

# Tennessee's Behavioral Risk Factor Survey

2004

## November 2005

The Behavioral Risk Factor Surveillance System is a state-based, computer-assisted telephone interviewing effort conducted in cooperation with the Centers for Disease Control and Prevention. Since 1984, surveys of adults from randomly selected households throughout the state have been done every month. Questions are constructed to determine the behaviors of individuals that will affect their risk of developing chronic diseases that may lead to premature mortality and morbidity. The data collected helps to identify high risk populations that can be targeted for intervention programs. The data can also be used to track changes over time of prevalence of risk factor behaviors and related diseases, and can assess the impact of health promotion and prevention intervention programs. Currently, every state in the country, the District of Columbia, and three U.S. territories are members of this surveillance system.

Tennessee currently conducts approximately 4,000 interviews annually. During 2004, approximately 21,000 unique telephone numbers and over 76,000 call attempts to those numbers were required to complete these interviews. Tennessee's Behavioral Risk Factor Survey 2004 examines the results of some of the survey questions, and the trends for specific risk factors for the period 1995-2004.

Beginning in 1999, the Centers for Disease Control and Prevention (CDC) redefined its demographic classification scheme to include the ethnicity factor of Hispanic or non-Hispanic origin in its data collection and presentations. The new definitional classification is now slightly different from the demographic classification used in previous editions of this report. Where before the data was analyzed and presented according to the broad categories of white male, white female, nonwhite male, and nonwhite female, the data is now presented

using the categories of non-Hispanic white male, non-Hispanic white female, Hispanic or nonwhite male, and Hispanic or nonwhite female. The new classification scheme is basically a change in terminology, and does not significantly differ technically from the previous classification breakdown used. The new classification was implemented with the 2001 edition, and this report will analyze and present data according to these redefined categories. Care should be exercised in the comparison between data from the 2001 and 2004 editions of this report and previous editions.

Please bear in mind that the percentage estimates presented in the following tables represent point estimates made from sample data. As such, they are associated with a certain degree of random variation which must be taken into consideration in viewing and interpreting the data. The comparison of the percentages of the various risk factors and their differences by demographic characteristics may or may not be of valid concern without taking into consideration the confidence intervals about the percentages and their differences and whether or not these differences were statistically significant. The 1998 edition of this report interpreted in detail many of these differences with respect to statistically significant differences ( $\alpha=0.05$ ). Beginning with the 2001 edition, analytical emphasis began to focus on interpreting the time series analysis of the various selected behavioral risk indicators from 1994 through 2001. This analysis was done to note if any discernable change in the upward or downward movement of a respective risk factor had occurred over the time period, especially with respect to any change being statistically significant. This edition is likewise following the methodology and protocol of its predecessor with two additional years of data included in this analysis. The time period for the time series analysis is from 1995 to 2004. The inclusion of these two additional years gives a time series of ten years which should greatly enhance the credibility of any trend findings. The methodological approach will be to apply a linear regression model to the time series data for each of the selected risk factors being reviewed and noting the direction of the slope coefficient so derived, particularly with respect to the strength of this relationship. A statistically significant trend relationship will be defined when the slope coefficient is

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statistically significantly different from zero at the 95 percent (alpha=0.05) confidence level.

