

Wayne N. Burton, MD, Dee W. Edington, PhD,
and Alyssa B. Schultz, PhD

BUSINESS

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Lifestyle Medicine and Worker Productivity



Abstract: *The issue of employee productivity has become a major concern for companies. Inefficiency can occur at every stage of production either as poor design, worker limitation, or other factors. It is generally assumed that a healthy worker is more productive than an unhealthy worker. As early as 1776 Adam Smith observed and published in *The Wealth of Nations* that poor worker health was a detriment to industrial productivity. The objective of this article is to review the literature documenting the gain or loss of productivity related to the health of workers, as well as any lifestyle management strategies that can be used to improve employee health and productivity. The impact of employee obesity, smoking, physical activity, sleep, and behavioral health on productivity will be explored. By identifying and addressing health risks that impair worker performance, lifestyle medicine professionals can demonstrate a significant return on investment by creating a healthier and more productive work force.*

Keywords: health risks; interventions; lifestyle medicine; productivity

The father of modern occupational medicine, Bernardino Ramazzini, authored *Diseases of Workers* in 1713 and wrote “It follows that women weavers, I mean those who are engaged

wholly in this occupation, ought to be particularly healthy and robust, otherwise they break down from overwork and as they get on in years are compelled to abandon this trade.” Since then, there has been a growing awareness of the contribution of lifestyle medicine not only to workers’ health but also to their on-the-job productivity and performance, aptly described as “presenteeism.” For many health professionals, the primary focus of

caregiving responsibilities.³ Some productivity research has focused on chronic or episodic conditions such as diabetes mellitus, seasonal allergies, migraine headache, gastrointestinal disorders, or mental health conditions.^{4,5} Relatively benign and self-limited conditions such as a cold or influenza may also impair on-the-job productivity. Employee productivity loss also includes time away from work, whether it is

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worker health improvement efforts has been on direct health care costs to a company or society, including inpatient hospitalizations, outpatient medical care, and the costs of medications to treat acute and chronic medical conditions. However, worker absenteeism, disability and presenteeism costs may be greater contributors to the total cost of poor worker health for an organization.^{1,2}

Lifestyle Health Risk Factors Affecting Worker Productivity

Worker productivity can be diminished because of illness, injury, or other factors such as obesity, smoking, disability, and

absenteeism from a brief illness, short- or long-term disability associated with an injury or condition, or workers’ compensation time due to an on-the-job injury. There is now a wealth of research relating lifestyle health risk factors to worker productivity,⁶⁻¹¹ as well as evaluations of interventions to improve certain health risks among workers. The following sections explore several common health risks and conditions prevalent in today’s workforce.

Overweight and Obesity

Body mass index (BMI) is currently the most widely used measure for assessing body weight among the population. Obese adults are at an increased risk for

DOI:10.1177/1559827620948008. From University of Illinois at Chicago, Chicago, Illinois (WNB); Edington Associates, Ann Arbor, Michigan (DWE); and Global Health Management Research Core, NCRC, Ann Arbor, Michigan (ABS). Address correspondence to: Alyssa B. Schultz, PhD, Global Health Management Research Core, NCRC, Building 520, 1600 Huron Parkway, Ann Arbor, MI 48109; e-mail: abelaire@umich.edu.

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morbidity and mortality associated with several acute and chronic medical conditions, including hypertension, dyslipidemia, coronary heart disease, diabetes mellitus, gastrointestinal disease, respiratory disease, several cancers, and many other disorders.^{12,13} More short-term disability (STD) claims and absenteeism have been associated with a progressive increase of BMI, and the impacts are particularly large for those with a BMI of 30 kg/m² or greater.¹³⁻¹⁷ Overweight and obesity have also been found to be related to the development of arthritis and other musculoskeletal disorders, which can affect a worker's ability to move without pain and decrease productivity in physically demanding job functions.

Smoking

Cigarette smoking and other tobacco use are some of the most modifiable health risk factors in the United States. The estimated total costs of smoking-related illness in the United States are in excess of \$300 billion per year. This includes approximately \$170 billion in direct health care costs and \$156 billion in lost productivity.^{14,18,19} Worker productivity losses associated with tobacco use include absenteeism, disability, and presenteeism associated with illness, smoking breaks, increased on-the-job accidents, and worker compensation costs, as well as the effect of secondhand smoke on coworkers.^{9,20} Nonsmokers and former smokers have been found to miss significantly fewer days of work per year compared with current smokers when controlling for age and gender.²⁰

