Self-Rated Job Performance and Absenteeism According to Employee Engagement, Health Behaviors, and Physical Health

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Objective: To better understand the combined influence of employee engagement, health behavior, and physical health on job performance and absenteeism. **Methods:** Analyses were based on 20,114 employees who completed the Healthways Well-Being Assessment from 2008 to 2010. Employees represented three geographically dispersed companies in the United States. **Results:** Employee engagement, health behavior, and physical health indices were simultaneously significantly associated with job performance and also with absenteeism. Employee engagement had a greater association with job performance than did the health behavior or physical health indices, whereas the physical health index was more strongly associated with absenteeism. Specific elements of the indices were evaluated for association with self-rated job performance and absenteeism. **Conclusion:** Efforts to improve worker productivity should take a holistic approach encompassing employee health improvement and engagement strategies.

Learning Objectives

- Describe the concept of "engagement" at work, including the types of leadership that can promote engagement and the way in which it might be supportive of health.
- Summarize the new findings on associations of employee engagement, health behavior, and physical health with job performance and absenteeism.
- Identify factors associated with specific outcomes and discuss the implications for efforts to improve worker productivity.

In an increasingly competitive global economy, employers require a healthier, more engaged workforce. To this end, employers are implementing various programs to promote employee health and enhanced job performance.[1] Physical health plays a central role in absenteeism, which is a clear indicator of work nonperformance. Physical health is also directly related to performance while at work. In addition, engagement with one's employer promotes satisfaction, loyalty, and pride, which combine to yield greater productivity and lower absenteeism.[2–7]

Employers can encourage improved health behaviors and a worksite culture of health through establishing workplace policies that support and encourage healthy behaviors, a healthier physical work environment, and other visible changes to the worksite.[8] In addition to creating a workplace more conducive to health, employers can promote improved employee health by integrating health promotion initiatives that help their employees reduce health risks, thereby lowering the incidence of chronic diseases and activity limitations that are primary drivers of health care costs and lost worker productivity.[9–11] Employees who demonstrate healthy behaviors have fewer health risks, lower prevalence of chronic disease, less absenteeism, and higher performance while on the job.[12] Research has also shown that engaged employees have better physical health and are more productive,[13] although the causality of this relationship is unclear because physical health may positively influence engagement.

Organizational leaders and supervisors can also foster job satisfaction by creating a work environment of mutual respect, encouragement, trust, openness, and sense of mission and by providing development opportunities and giving employees the opportunity to do what they do best every day.[3] In other words, leadership can help employees become more "engaged," wherein engaged employees may be more likely than others to view their jobs as supportive of health because they typically have more resources to deal with work pressures.[13]

Although separate bodies of research demonstrate that employee health and engagement are key contributors to their productivity, it is important to understand how these factors operate together to drive employee productivity outcomes. A deeper understanding would better inform employers about the potential interventions necessary to achieve the desired goal of increased worker productivity, as well as lower absenteeism. The purpose of this article was to better understand the combined influence of employee engagement, health behavior, and physical health on job performance and absenteeism.

METHODS

Population

Analyses are based on data from three geographically dispersed US companies, representing 20,114 employees who completed a work-related survey. The first was a general insurance company with 15,605 survey participants with business in multiple states, the second was a large, geographically distributed health insurance company with 2245 survey participants, and the third was a geographically distributed health care professional service company with 2264 survey participants. The survey was administered in 2010. Response rates ranged from 40% to 80% for the individual companies. Employees were made aware of and asked to complete the survey as a part of their benefits enrollment with their employers. The employers used e-mail communication, printed materials, and reminders, as well as incentives such as random drawings for prizes or cash to elicit participation. Each employer was allowed to

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tailor specific messaging and communication about the program to optimize participation by its specific workforce. A summary report reflecting the combined responses for all the company employees was provided to the employer. The employers, however, did not have access to individual-level responses.

Survey

A cross-sectional survey called the Well-Being Assessment was developed in 2008 by Healthways to obtain a comprehensive picture of employee health and well-being. Drawing core measures from the Gallup-Healthways Well-Being Index as well as measures of health risks and worker productivity, the survey was designed by a group of scientific experts and included questions from previously validated instruments.[14–17] The survey instrument captures information from six major domains, including life evaluation (how an individual rates his or her overall life), emotional health, healthy behaviors, physical health, work environment (including employee engagement), and basic access (ability to access and afford basic essentials including health care). The focus of this study was on the association between measures from three of these health-related domains—employee engagement, health behaviors, and physical health—and job performance and absenteeism. The survey was administered by Healthways.