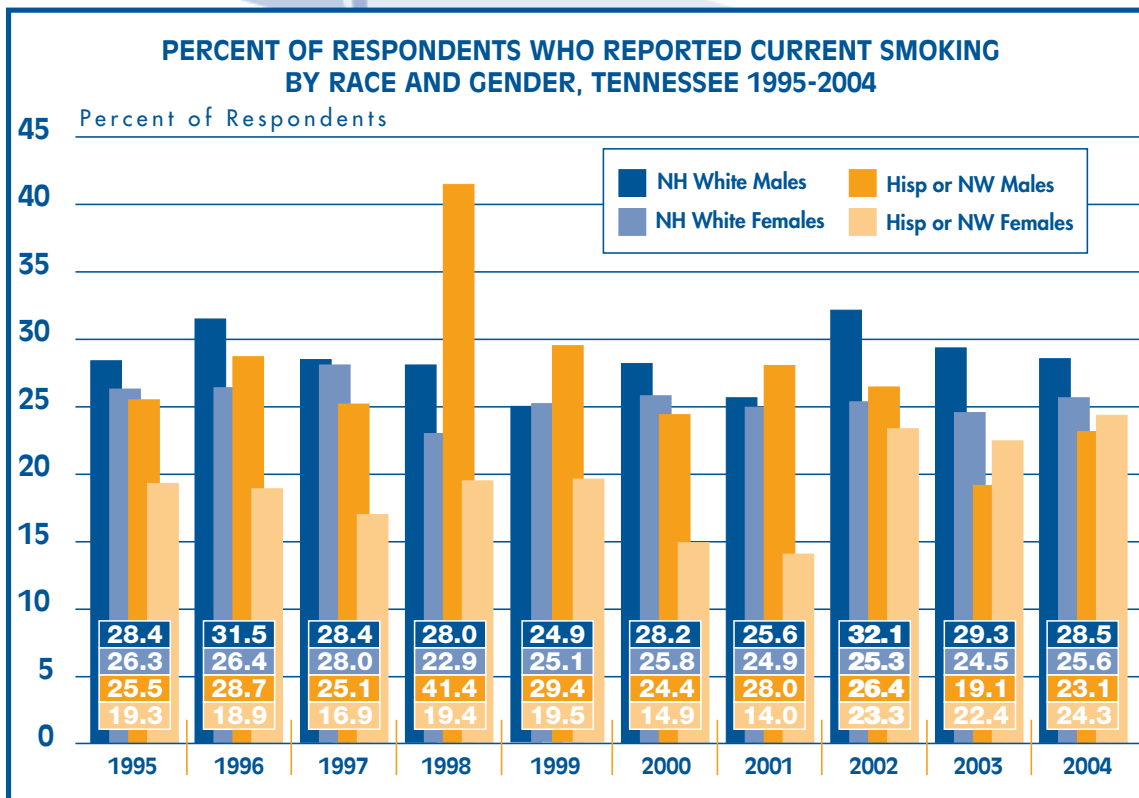
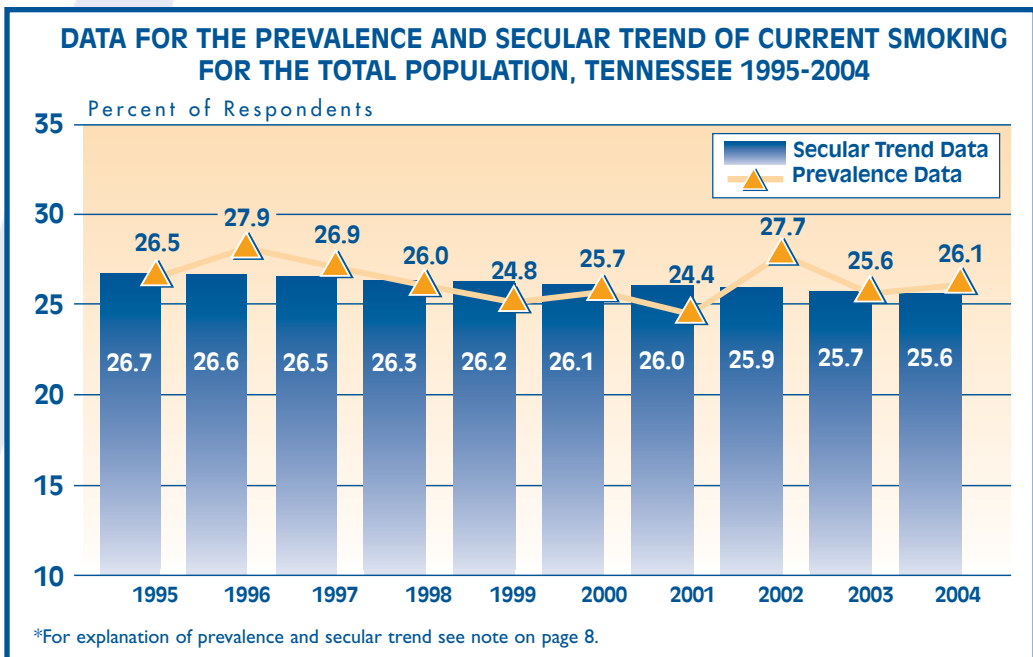
Tobacco use is the most preventable cause of premature mortality and morbidity in the United States and Tennessee. According to the survey, non-Hispanic white males overall reported the highest smoking prevalence rates for eight of the last ten years presented. Hispanic or nonwhite females consistently had the lowest smoking prevalence rates over this time period. Analysis of trend data showed that overall there was not a statistically significant downward trend (slope=-0.12, p=0.3717) for the population as a whole for the time period 1995-2004. While the 2001 Behavioral Risk Survey indicated a significant trend at that time, the percent of respondents who reported current smoking increased to 27.7 percent in 2002, the highest that it has ever been during this recent time period. Percent current smoking data for 2003 and 2004 were 25.6 and 26.1, respectively, higher than that for the years 1998-2001. Thus, the noticeable progress in the reduction of percent current smoking mentioned in the 2001

