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Healthcare and Productivity in East Central Mississippi

Garen K. Evans, Mississippi State University  
Shivakumar Sundaram, Mississippi State University

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Garen K. Evans  
Box 9651  
Mississippi State University, MS  
39762-9651

Shivakumar Sundaram  
Box 9651  
Mississippi State University, MS  
39762-9651

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**Abstract:** Worksite wellness programs improve the health and quality of life of workers, and result in higher productivity. Data from a regional health survey suggests that more than \$32 million of labor income is lost annually because of poor health, effectively increasing unemployment by more than 40% in east central Mississippi.

*Key Words:* healthcare, productivity, unemployment

JEL Classifications: I12, J60

## **Healthcare and Productivity in East Central Mississippi**

Garen K. Evans and Shivakumar Sundaram

### **Abstract**

Worksite wellness programs improve the health and quality of life of workers, and result in higher productivity. Data from a regional health survey suggests that more than \$32 million of labor income is lost annually because of poor health, effectively increasing unemployment by more than 40% in east central Mississippi.

## **Introduction**

One of the primary motivating factors for health promotion is improved productivity.

Employees are more likely to be on the job and performing well when they are in optimal physical and psychological health. A review of the literature suggests that health promotion results in higher health care savings, decreased costs, and higher productivity. Wright (2002) examined the relationship between health risks and wellness program participation and the cost of time away from work (TAW), which was defined as the sum of costs due to absences, short-term disability, and workers' compensation. Higher-risk individuals, including non-participants, were found to have higher TAW costs than lower-risk individuals. Schauflier (1993) assessed a worksite smoking cessation program that included smoking cessation classes and addressed organizational policy and norms. Total intervention group quit rates were significantly higher than control group quit rates. A multi-site intervention project involving a police force, a chemical company, and a banking firm showed that weekly participation in a supervised exercise program reduced use of sick leave by an average of 4.8 days per person in the year following program implementation (Partnerships for a Healthy Workforce, 2001). Health care cost analysis of participants in an employee fitness program revealed a 20.1% decrease in average number of disability days and 31.7% decrease in disability dollars, and 45.7% decrease in major medical claims (Bowne et al., 1984). Participants in worksite health promotion program averaged 24% lower health care costs than non-participants (Gibbs et al., 1985), and had health care savings that averaged \$84.50 per employee per year (Shephard et al., 1982). In the UK, the annual cost of absenteeism from the workplace has been estimated to be over 1% of GDP (Chatterji and Tilley, 2002).

In the present study we focus on the relationship between healthcare and productivity in a four-county region in east-central Mississippi, and investigate the impact of poor health on workplace productivity. We utilize reported income and time lost by employed respondents and comparing our results to national and statewide statistics.

## **Data**

Data were collected from the EC HealthNet Healthcare Survey, a telephone survey of 1,650 random households in Clarke, Kemper, Neshoba and Newton counties (Evans, 2004). The survey was conducted during March and April of 2004, and consisted of more than 90 questions related to access and availability of healthcare, perceived quality, satisfaction with local health services. Also included were demographic and economic questions, and behavioral queries similar or identical to those found in the Center for Disease Control's Behavioral Risk Factor Surveillance System (BRFSS, 2001).

County-level income and employment are 2002-2003 from the Mississippi Department of Employment Security.

## **Survey Results**

Respondents were asked, “During the past 30 days, how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation?” There were 337 respondents (20.4%) who reported one or more poor health days (Table 1). There were 135 respondents employed for wages who reported one or more poor health days. The total number of poor health days for all respondents employed for wages was 740. The median annual income (MAI) for working respondents in all four counties was \$35,147.

**Table 1.** Summary of Health Survey – Number of Respondents, Employment, Income, and Days Lost To Poor Health.

Area	RESP	EMP	RPH (percent)	ERPH	TDL	MAI
Clarke	707	169	75 (10.6%)	22	149	\$36,000
Kemper	408	224	92 (22.5%)	43	212	\$29,667
Neshoba	432	215	96 (22.2%)	41	193	\$39,286
Newton	403	192	74 (18.4%)	29	186	\$35,833
Total	1,650	800	337 (20.4%)	135	740	\$35,147

Notes: RESP-number of respondents, EMP – number respondents employed for wages, RPH – number of respondents reporting one or more poor health days, WRPB – number of employed respondents reporting one or more poor health days, TDL –total number of poor health days for ERPH, MAI – median annual income.

### Impact of Poor Health

The table above demonstrates the pervasiveness of poor health in the region, and provides a suitable base of information to estimate the impact of lost productivity as a result of poor health on lost income. It was unfortunate that the survey had no questions to directly elicit the number of lost working days due to poor health. However, the number of lost working days can be estimated as a fraction of total days lost (it can be shown that this fraction is approximately equal to 0.719). Further, we assumed that working days lost to poor health were directly proportional to lost income (i.e., no paid sick leave).

