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Preventive care utilization: Association with individual- and workgroup-level policy and practice perceptions

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ABSTRACT

Preventive medical care may reduce downstream medical costs and reduce population burden of disease. However, although social, demographic, and geographic determinants of preventive care have been studied, there is little information about how the workplace affects preventive care utilization. This study examines how four types of organizational policies and practices (OPPs) are associated with individual workers' preventive care utilization. We used data collected in 2012 from 838 hospital patient care workers, grouped in 84 patient care units at two hospitals in Boston. Via survey, we assessed individuals' perceptions of four types of OPPs on their work units. We linked the survey data to a database containing detailed information on medical expenditures. Using multilevel models, we tested whether individual-level perceptions, workgroup-average perceptions, and their combination were associated with individual workers' preventive care utilization (measured by number of preventive care encounters over a two-year period). Adjusting for worker characteristics, higher individual-level perceptions of workplace flexibility were associated with greater preventive care utilization. Higher average unit-level perceptions of people-oriented culture, ergonomic practices, and flexibility were associated with greater preventive care utilization. Overall, we find that workplace policies and practices supporting flexibility, ergonomics, and people-oriented culture are associated with positive preventive care-seeking behavior among workers, with some policies and practices operating at the individual level and some at the group level. Improving the work environment could impact employers' health-related expenditures and improve workers' health-related quality of life.

1. Introduction

In 2014, the average American consumed over $9500 worth of health care. This translates to $3 trillion spent annually in the US, or 17.5% of the national gross domestic product (GDP) (National Center for Health Statistics, Centers for Disease Control and Prevention, 2016), far more than other OECD countries (Fuchs, 2013).

Of US health care expenditures in 2014, approximately 3% was spent on preventive care (OECD, 2014). Preventive care holds potential both for reducing future health care costs and decreasing burden of disease in the population. Direct cost savings come from primary prevention: vaccinations, smoking cessation and weight loss programs, and routine measures that prevent disease development or longer-term costs outright, such as daily aspirin use or contraception (Maciosek et al., 2010; Koh and Sebelius, 2010). Secondary prevention, in which diseases are caught early and before they progress (such as cancer screening, cholesterol screening, and osteoporosis screening), save fewer dollars in the short term but lead to more healthy life-years for people to remain active and economically productive, a net economic benefit (Maciosek et al., 2010; Lowensteyn et al., 2000). Thus, initial investment in preventive care produces both short- and long-term economic, quality-of-life, and health benefits. Despite evidence that primary and secondary prevention can both save money and improve health, uptake of such services is relatively low. Guidelines state that

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adults should receive blood pressure checks at least once per year (Chobanian et al., 2003), and they should receive other screening procedures either annually or in longer intervals depending on the procedure (Smith et al., 2010).

Aside from the impact of insurance coverage status, several studies have examined other correlates of preventive care utilization. Utilization is lower among men (Vaidya et al., 2012), younger people (Jhamb et al., 2015), African-American people, and immigrants (Gorman and Dinh, 2013). But beyond these fixed factors, little is known about modifiable social factors, especially those at the group or community level, that may contribute to or inhibit utilization of preventive care services among those who are insured.

In the United States, approximately 50% of people receive health coverage through their employer (Kaiser Family Foundation, n.d.). Employers therefore have a stake in increasing preventive care utilization, both for direct cost savings on health care and to improve employee productivity by reducing illness and absence; for example, employees who get annual flu vaccines are less likely to miss work due to flu. But before organizations can increase use of preventive care services, workplace-specific determinants of that utilization must be identified. Organizational policies and practices (OPPs) within companies and workgroups are a particularly ripe area of inquiry into determinants of preventive care utilization because they concurrently affect many workers. OPPs are also structural workplace factors, and thus they may be easier to change, enforce, and maintain than individual-level behavior change.

Our goal was to test whether workers' own perceptions of four types of OPPs within their units, as well as the overall perceptions of these OPPs within their direct workgroup, were associated with individual-level preventive care utilization over a two-year period. We chose four types of OPPs shown in other studies to be associated with workers' health status—safety practices, ergonomic practices, people-oriented culture, and workplace flexibility (Sorensen et al., 2011; Grzywacz et al., 2007; Amick et al., 2000). We hypothesized that in units with more worker-friendly OPPs, workers would have more preventive care visits than workers in units with less-positive OPPs, even though the policies and practices under consideration do not directly address preventive care. We also hypothesized that workgroup-average perceptions of OPPs would be more strongly associated with preventive care than individuals' perceptions of OPPs. These hypotheses are rooted in the National Institute for Occupational Safety and Health (NIOSH)'s Total Worker Health® model, which posits that workplace policies and practices may influence both work-related and non-work-related health outcomes (Schill and Chosewood, 2013).

