomic interventions in reducing musculoskeletal injuries, decreasing work absenteeism, and promoting safe and early return to work [Albers et al., 1997; Bohr et al., 1997; Loisel et al., 2001; Anema et al., 2003; Trinkoff et al., 2003].

It should also be realized that the endorsement of many of the activities in the OPP questionnaire, especially disability case management, return to work and joint health and safety climate may be influenced by provincial legislation [Ontario Ministry of Labor, 2000]. It is mandatory for workplaces with more than 20 employees in Ontario to have joint labor and management committees to address the concerns of health and safety, injury prevention, return to work, and disability case management [Ontario Ministry of Labor, 2000]. In addition, the requirements to provide early and safe return to work and reasonable accommodation are major aspects of ''Duty to Cooperate in Return to Work'' and ''Duty to Accommodate'' legislation [Ontario Ministry of Labor, 1997]. This legislation requires the worker to cooperate with the return to work process and allows him or her to request an accommodation if it is reasonable to expect that the accommodation will allow the individual to perform his or her job. The employer is responsible for cooperating in the return to work process and providing the accommodation. These activities are further enforced by both the Ontario Human Rights Code [1990] and the Canadian Human Rights Act [1985].

There were significant differences among the sectors with regard to having formal disability management policies in place. Because the health care sector, especially hospitals, has a high incidence of work-related injuries [Sibbald, 2002] it could be that more health and safety policies have had to be implemented to deal with the increased incidents. Furthermore there were significant differences among the sectors in the purchasing of disability management services. A possible explanation may be that health care facilities, especially larger hospitals, are more likely to have disability management resources in place, and consequently they do not have to purchase them.

There was a statistically significant association between being unionized and having formal disability management policies for the sectors. It could be that workplaces that are unionized may be obliged to have disability management policies in place. There also was a statistically significant

association between having disability management policies and purchasing disability management services for both the education and health care sectors but not the hotel/motel sector. A possible explanation for this finding may be that when workplaces have disability management policies in place, they are obliged to provide these services for injured and disabled workers, and if they do not have them they need to be purchased.

The OPP questionnaire demonstrated reasonable psychometric properties (i.e., internal consistency and discriminant validity) and takes about 15 min to complete. Cronbach's alpha for the overall OPP instrument was very high at 0.95 demonstrating good item reliability.

Discriminant validity as determined by scaling success was strong at 100%.

The inter-subscale correlations for the OPP varied from 0.11 to 0.72. It is interesting to note that the Pearson correlation coefficient for the disability case management subscale with the return to work subscale was fairly high at 0.72. This finding suggests that the disability case management practices should be integrated with return to work practices. When the OPP questionnaire was originally developed in the late 1980s and early 1990s, disability case management activities and return to work activities were likely not integrated. When Cronbach's alpha was calculated for these two subscales combined, it was very high (0.94) further indicating that the items in these activities are now well integrated. Although the original scale was developed in the manufacturing sector [Habeck et al., 1991], these findings suggest that workplace OPP have changed over the past two decades.

The response rate for the overall sample was 45%. Response rates for the education, hotel/motel, and health care workplaces were 47%, 33%, and 56%, respectively. Our overall response rate (45%) is comparable to the Habeck et al. [1991, 1998] studies, which reported response rates of 42.5% and 46%, respectively. The response rate was the lowest in the hotel/motel sector. Several of the respondents in this sector stated that they were too busy, did not have time to complete the OPP questionnaire, or were not interested in the study. In addition, many of the smaller hotels/motels said that they did not have any disability management programs in place, and, therefore, felt that the study was not relevant to them. Because of the low response rates and the resulting small sample sizes in each sector, especially in the hotel/motel sector, the generalizability of the results may be questionable.

Although we attempted to increase the response rates by incorporating two rounds of follow-up reminder letters and phone calls, and the mailing or faxing of additional OPP questionnaires to the non-responders, we did not achieve the desirable response rate of 70% [Salant and Dillman, 1994]. To improve the response rates for future survey studies, we suggest that the following four separate mailings be carried out [Salant and Dillman, 1994]. First, a personalized, advance notice letter be mailed to all potential respondents. The purpose of this letter is to inform them that they have been selected for the survey and will be receiving a questionnaire. Second, a personalized cover letter with more detail on the survey, the questionnaire and a stamp return envelope be mailed about a week later to all potential respondents. Third, a follow-up post card thanking those who responded and requesting a response from the non-responders be mailed 4–8 days after the mailing of the first questionnaire. Fourth, a new personalized cover letter, along with a replacement questionnaire and a stamped return envelope, be mailed to non-responders 3 weeks after the mailing of the first questionnaire. In addition, phoning non-respondents a few days after mailing the replacement questionnaire to inquire if they need help with or have concerns about the survey may further assist with achieving a higher response rate.

