A Model for Physician Burnout

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Introduction:

Physician burnout is an ongoing epidemic in the medical community affecting patient care outcomes, physician well-being and the healthcare system.

Many studies have identified a range of factors that correlate to higher rates of burnout and, as such, have attempted to reduce it through various means. As burnout is subjective in nature, factors contributing to physician burnout are difficult to quantify. However, determining how certain factors affect burnout is important as it would allow us to identify physicians that are at high risk of burnout.

In our study, we used responses from over 50,000 physicians to construct a novel multi-factorial predictive model in order to estimate and assess physician burnout based on current work trends.

Methods:

Compiling list of burnout factors
(Compiling list of burnout factors)
Collect data points for each factor
(Identified independent variables)
Identified independent variables significance
(STATA Linear Regression)
Analysis

Equation and Validation:

I. Equation:

Percent Chance Burnout = 45.38 - (0.08* hourly wage) + (0.34* hours worked per week) - (1.59* years of training) - (0.7* happiness outside work) + (4.4* procedural specialty)

II. Validation:

<table>
<thead>
<tr>
<th>Factors Evaluated</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hourly Wage</td>
<td>P = 0.04</td>
</tr>
<tr>
<td>Hours worked per week</td>
<td>P = 0.02</td>
</tr>
<tr>
<td>Years of Training</td>
<td>P = 0.11</td>
</tr>
<tr>
<td>Happiness Outside Work</td>
<td>P = 0.40</td>
</tr>
<tr>
<td>Procedural specialty</td>
<td>P = 0.10</td>
</tr>
<tr>
<td>Match Rate</td>
<td>P = 0.90</td>
</tr>
</tbody>
</table>

Table 1: Significance of Factors Evaluated. P-values for the above factors were calculated to indicate their significance as a contributing factor in the context of physician burnout. The grey box indicates a non-significant value.

Conclusions:

Only two of the six factors (hourly wage, and hours worked per week) were significant predictors of burnout alone. However, because burnout, similar to many disease processes, is multifactorial in nature. It is rarely a result of one variable rather, as our model shows, it is a confluence of variables.

Overall, our model has an extremely high predictive capability as shown by the adjusted R squared and Chi Squared P values. However, there is some individual variation, such as personal and psychological factors, that a model alone cannot quantify.

Our hope is that our model serves as a general guideline to help identify physicians who are at high risk for burnout.

Citations: