

Health Risks: The Appalachian Lifestyle



West Virginia Department of Health and Human Resources
Bureau for Public Health
Office of Epidemiology and Health Promotion

Health Risks: The Appalachian Lifestyle

Gaston Caperton
Governor

Gretchen O. Lewis
Secretary
Department of Health and Human Resources

William T. Wallace, Jr., M.D., M.P.H.
Commissioner, Bureau for Public Health

Alan P. Holmes, Director
Office of Epidemiology and Health Promotion
Health Statistics Center

Health Statistics Center
Alan P. Holmes, Director
Gary Thompson, Special Projects Coordinator
Eugenia Thoenen, Special Studies Coordinator

Report Written By
Eugenia Thoenen
Health Statistics Center

Statistical Staff
Betty Jo Berry, Secretary
Joseph D. Kennedy, Programmer/Analyst
Fred King, HHR Specialist
Thomas N. Leonard, Programmer/Analyst
Tom Light, Data Analyst
Philip Simmons, Programmer/Analyst

Graphics and Exhibits By
Tom Light

Cover Design By
Gary Thompson

December 1995

This project was funded by West Virginia University's Prevention Research Center.

Permission to quote from or reproduce materials from this report
is granted when due acknowledgement is made.

EXECUTIVE SUMMARY

The region known as Appalachia stretches along the spine of the Appalachian Mountains from northern Alabama to south-central New York. It is a region of great natural beauty, yet many of its inhabitants live in conditions of poverty, the result of a history of isolation from mainstream America and its opportunities. High rates of chronic disease occur in Appalachia, in part because of unwise and unhealthy lifestyle choices made by those who live there. The link between unhealthy behaviors and chronic disease has been well established; this study attempts to examine certain of these behaviors as reported by Appalachian residents, comparing their prevalences with those reported by persons living outside of Appalachia. The region of Appalachia (as defined by the Appalachian Regional Commission) contains 399 counties in 13 states: Alabama, Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, and West Virginia.

The behaviors, or risk factors, under consideration are among those monitored regularly by the Behavioral Risk Factor Surveillance System (BRFSS), developed by the U.S. Centers for Disease Control and Prevention to enable states to track progress toward the reduction of unhealthy lifestyle choices among their adult residents. Eight BRFSS risk factors are examined: seatbelt nonuse, obesity, overweight, hypertension awareness, current smoking, heavier drinking, binge drinking, and drinking and driving.

The 1993 data used in our report were collected from 102,464 households in 49 states and the District of Columbia. A three-step study design was employed to allow for several levels of comparison; the main focus of the present report, however, is the comparison of aggregated data from (1) the 399 Appalachian counties ("Appalachia") and (2) all remaining counties in the U.S. ("non-Appalachia").

Distinct differences were found between Appalachia and non-Appalachia in terms of both demographic variables and behavioral prevalences:

■ Appalachia has a higher percentage of women (53%) than non-Appalachia (51%), as well as an older population: 14% of its population was aged 65 and older in 1990, compared to 12% in non-Appalachia. Ninety-two percent (92%) of Appalachian residents are white, compared to 79% elsewhere in the country. On average, Appalachians are less educated and poorer than the rest of the country: in 1989, per capita income was \$11,704 in Appalachia and \$14,667 in non-Appalachia. Thirty-two percent (32%) of Appalachian adults aged 25 and older were high school dropouts, compared to 24% of their peers in non-Appalachia.

■ The following risk factors were found to be higher in Appalachia than in non-Appalachia: seatbelt nonuse (24.1% vs. 17.2%); obesity (31.7% vs. 30.0%); overweight (27.4% vs. 25.5%); hypertension awareness (22.1% vs. 21.4%); and current smoking (24.2% vs. 21.9%). The following risk factors were found to be lower in Appalachia than in non-Appalachia: heavier drinking (2.8% vs. 3.5%); binge drinking (11.6% vs. 14.6%); and drinking and driving (1.9% vs. 2.5%). All of these differences were found to be statistically significant except that for hypertension awareness.

■ A distinct pattern, referred to as the Appalachian Behavioral Profile, emerged from the comparison of the eight BRFSS risk factors: **Overall, Appalachian residents were found to be at significantly higher risk of injury and illness from seatbelt nonuse, obesity, overweight, and current smoking and at significantly lower risk of injury and illness from heavier drinking, binge drinking, and drinking and driving than non-Appalachian residents.**

Table of Contents

	Page
Executive Summary	iii
Introduction to Appalachia	1
Methodology	9
Results: Appalachia vs. Non-Appalachia	15
Demographic Characteristics	15
Seatbelt Nonuse	18
Obesity	21
Overweight	24
Hypertension Awareness	27
Current Smoking	29
Heavier Drinking	32
Binge Drinking	35
Drinking and Driving	38
Summary	40
Discussion	45
Bibliography	63
Appendixes	65
A. Appalachian States vs. Non-Appalachian States	67
B. Appalachian States: Appalachian Counties vs. Non-Appalachian Counties	69
C. Sample Designs	109
D. Number of Interviews by State	111
E. Rural/Urban Definitions	113
F. List of Appalachian Counties by State	115

Chapter One

INTRODUCTION TO APPALACHIA

The natural beauty of the Appalachian Mountains belies the serious health problems affecting many of the area's inhabitants. High rates of chronic disease point to a way of life that has been detrimental to the health of those persons who live in Appalachia's highlands and valleys. To date, however, little research exists on unhealthful behaviors among Appalachian residents that place them at special risk for these diseases. It is hoped that this report will provide some insight into the prevalence of such behaviors, or risk factors, in Appalachia, with comparisons to the rest of the United States.

Over the years, Appalachia has been one of the most studied, and at the same time most misrepresented and misunderstood, regions of the country. Following the spine of the Appalachian Mountains from northern Alabama to south-central New York, Appalachia lies between the coastal plains of the East and the states of the Midwest. Often called an area of contradictions, it is rich in natural resources, yet many of its residents live in poverty. Replete with breathtakingly beautiful scenery, it has also been the site of terrible mutilation of the land through unregulated mining and timbering. While the region has been exploited for the wealth of its minerals and forests, its great human potential has remained generally untapped and unrealized. The people of the mountains have been described in various ways, from stoic, rugged individualists to indolent, uneducated victims of industrialization. Unfortunately, the definitive study of the people who have chosen the Appalachians as their home has yet to be written.

Chapter One

THE HISTORY OF APPALACHIA

The first inhabitants of the region were the Native Americans, the Iroquois Confederacy and the Shawnee to the north and the Chickasaw, Cherokee, Choctaw, and Creek tribes to the south. Much of Appalachia's Indian heritage is well known and easily recognized. The name "Appalachia" itself is derived from an Indian word meaning "endless mountains." Many of the region's rivers and streams carry Indian names, as do its mountain ranges, counties, and towns. The early European settlers benefited from the Indians' knowledge of native plants and natural products in the treatment of illnesses. From the Indians, they also learned to cultivate new crops, including corn, beans, sweet potatoes, pumpkins, and squash.

In general, the majority of early pioneers who came into the Appalachian region were of Scotch-Irish and German descent. These two groups were primarily responsible for shaping the culture that is considered Appalachian today. The Germans, known as the "Pennsylvania Dutch," settled in the Appalachian valleys of Pennsylvania, Maryland, Virginia, and North Carolina during the late seventeenth and early eighteenth centuries. The Scotch-Irish were a persecuted ethnic group in Great Britain that emigrated to America in the eighteenth and nineteenth centuries. Finding the same persecution upon their arrival in America from the pioneers who had preceded them, the Scotch-Irish eventually migrated into the Appalachians and settled in the isolated mountains to separate themselves from the coastal settlements. Other immigrant groups that found their way into Appalachia included the Welsh, English, Italians, French, and Dutch, as well as African-Americans fleeing slavery on the Underground Railroad that cut across the region and Middle Europeans such as the Polish and Russian immigrants who settled in Appalachia's industrialized areas.

Introduction to Appalachia

Because of the isolation of the region and the independence of its people, the economy in Appalachia remained relatively unchanged until the latter part of the nineteenth century, when the industries in the flatlands began to demand large quantities of the area's coal and timber. Estrangement from the "outside world" had left many Appalachians unaware of the great wealth in natural resources that lay on and underneath their land. They were therefore extremely vulnerable to the often unscrupulous agents for the growing energy corporations who purchased either land or mineral rights for less than fair consideration. Many of the mountain people were further exploited when they became the laborers for the coal companies, working under hazardous conditions that often resulted in injury or even death. In addition, the miners and their families were frequently dependent upon the coal companies for their housing and all their material goods.

The 1950s saw a decline not only in the coal mining industry but also in the manufacturing and steel industries in northern Appalachia and the textile industry in the south. By 1960, it was estimated that one-third of all families in Appalachia were living in poverty; the lack of opportunity caused massive outmigration from the region. The entire region lost over two million people from 1950 to 1960; the population of West Virginia, the only state to lie entirely within Appalachia, fell from a peak of 2,005,552 in 1950 to 1,860,421 in 1960, more than a 7% decrease over the decade.

THE APPALACHIAN REGIONAL COMMISSION

In response to the region's economic decline, the governors of the Appalachian states formed the Conference of Appalachian Governors in 1960. When John F. Kennedy visited West Virginia during that year's presidential campaign, witnessing firsthand the state's devastating poverty, he pledged to help the area if elected. Following his election, Kennedy met with the governors; a special panel, the President's Appalachian Regional Commission (PARC), was appointed in April 1961.

Chapter One

Because of the wide range and the severity of the problems facing Appalachia (transportation, health care, housing, water and sewer systems, education, and job training), the panel recognized the need for an entity able to work with and ensure cooperation among all levels of government, i.e., federal, state, and local, as well as the private sector. The Appalachian Regional Commission (ARC), enacted as part of the Appalachian Regional Development Act (ARDA) signed into law on March 9, 1965, by President Johnson, was designed to do just that.

The ARC is made up of the governors of the Appalachian states, plus one federal co-chairman appointed by the president and approved by the Senate. Each state sets up local development districts (LDD) represented by boards that include local elected officials and private citizens who are knowledgeable about district-specific problems. Congress allocates funding to the ARC annually, which the commission then distributes to the member states for approved projects. Special assistance is provided to 115 counties that are designated as "severely distressed" and do not qualify as growth centers, those towns or small cities that are hubs for multicounty areas.

APPALACHIA: THE ARC DEFINITION

Over the years, Appalachia has been defined in various ways. In the early part of the century, the term referred only to the southern highlands, i.e., those counties in the Great Smoky Mountains. By mid-century, the definition had been expanded to include eleven states from Pennsylvania to Alabama. The original ARC region included these eleven states, but New York and Mississippi were later added for both geographical and political reasons, as well as contiguity. Presently, the region as defined by the ARC contains 399 counties in 13 states: Alabama, Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, West

Introduction to Appalachia

Virginia, and Virginia. (See Exhibit 1.) As noted, West Virginia is the only state that lies wholly within Appalachia.

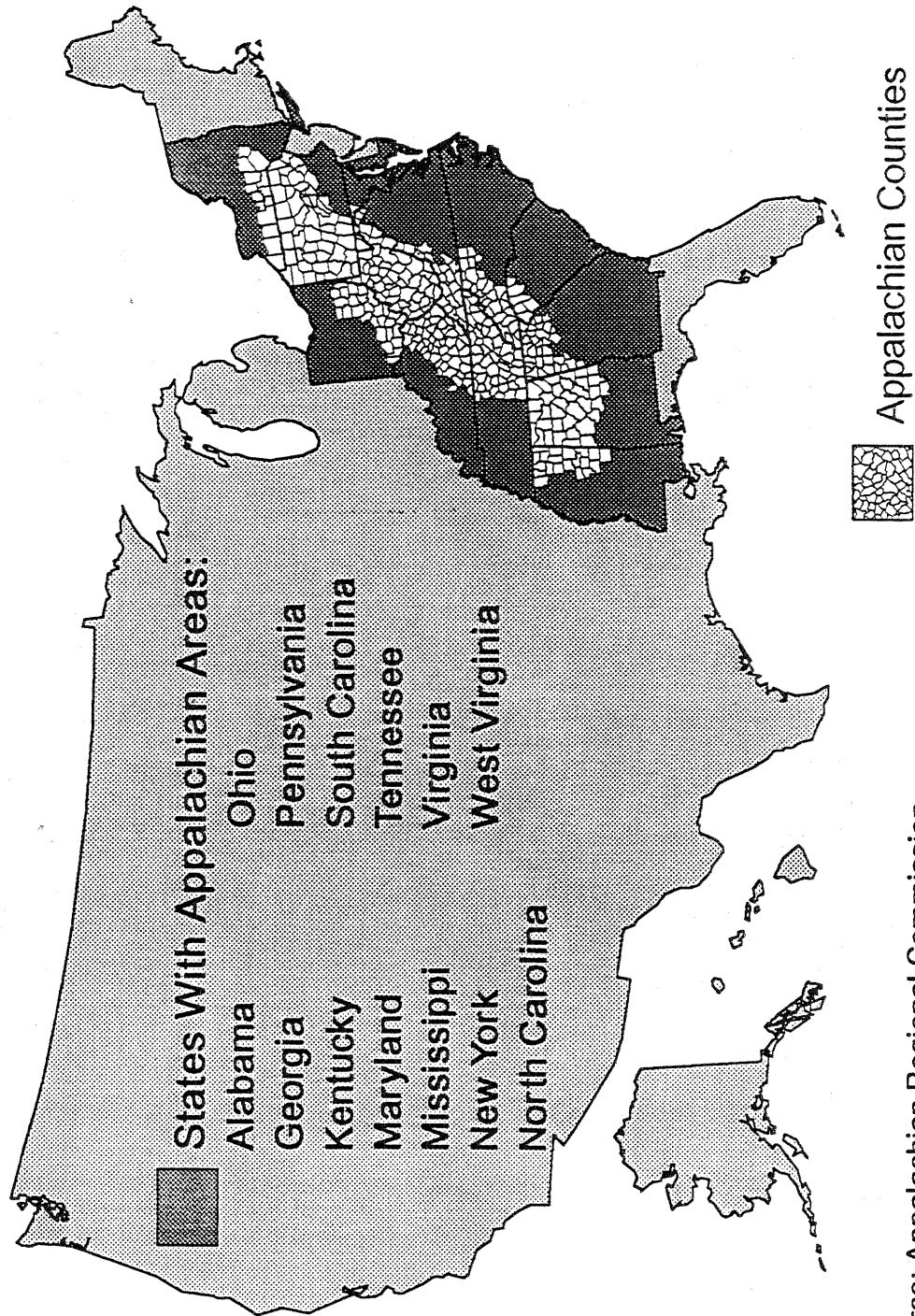
The Appalachian region is generally thought of as consisting of three distinct areas: northern, central, and southern. The economy of northern Appalachia is primarily dependent on heavy manufacturing and steel and coal, the area that was termed the Rust Belt in the 1980s. It was Central Appalachia, with its coal mining economy, rural nature, and pockets of extreme poverty, that so touched Kennedy during his presidential campaign and led to the formation of the ARC. Southern Appalachia on the whole has enjoyed more economic growth in recent years than other parts of Appalachia, having become identified as part of the nation's Sun Belt.

APPALACHIAN CULTURE

Many studies have been done and books written on the culture of Appalachia. Most, however, have concentrated on the folkways of central Appalachia -- the most isolated, mountainous, and rural part of the region. Appalachia as defined by the ARC covers a much wider territory, encompassing not only the rural mountain communities, but also the towns and cities of the valleys and lowlands. It is difficult to generalize about an area that includes such a wide range of economies, lifestyles, nationalities, and ethnic backgrounds as well as topographies.

There is nonetheless a certain validity to some of the characteristics attributed to the "mountaineer." Rural Appalachian culture developed in a historical context of isolation and exploitation that has left a distinct mark. The separation even from one's own neighbors caused by rugged terrain resulted in strong kinship ties rather than a commitment to a group or community. The day-to-day hardships faced by many made the present an all-consuming concern, leaving little in

Appalachian Region of the United States



Source: Appalachian Regional Commission

Introduction to Appalachia

the way of resources or energy to plan for the future. Experiences with outside exploitation eroded trust in the world beyond the mountains and enhanced the alienation felt toward mainstream America. These traits, along with the physical difficulties encountered in building modern highways to link the mountains with the rest of the country and the challenges faced in introducing new technology to a region rooted in the past, have made it all the more difficult to bring change to the more remote parts of the area.

PURPOSE OF THIS STUDY

It has long been recognized that personal health practices are important determinants of health. Unhealthy behaviors can put individuals at risk for preventable illness and death. The primary focus of our study entails a detailed examination of certain of these behaviors as reported by Appalachian residents, comparing their prevalences with those reported by persons living elsewhere in the country. The results of such an examination would determine if a pattern of health behaviors exists among Appalachian residents that is consistent within that population. The risk factors under consideration are among those regularly monitored by the states under the Behavioral Risk Factor Surveillance System (BRFSS), which was developed and is still overseen by the U.S. Centers for Disease Control and Prevention (CDC). Eight BRFSS risk factors are examined in the present study: seatbelt nonuse, obesity, overweight, current smoking, hypertension awareness, heavier drinking, binge drinking, and drinking and driving. Sufficient data were not available for this report to include smokeless tobacco use and sedentary lifestyle.

Chapter Two

METHODOLOGY

DATA SOURCE

The data source for our analysis was the 1993 Behavioral Risk Factor Surveillance System. The BRFSS was designed by the CDC to measure health behaviors over time, enabling states to monitor progress toward the reduction of these risk factors by providing ongoing surveillance. From the initial 15 states in 1984, the BRFSS had grown to include all states and the District of Columbia by 1994. The 1993 data used in this report were collected from 102,464 households in 49 states (Wyoming did not participate in that year) and the District of Columbia. Having access to the total BRFSS database for 1993 allowed data aggregation on both the state and county levels.

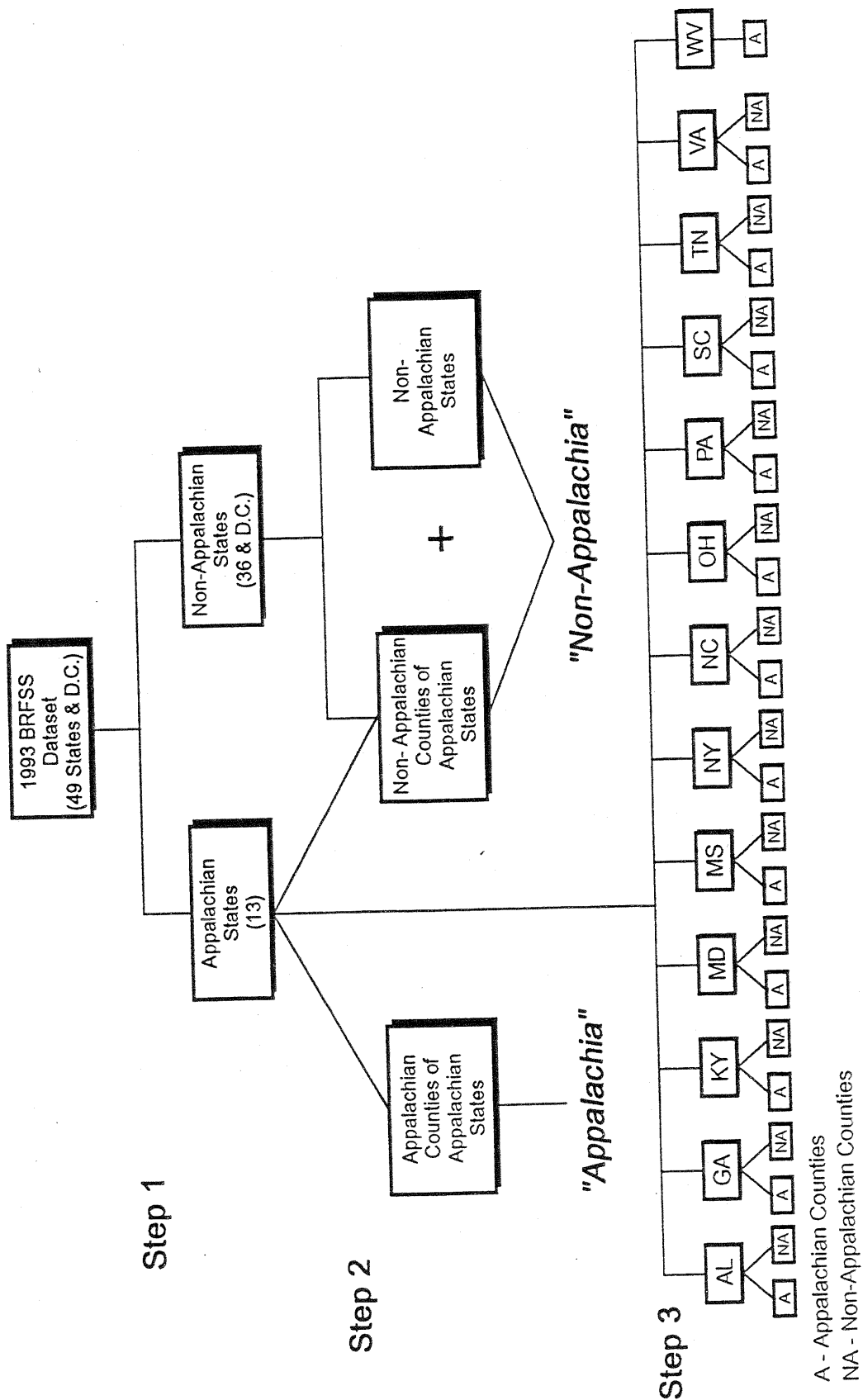
THREE-STEP STUDY DESIGN

In order to provide a comprehensive understanding of any differences revealed through an analysis of behaviors in Appalachia and elsewhere, our study employed a three-step design allowing for three separate levels of comparison (Chart 1). The first step consisted of an overall comparison using state-level data from the BRFSS. A national prevalence was calculated for each risk factor by aggregating data from all 49 states and the District of Columbia. The total dataset was then divided into two groups: the 13 states specified by the ARC as lying wholly or in part within Appalachia (Alabama, Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, and West Virginia) and the remaining 36 states and the District of Columbia. Risk factor prevalences were calculated for each of these two groups, referred to as (1) "Appalachian states" (13 thirteen states having one or more counties designated as Appalachian)

Chart 1

Study Design

Three Levels of Comparison
Selected Health Behaviors Among Appalachian vs. Non-Appalachian Residents



Methodology

and (2) "non-Appalachian states" (those states with no counties designated as Appalachian). This allowed a comparison of the Appalachian states to the U.S. as a whole and the remaining BRFSS states. These data are included in Appendix A.

Step two of our analysis, the focus of this report, involved aggregation of the BRFSS data on the county level. Data from (1) the 399 ARC-designated Appalachian counties ("Appalachia") and (2) all remaining counties in the U.S. ("non-Appalachia") were aggregated to yield two sets of rates that were compared more extensively. In addition to overall prevalence rates for the eight risk factors, variables including gender, age, education, and income were examined for significant differences between Appalachian and non-Appalachian residents.

An even narrower focus was involved in step three of the study. County level data were aggregated within each of the 13 Appalachian states to yield (1) an Appalachian and (2) a non-Appalachian portion for each state. The same variables were examined on the state level as those analyzed for Appalachia and non-Appalachia as a whole. These data are included in Appendix B.

BRFSS DATA COLLECTION, EDITING, AND WEIGHTING

The BRFSS represents a collaborative effort between individual state public health agencies and the CDC. The states provide telephones, office space, interviewers, and data supervision (either in-house or through contracted services). The CDC provides financial assistance, a standardized set of core questions, computer-assisted telephone interviewing software, computers, data processing services, and analytic consultation. Although all 49 states and the District of Columbia used random-digit-dialing telephone survey techniques in 1993, the sample designs varied by state. Thirty-five states used a multistage cluster design based on the Waksberg sampling method for random digit

Chapter Two

dialing; other sample designs, such as simple random or stratified random, were chosen by the remaining 15 states (see Appendix C for a listing of sample designs by state). The fact that different sampling methods were used by the states does not present a problem for data aggregation because each state is considered a separate level of sampling stratification when the data are combined for analysis, as in the present study.

Phone calls and interviews are conducted by the states during a seven-to-twelve day period each month. When the interviewing cycle is completed, the data are sent to the CDC for editing. The edited data are weighted by the CDC to the age-, race-, and sex-specific distributions found in each state, along with each respondent's probability of selection. Weighted data are then used to estimate risk factor prevalence among the adult population of each state.

The 1993 BRFSS data were weighted to intercensal 1992 population estimates for each state and the District of Columbia. The overall state sample sizes in 1993 ranged from 1,189 to 4,386. (Appendix D contains a listing of all the states and the District of Columbia with their sample sizes.)

REWEIGHTING OF BRFSS DATA

Because the CDC weighted each state's data using statewide population estimates, reweighting of the BRFSS data from the 12 states that have both Appalachian and non-Appalachian sections was performed to reflect the population distributions unique to each section. In other words, for each state, the aggregated surveys from the Appalachian counties were reweighted using the age, sex, and race distributions for that region of the state, with the same procedure applied to the aggregated surveys from those counties that make up the non-Appalachian region of the state.

Methodology

The CDC originally weighted the 1993 BRFSS data to a 1992 intercensal population that provided age, sex, and race distributions on a statewide level, all that was needed for their purposes. To reweight the data to a region within a state, county age, sex, and race distributions were essential; however, for 1992, only total population estimates were available on a county level through the Census Bureau. It was therefore necessary to extrapolate 1992 county population distribution estimates. Using 1990 census data, populations by age, sex, and race were aggregated for (1) counties in the Appalachian region and (2) counties in the non-Appalachian region of each state to produce region-specific age, sex, and race distributions. These distributions were then applied to aggregated 1992 county population estimates for each of the Appalachian and non-Appalachian regions in the 12 states, yielding approximate counts of regional populations by age, race, and sex. These counts were subsequently used in the reweighting process. Although all of West Virginia's 55 counties are designated as lying within Appalachia, that state's data were also reweighted in order to make comparisons between West Virginia and the other Appalachian states as valid as possible.

DATA LIMITATIONS

Determination of statistical inference for data in this report was based on nonoverlapping 95% confidence intervals. The BRFSS prevalences given are mid-point estimates derived from sample data, around which 95% confidence intervals were constructed. A prevalence of 10.0% with a confidence interval of plus or minus (CI \pm) 1.0% is interpreted as meaning that the reader can be 95% confident that the true prevalence lies within 9.0% and 11.0%. However, the formula used to calculate the confidence interval is highly sensitive to sample size. Large sample sizes yield small ("narrow") confidence intervals around the mid-point estimate; small sample sizes yield large ("wide") confidence intervals. The wider the confidence interval, the less reliable the rate. Most of the comparisons in this study are of sufficient sample size to be valid, but the Appalachian portions of several states lack

Chapter Two

sizable populations from which to draw a sample. In these instances, the reader is urged to use caution in interpreting the data.

PRESENTATION OF THE DATA

This report includes the examination of the following risk factors: nonuse of seatbelts, obesity, overweight, hypertension awareness, current smoking, binge drinking, heavy drinking, and drinking and driving. The risk factor prevalences for the demographic variables under examination (age, gender, education, and income) show the percentages of persons within that group, not within the total survey sample reporting that risk factor. This method of presentation facilitates identification of at-risk populations for health promotion efforts.

As used in this paper, the term "significant" refers to statistical significance; the terms "more likely" and "less likely" also indicate that the difference between prevalences was found to be statistically significant.

Chapter Three

RESULTS: APPALACHIA VS. NON-APPALACHIA

DEMOGRAPHIC CHARACTERISTICS

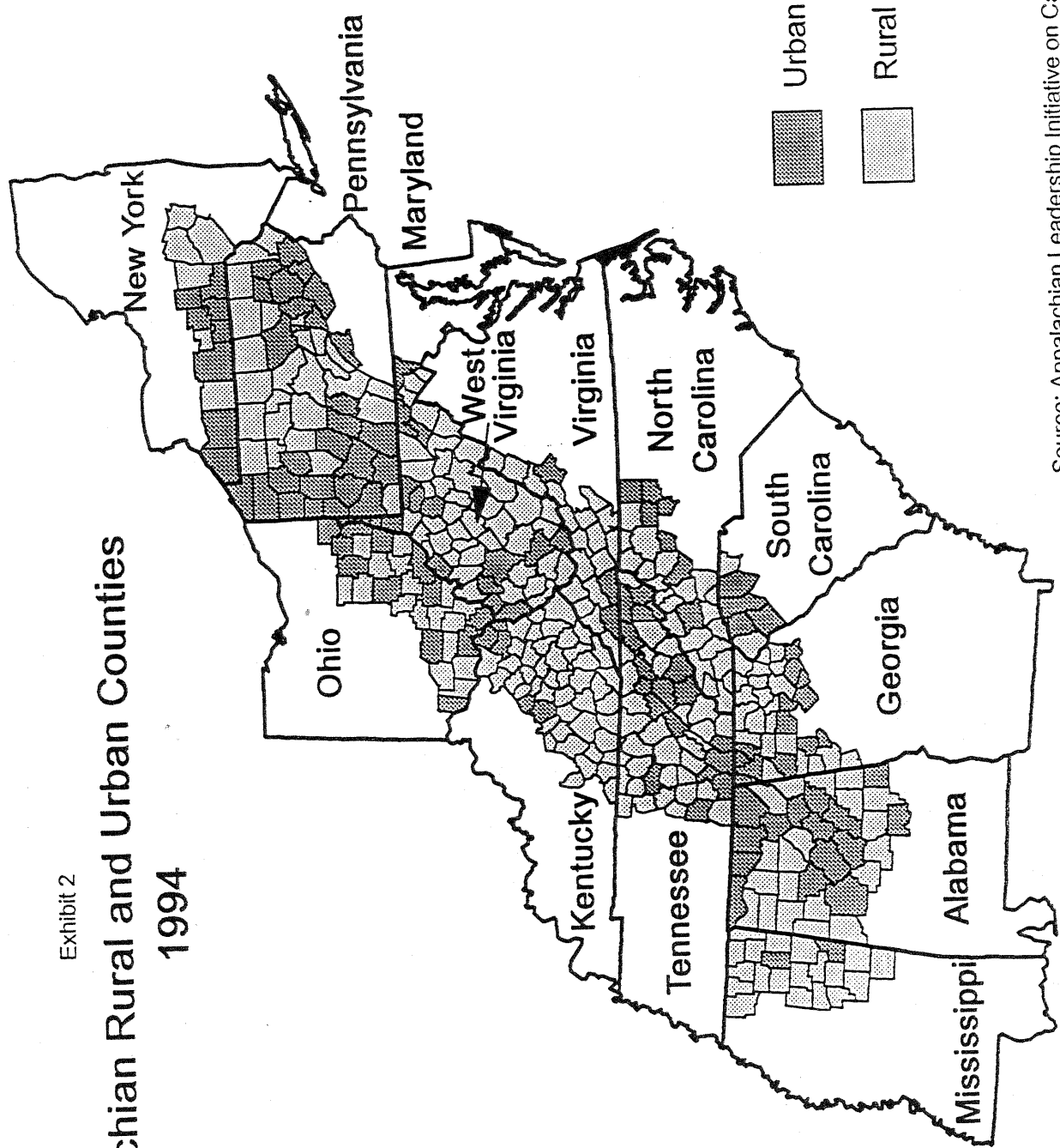
Between 1980 and 1990, the United States as a whole experienced a 9.8% increase in population. The aggregated Appalachian counties, however, witnessed a growth of 1.6% over the same decade, 56% of which was due to a massive population increase in only one county: Gwinnett County, located outside of Atlanta, Georgia. This stagnation demonstrates the effect of the severe economic and employment difficulties faced by most of the Appalachian states during the 1980s. In 1990, 8.3% (20,701,881) of the total U.S. population (248,709,873) lived in Appalachia.