### *Productivity and Income*

In this study we define lost productivity in terms of working days lost because of poor health. The number of working days lost (WDL) was estimated by multiplying the total number of days lost (TDL) by 0.719 (Table 2). To estimate the number of working days lost annually for all respondents employed for wages (WDLA), we divided WDL by EMP, and multiplied the result by 12.175 (i.e.,  $365.25 / 30$ ). The total for the region was estimated at 8.097 days annually per employed person. Income lost annually per employed person (LINCA) is the product of WDLA and average income per working day (i.e.,  $WDLA * MAI / 260.89$ ).

**Table 2.** Impact of Poor Health On Personal Income

Area	WDL	WDLA	LINCA	CIVEMP	IMPACT	IMPACT%
Clarke	107.131	7.718	-\$1,065	7,720	-\$6.841	-4.5%
Kemper	152.428	8.285	-\$942	3,850	-\$3.018	-4.3%
Neshoba	138.767	7.858	-\$1,183	16,850	-\$16.591	-4.1%
Newton	133.734	8.480	-\$1,165	7,850	-\$7.608	-4.6%
Total	532.060	8.097	-\$1,091	36,270	-\$32.923	-4.2%

Notes: WDL – working days lost, WDLA – estimated number of working days lost annually, LINCA – lost income annually per EMP, CIVEMP – 2003 civilian employment, IMPACT – millions of dollars, IMPACT% – erosion of total personal income in percent.

The impact of working days lost to poor health on income was highest for Neshoba County with an annual loss of \$16.591 million. The total for the region was almost \$33 million, which is equivalent to 4.2% of total personal income.

### *Effective Unemployment*

The impact of working days lost to poor health can also be viewed in the context of unemployment. For this study we estimated the number working years lost annually (WYLA) by dividing total working days lost annually (TWDLA=WDLA\*CIVEMP) by the number of working days in a year (260.58). When WYLA is added to the current level of unemployment (UNEMP), the result is the level of effective unemployment (EFFUNEMP). The data indicate that 1,113 years of employment are lost annually in the region because of poor health.



In 2003, unemployment (UER) in the region ranged from 5.3% for Newton County to 10.5% for Kemper County - regional unemployment was 6.4% (Table 3). However, health-related absenteeism effectively reduces employment by an amount equal to the number of working years lost annually. This is evident in our results because poor health effectively increased the level of unemployment by more than 40% in the region, from the published rate of 6.4% to 9%. The largest change was in Neshoba County, where effective unemployment was nearly 46% higher.

**Table 3.** Effective Unemployment

Area	TWDLA	WYLA	UNEMP	EFFUNEMP	UER	EUER
Clarke	59,583	228	800	1,028	9.39%	11.76%
Kemper	31,897	122	450	570	10.47%	12.94%
Neshoba	132,407	508	790	1,298	4.48%	7.15%
Newton	66,568	255	440	695	5.31%	8.14%
Total	290,456	1,113	2,480	3,591	6.40%	9.01%

Notes: TWDLA – total working days lost annually, WYLA – working years lost annually, UNEMP – unemployment in 2003, EFFUNEMP – effective unemployment, UER – unemployment rate in 2003, EUER – effective unemployment rate.

## **Conclusion and Implications**

In this report we investigated the relationship between poor health and reduced productivity by examining health survey response data in the context of income and employment for a four-county region in Mississippi. We found that the average respondent employed for wages lost more than eight days of work annually because of poor health. As a result, more than \$32 million is lost annually in the region in the form of earnings. This in itself represents more than 4% of total personal income, yet the impacts may be much larger.

Reduced income results in lower levels of spending, which translates into even fewer jobs and lower income. The resulting downward spiral is particularly insidious because increased absenteeism affects not only consumer spending, but also work-place productivity, and data on health-related productivity is generally not available from secondary sources. We also looked at the impact of poor health in the context of employment by estimating new levels of unemployment rates after accounting for absenteeism. Regional unemployment was effectively 40% higher after accounting for absenteeism related to poor physical and mental health.

Regionally, 20.4% of respondents reported one or more poor health days during the survey period, a percentage that is marginally higher than the state average (19.7%) and the national average of 19.4% (BRFSS, 2001). Using this information, and assuming that state and national averages represent a natural benchmark, we were able to discount our original estimate of \$32 million to a more conservative, yet no less substantial, \$1.157 million versus the state, or \$1.647 million versus the nation. The adjusted estimates represent net impacts in the region after

accounting for state and national rates of poor health. They also provide a starting point for estimating the value of health promotion programs in the region. A preliminary analysis, based on retail tax revenue data, suggests that a health promotion program capable of bringing the region's health status up to the national benchmark would be valued at approximately \$96,000 annually by state and local governments. In another analysis, we estimated that an intervention project on the order of Schauflier 's (1993) 4.8-day reduction would increase income by more than \$16 million per year, decrease the effective unemployment rate by 14.5%, and be valued at \$1.14 million annually by state and local governments. These are conservative estimates because they neither account for income tax revenue, nor productivity at the place of work, both of which are likely to increase after implementation.

Improved productivity is one of the primary reasons employers give for instituting health promotion programs, because they reduce lost time, and improve workplace efficiency and morale, among other things. These factors should also be considered when estimating the value of health promotion and intervention programs.

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