Variables

Three index scores representing employee engagement, health behavior, and physical health, respectively, were derived as described later. These indices represent different domains related to worker job performance and absenteeism. Job performance and absenteeism were also measured in the survey, derived from the World Health Organization Health and Work Performance Questionnaire.[14] Job performance rating was based on the question, "Using the same 0-to-10 ladder, how would you rate your overall job performance on the days you worked during the past 4 weeks (28 days)?"[15] Both raw and dichotomous forms of the variable were used. Based on the median for this variable, a dichotomous variable was classified as low (scores 0 to 8) and high (scores 9 to 10) job performance. The absenteeism variable was based on the question, "In the past 4 weeks (28 days), how many days did you miss an entire work day because of problems with your physical or mental health?" Employees were asked to include only days missed for their own health.[15]

Selected demographic variables included age, sex, marital status, education level, and job type. Income was not considered because, consistent with other surveys, roughly one third of respondents did not provide information on this variable.[18–20] Self-reported height and weight were obtained and used to calculate body mass index (BMI). Height was recorded in inches and weight in pounds. Body mass index was calculated using the following equation: $\text{BMI} = (\text{mass [lb]} \times 703)/(\text{height [in]})^2$.[21]

Index Scoring Rules

Index scoring rules based on survey responses have been developed previously for the three health-related domains considered in this study: employee engagement, health behaviors, and physical health.[14] These questions and the accompanying scoring assignments for the three indices are presented in Tables 1 to 3, respectively. The employee engagement index score was calculated by summing the points for all 4 questions in Table 1, dividing by 4, and multiplying by 100. The health behavior index score was calculated by summing the points for all 4 questions in Table 2, dividing by 4, and multiplying by 100. The physical health index score was derived from the 15 questions in Table 3 through a series of four steps and reverse-coded so a higher final score was representative of better health to be consistent with the employee engagement and health behavior indexes. First, BMI was derived from self-reported height and weight and coded as 0 if BMI was less than 30 and 1 if BMI was 30 or more. Second, a measure of disease burden was obtained by summing the points associated with seven disease and four physical condition variables, as well as the dichotomous BMI score. The stem of the question for the diseases was "Have you ever been told by a physician or nurse that you have...?" The seven extensions are presented in Table 3. In addition, three questions involved conditions related to recurring pain and one asked about other health-related conditions. If the sum of points on these 12 questions was 1 or less, then the disease burden score was 1. If the sum of the points was 2 or more, then the disease burden score was 0. Third, in response to the questions about the number of days in the past 30 days where poor health kept you from your usual activities, responses of 0 or 1 were coded as 1, and responses of 2 or more were recorded as 0. Finally, scores on the remaining two questions (pain yesterday and health problems a barrier) were added to the two scores from the preceding steps (disease burden score and sick days score), divided by 4 and multiplied by 100 to obtain the physical health score.[14]

Institutional review board approval to analyze these data was granted by Brigham Young University in August 2011.

Statistical Methods

Data were summarized using frequencies, proportions, means, and standard deviations (SDs). Generalized linear models were used to compare mean scores for each of the indices according to age, sex, marital status, education, and job type. Statistical significance was based on the F test. From a multiple regression analysis, type III sums of squares were reported, which are a measurement of the explanatory power of a variable after accounting for all other variables in the model. In addition, the prevalence of a high job performance rating was compared across the levels of items making up the employee engagement index, health behavior index, and physical health index. Estimated prevalence ratios were adjusted for the demographic variables and evaluated for statistical significance using 95% confidence intervals. Finally, the Spearman correlation coefficient, assessed for significance using the *t* statistic, was used to evaluate the strength of the linear association among index scores and between index scores and self-rated job performance and absenteeism. Analyses were performed using Statistical Analysis System software version 9.2 (SAS Institute Inc, Cary, NC, 2007).