Using the definitions for rural and urban used by the authors of Sowing Seeds in the Mountains: Community-Based Coalitions for Cancer Prevention and Control (and described in Appendix E), two-thirds (266) of the 399 Appalachian counties can be classified as rural. In terms of population, in 1990 approximately 15% of the total United States population lived in rural counties, compared to 32% of the Appalachian population. (See Exhibit 2.)

U.S. census data from 1990 were aggregated by county to create Appalachian and non-Appalachian populations, allowing regional comparisons on the basis of gender, age, race, education, and income. These selected demographics are presented in Table 1.

Exhibit 2

Appalachian Rural and Urban Counties 1994



Source: Appalachian Leadership Initiative on Cancer

Table 1
**Percentage of Selected Demographic Characteristics
 By Appalachian Residency**
 U.S. Census, 1990

	Total U.S.	Appalachia	Non-Appalachia
Population	100.0% (248,709,873)	8.3% (20,701,881)	91.7% (228,007,992)
<u>Gender</u>			
Male	48.7%	47.2%	48.9%
Female	51.3%	52.8%	51.1%
<u>Age</u>			
% 0-17	25.6%	24.5%	25.7%
% 65+	12.6%	14.3%	12.4%
<u>Race</u>			
% White	80.3%	91.8%	79.2%
% Black	12.1%	7.3%	12.5%
% Other	7.7%	1.0%	8.3%
<u>Income</u>			
Per Capita Income (1989)	\$14,420	\$11,704	\$14,667
% Below Poverty Line (1989)	13.1%	15.2%	12.9%
% 65+ Below Poverty Line (1989)	12.8%	16.8%	12.4%
<u>Education</u>			
% < High School Graduate	24.8%	31.6%	24.1%
% High School Graduate+	75.2%	68.4%	75.9%
% College Graduate+	20.3%	14.3%	20.9%

Distinct differences between the two regions can be seen for all the variables under consideration. Appalachia has a higher percentage of women (52.8%) than non-Appalachia (51.1%), as well as an older population: 14.3% of its population was aged 65 and older in 1990, compared to 12.4% in non-Appalachia. The Appalachian counties are much more homogeneous racially than the rest of the country, with 91.8% of residents classified as white, compared to 79.2% elsewhere. Appalachians are on average less educated and poorer than the rest of the country. A marked difference can be noted in 1989 per capita income: \$11,704 in Appalachia, compared to \$14,667 in non-Appalachia. Only 14.3% of the Appalachian population over age 25 were college graduates in 1990, while 20.9% of persons living elsewhere had at least a bachelor's degree.

Chapter Three

BRFSS data for the behaviors under consideration were aggregated into two groups: Appalachia and non-Appalachia. The variables of gender, age, education, and income level were examined for each risk factor, and the responses from Appalachian residents were compared to those from persons living outside of Appalachia.

SEATBELT NONUSE

Of all the risk factors addressed in this paper, the most striking differences between respondents living in and outside of Appalachia were found for seatbelt nonuse^{1,2} (Table 2). Nearly one fourth (24.1%) of all adult Appalachian residents reported seatbelt nonuse, compared to 17.2% of respondents living elsewhere, a statistically significant difference. This finding held for both men (29.3% vs. 21.1%) and women (19.8% vs. 13.5%). Overall, and among women only, Appalachian residents reported significantly higher rates of seatbelt nonuse in all demographic categories included in the study, i.e., all age groups, educational levels, and household income levels. Significantly higher prevalences of seatbelt nonuse were found for Appalachian men for all demographic categories except men aged 55-64 and those having 13 or more years of education; while the rates were still higher among Appalachian men than among their non-Appalachian counterparts in these groups, the findings were not statistically significant. Figure 1 illustrates the differences in reported seatbelt nonuse between Appalachian and non-Appalachian men and women by educational attainment, a strong determinant of seatbelt use or nonuse.

¹Used seatbelts "sometimes," "seldom," or "never" when driving or riding in motor vehicles.

²Six non-Appalachian states (Maine, Massachusetts, New Hampshire, North Dakota, South Dakota, and Vermont) and one Appalachian state (Kentucky) did not have seatbelt use laws in effect at the time of the survey. West Virginia's seatbelt use law went into effect on September 1, 1993.

Table 2

**Prevalence (%) of Seatbelt Nonuse in Appalachia and Non-Appalachia
By Gender and Selected Characteristics**
Behavioral Risk Factor Surveillance System, 1993

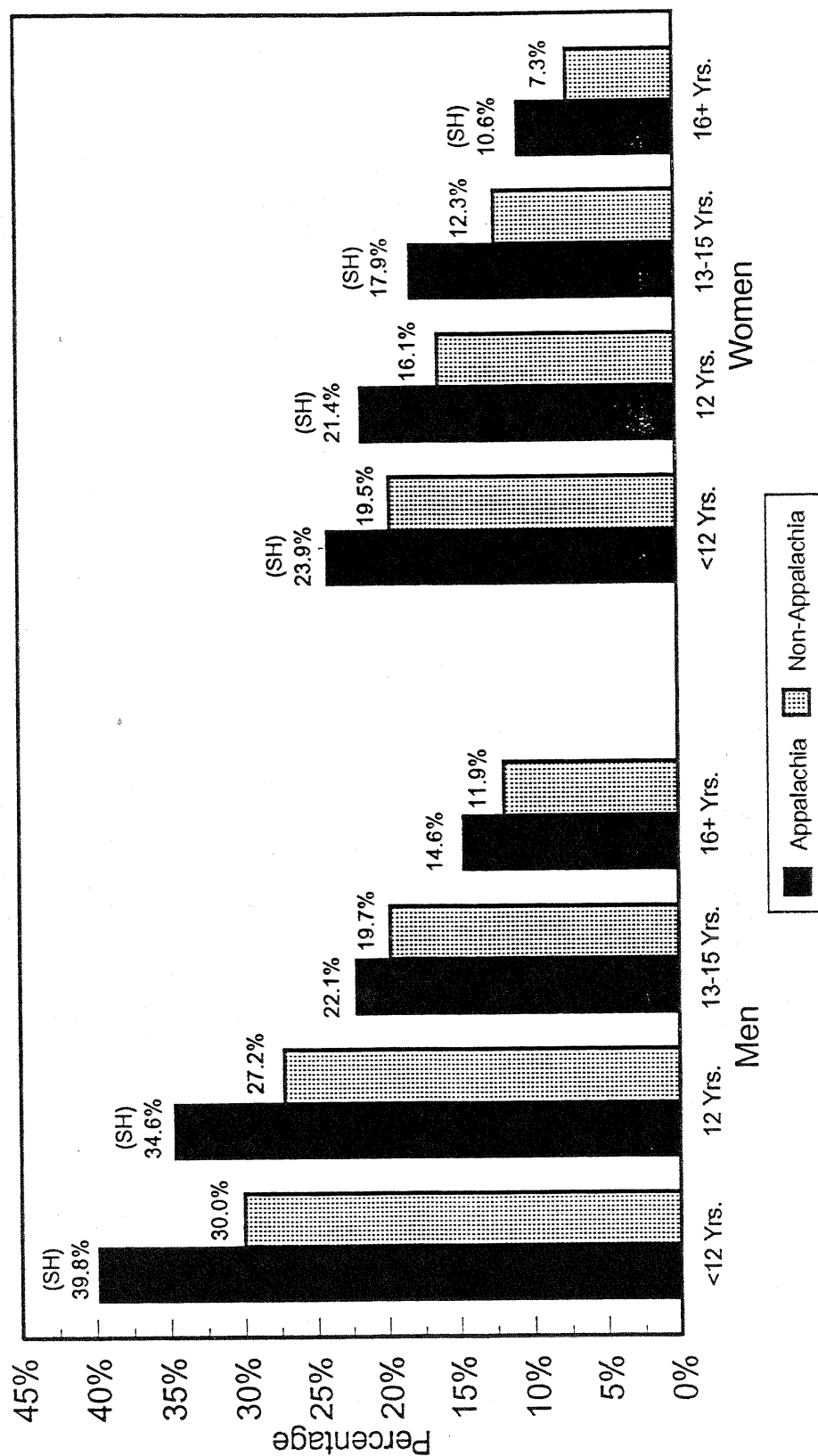
MEN						WOMEN						TOTAL					
Characteristic	Appalachia		Non-Appalachia		S*	Characteristic	Appalachia		Non-Appalachia		S*	Characteristic	Appalachia		Non-Appalachia		S*
	%	CI** (%+)	%	CI** (%+)			%	CI** (%+)	%	CI** (%+)			%	CI** (%+)	%	CI** (%+)	
Total	29.3	(1.4)	21.1	(0.4)	SH	Total	19.3	(1.0)	13.5	(0.3)	SH	Total	24.1	(0.9)	17.2	(0.2)	SH
Age						Age						Age					
18-24	40.9	(4.8)	28.9	(1.4)	SH	18-24	22.8	(3.8)	17.5	(1.0)	SH	18-24	31.9	(3.1)	23.3	(0.8)	SH
25-34	34.4	(3.3)	22.4	(0.9)	SH	25-34	18.9	(2.4)	14.1	(0.6)	SH	25-34	26.6	(2.0)	18.3	(0.5)	SH
35-44	26.9	(2.9)	19.4	(0.8)	SH	35-44	18.0	(2.2)	12.5	(0.6)	SH	35-44	22.4	(1.8)	15.9	(0.5)	SH
45-54	25.7	(3.3)	18.9	(1.0)	SH	45-54	20.7	(2.6)	13.7	(0.8)	SH	45-54	23.2	(2.1)	16.3	(0.6)	SH
55-64	20.4	(3.7)	19.4	(1.2)	SH	55-64	23.0	(3.1)	13.4	(0.9)	SH	55-64	21.7	(2.4)	16.2	(0.7)	SH
65+	24.5	(3.2)	17.1	(0.9)	SH	65+	15.2	(1.8)	11.1	(0.6)	SH	65+	19.1	(1.7)	13.5	(0.5)	SH
Education						Education						Education					
<12 Yrs.	39.8	(3.3)	30.0	(1.3)	SH	<12 Yrs.	23.9	(2.2)	19.5	(0.9)	SH	<12 Yrs.	31.5	(1.9)	24.3	(0.7)	SH
12 Yrs.	34.6	(2.4)	27.2	(0.8)	SH	12 Yrs.	21.4	(1.7)	16.1	(0.5)	SH	12 Yrs.	27.9	(1.4)	21.1	(0.5)	SH
13-15 Yrs.	22.1	(2.8)	19.7	(0.8)		13-15 Yrs.	17.9	(2.1)	12.3	(0.5)	SH	13-15 Yrs.	19.8	(1.7)	15.7	(0.5)	SH
16+ Yrs.	14.6	(2.5)	11.9	(0.6)		16+ Yrs.	10.6	(2.0)	7.3	(0.5)	SH	16+ Yrs.	12.7	(1.6)	9.8	(0.4)	SH
Income						Income						Income					
<\$10,000	33.3	(4.3)	24.4	(1.5)	SH	<\$10,000	21.9	(2.3)	19.3	(0.9)		<\$10,000	25.9	(2.1)	21.1	(0.8)	SH
\$10-\$24,999	35.1	(2.6)	25.3	(0.8)	SH	\$10-\$24,999	23.5	(1.9)	16.0	(0.6)	SH	\$10-\$24,999	29.3	(1.6)	20.4	(0.5)	SH
\$25,000+	24.4	(2.0)	18.1	(0.5)	SH	\$25,000+	16.0	(1.6)	10.4	(0.4)	SH	\$25,000+	20.5	(1.3)	14.5	(0.3)	SH

*Prevalence in Appalachian counties is significantly higher (SH) or significantly lower (SL) than in non-Appalachian counties. A blank indicates no significant difference.

**CI = 95% confidence interval. The midpoint prevalence (%) plus or minus the percentage indicated in parentheses comprises the range of values called the confidence interval. Users can be 95% confident that the true prevalence lies within this interval.

Figure 1

Prevalence (%) of Seatbelt Nonuse in Appalachia and Non-Appalachia By Gender and Educational Attainment Behavioral Risk Factor Surveillance System, 1993



OBESITY

The overall 1993 prevalence of obesity³ in Appalachia was found to be significantly higher than the prevalence in non-Appalachia (31.7% vs. 30.0%), primarily due to the difference between total obesity rates among women in the two regions (31.7% vs. 28.8%) (Table 3). Appalachian women reported higher prevalences of obesity than women living in other parts of the country in every age group; the rate among women aged 25-34 was significantly higher. (Figure 2 shows the differences in prevalence of obesity by age between Appalachian and non-Appalachian women.) The rate of obesity among women with household incomes in excess of \$25,000 was also found to be significantly higher among Appalachian residents than among other women. No statistically significant differences were found by women's educational attainment. Little difference in rate of obesity was noted between Appalachian and non-Appalachian men, either by age, education, or income level.

³At least 20% over the "ideal weight" for the person's height, calculated using the Metropolitan Life Insurance Company's 1959 Height and Weight Tables.

Table 3

**Prevalence (%) of Obesity in Appalachia and Non-Appalachia
By Gender and Selected Characteristics
Behavioral Risk Factor Surveillance System, 1993**

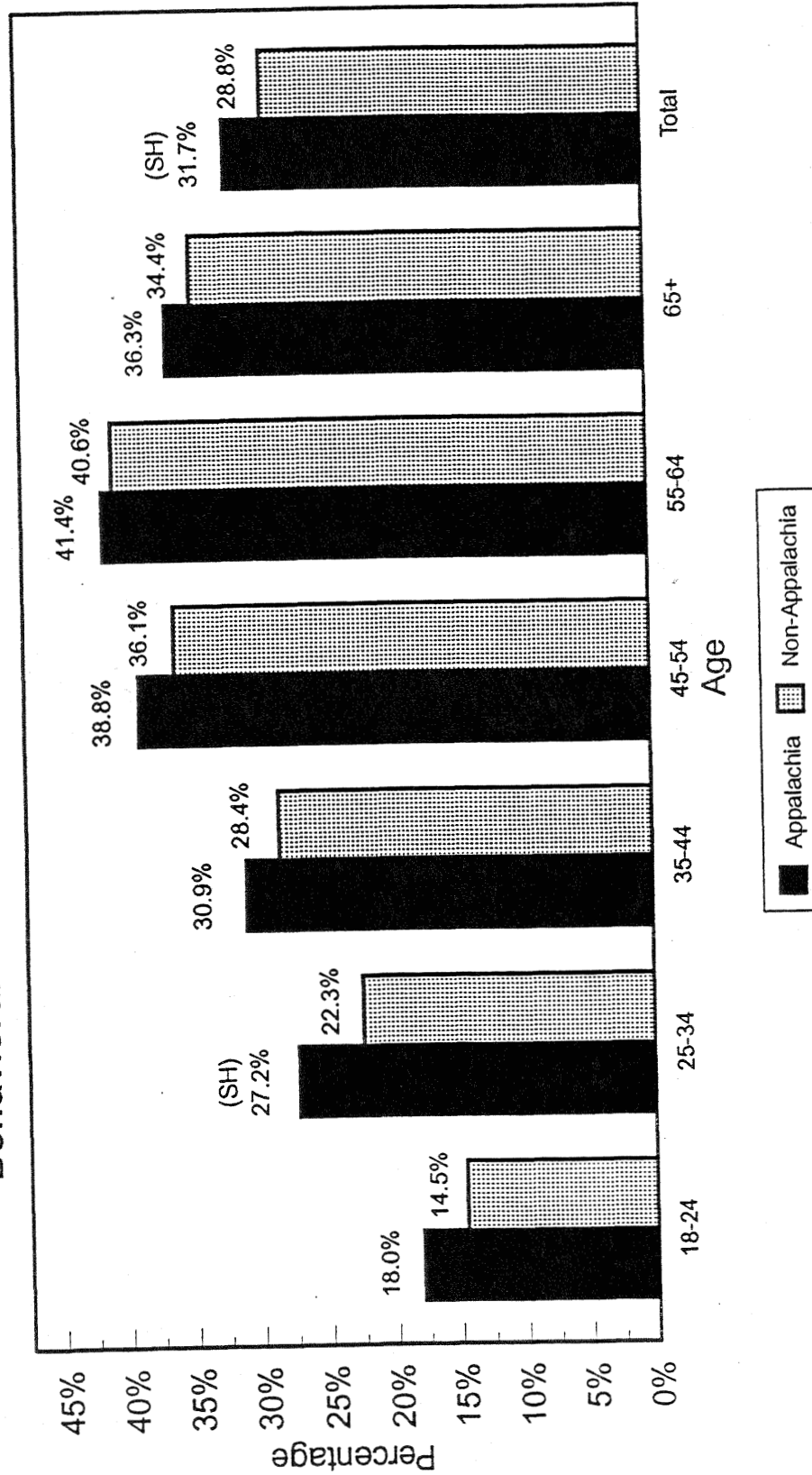
MEN						WOMEN						TOTAL					
Characteristic	Appalachia		Non-Appalachia		S*	Characteristic	Appalachia		Non-Appalachia		S*	Characteristic	Appalachia		Non-Appalachia		S*
	%	CI** (%+)	%	CI** (%+)			%	CI** (%+)	%	CI** (%+)			%	CI** (%+)	%	CI** (%+)	
Total	31.7	(1.5)	31.4	(0.5)		Total	31.7	(1.2)	28.8	(0.4)	SH	Total	31.7	(0.9)	30.0	(0.3)	SH
Age						Age						Age					
18-24	17.9	(3.8)	17.2	(1.1)		18-24	18.0	(3.5)	14.5	(1.0)	SH	18-24	17.9	(2.6)	15.9	(0.7)	SH
25-34	31.2	(3.3)	28.6	(0.9)		25-34	27.2	(2.7)	22.3	(0.8)		25-34	29.1	(2.1)	25.5	(0.6)	
35-44	36.2	(3.1)	34.4	(1.0)		35-44	30.9	(2.6)	28.4	(0.8)		35-44	33.5	(2.0)	31.4	(0.6)	
45-54	37.3	(3.7)	41.0	(1.2)		45-54	38.8	(3.2)	36.1	(1.1)		45-54	38.1	(2.4)	38.5	(0.8)	
55-64	38.6	(4.4)	41.2	(1.5)		55-64	41.4	(3.6)	40.6	(1.3)		55-64	40.0	(2.8)	40.9	(1.0)	
65+	29.9	(3.4)	29.0	(1.1)		65+	36.3	(2.5)	34.4	(0.9)		65+	33.6	(2.0)	32.2	(0.7)	
Education						Education						Education					
<12 Yrs.	30.2	(3.1)	34.4	(1.3)		<12 Yrs.	40.9	(2.6)	41.3	(1.1)		<12 Yrs.	35.8	(2.0)	38.2	(0.8)	
12 Yrs.	33.5	(2.4)	33.2	(0.8)		12 Yrs.	33.4	(2.0)	30.9	(0.7)		12 Yrs.	33.4	(1.5)	32.0	(0.5)	
13-15 Yrs.	30.7	(3.1)	31.0	(0.9)		13-15 Yrs.	27.7	(2.4)	26.8	(0.7)		13-15 Yrs.	29.0	(1.9)	28.8	(0.6)	
16+ Yrs.	30.9	(3.3)	28.3	(0.8)		16+ Yrs.	21.7	(2.7)	20.2	(0.7)		16+ Yrs.	26.5	(2.1)	24.6	(0.5)	
Income						Income						Income					
<\$10,000	31.2	(4.2)	28.6	(1.6)		<\$10,000	39.0	(2.7)	38.4	(1.1)		<\$10,000	36.3	(2.3)	35.0	(0.9)	
\$10-\$24,999	32.6	(2.6)	31.4	(0.9)		\$10-\$24,999	32.1	(2.1)	33.2	(0.7)		\$10-\$24,999	32.4	(1.6)	32.4	(0.6)	
\$25,000+	32.9	(2.2)	32.4	(0.6)		\$25,000+	29.7	(2.1)	25.1	(0.6)	SH	\$25,000+	31.4	(1.5)	29.0	(0.4)	SH

*Prevalence in Appalachian counties is significantly higher (SH) or significantly lower (SL) than in non-Appalachian counties. A blank indicates no significant difference.

**CI = 95% confidence interval. The midpoint prevalence (%) plus or minus the percentage indicated in parentheses comprises the range of values called the confidence interval. Users can be 95% confident that the true prevalence lies within this interval.

Figure 2

Prevalence (%) of Obesity Among Women By Age and Appalachian Residency Behavioral Risk Factor Surveillance System, 1993



SH - Significantly Higher

Chapter Three

OVERWEIGHT

The same patterns emerged in overweight⁴ prevalence as were noted in obesity rates (Table 4). The total prevalence of overweight among Appalachian residents was significantly higher than that among non-Appalachian residents (27.4% vs. 25.5%), again due in large part to significantly higher rates among women (26.9% vs. 24.2%). Overall, the prevalence of overweight among persons with 12 years of education and among college graduates was significantly higher in the Appalachian counties (see Figure 3). Women aged 25-44 were more likely to be overweight if they lived in Appalachia, as were female high school graduates and women with household incomes greater than \$25,000. In both regions, the rate among males increased with age up to age 65. Although men in Appalachia reported higher rates of overweight than other men in all age groups except 45-54, none of the differences was found to be statistically significant. Overweight prevalence decreased with increased educational attainment and increased income level among men living in both regions, but no significant differences emerged.

⁴10% - 19% over the "ideal weight" for the person's height, calculated using the Metropolitan Life Insurance Company's 1959 Height and Weight Tables.

Table 4

**Prevalence (%) of Overweight in Appalachia and Non-Appalachia
By Gender and Selected Characteristics
Behavioral Risk Factor Surveillance System, 1993**

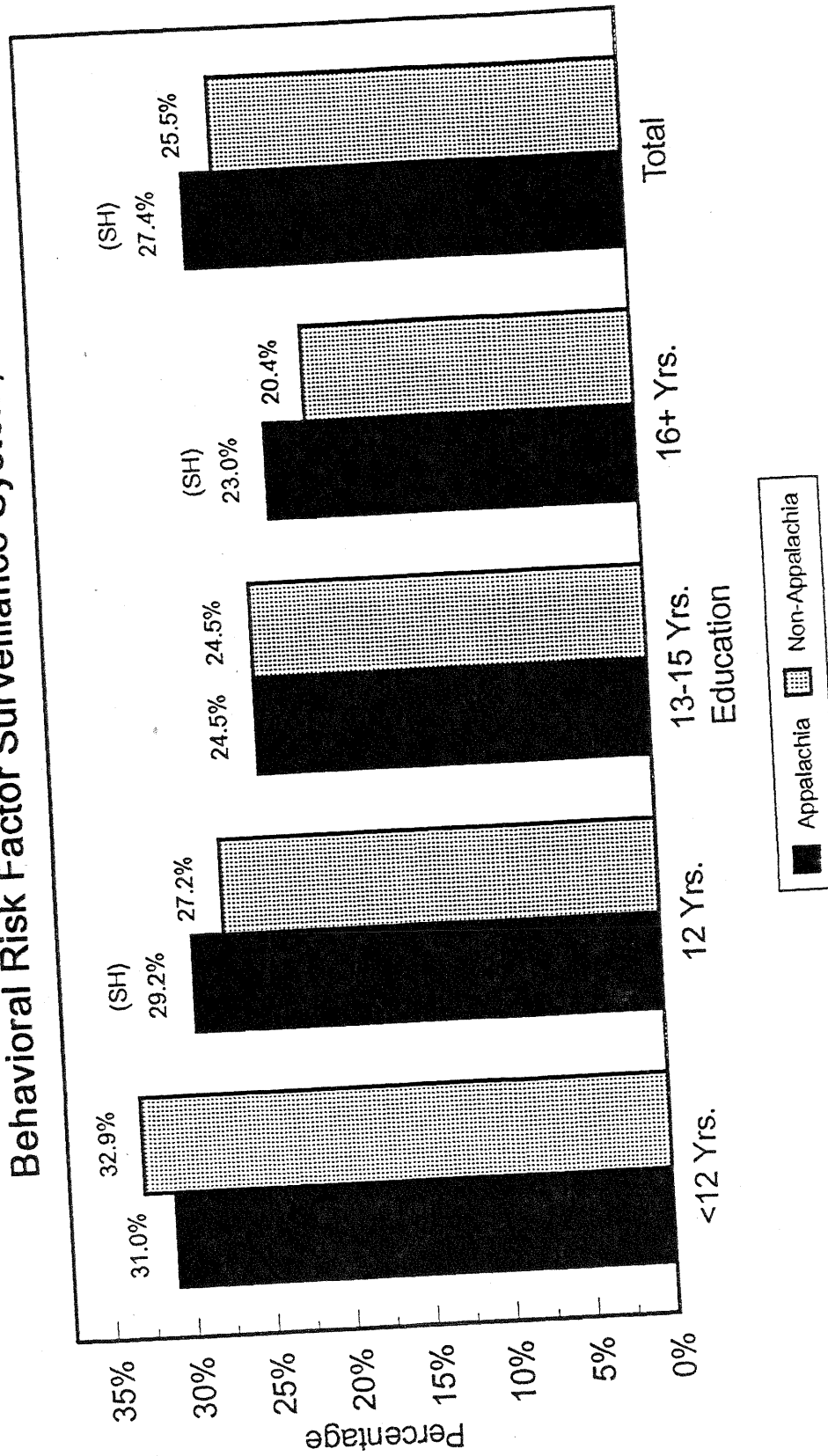
MEN						WOMEN						TOTAL					
Characteristic	Appalachia		Non-Appalachia		S*	Characteristic	Appalachia		Non-Appalachia		S*	Characteristic	Appalachia		Non-Appalachia		S*
	%	CI** (%+)	%	CI** (%+)			%	CI** (%+)	%	CI** (%+)			%	CI** (%+)	%	CI** (%+)	
Total	28.0	(1.4)	26.8	(0.4)		Total	26.9	(1.1)	24.2	(0.4)	SH	Total	27.4	(0.9)	25.5	(0.3)	SH
Age						Age						Age					
18-24	17.2	(3.7)	14.8	(1.1)		18-24	14.5	(3.2)	11.9	(0.9)		18-24	15.9	(2.4)	13.4	(0.7)	
25-34	25.4	(3.1)	24.7	(0.9)		25-34	23.0	(2.5)	18.5	(0.7)	SH	25-34	24.2	(2.0)	21.6	(0.6)	SH
35-44	31.7	(3.0)	29.7	(0.9)		35-44	27.4	(2.5)	24.1	(0.8)	SH	35-44	29.6	(2.0)	26.8	(0.6)	SH
45-54	33.1	(3.6)	35.6	(1.2)		45-54	33.4	(3.1)	30.8	(1.0)		45-54	33.3	(2.3)	33.1	(0.8)	
55-64	37.2	(4.4)	34.3	(1.4)		55-64	36.2	(3.5)	34.8	(1.2)		55-64	36.7	(2.8)	34.6	(0.9)	
65+	25.6	(3.3)	24.3	(1.1)		65+	29.4	(2.3)	28.5	(0.8)		65+	27.8	(1.9)	26.8	(0.7)	
Education						Education						Education					
<12 Yrs.	26.7	(3.0)	29.4	(1.3)		<12 Yrs.	35.0	(2.5)	35.9	(1.1)		<12 Yrs.	31.0	(1.9)	32.9	(0.8)	
12 Yrs.	29.5	(2.3)	29.0	(0.8)		12 Yrs.	29.0	(1.9)	25.7	(0.6)	SH	12 Yrs.	29.2	(1.5)	27.2	(0.5)	SH
13-15 Yrs.	27.0	(3.0)	26.6	(0.9)		13-15 Yrs.	22.4	(2.3)	22.7	(0.7)		13-15 Yrs.	24.5	(1.8)	24.5	(0.5)	
16+ Yrs.	27.6	(3.2)	23.7	(0.8)		16+ Yrs.	18.1	(2.5)	16.4	(0.7)		16+ Yrs.	23.0	(2.0)	20.4	(0.5)	SH
Income						Income						Income					
<\$10,000	29.8	(4.2)	24.2	(1.5)		<\$10,000	31.7	(2.6)	33.2	(1.0)		<\$10,000	31.0	(2.2)	30.1	(0.9)	
\$10-\$24,999	28.8	(2.5)	27.2	(0.9)		\$10-\$24,999	28.0	(2.0)	28.4	(0.7)		\$10-\$24,999	28.4	(1.6)	27.8	(0.5)	
\$25,000+	28.8	(2.2)	27.6	(0.6)		\$25,000+	25.5	(2.0)	20.6	(0.5)	SH	\$25,000+	27.3	(1.5)	24.3	(0.4)	SH

*Prevalence in Appalachian counties is significantly higher (SH) or significantly lower (SL) than in non-Appalachian counties. A blank indicates no significant difference.

**CI = 95% confidence interval. The midpoint prevalence (%) plus or minus the percentage indicated in parentheses comprises the range of values called the confidence interval. Users can be 95% confident that the true prevalence lies within this interval.

