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The Impact of Body Mass Index on Short-Term Disability in the Workplace

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Learning Objectives

- Summarize relationships between the occurrence of short-term disability (STD) events on the one hand and, on the other, demographic factors and body mass index (BMI) in this retrospective review of more than 17,000 "white collar" workers.
- Outline the associations – if any – between BMI category and the number and duration of STD events.
- Identify the most common forms of STD and any correlation between major diagnostic groups and BMI categories.

Abstract

Objective: *The objective of this study was to assess the association between body mass index and short-term disability in a working "white collar" population.* ***Methods:*** *The authors collected cross-sectional data from 19,061 health risk appraisals completed by employees of a large financial services corporation from 2000–2002. The self-reported information for demographics and job satisfaction was combined with personnel and detailed information from short-term disability events (STD) taken during the same time period.* ***Results:*** *After adjusting for multiple covariates, body mass index is an independent predictor for STD events. Body mass index categories of overweight and obese have odds ratios of 1.26 and 1.76 compared with normal weight ($P < 0.0001$).* ***Conclusions:*** *The improvement of employee health and wellness should be pursued by the employer in an effort to promote healthier weight among their workers. This in turn should reduce STD events that result in the loss of worker productivity and a major cost to companies.* (J Occup Environ Med. *2006;48:1118–1124*)

Obesity accounts for an estimated $92.6 billion (in 2002 dollars) or 9% of annual medical expenditures in the United States and 5% of annual medical expenditures for U.S. corporations.[1,2] Thorpe et al reported that obesity accounted for 27% of the rise in inflation adjusted per capita healthcare spending in the United States between 1987 and 2001 mainly related to treatment for diabetes and hypertension.[3] It is the second leading cause of preventable death in the United States[4] and is associated with increased risk for several medical conditions, including type 2 diabetes mellitus, coronary heart disease, stroke, hypertension, gallbladder disease, some forms of cancer, sleep apnea, and osteoarthritis.[5] Body mass index (BMI) or Quetelet's index (weight in kilograms divided by height in meters squared) is currently the most widely used index for assessing body weight in populations. It is a measure of weight adjusted by stature and shows the highest correlation with independent measures of body fat.[6] U.S. government guidelines now define overweight as a BMI of 25 to 29.9 kg/m^2 and obesity as a BMI of 30 kg/m^2 and above.[7] The prevalence of obesity in Americans with a BMI >30 kg/m^2, has risen from 13.4% between 1960 and 1962 to 30.9% between 1999 and 2000.[8]

Obesity has also been associated with increased direct and indirect costs for employers, including increased absenteeism, short-term disability, and decreased productivity (presenteeism) in the workplace.[9–19] Sturm et al analyzed data from the National Health Retirement Study to estimate the association between dis-

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ability and obesity.[20] They concluded that if current trends in the increased prevalence of obesity continue, there will be a 1% increase per year in disability rates for persons age 50 to 69 years old. Relatively few studies have examined the relationships between indirect costs of overweight and obesity to employers. Our study examines the relationship between BMI and short-term disability-related absenteeism for a major U.S. financial services corporation.

Materials and Methods

We conducted a retrospective study and compiled data from a large, multistate financial services institution. A protocol for the study was submitted to the University of Pittsburgh Institutional Review Board and received approval before the start of the study. This banking institution has approximately 75,000 employees, of which 19,061 employees completed a health risk appraisal (HRA) during the period January 1, 2000, through July 21, 2002. The HRA contained self reported information for height, weight, age, gender, and job satisfaction (strongly dissatisfied, dissatisfied, satisfied, strongly satisfied). For each of the participants, human resources information was available for job pay band classification ($12–30 k, $14–36 k, $16–48 k, $18–60 k, $25–90 k, $35–120 k, $55–170 k, $100–280 k, $150–350 k, $250–500 k, $500–900 k, $800–1400 k), job exemption status (exempt, nonexempt), classification as to whether the employee was an officer (first-level officer, associate vice president, vice president, financial vice president, senior vice president, executive vice president), full-time/part-time status, ethnicity, weekly hours worked, and location (ie, state where employed).

