Identifying occupations at risk of laryngeal disorders in an academic laryngology clinic

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ABSTRACT

OBJECTIVE: Identify occupations with higher risk of visiting a major academic laryngology clinic.

BACKGROUND: Laryngeal disorders have been associated with several occupations including teachers, singers, & telemarketers. Our study may help identify new groups of patients at risk for laryngeal pathology.

METHODS: Using our laryngology clinic database, we determined prevalence of occupations in employed new patients and compared this to data from the Bureau of Labor Statistics for the greater Boston area from 2005 to 2012.

RESULTS: From over 12,000 patients, the occupations of 2690 patients were analyzed. Occupation categories with statistically significant higher relative risk of a visit to our laryngology clinic included arts and entertainment, education, law, & social service. Occupation categories with lower relative risk included cleaning, maintenance, food preparation, transportation, office administration, and computer.

CONCLUSIONS: This study identified several occupational groups that were noted to have higher relative risk of a visit to our laryngology clinic including Arts, Legal, Education, Social Service, Science, and Management occupations. These findings direct us toward new occupation groups potentially at risk of laryngeal disorders.

INTRODUCTION

Voice and laryngeal disorders affect hundreds of thousands of people a year and up to 30% of the population over a lifetime.1,2 Many occupations involve extensive demand on the voice. Workers occupationally use patterns are associated with voice disorders.2 Teachers3,4 and singers5 are well-documented occupations associated with vocal symptoms and findings.6 However many other occupations have been proposed as high vocal demand occupations where individuals are at presumed increased risk of vocal pathology.5

In our study, we aim to quantify the risk of specific occupations for laryngology clinic visits. By comparing our clinic population to the surrounding region’s working population, we also aim to identify occupation groups potentially at risk of voice disorders.

METHODS AND MATERIALS

Data sources

From questionnaires extracted visit year, age, gender, occupation, town of residence. Selected employed new patients from BCQ region with occupations included in the Office of Management and Budget (OMB) Standard Occupational Classification (SOC) for further data analysis. Occupations must have been listed under a occupation category in order to be included.

Excluded: self-employed, owners and partners in unincorporated firms, household workers, unpaid family workers, retirees, unemployed, students, disabled, & incomplete questionnaires. Excluded patients living outside the BCQ region.

Overall occupation status & gender % calculated 1992-2012.

Relative risks of a visit to the MEEI Laryngology clinic calculated by occupation w 99.9% CIs using only data from 2005-2012.

RESULTS

Table 1. Laryngology clinic population by gender & occupation type 1992-2012

<table>
<thead>
<tr>
<th>Occupation type</th>
<th>M</th>
<th>%M</th>
<th>F</th>
<th>%F</th>
<th>TOTAL</th>
<th>%Occ Clinic</th>
<th>%Occ BLS</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed (SOC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2494</td>
<td>42%</td>
<td>5900 49%</td>
</tr>
<tr>
<td>Employed (non-SOC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>237</td>
<td>47%</td>
<td>503 4%</td>
</tr>
<tr>
<td>Homemaker</td>
<td>2</td>
<td>1%</td>
<td>385</td>
<td>99%</td>
<td>887</td>
<td>3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blank</td>
<td>106</td>
<td>29%</td>
<td>259</td>
<td>71%</td>
<td>365</td>
<td>3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retired</td>
<td>1022</td>
<td>51%</td>
<td>980</td>
<td>49%</td>
<td>2002 17%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disability</td>
<td>235</td>
<td>39%</td>
<td>370</td>
<td>61%</td>
<td>605</td>
<td>5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>132</td>
<td>34%</td>
<td>262</td>
<td>66%</td>
<td>394</td>
<td>3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students</td>
<td>730</td>
<td>37%</td>
<td>1234</td>
<td>63%</td>
<td>1964 16%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>4958</td>
<td>41%</td>
<td>7163</td>
<td>59%</td>
<td>12120</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

RESULTS & DISCUSSION

Our overall clinic demographics is consistent with previous studies in finding a greater percentage of new female patients (59%) which was similar in employed patients. Approximately half of the patients were employed with the largest representation of education, office administration, arts, management, business, healthcare practitioners, and sales occupations.

High relative risks of a new clinic visit in the Education (RR=3.0) and Arts & Entertainment (RR=4.6) occupation groups were expected given previous studies. High significant relative risks for the Legal (RR=3.3), Community & Social Service (RR=1.8), Sciences (RR=1.6), Management (RR=1.4), and Business & Financial (RR=1.3) occupation groups could have multiple explanations. One reason of the high RRs of these occupation and the low RRs of blue-collar occupation categories like Transportation (RR=0.5), Installation, Maintenance & Repair (RR=0.5), and Cleaning (RR=0.3) may be related to geographic proximity to the clinic, healthcare access, insurance type, and/or demand for subspecialty care. In addition, the majority of people with voice problems are not seen by a physician so undiagnosed laryngeal problems could exist in these lower RR occupation groups.14,15 Ultimately, the possibility of increased risk of laryngeal disorders in the occupation groups with higher RRs must be explored. Further studies will look at specific occupations within occupation groups.

CONCLUSIONS

- Arts & Entertainment, Legal, Education, Community & Social Service, Science, Management, and Business occupation groups had higher RR of visiting our laryngology clinic. These occupation groups should be further explored for higher risk of laryngeal disorders.
- Computer, Office Administration, & several “blue-collar” occupation groups had lower RR of visiting our laryngology clinic. While this may represent lower incidence of laryngeal disorders, it could also represent geographic preference or healthcare access issues.
- Strengths of study: large patient population over long time period, correlation with previous studies9
- Weaknesses: potential confounders, self-reporting questionnaires

REFERENCES


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