Burden of Smoking on Quality of Life and Productivity in Chronic Obstructive Pulmonary Disease (COPD)

Chronic obstructive pulmonary disease (COPD) is a lung disease characterized by chronic obstruction of small airways that interferes with normal breathing and is not fully reversible.

In industrialized countries, COPD affects between 1 and 1.5% of adults, and is associated with significant levels of disability and mortality.

The primary cause of COPD is smoking. Both smoking and COPD are known to have a significant negative impact on health-related quality of life.

The study aimed to explore the impact of smoking on HRQoL and productivity in subjects with COPD.

Methods

Study design

Data for this study were derived from the 2009 and 2010 waves (n=750,000) of the National Health and Wellness Survey (NHWS). The NHWS is a self-administered, Internet-based questionnaire completed by a sample of adults aged 18 years or older in the United States.

Respondents with a history of cigarette smoking, who were at least 40 years of age at the time of survey, and who reported diagnoses of COPD, chronic bronchitis, or emphysema were included in this analysis. For individuals who completed the survey in both years, data from 2010 were used.

Subjects who were quitting smoking at the time of the survey were excluded.

Groups were split according to smoking status:

- Group 1: Current smokers
- Group 2: Quitting smokers 0–5 years prior to completing the survey
- Group 3: Quitting smokers 6–10 years prior to completing the survey
- Group 4: Quitting smokers 11+ years prior to completing the survey

HRQoL was assessed using SF-6D health utility. 9

Health-related quality of life

Unadjusted comparisons revealed that current smokers had lower HRQoL and MCS scores compared with former smokers (P<0.001). Health utilities were lower among current smokers compared with any of the former smokers (P<0.05).

Model results for productivity data estimated the following differences:

- Absenteeism (1% vs 1.5; P<0.05)
- Presenteeism (2% vs 3%; P<0.05)
- Overall work impairment (2% vs 3%; P<0.05)
- Activity impairment (2% vs 4%; P<0.05)

Conclusions

- Compared with former smokers who had quit at least 11 years prior to completing the survey, subjects with COPD who were current smokers had poorer MCS scores, equivalent PCS scores, and slightly higher overall work impairment compared with those who had quit smoking.
- Subjects with COPD who were current smokers had similar absenteeism, greater presenteeism, and mildly impaired overall work and activity impairment compared with those who had quit smoking.

Acknowledgments

This study was funded by Pfizer Inc. Statistical advice on the interpretation of the results was provided by Helen Jones, PhD, of UBC Scientific Solutions and was funded by Pfizer Inc.

References

11. CONFLICT OF INTEREST

Aaron Galaznik, MD, MBA, is an employee of Pfizer. Justin Capboard and Jeffrey Vietri, PhD, are employees of Helios Health, who were paid consultants to Pfizer for the conduct of this study.

Table 1: Demographic characteristics of subjects with COPD by smoking status

<table>
<thead>
<tr>
<th>Smoking Status</th>
<th>Current smokers</th>
<th>Quitting smokers 0–5 years</th>
<th>Quitting smokers 6–10 years</th>
<th>Quitting smokers 11+ years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>54.6 (11.9)</td>
<td>53.6 (11.8)</td>
<td>54.6 (11.9)</td>
<td>53.6 (11.9)</td>
</tr>
<tr>
<td>Gender (%)</td>
<td>Men 52%</td>
<td>53%</td>
<td>52%</td>
<td>53%</td>
</tr>
<tr>
<td>Chronic conditions (%)</td>
<td>11%</td>
<td>11%</td>
<td>11%</td>
<td>11%</td>
</tr>
<tr>
<td>Education (%)</td>
<td>84%</td>
<td>85%</td>
<td>84%</td>
<td>85%</td>
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<tr>
<td>Employment type (%)</td>
<td>67%</td>
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<tr>
<td>Insurance (%)</td>
<td>67%</td>
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Table 2: HRQoL among subjects with COPD by smoking status

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</thead>
<tbody>
<tr>
<td>PCS scores</td>
<td>40.3 (7.3)</td>
<td>41.4 (7.2)</td>
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<tr>
<td>MCS scores</td>
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<td>53.3 (11.5)</td>
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</tr>
<tr>
<td>Health utility</td>
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</table>

Table 3: HRQoL among subjects with COPD after adjusting for covariates

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<th>Smoking Status</th>
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