The primary outcome measure of our study was the frequency and duration of short-term disability (STD) events. STD is a salary-continuation benefit for employees off work because of illness that lasted more than 5 consecutive workdays. The duration of the benefits could be up to 6 months at full, half, or no salary depending on the employee's tenure. This financial institution was self-insured for STD benefits. For each STD event, the employee's healthcare provider must submit documentation, including medical reason(s) for the absence and was standardized using the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) codes.

A database of 19,061 employee records, without personal identifiers, linking the information from the HRA, personnel, and STD information was provided by the company to the University of Pittsburgh Department of Environmental and Occupational Health for analysis. A thorough review was performed and incomplete or inconsistent records that could not be resolved were excluded from data analysis. The current study investigated 17,622 employees who participated in at least one HRA between 2000 and 2002 and had information available for potential absenteeism. Incomplete records that could not be resolved were found for 479 employees and excluded from the study analysis. Consistent with other studies of BMI and worker productivity, we did not consider pregnancy as a disease or disability and thus pregnancy-related STD events ($n = 960$) were also excluded from data analysis. Some workers had multiple STD events during the study time period. Analysis that summarized the characteristics of STDs in aggregate counted each of the multiple occurrences separately. Analyses that examined characteristics of the worker counted the employee once.

BMI was calculated as weight in kilograms divided by height in meters squared and was based on self-reported information provided in the HRA. Analyses included BMI as a continuous variable as well as categorical: underweight (<18.5 kg/m^2), normal weight (≥ 18.5–<25 kg/m^2), overweight (≥ 25–<30 kg/m^2), and obese (≥ 30 kg/m^2). Descriptive statistics, standard deviation, and frequency distributions were generated and reviewed. Two sample t tests and Mann-Whitney U tests were used to compare differences between groups for continuous variables and χ^2 analysis was used to compare differences between proportions between the groups. In addition, Fisher exact procedures were used when asymptotic properties were not met. An analysis of variance procedure with Tukey's post hoc comparisons was used when comparing means from more than two groups. Multiple linear logistic regression analysis was used to assess the association of BMI with the occurrence of whether an individual had an STD event while simultaneously adjusting for other covariates. All analyses were conducted using SAS 8.2 for Windows.

Results

Descriptive Statistics

Our study group comprised 17,622 employees with 74% female; 79.2% white, 12.3% black, 5.3% Hispanic, 2.8% Asian, and the remainder Native American (see Table 1). The most frequent job pay band classifications were 2 and 3 (20.8% and 21.7%, respectively), which corresponds to annual base salary ranges of $14–36 k and $16–48 k. Most workers resided in the midwest (63.2%) or southwest (28.3%) regions of the United States. Over three fourths of the employees were located in Illinois (18.6%), Ohio (17.9%), Texas (9.7%), Michigan (9.6%), Arizona (9.2%), Indiana (8.3%), or Louisiana (5.1%). The remainder of employees resided in 37 other states. The vast majority, 90.9%, of workers were employed full-time, working 40 hours per week. Approximately half, 55.7%, of the employees were in the nonexempt status category. Thirty-five percent ($n = 6202$) of the workers in the study were classified as holding an officer's title. The distribution of titles among the officers was: first-level officer (31.8%), associate vice president (30.9%), vice president (26.8%), financial vice president (6.2%), senior vice president (3.5%), and executive vice president (<1%). Employee job satisfaction was generally good with