RESULTS

Participants ranged in age from 18 to 83 ($M = 43.7$, $SD = 11.2$) years, with 62% women, 70% married, and 47% with a college degree or higher. A range of job types was represented. Workers were asked to rate their job performance on the days they worked during the past 28 days on a ladder from 0 (worst) to 10 (best). Scores ranged from 0 to 10, with an average of 8.5 ($SD = 1.2$). Self-rated job performance increased with age and was greater among women, married workers, and those with a high school degree or less (Fig. 1). This section describes the associations of employee engagement, health behaviors, and physical health with self-rated job performance and absenteeism, controlling for these demographic characteristics.

Employee Engagement

The prevalence of high self-rated job performance among those who were satisfied with the job or work they do was 1.70 times that of those who were dissatisfied (Table 1). Those who indicated that their supervisor treated them like a partner were 15% more likely to have a high self-rated job performance than those who said their supervisor treated them more like the supervisor was the boss. Those who indicated that their supervisor created an environment of trust and openness were 31% more likely to have a high self-rated job performance than those who did not. Furthermore, those who reported that they had the opportunity to do what they do best every day were 63% more likely to have a high self-rated job performance than those who did not. Those who reported that they were satisfied

TABLE 1. Self-Rated Job Performance and Absenteeism According to Employee Engagement*

				High Self-Reported Job Performance† (n = 19,172)		Absent ≥ 1 Full Day in the Past 28	
	Coding	N	%	Prevalence Ratio‡	95% CI‡	Prevalence Ratio‡	95% CI‡
Are you satisfied or dissatisfied with your job or the work you do?							
Dissatisfied	Dissatisfied = 0	2,978	15	1.00		1.00	
Satisfied	Satisfied = 1	15,402	78	**1.70**	1.61–1.79	**0.65**	0.60–0.69
Don't know	Don't Know = 0.5	1,428	7	**1.19**	1.10–1.30	**0.85**	0.76–0.96
Does your supervisor at work treat you more like he or she is your boss or your partner?							
Boss	Boss = 0	5,967	30	1.00		1.00	
Partner	Partner = 1	10,812	55	**1.15**	1.11–1.18	**0.84**	0.79–0.90
Don't know	Don't know = 0.5	2,878	15	**1.09**	1.04–1.14	**0.84**	0.76–0.93
Does your supervisor create an environment that is trusting and open, or not?							
No	No = 0	2,952	15	1.00		1.00	
Yes	Yes = 1	14,883	76	**1.31**	1.26–1.37	**0.75**	0.70–0.81
Don't know	Don't know = 0.5	1,883	9	**1.09**	1.02–1.17	**0.83**	0.75–0.93
Do you have an opportunity to do what you do best every day, or not?							
No	No = 0	4,110	21	1.00		1.00	
Yes	Yes = 1	14,600	74	**1.63**	1.56–1.70	**0.65**	0.61–0.70
Don't know	Don't know = 0.5	1,107	5	**1.08**	0.99–1.19	**0.74**	0.64–0.85

* Numbers for each variable do not necessarily add to 19,172 because of missing data.

†Job performance rating was based on the question: Using the same 0-to-10 ladder, how would you rate your overall job performance on the days you worked during the past 4 weeks (28 days)? This variable was categorized as low (scores 0–8) vs high (scores 9–10).

‡Adjusted for age, sex, education, and primary job type.

CI indicates confidence interval.

with the job or work they do, had a supervisor who treated them more like a partner, worked in an environment of trust and openness, or had the opportunity to do what they do best every day were also 16% to 35% less likely to have recent absenteeism (ie, one or more absence days in the past 28).

Health Behaviors

A high self-rated job performance was 25% more likely among those who ate a healthy diet the entire day before than for those who did not (Table 2). High self-rated job performance was 20% more likely among those who ate five or more servings of fruit and vegetables on four or more days in the past week than among those who did not. In addition, high self-rated job performance was 15% more likely among those who exercised for 30 or more minutes on three or more days of the last seven than among those who did not. Those who did not smoke, who ate a healthy diet the previous day, who ate five or more servings of fruit and vegetables on four or more days in the past week, or who exercised for 30 or more minutes on three or more days in the last seven were also 16% to 27% less likely to have recent absenteeism.

Physical Health

The prevalence of a high self-rated job performance was 11% greater among those who were not obese than among those who were obese (Table 3). Those without a history of high blood pressure, high cholesterol, diabetes, depression, myocardial infarction, or asthma were significantly more likely to have a high performance rating. Not having a history of depression or heart attack was most strongly associated with higher self-rated job performance. Having an absence of activity limitations and not having conditions related to pain were also associated with higher self-rated job performance. Obese workers and those with a history of chronic disease and conditions related to pain and activity limitations were also more likely to have recent absenteeism.