report has vanished with the inclusion of the results of the last three years of data. Current smoking still remains a serious and irresolvable health problem.

Tennessee's current smoking prevalence rate of 26.1 percent in 2004 is still well above the *Healthy People 2010 Objective* of 12.0 percent. Should the current trend of smoking prevalence in Tennessee continue, a prevalence rate of 25.4 percent would be forecast for 2010. So

it now appears that Tennessee will be falling short of the objective set for the nation as a whole.

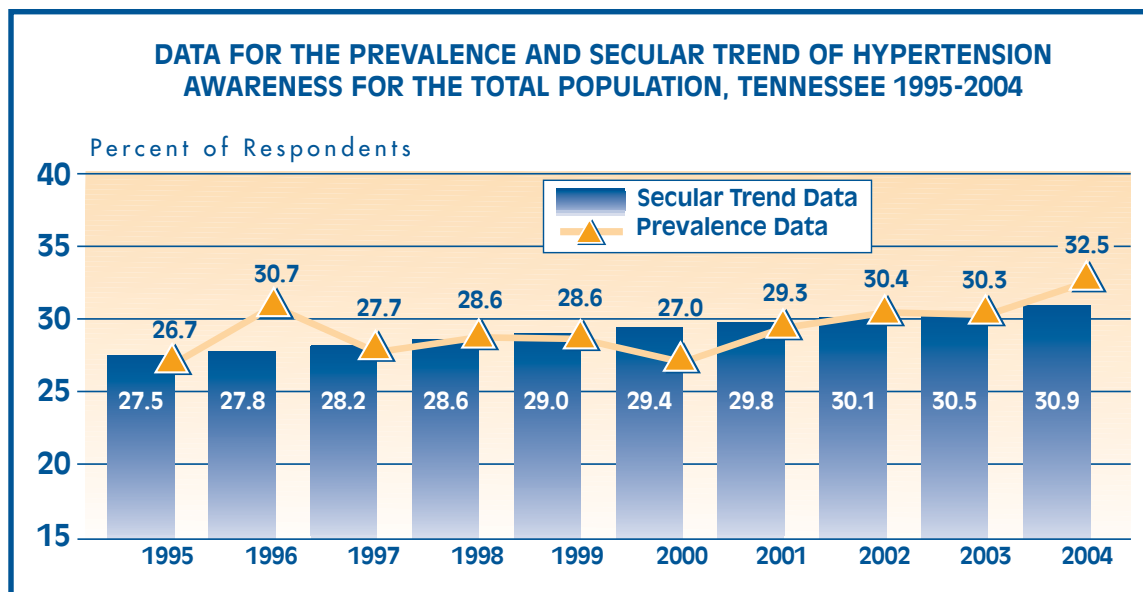
In analyzing the trend data for the more detailed demographic sub-classifications of the population for this risk factor, it was likewise noted there was little or no noticeable change in smoking prevalence in each of the demographic subcategories analyzed. No category showed any statistically significant trend over this time period. As was mentioned in the previous edition of this