Figure 3

Prevalence (%) of Overweight By Educational Attainment and Appalachian Residency Behavioral Risk Factor Surveillance System, 1993



SH - Significantly Higher

HYPERTENSION AWARENESS

Little difference was noted in the 1993 prevalence of hypertension awareness⁵ among respondents living in Appalachia and those living in other parts of the country, although the rate was slightly higher among Appalachians (22.1%) than among non-Appalachians (21.4%). Hypertension prevalence increased with age and generally decreased with higher education and income among residents of both regions (Table 5). Appalachian women aged 35-44 were significantly more likely than other women to report having been told they had high blood pressure, and significantly higher rates of hypertension were also reported by Appalachian men with incomes of less than \$10,000. On the other hand, both men and women with 13-15 years of education who lived in Appalachia were less likely to report hypertension than their counterparts elsewhere.

⁵Answered "yes" to the question "Have you ever been told by a doctor, nurse, or other health professional that you have high blood pressure?"

Table 5

**Prevalence (%) of Hypertension in Appalachia and Non-Appalachia
By Gender and Selected Characteristics
Behavioral Risk Factor Surveillance System, 1993**

MEN					WOMEN					TOTAL							
Characteristic	Appalachia		Non-Appalachia		S*	Characteristic	Appalachia		Non-Appalachia		S*	Characteristic	Appalachia		Non-Appalachia		S*
	%	CI** (%+)	%	CI** (%+)			%	CI** (%+)	%	CI** (%+)			%	CI** (%+)	%	CI** (%+)	
Total	20.8	(1.3)	20.6	(0.4)		Total	23.2	(1.1)	22.2	(0.4)		Total	22.1	(0.8)	21.4	(0.3)	
Age						Age						Age					
18-24	7.3	(2.5)	8.6	(0.8)		18-24	5.3	(2.0)	6.4	(0.7)		18-24	6.3	(1.6)	7.5	(0.5)	
25-34	11.5	(2.2)	10.4	(0.6)		25-34	8.9	(1.7)	10.7	(0.6)		25-34	10.2	(1.4)	10.6	(0.4)	
35-44	17.7	(2.5)	17.0	(0.8)		35-44	18.6	(2.2)	14.8	(0.7)	SH	35-44	18.1	(1.7)	15.9	(0.5)	SH
45-54	25.5	(3.3)	25.9	(1.1)		45-54	23.3	(2.7)	24.4	(0.9)		45-54	24.4	(2.1)	25.1	(0.7)	
55-64	34.9	(4.3)	35.0	(1.4)		55-64	39.5	(3.6)	36.1	(1.2)		55-64	37.3	(2.8)	35.6	(0.9)	
65+	35.1	(3.6)	39.1	(1.2)		65+	44.0	(2.5)	44.3	(0.9)		65+	40.4	(2.1)	42.2	(0.7)	
Education						Education						Education					
<12 Yrs.	28.2	(3.1)	26.8	(1.2)		<12 Yrs.	37.3	(2.5)	34.9	(1.1)		<12 Yrs.	32.9	(1.9)	31.1	(0.8)	
12 Yrs.	20.3	(2.1)	20.8	(0.7)		12 Yrs.	23.0	(1.8)	23.6	(0.6)		12 Yrs.	21.7	(1.3)	22.3	(0.5)	
13-15 Yrs.	15.6	(2.5)	19.3	(0.8)	SL	13-15 Yrs.	16.4	(2.0)	20.0	(0.6)	SL	13-15 Yrs.	16.0	(1.6)	19.7	(0.5)	SL
16+ Yrs.	20.1	(2.9)	18.6	(0.7)		16+ Yrs.	16.2	(2.4)	14.5	(0.6)		16+ Yrs.	18.2	(1.9)	16.7	(0.5)	
Income						Income						Income					
<\$10,000	30.2	(4.2)	21.8	(1.5)	SH	<\$10,000	35.7	(2.6)	32.3	(1.0)		<\$10,000	33.8	(2.2)	28.7	(0.8)	SH
\$10-\$24,999	21.4	(2.3)	22.3	(0.8)		\$10-\$24,999	25.2	(2.0)	25.1	(0.7)		\$10-\$24,999	23.3	(1.5)	23.8	(0.5)	
\$25,000+	18.6	(1.9)	19.7	(0.5)		\$25,000+	15.7	(1.6)	16.9	(0.5)		\$25,000+	17.2	(1.2)	18.4	(0.4)	

*Prevalence in Appalachian counties is significantly higher (SH) or significantly lower (SL) than in non-Appalachian counties. A blank indicates no significant difference.

**CI = 95% confidence interval. The midpoint prevalence (%) plus or minus the percentage indicated in parentheses comprises the range of values called the confidence interval. Users can be 95% confident that the true prevalence lies within this interval.

CURRENT SMOKING

The overall prevalence of current smoking⁶ was found to be significantly higher in Appalachia than in non-Appalachia (24.2% vs. 21.9%) (Table 6). This finding held for both men (25.5% vs. 23.5%) and women (22.9% vs. 20.4%). Overall, and among women, persons aged 25-44 and 55-64 were more likely to report current smoking if they lived in Appalachian counties. (Figure 4 illustrates differences in smoking rates found by age between Appalachian and non-Appalachian residents.) Respondents in both regions reported consistently lower rates of smoking with increased education and income levels, but smoking rates were significantly higher in Appalachia than elsewhere among high school dropouts and lower-income (<\$10,000) respondents. Among women only, those with family incomes of \$10,000-\$24,999 were more likely to smoke if they lived in Appalachia.

⁶Had smoked at least 100 cigarettes in lifetime and currently smoked regularly.

Table 6

**Prevalence (%) of Current Smoking in Appalachia and Non-Appalachia
By Gender and Selected Characteristics
Behavioral Risk Factor Surveillance System, 1993**

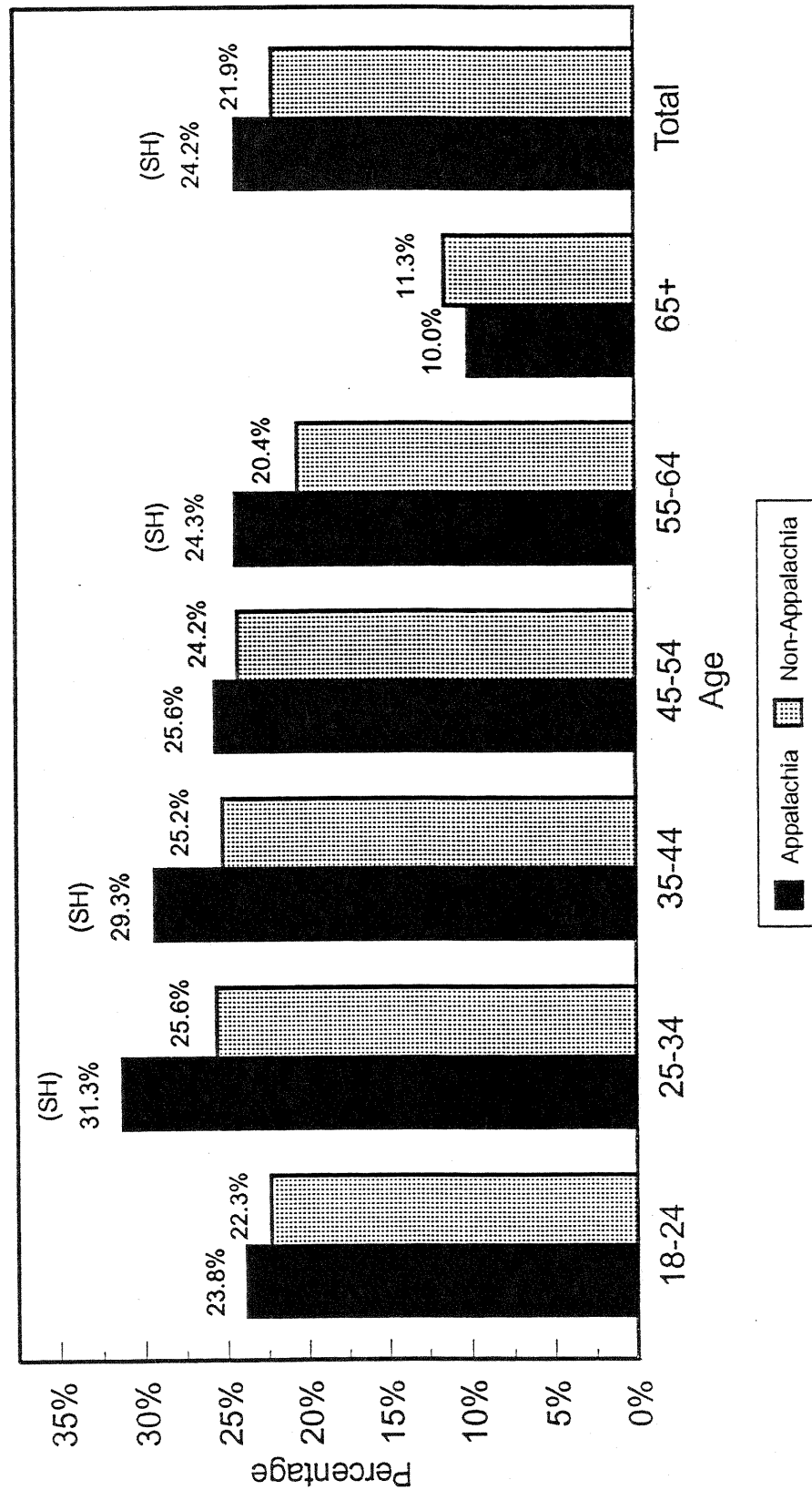
MEN						WOMEN						TOTAL					
Characteristic	Appalachia		Non-Appalachia		S*	Characteristic	Appalachia		Non-Appalachia		S*	Characteristic	Appalachia		Non-Appalachia		S*
	%	CI** (%+)	%	CI** (%+)			%	CI** (%+)	%	CI** (%+)			%	CI** (%+)	%	CI** (%+)	
Total	25.5	(1.4)	23.5	(0.4)	SH	Total	22.9	(1.1)	20.4	(0.3)	SH	Total	24.2	(0.9)	21.9	(0.3)	SH
Age						Age						Age					
18-24	24.4	(4.2)	22.2	(1.2)		18-24	23.1	(3.8)	22.5	(1.1)		18-24	23.8	(2.8)	22.3	(0.8)	
25-34	30.8	(3.2)	26.7	(0.9)		25-34	31.7	(2.8)	24.4	(0.8)	SH	25-34	31.3	(2.1)	25.6	(0.6)	SH
35-44	31.1	(3.0)	27.7	(0.9)		35-44	27.6	(2.5)	22.7	(0.8)	SH	35-44	29.3	(2.0)	25.2	(0.6)	SH
45-54	30.2	(3.5)	25.7	(1.1)		45-54	21.1	(2.7)	22.7	(0.9)		45-54	25.6	(2.2)	24.2	(0.7)	
55-64	23.3	(3.8)	21.3	(1.2)		55-64	25.3	(3.2)	19.7	(1.0)	SH	55-64	24.3	(2.4)	20.4	(0.8)	SH
65+	10.3	(2.3)	12.5	(0.8)		65+	9.7	(1.5)	10.5	(0.6)		65+	10.0	(1.3)	11.3	(0.5)	
Education						Education						Education					
<12 Yrs.	35.5	(3.3)	32.3	(1.3)		<12 Yrs.	28.0	(2.3)	24.9	(1.0)		<12 Yrs.	31.6	(1.9)	28.3	(0.8)	SH
12 Yrs.	27.5	(2.3)	30.0	(0.8)		12 Yrs.	26.3	(1.8)	25.2	(0.6)		12 Yrs.	26.9	(1.4)	27.3	(0.5)	
13-15 Yrs.	24.3	(2.9)	23.5	(0.8)		13-15 Yrs.	19.1	(2.1)	19.6	(0.6)		13-15 Yrs.	21.4	(1.7)	21.4	(0.5)	
16+ Yrs.	12.0	(2.3)	12.6	(0.6)		16+ Yrs.	14.0	(2.3)	11.2	(0.6)		16+ Yrs.	13.0	(1.6)	12.0	(0.4)	
Income						Income						Income					
<\$10,000	34.6	(4.3)	29.0	(1.6)		<\$10,000	25.7	(2.4)	23.8	(0.9)		<\$10,000	28.8	(2.1)	25.6	(0.8)	SH
\$10-\$24,999	28.6	(2.5)	29.6	(0.9)		\$10-\$24,999	28.3	(2.0)	24.3	(0.7)	SH	\$10-\$24,999	28.4	(1.6)	26.8	(0.5)	
\$25,000+	21.8	(2.0)	20.4	(0.5)		\$25,000+	19.2	(1.8)	18.5	(0.5)		\$25,000+	20.6	(1.3)	19.5	(0.4)	

*Prevalence in Appalachian counties is significantly higher (SH) or significantly lower (SL) than in non-Appalachian counties. A blank indicates no significant difference.

**CI = 95% confidence interval. The midpoint prevalence (%) plus or minus the percentage indicated in parentheses comprises the range of values called the confidence interval. Users can be 95% confident that the true prevalence lies within this interval.

Figure 4

Prevalence (%) of Current Smoking By Age and Appalachian Residency Behavioral Risk Factor Surveillance System, 1993



SH - Significantly Higher

Chapter Three

HEAVIER DRINKING

The overall 1993 prevalence of heavier drinking⁷ was significantly lower in Appalachia than in non-Appalachia (2.8% vs. 3.5%) (Table 7). Significantly lower rates were noted for both men (5.0% vs. 6.2%) and women (0.7% vs. 1.0%). By age, Appalachian women aged 45 and older were less likely than their counterparts in other regions to report heavier drinking, as were Appalachian men aged 55 and older. Appalachian men whose educational attainment was 12 years or less also reported significantly lower rates of heavier drinking than other men with the same education. An interesting finding emerged with heavier drinking and household income levels. Men residing in Appalachian counties whose family incomes were less than \$10,000 annually were more likely than those in other counties to report heavier drinking; Appalachian men living on \$10,000 or more, on the other hand, were less likely than other respondents to do so. These findings are shown in Figure 5.

⁷Consumed 60 or more drinks during the month prior to the interview.

Table 7

**Prevalence (%) of Heavier Drinking in Appalachia and Non-Appalachia
By Gender and Selected Characteristics
Behavioral Risk Factor Surveillance System, 1993**

MEN						WOMEN						TOTAL					
Characteristic	Appalachia		Non-Appalachia		S*	Characteristic	Appalachia		Non-Appalachia		S*	Characteristic	Appalachia		Non-Appalachia		S*
	%	CI** (%+)	%	CI** (%+)			%	CI** (%+)	%	CI** (%+)			%	CI** (%+)	%	CI** (%+)	
Total	5.0	(0.7)	6.2	(0.2)	SL	Total	0.7	(0.2)	1.0	(0.1)	SL	Total	2.8	(0.3)	3.5	(0.1)	SL
Age						Age						Age					
18-24	8.3	(2.7)	9.1	(0.9)		18-24	1.6	(1.1)	1.6	(0.3)		18-24	4.9	(1.4)	5.4	(0.5)	
25-34	6.9	(1.8)	6.6	(0.5)		25-34	1.4	(0.7)	1.1	(0.2)		25-34	4.1	(0.9)	3.8	(0.3)	
35-44	5.0	(1.4)	6.0	(0.5)		35-44	0.7	(0.5)	0.8	(0.2)		35-44	2.9	(0.7)	3.4	(0.2)	
45-54	3.3	(1.4)	5.0	(0.5)		45-54	0.1	(0.2)	0.9	(0.2)	SL	45-54	1.7	(0.6)	2.9	(0.3)	SL
55-64	2.8	(1.5)	5.1	(0.7)	SL	55-64	0.1	(0.3)	1.4	(0.3)	SL	55-64	1.5	(0.7)	3.1	(0.3)	SL
65+	2.5	(1.2)	4.8	(0.5)	SL	65+	0.0	(0.0)	0.7	(0.2)	SL	65+	1.0	(0.4)	2.4	(0.2)	SL
Education						Education						Education					
<12 Yrs.	3.4	(1.2)	6.0	(0.7)	SL	<12 Yrs.	0.5	(0.4)	1.0	(0.2)		<12 Yrs.	1.9	(0.6)	3.3	(0.3)	SL
12 Yrs.	4.8	(1.1)	6.8	(0.4)	SL	12 Yrs.	0.9	(0.4)	1.1	(0.2)		12 Yrs.	2.8	(0.5)	3.7	(0.2)	SL
13-15 Yrs.	7.4	(1.8)	6.8	(0.5)		13-15 Yrs.	0.7	(0.5)	1.0	(0.2)		13-15 Yrs.	3.7	(0.8)	3.7	(0.2)	
16+ Yrs.	4.6	(1.5)	5.1	(0.4)		16+ Yrs.	0.4	(0.4)	0.9	(0.2)		16+ Yrs.	2.6	(0.8)	3.2	(0.2)	
Income						Income						Income					
<\$10,000	10.2	(2.7)	6.1	(0.8)	SH	<\$10,000	0.9	(0.5)	0.9	(0.2)		<\$10,000	4.2	(0.9)	2.7	(0.3)	SH
\$10-\$24,999	4.8	(1.2)	6.9	(0.5)	SL	\$10-\$24,999	1.2	(0.5)	1.2	(0.2)		\$10-\$24,999	3.0	(0.6)	3.9	(0.2)	SL
\$25,000+	4.6	(1.0)	6.2	(0.3)	SL	\$25,000+	0.4	(0.3)	1.1	(0.1)	SL	\$25,000+	2.6	(0.5)	3.8	(0.2)	SL

*Prevalence in Appalachia is significantly higher (SH) or significantly lower (SL) than in non-Appalachia. A blank indicates no significant difference.

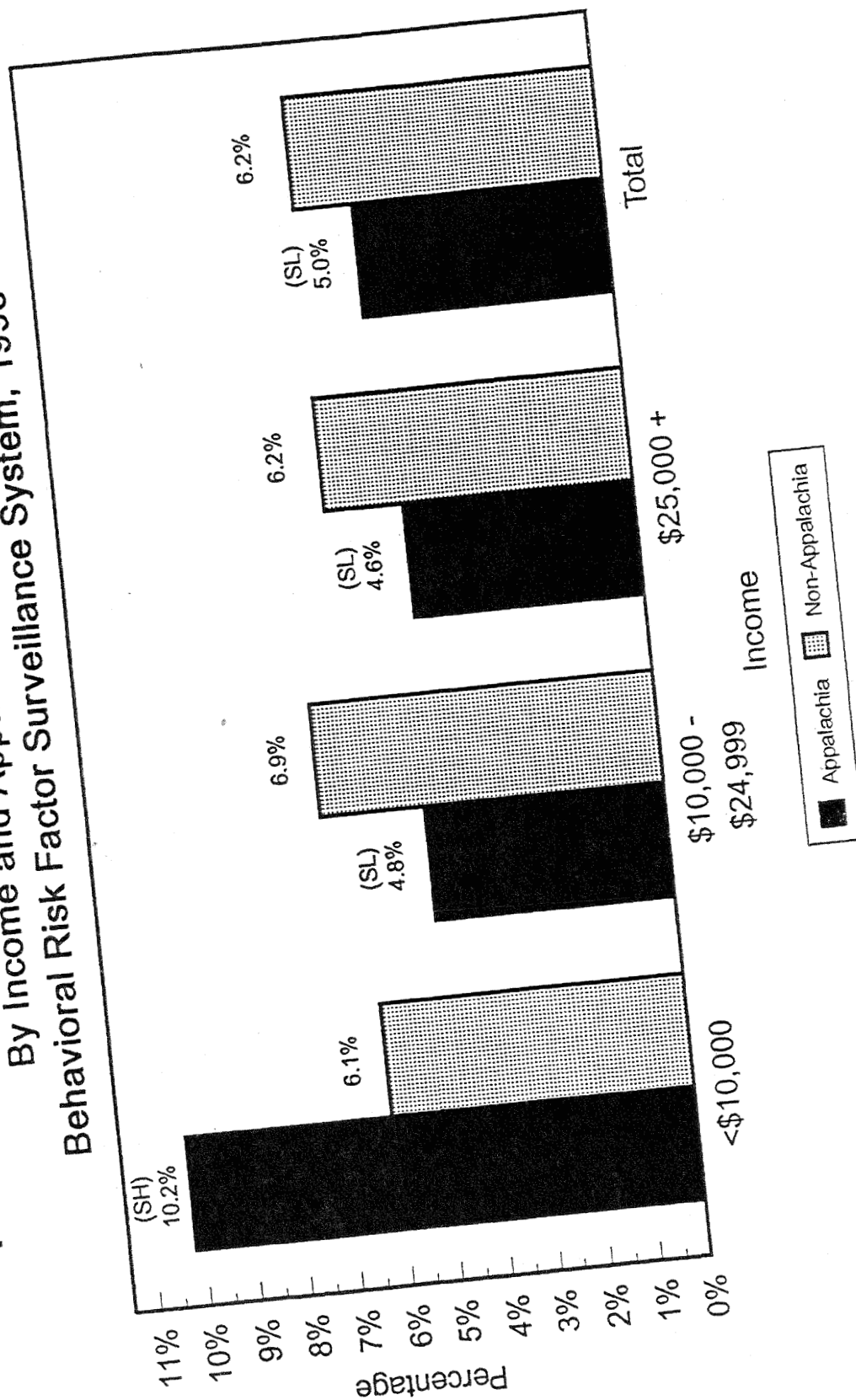
**CI = 95% confidence interval. The prevalence (%) plus or minus the percentage indicated in parentheses comprises the range of values called the confidence interval. Users can be 95% confident that the true prevalence lies within this interval.

Figure 5

Prevalence (%) of Heavier Drinking Among Men

By Income and Appalachian Residency, 1993

Behavioral Risk Factor Surveillance System, 1993



SL - Significantly Lower
 SH - Significantly Higher

BINGE DRINKING

The overall prevalence of binge drinking⁸ among BRFSS respondents in 1993 was found to be significantly lower in Appalachia than in non-Appalachia (11.6% vs. 14.6%) (Table 8). By gender, each of the sexes also reported significantly lower rates than their counterparts outside of Appalachia. The prevalence among men living in Appalachia was 17.9%, compared to 22.2% among non-Appalachian men; the rate among Appalachian women was 5.6%, compared to 7.6% among women elsewhere. While not always true for each sex alone, total prevalences for binge drinking among Appalachian residents were significantly lower than those for respondents living outside of Appalachia for every age group except the youngest (18-24). Appalachians were also significantly less likely to report binge drinking in all education categories (except individuals with college degrees) and all income levels. Total binge drinking prevalences by age for Appalachia and non-Appalachia are presented in Figure 6.

⁸Consumed five or more drinks on at least one occasion during the month prior to the interview.

Table 8

**Prevalence (%) of Binge Drinking in Appalachia and Non-Appalachia
By Gender and Selected Characteristics
Behavioral Risk Factor Surveillance System, 1993**

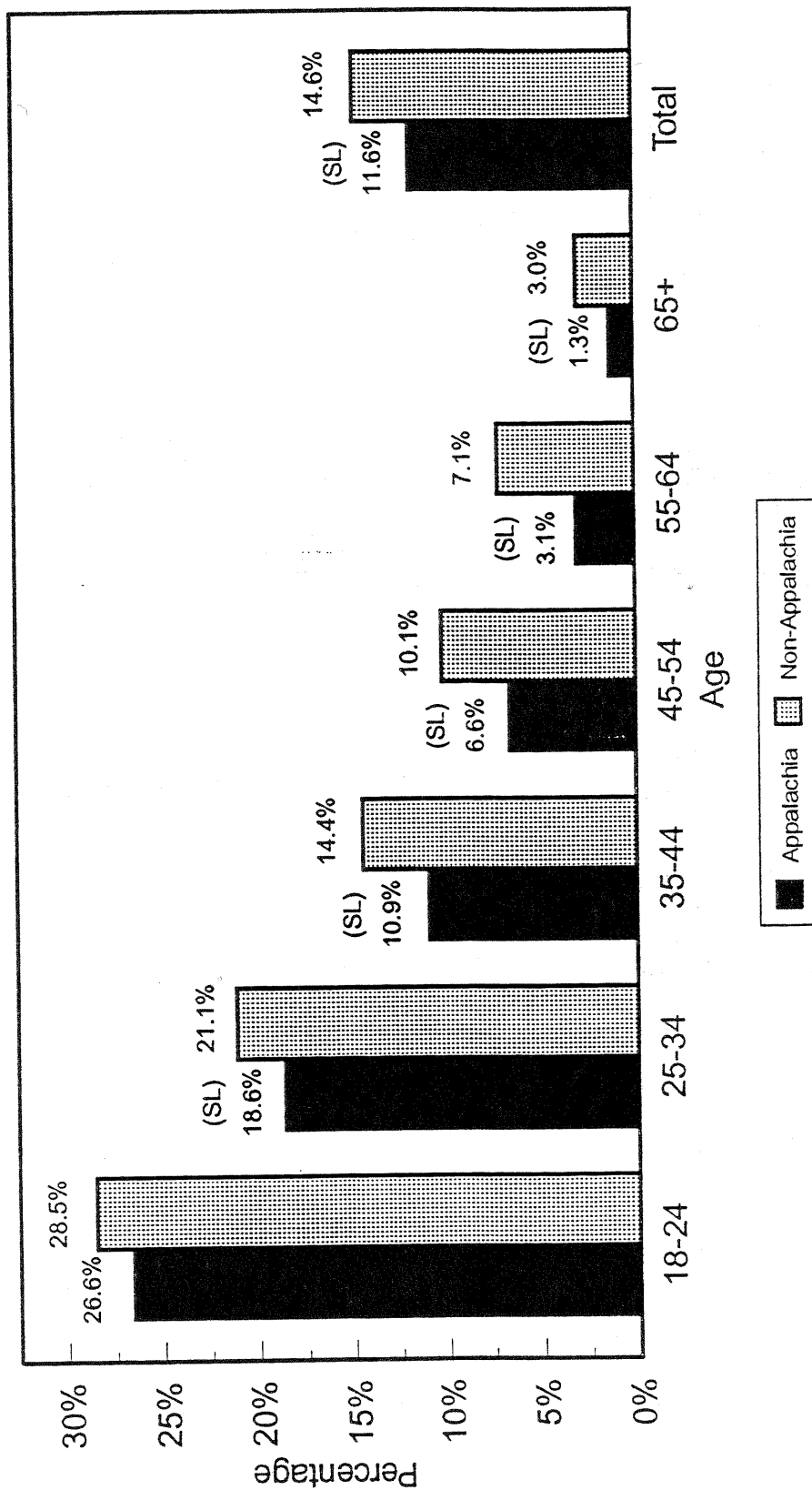
MEN				WOMEN				TOTAL			
Characteristic	Appalachia		S*	Non-Appalachia		S*	Characteristic	Appalachia		Non-Appalachia	S*
	%	CI** (%+)		%	CI** (%+)			%	CI** (%+)	%	CI** (%+)
Total	17.9	(1.2)	SL	22.2	(0.4)	SL	Total	11.6	(0.6)	14.6	SL
Age							Age				
18-24	37.0	(4.7)		37.8	(1.4)		18-24	26.6	(2.9)	28.5	(0.9)
25-34	28.4	(3.2)		30.8	(1.0)		25-34	18.6	(1.8)	21.1	(0.6)
35-44	17.3	(2.5)	SL	21.9	(0.8)	SL	35-44	10.9	(1.3)	14.4	(0.5)
45-54	10.3	(2.3)	SL	15.9	(0.9)	SL	45-54	6.6	(1.2)	10.1	(0.5)
55-64	5.3	(2.0)	SL	11.3	(1.0)	SL	55-64	3.1	(1.0)	7.1	(0.5)
65+	2.8	(1.2)	SL	6.1	(0.6)	SL	65+	1.3	(0.5)	3.0	(0.3)
Education							Education				
<12 Yrs.	12.5	(2.3)	SL	18.5	(1.1)	SL	<12 Yrs.	7.4	(1.1)	11.5	(0.6)
12 Yrs.	18.1	(2.0)	SL	23.4	(0.7)	SL	12 Yrs.	11.5	(1.0)	14.9	(0.4)
13-15 Yrs.	21.1	(2.8)	SL	25.4	(0.8)	SL	13-15 Yrs.	14.3	(1.5)	16.5	(0.5)
16+ Yrs.	20.3	(2.9)		19.7	(0.7)		16+ Yrs.	13.1	(1.6)	14.0	(0.4)
Income							Income				
<\$10,000	18.8	(3.5)		21.6	(1.4)		<\$10,000	9.3	(1.4)	12.9	(0.6)
\$10-\$24,999	15.7	(2.0)	SL	23.7	(0.8)	SL	\$10-\$24,999	10.9	(1.1)	15.5	(0.4)
\$25,000+	21.3	(1.9)		22.7	(0.6)		\$25,000+	14.1	(1.1)	15.9	(0.3)

*Prevalence in Appalachia is significantly higher (SH) or significantly lower (SL) than in non-Appalachia. A blank indicates no significant difference.

**CI = 95% confidence interval. The prevalence (%) plus or minus the percentage indicated in parentheses comprises the range of values called the confidence interval. Users can be 95% confident that the true prevalence lies within this interval.

Figure 6

Prevalence (%) of Binge Drinking **By Age and Appalachian Residency** **Behavioral Risk Factor Surveillance System, 1993**



SL - Significantly Lower

Chapter Three

DRINKING AND DRIVING

The total prevalence of drinking and driving⁹ in Appalachia was significantly lower than that reported in non-Appalachia (1.9% vs. 2.5%) (Table 9), as was that among Appalachian men (2.9% vs. 4.2%). Overall, Appalachian respondents aged 18-24 and 55+ were less likely to report drinking and driving than those of the same ages who lived outside of Appalachia. The rate of driving under the influence was also significantly lower among Appalachians with 13-15 years of education, as well as among those with household incomes of less than \$10,000. Among women only, high school dropouts in Appalachia were less likely to report drinking and driving than their counterparts elsewhere; among men only, high school graduates living in Appalachia were less likely to drink and drive than those in other parts of the country.

⁹Drove "after having perhaps too much to drink" at least once during the month prior to the interview.