Our hypotheses about the stronger health effects of workgroup-level versus individual-level exposure to the same phenomena are based on prior studies which found that certain psychosocial exposures at work—such as workplace verbal abuse, schedule control, or general work stress—have differing associations with health, depending on whether they are assessed at the individual or the unit level (Sabbath et al., 2014; Hurtado et al., 2015; Van Yperen and Snijders, 2000; Gullander et al., 2014). Those studies found that individual perceptions of some workplace stressors can impact individual health directly. But for many stressors, when a certain proportion of workers in a workgroup experiences the same stressors, the stress becomes part of the group-level psychosocial work environment, potentially exerting health effects even on those who do not directly experience high levels of a given stressor directly.

Underlying the present analysis is a conceptual model of the relationship between work factors and health, in which organizational policies and practices drive the conditions of work, which in turn affect outcomes both for the worker and the enterprise (Sorensen et al., 2016a). In the present study, OPPs are part of the "conditions of work," that are central to the model, specifically the organization of work. Preventive care is a proximal health outcome, because its utilization is theorized to mediate the association between OPPs and more downstream health outcomes that appropriate preventive care would address. This proximal outcome is hypothesized to ultimately impact both worker outcomes (prevention and early detection of illness) and enterprise outcomes (reducing absenteeism and its associated costs).

2. Methods

This study was conducted through the Harvard T.H. Chan Center for Work, Health and Wellbeing, with the approval of the human subjects committee of the Harvard T.H. Chan School of Public Health.

2.1. Sample

We used data from patient care workers employed at two large Boston-area academic medical centers that are part of Partners HealthCare System, Inc. In September 2012, 2000 workers, grouped in 84 units, were randomly sampled to participate in a survey measuring several aspects of the work environment. Eight units were sampled at 100% and the remaining 76 units were sampled at 33%; all analyses take the sampling design into account. Eligible workers included registered nurses (RNs), patient care associates (PCAs), and clinical nurse specialists. Other health professionals, such as phlebotomists or physical therapists, were excluded. Other exclusion criteria included working for the hospital for < 20 h per week, being on leave for 12 or more weeks at the time of sampling, and being in a non-patient-care role. Of the 2000 workers sampled, 1595 (80%) responded to at least half the survey and so were eligible for inclusion.

In addition to the survey, Partners HealthCare System has partnered with the Harvard Center for Work, Health, and Wellbeing to create a database of worker information that can be merged directly with the survey data using secure study ID numbers. This database contains individual workers' administrative data—drawn from information regularly collected by the hospitals—in areas such as worker injury and post-injury outcomes, scheduling, workload, and health care utilization.

Within the hospitals, health care utilization data are managed by Truven Health Analytics (Ann Arbor, MI) and were incorporated into the database. The two hospitals are members of the Partners' self-insured employee health plan; an insurer acts as third-party administrator. We had access to health care utilization data from the employee health plan for 841 survey respondents (53%) from September 2011–September 2013. Because the hospitals are located in Massachusetts, which has had an individual insurance coverage mandate since 2007, we do not expect underlying health coverage differences between members and non-members. We tested for and did not find evidence of differences in gender, race, marital status, or occupational title by enrollment status in the group health plan (all $p > 0.20$); we did find differences by age, with plan members slightly older than non-plan members on average (42.5 versus 39.2 years, $p < 0.001$). Of the 841 health plan members, 755 (90%) had complete data on study variables and were included in analyses. We also tested for and did not find difference in OPP scores (see "Exposures" below) by insurance coverage status.

All participants provided informed consent at the time of the survey. The study was approved by the human subjects committee at Harvard T.H. Chan School of Public Health.

2.2. Measures

2.2.1. Dependent variable: preventive care utilization

Our outcome of interest was workers' preventive care utilization, as measured by the number of separate visits by each worker to health care providers during the two-year period that were classified as "Well/Preventive Care" by the health plan (range: 0 to 13, mean 2.65, SD 2.46; Table 1). These visits included annual physical exams, cancer screenings (breast, cervical, colon, prostate), vaccinations, routine