Index Scores

The average index scores were 75 (SD = 28) for employee engagement, 62 (SD = 28) for health behavior, and 75 (SD = 27) for physical health. The employee engagement index was significantly correlated with the health behavior index (Spearman's rho = 0.11, $P < 0.001$) and the physical health index (0.14, $P < 0.001$). Health behavior and physical health indices were also significantly correlated (0.19, $P < 0.001$).

Each of the index scores was positively correlated with the 0- to 10-scaled self-rated job performance. The estimated Spearman correlation coefficient, adjusted for age, sex, marital status, education, and job type, was 0.21 ($P < 0.001$) for the employee engagement index, 0.16 ($P < 0.001$) for the health behavior index, and 0.15

TABLE 2. Self-Rated Job Performance and Absenteeism According to Health Behaviors*

				High Self-Reported Job Performance† ($n = 19,172$)		Absent ≥ 1 Full Day in the Past 28	
	Coding	*N*	%	Prevalence Ratio‡	95% CI‡	Prevalence Ratio‡	95% CI‡
Do you smoke?							
Yes	Yes = 0	1,726	9	1.00		1.00	
No	No = 1	18,327	91	1.03	0.98–1.08	**0.77**	0.70–0.84
Don't know	Don't know = 0.5	59	< 1	0.99	0.75–1.29	**0.92**	0.56–1.49
Did you eat healthy diet all day yesterday?							
No	No = 0	9,069	45	1.00		1.00	
Yes	Yes = 1	10,169	51	**1.25**	1.21–1.28	**0.84**	0.79–0.89
Don't know	Don't know = 0.5	860	4	**1.12**	1.06–1.18	**0.89**	0.80–1.00
In the last 7 days, had 5 or more servings of fruit and vegetables on 4 or more days?							
No	0–3 = 0	9,709	48	1.00		1.00	
Yes	4–7 = 1	10,179	51	**1.20**	1.17–1.23	**0.87**	0.82–0.93
Don't know	Don't know = 0.5	216	1	**1.03**	0.96–1.11	**0.99**	0.86–1.14
In the last 7 days, exercised for 30 or more minutes on 3 or more days?							
Yes	0–2 = 0	10,729	53	1.00		1.00	
No	3–7 = 1	7,776	39	1.15	1.12–1.18	0.73	0.69–0.78
Don't know	Don't know = 0.5	1,604	8	1.23	1.10–1.37	0.79	0.59–1.06

*Numbers for each variable do not necessarily add to 19,172 because of missing data.

†Job performance rating was based on the question: Using the same 0-to-10 ladder, how would you rate your overall job performance on the days you worked during the past 4 weeks (28 days)? This variable was categorized as low (scores 0–8) vs high (scores 9–10).

‡Adjusted for age, sex, education, and primary job type.

CI indicates confidence interval.

($P < 0.001$) for the physical health index. In addition, the number of full days of missed work in the past 28 days was inversely correlated with each of the indices; the adjusted Spearman correlation coefficient was −0.09 ($P < 0.001$) for the employee engagement index, −0.08 ($P < 0.001$) for the health behavior index, and −0.27 ($P < 0.001$) for the physical health index.

Because the three predictor indexes were significantly correlated with one another as well as with demographic factors, multiple regression analysis was conducted to isolate the independent effects of these variables on self-rated job performance and absenteeism.

In a multiple regression model containing the three indices, as well as age, sex, marital status, education, and job type, each of the indices was significantly positively associated with self-rated job performance, with the greatest influence on this variable coming from the employee engagement index (type III SS = 1321), followed by the health behavior index (type III SS = 348), and then the physical health index (type III SS = 298). Results from the multiple-regression model are shown in Table 4. In a similarly adjusted multiple regression model, only the employee engagement and physical health indices were significantly negatively associated with absenteeism, with physical health having the greatest influence (type III SS = 4779) and, then, employee engagement (type III SS = 106).

DISCUSSION

The primary contribution of this study was combining indices of employee engagement, health behavior, and physical health variables in a single study of their association with job performance and absenteeism. This combined analysis indicated that the employee engagement index had a greater association with self-rated job performance than did the health behavior or physical health indices whereas the physical health index was more strongly associated with absenteeism than were the indices of employee engagement or health behavior. Nonetheless, the most notable finding was that all three indices and most of their elements were significantly associated with both job performance and absenteeism. This suggests that efforts to improve worker productivity should take a holistic approach encompassing employee health improvement and engagement strategies.

