Abstract

Objective: To quantify the effects of chronic constipation on health-related quality of life, work productivity, and activity impairment.

Methods: Data are taken from the 2005 NHIS and Healthy and Well National Survey, an annual longitudinal study of the healthcare attitudes and behaviors of adults (age 18+). Chronic constipation sufferers are defined as experiencing chronic constipation in the past twelve months, and non-sufferers have not experienced chronic constipation. Respondents who experience inflammatory bowel disease or irritable bowel syndrome are excluded from the analysis. Quality of life is defined using the SF-8. The Work Productivity and Activity Impairment (WPAI) scale is used to quantify productivity loss. Linear regression models are used to test for control confounders including demographics, number of physical comorbid conditions, and experiencing psychiatric comorbid conditions.

Results: The sample includes 1,288 (3%) chronic constipation sufferers and 35,876 (97%) non-sufferers. Chronic constipation sufferers have significantly worse mean physical (40.48 versus 47.83, p<0.001) and mental (42.13 versus 49.75, p<0.001) quality of life than non-sufferers. Controlling for potential confounders, constipation sufferers have SF-8 physical summary scores that are 3.550 (p<0.001) points lower than non-sufferers. Among respondents employed full-time, chronic constipation suffers have significantly greater productivity loss due to absenteeism (8.35 versus 3.10, p<0.001), presenteeism (29.36 versus 13.36, p<0.001), and overall work productivity loss (6.017 points higher, p<0.001) than non-sufferers. Chronic constipation suffers also experience greater activity impairment (48.71 versus 21.75, p<0.001) than non-sufferers and have activity impairment scores 11.708 higher (p<0.001) after controlling for potential confounders.

Conclusion: Chronic constipation has significant negative effects on physical and mental quality of life, work productivity, and activity impairment.

Introduction

Background

• Approximately 43 million people in North America experience constipation as defined by Rome II criteria. Studies have shown that the prevalence of constipation in North America varies from 1.9% to 27.2% with most between 12% and 15%. Prevalence has consistently been higher among women and older age specifically age 65+.5

• Chronic constipation negatively affects health-related quality of life (HRQOL).

• A patient-reported web-based study showed that among 557 chronic constipation sufferers more than half experienced an effect on quality of life as a result of their symptoms.2

• There has not been much research focusing on the effects of chronic constipation on work productivity and activity impairment. Models are used to control for potential confounders including demographics, number of physical comorbid conditions, and experiencing psychiatric comorbid conditions.

Objective

• To quantify the effects of chronic constipation on health-related quality of life, work productivity, and activity impairment in a large, nationwide sample of adults in the United States.

Methods

Study Sampling and Data Collection

• Data were taken from the Consumer Health Sciences 2005 U.S. National Health and Wellness Survey (NHWS).

• NHWS is a nationally representative, Internet-based survey of the healthcare attitudes, behaviors, and outcomes of adults 18+.

• All data is self-reported.

Inclusion and Exclusion Criteria for Analysis

• Individuals who met the criteria of chronic constipation or no chronic constipation as defined below were included in the analysis.

• Respondents who self-reported experiencing irritable bowel syndrome, inflammatory bowel disease, Cohn’s disease, or cerebrovascular events were excluded from the analysis.

• Analyses of work productivity include only respondents who report working full-time.

Operational Definitions

• Respondents were classified as experiencing chronic constipation if they selected “chronic constipation” as a response to the following question, “Which of the following conditions have you experienced in the past twelve months?”

• Respondents were classified as not experiencing chronic constipation (control group) if they did not select chronic constipation in response to the above question.

Operational Definitions

• Health-Related Quality of Life (HRQOL)

• HRQOL in the past 4 weeks was assessed using the Medical Outcomes Study 8-item Short-Form Health Survey (SF-8).6

• The SF-8 consists of 8 questions designed to measure physical functioning, role limitations due to physical health problems, vitality, general health, social functioning, role limitations due to emotional problems, and mental health.7

• A mental component summary score and a physical component summary score are computed which are normative to the US population (mean scores=50, SD=10).8

• Higher scores indicate better physical or mental well-being.4

• Work Productivity and Activity Impairment (WPAI)

• The general health version of the Work Productivity and Activity Impairment Questionnaire was used to evaluate work productivity loss and activity impairment.