Physical Activity

Increasing levels of physical activity have demonstrated significant improvements to a person's overall physical and mental well-being, in addition to reducing the risk of many chronic health conditions.²¹ Lechner et al²² reported on an employee fitness program and found that employees who had high participation in the fitness center had a significant decrease of 4.8 sick days over 1 year. Burton et al²³ also

reported on the value of a worksite fitness center on STD workdays lost and worker productivity. Nonparticipants in that fitness center were more likely to report on-the-job productivity limitations than fitness center participants.²³ Fitness center participation in another study was also associated with 1.3 fewer STD days per year per employee.²⁴

Jacobson and Aldana²⁵ reported that exercise was associated with lower sickness absenteeism in a study of 79 070 adults. One day of exercise per week prospectively reduced absenteeism when compared with no exercise, and 2 days of exercise per week was significantly more beneficial than 1 day.²⁵

Physical activity has also been associated with a moderation of the negative effects of metabolic syndrome (MetS),²⁶ including decreased worker productivity.²⁷ MetS is prevalent in 34% of US adults and represents a combination of cardiovascular risk factors, including hypertension, elevated triglycerides, decreased high-density lipoprotein (HDL) cholesterol, abdominal adiposity, and insulin resistance/glucose intolerance.²⁸ In one study, the percentage of employees with MetS who had productivity loss was significantly lower for employees achieving sufficient physical activity (absenteeism: 13.1% vs 17.1%; presenteeism: 52.8% vs 64.5%, STD: 11.8% vs 12.7%, all *P*s < .05) compared to those with MetS who were not sufficiently active.²⁹

Behavioral Health

The Global Burden of Disease report for 2016 found that 4 behavioral health conditions ranked in the top 25 conditions by total disability-adjusted life years (DALYs) in the United States. These included opioid use disorder (7), major depression (9), anxiety disorders (14) and alcohol use disorder (23).³⁰ Depression, anxiety, and other behavioral health disorders affected approximately 19% of adults in 2017.³¹ Major depressive disorders ranked second only to low back pain for US years lived with disability (YLDs) and ranked ninth as a cause of DALYs lost.³⁰ According to the World Health Organization, for every 1

dollar spent on scaling up treatment for common mental disorders, a 4-dollar return can be realized in improved health and productivity.³² Workplace-based Employee Assistance Program professionals have been able to effectively manage these conditions, in collaboration with the employee.³³ Improvements in stress and mental and emotional well-being are also valuable for improving employee satisfaction, productivity, and overall vitality.^{34,35}

Sleep

Inadequate quality or quantity of sleep is a significant burden in the United States with annual direct costs of an estimated \$14 billion and annual indirect costs of absenteeism, presenteeism, and workplace illnesses and injuries of \$92 billion.³⁶⁻³⁸ Sleep duration has been strongly associated with a "U" shaped relationship with the number of employee health risks, health care costs, and productivity. The nadir of the "U" occurs for 7 or 8 sleep hours per night.^{39,40} As the average number of hours of sleep improves for a population, there is a significant reduction in lost presenteeism, with data showing that consistently poor sleepers have significantly more lost productivity compared with optimal sleepers.⁴¹ Employees who reported the least amount of sleep per night (5 hours or less) have the highest percentage of presenteeism at 15.1%, which is 75% greater than the 7 and 8 hours of sleep groups (8.6% and 8.8%, respectively).⁴²

A review of sleep intervention studies found that half of the reviewed studies reported an increase in mean nightly sleep duration.⁴³ The authors noted that the interventions most commonly included in workplace sleep health promotion programs included sleep hygiene, yoga, physical activity, and cognitive-behavioral therapy for insomnia.

Health Risk Change and Productivity

As health risk factors are modified, worker productivity has been found to

increase or decrease accordingly.⁴⁴ Individuals who reduced their risks by modifying their smoking, physical activity, or body weight, generally improved their productivity, whereas those who gained risks or remained high-risk status saw deterioration in productivity. In a study of 13 health risks, each risk factor increased or reduced was associated with a commensurate 1.9% change in productivity loss over time, estimated to be worth \$950 per year per risk changed (in 2006 US dollars).

Conclusion

Lifestyle medicine and workplace wellness initiatives have the same underlying philosophy, that many physical and mental conditions can be prevented or treated through healthy lifestyle changes. These include tobacco cessation, regular exercise, and managing stress, among others. The body of research described here indicates robust relationships between employee health and productivity, including presenteeism, absenteeism, and disability. Lifestyle medicine professionals can therefore play a key role in the health and productivity of workers and organizations by aiding employees' health risk reduction with the ultimate goal of achieving vitality and good mental and physical health.

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Ethical Approval

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Informed Consent

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Trial Registration

Not applicable, because this article does not contain any clinical trials. [AJLJM](#)

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