Self-rated job performance was most strongly related to the employee engagement index, followed by the health behavior index and then the physical health index. In addition, each of the four items in the employee engagement index was directly related to higher self-rated job performance and lower absenteeism. The item which involved having the opportunity to do what one does best every day had the greatest beneficial impact on self-rated job performance and absenteeism. Previous research has also shown these factors to be associated with job performance and absenteeism.[2–7,22–29]

Physical and mental health influence job satisfaction and performance.[30] Several studies have shown that worksite-based health and wellness programs can improve employee nutrition and physical activity, thereby enhancing physical and mental health and worker performance and productivity.[31–36] The current study found that self-rated job performance rating was higher and absenteeism was lower for those who ate a healthy diet and exercised regularly. Worksite-based programs aimed at improving nutrition among employees have been shown to improve productivity and lower absenteeism.[21,37] Physical activity can lower body weight and help

TABLE 3. Self-Rated Job Performance and Absenteeism According to Physical Health Diseases and Conditions*

				High Self-Reported Job Performance† (n = 19,172)		Absent ≥ 1 Full Day in the Past 28	
	N	%	Coding	Prevalence Ratio‡	95% CI‡	Prevalence Ratio‡	95% CI‡
Body mass index (BMI)	6,188	31	30 ≥ BMI = 1	1.00		1.00	
	13,926	69	30 < BMI = 0	**1.11**	1.08–1.14	**0.72**	0.68–0.76
Have you ever been told by a physician or nurse that you have high blood pressure?	4,287	22	Yes = 1	1.00		1.00	
	15,727	78	No/DK = 0	**1.06**	1.03–1.10	**0.77**	0.72–0.83
High cholesterol?	4,683	23	Yes = 1	1.00		1.00	
	15,431	77	No/DK = 0	**1.09**	1.06–1.13	**0.82**	0.77–0.89
Diabetes?	1,233	6	Yes = 1	1.00		1.00	
	18,881	94	No/DK = 0	**1.10**	1.04–1.16	**0.69**	0.62–0.76
Depression?	2,750	14	Yes = 1	1.00		1.00	
	17,364	86	No/DK = 0	**1.30**	1.25–1.38	**0.50**	0.47–0.54
Heart attack?	160	1	Yes = 1	1.00		1.00	
	19,954	99	No/DK = 0	**1.30**	1.08–1.57	**0.57**	0.44–0.74
Asthma?	2,068	10	Yes = 1	1.00		1.00	
	18,046	90	No/DK = 0	**1.11**	1.06–1.16	**0.77**	0.71–0.84
Cancer?	893	4	Yes = 1	1.00		1.00	
	19,221	96	No/DK = 0	1.05	0.98–1.11	**0.71**	0.63–0.80
In the last 12 months, have you had neck or back condition that caused recurring pain?	5,419	27	Yes = 1	1.00		1.00	
	14,695	73	No/DK = 0	**1.15**	1.15–1.19	**0.64**	0.61–0.68
In the last 12 months, have you had knee or leg condition that caused recurring pain?	3,819	19	Yes = 1	1.00		1.00	
	16,295	81	No/DK = 0	**1.20**	1.16–1.24	**0.66**	0.62–0.71
In the last 12 months, did you have other condition that caused recurring pain?	2,963	15	Yes = 1	1.00		1.00	
	17,151	85	No/DK = 0	**1.16**	1.11–1.20	**0.57**	0.53–0.61
How many other health conditions that you have?	2,997	15	≥ 1	1.00		1.00	
	17,117	85	0	**1.21**	1.16–1.26	**0.60**	0.56–0.64
Did you experience a lot of physical pain yesterday?	3,290	16	Yes = 0	1.00		1.00	
	16,694	83	No = 1	**1.15**	1.11–1.20	**0.52**	0.49–0.55
	127	1	DK = 0.5	1.15	0.98–1.35	**0.71**	0.50–0.99
During the past 30 days, for about how many days did poor health keep you from doing your usual activities, such as taking care of yourself, work, or recreation?	3,799	19	2–30 = 0	1.00		1.00	
	16,315	81	0, 1 = 1	**1.29**	1.24–1.34	**0.78**	0.74–0.81
Do you have health problems that prevent you from doing any of the things people of your age normally can do?	2,605	13	Yes = 0	1.00		1.00	
	17,159	85	No = 1	**1.28**	1.22–1.34	**0.44**	0.41–0.47
	345	2	DK = 0.5	1.09	0.96–1.23	**0.76**	0.63–0.90

*Numbers for each variable do not necessarily add to 19,172 because of missing data.