TABLE 1
Characteristics of Employees With an STD Event

	STD Event*		Total†		
	Percent	No.	Percent	No.	P (χ^2)
All workers	9.6	1690	100	17,622	—
Gender					
Male	3.9	177	26.0	4584	<0.0001
Female	11.6	1513	74.0	13,038	
BMI classification					
BMI <18.5 kg/m^2	6.5	25	2.2	384	<0.0001
Normal (≥18.5–<25 kg/m^2)	7.3	541	42.1	7418	
Overweight (≥25–<30 kg/m^2)	8.8	496	31.8	5604	
Obese (≥30 kg/m^2)	14.9	628	23.9	4216	
Race					
White	8.8	1224	79.2	13,954	<0.0001
Black	15.3	331	12.3	2165	
Hispanic	10.7	101	5.3	940	
Native American	8.3	5	<0.1	60	
Asian	5.9	29	2.8	494	
Exempt status					
Exempt	5.6	437	44.3	7811	<0.0001
Nonexempt	12.8	1253	55.7	9811	
Staff/officer classification					
Staff	11.6	1329	64.8	11,420	<0.0001
First-level officer	7.8	154	11.2	1974	
Associate vice president	6.6	127	10.9	1916	
Vice president	4.2	70	9.4	1661	
Financial vice president	1.8	7	2.2	383	
Senior vice president	0.5	1	1.2	217	
Executive vice president	3.9	2	0.3	51	
Region					
Northeast	8.7	86	5.6	989	0.076
Southeast	10.3	53	2.9	517	
Midwest	10.0	1113	63.2	11,137	
West and Southwest	8.8	438	28.3	4979	
Full-/part-time status					
Full	9.8	1562	90.9	16,015	0.20
Part	8.0	128	9.1	1607	
Job satisfaction					
Strongly satisfied	8.9	178	11.5	2008	0.52
Satisfied	9.5	1063	64.1	11,201	
Dissatisfied	10.0	356	20.3	3556	
Strongly dissatisfied	10.1	73	4.1	723	
Job pay band classification					
Low (1–2)	13.6	629	26.2	4619	<0.0001
Middle (3–4)	11.5	747	36.7	6468	
High middle (5–6)	5.4	267	27.9	4909	
High (7–9)	2.9	47	9.2	1625	

*Percent and frequency of workers taking an STD within the specified category.
†Percent and frequency of workers within the specified category.
STD indicates short-term disability (excludes pregnancy related disabilities); BMI, body mass index.

their level of job satisfaction reported as "satisfied" (64.1%) or "very satisfied" (11.5%). Only 4% of employees indicated that they were very dissatisfied with their job.

Comparative Statistics

A total of 1690 workers had at least one STD event during the period from January 1, 2000, to December 31, 2002. The demographics of employees with an STD event are summarized in Table 1. For each descriptive characteristic, the percent and number of employees taking an STD is provided. Thus, one can compare the likelihood of worker with a particular characteristic taking an STD compared with other workers possessing complementary characteristics, eg, with respect to gender, female workers were more likely to take an STD compared with males (11.6 vs 3.9) and this finding is unlikely to be due to chance ($P < 0.0001$). Similarly, individuals with nonexempt status, blacks, Hispanics, and staff and lower ranking officers were more likely to be associated with an STD event.

Workers with an STD event tended to be heavier. Overweight or obese individuals (as measured by BMI) were much more likely to have an STD than normal or underweight workers (Table 1). Mean BMI for employees with an STD event was 29.1 in comparison with 26.6 for those employees without an STD event ($P < 0.0001$) (Table 2).

Individuals who were older or hired at a later age were more likely to have an STD (Table 2). The mean age of workers with an STD event was 43.9 years in comparison with 41.6 years for workers without an STD event ($P < 0.0001$).

The duration and number of STD events was examined by BMI classifications (Table 3). Underweight workers had the longest mean STD duration (51.8 workdays) followed by obese individuals (48.8 workdays) and then by workers with a normal BMI (43.1 workdays) ($P = 0.015$). In contrast, the mean number of STD events per worker was not significantly different among different BMI classifications. We also noted that the proportion of workers with an STD event increases with increasing BMI classifications ($P < 0.0001$; Cochrane-Armitage trend test). The duration of the STD events ranged from 1 to 137 workdays with a mean of 38.0 workdays, median of 30.0 workdays, and standard deviation of 31.5 workdays. Workers with an STD event worked on average slightly more hours per week than those without an STD event, 38.9 hours versus 38.4 hours, respectively ($P < 0.0001$). Including multiple occurrences, there was an average of 1.1 STD events per

TABLE 2
Comparison of the Demographic Characteristics of Employees With and Without an STD Event for the Period 2000–2002 (mean and standard deviation)

	No STD Event	STD Event	Total	P*
Height (inches)	66.4 (3.8)	65.4 (3.4)	66.3 (3.8)	<0.0001
Weight (lbs)	167.6 (41.2)	177.5 (48.8)	168.5 (42.1)	<0.0001
Body mass index (kg/m$^{2)}$	26.6 (5.9)	29.1 (7.6)	26.9 (6.1)	<0.0001
Age at hire (yr)	30.0 (9.6)	32.5 (10.8)	30.2 (9.8)	<0.0001
Current age (yr)	41.6 (11.2)	43.9 (11.5)	41.2 (11.2)	<0.0001
Length of employment (yr)	10.8 (8.9)	11.0 (8.5)	10.8 (8.9)	<0.0001†
Hours per week	38.4 (5.2)	38.9 (4.1)	38.4 (5.1)	<0.0001

*Two-sample t test.
†Mann-Whitney *U* test.
STD indicates short-term disability (excludes pregnancy related disabilities).

employee during the study period for a total of 1911 STD events.