Table 9

**Prevalence (%) of Drinking and Driving in Appalachia and Non-Appalachia
By Gender and Selected Characteristics**
Behavioral Risk Factor Surveillance System, 1993

MEN					WOMEN					TOTAL							
Characteristic	Appalachia		Non-Appalachia		S*	Characteristic	Appalachia		Non-Appalachia		S*	Characteristic	Appalachia		Non-Appalachia		S*
	%	CI** (%+)	%	CI** (%+)			%	CI** (%+)	%	CI** (%+)			%	CI** (%+)			
Total	2.9	(0.5)	4.2	(0.2)	SL	Total	1.0	(0.2)	1.1	(0.1)		Total	1.9	(0.3)	2.5	(0.1)	SL
Age						Age						Age					
18-24	4.9	(2.1)	7.1	(0.8)		18-24	1.5	(1.1)	2.7	(0.4)		18-24	3.2	(1.2)	4.9	(0.4)	SL
25-34	5.1	(1.6)	6.6	(0.5)		25-34	1.8	(0.8)	1.8	(0.2)		25-34	3.4	(0.8)	4.2	(0.3)	
35-44	3.9	(1.3)	4.1	(0.4)		35-44	1.4	(0.7)	0.9	(0.2)		35-44	2.7	(0.7)	2.5	(0.2)	
45-54	1.5	(0.9)	2.9	(0.4)		45-54	0.9	(0.6)	0.6	(0.2)		45-54	1.2	(0.5)	1.7	(0.2)	
55-64	0.3	(0.5)	1.2	(0.3)	SL	55-64	0.0	(0.1)	0.2	(0.1)	SL	55-64	0.2	(0.2)	0.7	(0.2)	SL
65+	0.0	(0.0)	0.6	(0.2)	SL	65+	0.0	(0.0)	0.1	(0.1)		65+	0.0	(0.0)	0.3	(0.1)	SL
Education						Education						Education					
<12 Yrs.	1.9	(0.9)	2.3	(0.4)		<12 Yrs.	0.0	(0.0)	0.6	(0.2)	SL	<12 Yrs.	0.9	(0.4)	1.4	(0.2)	
12 Yrs.	2.7	(0.8)	4.5	(0.4)	SL	12 Yrs.	1.4	(0.5)	0.9	(0.1)		12 Yrs.	2.0	(0.5)	2.6	(0.2)	
13-15 Yrs.	2.4	(1.0)	5.1	(0.4)	SL	13-15 Yrs.	1.0	(0.5)	1.1	(0.2)		13-15 Yrs.	1.6	(0.5)	3.0	(0.2)	SL
16+ Yrs.	5.1	(1.6)	3.8	(0.4)		16+ Yrs.	1.0	(0.7)	1.4	(0.2)		16+ Yrs.	3.1	(0.8)	2.7	(0.2)	
Income						Income						Income					
<\$10,000	2.7	(1.5)	3.6	(0.7)		<\$10,000	0.3	(0.3)	1.1	(0.2)	SL	<\$10,000	1.2	(0.5)	2.0	(0.3)	SL
\$10-\$24,999	3.2	(1.0)	4.3	(0.4)		\$10-\$24,999	1.5	(0.6)	1.2	(0.2)		\$10-\$24,999	2.4	(0.5)	2.7	(0.2)	
\$25,000+	3.4	(0.9)	4.5	(0.3)		\$25,000+	1.1	(0.5)	1.2	(0.1)		\$25,000+	2.3	(0.5)	3.0	(0.2)	

*Prevalence in Appalachia is significantly higher (SH) or significantly lower (SL) than in non-Appalachia. A blank indicates no significant difference.

**CI = 95% confidence interval. The prevalence (%) plus or minus the percentage indicated in parentheses comprises the range of values called the confidence interval. Users can be 95% confident that the true prevalence lies within this interval.

Chapter Three

SUMMARY: APPALACHIA VS. NON-APPALACHIA

■ Total prevalences for five of the eight risk factors examined in this report were higher in Appalachia than in non-Appalachia: seatbelt nonuse, obesity, overweight, hypertension awareness, and current smoking (Figure 7). When tested for statistical significance, all these differences in prevalence were found to be significant except that for hypertension awareness. Three risk factor prevalences were found to be lower in Appalachia than elsewhere: heavier drinking, binge drinking, and drinking and driving. All these differences were found to be statistically significant.

■ Figure 8 presents total risk factor prevalences reported by men. Little difference in prevalence was noted for obesity, overweight, or hypertension when men living in Appalachia were compared to those living in other areas of the country. Appalachian men were more likely than other men, however, to report seatbelt nonuse and current smoking; both of these were found to be statistically significant differences. Significantly lower rates of drinking behaviors were reported by men in Appalachia than by male respondents elsewhere.

■ Total risk factor prevalences reported by women only are shown in Figure 9. Appalachian women reported significantly higher prevalences of seatbelt nonuse, obesity, overweight, and current smoking than women who lived outside of Appalachia. Hypertension awareness was somewhat higher among Appalachian women than among other women, but this difference was not statistically significant. Significantly lower rates of heavier and binge drinking were found among Appalachian women, while little difference was reported between Appalachian and non-Appalachian women for drinking and driving.

Figure 7

Total Prevalence (%) of Eight Risk Factors by Appalachian Residency Behavioral Risk Factor Surveillance System, 1993

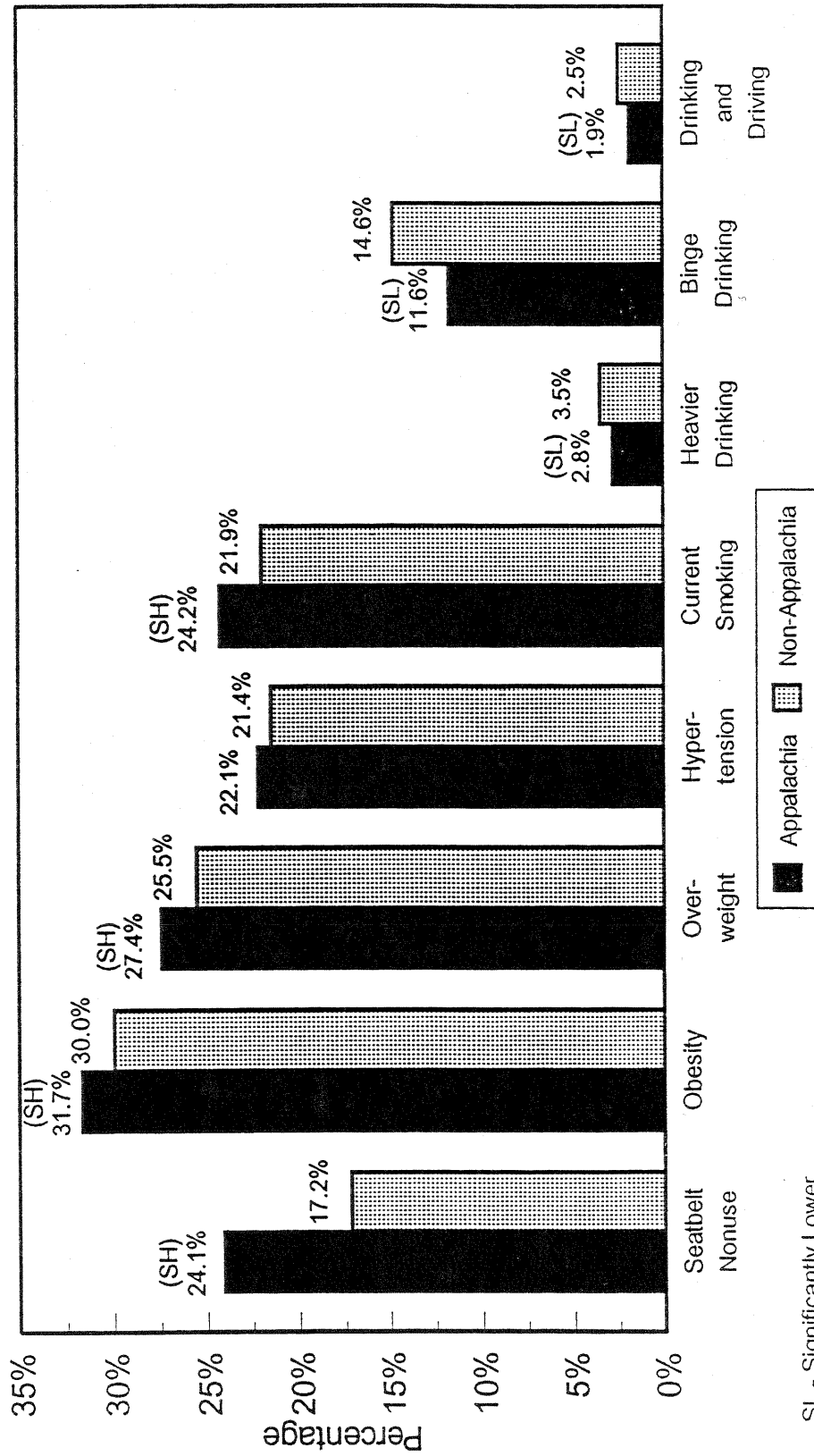
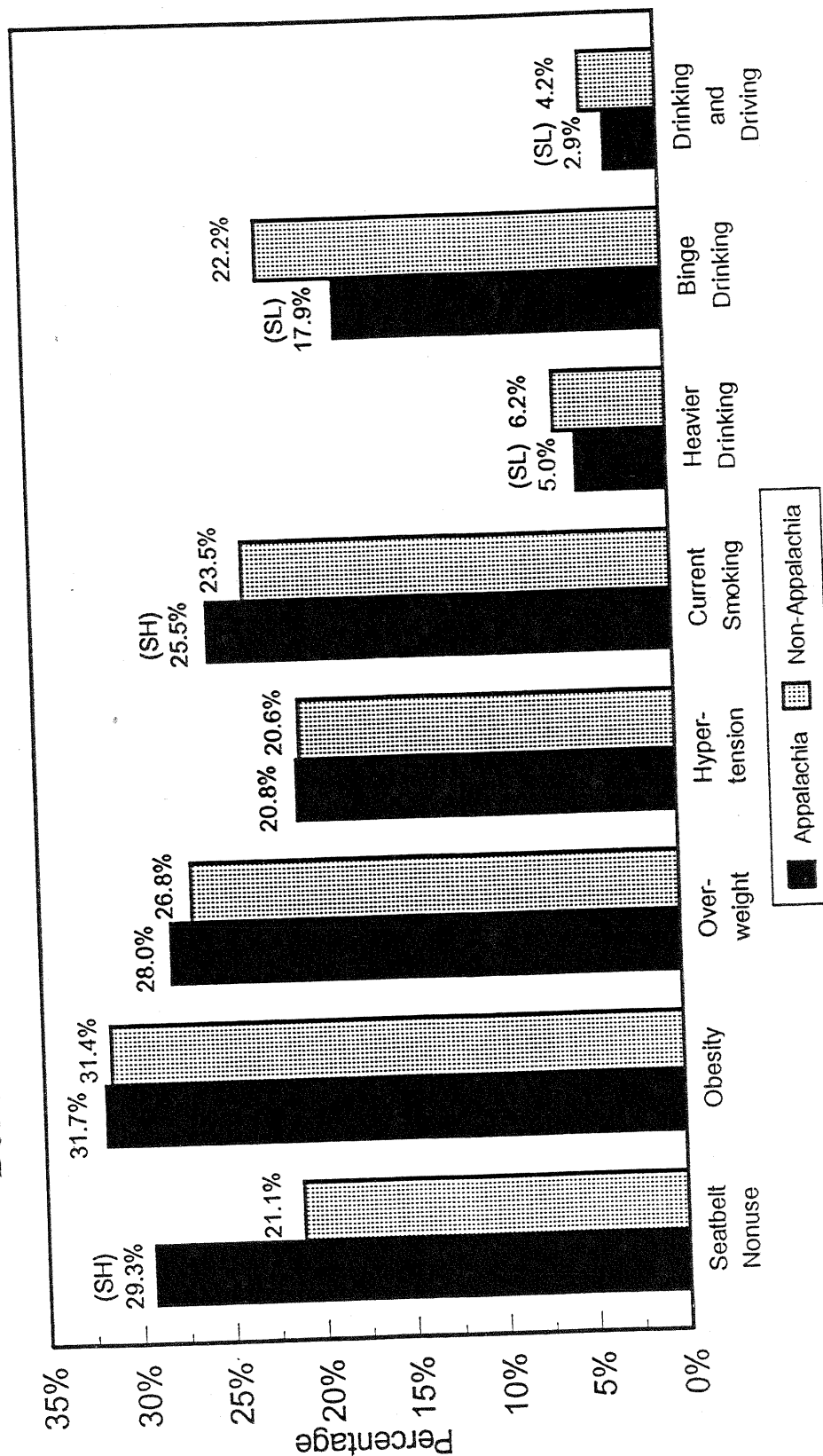


Figure 8

Prevalence (%) of Eight Risk Factors Among Men by Appalachian Residency Behavioral Risk Factor Surveillance System, 1993

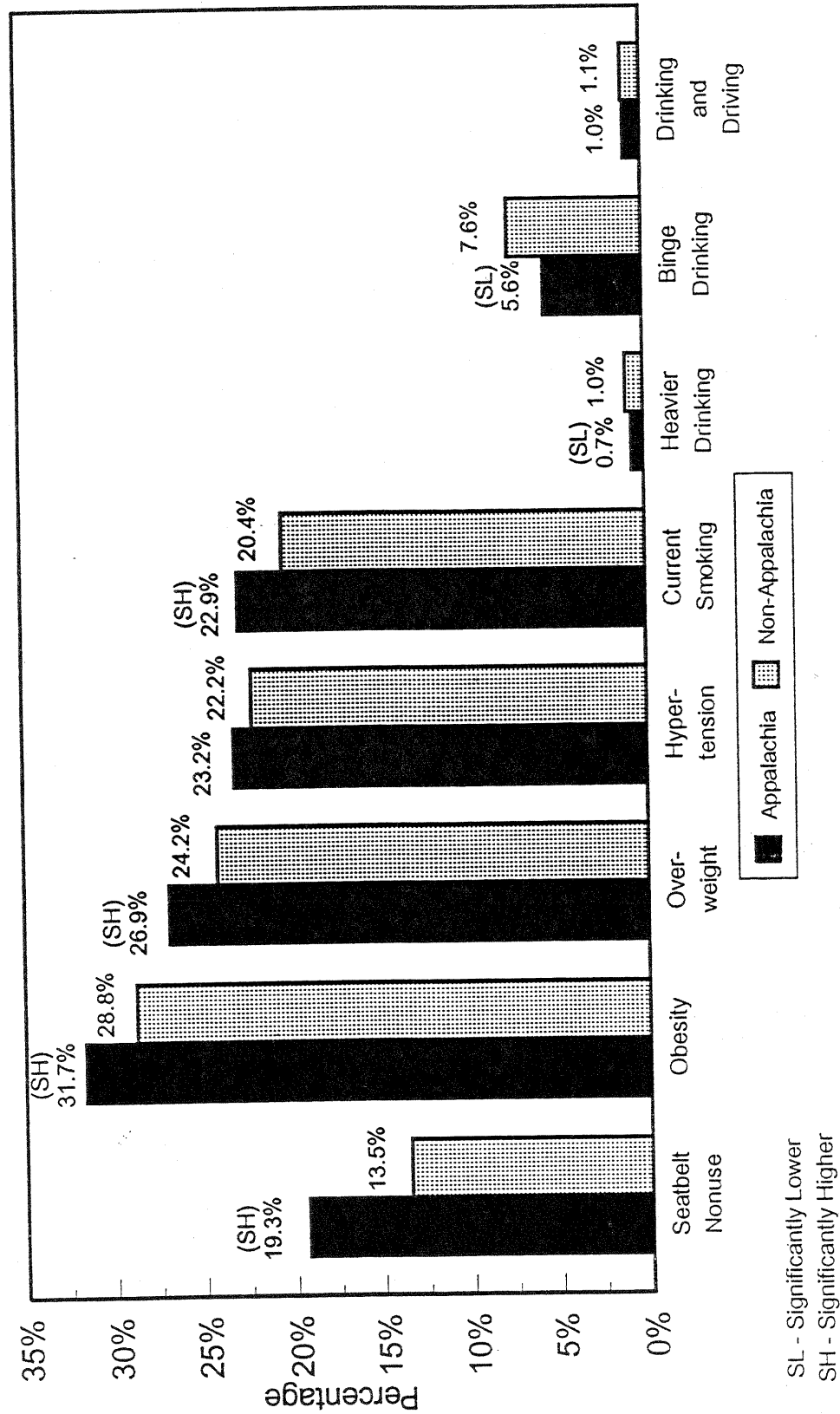


SL - Significantly Lower
SH - Significantly Higher

Figure 9

Prevalence (%) of Eight Risk Factors Among Women by Appalachian Residency

Behavioral Risk Factor Surveillance System, 1993



Chapter Four

DISCUSSION

Chapter Three presented the results of a comparison of eight unhealthy behaviors as reported by adult residents of Appalachia and non-Appalachia. A distinct pattern emerged from the data: **Overall, Appalachian residents are at significantly higher risk of injury and illness from seatbelt nonuse, obesity, overweight, and smoking and at significantly lower risk for injury and illness from heavier drinking, binge drinking, and drinking and driving than non-Appalachian residents.** (Although the prevalence of hypertension was greater in Appalachia than in non-Appalachia, the difference was not found to be statistically significant.)

Not all the ARC-designated Appalachian states fit this pattern, however. Risk factor rates varied across the region; as we have noted, Appalachia includes 13 states with a wide range of economies, nationalities, topographies, and lifestyles. Table 10 presents prevalences for the Appalachian regions of each of the 13 states. Exhibits 3 through 10 compare regional risk factor prevalences to the overall Appalachian and non-Appalachian averages.

For example, as Exhibit 3 illustrates, the prevalences for seatbelt nonuse reported in the Appalachian regions of Pennsylvania, Ohio, West Virginia, Kentucky, Georgia, and Mississippi were higher than the Appalachian average (24.1%), those in New York, Virginia, and Tennessee were lower than the Appalachian average but still higher than the non-Appalachian average (17.2%), and those in North Carolina, South Carolina, and Alabama were lower than the non-Appalachian average. Conversely, as shown in Exhibit 8, heavier drinking prevalences were lower than the Appalachian average (2.8%) in Ohio, West Virginia, Kentucky, Virginia, Tennessee, Mississippi, Alabama, and Georgia, were higher than the Appalachian average but still lower than the non-Appalachian

Chapter Four

average (3.5%) in North and South Carolina, and were higher than the non-Appalachian average in Pennsylvania and New York.

Table 10

Prevalence (%) of Eight Risk Factors by Appalachian Region of Each State
Behavioral Risk Factor Surveillance System, 1993

State	Seatbelt Nonuse	Obesity	Overweight	Hypertension Awareness	Current Smoking	Heavier Drinking	Binge Drinking	Drinking & Driving
Alabama	10.9	28.7	24.1	21.6	18.3	1.5	7.8	1.6
Georgia	24.2	28.1	23.7	19.6	23.5	2.7	8.4	1.0
Kentucky	48.2	35.1	31.7	25.7	34.2	0.8	6.3	0.8
Maryland	13.1	24.3	18.5	14.7	17.8	1.3	14.5	2.2
Mississippi	41.1	36.8	31.7	29.7	21.9	1.5	7.5	2.1
New York	18.7	27.1	26.0	26.6	25.8	8.7	25.0	4.7
North Carolina	14.0	25.3	21.4	18.7	30.0	3.2	8.8	1.2
Ohio	30.3	33.8	25.3	15.4	26.2	0.3	17.3	2.1
Pennsylvania	26.7	34.8	30.5	21.2	22.5	3.9	17.3	2.9
South Carolina	15.5	32.1	27.8	28.1	25.4	3.5	9.3	2.1
Tennessee	22.6	30.0	26.8	23.1	25.2	1.0	3.3	0.3
Virginia	19.8	29.0	26.4	24.8	20.3	1.1	5.2	0.5
West Virginia	31.4	35.6	31.1	24.4	26.5	2.2	7.3	1.5
Total U.S.	A	24.1*	31.7*	27.4*	22.1	24.2*	2.8*	11.6*
	NA	17.2	30.0	25.5	21.4	21.9	3.5	14.6

*Prevalence in aggregated Appalachian counties (A) is significantly higher or lower than prevalence in aggregated non-Appalachian counties (NA).

Exhibit 3

Seatbelt Nonuse Prevalence, 1993 Appalachian Regions Compared to Appalachian and Non-Appalachian Averages

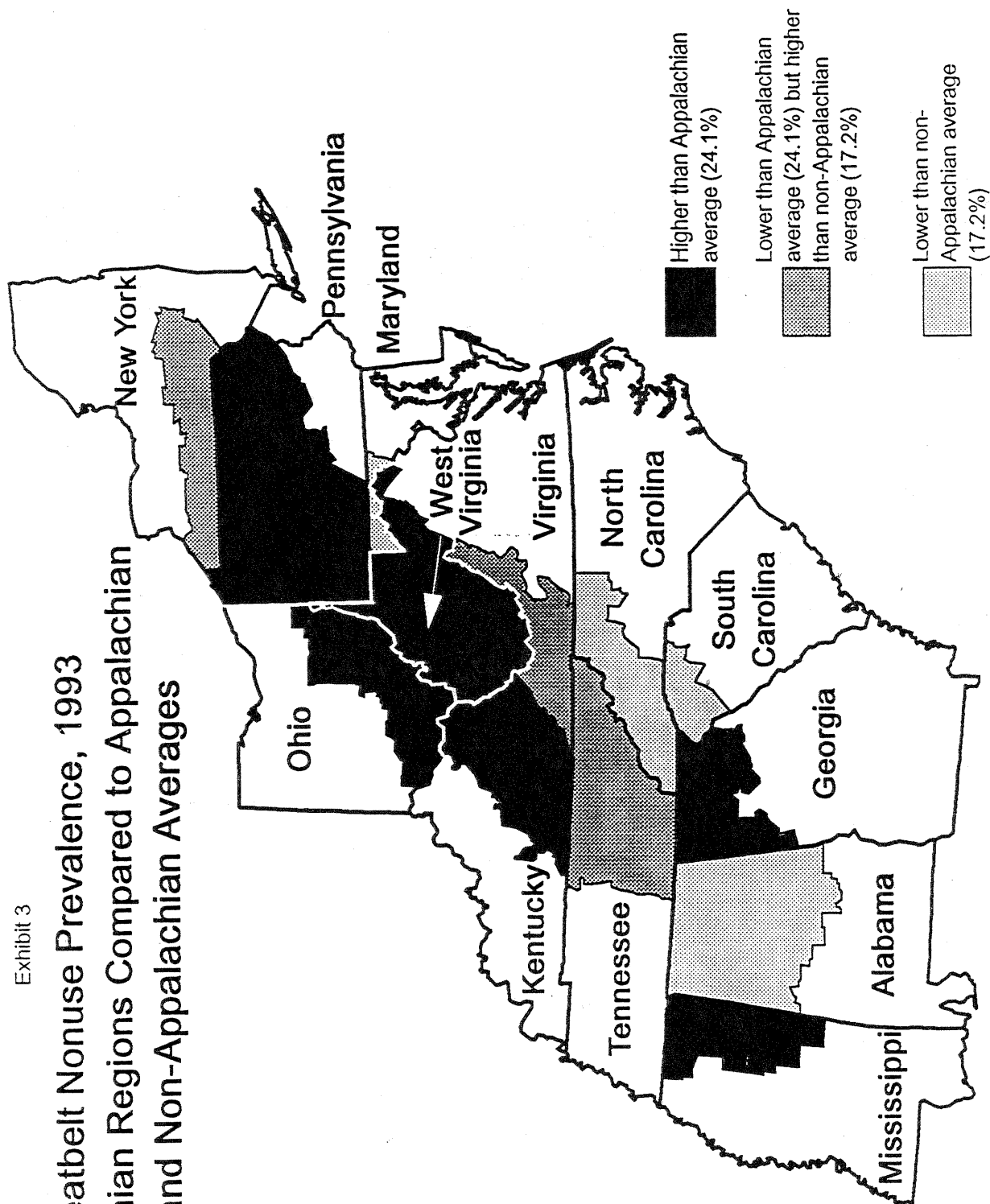


Exhibit 4

Obesity Prevalence, 1993 Appalachian Regions Compared to Appalachian and Non-Appalachian Averages

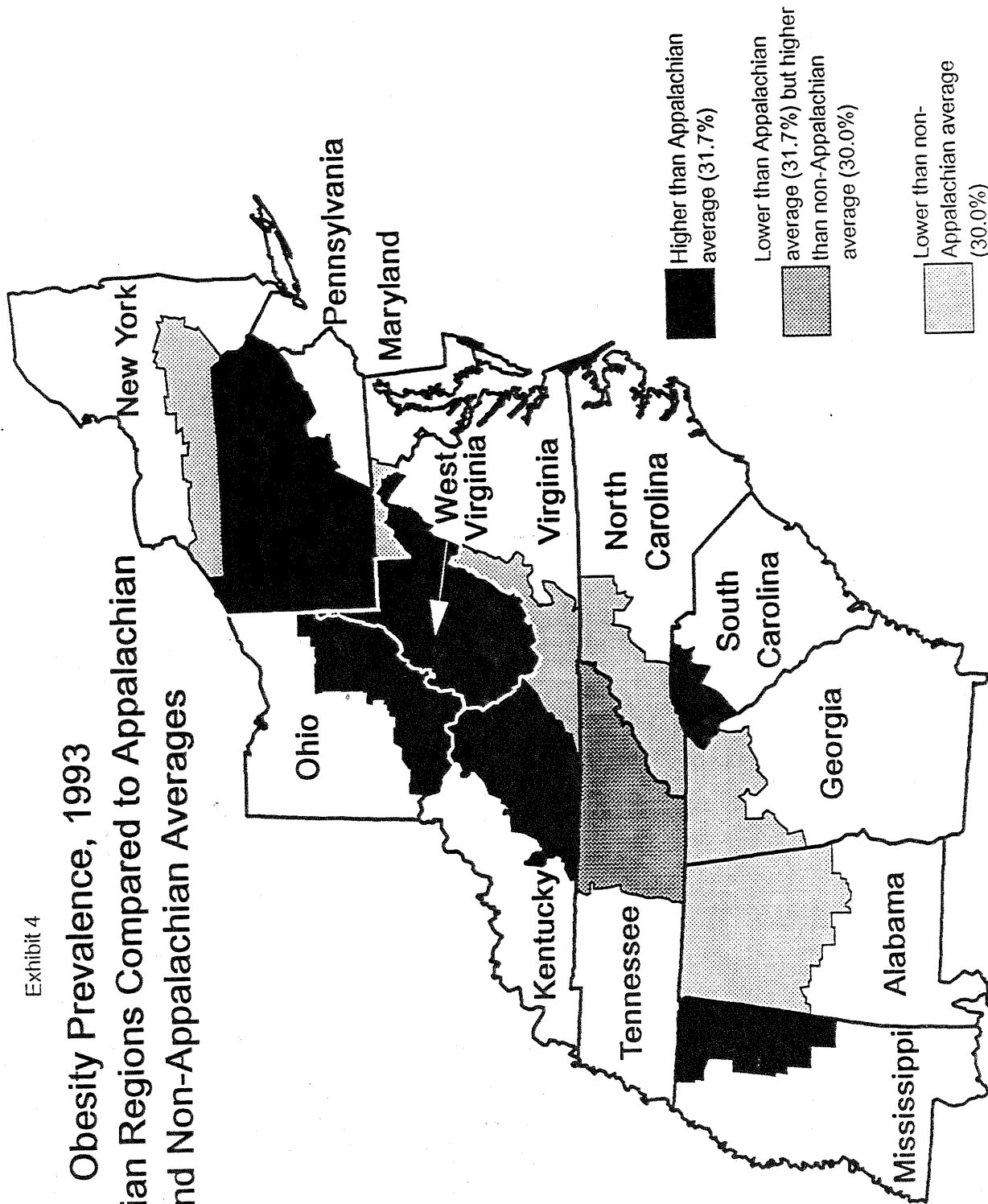


Exhibit 5

Overweight Prevalence, 1993 Appalachian Regions Compared to Appalachian and Non-Appalachian Averages

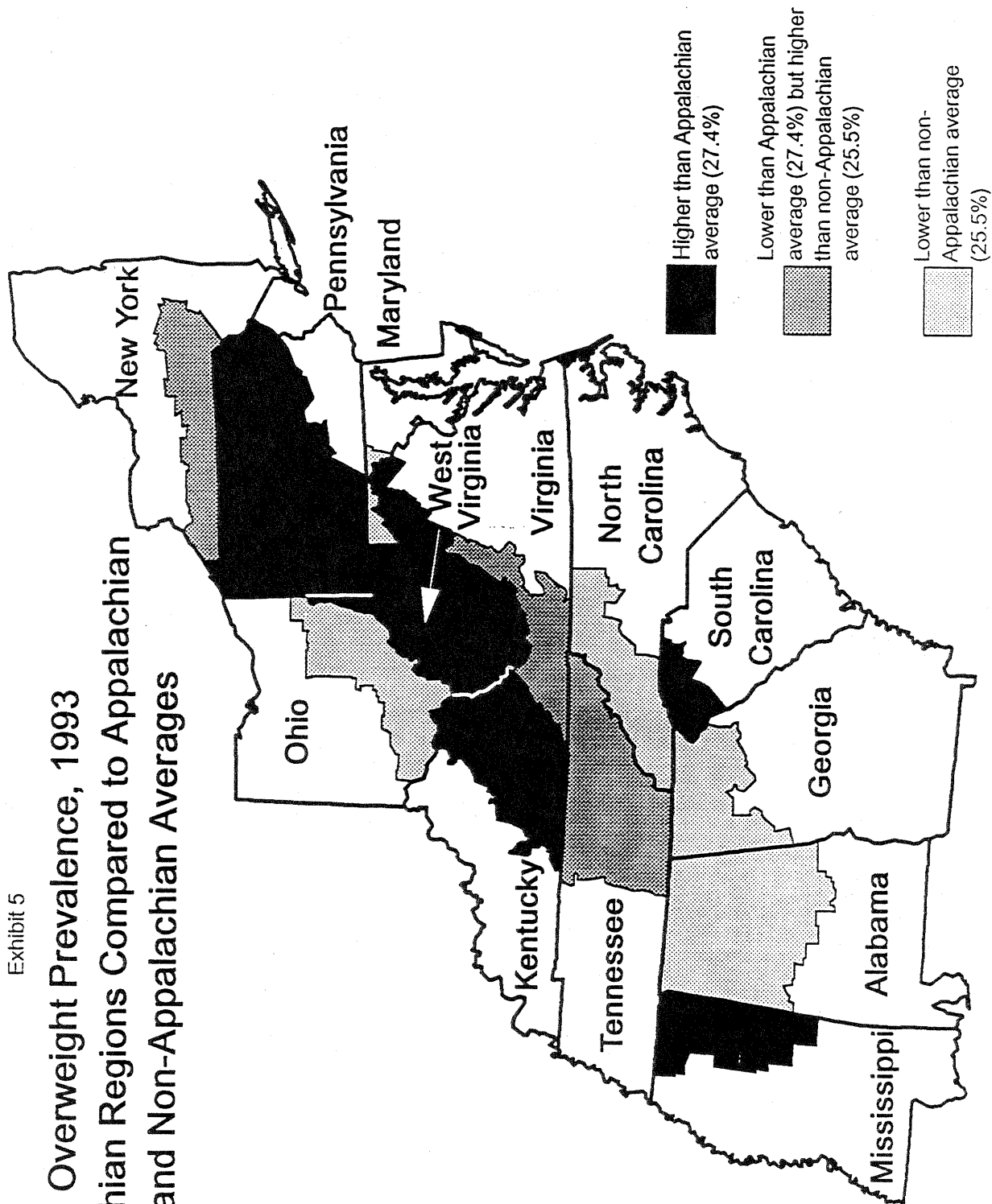


Exhibit 6

Hypertension Awareness Prevalence, 1993 Appalachian Regions Compared to Appalachian and Non-Appalachian Averages