†Job performance rating was based on the question: Using the same 0-to-10 ladder, how would you rate your overall job performance on the days you worked during the past 4 weeks (28 days)? This variable was categorized as low (scores 0–8) vs high (scores 9–10).

‡Adjusted for age, sex, education, and primary job type.

CI indicates confidence interval; DK, don't know.

manage stress, whereby job productivity may be improved.[31,38,39] Hence, in addition to employee engagement, health behaviors play an important role on improving productivity and lowering absenteeism.

Smoking was not associated with self-rated job performance, but it was associated with a higher rate of absenteeism, as shown in other studies.[40–43] There are several possible reasons why smoking was not associated with self-rated job performance. First, smoking is an addiction, unlike the other behaviors, and, as such, might perform very differently as a variable. Second, smoking cessation frequently leads to an increase in body mass, which may create a paradox where eliminating the long-term health risk of smoking creates a short-term hit to productivity associated with increased obesity. Finally, smoking may be a form of self-medicating for depression, wherein people who are depressed are less productive.[44–47]

The prevalence of high self-rated job performance was 11% greater among those who were not obese. In 2010, about 28% of adults in the United States were obese.[48] If obesity were eliminated,

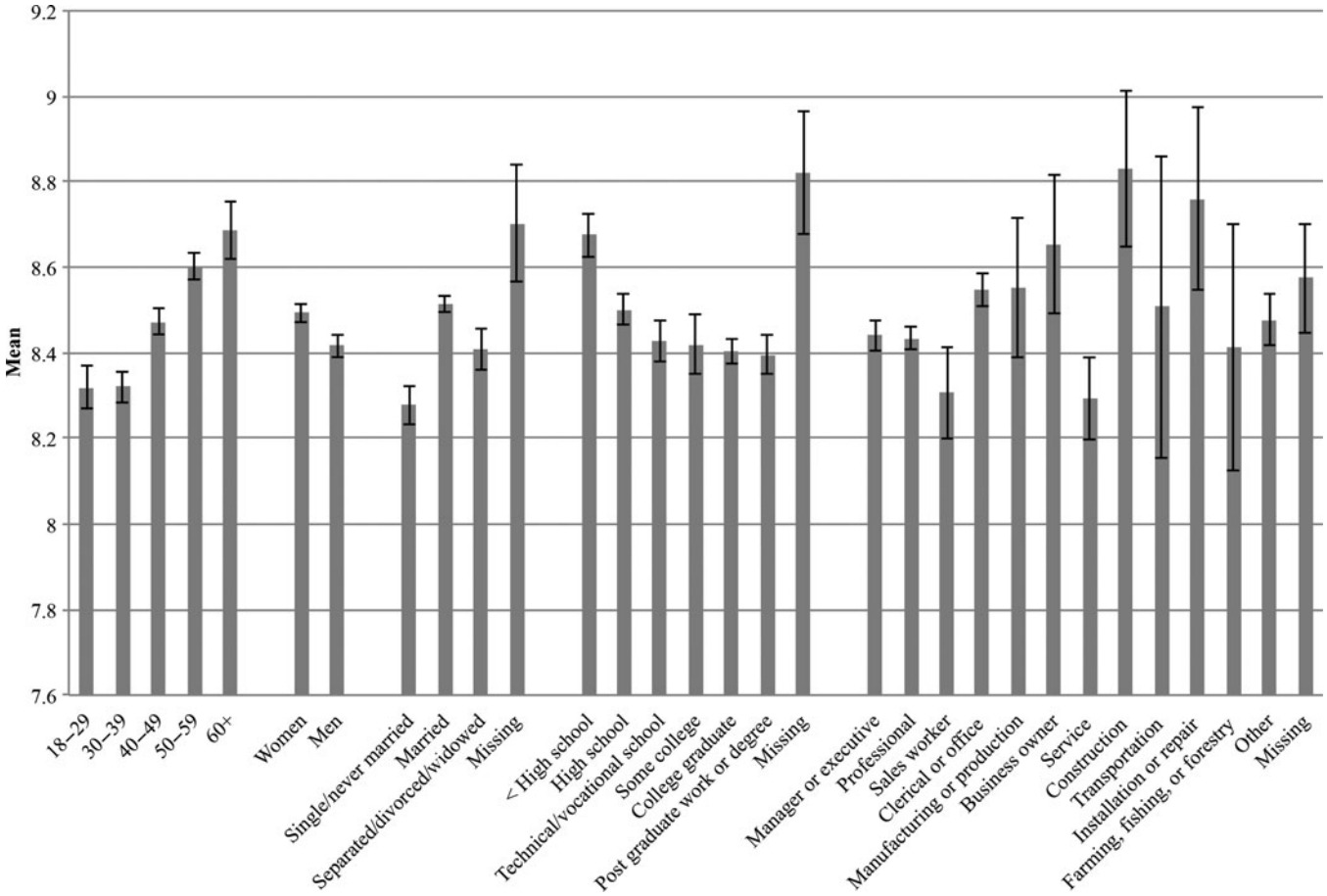

FIGURE 1. Self-rated job performance scores (scaled 0-10 [best]).

chronic disease would be mitigated and a significant increase in job performance may result.

Although a history of chronic disease and activity limitations was significantly associated with self-rated job performance, the strength of this association was less than being satisfied with one's job and having the opportunity to do what one does best every day and also less than dietary and physical activity behaviors. It may be that individuals who are sick and have chronic disease also have altered perceptions of work and their performance. In addition, the indices make no assessment of the severity, progression, or natural history of chronic disease in an individual. The assessment asks individuals only whether they have been told they have the chronic condition. Individuals with well-managed chronic disease may experience less productivity impairment than individuals without chronic disease who have significant lifestyle risks such as obesity or lack of exercise. In this study, those who had chronic disease were still in the workforce, indicating that their chronic conditions were managed well enough to allow them to work.