Logistic Regression

Multiple logistic regression analysis was used to simultaneously adjust for several variables that might be related to the occurrence of an STD event. Predictor or independent variables included in the model were ethnicity, gender, hours worked, employment length, current age, hire age, region, exempt status, full-/part-time status, staff/officer classification, job pay band classification, and BMI. A number of statistical models were fit, treating the occurrence of an STD event as the outcome or dependent variable and various categorizations of the independent variables. Models fit included all of the variables and treated BMI categorically with normal weight as the baseline. The results are reported in Table 4. The model was refit, treating BMI as a continuous variable. Parameter estimates, confidence intervals, and *P* values for the other covariates remained very similar. The regression coefficient for BMI was 0.0387 (standard error 0.0037; $P < 0.0001$). This is comparable to the results when BMI is categorized, eg, if we compare normal weight using a midpoint value of 21.75 with overweight using a midpoint value of 27.5, the difference is 5.75. When multiplied by 0.0387 and exponentiated, the resulting odds ratio is 1.25 and is essentially the same as the results for the overweight category of 1.26. A similar finding is found for the other BMI categories. The regression models were refit including only the statistically significant terms. BMI was treated as a categorical and continuous variable as before. The results were very similar and for brevity not shown. In all the models, it is noted that coefficients for BMI were statistically significant. Thus, after adjusting for other factors, BMI was independently associated with the occurrence of an STD event. Compared with normal-weight individuals, underweight, overweight, and obese had odds ratios of 0.84, 1.26, and 1.76, respectively.

Major Diagnostic Classifications and Short-Term Disability Events

The medical reasons for an STD event are summarized in Table 5 and included: musculoskeletal conditions (19.0%) followed by mental and psychiatric disorders (13.1%), genitourinary conditions (11.3%), and digestive disorders (11.0%). Accidents and injuries accounted for slightly less than 10% of all STD events. STD events associated with neoplasms, mental health conditions, circulatory and musculoskeletal disorders tended to have longer STD durations with mean workdays per STD event of 47.0, 46.5, 45.5, and 43.4 days, respectively (see Table 5). Mean BMI delineated by major diagnostic groups generally placed individuals in the overweight category. Exceptions would be for metabolic disorders (mean BMI, 36.9 kg/m^2), nervous system disorders

TABLE 3
Relationship of the Duration and Number of STD Events With BMI (mean and standard deviation)

	BMI Categories (kg/m^2)				
	<18.5	≥18.5–<25	≥25–<30	≥30	P*
No.	25	541	496	628	
Percent of workers taking STD	6.5	7.3	8.8	14.9	<0.00001†
Workdays lost/STD event—mean (SD)	51.8 (35.2)	43.1 (37.9)	43.0 (37.8)	48.8 (41.9)	0.015‡
Workdays lost/STD event—median	44	31	31	35	
Number of STD events per worker—mean (SD)	1.2 (0.6)	1.2 (0.5)	1.2 (0.6)	1.2 (0.6)	0.24§

*All statistical analysis performed excluding the lowest category of BMI (<18.5 kg/m^2).
†Cochrane-Armitage trend test.
‡Analysis of variance with Tukey's post hoc comparisons indicating significant differences between normal BMI and obese and overweight BMI and obese.
§Analysis of variance.
STD indicates short-term disability (excludes pregnancy related disabilities); BMI, body mass index; SD, standard deviation.