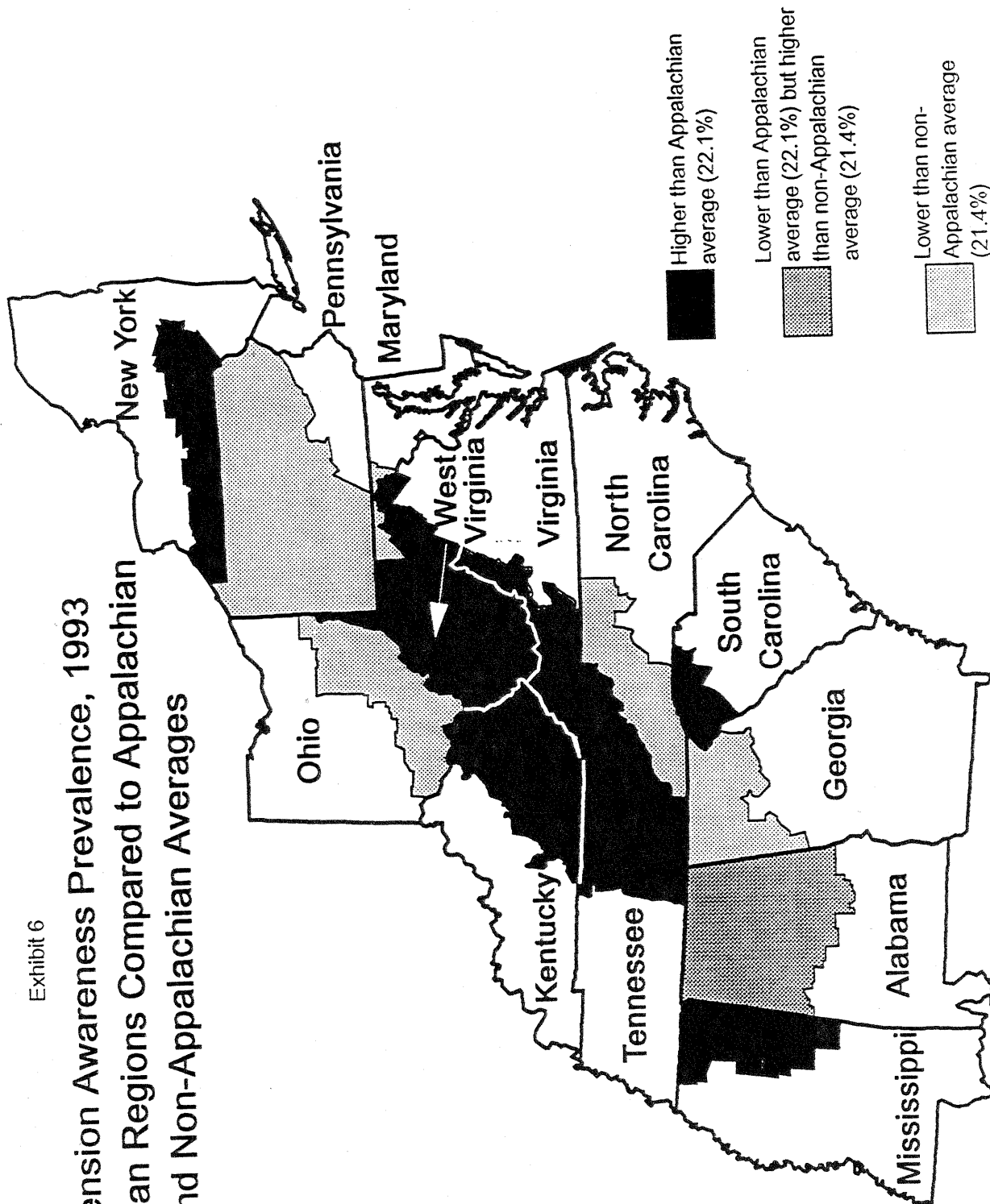


Exhibit 7

Current Smoking Prevalence, 1993 Appalachian Regions Compared to Appalachian and Non-Appalachian Averages

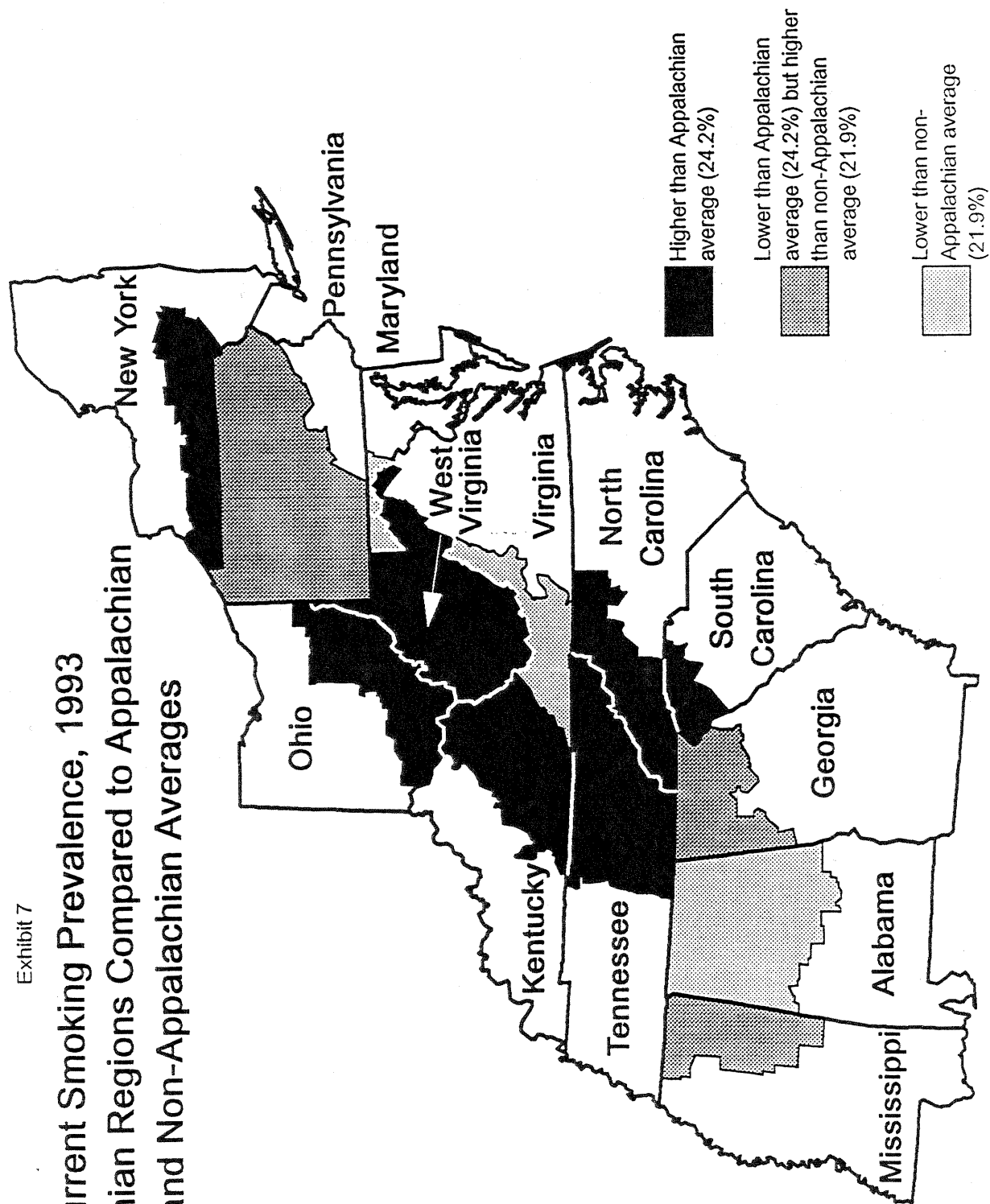


Exhibit 8

Heavier Drinking Prevalence, 1993 Appalachian Regions Compared to Appalachian and Non-Appalachian Averages

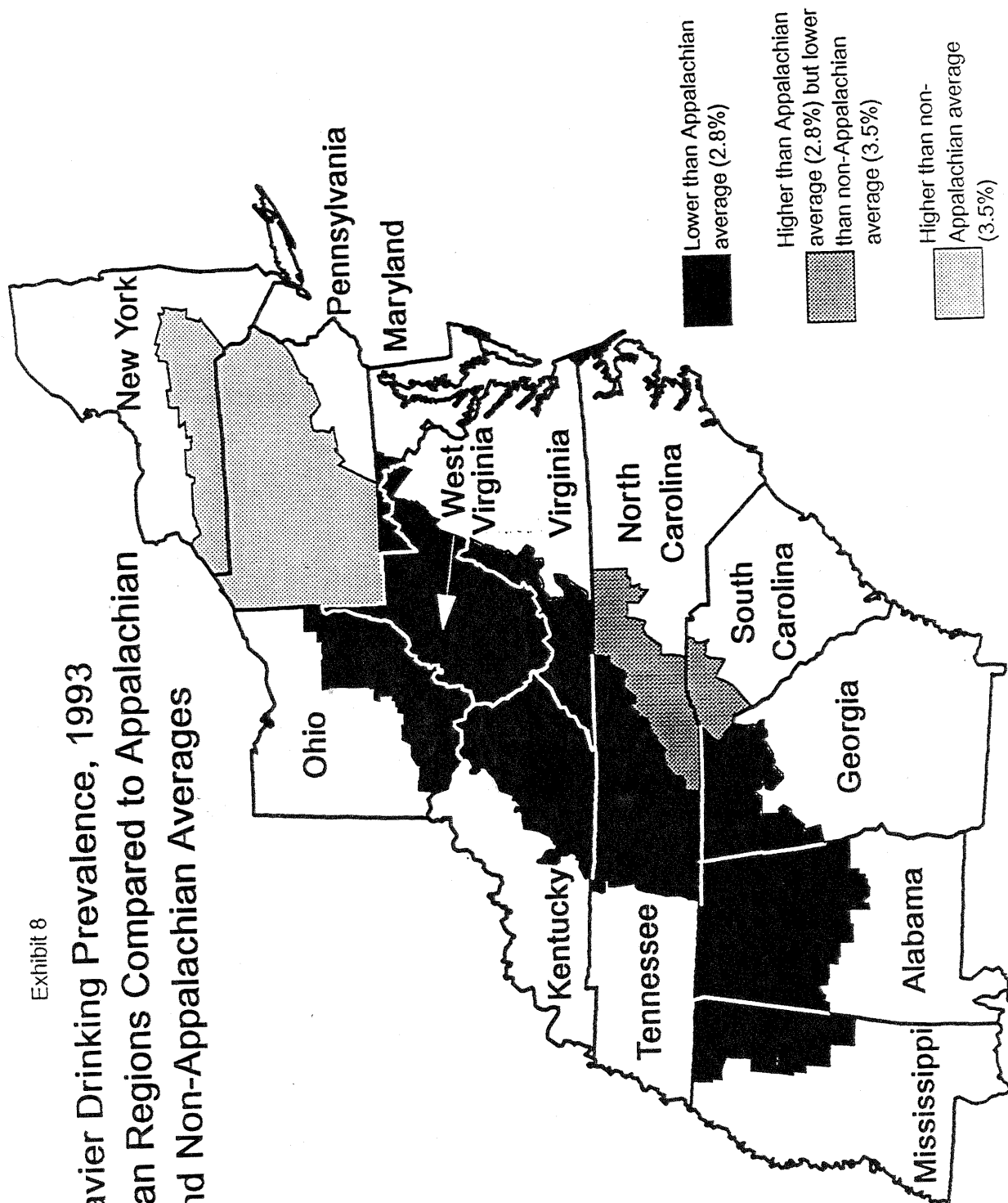


Exhibit 9

Binge Drinking Prevalence, 1993 Appalachian Regions Compared to Appalachian and Non-Appalachian Averages

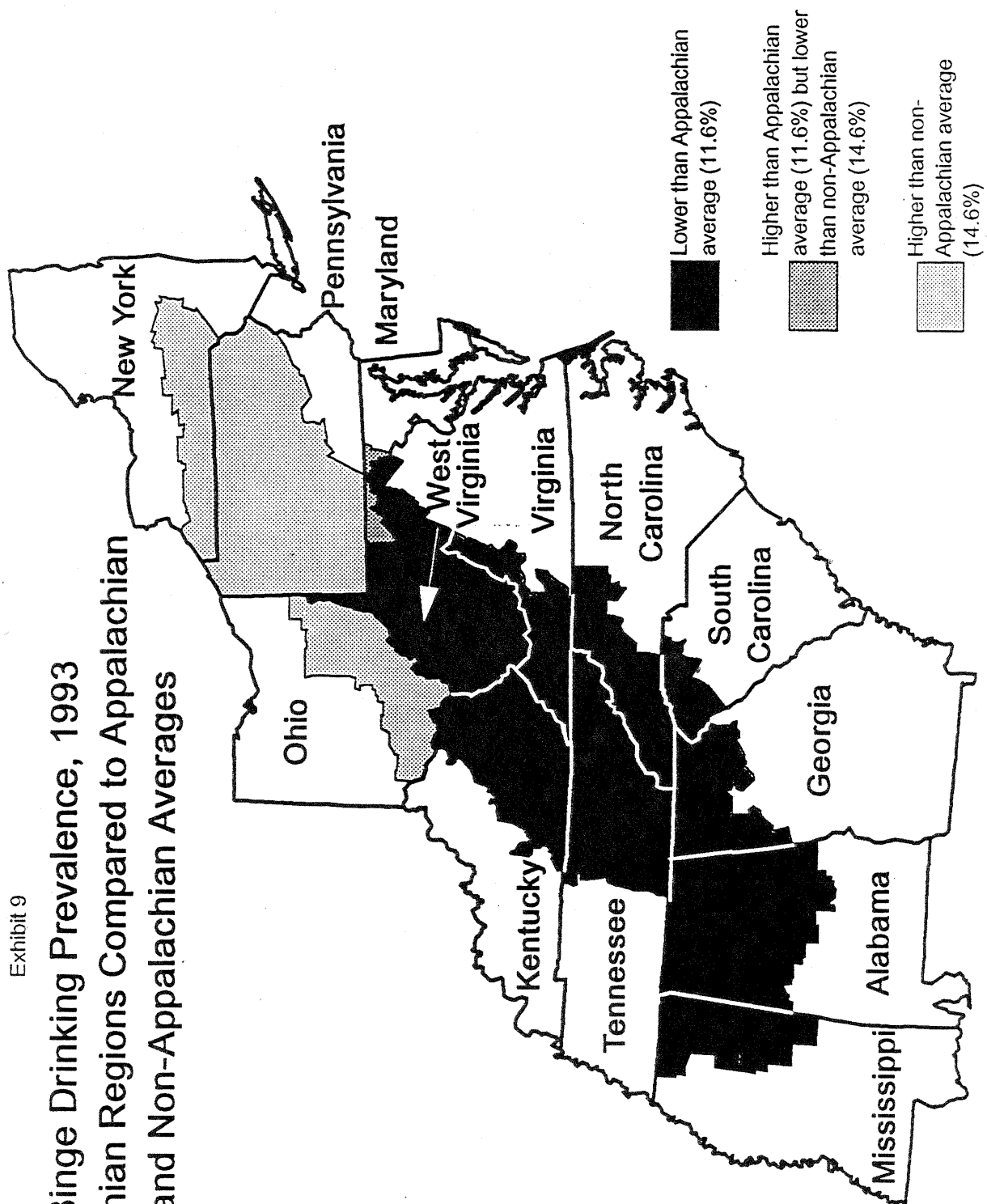
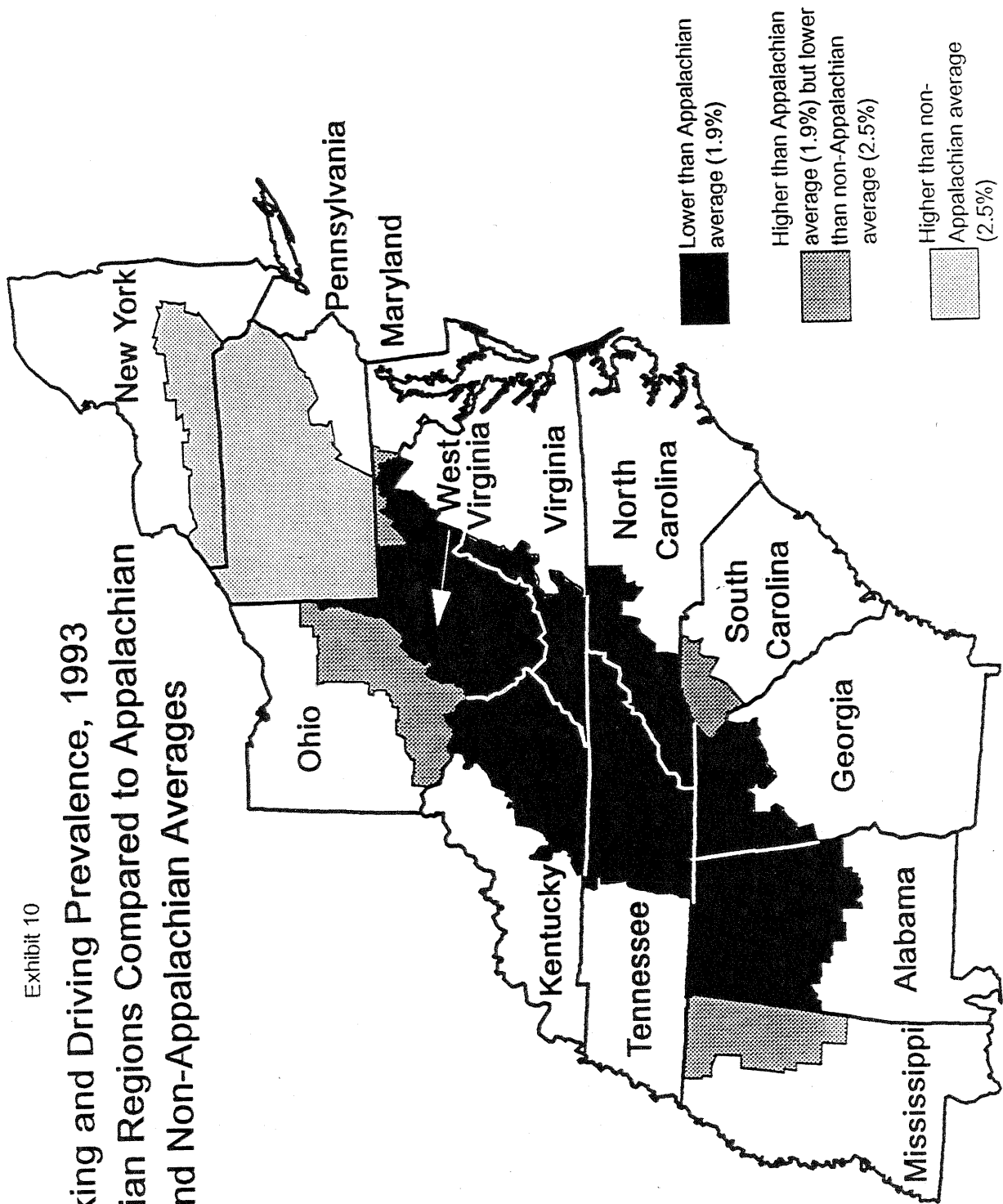


Exhibit 10

Drinking and Driving Prevalence, 1993 Appalachian Regions Compared to Appalachian and Non-Appalachian Averages



Discussion

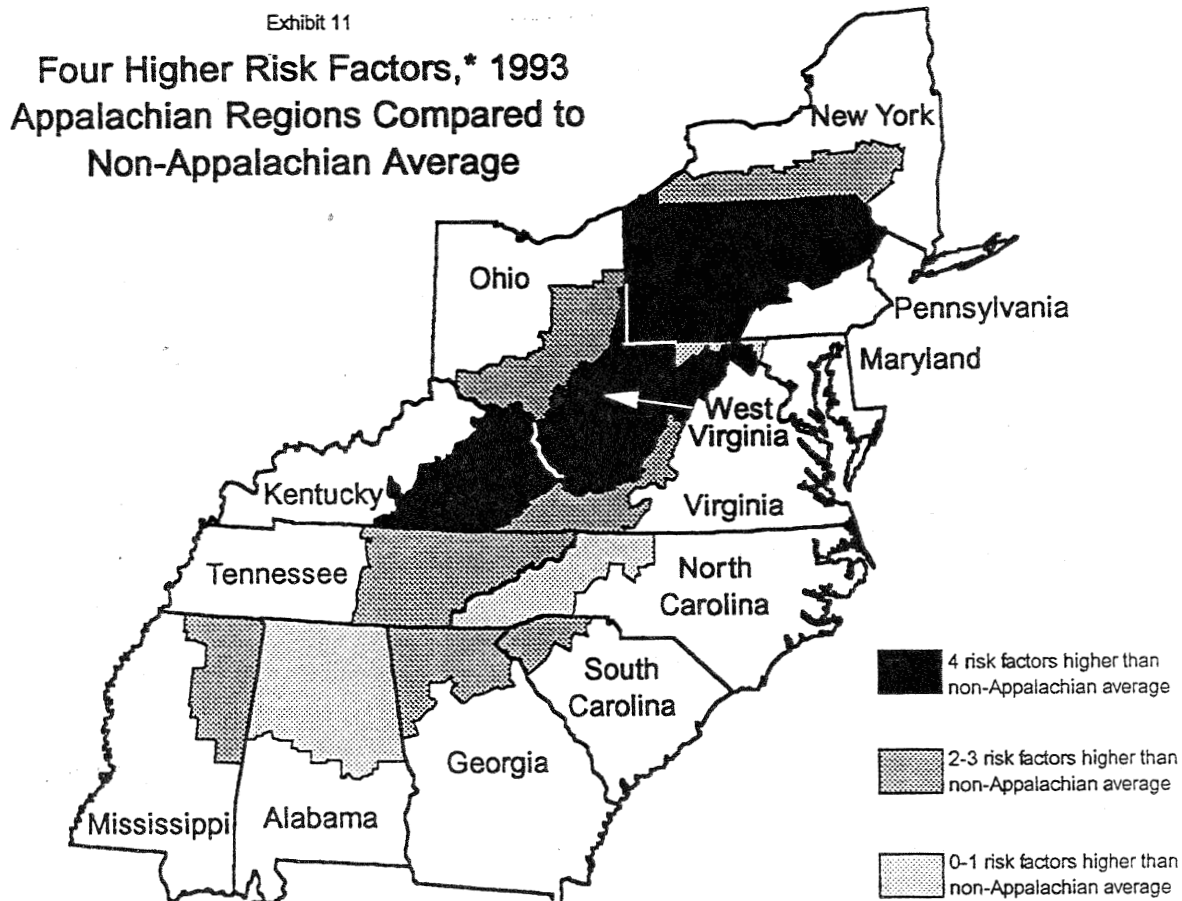
APPALACHIAN BEHAVIORAL PROFILE

Exhibits 11 and 12 illustrate how the Appalachian portion of each state compares to the Appalachian Behavioral Profile established through our study results: **Overall, Appalachian residents are (1) at significantly higher risk of injury and illness from seatbelt nonuse, obesity, overweight, and smoking and (2) at significantly lower risk of injury and illness from heavier drinking, binge drinking, and drinking and driving than non-Appalachian residents.**

Chapter Four

HIGHER RISK

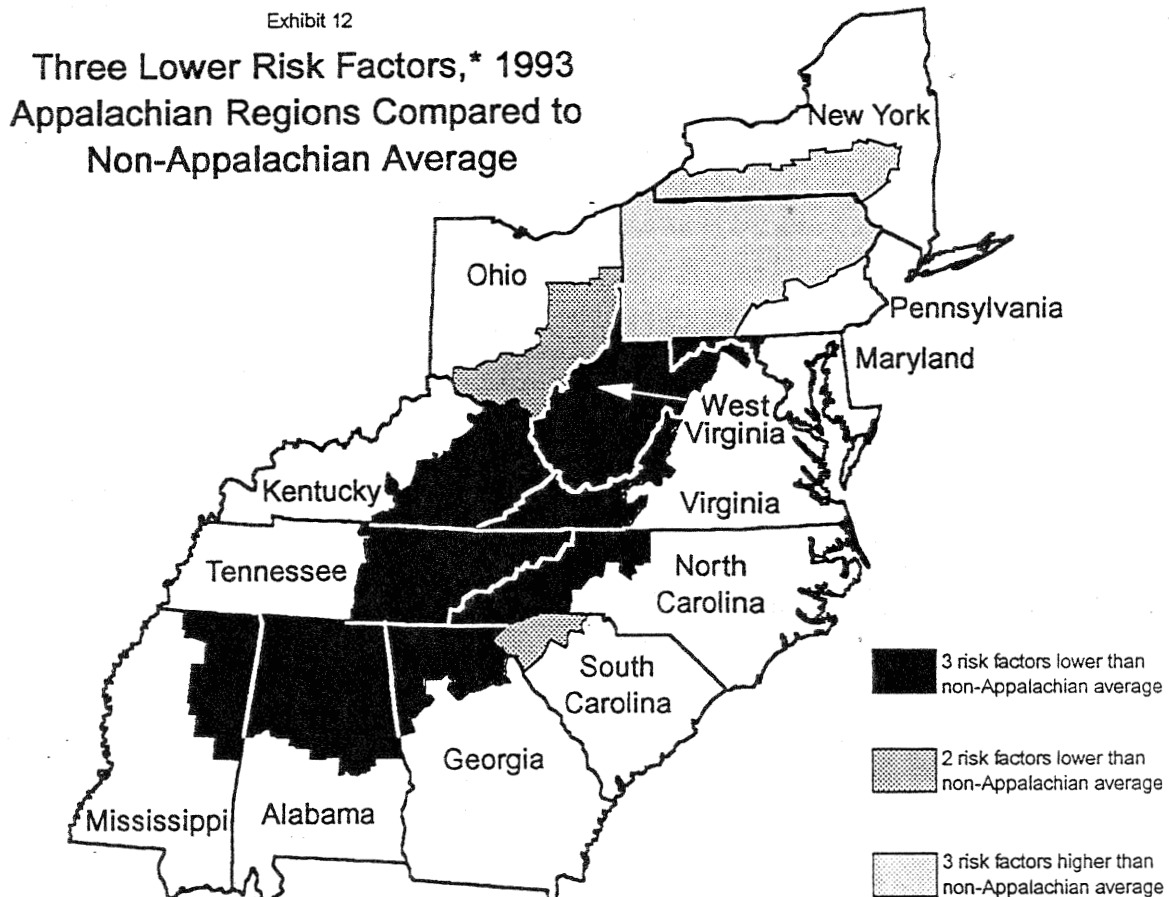
Of the five risk factors for which Appalachian residents reported higher prevalences, four were found to be significantly higher: seatbelt nonuse, obesity, overweight, and smoking. The Appalachian regions of three states reported rates that were higher than the non-Appalachian average rate for all four risk factors: Kentucky, Pennsylvania, and West Virginia (Exhibit 11).



*Seatbelt nonuse, obesity, overweight, and current smoking

LOWER RISK

Appalachian residents as a whole reported significantly lower rates for all three drinking behaviors measured by the BRFSS: heavier drinking, binge drinking, and drinking and driving. Nine of the 13 states (Alabama, Georgia, Kentucky, Maryland, Mississippi, North Carolina, Tennessee, Virginia, and West Virginia) posted rates for all three behaviors that were lower than the non-Appalachian prevalence (Exhibit 12).



*Heavier drinking, binge drinking, and drinking and driving

Chapter Four

CONSISTENCY WITH THE APPALACHIAN BEHAVIORAL PROFILE

Each of the 13 Appalachian states was given a total consistency score determined by the number of risk factor prevalences reported by that state that were consistent with the findings for Appalachia as a whole (i.e., a prevalence for seatbelt nonuse, obesity, overweight, or smoking that was higher than the non-Appalachian rate and a prevalence for heavier drinking, binge drinking, or drinking and driving that was lower than the non-Appalachian rate). These results are presented in Table 11.

Appalachian BRFSS respondents in Kentucky and West Virginia reported prevalences for all seven risk factors that were consistent with the overall pattern. The Appalachian portions of Mississippi and Tennessee came very close to fitting the pattern, each having six risk factor prevalences consistent with the profile. The Appalachian counties in Alabama, New York, and Maryland posted risk factor rates that were the most inconsistent with the Appalachian Behavioral Profile. Exhibit 13 illustrates how the risk factor prevalences reported by the Appalachian regions of each state compare to the overall profile.