In support of this idea, chronic disease and activity limitations were more strongly related to absenteeism, the clearest indicator of work nonperformance, than were items related to employee engagement or health behaviors. This may indicate that there is a subset of individuals with more-severe chronic disease who are not well-managed. This finding supports an integrated approach to managing population health and well-being, with some individuals along the health continuum benefiting more from more emphasis on chronic condition management and others benefiting from more emphasis on lifestyle risk management.

Among the chronic diseases and conditions, a history of depression was associated with lower self-rated job performance and higher absenteeism, which is consistent with other research.[49–54] Using the Work Limitations Questionnaire, researchers identified a dose–response relationship between depression severity and subpar work performance.[55] Another study found that job performance was compromised by depression and persisted even after the depressive symptoms improved.[56] Mood disorders have been estimated to cost more than $50 billion per year in lost productivity and result in 321.2 million lost workdays.[49]

This study found that being obese was significantly related to lower self-rated job performance and higher absenteeism, albeit at a lower level than depression and other chronic diseases or conditions. This result is consistent with previous research.[31] It should be noted that in this study, mean BMI was 30.3 for those with a history of depression compared with 28.4 for those without a history of depression after adjusting for age, sex, marital status, education, and job type. It may be that heavier body weight not only contributes directly to lower self-rated job performance and higher absenteeism but also influences these variables indirectly through its influence relationship with depression.[57]

Limitations

As is the case with any survey instrument or self-reported signs and symptoms in a clinical environment, self-report bias may have influenced the results. Nevertheless, its effects may be negligible because the survey questions did not require extensive recall or involve questions likely to invoke bias or provocation, nor were they

TABLE 4. Multiple Regression Models Relating Self-Rated Job Performance With Employee Engagement and Days Missed From Work With Physical Health*