• Four types of scores are calculated based on this scale:

  - For respondents employed full-time:
    - Productivity: total work time missed or work time reduced on the job
    - Presenteeism: impairment in work reduced on the job-effectiveness
    - Work productivity loss (overall work impairment: Presenteeism + Productivity Impairment)

• For all respondents:

  - Activity impairment

Statistical Analyses

• Bivariate analyses were performed to compare respondents with chronic constipation to those with no chronic constipation using chi-square/proportional odds (p<0.001) points lower than non-sufferers. Among respondents employed full-time, chronic constipation suffers have significantly greater activity impairment (48.71 versus 21.75, p<0.001) than non-sufferers and have activity impairment scores 11.708 higher (p<0.001) after controlling for potential confounders.

• Chi-square was used to test for significant differences in categorical variables.

• T-tests were used to test for significant differences in continuous variables.

• A logistic regression model was developed to determine the independent effects of chronic constipation on each outcome measure while controlling for potential confounders, including:

  - Gender, age, race, marital status, education, number of comorbid non-psychiatric comorbidities, and the presence of psychiatric comorbid conditions.

Results

Patient Demographics (Table 1)

• In the 2005 NHIS, 1,288 respondents reported experiencing chronic constipation of which 360 reported working full-time.

• Among all respondents, chronic constipation sufferers were more likely to be female and older than those without chronic constipation.

• Respondents with chronic constipation experienced a greater number of psychiatric and non-psychiatric comorbid conditions than those without chronic constipation.

<table>
<thead>
<tr>
<th>Variable</th>
<th>All Respondents</th>
<th>No Chronic Constipation</th>
<th>Chronic Constipation</th>
<th>p-value</th>
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<tr>
<td>Gender</td>
<td>49.8 (16.1)</td>
<td>47.8 (16.1)</td>
<td>54.3 (15.9)</td>
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<tr>
<td>Age</td>
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<td>47.8 (16.1)</td>
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<td>47.8 (16.1)</td>
<td>54.3 (15.9)</td>
<td>&lt;0.001</td>
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<td>Education</td>
<td>49.8 (16.1)</td>
<td>47.8 (16.1)</td>
<td>54.3 (15.9)</td>
<td>&lt;0.001</td>
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<tr>
<td>Marital Status</td>
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<td>47.8 (16.1)</td>
<td>54.3 (15.9)</td>
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<tr>
<td>Non-White</td>
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<td>47.8 (16.1)</td>
<td>54.3 (15.9)</td>
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<tr>
<td>% Female</td>
<td>49.8 (16.1)</td>
<td>47.8 (16.1)</td>
<td>54.3 (15.9)</td>
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<tr>
<td>% Married or Living</td>
<td>49.8 (16.1)</td>
<td>47.8 (16.1)</td>
<td>54.3 (15.9)</td>
<td>&lt;0.001</td>
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<tr>
<td>Mean Number of Non-White</td>
<td>49.8 (16.1)</td>
<td>47.8 (16.1)</td>
<td>54.3 (15.9)</td>
<td>&lt;0.001</td>
</tr>
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<td>Mean Age (SD)</td>
<td>49.8 (16.1)</td>
<td>47.8 (16.1)</td>
<td>54.3 (15.9)</td>
<td>&lt;0.001</td>
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<tr>
<td>% College Degree</td>
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<td>47.8 (16.1)</td>
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<td>&lt;0.001</td>
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<tr>
<td>% Work Full-Time</td>
<td>49.8 (16.1)</td>
<td>47.8 (16.1)</td>
<td>54.3 (15.9)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Limitations

• Data were self-reported by patients and were not verified against clinical records or physician diagnosis.

• The survey may have captured patients with both constipation and chronic constipation. Therefore, results may reflect a more mildly affected population.

Discussion & Conclusions

• Consistent with previous literature, our results show that chronic constipation adversely impacts physical and mental HRQOL, even after controlling for confounder effects.7,10

• Results for the SF-8 physical and mental summary scores are statistically significant and approach the range of clinically and socially meaningful as defined by its developers.

• Controlling for full-time employees chronic constipation has a significant negative impact on work productivity. The 6.5% greater overall work productivity loss among chronic constipation sufferers translates to a loss of 2.4 hours in a 40 hour work week. Over the course of a 50 week work year, this equates to a loss of 120 work hours or the equivalent of the three full work weeks per individual of lost productivity.

• Treatments that alleviate the symptoms of chronic constipation should prove effective in preventing the worsening HRQOL, the loss of work productivity, and activity impairment.

References


