



Longitudinal Study Evaluating the Association Between Physician Burnout and Changes in Professional Work Effort

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Abstract

Objective: To longitudinally evaluate the relationship between burnout and professional satisfaction with changes in physicians' professional effort.

Participants and Methods: Administrative/payroll records were used to longitudinally evaluate the professional work effort of faculty physicians working for Mayo Clinic from October 1, 2008, to October 1, 2014. Professional effort was measured in full-time equivalent (FTE) units. Physicians were longitudinally surveyed in October 2011 and October 2013 with standardized tools to assess burnout and satisfaction.

Results: Between 2008 and 2014, the proportion of physicians working less than full-time at our organization increased from 13.5% to 16.0% ($P=.05$). Of the 2663 physicians surveyed in 2011 and 2776 physicians surveyed in 2013, 1856 (69.7%) and 2132 (76.9%), respectively, returned surveys. Burnout and satisfaction scores in 2011 correlated with actual reductions in FTE over the following 24 months as independently measured by administrative/payroll records. After controlling for age, sex, site, and specialty, each 1-point increase in the 7-point emotional exhaustion scale was associated with a greater likelihood of reducing FTE (odds ratio [OR], 1.43; 95% CI, 1.23-1.67; $P<.001$) over the following 24 months, and each 1-point decrease in the 5-point satisfaction score was associated with greater likelihood of reducing FTE (OR, 1.34; 95% CI, 1.03-1.74; $P=.03$). On longitudinal analysis at the individual physician level, each 1-point increase in emotional exhaustion (OR, 1.28; 95% CI, 1.05-1.55; $P=.01$) or 1-point decrease in satisfaction (OR, 1.67; 95% CI, 1.19-2.35; $P=.003$) between 2011 and 2013 was associated with a greater likelihood of reducing FTE over the following 12 months.

Conclusion: Among physicians in a large health care organization, burnout and declining satisfaction were strongly associated with actual reductions in professional work effort over the following 24 months.

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Affiliations continued at the end of this article.

The United States faces a large projected physician workforce shortage over the next decade, with several agencies, including the US Department of Health and Human Services, projecting a shortfall of 45,000 to 90,000 physicians by 2025.^{1,2} The magnitude of this problem varies by specialty. Although some question whether there will be a shortage in the absolute number of physicians or simply a relative shortage due to geographic and specialty distribution,³ all agree there will be too few primary care physicians and general surgeons.^{1,3,4} A variety of factors contribute to the physician workforce shortage, including population growth, an aging US population, more

widespread access to medical care because of the Affordable Care Act, a rapid increase in the complexity of medical care and need for certain specialists, an inadequate supply of physicians in medical school training, limits on the number of residency training positions, and mismatch between the residency positions available and the type of specialists needed.^{1,2}

Physician burnout is another factor that may influence the adequacy of the physician workforce. National studies suggest that approximately half of US physicians are experiencing burnout and that this proportion continues to increase.^{5,6} Cross-sectional studies evaluating self-reported career plans suggest that burned

out physicians are more likely to be planning to reduce the amount of time they devote to clinical work over the next 12 to 24 months.⁷⁻¹¹ Other studies have found a link between decreased physician satisfaction and intent to reduce work hours or leave clinical care.¹¹⁻¹³ Conceptual models of the relationship between physician stress and intent to quit or reduce work hours have been proposed, with cross-sectional data providing validation of this framework.⁹

Despite these associations, it is unknown how well self-reported intentions to reduce work hours relate to actual future behavior. If burned out physicians are truly more likely to reduce clinical work hours, it could pose a large threat to the adequacy of the US physician workforce as well as a large financial cost to society.¹⁴ The potential impact of burnout on the physician workforce may be compounded by the fact that many of the specialties facing the largest projected shortage of physicians are the disciplines with the highest rates of burnout.⁵ To explore the relationship between burnout and actual changes in work hours, we conducted a prospective, longitudinal study of physicians working at a large US health care organization.

PARTICIPANTS AND METHODS

Demographic Characteristics and Professional Effort

Mayo Clinic is a nonprofit, physician-led health care organization with 3 large academic campuses (Rochester, Minnesota; Scottsdale, Arizona; and Jacksonville, Florida) as well as an integrated group of community-based hospitals and health care facilities. The professional effort of physicians at Mayo Clinic is measured as a fraction of full-time equivalent (FTE) units. For example, an FTE of 1.0 indicates a physician working full-time, and an FTE of 0.5 indicates a physician working half-time. Administrative/payroll records were used to describe the FTE level of all Mayo Clinic physicians at the Rochester, Scottsdale, and Jacksonville campuses who were members of the permanent faculty. Available demographic information included age, sex, and specialty area. Physicians were categorized into 1 of 8 specialty areas: primary care (general internal medicine, family medicine, general pediatrics),

internal medicine subspecialty, surgical discipline, radiology, anesthesiology, pathology/laboratory medicine, other medical specialty area (eg, dermatology, neurology, physical medicine/rehabilitation, psychiatry, radiation oncology), or other.

Survey Participants

As part of its efforts to foster the health of the organization, Mayo Clinic surveys its physicians, scientists, and allied health staff approximately every 24 months. This all-staff survey is administered by an independent consulting organization (Sirota Survey Intelligence) and covers a broad array of topics including employees' perception of quality and safety, measures of professional burnout, and satisfaction with the organization.

The 2 most recent surveys for which data are available were administered in October 2011 and October 2013. Participation in these surveys was voluntary and all data were confidential. Although the external survey consulting firm tracks responses by employee identification number, identifying information is not available to any Mayo Clinic employee or the Mayo-employed researchers. To facilitate analysis of the relationship between responses to survey questions and changes in FTE, information on the FTE level of permanent faculty physicians at each survey time point was determined using administrative/payroll records and sent from Mayo Clinic to the external survey consulting firm so they could pair this information with survey responses. The use of data collected from the survey for the research analysis reported in this article was reviewed by the Mayo Clinic Institutional Review Board and determined to be exempt.

Burnout and Satisfaction

Burnout is a syndrome characterized by emotional exhaustion (losing your enthusiasm for work) and depersonalization (viewing/treating people as if they were objects) that results in decreased effectiveness at work.¹⁵ Although the Maslach Burnout Inventory (MBI)¹⁵ is the criterion standard for assessing burnout, its length (22 items) limits feasibility for use in an organization-wide survey covering a wide range of topics such as the one reported here. Thus, to evaluate the emotional exhaustion and depersonalization domains of burnout in physicians,

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