			Self-Rated Job Performance (0–10)		Days Missed From Work in Past 4 Weeks	
	No.	%	Estimate†	*P*‡	Estimate†	*P*‡
Indices						
Employee engagement			**0.0097**	<0.001	**−0.0027**	<0.001
Physical health			**0.0051**	<0.001	**−0.0193**	<0.001
Health behaviors			**0.0049**	<0.001	0.0009	0.107
Age, y						
18–29	2,636	13	Reference		Reference	
30–39	4,624	23	−0.04	0.169	0.08	0.167
40–49	6,060	30	**0.08**	0.006	0.02	0.678
50–59	5,320	26	**0.19**	<0.001	−0.03	0.574
60+	1,474	7	**0.27**	<0.001	−0.04	0.624
Sex						
Men	7,672	38	Reference		Reference	
Women	12,442	62	**0.07**	<0.001	**0.07**	0.035
Marital status						
Single/never married	3,239	16	Reference		Reference	
Married	13,865	69	**0.12**	<0.001	−0.02	0.632
Separated/divorced/widowed	2,676	13	−0.02	0.625	0.05	0.401
Missing	334	2	**0.27**	0.001	−0.17	0.239
Education						
<High school	2,278	11	Reference		Reference	
High school	2,340	12	**0.12**	0.037	0.12	0.086
Technical/vocational school	1,221	6	−0.06	0.164	0.04	0.643
Some college	4,769	24	**0.03**	0.002	0.09	0.119
College graduate	6,569	33	−0.04	0.123	0.04	0.456
Postgraduate work or degree	2,676	13	**0.03**	0.038	−0.08	0.192
Missing	261	1	**0.22**	0.020	−0.00	0.996
Primary job category						
Manager or executive	3,296	16	Reference		Reference	
Professional	7,792	39	0.05	0.058	0.03	0.567
Sales worker	667	3	−0.08	0.130	0.01	0.942
Clerical or office	4,010	20	0.11	<0.001	0.03	0.612
Manufacturing or production	183	1	0.13	0.126	−0.07	0.687
Business owner	270	1	**0.22**	0.005	0.17	0.225
Service	696	3	−0.08	0.097	0.16	0.081
Construction	146	1	0.40	<0.001	−0.08	0.669
Transportation	78	<1	0.15	0.267	**1.50**	<0.001
Installation or repair	104	1	**0.36**	0.003	**0.59**	0.006
Farming, fishing, or forestry	58	<1	0.02	0.935	0.10	0.714
Other	1,911	10	**0.04**	0.006	0.04	0.563
Missing	903	4	0.09	0.169	**0.30**	0.004

*Bolded estimates are statistically significant at the 0.05 level.

†Two multiple regression analyses were completed, one on job performance and one on days missed from work in the past 4 weeks. All variables in the left-hand column of this table were treated as predictors in each model. Variables found to be significant in the models have estimates in bold.

‡Based on the *t*-statistic.

tied to employment or provision of benefits. Furthermore, because employers did not have the ability to review the employees' individual responses but received reports on aggregated data, employee responses may have been more accurate.

Although the generalization of the findings of this study to broader populations may be limited because participants represented three organizations in insurance and health care and include a larger than average proportion of women and professional workers, the broad array of job types within these companies, along with their size, mitigates this potential problem. In addition, many of the findings in this study are congruent with a large body of published research documenting the effects of health behaviors and employee engagement on productivity and performance.[8–13]

This study represents a cross-sectional evaluation of the relationship between employee engagement, health behaviors and physical health, and aspects of employee productivity. Future

studies should evaluate the longitudinal nature of well-being improvement and its impact on workforce productivity and health. It is also likely that the multiple domains of well-being interact in complex ways to influence worker performance. Future work should examine the complex, multifactorial nature of well-being across multiple domains.

CONCLUSIONS

Self-rated job performance and absenteeism were significantly associated with three well-being indices measuring key aspects of employee engagement, health behavior, and physical health. Self-rated job performance was most strongly associated with employee engagement, whereas absenteeism was most strongly associated with physical health. The items in the employee engagement index with the strongest association to self-reported job performance were satisfaction, opportunity to do what you do best every day, and having a trusting and open environment. The items in the physical health index most strongly associated with absenteeism were physical problems preventing normal activities, self-reported depression, and a lot of physical pain the previous day. In general, this study suggests that employers can maximize their employees' job performance by using a multipronged, integrated approach to well-being improvement. First, focus should be given to building satisfying, open work environments, where employees feel encouraged and supported in doing their best. Second, the implementation of worksite-based health and wellness programs is important for reducing absenteeism, one of the clearest indicators of work nonperformance. Finally, programs to address chronic health conditions and physical health also improve productivity while at work and minimize absence related to more-severe or poorly managed chronic conditions. Because well-being is a complex and holistic construct, future work should focus on how multiple domains of well-being interact to ultimately influence outcomes of interest.

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