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The role of sick leave in increasing breast cancer screening among female employees in the U.S.

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ABSTRACT

Aim: A major goal of the Affordable Care Act (ACA) is to expand access to preventive health services, but significant economic barriers remain. One such barrier is not having sick leave to utilize preventive medical care. This study uses nationally representative U.S. data to examine whether having sick leave is associated with increased breast cancer screening among female employees.
Methods: 17,198 observations of female employees aged 40 and over were examined using the 2006–10 Medical Expenditure Panel Survey. We examined likelihood of having a clinical breast examination or mammography within 12 months with sick leave vs. no sick leave. Multivariate analyses adjust for age, education, race/ethnicity, poverty status, insurance, marital status, self-reported health and survey year. Afterward, we calculated predicted probabilities from the multivariate logistic regression to measure the impact of sick leave on breast cancer screening.
Results: 71.8% of female employees with sick leave have clinical breast exam versus 60.1% of females with no sick leave. For mammograms, these percentages are 63.2% and 52.0%, respectively. After adjusting for socioeconomic status, access to care and health status, sick leave increases the odds of clinical breast exam (OR = 1.22; $p < .001$) and mammogram (OR = 1.25; $p < .001$).
Conclusions: The United States has the fewest days of sick leave on average of any industrialized nation. However, more local governments are mandating employers to provide sick leave. Our results suggest that these policies are likely to significantly increase the odds of clinical breast examination and mammography among female workers.

Introduction

A major goal of the Affordable Care Act (ACA) is to expand access to preventive health services by increasing affordability of health insurance and requiring insurers to cover preventive health care at no charge to consumers [1,2]. However, even with the expanded access to health insurance and preventive health services under ACA, significant economic barriers remain. An important barrier, particularly for children of low-income employees, is lack of paid sick or vacation leave [3–6]. For example, children in fair to poor health experience improved health outcomes when more time off work is taken by parents with paid leave [7,8]. The lack of sick leave increases the financial difficulty of a long maternity leave for mothers, and breast feeding ceases earlier for mothers with short maternity leaves [9,10]. Foregone wages—and the potential for loss of employment—resulting from lack of sick leave may substantially limit access to preventive health care, thus negating an important benefit of ACA. More local and state governments—most recently New York City—are requiring employers to provide their employees with paid sick leave benefits [11]. However, there is little research examining the relationship between having sick leave and cancer screening [12]. Results from one study of 2545 female workers show that having paid sick leave significantly increases mammography. However, results on clinical breast examination or for paid leave other than sick leave were not available [12].

This study uses nationally representative data from a large in-person database to examine whether having any sick leave is associated with increased clinical breast examination or mammography for employed females aged 40 and over. We also estimate the aggregate number of screenings that may occur annually if sick leave were made available to all employees in the U.S.

Methods

Study population

Data from 2006–2010 Medical Expenditure Panel Survey (MEPS) was used to identify and measure the association between

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preventive cancer screening and sick leave. MEPS is a large-scale, nationally representative secondary dataset of individuals and their providers [13]. We restricted our study population to female employees aged 40 and over. Preventive cancer screenings include clinical breast examination and mammography. Clinical breast exam and mammography are recommended annually or biannually for females aged 40 and over [14–17]. For sick leave status, we only included persons reporting that they were continuously employed throughout the year and excluded those who were self-employed at their current main job. This resulted in a final analytical sample size of 17,068.

Measures

Our primary outcomes were receiving clinical breast examination or mammography within 12 months. For clinical breast examination, respondents were asked "How long since last breast examination by doctor or other health professional?" Possible answers included "within past year", "within past 2 years", "within past 3 years", "within past 5 years", "more than 5 years", "never", and "inapplicable". The question for mammography was similar. We dichotomized each screening variable to reflect if respondents received screening within the past year. This time frame was consistent with the definition of sick leave status (see below).

