Quantifying the impact of stress on your employee population’s health

Emily Gugger
Analytic Advisor, Payer Analytics & Consulting
Truven Health Analytics®, part of the IBM Watson Health™ business
Research has consistently shown a link between stress and employee health. The Centers for Disease Control and Prevention (CDC) list a number of examples of stress-related problems that typically develop quickly.¹

The CDC also documented studies over the past 20 years that demonstrate a connection between the role of stress and the development of not-as-visible impacts, such as cardiovascular disease, musculoskeletal disorders, psychological disorders, and others.¹

Truven Health Analytics,® part of the IBM Watson Health™ business, performed an analysis to quantify the effects of stress on an employee population, as defined below. The results in this brief show the demographic-adjusted relationship between key health outcomes and stress.

**Analytic parameters**

**Data**

Our research used data from the proprietary Truven Health MarketScan® Commercial Claims Database, which contains the healthcare experience of more than 120 million privately insured individuals, spanning 18 years. The database includes information on healthcare benefits enrollment, outpatient services, inpatient services, hospital admissions, and prescription drug usage. Data from the Truven Health MarketScan Health Risk Assessment (HRA) Database was also used to define self-reported stress. We reviewed data incurred in calendar year 2014.

**Highlights**

- Truven Health examined the impact of self-reported stress on healthcare cost and utilization, as well as the prevalence of chronic diseases.
- Employees who reported stress had higher healthcare cost and utilization, including emergency room visits, admissions, office visits, and prescription drug days supply, than those with little or no stress. These differences were more than twice as high for employees who indicated that they are not able to cope well with their stress.
- Employers can analyze the impact of stress in their population and use the results to inform strategies to build a culture that allows employees to be more resilient in handling stress.
Population criteria
For our analysis, we limited the population to active employees with self-reported data on stress and who were continuously enrolled with medical and prescription drug coverage during the study timeframe. A total of 238,498 employees met the criteria for our analysis.

Stress definitions
We grouped employees’ stress levels into three categories, based on the response to the HRA question, “How do you currently feel you are coping with life?”

Methodology
We adjusted results using linear regression models that controlled for age, gender, geographic region, plan type (such as consumer-driven health plan [CDHP] or preferred provider organization [PPO]) or if the employee was paid on an hourly or salaried basis.

Findings
Figure 1. Percentage of employees by stress-level category
Figure 2. Who is most likely to be stressed?
Compared to those who have Little or No Stress, those who were stressed were more likely to:

- Be < 40 years old
- Be female
- Reside in the West

Compared to those coping who were Stressed, but Coping, those who were Stressed, not Coping were more likely to:

- Reside in the Northeast
- Be an hourly employee

Figure 3. Cost and utilization percentage differences, relative to those with little or no Stress

The results in Figure 3 reveal important population segment insights. For instance, we see that employees who identified themselves as Stressed, but Coping, had a 15% higher annual allowed amount (claims cost after application of contractual discounts) per member per year (PMPY) than those who said they had little to no stress. That percentage jumps to 30% higher for those who are Stressed and not Coping.
Another insight is that employees who identified themselves as Stressed, not Coping had 53% more emergency room (ER) visits than those with little or no stress, and 52% more prescription drug fills (Rx days supply). For each metric analyzed, the population that was Stressed, not Coping had more than twice the additional cost/utilization of those who were Stressed, but Coping.

In Figure 4, we can review differences in disease prevalence (diagnosis). Not shown in the chart, but of particular note, is that employees who identified themselves as Stressed, not Coping, were almost 200% more likely to be diagnosed with depression than those who identified as having Little or No Stress. For each of the conditions evaluated, those with stress had higher prevalence, and the inability to cope with stress drove the difference higher.

Figure 4. Condition prevalence percentage differences, relative to those with little or no stress*

* Based on International Classification of Diseases (ICD) diagnosis codes and claims data
Truven Health analysts work with clients to help them use analytics to develop an evidence-based evaluation. That assessment can help them understand, precisely, the relationship between stress and health outcomes in their employees.

Using insights for better decision-making in your employee population

Quantifying the impact of unmanaged stress on your organization may help lay a foundation for investing in resilience-building programs. Such studies may provide results that help empower organizational leaders to select programs with the most promise for their employees, like enhanced resilience screening, clinically validated online coaching tools, or first-level manager training.

Comprehensive analysis of your population may:
- Demonstrate the impact of unmanaged stress on your organization’s healthcare costs and productivity, and compare your results to benchmarks
- Point to specific segments within your population (e.g., a specific job type or location) with the highest opportunities for resilience improvement
- Gauge whether your current programs are the right ones for your population, or if alternative programs stand to make more of an impact
Notes


For more information

If you’d like to learn more about this type of analysis, or how our specialists can help you with disease management and other program evaluation, please send us an email at watsonh@us.ibm.com, or visit ibm.com/watson/health/value-based-care

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Route 100
Somers, NY 10589

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