Table 11

Number of Risk Factor Prevalences Consistent with Overall Appalachian Behavioral Profile*
Appalachian Regions by State
 Behavioral Risk Factor Surveillance System, 1993

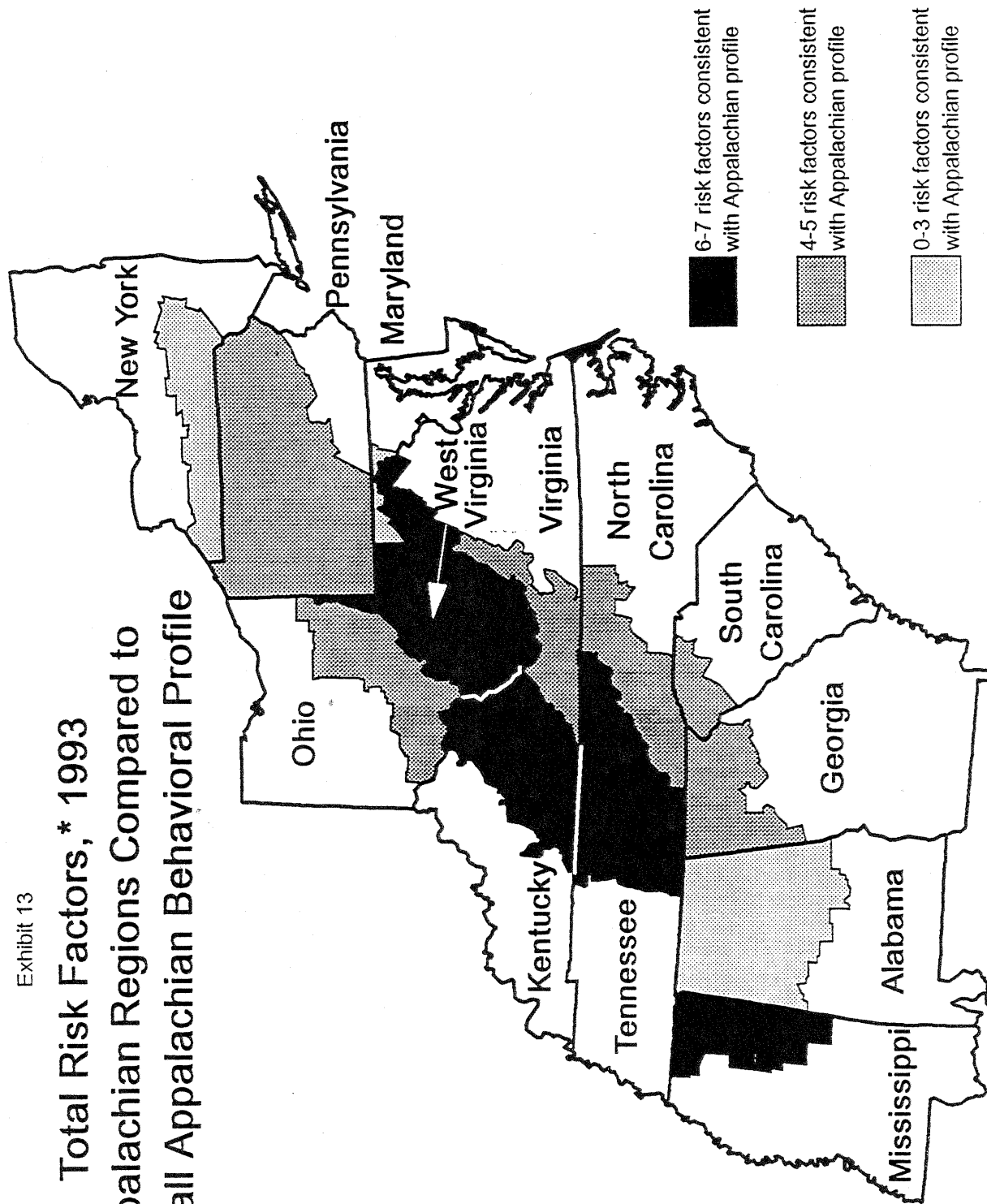
State	Seatbelt Nonuse	Obesity	Overweight	Current Smoking	Heavier Drinking	Binge Drinking	Drinking & Driving	Total Number of Consistent Risk Factors	State Rank
Alabama	-	-	-	-	x	x	x	3	11
Georgia	x	-	-	x	x	x	x	5	5
Kentucky	x	x	x	x	x	x	x	7	1
Maryland	-	-	-	-	x	x	x	3	11
Mississippi	x	x	x	-	x	x	x	6	3
New York	x	-	x	x	-	-	-	3	11
North Carolina	-	-	-	x	x	x	x	4	9
Ohio	x	x	-	x	x	-	x	5	5
Pennsylvania	x	x	x	x	-	-	-	4	9
South Carolina	-	x	x	x	-	x	x	5	5
Tennessee	x	-	x	x	x	x	x	6	3
Virginia	x	-	x	-	x	x	x	5	5
West Virginia	x	x	x	x	x	x	x	7	1
Total States	9	6	8	9	10	10	11		

X = Risk factor prevalence consistent with Appalachian profile

*Greater risk from seatbelt nonuse, obesity, overweight, and current smoking among Appalachian respondents than among non-Appalachian respondents. Lower risk from heavier drinking, binge drinking, and drinking and driving among Appalachian respondents than among non-Appalachian respondents.

Exhibit 13

Total Risk Factors,* 1993 Appalachian Regions Compared to Overall Appalachian Behavioral Profile



*Seatbelt nonuse, obesity, overweight, current smoking, heavier drinking, binge drinking, and drinking and driving

Discussion

SELECTED SOCIOECONOMIC CHARACTERISTICS AND THE APPALACHIAN BEHAVIORAL PROFILE

Selected socioeconomic characteristics associated with the risk factors under consideration are presented in Table 12. (Additional demographic information for each state is included in Appendix B.) Per capita income, percent of population living below the poverty line, and the percent of adult population lacking a high school education are shown by state (i.e., the Appalachian portion thereof).

The four states most consistent with the overall behavioral profile, Kentucky, West Virginia, Mississippi, and Tennessee, ranked among the six states with the highest prevalences in all three categories. These states had a large proportion of Appalachian residents living in designated rural counties in 1994 (see Exhibit 2). The three states most inconsistent with the overall behavioral profile, Alabama, Maryland, and New York, ranked in the seven states with the lowest prevalences in all three categories. These states had a large proportion of Appalachian residents living in designated urban counties in 1994.

Table 12
Selected Socioeconomic Characteristics and Total Consistency Ranking
Appalachian Regions by State

State	Per Capita Income (1989)	Rank	% Below Poverty Line (1989)	Rank	% <High School Grad. (1990)	Rank	Total Consistency* Rank
Kentucky	\$ 8,412	1	29.0	1	48.5	1	1
Mississippi	9,425	2	22.6	2	40.7	3	3
Virginia	10,108	3	17.6	4	43.6	2	5
Ohio	10,468	4	17.4	5	30.8	10	5
West Virginia	10,520	5	19.7	3	34.0	5	1
Tennessee	11,586	6	16.1	6	36.1	4	3
Alabama	11,993	7	15.8	7	32.9	7	11
New York	12,034	8	12.9	8	22.7	13	11
Maryland	12,086	9	12.5	9	30.3	11	11
Pennsylvania	12,357	10	12.5	9	25.0	12	9
No. Carolina	12,613	11	12.4	11	32.9	7	9
So. Carolina	12,634	12	11.6	12	33.7	6	5
Georgia	13,398	13	10.0	13	32.5	9	5

*Consistency with overall Appalachian Behavioral Profile (see Table 10)

Chapter Four

It is beyond the scope of our report to offer strategies to improve the health status of Appalachia. At best, we have provided some insight into the demographics and behaviors of a minority group within the U.S. population that is at special risk for certain chronic health problems. We sincerely hope that the data provided in this document will be useful to health planners, policymakers, and researchers at all levels in their efforts to encourage and promote healthier lifestyle choices among Appalachian residents.

BIBLIOGRAPHY

Appalachia Leadership Initiative on Cancer. *Sowing Seeds in the Mountains: Community-Based Coalitions for Cancer Prevention and Control*. NIH Publication No. 94-3779. Bethesda, Maryland: National Cancer Institute, 1994.

Appalachian Regional Development Act of 1965.

Appalachian Regional Commission. *Annual Report 1993*. Washington, D.C.: Appalachian Regional Commission, 1994.

Appalachian Regional Commission. *Appalachia: Twenty Years of Progress*. Washington, D.C.: Appalachian Regional Commission, 1985.

Batteau, AW. *The Invention of Appalachia*. Tucson: The University of Arizona Press, 1990.

Glen, ME, ed. *Appalachia in Transition*. St. Louis, Missouri: The Bethany Press, 1970.

Waksberg, Joseph. "Sampling Methods for Random Digit Dialing." *J. American Statistical Association*. 73 (March 1978): 40-47.

Weller, JE. *Yesterday's People: Life in Contemporary Appalachia*. Lexington, Kentucky: The University of Kentucky Press, 1965.

West Virginia Department of Health and Human Resources. *American Stop Smoking Intervention Study for Cancer Prevention (ASSIST), Technical Proposal*. Charleston, WV: West Virginia Department of Health and Human Resources, Bureau of Public Health, 1990.

Appendixes

Appendix A

APPALACHIAN STATES VS. NON-APPALACHIAN STATES

In the first stage of our study, prevalence data for the eight risk factors were aggregated by (1) residency in Appalachian states (those states having one or more Appalachian counties) and (2) residency in non-Appalachian states (those states not having any counties designated as Appalachian) (Table A-1). Prevalences reported for seatbelt nonuse and current smoking were found to be significantly higher in the Appalachian states as a group than in the rest of the country. The rates for heavier drinking, binge drinking, and drinking and driving were found to be significantly lower in the Appalachian states than in the non-Appalachian states. No significant differences in prevalence were found between the two regions for obesity, overweight, or hypertension awareness.

Table A-1

**Prevalence (%) of Eight Risk Factors by Residency in
Appalachian vs. Non-Appalachian States**
Behavioral Risk Factor Surveillance System, 1993*

Risk Factor	Total U.S.**	Appalachian States		Non-Appalachian States		S**
	%	%	CI*** (%+)	%	CI*** (%+)	
Seatbelt Nonuse	17.8	20.9	(0.5)	16.1	(0.3)	SH
Obesity	30.2	30.7	(0.5)	29.9	(0.3)	
Overweight	25.6	26.1	(0.5)	25.4	(0.3)	
Hypertension Awareness	21.5	21.3	(0.5)	21.6	(0.3)	
Current Smoking	22.1	23.3	(0.5)	21.4	(0.3)	SH
Heavier Drinking	3.4	2.8	(0.2)	3.8	(0.1)	SL
Binge Drinking	14.3	12.3	(0.4)	15.4	(0.3)	SL
Drinking & Driving	2.5	1.9	(0.2)	2.8	(0.1)	SL

*49 States and the District of Columbia (excludes Wyoming)

**Prevalence in Appalachian states is significantly higher (SH) or significantly lower (SL) than in non-Appalachian states. A blank indicates no significant difference.

***CI = 95% confidence interval. The midpoint prevalence (%) plus or minus the percentage indicated in parentheses comprises the range of values called the confidence interval.

Appendix B

APPALACHIAN STATES: APPALACHIAN COUNTIES VS. NON-APPALACHIAN COUNTIES

The third stage of the present study involved the comparison of regions within the states containing one or more Appalachian counties. The intrastate regions designated as Appalachian range in size from all of West Virginia's 55 counties to only three of Maryland's 23 counties (and 4.7% of Maryland's total population). Close to two-thirds (62.6%) of Alabama's population live in Appalachian counties, compared to 6.1% of the residents of New York.

The tables that follow present demographic and risk factor prevalence comparisons between the Appalachian and non-Appalachian regions of each of the 12 states having such regions. West Virginia's demographics were compared to those of the United States as a whole; no risk factor prevalence comparisons were possible for West Virginia.

Because of the small samples interviewed in certain of the states lacking sizable Appalachian populations (and the correspondingly wide confidence intervals resulting from such small numbers of events), the reader is advised to use caution in interpreting regional differences in risk factor prevalences (see Chapter Two: Methodology for a discussion of the limitations of small sample sizes).

ALABAMA

Demographics. Nearly two-thirds (62.6%) of Alabama's population lives in the Appalachian portion of the state (Table B-1). Alabama's total population is somewhat older than the U.S. population as a whole, with 12.9% of the state's residents aged 65 or older, compared to 12.6% for the nation. The Appalachian portion of Alabama has a slightly higher percentage of older residents than does the non-Appalachian portion (13.0% vs. 12.8%). Appalachian Alabama has a greater proportion of white citizens (79.1% compared to 64.5%) and a higher average per capita income (\$11,993 vs. \$10,638) than the rest of the state. Fewer of Alabama's Appalachian residents live below the poverty line than do their non-Appalachian neighbors.

Risk Factor Prevalence. Little difference in prevalence between residents of the Appalachian and non-Appalachian counties was noted for seatbelt nonuse, obesity, overweight, hypertension, or current smoking (Table B-2). Lower rates of all three alcohol behaviors were reported by persons who lived in Appalachian Alabama; however, none of these differences was statistically significant.

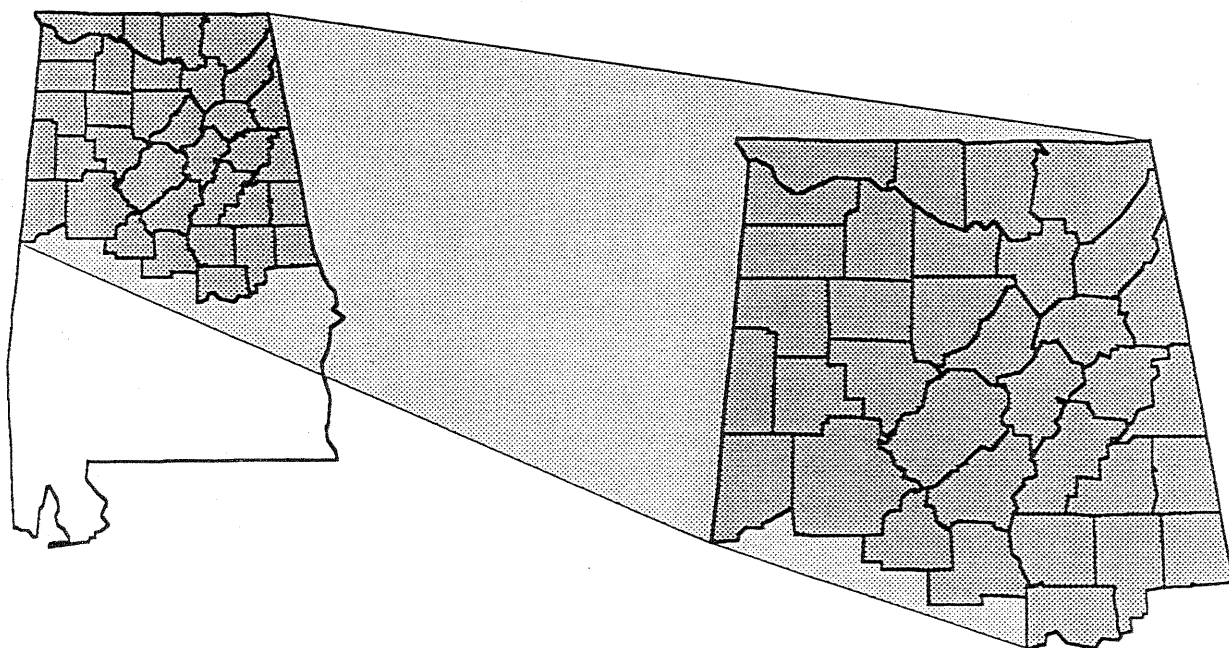


Table B-1

**Percentage of Selected Demographic Characteristics in Alabama
By Appalachian Residency**
U.S. Census, 1990

	Total U.S.	Total Alabama (4,040,587)	Appalachian Alabama (2,529,623)	Non-Appalachian Alabama (1,510,964)
<u>Population</u>		100.0	62.6	37.4
<u>Gender</u>				
Male	48.7	46.8	47.0	46.4
Female	51.3	53.2	53.0	53.6
<u>Age</u>				
% 0-17	25.6	26.2	25.2	27.8
% 65+	12.6	12.9	13.0	12.8
<u>Race</u>				
% White	80.3	73.6	79.1	64.5
% Black	12.1	25.3	19.9	34.2
% Other	7.7	1.1	1.0	1.2
<u>Income</u>				
Per Capita Income (1989)	\$14,420	\$11,486	\$11,993	\$10,638
% Below Poverty Line (1989)	13.1	18.3	15.8	22.6
% 65+ Below Poverty Line (1989)	12.8	24.0	22.6	26.2
<u>Education</u>				
% < High School Graduate	24.8	33.1	32.9	33.5
% High School Graduate+	75.2	66.9	67.1	66.5
% College Graduate+	20.3	15.7	15.9	15.3

Table B-2

Prevalence (%) of Eight Risk Factors in Alabama
By Appalachian Residency
 Behavioral Risk Factor Surveillance System, 1993

Risk Factor	Total	Appalachian Alabama		Non-Appalachian Alabama		S*
	%	%	CI** (%±)	%	CI** (%±)	
Seatbelt Nonuse	11.3	10.9	(1.7)	11.8	(2.3)	
Obesity	28.9	28.7	(2.4)	29.2	(3.2)	
Overweight	24.0	24.1	(2.3)	23.7	(3.0)	
Hypertension Awareness	20.7	21.6	(2.2)	19.1	(2.7)	
Current Smoking	18.3	18.3	(2.1)	18.4	(2.7)	
Heavier Drinking	1.8	1.5	(0.7)	2.3	(1.0)	
Binge Drinking	8.2	7.8	(1.4)	8.9	(2.0)	
Drinking & Driving	1.8	1.6	(0.7)	2.2	(1.0)	

*Prevalence in Appalachian counties is significantly higher (SH) or significantly lower (SL) than in non-Appalachian counties.
 A blank indicates no significant difference.

**CI = 95% confidence interval. The midpoint prevalence (%) plus or minus the percentage indicated in parentheses comprises the range of values called the confidence interval. Users can be 95% confident that the true prevalence lies within this interval.

GEORGIA

Demographics. Census data from 1990 showed Georgia as a whole to have a somewhat younger population than found nationwide, with a larger percentage of African-American residents than the total U.S. ((27.0% vs. 12.1%) (Table B-3). On average, the Georgian population was also less educated and more likely to live below the poverty line than other U.S. residents. The residents of the Appalachian portion of Georgia, 23.3% of the state's total population, differed markedly from those in the rest of the state. Fewer Appalachians were over the age of 65 (9.7% vs. 10.2%) in 1990. Dramatic differences were noted in the racial composition of the two regions, with only 6.3% of the Appalachian population being African-American, compared with 33.2% of the non-Appalachian population. Fewer residents of Appalachian Georgia lived below the poverty line than both statewide and nationally, although the older population in both regions was more likely to live in poverty than in the U.S. as a whole. Residents of the Appalachian portion of Georgia were generally less educated than those elsewhere in the state.

Risk Factor Prevalence. The 1993 reported rates of obesity, overweight, hypertension awareness, current smoking, and drinking and driving were similar in both the Appalachian and non-Appalachian portions of Georgia (Table B-4). The prevalence of seatbelt nonuse was higher and that of binge drinking was lower in Appalachian Georgia than in non-Appalachian Georgia, but these differences were not found to be statistically significant.

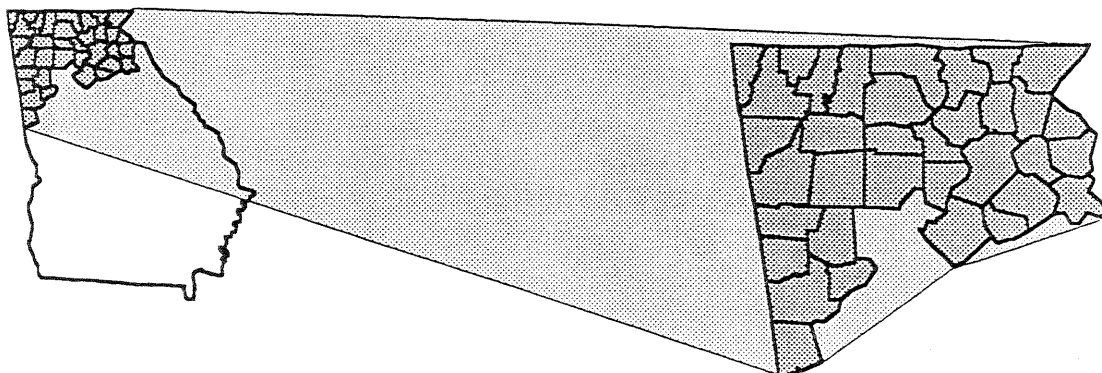


Table B-3

**Percentage of Selected Demographic Characteristics in Georgia
By Appalachian Residency
U.S. Census, 1990**

<u>Population</u>	<u>Total U.S.</u>	<u>Total Georgia</u>	<u>Appalachian Georgia</u>	<u>Non-Appalachian Georgia</u>
<u>Gender</u>		100.0 (6,478,216)	23.3 (1,508,030)	76.7 (4,970,186)
Male	48.7	47.6	48.4	47.3
Female	51.3	52.4	51.6	52.7
<u>Age</u>				
% 0-17	25.6	26.7	26.6	26.7
% 65+	12.6	10.1	9.7	10.2
<u>Race</u>				
% White	80.3	71.0	91.8	64.7
% Black	12.1	27.0	6.3	33.2
% Other	7.7	2.0	1.9	2.1
<u>Income</u>				
Per Capita Income (1989)	\$14,420	\$13,631	\$13,398	\$13,701
% Below Poverty Line (1989)	13.1	14.7	10.0	16.1
% 65+ Below Poverty Line (1989)	12.8	20.4	19.5	20.6
<u>Education</u>				
% < High School Graduate	24.8	29.1	32.5	28.0
% High School Graduate+	75.2	70.9	67.5	72.0
% College Graduate+	20.3	19.3	15.6	20.5

Table B-4

**Prevalence (%) of Eight Risk Factors in Georgia
By Appalachian Residency**
Behavioral Risk Factor Surveillance System, 1993

Risk Factor	Total	Appalachian Georgia		Non-Appalachian Georgia		S*
	%	%	CI** (%±)	%	CI** (%±)	
Seatbelt Nonuse	21.5	24.2	(3.6)	20.6	(1.9)	
Obesity	29.2	28.1	(3.8)	29.6	(2.2)	
Overweight	24.1	23.7	(3.6)	24.2	(2.0)	
Hypertension Awareness	21.0	19.6	(3.3)	21.4	(2.0)	
Current Smoking	22.9	23.5	(3.6)	22.7	(2.0)	
Heavier Drinking	2.7	2.7	(1.4)	2.7	(0.8)	
Binge Drinking	11.0	8.4	(2.3)	11.8	(1.5)	
Drinking & Driving	1.6	1.0	(0.8)	1.7	(0.6)	

*Prevalence in Appalachian counties is significantly higher (SH) or significantly lower (SL) than in non-Appalachian counties. A blank indicates no significant difference.

**CI = 95% confidence interval. The midpoint prevalence (%) plus or minus the percentage indicated in parentheses comprises the range of values called the confidence interval. Users can be 95% confident that the true prevalence lies within this interval.

KENTUCKY

Demographics. In 1990, 28.4% of Kentucky's population lived in the state's Appalachian counties. In that year, Kentucky's total population had a greater proportion of white residents, a lower per capita income, less education, and was more likely to live in poverty than the United States population as a whole (Table B-5). These differences were even more pronounced among Appalachian residents. Ninety-eight percent (98.1%) of residents of Appalachian Kentucky were white, compared to 89.6% of those in non-Appalachian Kentucky. Per capita income in the Appalachian portion of Kentucky was \$8,412 in 1989, with nearly three out of every 10 residents (29.0%) living in poverty, more than twice the national average (13.1%). Almost one-half (48.5%) of Appalachian Kentuckians over the age of 25 had not graduated from high school according to census data, compared to 30.0% of residents living elsewhere in the state and 24.8% nationwide.

Risk Factor Prevalence. Statistically significant differences were found between residents in the Appalachian and non-Appalachian regions of Kentucky for six of the eight risk factors (Table B-6). Reported prevalences of seatbelt nonuse, overweight, hypertension awareness, and current smoking were significantly higher in the Appalachian counties than in other counties in the state. Conversely, rates of heavier drinking and binge drinking were significantly lower among Appalachian residents of Kentucky than among other residents.

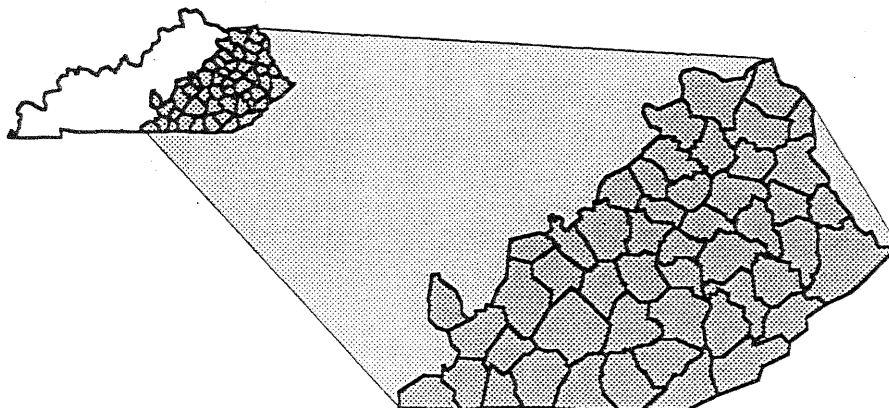


Table B-5

**Percentage of Selected Demographic Characteristics in Kentucky
By Appalachian Residency
U.S. Census, 1990**

	Total U.S.	Total Kentucky	Appalachian Kentucky	Non-Appalachian Kentucky
<u>Population</u>		100.0 (3,685,296)	28.4 (1,045,357)	71.6 (2,639,939)
<u>Gender</u>				
Male	48.7	47.4	47.6	47.3
Female	51.3	52.6	52.4	52.7
<u>Age</u>				
% 0-17	25.6	25.9	26.8	25.5
% 65+	12.6	12.7	12.5	12.7
<u>Race</u>				
% White	80.3	92.0	98.1	89.6
% Black	12.1	7.1	1.5	9.4
% Other	7.7	0.8	0.4	1.0
<u>Income</u>				
Per Capita Income (1989)	\$14,420	\$11,153	\$8,412	\$12,238
% Below Poverty Line (1989)	13.1	19.0	29.0	15.0
% 65+ Below Poverty Line (1989)	12.8	20.6	28.3	17.5
<u>Education</u>				
% < High School Graduate	24.8	35.4	48.5	30.3
% High School Graduate+	75.2	64.6	51.5	69.7
% College Graduate+	20.3	13.6	8.7	15.5

Table B-6

**Prevalence (%) of Eight Risk Factors in Kentucky
By Appalachian Residency**
Behavioral Risk Factor Surveillance System, 1993

Risk Factor	Total	Appalachian Kentucky		Non-Appalachian Kentucky		S*
	%	%	CI** (%±)	%	CI** (%±)	
Seatbelt Nonuse	33.4	48.2	(3.7)	27.7	(2.1)	SH
Obesity	32.2	35.1	(3.6)	31.1	(2.2)	
Overweight	27.3	31.7	(3.5)	25.7	(2.1)	SH
Hypertension Awareness	21.7	25.7	(3.3)	20.2	(1.9)	SH
Current Smoking	29.3	34.2	(3.5)	27.4	(2.1)	SH
Heavier Drinking	2.1	0.8	(0.7)	2.5	(0.7)	SL
Binge Drinking	9.2	6.3	(1.8)	10.4	(1.4)	SL
Drinking & Driving	1.0	0.8	(0.7)	1.0	(0.5)	

*Prevalence in Appalachian counties is significantly higher (SH) or significantly lower (SL) than in non-Appalachian counties.
A blank indicates no significant difference.

**CI = 95% confidence interval. The midpoint prevalence (%) plus or minus the percentage indicated in parentheses comprises the range of values called the confidence interval. Users can be 95% confident that the true prevalence lies within this interval.

MARYLAND

Demographics. In 1990, only 4.7% of Maryland's population lived in the three counties designated as belonging to Appalachia by the ARC. Nonetheless, considerable demographic differences emerged when this portion of Maryland was compared to the remainder of the state (Table B-7). Appalachian Maryland had a larger proportion of residents over age 65 than the rest of the state (15.4% vs. 10.6%), a greater percentage of whom lived in poverty (13.8% vs. 10.3%). Only 4.0% of the Appalachian population was African-American, compared to 25.9% elsewhere in Maryland. The 1989 per capita income was much lower in the Appalachian portion of the state (\$12,086 vs. \$18,008), as was the average level of education. While 21.1% of adults over the age of 25 in non-Appalachian Maryland were high school dropouts, three of every 10 adults (30.3%) in the Appalachian counties had not graduated. Only 11.3% of Appalachians had college degrees, compared to 27.2% of other state residents.

Risk Factor Prevalence. Given the small BRFSS sample size interviewed in the Appalachian counties of Maryland, the confidence intervals surrounding our midpoint prevalences were very wide, making comparisons with the non-Appalachian sample difficult. Because of this, even though several risk factor prevalences reported by Appalachian respondents appear markedly lower than those reported by non-Appalachian respondents, significant differences were found only for overweight and hypertension awareness (Table B-8). Conversely, although the rates of binge drinking and drinking and driving appear to be considerably higher among Appalachian residents than among non-Appalachian residents, these differences were not statistically significant.

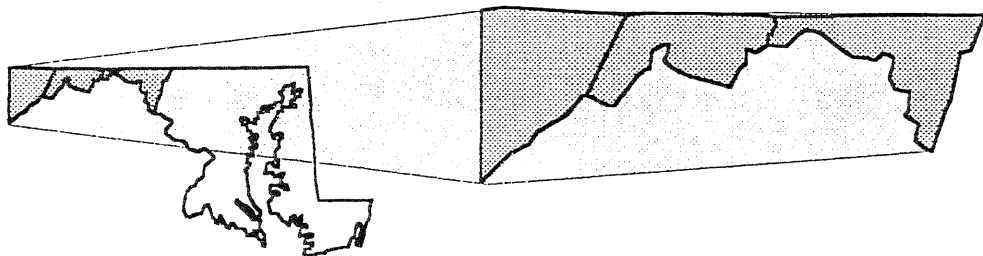


Table B-7

**Percentage of Selected Demographic Characteristics in Maryland
By Appalachian Residency**
U.S. Census, 1990

	Total U.S.	Total Maryland	Appalachian Maryland	Non-Appalachian Maryland
<u>Population</u>		100.0 (4,781,468)	4.7 (224,477)	95.3 (4,556,991)
<u>Gender</u>				
Male	48.7	47.7	48.5	47.6
Female	51.3	52.3	51.5	52.4
<u>Age</u>				
% 0-17	25.6	24.3	23.0	24.4
% 65+	12.6	10.8	15.4	10.6
<u>Race</u>				
% White	80.3	71.0	95.2	69.8
% Black	12.1	24.9	4.0	25.9
% Other	7.7	4.1	0.8	4.3
<u>Income</u>				
Per Capita Income (1989)	\$14,420	\$17,730	\$12,086	\$18,008
% Below Poverty Line (1989)	13.1	8.3	12.5	8.1
% 65+ Below Poverty Line (1989)	12.8	10.5	13.8	10.3
<u>Education</u>				
% < High School Graduate	24.8	21.6	30.3	21.1
% High School Graduate+	75.2	78.4	69.7	78.9
% College Graduate+	20.3	26.5	11.3	27.2

Table B-8

**Prevalence (%) of Eight Risk Factors in Maryland
By Appalachian Residency**
Behavioral Risk Factor Surveillance System, 1993

Risk Factor	Total	Appalachian Maryland		Non-Appalachian Maryland		S*
	%	%	CI** (%+)	%	CI** (%+)	
Seatbelt Nonuse	12.5	13.1	(4.2)	12.4	(1.0)	SL SL
Obesity	29.0	24.3	(5.3)	29.3	(1.4)	
Overweight	24.5	18.5	(4.8)	24.8	(1.3)	
Hypertension Awareness	20.9	14.7	(4.4)	21.2	(1.2)	
Current Smoking	19.0	17.8	(4.8)	19.1	(1.2)	
Heavier Drinking	1.9	1.3	(1.4)	1.9	(0.4)	
Binge Drinking	9.9	14.5	(4.4)	9.6	(0.9)	
Drinking & Driving	0.9	2.2	(1.8)	0.8	(0.3)	

*Prevalence in Appalachian counties is significantly higher (SH) or significantly lower (SL) than in non-Appalachian counties.
A blank indicates no significant difference.