TABLE 4
Results of Multiple Logistic Regression Model

Factor	Coefficient		Odds Ratio			*P*
	Beta	Standard Error	Odds Ratio	95% Confidence Interval		
Body mass index						<0.0001
Normal (≥18.5–<25 kg/m^2)	—	—	1.0			
Underweight (<18.5 kg/m^2)	−0.1771	0.2187	0.84	0.55	1.29	
Overweight (≥25–<30 kg/m^2)	0.2298	0.0677	1.26	1.10	1.44	
Obese (≥30 kg/m^2)	0.5645	0.0654	1.76	1.55	2.00	
Age at hire (yr)	0.3633	0.0321	1.44	1.35	1.53	<0.0001
Current age (yr)	−0.3416	0.0323	0.71	0.67	0.76	<0.0001
Length of employment (yr)	0.3449	0.0314	1.41	1.33	1.50	<0.0001
Hours worked per day	0.0511	0.0147	1.05	1.02	1.08	0.0005
Gender						<0.0001
Male	—	—	1.0			
Female	0.8014	0.0883	2.23	1.87	2.65	
Race						<0.0001
White	—	—	1.0			
Black	0.3203	0.0716	1.38	1.20	1.58	
Hispanic	0.2134	0.1155	1.24	0.99	1.55	
Native American	−0.1304	0.4788	0.88	0.34	2.24	
Asian/Pacific	−0.3908	0.2015	0.68	0.46	1.00	
Exempt Status						0.064
Yes	—	—	1.0			
No	−0.1861	0.1006	0.83	0.68	1.01	
Staff/officer classification						0.215
Staff	—	—	1.0			
First-level officer	0.1021	0.1046	1.11	0.90	1.36	
Associate vice president	0.0947	0.1228	1.10	0.86	1.40	
Vice president	−0.0164	0.1789	0.99	0.69	1.40	
Financial vice president	−0.7070	0.4441	0.49	0.21	1.18	
Senior vice president	−2.0637	1.0241	0.13	0.02	0.94	
Executive vice president	0.2437	0.7594	1.28	0.29	5.65	
Region						0.072
Northeast	—	—	1.0			
Midwest	−0.0232	0.1237	0.98	0.77	1.24	
Southeast	−0.1913	0.1916	0.83	0.57	1.20	
West and Southwest	−0.1771	0.1299	0.84	0.65	1.08	
Full-/part-time status						0.472
Full	—	—	1.0			
Part	0.1694	0.2359	1.18	0.75	1.88	
Job satisfaction						0.260
Strongly satisfied	—	—	1.0			
Satisfied	0.0414	0.0877	1.04	0.88	1.24	
Dissatisfied	0.1570	0.1006	1.17	0.96	1.42	
Strongly dissatisfied	0.1553	0.1531	1.17	0.86	1.58	
Job pay band classification						<0.0001
Low (1–2)	—	—	1.0			
Middle (3–4)	−0.3136	0.0669	0.73	0.64	0.83	
High middle (5–6)	−0.8472	0.1327	0.43	0.33	0.56	
High (7–9)	−1.0074	0.2434	0.36	0.23	0.59	

(mean BMI, 30.4 kg/m^2), skin and subcutaneous disorders (mean BMI, 33.0 kg/m^2), and V-codes (mean BMI, 30.0 kg/m^2), all of which are considered obese.

Discussion

The primary goal of our study was to evaluate the impact of BMI on workplace productivity as measured by the frequency and duration of STD events. Our hypothesis was that an abnormal BMI (≥25 kg/m^2) places the employee at increased risk for medical conditions, which result in STD-related absences. Previous published studies have demonstrated the association of BMI with medical conditions and disease. Our study demonstrates that workers with progressively higher BMIs experience a greater number of STD events and therefore a greater number of STD workdays lost than workers with a normal BMI.