Despite the good psychometric properties of the OPP questionnaire, some limitations should be noted. We did not examine the test–retest reliability of the scale. Further studies using the OPP questionnaire with employers in the education, hotel/motel, and health care sectors as well as other sectors need to be conducted to determine the scale's stability over time. It should be noted that the data in this study came from self-reports by employers or the employers' representatives. Further studies with employees who have had an injury or disability should be conducted to determine their perceptions of managing disability at their workplaces.

CONCLUSION

This study reported on a survey that examined disability management approaches in education, hotel/motel, and health care workplaces. The OPP seems to be a promising instrument that can be used to assess and monitor how employers are managing disability. Employers, human resources, unions, rehabilitation providers, and policy makers need to place greater emphasis on the role of disability management practices in the prevention and treatment of work-related injuries and disability.

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REFERENCES

Albers JT, Li Y, Lemasters G, Sprague S, Stinson R, Bhatacharya A. 1997. An ergonomic education and evaluation program for apprentice carpenters. Am J Ind Med 32:641–646.

Amick BC, Habeck RV, Hunt A, Fossel AH, Chapin RB, Keller H, Katz JN. 2000. Measuring the impact of organizational behaviors on work disability prevention and management. J Occup Rehabil 10: 21–38.

Anema JR, Steensta IA, Urlings IJM, Bongers PM, de Vroome EMM, van Mechelen W. 2003. Participatory ergonomics as a return-to-work intervention: A future challenge? Am J Ind Med 44:273–281.

Boden LI, Biddle EA, Spieler EA. 2001. Social and economic impact of workplace illness and injury: Current and future directions for research. Am J Ind Med 40:398–402.

Bohr PC, Evanoff BA, Wolf LD. 1997. Implementing participatory ergonomics teams among health care workers. Am J Ind Med 32:190–196.

Brooker AS, Clarke J, Sinclair S, Penick V, Hogg-Johnston S. 2000. Effective disability management and return-to-work practices. In: Sullivan T, editor. Injury and the new world of work. Vancouver, BC: UBC Press. p 246–261.

Canadian Human Rights Act. 1985. Available at: www.laws.justice.gc.ca/en/H-6index.html.

Canadian Institute of Health Information. 2001. The health of health care workers. Media releases. Available at: www.cihi.ca.

Daly MC, Bound J. 1996. Worker adaptation and employer accommodation following the onset of a health impairment. J Gerontol B Psychol Sci Soc Sci 51(2):S53–S60.

DeVellis RF. 1991. Scale development theory and applications. Newbury Park, CA: Sage Publications.

Frank JW, Brooker AS, DeMaio SE, Kerr MS, Maetzel A, Shannon HS, Sullivan TJ, Norman RW, Wells RP. 1996. Disability resulting from occupational low back pain. Part II: What do we know about secondary prevention? A review of the scientific evidence on prevention after disability begins. Spine 21:18–29.

Habeck RV, Leahy MJ, Hunt HA, Chan R, Welch EM. 1991. Employee factors related to workers' compensation claims and disability management. Rehabil Counsel Bull 34:210–226.

Habeck RV, Hunt HA, Van Tol B. 1998. Workplace factors associated with preventing and managing work disability. Rehabil Counsel Bull 42:98–143.

Hunsley TM. 1996. Disability programs: Considerations on cost and coordination. Toronto, Ont.: Institute for Work & Health.

Johanning E. 2000. Evaluation and management of occupational low back disorders. Am J Ind Med 37:94–111.

Kleinbaum DG, Kupper LL, Muller KE. 1988. Applied regression analysis and other mutivariable methods. Boston, MA: PWS Kent Publishing Company.

Krause N, Ragland DR. 1994. Occupational disability due to low back pain: A new interdisciplinary classification based on a phased model of disability. Spine 19(9):1011–1020.

Krause N, Dasinger LK, Neuhauser F. 1998. Modified work and return to work: A review of the literature. J Occup Rehabil 8(2): 113–139.

Krause N, Frank JW, Dasinger LK, Sullivan TJ, Sinclair SJ. 2001. Determinants of duration of disability and return-to-work after work-related injury and illness: Challenges for future research. Am J Ind Med 40:464–484.

Kumar S. 2000. Multidisciplinary rehabilitation. Baltimore, MD: Butterworth and Heinmann.

Lincoln AE, Vernick JS, Ogaitis S, Smith GS, Mitchell CS, Agnew J. 2000. Interventions for the primary prevention of work-related carpal tunnel syndrom. Am J Prev Med 18:37–50.

