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INCREMENTAL SICK LEAVE COSTS AND LOST TIME AMONG EMPLOYEES WITH PSYCHIATRIC AND MEDICAL CONDITIONS

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ABSTRACT

OBJECTIVE: To compare the incremental costs and absences due to sick leave (SL) among employees with bipolar disorder (BPD), other mental disorders (OMD), chronic constipation (CC), functional dyspepsia (FD), gastroesophageal reflux disease (GERD), gout, and insomnia

METHODS: A 2001-2007 US employee database was used to identify subjects with BPD, OMD, CC, FD, GERD, gout, and insomnia. All studies used two-part regression models to control for differences between employees with the condition and control groups (employees without the condition). SL costs were based on payments made to the employee (adjusted to 2007 US dollars) and absences were based on reported hours missed. Controls (by study) used the average index date of the subjects with the condition. Incremental costs and absences were defined as adjusted differences between the condition cohort and controls and considered significant at $P \leq 0.05$.

RESULTS: Numbers of employees with SL eligibility for the condition/controls (employees without condition) were: BPD 239/85,420; OMD 5508/76,372; CC 920/143,287; FD 918/143,138; GERD 6172/133,466; gout 600/123,461; and insomnia 7951/134,094. All incremental SL cost differences were significant ($P<0.05$). From highest to lowest, the incremental annual SL costs (condition-control) were: gout=$359 (172.5% higher than controls), insomnia=$208 (162.1%), OMD=$175 (142.4%), GERD=$169 (141.1%), CC=$127 (133.8%), FD=$120 (128.8%), BPD= $94 (119.7%). From highest to lowest, the incremental annual absence days were: gout=2.8 (178.3% of control), OMD=2.3 (186.9%), BPD=1.9 (157.0%), insomnia=1.6 (175.4%), GERD=1.3 (141.5%), FD=0.8 (126.7%), and CC=0.7 (130.5%).

CONCLUSION: Employees with insomnia, FD, GERD, gout, CC, BPD, and OMD incur more absences and costs than employees without these conditions, suggesting that management of these conditions should focus on both the workplace and healthcare settings. Because individual salaries were used to calculate the costs for each condition, the differences in the ordering of the incremental days and payments may be attributable to job-related differences between the diseases. Gout had the highest incremental costs and days of any of the studied conditions

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BACKGROUND

- Sick leave is the most common type of health-related absence reported by employees
- Companies that provide a sick leave benefit compensate employees for lost time.
- It has been suggested that persons with a condition who seek treatment have more absences and absence-related costs than people without the same condition.

OBJECTIVES

- To compare the incremental costs and absences due to sick leave (SL) among employees with bipolar disorder (BPD), other mental disorders (OMD), chronic constipation (CC), functional dyspepsia (FD), gastroesophageal reflux disease (GERD), gout, and insomnia.

METHODS

- A 2001-2007 US employee database was used to identify subjects with BPD[1], OMD[1], CC[2,3], FD[4,5], GERD[6,7], gout[8,9], and insomnia[10] based on any primary, secondary, or tertiary diagnosis using International Classification of Diseases, Ninth Edition (ICD-9) diagnostic codes (**Table 1**).
- For the insomnia study:
  - persons with prescriptions for the hypnotic agents eszopiclone, ramelteon, zaleplon, and zolpidem (with or without an ICD-9 for insomnia) were also included in the study.
  - persons taking trazadone were excluded from the study.
- SL absences were based on reported hours missed on employee records.
- SL costs were based on payments made to the employee (adjusted to 2007 US dollars)
- Controls (by study) were based on employees that did not have ICD-9s for the condition under examination.
- All studies examined an annual (12 month) period based on each subject's index date.
  - Because FD is a diagnosis based on exclusion, FD subjects were followed for one-year starting three months before the date of the first diagnosis in their medical records.
  - For all other conditions, the subjects were followed for one-year starting with the date of the first diagnosis in their medical records.
  - For each study, the Controls used the average index date of the subjects with the condition.
- Incremental costs and absences were defined as adjusted differences between the condition cohort and controls

Statistical Analysis

- Demographic information was compared for each study (disease and control cohort) using t-tests for continuous variables and chi-square (χ^2) tests for discrete variables.
- All studies used two-part multivariate regression models to control for differences identified between employees with the condition and control groups (employees without the condition).
  - The models controlled for age, gender, exempt status, full-time/part-time status, salary, and Charlson Comorbidity Index Score[11].
  - The first part of the model used logistic regression to predict the likelihood of subjects having any costs or absences
  - The second part of the model used log-linear or generalized linear regression models (with gamma distribution and log link) to estimate the cost or absence day values for those subjects with values greater than zero.
  - The model results were then combined to yield estimates of the annual outcomes for each cohort.
- Differences were considered significant at $P \leq 0.05$.

RESULTS

- Numbers of employees with SL eligibility for the condition/controls (employees without condition) are shown in **Table 2**.
- SL Costs for the disease and control groups are presented in **Table 3**
  - All incremental SL cost differences were significant ($P<0.05$) and are shown in **Figure 1**.
  - From highest to lowest, the incremental annual SL costs (condition-control) were: gout=$359 (172.5% higher than controls), insomnia=$208 (162.1%), OMD=$175 (142.4%), GERD=$169 (141.1%), CC=$127 (133.8%), FD=$120 (128.8%), BPD= $94 (119.7%).
- SL Days for the disease and control groups are presented in **Table 4**
  - All incremental SL Day differences were significant ($P<0.05$) and are shown in **Figure 2**.
  - From highest to lowest, the incremental annual absence days were: gout=2.8 (178.3% of control), OMD=2.3 (186.9%), BPD=1.9 (157.0%), insomnia=1.6 (175.4%), GERD=1.3 (141.5%), FD=0.8 (126.7%), and CC=0.7 (130.5%).

