

Health & Productivity

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The High Impact of Pain on Employee Health and Productivity: A Case Study

Perhaps your job has led you to detect what seems like an increase lately in the number of employee complaints about arthritis, sciatica, and headaches – conditions that have in common the experience of pain. Maybe your company's health care costs have continued to increase and you have read recent reports on claims data that make the case for pain as a contributor to this trend.

How prevalent is pain among your fellow employees? What kind of toll is it taking on their health and their capacity to be productive at work?

These questions recently led a Fortune 500 provider of business services headquartered in the northeastern U.S. to conduct a first-of-its kind company survey – examining the prevalence of pain and its impact on quality of life and work performance by using self-reported information from employees. The results, described in this article, spoke to the corporate bottom line in ways that raised the issue of whether a new company effort should be undertaken to reduce the burden of pain.

The Survey

This survey design took a general population approach relevant to all employees regardless of health or clinical status. It identified employees meeting study criteria for pain, as well as a healthy benchmark sample for comparison. It asked pain sufferers to describe their experience and quantify the burden of pain on their health and productivity, and also asked about ways they were coping.

To achieve these objectives, the survey used proven sets of items (tailored, where appropriate, to the phenomenon of pain) to assess a core set of concepts key to understanding the burden and management of disease. These sets of items have been widely used in recent studies (e.g., the International Allergy Project described in previous issues of *Health & Productivity Management*).^{1,2}

The items included health status, chronic disease, presenteeism, absenteeism, medication use, condition manage-



ment/coping, health risk behaviors, job characteristics and demographics. The survey took 7-15 minutes to complete.

A total of 1,039 employees completed the survey (response rate = 43 percent). It was conducted electronically during late 2004. To participate, respondents had to be active employees residing in the U.S. with electronic access to the Internet either at work or at home. To incentivize participation, the first 1,000 respondents received \$10 Amazon.com gift certificates.

This sample provided a good basis for generalizing results. At 40.3 years old and 45 percent male, its average age and gender offered reasonable matches to

those of the population targeted by the survey. To meet the company's confidentiality requirements, no personal identifiers that could be linked with the survey responses were collected at any point in the process.

Study Groups

The definition used to identify the pain sample blended two well-validated items for detecting patients with pain – one from the SF-36 Health Status Survey assessing the extent of bodily pain over the previous four weeks;³ and the other adapted from the Brief Pain Inventory to measure the presence or absence of pain (other than everyday kinds of pain) the day of the survey.⁴

Nearly one in three respondents – 297 of the 1,039 – said “yes” to both pain criteria.

The pain group was further stratified into three severity levels – lowest, medium and highest – with a majority placed in the medium category. The healthy benchmark was about 10 percent of the total and reported none of 24 diseases and, above average health status.

Study Measures

The criteria used to compare these groups spanned three cat-

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egories: Health, Productivity and Pain Management. Nine items taken from the SF-36 Health Status Survey – each assessing physical functioning, vitality, mental health, general health or bodily pain – were combined to form Overall Physical and Mental Health measures.

A disease count was computed from all “yes” responses to a chronic condition checklist adapted from the Medical Outcomes Study⁵ and a depression measure developed from a new screener for major depression and dysthymia.⁶

The survey identified nine measures of productivity loss, including two types: workdays lost because of health and limitation in specific areas of job performance because of health. The workdays lost distinction was comprised of: 1) absenteeism or “time away from work due to health,” developed by Kessler et al.⁷ and 2) the “days at work less than 100 percent due to health” measure, first used in the ITEC Allergy project.⁸

The “limitation on job dimensions” distinction was measured by 12 items taken from Lerner’s Work Limitations Questionnaire (WLQ).⁹ These items assessed capacity to meet performance requirements on four dimensions as a function of health: time demands, physical demands, mental/interpersonal demands, and output demands.

The pain management category included two three-item scales focusing on satisfaction with treatment for pain. The other measure was a single-item scale asking respondents to rate the degree of completeness of their pain control. All three measures were drawn from the Treatment Outcomes of Pain Survey developed by Rogers and colleagues.¹⁰

Describing the Context

This sample exhibited better-than-average physical health, but lower-than-average mental health, as reflected in overall sample scores of 52 and 47.8, respectively, on the Overall Physical and Mental Health scales (a score of 50 equaled average health on these scales). Roughly one-quarter of the sample indicated, via the depression screener, that they were at risk for major depression or dysthymia. And nearly one-third (30 percent) indicated they were at risk from being overweight or having a sedentary lifestyle.

Less than five percent of the sample recorded an accident or injury on the job over the last year. But, the loss of productivity reported as problems in meeting job requirements was widespread, particularly on the Time Demands dimension.

Time pressures and related job stresses would appear to be a defining characteristic of this company’s work environment for many employees irrespective of the burden of disease.

Pain Burden

The burden of pain on this productivity loss proved to be substantial. The healthy benchmark group posted negligible loss scores on virtually all the study’s productivity measures. In each case, the added loss due to the presence of pain,

Figure 1: Pain and Workdays Lost to Health Problems: Last 4 Weeks

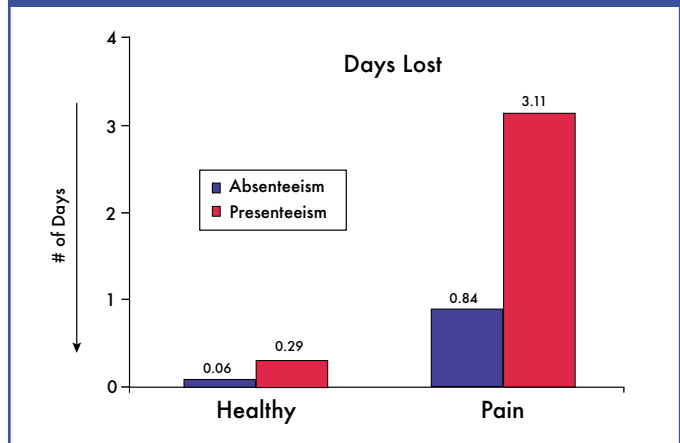


Figure 2: Burden of Pain on Performance at Work: Difficulty in Meeting Job Demands

