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BRIEF

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Prevalence and Characteristics of Injury in Urban and Rural Colorado, 1999 and 2000

An estimated one in seven Colorado adults ages 18 and older suffers a nonfatal injury each year, and an average of more than 2,300 Coloradans die every year from injuries.^{1,2} Nationwide, injury-related death rates are 40 percent higher in rural areas than in urban areas.³ Since most injuries are predictable³, data collection and analysis of injury events are crucial to the development of prevention programs. To better understand how and why nonfatal injuries occur in Colorado, and the underlying differences between nonfatal injuries in urban and rural areas of Colorado, special statewide Disability Behavioral Risk Factor Surveillance System (BRFSS) surveys were conducted in 1999 and 2000.

Methodology

The Colorado BRFSS is an ongoing statewide telephone survey of non-institutionalized adult Coloradans regarding their health behaviors and preventive health practices. The Survey Research Unit at the Colorado Department of Public Health and Environment conducts the survey and selects respondents using a random digit dialing sampling technique. Following the same methodology and containing some questions from the regular BRFSS, a statewide Disability BRFSS survey was done in 1999 and 2000 to determine the prevalence and characteristics of disability and injury⁴ among urban and rural Colorado adults. Since the probability sample used in the regular BRFSS reflects the state population, which is 80 percent urban, rural areas were oversampled in 1999, and in 2000, the sample was comprised entirely of rural respondents. The combined years of data were weighted to reflect the probability of selection and adjusted for the age and sex population distributions of each region. The results presented in this brief are estimates of the percentage of Colorado adults who experienced a nonfatal injury and, of those who did, the characteristics of the most recent injury reported.

For the purpose of this study, Colorado counties which had a census-defined metropolitan area with a population size of over 100,000 people or a city or census designated place with a population of at least 50,000 people were classified as urban. Urban counties included Adams, Arapahoe, Boulder, Denver, Douglas, Jefferson, El Paso, Larimer, Mesa, Pueblo, and Weld. The remaining 52 Colorado counties were classified as rural.

⁴Injury questions were based on those used by the Nordic Medico-Statistical Committee (NOMESCO), Copenhagen, Denmark.

Respondent Characteristics

The age and sex distributions were similar for the two regions (see Table 1). The reported race, income, and education distributions of respondents differed by region. Compared to rural areas, urban areas had a significantly higher percentage of adults whose race/ethnicity was neither White, non-Hispanic nor Hispanic, who had a household income of \$50,000 or higher, and who had education levels above high school graduation.

Table 1. Respondent Characteristics by Region, Colorado Disability BRFSS, 1999 and 2000

	Urban (n = 1425)		Rural (n = 1275)	
	%	95% CI*	%	95% CI
Age group				
18-34	34.8	31.9, 37.7	30.3	27.0, 33.5
35-44	23.1	20.7, 25.6	22.4	19.8, 25.0
45-54	19.1	16.9, 21.3	20.4	17.8, 23.0
55+	23.0	20.6, 25.3	27.0	24.2, 29.7
Sex				
Female	50.4	47.5, 53.4	47.6	44.4, 50.9
Male	49.6	46.6, 52.5	52.4	49.1, 55.6
Race/ethnicity				
White, non-Hispanic	78.3	75.8, 80.8	83.2	80.6, 85.9
Hispanic	16.6	14.3, 18.8	14.7	12.1, 17.2
Other	5.1	3.9, 6.4	2.1	1.2, 3.0
Annual income				
Less than \$25,000	22.3	19.8, 24.8	31.3	28.2, 34.5
\$25,000 - \$49,999	37.6	34.6, 40.6	39.9	36.5, 43.2
\$50,000 and above	40.1	37.1, 43.2	28.8	25.7, 32.0
Education				
< 12 years	9.6	7.8, 11.4	10.3	8.4, 12.3
12 years	29.3	26.6, 32.0	35.2	32.0, 38.3
> 12 years	61.2	58.3, 64.0	54.5	51.2, 57.8

*CI = Confidence interval. The 95% confidence interval is used to show the range of values in which the true value is likely to fall 95% of the time.

Injury Prevalence

Respondents were asked if they had an injury in the last 12 months that required medical attention other than first aid or that caused them to restrict their usual activity for a day or more. Statewide, an estimated 473,000 adults experienced such an injury. There was no significant difference in reported injury in the past year between the regions. In urban areas, the prevalence of nonfatal injury was an estimated 14.2 percent of adults (95% confidence interval: 12.0, 16.3), and in rural areas, it was estimated at 17.4 percent of adults (95% confidence interval: 14.8, 20.0).

In Colorado, an estimated 495,000 adults had a condition caused by an injury that happened 3 or more months ago.

The proportion of all Colorado adults with such a condition was similar for the regions: about 15 percent of urban adult residents (95% confidence interval: 12.9, 17.0), and about 18 percent of rural adult residents (95% confidence interval: 15.2, 20.1).

There was no significant difference in the percentage of respondents reporting multiple nonfatal injuries in the past year by region. Of those who were injured in the past year, 23.1 percent of rural adult respondents reported having more than one injury in the past year (95% confidence interval: 16.2, 31.9), compared to 24.0 percent of urban adult respondents (95% confidence interval: 16.5, 29.7).

Injury Characteristics

An estimated 133,000 Colorado adults missed work or curtailed their normal activities for 6 or more days in the past year due to injury. There were no significant differences in the days of work missed due to injury between the regions (see Table 2).