STRENGTHS

- The analysis used actual reported and compensated information from employee absence records, not proxies based on the existence of medical visits, emergency room utilization, or hospitalizations.
- The regression methodology accounted for the non-normal distributions of costs and days absent and controlled for both demographic and job-related factors such as salary, exempt status, and full-time/part-time status.

LIMITATIONS

- Sick Leave data were only from absence-plan-enrolled employees in companies that track and report absence.

CONCLUSIONS

- Employees with insomnia, FD, GERD, gout, CC, BPD, and OMD incur more absences and costs than employees without these conditions, suggesting that management of these conditions should focus on both the workplace and healthcare settings.
- Because individual salaries were used to calculate the costs for each condition, the differences in the ordering of the incremental days and payments may be attributable to job-related differences between the diseases.
- Gout had the highest incremental costs and days of any of the studied conditions.

Table 1: ICD-9 codes used in the study

Condition	ICD-9 descriptions and codes
Bipolar disorder (BPD)	Manic Disorders: 296.0x, 296.1x; Bipolar Affective Disorders: 296.4x, 296.5x, 296.6x, 296.7x; Manic-depressive psychosis, other, and unspecified: 296.8x
Other Mental Disorders (OMD)	Codes within the Agency for Healthcare Research and Quality [AHRQ] diagnosis chapter 'Mental Disorder', excluding codes for BPD
Chronic Constipation (CC)	Constipation: 564.0; Constipation, unspecified: 564.00; Slow transit constipation: 564.01; Other constipation: 564.09
Functional Dyspepsia (FD)	536.8x
Gastroesophageal Reflux Disease (GERD)	Hypersecretory condition: 251.5; Esophagitis: 530.10, 530.1, 530.11, 530.12, 530.19; Esophageal reflux: 530.81; Heartburn: 787.1; Dysphagia – Complete: 787.2
Gout	274.xx
Insomnia	Transient disorder of initiating or maintaining sleep: 307.41; Persistent disorder of initiating or maintaining sleep: 307.42; Subjective insomnia: 307.49; Insomnia: 780.52

Table 2: Employees with SL eligibility by Condition

Condition	Study cohort	Controls
Bipolar disorder (BPD)	239	85,420
Other Mental Disorders (OMD)	5508	76,372
Chronic Constipation (CC)	920	143,287
Functional Dyspepsia (FD)	918	143,138
Gastroesophageal Reflux Disease (GERD)	6172	133,466
Gout	600	123,461
Insomnia	7951	134,094

Table 3: Annual Sick Leave Salary Replacement Costs

Condition	Study cohort	Controls	Δ
Bipolar disorder (BPD)	$570	$476	$94
Other Mental Disorders (OMD)	$586	$411	$175
Chronic Constipation (CC)	$503	$376	$127
Functional Dyspepsia (FD)	$539	$419	$120
Gastroesophageal Reflux Disease (GERD)	$581	$412	$169
Gout	$853	$494	$359
Insomnia	$543	$335	$208

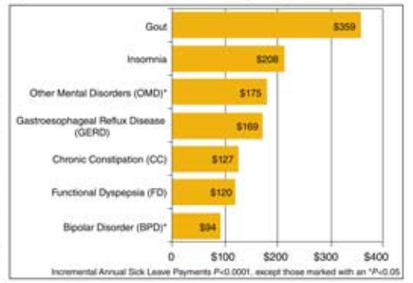
All comparisons $P<0.0001$, except BPD and OMD $P<0.05$

Table 4: Annual Sick Leave Absences (Lost time) in Days

Condition	Study cohort	Controls	Δ
Bipolar disorder (BPD)	5.2	3.3	1.9
Other Mental Disorders (OMD)	5.0	2.7	2.3
Chronic Constipation (CC)	3.0	2.3	0.7
Functional Dyspepsia (FD)	3.9	3.1	0.8
Gastroesophageal Reflux Disease (GERD)	4.3	3.1	1.3
Gout	6.3	3.6	2.8
Insomnia	3.6	2.1	1.6

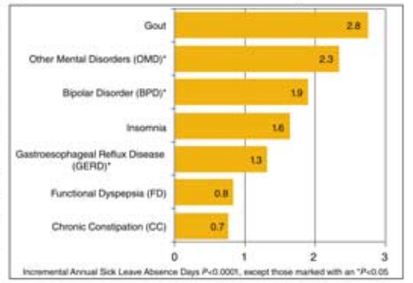
All comparisons $P<0.0001$, except BPD and OMD $P<0.05$

Figure 1: Incremental Annual Sick Leave Payments, 2007 US $



Incremental Annual Sick Leave Payments $P<0.0001$, except those marked with an *$P<0.05$

Figure 2: Incremental Annual Sick Leave Absence Days



Incremental Annual Sick Leave Absence Days $P<0.0001$, except those marked with an *$P<0.05$

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