Loisel P, Gosselin L, Durand P, Lemaire J, Poitras S, Abenheim L. 2001. Implementation of a participatory ergonomics program in the rehabilitation of workers suffering from subacute low back pain. Appl Ergon 32:53–60.

McHorney CA, Ware JE, Lu JFR, Sherbourne CD. 1994. The MOS 36-item short-form survey (SF-36): III. Test of data quality, scaling assumptions, and reliability across diverse patient groups. Med Care 32(1):40–66.

McLellan RK, Pransky G, Shaw WS. 2001. Disability management training for supervisors: Pilot intervention program. J Occup Rehabil 11(1):33–41.

Millington MJ, Strauser DR. 1998. Planning strategies in disability management. Work 10:261–270.

National Institute of Disability Management and Research. 2000. Code of practice for disability management: Describing effective benchmarks for the creation of workplace disability management programs. Port Alberni, BC: National Institute of Disability Management and Research.

Ontario Human Rights Code. 1990. Available at: www.ohrc.on.ca/english/index.shtml.

Ontario Ministry of Labor. 1997. Workplace Safety and Insurance Act, 1997. Available at: www.gov.on.ca/DBLaws/Statutes.

Ontario Ministry of Labor. 2000. A guide for the Joint Health and Safety Committees and representatives in the workplace. Available at: www.gov.on.ca/lab/ohs/g_jhsce.htm.

Rondinelli RD, Robinson JP, Scheer SJ, Weinstein SM. 1997. Industrial rehabilitation medicine. 4. Strategies for disability management. Arch Phys Med Rehabil 78:S21–S33.

Salant P, Dillman DA. 1994. How to conduct your own survey. New York: John Wiley & Sons, Inc.

Salkever DS, Shinogle J, Purushothaman M. 2000. Employers' disability management activities: Descriptors and an exploratory test of the financial incentives hypothesis. J Occup Rehabil 10(3): 199–214.

Scheer SJ, Radack KL, O'Brien DRJ. 1995. Randomized controlled trials in industrial low back pain relating to return to work. Part 1. Acute interventions. Arch Phys Med Rehabil 76(10):966–973.

Scully S, Habeck R, Leahy M. 1999. Knowledge and skill areas associated with disability management practice for rehabilitation counsellors. Rehabil Counsel Bull 43(1):20–29.

Shrey DE. 1996. Disability management in industry; the new paradigm in injured worker rehabilitation. Disabil Rehabil 18(8):408–414.

Sibbald B. 2002. Could reduced absenteeism help solve health-worker shortage? Can Med Assoc J 166(3):365.

Streiner DL. 1993. A checklist for evaluating the usefulness of rating scales. Can J Psychiatry 39:140–148.

Streiner DL, Norman GR. 1995. Health measurement scales. A practical guide to their development and use. New York: Oxford University Press.

Strunin L, Boden LI. 2000. Paths of reentry: Employment experiences of injured workers. Am J Ind Med 38:373–384.

Trinkoff AM, Brady B, Nielsen K. 2003. Workplace prevention and musculoskeletal Injuries in nurses. J Nurs Admin 33(3):153–158.

Watson Wyatt Worldwide. 2000. Staying @ work 2000/2001. The dollars and senses of effective disability management. Toronto, Ont.: Watson, Wyatt Worldwide.

Workers' Compensation Board of Manitoba. 2003. Winnipeg Regional Health Authority. Disability Prevention and Management Guidelines for Health Care. p 3.1.

APPENDIX

Organizational Policies and Practices (OPP) Questionnaire: Rating Format, Instructions, and Content (Amick et al., personal communication).

Never	Some times	Half of the time	Most of the time	Always
0%	25%	50%	75%	100%

This section asks about the strategies and methods your workplace uses to achieve workplace safety. Please rate the extent to which your workplace achieves these practices from never to always. Circle the best response for each item. If a practice is not applicable to your situation, circle ''never.''

Safety Diligence

1. Working conditions are identified and improved promptly.
2. Your workplace maintains excellent housekeeping.
3. Equipment is well maintained.
4. Action is taken when safety rules are broken.
5. Supervisors confront and correct unsafe behaviors and hazards when they occur.
6. Employees use personal protective equipment where indicated, such as wearing glasses or hearing protection.
7. Health and safety performance are part of the supervisor's annual performance appraisal.

These questions are about employee and supervisor safety training at your workplace. Please rate the extent to which your workplace achieves these practices from never to always. Circle the best response for each item. If a safety training practice is not applicable to your situation, circle ''never.''

Safety Training

1. Employees are trained in safe work practices for the job hazards they will encounter.
2. Supervisors are trained in job hazards and safe work practices for jobs they supervise.
3. Employees and supervisors are trained in how to read and understand material safety datasheets. A material safety datasheet is required by WHMIS to accompany all hazardous materials in a workplace.
4. Employees and supervisors are trained in safe work practices to accommodate a disability.