Statewide, the largest percent of injuries (33.1 percent) occurred at a private residence. The place the injury occurred was similar between regions, though rural residents were proportionately more likely to be injured in a production or workshop area and proportionately less likely to be injured at a sports area, such as a gymnasium, swimming pool, or tennis court.

Similarly, there were no differences between regions in the respondent's activity at the time of injury. Most reported injuries occurred while respondents were either working for income, involved in unpaid work/hobby/leisure, or during sports or exercise.

The type of injury sustained was similar for urban and rural residents. In both regions, most injuries resulted from acute overexertion of the body or of a body part or from being struck or hit in a fall. Those in the rural region had a slightly higher likelihood of sustaining a crushing, cutting or piercing injury than those in urban regions.

Two other areas of interest were whether injuries occurred on a farm or ranch and whether they occurred when the respondent was a driver or passenger in a motor vehicle. As would be expected, of those who reported having an injury in the past year, rural residents were substantially more likely to experience injuries while doing farm or ranch work, though the difference was not statistically significant. Among rural residents only, for the most recent

injury reported, about 11 percent occurred while doing farm or ranch work.

Approximately 12 percent of injured respondents reported being a driver or passenger in a motorized vehicle at the time of the injury, with no regional differences. There were too few respondents to produce reliable estimates on the type of motor vehicle involved.

Table 2. Characteristics of the Most Recent Injury Sustained in the Past 12 Months, Colorado Disability BRFSS, 1999 and 2000

	Urban (n = 191)		Rural (n = 207)	
	%	95% CI*	%	95% CI*
Number of missed days of work or regular activity				
0	35.4	27.1, 43.7	39.1	31.0, 47.2
1-5	36.2	28.3, 44.1	29.9	22.6, 37.2
6 or more	28.4	21.0, 35.8	31.0	22.9, 39.1
Place injury occurred				
Transportation area	14.8	9.1, 20.5	15.5	8.2, 22.7
Private residential area	33.1	25.5, 40.7	33.2	25.7, 40.6
Production/workshop area	13.9	8.2, 19.6	20.4	13.7, 27.1
Sports area	16.4	9.1, 23.8	9.5	4.6, 14.3
Open natural area	5.5	2.1, 8.9	9.1	4.4, 13.9
All other areas	16.3	10.3, 22.2	12.4	7.5, 17.2
Activity at time of injury				
Working for income	31.7	23.8, 39.5	34.1	26.4, 41.8
Sports/exercise	23.2	15.4, 31.0	19.0	12.6, 25.5
Unpaid work/hobby/leisure	33.7	26.1, 41.3	34.2	26.6, 41.8
All other activities	11.4	6.3, 16.5	12.7	6.0, 19.3
Type of injury				
Struck or hit in fall	29.6	22.2, 37.1	29.1	21.8, 36.4
Struck or hit in collision	16.3	10.3, 22.3	19.2	11.7, 26.6
Crushing, cutting, piercing	12.1	6.4, 17.7	16.8	10.6, 22.9
Acute overexertion	33.8	25.5, 42.1	27.1	20.1, 34.1
All other types	8.2	4.0, 12.5	7.9	3.7, 12.0
Injured on farm/ranch	4.0	1.0, 7.1	10.7	6.1, 15.3
Injury occurred to driver or passenger of a motor vehicle	12.1	6.9, 17.2	12.8	6.0, 19.7

*CI = Confidence interval. The 95% confidence interval is used to show the range of values in which the true value is likely to fall 95% of the time.

Conclusion

These results show there was no significant difference in Colorado in the prevalence of nonfatal injuries that occurred in urban and rural areas, and there were few differences in the frequency and characteristics of the nonfatal injuries that occurred by region. However, categorizing the state as rural and urban in the manner done here may mask true differences within specific sub-areas of the state. It should be noted that rural Colorado is quite diverse. Rural counties of the Eastern Plains have a higher proportion of those age 65 and older, the rural San Luis Valley counties have a greater proportion of Hispanics and a higher proportion of those with incomes below the federal poverty level, and residents of the rural ski resort counties are more highly educated and have higher house-

hold incomes.⁴ This diversity, as well as the classification scheme for urban and rural areas used for this report, may have overshadowed true differences in injury prevalence by region.

Additionally, as with national data, there is a substantial difference in injury-related death rates by region in Colorado— 69 deaths per 100,000 urban adults, compared to 90 deaths per 100,000 rural adults. At least some of the disparity may be attributed to the lack of prompt access to emergency services in rural areas, which impacts the outcome of life-threatening injuries.³ Further research is needed to determine additional factors associated with this discrepancy.

References

- ¹ Colorado Disability Behavioral Risk Factor Surveillance System, 1999-2000 Survey Data, Survey Research Unit, Colorado Department of Public Health and Environment. Denver, CO, 2000.
- ² Health Statistics Section, Colorado Department of Public Health and Environment. Denver, CO, 2000-2001.
- ³ U.S. Department of Health and Human Services. *Healthy People 2010: Understanding and Improving Health*. 2nd edition. Washington, DC: U.S. Government Printing Office, November 2000.
- ⁴ Colorado Behavioral Risk Factor Surveillance System, 1995, 1997, and 1998 Survey Data, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention. 1995, 1997, 1998.