**CI = 95% confidence interval. The midpoint prevalence (%) plus or minus the percentage indicated in parentheses comprises the range of values called the confidence interval. Users can be 95% confident that the true prevalence lies within this interval.

MISSISSIPPI

Demographics. Twenty percent (19.8%) of Mississippians lived in the state's Appalachian counties in 1990. Mississippi's population as a whole differed substantially in several ways from the total U.S. according to the 1990 census, being generally poorer and less educated and having a larger percentage of African-American citizens (Table B-9). The Appalachian population had a somewhat higher percentage of residents aged 65 and older than the rest of the population (13.3% vs. 12.3%) and a much lower proportion of African-American residents (28.7% vs. 37.3%). While, overall, a smaller percentage of Appalachians lived below the poverty line than did non-Appalachians (22.6% vs. 25.9%), a slightly higher percentage of Appalachia's elderly lived in poverty (31.8% vs. 28.8%). Adults in Appalachian Mississippi were less likely to have finished high school than adults in the rest of the state.

Risk Factor Prevalence. Little difference was noted between respondents in the Appalachian and the non-Appalachian regions of Mississippi for seven of the eight risk factors in our study (Table B-10). A substantial difference in prevalence emerged for only one risk factor: Mississippians from Appalachia more frequently reported seatbelt nonuse while driving or riding in a car than respondents from non-Appalachian Mississippi (41.1% vs. 34.4%), but this was not found to be statistically significant.

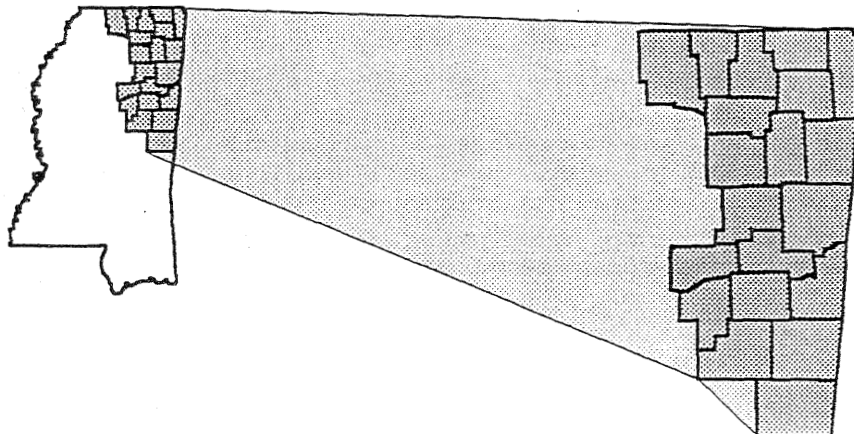


Table B-9

**Percentage of Selected Demographic Characteristics in Mississippi
By Appalachian Residency
U.S. Census, 1990**

	Total U.S.	Total Mississippi (2,573,216)	Appalachian Mississippi (510,597)	Non-Appalachian Mississippi (2,062,619)
<u>Population</u>		100.0	19.8	80.2
		(2,573,216)	(510,597)	(2,062,619)
<u>Gender</u>				
Male	48.7	46.5	46.7	46.5
Female	51.3	53.5	53.3	53.5
<u>Age</u>				
% 0-17	25.6	29.0	27.7	29.3
% 65+	12.6	12.5	13.3	12.3
<u>Race</u>				
% White	80.3	63.5	70.7	61.7
% Black	12.1	35.6	28.7	37.3
% Other	7.7	1.0	0.6	1.0
<u>Income</u>				
Per Capita Income (1989)	\$14,420	\$9,648	\$9,425	\$9,703
% Below Poverty Line (1989)	13.1	25.2	22.6	25.9
% 65+ Below Poverty Line (1989)	12.8	29.4	31.8	28.8
<u>Education</u>				
% < High School Graduate	24.8	35.7	40.7	34.5
% High School Graduate+	75.2	64.3	59.3	65.5
% College Graduate+	20.3	14.7	12.3	15.4

Table B-10

**Prevalence (%) of Eight Risk Factors in Mississippi
By Appalachian Residency**
Behavioral Risk Factor Surveillance System, 1993

Risk Factor	Total	Appalachian Mississippi		Non-Appalachian Mississippi		S*
	%	%	CI** (%±)	%	CI** (%±)	
Seatbelt Nonuse	35.7	41.1	(5.2)	34.4	(2.6)	
Obesity	36.1	36.8	(5.1)	36.0	(2.7)	
Overweight	31.5	31.7	(4.9)	31.5	(2.6)	
Hypertension Awareness	29.4	29.7	(4.9)	29.3	(2.5)	
Current Smoking	23.3	21.9	(4.4)	23.6	(2.4)	
Heavier Drinking	2.8	1.5	(1.3)	3.1	(1.0)	
Binge Drinking	8.6	7.5	(2.8)	8.9	(1.6)	
Drinking & Driving	2.0	2.1	(1.5)	2.0	(0.8)	

*Prevalence in Appalachian counties is significantly higher (SH) or significantly lower (SL) than in non-Appalachian counties. A blank indicates no significant difference.

**CI = 95% confidence interval. The midpoint prevalence (%) plus or minus the percentage indicated in parentheses comprises the range of values called the confidence interval. Users can be 95% confident that the true prevalence lies within this interval.

NEW YORK

Demographics. Only 6.1% of New York's population was defined as Appalachian in 1990. New York's total population in that year was somewhat older, more racially diverse, more likely to be college educated, and slightly less likely to live in poverty than the U.S. population as a whole (Table B-11). Residents of the Appalachian portion of New York, however, differed in several ways from residents elsewhere in the state. While Appalachian New York reported a higher percentage of persons aged 65 and older (14.0% vs. 13.1%), the elderly in Appalachia were less likely to live below the poverty line than those in non-Appalachian New York. A much higher percentage of the population in the state's Appalachian counties was white than in the rest of the state (96.1% vs. 73.0%). A marked difference was found in 1989 per capita income: \$12,034 in Appalachia compared to \$16,789 in non-Appalachia. While fewer adults were high school dropouts in the Appalachian counties, there were also fewer college graduates.

Risk Factor Prevalence. New Yorkers who lived in Appalachian counties reported slightly lower rates of seatbelt nonuse and obesity than those residing in the rest of the state, as well as a similar rate of overweight (Table B-12). Reported prevalences of hypertension awareness, current smoking, heavier drinking, binge drinking, and drinking and driving were higher in the Appalachian portion of New York; of these, the differences for heavier drinking and binge drinking were found to be statistically significant. In general, Appalachian residents of New York showed little in common with other Appalachians in patterns of risk factor prevalence.

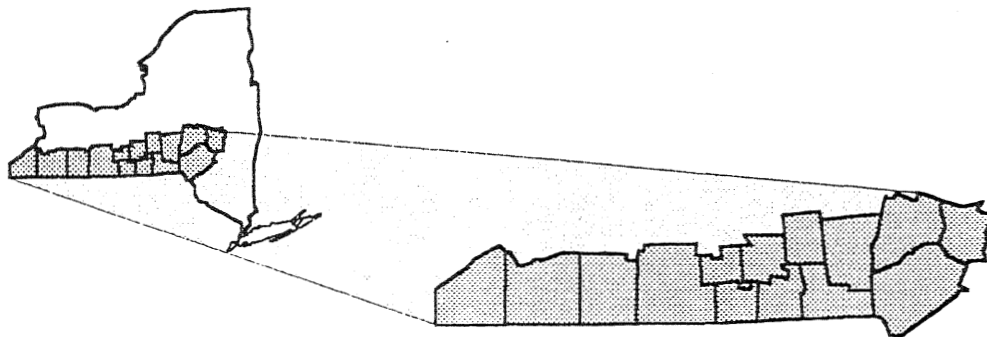


Table B-11

**Percentage of Selected Demographic Characteristics in New York
By Appalachian Residency**
U.S. Census, 1990

	Total U.S.	Total New York	Appalachian New York	Non-Appalachian New York
<u>Population</u>		100.0 (17,990,455)	6.1 (1,088,470)	93.9 (16,901,985)
<u>Gender</u>				
Male	48.7	46.9	47.7	46.9
Female	51.3	53.1	52.3	53.1
<u>Age</u>				
% 0-17	25.6	23.7	24.8	23.6
% 65+	12.6	13.1	14.0	13.1
<u>Race</u>				
% White	80.3	74.4	96.1	73.0
% Black	12.1	15.9	1.9	16.8
% Other	7.7	9.7	2.1	10.2
<u>Income</u>				
Per Capita Income (1989)	\$14,420	\$16,501	\$12,034	\$16,789
% Below Poverty Line (1989)	13.1	13.0	12.9	13.0
% 65+ Below Poverty Line (1989)	12.8	11.9	9.9	12.0
<u>Education</u>				
% < High School Graduate	24.8	25.2	22.7	25.3
% High School Graduate+	75.2	74.8	77.3	74.7
% College Graduate+	20.3	23.1	18.2	23.4

Table B-12

**Prevalence (%) of Eight Risk Factors in New York
By Appalachian Residency**
Behavioral Risk Factor Surveillance System, 1993

Risk Factor	Total	Appalachian New York		Non-Appalachian New York		S*
	%	%	CI** (%±)	%	CI** (%±)	
Seatbelt Nonuse	22.1	18.7	(6.7)	22.3	(1.7)	
Obesity	30.3	27.1	(7.6)	30.5	(1.9)	
Overweight	25.6	26.0	(7.5)	25.5	(1.8)	
Hypertension Awareness	21.6	26.6	(7.6)	21.3	(1.7)	
Current Smoking	22.4	25.8	(7.5)	22.2	(1.7)	
Heavier Drinking	3.0	8.7	(4.8)	2.7	(0.7)	SH
Binge Drinking	14.9	25.0	(7.4)	14.2	(1.4)	SH
Drinking & Driving	2.1	4.7	(3.6)	2.0	(0.6)	

*Prevalence in Appalachian counties is significantly higher (SH) or significantly lower (SL) than in non-Appalachian counties.
A blank indicates no significant difference.

**CI = 95% confidence interval. The midpoint prevalence (%) plus or minus the percentage indicated in parentheses comprises the range of values called the confidence interval. Users can be 95% confident that the true prevalence lies within this interval.

NORTH CAROLINA

Demographics. Approximately one in every five (19.7%) North Carolinians in 1990 lived in the portion of the state designated as Appalachian (Table B-13). In general, Appalachian residents in North Carolina were older, with 14.9% of the Appalachian residents aged 65+, compared to 11.5% in the rest of the state. Fewer African-Americans lived in Appalachian North Carolina, accounting for 9.1% of the population compared to 25.1% elsewhere in the state. Little difference was noted in per capita income between residents of the Appalachian and non-Appalachian counties; North Carolinians living in both regions were on average less educated than those in the U.S. as a whole.

Risk Factor Prevalence. Seatbelt nonuse in 1993 was significantly higher among Appalachian North Carolinians than among BRFSS respondents elsewhere in the state (14.0% vs. 9.2%) (Table B-14). Obesity and overweight, on the other hand, were significantly lower among residents of North Carolina's Appalachian counties. Both hypertension awareness and current smoking were higher among Appalachian respondents, but these differences were not statistically significant. Little difference was noted between respondents in the two regions in the prevalence of any of the three drinking behaviors.

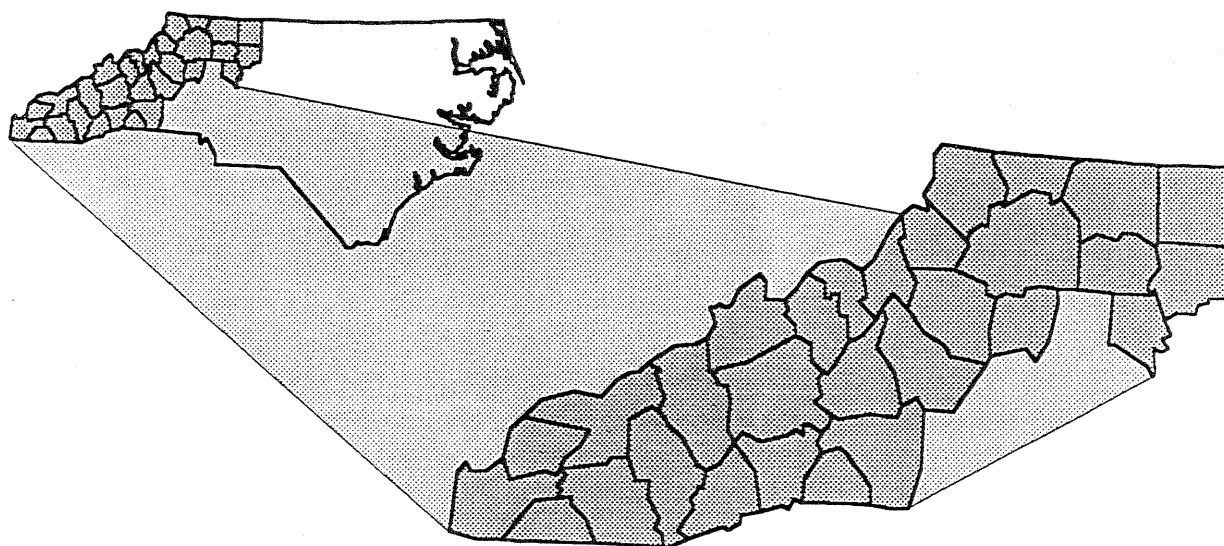


Table B-13

**Percentage of Selected Demographic Characteristics in North Carolina
By Appalachian Residency
U.S. Census, 1990**

	Total U.S.	Total North Carolina	Appalachian North Carolina	Non-Appalachian North Carolina
<u>Population</u>		100.0 (6,628,637)	19.7 (1,306,682)	80.3 (5,321,955)
<u>Gender</u>				
Male	48.7	47.7	47.1	47.8
Female	51.3	52.3	52.9	52.2
<u>Age</u>				
% 0-17	25.6	24.2	22.5	24.7
% 65+	12.6	12.1	14.9	11.5
<u>Race</u>				
% White	80.3	75.6	89.6	72.1
% Black	12.1	22.0	9.1	25.1
% Other	7.7	2.5	1.3	2.8
<u>Income</u>				
Per Capita Income (1989)	\$14,420	\$12,885	\$12,613	\$12,951
% Below Poverty Line (1989)	13.1	13.0	12.4	13.1
% 65+ Below Poverty Line (1989)	12.8	19.5	19.4	19.5
<u>Education</u>				
% < High School Graduate	24.8	30.0	32.9	29.3
% High School Graduate+	75.2	70.0	67.1	70.7
% College Graduate+	20.3	17.4	15.4	17.9

Table B-14

**Prevalence (%) of Eight Risk Factors in North Carolina
By Appalachian Residency**
Behavioral Risk Factor Surveillance System, 1993

Risk Factor	Total	Appalachian North Carolina		Non-Appalachian North Carolina		S*
	%	%	CI** (%±)	%	CI** (%±)	
Seatbelt Nonuse	10.2	14.0	(3.1)	9.2	(1.4)	SH
Obesity	31.3	25.3	(3.9)	32.8	(2.2)	SL
Overweight	26.6	21.4	(3.7)	27.8	(2.1)	SL
Hypertension Awareness	16.7	18.7	(3.5)	16.2	(1.7)	
Current Smoking	25.5	30.0	(4.1)	24.4	(2.0)	
Heavier Drinking	2.8	3.2	(1.6)	2.7	(0.8)	
Binge Drinking	8.2	8.8	(2.5)	8.1	(1.3)	
Drinking & Driving	1.5	1.2	(1.0)	1.5	(0.6)	

*Prevalence in Appalachian counties is significantly higher (SH) or significantly lower (SL) than in non-Appalachian counties. A blank indicates no significant difference.

**CI = 95% confidence interval. The midpoint prevalence (%) plus or minus the percentage indicated in parentheses comprises the range of values called the confidence interval. Users can be 95% confident that the true prevalence lies within this interval.

OHIO

Demographics. Approximately one in eight (12.7%) Ohioans lived in Appalachia in 1990. According to census information, Appalachian Ohio had a slightly higher percentage of older residents than non-Appalachian Ohio (Table B-15). While the percentage of the population in Ohio's non-Appalachian counties that was African-American was close to that nationwide, the percentage in Appalachian Ohio was much smaller (2.1% vs. 11.9%). Per capita income in 1989 was markedly lower in the Appalachian counties than in the rest of Ohio (\$10,468 vs. \$13,895), and more people were living below the poverty line (17.4% vs. 11.8%). Proportionally, Appalachian Ohio also had more adults over the age of 25 who were high school dropouts than did non-Appalachian Ohio (30.8% vs. 23.4%), as well as fewer college graduates (9.8% vs. 18.0%).

Risk Factor Prevalence. Higher risk factor prevalences were reported by BRFSS respondents living in Ohio's Appalachian counties than elsewhere in the state for seatbelt nonuse, obesity, overweight, current smoking, binge drinking, and drinking and driving, while lower rates were reported for hypertension awareness and heavier drinking (Table B-16). Only the difference in heavier drinking prevalence between Appalachian Ohioans and non-Appalachian Ohioans, however, was found to be statistically significant (0.3% vs. 2.7%).

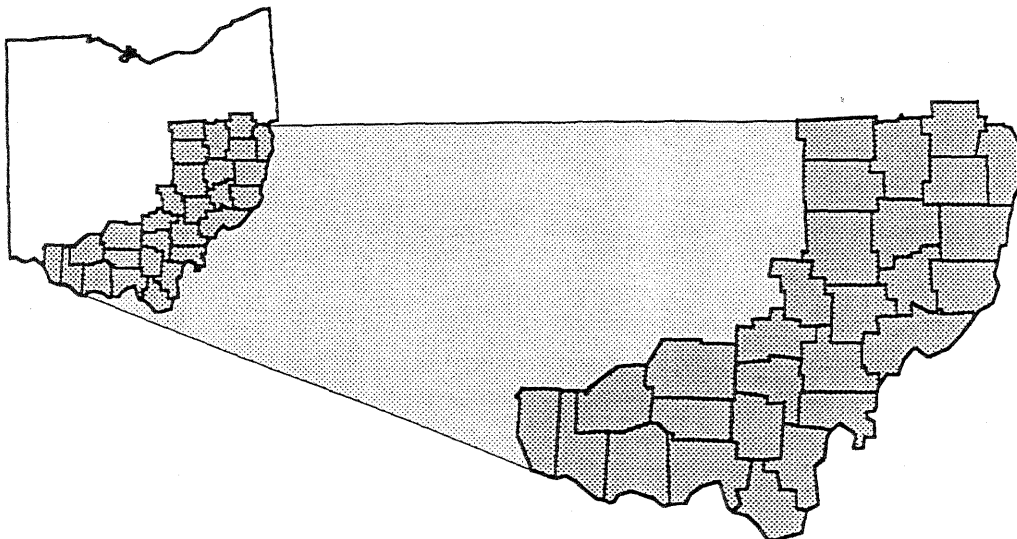


Table B-15

**Percentage of Selected Demographic Characteristics in Ohio
By Appalachian Residency
U.S. Census, 1990**

	Total U.S.	Total Ohio (10,847,115)	Appalachian Ohio (1,372,893)	Non-Appalachian Ohio (9,474,222)
<u>Population</u>				
<u>Gender</u>				
Male	48.7	47.1	47.5	47.1
Female	51.3	52.9	52.5	52.9
<u>Age</u>				
% 0-17	25.6	25.8	26.7	25.7
% 65+	12.6	13.0	13.7	12.9
<u>Race</u>				
% White	80.3	87.8	97.3	86.4
% Black	12.1	10.6	2.1	11.9
% Other	7.7	1.6	0.6	1.7
<u>Income</u>				
Per Capita Income (1989)	\$14,420	\$13,461	\$10,468	\$13,895
% Below Poverty Line (1989)	13.1	12.5	17.4	11.8
% 65+ Below Poverty Line (1989)	12.8	10.7	14.7	10.0
<u>Education</u>				
% < High School Graduate	24.8	24.3	30.8	23.4
% High School Graduate+	75.2	75.7	69.2	76.6
% College Graduate+	20.3	17.0	9.8	18.0

Table B-16

**Prevalence (%) of Eight Risk Factors in Ohio
By Appalachian Residency**
Behavioral Risk Factor Surveillance System, 1993

Risk Factor	Total	Appalachian Ohio		Non-Appalachian Ohio		S*
	%	%	CI** (%+)	%	CI** (%+)	
Seatbelt Nonuse	22.8	30.3	(7.5)	21.7	(2.3)	SL
Obesity	29.1	33.8	(7.7)	28.4	(2.5)	
Overweight	23.9	25.3	(7.1)	23.7	(2.4)	
Hypertension Awareness	18.3	15.4	(5.9)	18.8	(2.2)	
Current Smoking	24.8	26.2	(7.2)	24.6	(2.4)	
Heavier Drinking	2.4	0.3	(1.0)	2.7	(0.9)	
Binge Drinking	13.6	17.3	(6.2)	13.1	(1.9)	
Drinking & Driving	1.8	2.1	(2.3)	1.7	(0.7)	

*Prevalence in Appalachian counties is significantly higher (SH) or significantly lower (SL) than in non-Appalachian counties. A blank indicates no significant difference.

**CI = 95% confidence interval. The midpoint prevalence (%) plus or minus the percentage indicated in parentheses comprises the range of values called the confidence interval. Users can be 95% confident that the true prevalence lies within this interval.

PENNSYLVANIA

Demographics. Nearly one-half (48.6%) of Pennsylvania's total population in 1990 lived in counties designated as Appalachian (Table B-17). The demographics for Appalachian Pennsylvania were found to differ from those for non-Appalachian Pennsylvania in several ways. The population in the Appalachian counties was generally older than that in the rest of the state and had a much smaller percentage of African-Americans (4.0% vs. 14.0%). The 1989 average per capita income was lower in Appalachia (\$12,357 vs. \$15,683), and more people were living in poverty (12.5% vs. 9.9%). While the two regions had similar proportions of high school graduates, Appalachia had fewer college graduates (15.2% vs. 20.6%).

Risk Factor Prevalence. BRFSS respondents living in the Appalachian portion of Pennsylvania reported higher 1993 prevalences of seatbelt nonuse, obesity, overweight, current smoking, heavier drinking, and drinking and driving than other Pennsylvanians and lower prevalences of hypertension awareness and binge drinking (Table B-18). None of these differences was found to be statistically significant.

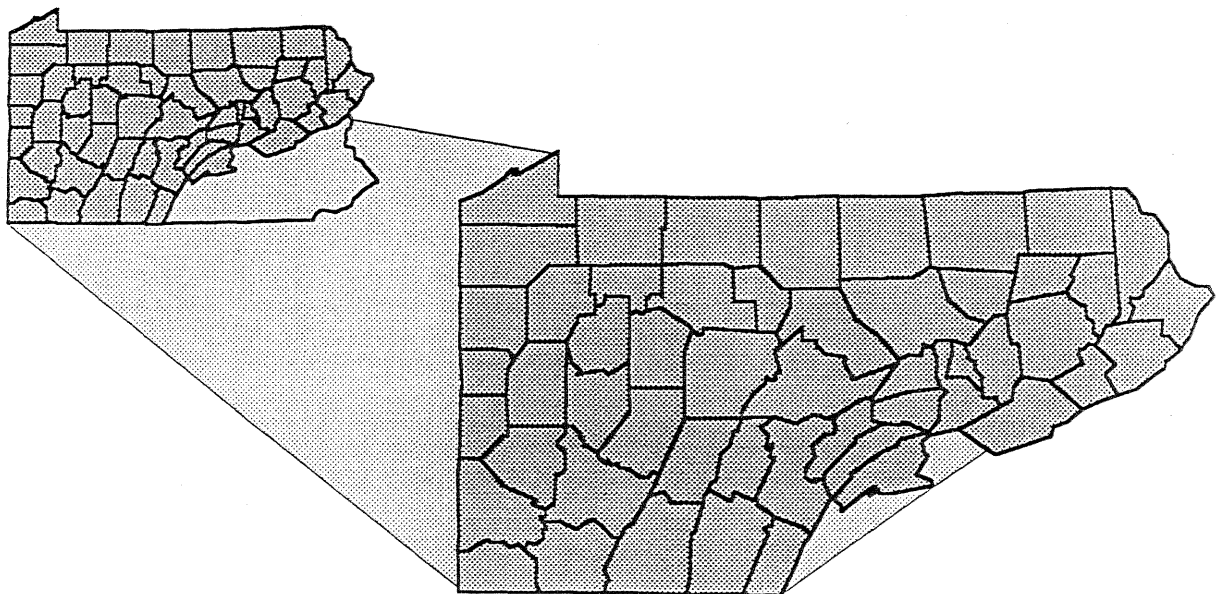


Table B-17

**Percentage of Selected Demographic Characteristics in Pennsylvania
By Appalachian Residency**
U.S. Census, 1990

	Total U.S.	Total Pennsylvania (11,881,643)	Appalachian Pennsylvania (5,769,410)	Non-Appalachian Pennsylvania (6,112,233)
<u>Population</u>		100.0	48.6	51.4
<u>Gender</u>				
Male	48.7	46.9	46.9	46.9
Female	51.3	53.1	53.1	53.1
<u>Age</u>				
% 0-17	25.6	23.5	23.1	23.9
% 65+	12.6	15.4	16.7	14.2
<u>Race</u>				
% White	80.3	88.5	95.1	82.3
% Black	12.1	9.2	4.0	14.0
% Other	7.7	2.3	0.8	3.7
<u>Income</u>				
Per Capita Income (1989)	\$14,420	\$14,068	\$12,357	\$15,683
% Below Poverty Line (1989)	13.1	11.1	12.5	9.9
% 65+ Below Poverty Line (1989)	12.8	10.6	11.1	10.0
<u>Education</u>				
% < High School Graduate	24.8	25.3	25.0	25.6
% High School Graduate+	75.2	74.7	75.0	74.4
% College Graduate+	20.3	17.9	15.2	20.6

Table B-18

**Prevalence (%) of Eight Risk Factors in Pennsylvania
By Appalachian Residency**
Behavioral Risk Factor Surveillance System, 1993

Risk Factor	Total	Appalachian Pennsylvania		Non-Appalachian Pennsylvania		S*
	%	%	CI** (%+)	%	CI** (%+)	
Seatbelt Nonuse	25.2	26.7	(2.4)	23.8	(2.5)	
Obesity	32.5	34.8	(2.6)	30.4	(2.7)	
Overweight	28.4	30.5	(2.5)	26.4	(2.5)	
Hypertension Awareness	22.7	21.2	(2.2)	24.1	(2.5)	
Current Smoking	22.1	22.5	(2.3)	21.6	(2.4)	
Heavier Drinking	3.8	3.9	(1.1)	3.7	(1.1)	
Binge Drinking	17.9	17.3	(2.1)	18.4	(2.2)	
Drinking & Driving	2.7	2.9	(0.9)	2.6	(0.9)	

*Prevalence in Appalachian counties is significantly higher (SH) or significantly lower (SL) than in non-Appalachian counties. A blank indicates no significant difference.

**CI = 95% confidence interval. The midpoint prevalence (%) plus or minus the percentage indicated in parentheses comprises the range of values called the confidence interval. Users can be 95% confident that the true prevalence lies within this interval.

SOUTH CAROLINA

Demographics. Approximately one in four (25.5%) South Carolinians lived in the Appalachian portion of their state in 1990 (Table B-19). Overall, the state's population was somewhat younger, had a higher percentage of African-Americans, and was poorer and less educated than the national average. The Appalachian counties of South Carolina had a smaller proportion of African-Americans (16.9% vs. 34.3%), a slightly higher per capita income (\$12,634 vs. \$11,645), and fewer residents living below the poverty line (11.6% vs. 16.7%) than the rest of the state. Educational levels in the two regions were similar.

Risk Factor Prevalence. Adults living in the Appalachian counties of South Carolina reported slightly lower rates of seatbelt nonuse and binge drinking in 1993 than their non-Appalachian neighbors (Table B-20). Slightly higher prevalences were reported by Appalachians for hypertension awareness, current smoking, and heavier drinking. Similar rates were reported in both regions for obesity, overweight, and drinking and driving. No statistically significant differences were found.