Sick leave status is the main explanatory variable. Respondents were asked whether they had paid sick leave ("Does this person have sick leave if they were sick?"), and sick leave to visit a doctor ("Does the person have sick leave if they went to see a doctor?"). Possible responses included "Yes", "No" and "Inapplicable". We defined a dichotomous sick leave variable as answering affirmative to at least one of these questions vs. negative to both questions.

Control variables included age (40–49, 50–59, 60–69, and 70–85), education (<12 years, 12 years, and >12 years), race/ethnicity (Hispanic, Non-Hispanic white, Non-Hispanic Black, and other race/ethnicity), poverty status (family income less than 125% of federal poverty line), insurance status (insured vs. uninsured), marital status (married vs. non-married), and self-reported health status as "excellent", "very good", "good", "fair", or "poor". We defined a dichotomous variable as excellent/very good/good health vs. fair/poor health.

Statistical analysis

We calculated the distribution of preventive breast cancer screenings for females with and without sick leave. Additionally, we performed a chi-square test to examine bivariate associations between having sick leave and receiving preventive health services. A multivariate logistic regression model was used to model the relationship between seeking preventive care and sick leave, adjusting for age, race/ethnicity, marital status, poverty, insurance, and self-reported health. Afterward, we calculated predicted probabilities from the multivariate logistic regression to measure the impact of sick leave on breast cancer screening. We performed all statistical analyses using STATA 12 and adjusted for sample weights and the complex survey design of MEPS. A p-value of less than 0.05 was considered statistically significant.

Results

Univariate analysis presented the unadjusted association between breast cancer screening and having sick leave (Table 1). For both screenings, the weighted percentage of workers who received breast cancer screening within the past year was significantly higher among workers with sick leave compared to those without it. 71.8% of female employees with sick leave reported receiving clinical breast exams versus 60.1% of those without sick leave. For mammograms, these percentages were 63.2% and 52.0%, respectively.

After adjusting for socioeconomic factors, insurance, and health status using multivariate logistic regression, the association between having sick leave and breast cancer screening was statistically significant (Table 2). Sick leave increased the odds of clinical breast exam (OR = 1.22; $p < .001$) and mammogram (OR = 1.25; $p < .001$) for female employees.

Multivariate logistic regression adjusted probabilities of receiving breast cancer screening within 12 months for sick leave versus no sick leave for female employees are provided in Table 3. After adjusting for confounding factors, having sick leave increases the likelihood of clinical breast exam from 65.9% to 70.3% ($p < .001$) and mammogram from 56.3% to 61.7% ($p < .001$). These results were used to estimate the aggregate number of annual screenings that may occur from extending sick leave to all female employees, using the fact that MEPS is a nationally representative database. This

Table 1
Descriptive statistics of preventive care utilization by gender and sick leave status, U.S., MEPS 2006–10.

	Without sick leave (N = 5963)	With sick leave (N = 11,105)	N	P-value
Preventive care				
Breast exam	60.1%	71.8%	16,090	<.001
Mammography	52.0%	63.2%	16,103	<.001
Independent variables				
Age				
40–49	44.7%	46.6%	17,068	<.001
50–59	32.7%	39.5%		
60–69	17.0%	12.5%		
70–85	5.5%	1.4%		
Education				
<12 years	16.8%	5.8%	16,939	<.001
12 years	36.2%	27.6%		
>12 years	47.0%	66.6%		
Race/Ethnicity				
Hispanic	12.9%	7.9%	17,068	<.001
Non-Hispanic White	70.3%	73.6%		
Non-Hispanic Black	10.2%	12.4%		
Non-Hispanic Other	6.6%	6.1%		
Poverty	13.6%	2.8%	17,068	<.001
Insured	78.5%	96.5%	17,068	<.001
Married	60.0%	62.3%	17,068	0.082
Self-reported Health (Excellent/very good/good)	86.6%	91.6%	17,066	<.001