Analysis of the medical reasons for STD absences found that 32.1% were

TABLE 5
Major Diagnostic Classification (MDC) Reasons for STD Events

Diagnosis Code	Percent	No.	Duration of STD/Event		Body Mass Index		
			Mean	Standard Deviation	Mean	Standard Deviation	Median
001–139 Infectious diseases	1.5	28	32.2	32.1	28.4	7.0	24.4
140–239 Neoplasms	9.6	183	47.0	35.9	28.6	6.6	27.4
240–279 Metabolic	2.3	44	38.0	30.5	36.9	13.8	32.2
280–289 Blood/blood organ	0.4	7	39.7	40.9	29.0	7.8	26.4
290–319 Mental/psychiatric	13.1	251	46.5	33.9	28.9	7.9	27.4
320–389 Nervous system	5.0	96	41.2	33.8	30.4	7.6	28.6
390–459 Circulatory system	4.5	86	45.5	38.3	29.0	5.9	27.3
460–519 Respiratory	5.5	105	21.3	25.6	29.6	7.7	28.2
520–579 Digestive	11.0	211	23.4	20.0	29.7	7.8	28.2
580–629 Genitourinary	11.3	216	30.6	15.8	28.6	7.2	27.4
680–709 Skin/subcutaneous	1.3	25	36.8	35.8	33.0	8.9	31.9
710–739 Musculoskeletal	19.0	364	43.4	33.5	29.1	7.6	27.5
740–759 Congenital anomalies	0.6	11	38.0	32.9	28.5	7.9	26.5
780–799 Symptoms/signs	4.4	84	34.3	28.2	28.4	6.5	26.9
800–999 Injury	9.8	187	39.1	32.4	28.9	6.8	28.2
E-Codes	0.0	1	70.0	—	20.5	—	20.5
V-Codes	0.6	12	33.6	32.9	30.0	5.3	29.4
All categories	100.0	1911	38.0	31.5	29.1	7.6	27.6

STD indicates short-term disability (analysis excludes pregnancy related disabilities).

for musculoskeletal or mental health conditions. This is consistent with previous studies showing a correlation between overweight/obesity and disease.[21–24] Explanations for prevalence of mental health disorders among obese/overweight employees include the original disorder causing weight gain (eg, depression leading to sedentary lifestyle) and pharmacologic side effects of the mental health treatment causing weight gain associated with some medications.[25] Similarly, the association of BMI with musculoskeletal disorders is well known relating to the development of osteoarthritis, low back pain, and other disorders relating to the impact of excessive weight on the muscles and joints of the body. Circulatory and metabolic disorders are also more common in the higher BMI categories. Possible explanations for this observation include that obesity can either be the result of the disease (ie, metabolic disorders) or be the predisposing factor of the disease (eg, coronary artery disease and peripheral vascular disease relating to the association of diabetes mellitus and blood lipid disorders).

Our logistic regression analysis demonstrated a statistically significant association between BMI and STD events even after adjusting for other risk factors, thus further providing support for a real relationship and emphasizing the economic interest in attempting to maintain a healthier weight in the workplace. This raises the question of the role of the employer in reducing weight. Although making weight limits or restricting roles in the workplace based on weight is ethically and legally wrong, there are other approaches that can be taken. Emphasis can be placed on the benefits of "healthy" weight. One study found that community-based weight reduction programs can bring about modest decreases in weight at lower costs compared with clinical interventions.[26] It would be in the interest of the employer economically and in the community interest to aid in lowering weight among those who are overweight or obese. One study has shown that a worksite weight reduction program was able to bring about a 5- to 14-pound reduction in weight over 12 months.[27] However, a meta-analysis of six studies showed that although workplace weight loss programs do bring about short-term weight loss, long-term weight loss and results on productivity as a result of the program have yet to be demonstrated.[28] A study looking at pre- and postintervention workplace weight loss programs on productivity would shed more light on the subject.

We do recognize that there are some limitations to our study. First, the height and weight were self-reported and taken from the HRA. However, prior studies showed that these self-reported values are reasonably accurate and, over a relatively short period of time, weight generally does not vary significantly.[29] These values may not be the same as when an employee experienced an STD event. This does not account for weight changes that could have happened between the times that the individual entered the program and the STD event, thereby overestimating or underestimating the effect of weight on leave. However, it is likely that weight changes occur in both directions and would only atten-

uate the relationship. Second, as discussed previously, although our study showed an association between BMI and disability over a 2-year period, the effect of weight loss on STD absences could not be evaluated. We assume that reduction in weight reduces risk of other health problems, but we also need to take into account that different weight loss techniques, including pharmacologic and surgical ones, have their associated morbidities and may also adversely affect productivity. A prospective study evaluating weight loss and productivity would elucidate this relationship. Third, another assessment of weight is waist circumference, which, along with BMI and other risk factors, could be useful in better understanding the relationship between metabolic syndromes and STD events. Finally, the study did not address days taken off other than that associated with STDs. This is important because individuals might take only a few days off for sick leave without reporting it as a disability.

This study demonstrates that BMI is an independent risk factor for lost worker productivity related to STDs. Programs that improve employee health should be pursued by the employer in an effort to promote healthier weight among their workers. Successful weight management initiatives should reduce STD expenditures, improve worker productivity, and lessen the indirect costs associated with overweight and obesity to a company.

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