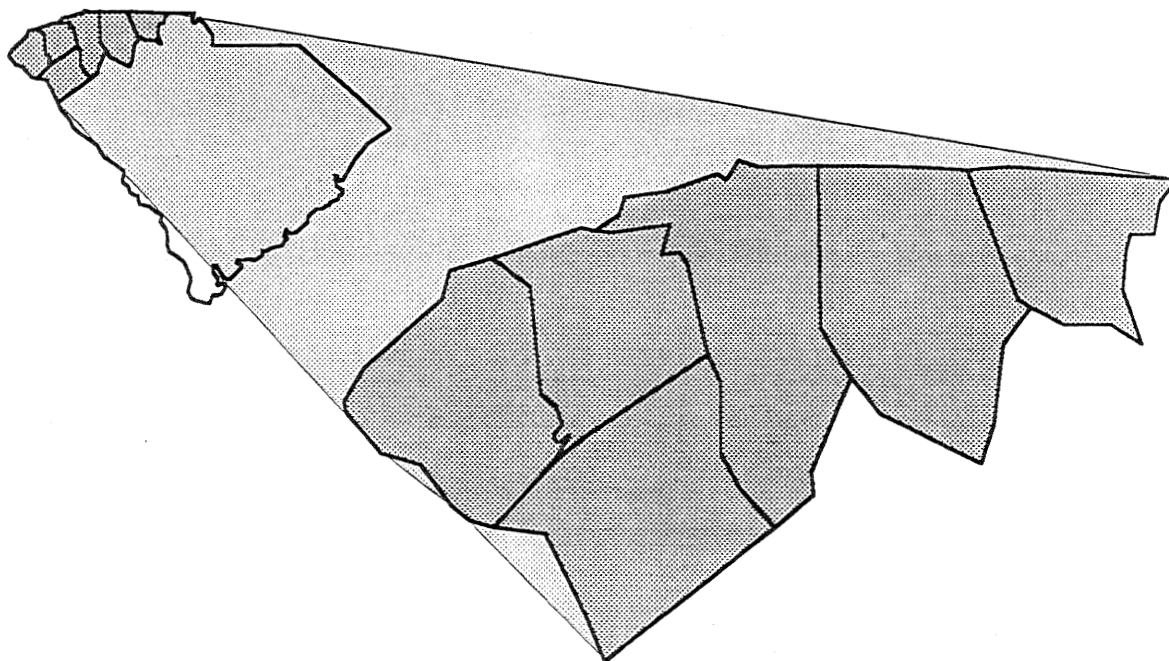


Table B-19

**Percentage of Selected Demographic Characteristics in South Carolina
By Appalachian Residency**
U.S. Census, 1990

	Total U.S.	Total South Carolina	Appalachian South Carolina	Non-Appalachian South Carolina
<u>Population</u>		100.0 (3,486,703)	25.5 (888,057)	74.5 (2,598,646)
<u>Gender</u>				
Male	48.7	47.5	47.4	47.6
Female	51.3	52.5	52.6	52.4
<u>Age</u>				
% 0-17	25.6	26.4	24.5	27.0
% 65+	12.6	11.4	12.5	11.0
<u>Race</u>				
% White	80.3	69.0	82.2	64.5
% Black	12.1	29.8	16.9	34.3
% Other	7.7	1.1	0.9	1.2
<u>Income</u>				
Per Capita Income (1989)	\$14,420	\$11,897	\$12,634	\$11,645
% Below Poverty Line (1989)	13.1	15.4	11.6	16.7
% 65+ Below Poverty Line (1989)	12.8	20.5	17.5	21.7
<u>Education</u>				
% < High School Graduate	24.8	31.7	33.7	31.0
% High School Graduate+	75.2	68.3	66.3	69.0
% College Graduate+	20.3	16.6	16.4	16.7

Table B-20

**Prevalence (%) of Eight Risk Factors in South Carolina
By Appalachian Residency**
Behavioral Risk Factor Surveillance System, 1993

Risk Factor	Total	Appalachian South Carolina		Non-Appalachian South Carolina		S*
	%	%	CI** (%±)	%	CI** (%±)	
Seatbelt Nonuse	17.0	15.5	(2.9)	17.5	(1.9)	
Obesity	32.6	32.1	(3.7)	32.8	(2.4)	
Overweight	28.4	27.8	(3.6)	28.6	(2.3)	
Hypertension Awareness	25.1	28.1	(3.6)	24.1	(2.2)	
Current Smoking	23.7	25.4	(3.5)	23.1	(2.1)	
Heavier Drinking	2.6	3.5	(1.5)	2.3	(0.8)	
Binge Drinking	10.2	9.3	(2.3)	10.5	(1.6)	
Drinking & Driving	1.9	2.1	(1.1)	1.9	(0.7)	

*Prevalence in Appalachian counties is significantly higher (SH) or significantly lower (SL) than in non-Appalachian counties. A blank indicates no significant difference.

**CI = 95% confidence interval. The midpoint prevalence (%) plus or minus the percentage indicated in parentheses comprises the range of values called the confidence interval. Users can be 95% confident that the true prevalence lies within this interval.

TENNESSEE

Demographics. According to census data, 44% of all Tennesseans lived in the state's Appalachian counties in 1990 (Table B-21). Appalachian residents of Tennessee differed from their non-Appalachian neighbors in several ways. Appalachians were generally older (13.7% aged 65+ vs. 11.9%), more likely to be white (93.6% vs. 74.7%), and less likely to have a minimum of a high school education (63.9% vs. 69.7%). The average 1989 per capita income among persons living in Tennessee's Appalachian counties was \$11,586, compared to \$12,781 among other state residents.

Risk Factor Prevalence. Slight differences were noted in the 1993 BRFSS prevalences between Appalachian residents of Tennessee and those living in non-Appalachian counties (Table B-22). The only difference that was statistically significant was found for drinking and driving: Appalachian Tennesseans were significantly less likely to report driving when they had had too much to drink than were non-Appalachian Tennesseans (0.3% vs. 1.3%).

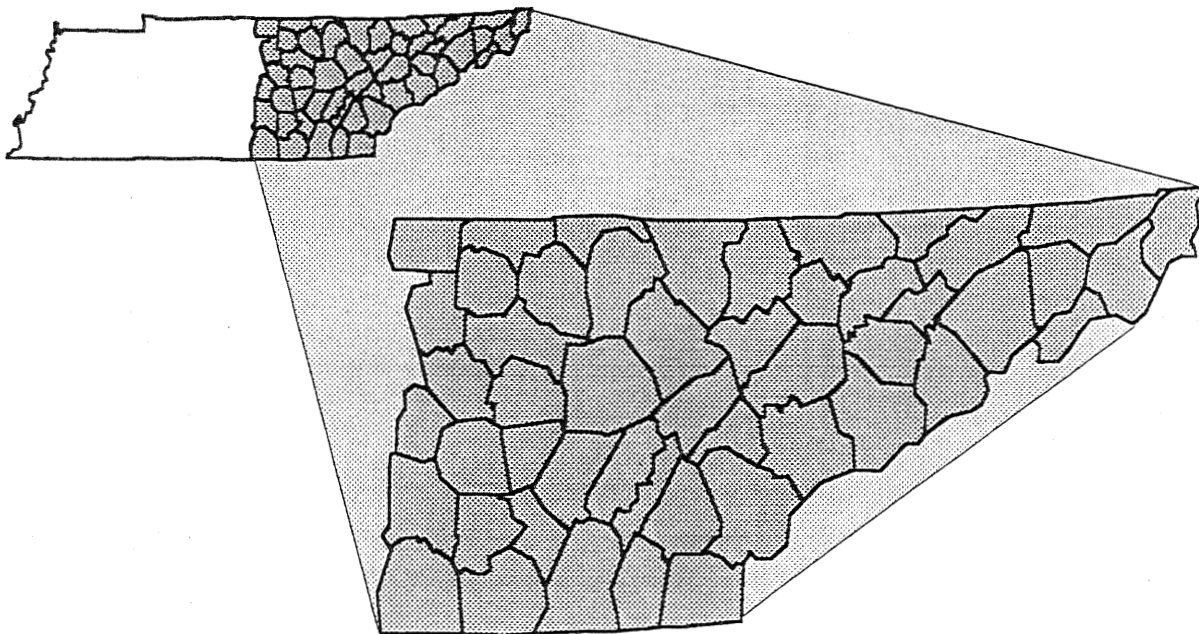


Table B-21

**Percentage of Selected Demographic Characteristics in Tennessee
By Appalachian Residency**
U.S. Census, 1990

	Total U.S.	Total Tennessee (4,877,185)	Appalachian Tennessee (2,146,992)	Non-Appalachian Tennessee (2,730,193)
<u>Population</u>		100.0	44.0	56.0
		(4,877,185)	(2,146,992)	(2,730,193)
<u>Gender</u>				
Male	48.7	47.1	47.2	47.0
Female	51.3	52.9	52.8	53.0
<u>Age</u>				
% 0-17	25.6	24.9	23.7	26.0
% 65+	12.6	12.7	13.7	11.9
<u>Race</u>				
% White	80.3	83.0	93.6	74.7
% Black	12.1	16.0	5.6	24.1
% Other	7.7	1.0	0.8	1.2
<u>Income</u>				
Per Capita Income (1989)	\$14,420	\$12,255	\$11,586	\$12,781
% Below Poverty Line (1989)	13.1	15.7	16.1	15.4
% 65+ Below Poverty Line (1989)	12.8	20.9	20.6	21.3
<u>Education</u>				
% < High School Graduate	24.8	32.9	36.1	30.3
% High School Graduate+	75.2	67.1	63.9	69.7
% College Graduate+	20.3	16.0	14.4	17.2

Table B-22

**Prevalence (%) of Eight Risk Factors in Tennessee
By Appalachian Residency**
Behavioral Risk Factor Surveillance System, 1993

Risk Factor	Total	Appalachian Tennessee		Non-Appalachian Tennessee		S*
	%	%	CI** (%+)	%	CI** (%+)	
Seatbelt Nonuse	23.6	22.6	(2.2)	24.4	(2.1)	
Obesity	30.3	30.0	(2.4)	30.4	(2.2)	
Overweight	26.7	26.8	(2.3)	26.6	(2.1)	
Hypertension Awareness	23.9	23.1	(2.2)	24.6	(2.1)	
Current Smoking	25.7	25.2	(2.3)	26.0	(2.1)	
Heavier Drinking	1.4	1.0	(0.5)	1.7	(0.6)	
Binge Drinking	4.2	3.3	(1.0)	4.9	(1.0)	
Drinking & Driving	0.9	0.3	(0.3)	1.3	(0.5)	SL

*Prevalence in Appalachian counties is significantly higher (SH) or significantly lower (SL) than in non-Appalachian counties.

A blank indicates no significant difference.

**CI = 95% confidence interval. The midpoint prevalence (%) plus or minus the percentage indicated in parentheses comprises the range of values called the confidence interval. Users can be 95% confident that the true prevalence lies within this interval.

VIRGINIA

Demographics. Approximately eight percent (8.4%) of Virginians lived in counties designated as Appalachian in 1990 (Table B-23). Dramatic differences, however, were found in the demographic characteristics of this small segment of Virginia's population when it was compared to the rest of the state. Nearly fifteen percent (14.6%) of Appalachians were aged 65 or older, compared to 10.4% of the other residents. Ninety-seven percent (97.0%) of the Appalachian population was white; only 75.7% of the rest of Virginia's population was white. The per capita income in the Appalachian counties was substantially lower than that in other counties (\$10,108 vs. \$16,225), and nearly twice the proportion of Appalachian residents lived in poverty (17.6% vs. 9.6%). Only 56.4% of Appalachians had a minimum of a high school degree, compared to 76.9% of non-Appalachians. Even more striking was the difference in the percentage of college-educated residents: 9.0% in Appalachian Virginia and 26.0% in non-Appalachian Virginia.

Risk Factor Prevalence. Seatbelt nonuse and hypertension awareness were reported with more frequency by BRFSS respondents in Appalachian Virginia than elsewhere in the state, but these differences were not found to be statistically significant (Table B-24). Virginians living in Appalachian counties were significantly less likely to report any of the three drinking behaviors, i.e., heavier drinking (1.1% vs. 3.7%); binge drinking (5.2% vs. 14.8%), and drinking and driving (0.5% vs. 2.7%).

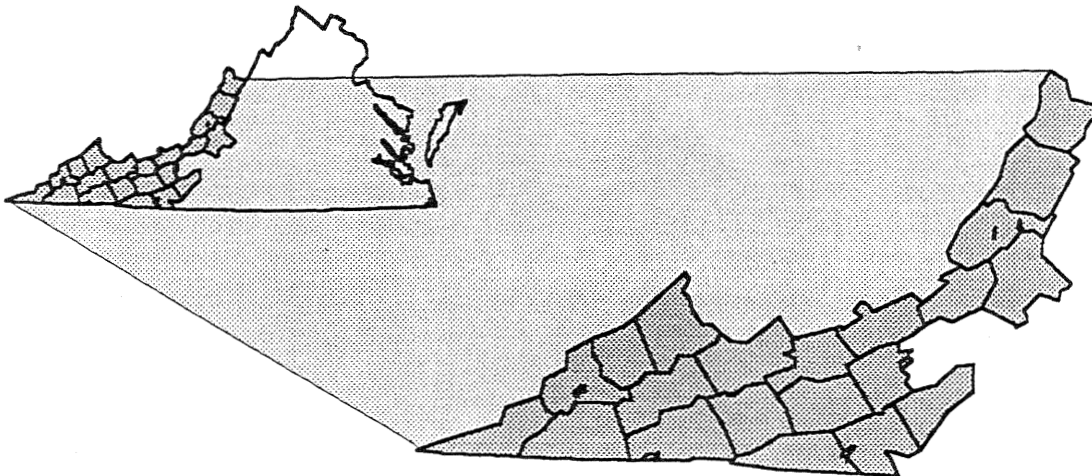


Table B-23

**Percentage of Selected Demographic Characteristics in Virginia
By Appalachian Residency
U.S. Census, 1990**

	Total U.S.	Total Virginia (6,187,358)	Appalachian Virginia (517,816)	Non-Appalachian Virginia (5,669,542)
<u>Population</u>		100.0	8.4	91.6
<u>Gender</u>				
Male	48.7	48.4	47.5	48.4
Female	51.3	51.6	52.5	51.6
<u>Age</u>				
% 0-17	25.6	24.3	23.8	24.4
% 65+	12.6	10.7	14.6	10.4
<u>Race</u>				
% White	80.3	77.4	97.0	75.7
% Black	12.1	18.8	2.6	20.3
% Other	7.7	3.8	0.4	4.1
<u>Income</u>				
Per Capita Income (1989)	\$14,420	\$15,713	\$10,108	\$16,225
% Below Poverty Line (1989)	13.1	10.2	17.6	9.6
% 65+ Below Poverty Line (1989)	12.8	14.1	20.7	13.3
<u>Education</u>				
% < High School Graduate	24.8	24.8	43.6	23.1
% High School Graduate+	75.2	75.2	56.4	76.9
% College Graduate+	20.3	24.5	9.0	26.0

Table B-24

**Prevalence (%) of Eight Risk Factors in Virginia
By Appalachian Residency**
Behavioral Risk Factor Surveillance System, 1993

Risk Factor	Total	Appalachian Virginia		Non-Appalachian Virginia		S*
	%	%	CI** (%±)	%	CI** (%±)	
Seatbelt Nonuse	14.3	19.8	(6.6)	13.9	(1.7)	SL SL SL
Obesity	29.5	29.0	(7.5)	29.6	(2.2)	
Overweight	25.3	26.4	(7.3)	25.2	(2.1)	
Hypertension Awareness	20.3	24.8	(7.2)	19.9	(1.9)	
Current Smoking	23.0	20.3	(6.7)	23.2	(2.1)	
Heavier Drinking	3.5	1.1	(1.7)	3.7	(0.9)	
Binge Drinking	14.0	5.2	(3.7)	14.8	(1.7)	
Drinking & Driving	2.5	0.5	(1.1)	2.7	(0.8)	

*Prevalence in Appalachian counties is significantly higher (SH) or significantly lower (SL) than in non-Appalachian counties.
A blank indicates no significant difference.

**CI = 95% confidence interval. The midpoint prevalence (%) plus or minus the percentage indicated in parentheses comprises the range of values called the confidence interval. Users can be 95% confident that the true prevalence lies within this interval.

WEST VIRGINIA

Demographics. All of West Virginia's population is considered to be Appalachian according to the ARC definition; therefore, all comparisons must be made between West Virginia and the total United States. According to the U.S. census, in 1990 15.0% of West Virginia's population was 65 years of age or older, compared to 12.6% in the nation as a whole (Table B-25). Only 3.8% of the state's residents were nonwhite, whereas the national percentage was 19.8%. West Virginians were poorer than average, with a per capita income of \$10,520 in 1989; the national per capita income was \$14,420. Nearly one in five (19.7%) West Virginians lived below the poverty line in that year, compared to 13.1% nationwide. In 1990, over one-third (34.0%) of the state's adults over the age of 25 had not finished high school, while less than one-fourth (24.8%) of the U.S. adult population of the same ages were dropouts. Only 12.3% of West Virginians were college graduates, compared to 20.3% nationally.

Risk Factor Prevalence. No comparisons were possible between Appalachian and non-Appalachian counties in West Virginia, as all counties are defined as Appalachian. State prevalences for the eight risk factors are presented in Table B-26.

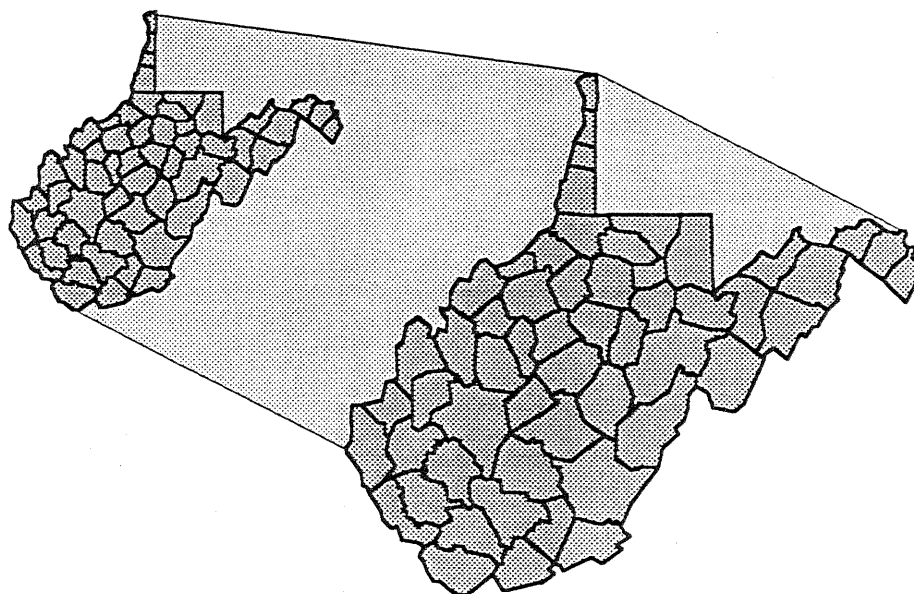


Table B-25

**Percentage of Selected Demographic Characteristics in West Virginia
By Appalachian Residency**
U.S. Census, 1990

	Total U.S.	Total West Virginia (1,793,477)	Appalachian West Virginia (1,793,477)
<u>Population</u>		100.0	100.0
<u>Gender</u>			
Male	48.7	46.9	46.9
Female	51.3	53.1	53.1
<u>Age</u>			
% 0-17	25.6	24.7	24.7
% 65+	12.6	15.0	15.0
<u>Race</u>			
% White	80.3	96.2	96.2
% Black	12.1	3.1	3.1
% Other	7.7	0.7	0.7
<u>Income</u>			
Per Capita Income (1989)	\$14,420	\$10,520	\$10,520
% Below Poverty Line (1989)	13.1	19.7	19.7
% 65+ Below Poverty Line (1989)	12.8	16.7	16.7
<u>Education</u>			
% < High School Graduate	24.8	34.0	34.0
% High School Graduate+	75.2	66.0	66.0
% College Graduate+	20.3	12.3	12.3

Table B-26

Prevalence (%) of Eight Risk Factors in West Virginia
Behavioral Risk Factor Surveillance System, 1993

Risk Factor	Total	Appalachian West Virginia	
	%	%	CI* (%±)
Seatbelt Nonuse	31.4	31.4	(1.9)
Obesity	35.6	35.6	(1.9)
Overweight	31.1	31.1	(1.8)
Hypertension Awareness	24.4	24.4	(1.7)
Current Smoking	26.5	26.5	(1.8)
Heavier Drinking	2.2	2.2	(0.6)
Binge Drinking	7.3	7.3	(1.0)
Drinking & Driving	1.5	1.5	(0.5)

*CI = 95% confidence interval. The midpoint prevalence (%) plus or minus the percentage indicated in parentheses comprises the range of values called the confidence interval. Users can be 95% confident that the true prevalence lies within this interval.

Appendix C

Sample Designs Behavioral Risk Factor Surveillance System, 1993

State	Sample Design	State	Sample Design
Massachusetts	Disproportionate stratified random	Alabama	Waksberg Cluster
New Hampshire		Arkansas	
Pennsylvania		California	
Wisconsin		Colorado	
Connecticut	List-assisted stratified random	Delaware	
New Jersey		District of Columbia	
Ohio		Florida	
Vermont		Georgia	
Washington	Simple random	Idaho	
Kansas		Illinois	
Nebraska		Indiana	
Alaska		Iowa	
Nevada	Stratified directory/random comb.	Kentucky	
Arizona		Louisiana	
Hawaii		Maine	
		Maryland	
	Stratified random	Michigan	
		Minnesota	
		Mississippi	
		Missouri	
	Stratified Waksberg Cluster	Montana	
		New Mexico	
		New York	
		North Carolina	
		North Dakota	
		Oklahoma	
		Oregon	
		Rhode Island	
		South Carolina	
		South Dakota	
		Tennessee	
		Texas	
		Utah	
		Virginia	
		West Virginia	

Appendix D
Number of Interviews by State
Behavioral Risk Factor Surveillance System, 1993

State	Non-Appalachian Counties	Appalachian Counties
*Alabama	787	1,321
Alaska	1,534	-
Arizona	1,685	-
Arkansas	1,764	-
California	3,733	-
Colorado	1,802	-
Connecticut	1,810	-
Delaware	2,112	-
District of Columbia	1,505	-
Florida	3,093	-
*Georgia	1,680	547
Hawaii	2,155	-
Idaho	1,808	-
Illinois	2,200	-
Indiana	2,080	-
Iowa	1,800	-
Kansas	1,440	-
*Kentucky	1,723	689
Louisiana	1,653	-
Maine	1,260	-
*Maryland	4,123	248
Massachusetts	1,581	-
Michigan	2,414	-
Minnesota	3,412	-
*Mississippi	1,242	341
Missouri	1,514	-
Montana	1,189	-
Nebraska	1,807	-
Nevada	1,800	-
New Hampshire	1,500	-
New Jersey	1,517	-
New Mexico	1,293	-
*New York	2,263	130
*North Carolina	1,763	481
North Dakota	1,803	-
*Ohio	1,253	145
Oklahoma	1,512	-
Oregon	2,967	-
*Pennsylvania	1,157	1,276
Rhode Island	1,800	-
*South Carolina	1,482	607
South Dakota	1,798	-
*Tennessee	1,678	1,369
Texas	2,496	-
Utah	1,800	-
Vermont	1,882	-
*Virginia	1,618	139
Washington	2,586	-
*West Virginia	-	2,425
Wisconsin	1,567	-

*Appalachian States

Appendix E

RURAL/URBAN DEFINITIONS

In Sowing Seeds in the Mountains: Community-Based Coalitions for Cancer Prevention and Control, published by the Appalachia Leadership Initiative on Cancer (ALIC), the U.S. Department of Agriculture's (USDA) Rural-Urban Continuum Codes were used to define rural and urban counties within Appalachia. Using the USDA's codes, shown in Table C-1, metropolitan counties are classified by size and nonmetropolitan counties are classified by degree of urbanization or proximity to metropolitan areas. For their purposes, the ALIC collapsed the nine continuum codes into two categories, with Codes 0-5 redefined as "urban" and Codes 6-9 redefined as "rural." We have chosen to use the ALIC's definition for rural in this report: A rural county is a nonmetropolitan county with an urban population of less than 20,000.

Table E-1

ALIC Rural and Urban County Categories Based on the
USDA Rural-Urban Continuum Codes for Metro and Nonmetro Counties

Code	Type	of County	Definition
URBAN COUNTIES (as defined by the ALIC)			
0	Metropolitan Counties	Core large metropolitan	Central counties of metropolitan areas of 1 million population or more
1		Fringe metropolitan	Fringe counties of metropolitan areas of 1 million population or more
2		Medium metropolitan	Counties in metropolitan areas of 250,000 to 1 million population
3		Lesser metropolitan	Counties in metropolitan areas of less than 250,000 population
4	Nonmetropolitan Counties	Urbanized/adjacent	Urban population of 20,000 or more, adjacent to a metropolitan area
5		Urbanized/nonadjacent	Urban population of 20,000 or more, not adjacent to a metropolitan area
RURAL COUNTIES (as defined by the ALIC)			
6	Nonmetropolitan Counties	Less urbanized/adjacent	Urban population of 2,500 to 19,999, adjacent to a metropolitan area
7		Less urbanized/nonadjacent	Urban population of 2,500 to 19,999, not adjacent to a metropolitan area
8		Completely rural/adjacent	Completely rural or fewer than 2,500 urban population, adjacent to a metropolitan area
9		Completely rural/nonadjacent	Completely rural or fewer than 2,500 urban area population, not adjacent to a metropolitan area

Source: Butler, M.A. *Rural-Urban Continuum Codes for Metro and Nonmetro Counties*.
U.S. Department of Agriculture, Economic Research Service, Agriculture and
Rural Economy Division. Staff Report No. 9028, April 1990.

Appendix F
LIST OF APPALACHIAN COUNTIES BY STATE

ALABAMA	Gwinnett	McCreary	Schuyler	Monroe
Bibb	Habersham	Menifee	Steuben	Morgan
Blount	Hall	Monroe	Tioga	Muskingum
Calhoun	Haralson	Montgomery	Tompkins	Noble
Chambers	Heard	Morgan	NORTH CAROLINA	Perry
Cherokee	Jackson	Owlsley	Alexander	Pike
Chilton	Lumpkin	Perry	Alleghany	Ross
Clay	Madison	Pike	Ashe	Scioto
Cleburne	Murray	Powell	Avery	Tuscarawas
Colbert	Paulding	Pulaski	Buncombe	Vinton
Coosa	Pickens	Rockcastle	Burke	Washington
Cullman	Polk	Rowan	Caldwell	PENNSYLVANIA
De Kalb	Rabun	Russell	Cherokee	Allegheny
Elmore	Stephens	Wayne	Clay	Armstrong
Etowah	Towns	Whitley	Davie	Beaver
Fayette	Union	Wolfe	Forsyth	Bedford
Franklin	Walker	MARYLAND	Graham	Blair
Jackson	White	Allegany	Haywood	Bradford
Jefferson	Whitfield	Garrett	Henderson	Butler
Lamar	KENTUCKY	Washington	Jackson	Cambria
Lauderdale	Adair	MISSISSIPPI	Macon	Cameron
Lawrence	Bath	Alcorn	Madison	Carbon
Limestone	Bell	Benton	McDowell	Centre
Madison	Boyd	Calhoun	Mitchell	Clarion
Marion	Breathitt	Chickasaw	Polk	Clearfield
Marshall	Carter	Choctaw	Rutherford	Clinton
Morgan	Casey	Clay	Stokes	Columbia
Pickens	Clark	Itawamba	Surry	Crawford
Randolph	Clay	Kemper	Swain	Elk
Shelby	Clinton	Lee	Transylvania	Erie
St. Clair	Cumberland	Lowndes	Watauga	Fayette
Talladega	Elliott	Marshall	Wilkes	Forest
Tallapoosa	Estill	Monroe	Yadkin	Fulton
Tuscaloosa	Fleming	Noxubee	Yancey	Greene
Walker	Floyd	Oktibbeha	OHIO	Huntingdon
Winston	Garrard	Pontotoc	Adams	Indiana
GEORGIA	Green	Prentiss	Athens	Jefferson
Banks	Greenup	Tippah	Belmont	Juniata
Barrow	Harlan	Tishomingo	Brown	Lackawanna
Bartow	Jackson	Union	Carroll	Lawrence
Carroll	Johnson	Webster	Clermont	Luzerne
Catoosa	Knott	Winston	Columbiana	Lycoming
Chattooga	Knox	NEW YORK	Coshocton	McKean
Cherokee	Laurel	Allegany	Gallia	Mercer
Dade	Lawrence	Broome	Guernsey	Mifflin
Dawson	Lee	Cattaraugus	Harrison	Monroe
Douglas	Leslie	Chautauqua	Highland	Montour
Fannin	Letcher	Chemung	Hocking	Northumberland
Floyd	Lewis	Chenango	Holmes	Perry
Forsyth	Lincoln	Cortland	Jackson	Pike
Franklin	Madison	Delaware	Jefferson	Potter
Gilmer	Magoffin	Otsego	Lawrence	Schuylkill
Gordon	Martin	Schoharie	Meigs	Snyder

Appendix F
LIST OF APPALACHIAN COUNTIES BY STATE (Cont'd.)

Somerset	Meigs	Calhoun
Sullivan	Monroe	Clay
Susquehanna	Morgan	Doddridge
Tioga	Overton	Fayette
Union	Pickett	Gilmer
Venango	Polk	Grant
Warren	Putnam	Greenbrier
Washington	Rhea	Hampshire
Wayne	Roane	Hancock
Westmoreland	Scott	Hardy
Wyoming	Sequatchie	Harrison
SOUTH CAROLINA	Sevier	Jackson
Anderson	Smith	Jefferson
Cherokee	Sullivan	Kanawha
Greenville	Unicoi	Lewis
Oconee	Union	Lincoln
Pickens	Van Buren	Logan
Spartanburg	Warren	McDowell
TENNESSEE	Washington	Marion
Anderson	White	Marshall
Bledsoe	VIRGINIA	Mason
Blount	Alleghany	Mercer
Bradley	Bath	Mineral
Campbell	Bland	Mingo
Cannon	Botetourt	Monongalia
Carter	Buchanan	Monroe
Claiborne	Carroll	Morgan
Clay	Craig	Nicholas
Cocke	Dickenson	Ohio
Coffee	Floyd	Pendleton
Cumberland	Giles	Pleasants
De Kalb	Grayson	Pocahontas
Fentress	Highland	Preston
Franklin	Lee	Putnam
Grainger	Pulaski	Raleigh
Greene	Russell	Randolph
Grundy	Scott	Ritchie
Hamblen	Smyth	Roane
Hamilton	Tazewell	Summers
Hancock	Washington	Taylor
Hawkins	Wise	Tucker
Jackson	Wythe	Tyler
Jefferson	WEST VIRGINIA	Upshur
Johnson	Barbour	Wayne
Knox	Berkeley	Webster
Loudon	Boone	Wetzel
Macon	Braxton	Wirt
Marion	Brooke	Wood
McMinn	Cabell	Wyoming