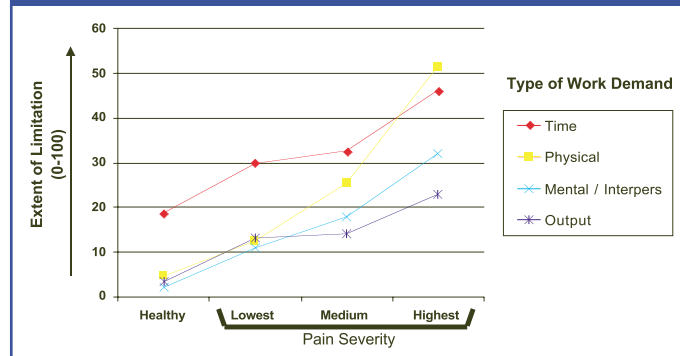
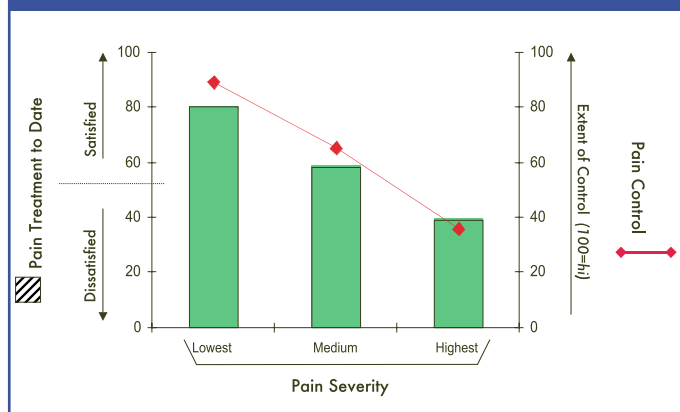


Figure 3: Management of Pain: Outcomes



determined by comparisons with the pain group – whether expressed in average number of days lost, percent reporting one or more accidents, or the average extent of limitation – was statistically dramatic.

Figure 1 shows these relationships for Days Absent and “Days At Work less than 100 percent” during the previous four weeks. The two combined averaged just over one-third of a day for healthy employees; the corresponding figure for

employees with pain was approximately four days. The difference (three and two-thirds days) was directly attributable to the impact of pain.

The “stepwise” nature of this burden was evident from tests comparing the severity and healthy groups. On five of the nine measures, the lowest-severity group posted a significant jump in loss relative to the healthy group. On eight measures, the burden of pain for the medium-severity group showed an additional significant jump relative to the lowest-severity group, while on all nine measures, the highest-severity group’s reported increase in burden relative to the medium-severity group was quite significant.

Figure 2 summarizes this pattern by showing the results for the four WLQ work demand scales. Particularly striking were the results for Time Demands. Reflecting the apparent time pressures, the healthy groups scored 16.8 on the 0-100 limitation scale. Yet, the burden associated with highest severity pain almost tripled this limitation score to 46.1.

The health status measures – each scored in the opposite direction to link high scores with better health – showed a reverse mirror-image pattern, with the healthy group scoring high and each severity group registering successively lower scores.

Overall Physical Health fell sharply with pain severity, progressively worsening with each level of severity. Overall Mental Health also fell sharply, with the full effect reached at medium pain severity where average scores were equivalent to a clinical depression diagnosis (i.e., a score of 43 on the mental health scale).

Pain Management

The survey asked about ways that employees are managing their pain. Despite a wide range of methods being used – from pain medications (81 percent) to use of health care services such as doctor visits (59 percent) to health-related behaviors like exercise (28 percent) to use of complementary medical approaches like yoga (26 percent) – the answers revealed considerable room for improvement.

Figure 3 shows that those with medium-severity pain reported their pain in the last week less than two-thirds controlled, while the highest-severity group said that their pain was less than 40 percent controlled. Employees with medium or severe pain also were less than “somewhat satisfied” with their treatment program, while those with highest severe pain were somewhat dissatisfied.

Reducing Pain Burden

With the evidence for pain burden – and room for improvement in reducing this burden – so considerable, what did the data say about where to start? One way to identify and prioritize the opportunities was to rank pain burden by disease. Survey data were used to calculate two factors for each disease in the pain sample: prevalence and average pain severity.

Allergies – fueled primarily by high prevalence – ranked first among individual diseases. When diseases were grouped, however, the musculoskeletal group (e.g., arthritis, low back problems, neck and shoulder problems) ranked highest.

Comment

These results lead to the conclusion that pain generates substantial direct and indirect costs at this company – and likely at yours, as well. For this employer, they argue for a new organizational focus on pain as a priority health issue – not merely a secondary issue resulting from other medical conditions such as arthritis or migraine headaches.

Interventions that promote more effective clinical treatment and self-management for pain, crosscutting these diagnostic “silos,” can have a significant impact on workers’ health and company performance.

Programs focusing on musculoskeletal conditions would appear to have the biggest “bang for the buck” potential. The combined prevalence and impact of the individual diseases in this area make it the most promising starting point for interventions to reduce the huge burden of pain at this company and likely at many others. **HPM**

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Please contact deborah@hpm.org to acquire references for **The High Impact of Pain on Employee Health and Productivity: A Case Study (pp. 19-21)**.

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