Think about your workplace's ergonomic practices. We are referring to ergonomics as approaches to designing work environments and work tools to accommodate individual physical differences. Please rate the extent to which your workplace achieves these practices from never to always. Circle the best response for each item. If an ergonomic practice is not applicable to your situation, circle ''never.''

Ergonomic Practices

1. Jobs are designed to reduce heavy lifting.
2. Jobs are designed to remove repetitive movement.
3. Ergonomic strategies are used to improve workstations/work areas.
4. Work rotation or changes in job responsibilities are used to minimize exposure to ergonomic risks.
5. Ergonomic factors are considered in purchasing new tools, equipment, or furniture.
6. Work areas/work stations are modified to minimize ergonomic risks before injuries occur.
7. Ergonomic approaches are used to assist disabled workers in returning to work.
8. Your workplace provides education sessions on ergonomics to minimize the risk of injury.

We would like you to consider how your workplace handles injury and illness cases when they occur. Rate the extent to which your workplace achieves the following practices for disability case management from never to always. Circle the best response for each item. If a practice is not applicable to your situation, circle ''never.''

Disability Case Management

1. Someone from your workplace contacts the employee shortly after an injury or illness to express concern and offer assistance.
2. Someone from your workplace makes a follow-up contact with employees off work due to injury or illness and assesses their progress toward return to work.
3. Treating physicians are asked to identify employee restrictions and capacities and to specify a target return to work date.
4. Someone from your workplace maintains regular communication with the injured employee's physician to facilitate return to work.
5. Claim management within your workplace is well coordinated from initial injury to claim resolution.
6. Long duration claims are evaluated to determine whether more intensive services are required.

Think about your workplace's approach to managing return to work when injuries or illnesses occur. Please rate the extent to which your workplace achieves these practices from never to always. Circle the best response for each item. If a practice is not applicable to your situation, circle ''never.''

Return to Work

1. Your workplace makes job accommodations to enable employees to return to work, for example, modified job duties, flexible schedule, or special equipment.
2. Your workplace provides information to the treating physician about the requirements of the injured employee's job.
3. Your workplace provides information to familiarize the treating physician with modified work available to accommodate work restrictions.
4. After injured or ill employees return to work, your workplace follows up to adjust work situations as needed.
5. When employees return to modified duties, your workplace develops a plan to transition employees back to regular job duties.
6. When injured or ill employees cannot return to their former job, your workplace provides retraining.
7. Department within your workplace cooperates in order to bring injured employees back to work in a timely manner. Check here, if your workplace has no departments.
8. Rehabilitation professionals are used when needed to evaluate return to work.

Below are a series of statements about the role of management in supporting health and safety practices at your workplace. Please rate the extent to which health and safety leadership is achieved in the following practices from never to always. Circle the best response for each item. If a management practice is not applicable to your situation, circle ''never.''

Safety Leadership

1. Top management is actively involved in safety program.
2. The safety manager receives support from top management.
3. Your workplace spends time and money on improving safety performance.
4. Your workplace considers safety equally with service and quality in the way work is done.
5. Your workplace uses injury and illness data to identify problem areas and achieve accountability in safety.
6. Your workplace analyzes injury and illness data to identify causes and target solutions.
7. The safety program or committee has the responsibility, authority, and resources to identify and address safety problems.

Below are a series of statements about your workplaces work environment. Please rate the extent to which your workplace achieves each of the following characteristics in its work environment from never to always. Circle the best response for each item. If a work environment description is not applicable to your situation, circle ''never.''

People-Oriented Culture

1. Employees are involved in decisions affecting their daily work.
2. Working relationships are cooperative.
3. There is a high level of trust in the employee/employer relationship at your workplace.
4. Your workplace shares information about the financial status and service needs of the workplace with the employees.
5. Supervisors and managers are trained in interpersonal skills such as effective communication and conflict management.
6. Communication is open and employees feel free to voice concerns and make suggestions.
7. Employees are formally included in your workplace's goal setting and planning process. Formal refers to written policies or standard operating procedures such as regular meetings to obtain employee input.
8. Employees tend to stay with your workplace for a long time.
9. Employees have control over the work process and service demands.

Below are a series of statements about joint health and safety committees (JHSC) and management's shared involvement in safety issues. In this section, JHSC refers to employee groups or individuals that represent employees and management. You may have multiple employee groups. Please circle the single best answer.

Joint Health and Safety Climate

1. JHSC and management work as partners in health and safety.
2. JHSC and management work as partners in returning injured workers to work.
3. JHSC and management maintain a cooperative working relationship.