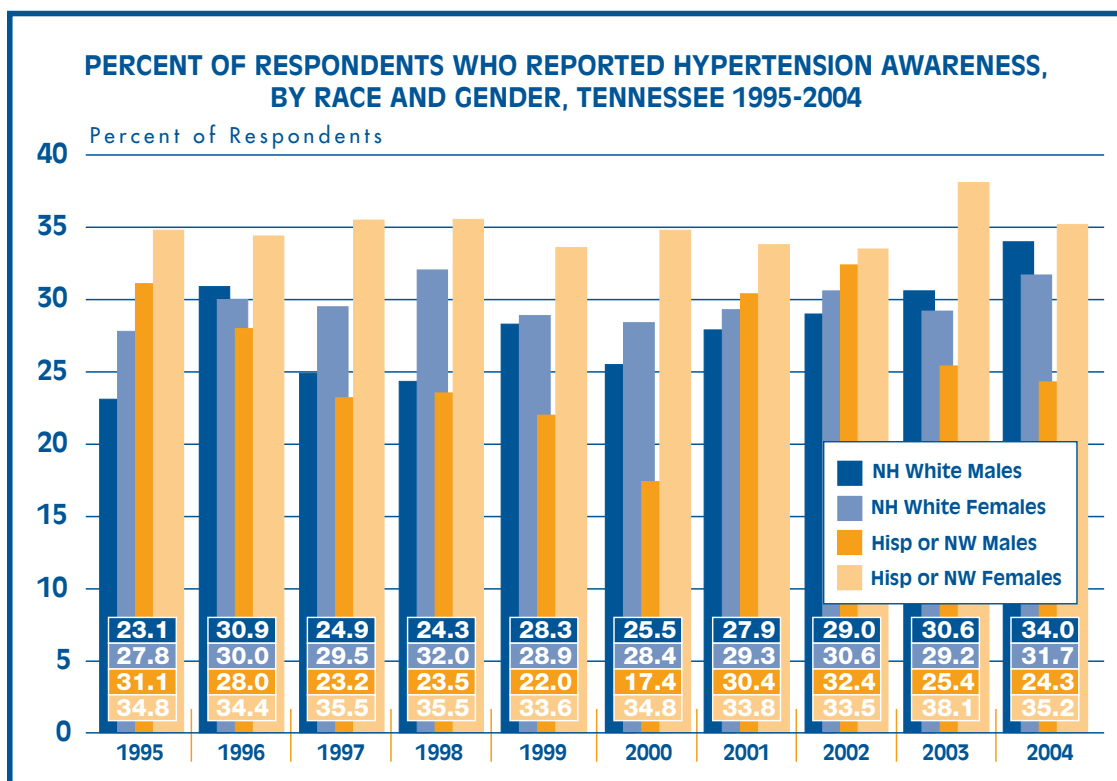
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report, a high prevalence rate of 41.4 for Hispanic or non-white males was much higher than that of previous and subsequent years. While the data value for 1998 appears to be inconsistent with similar data for the years covered in this study, it was verified to be the correct data reported from the Centers for Disease Control and Prevention. The reason for this unusually high, inconsistent value

remains unknown. Even ignoring this value, the prevalence rate for the latter part of this time period remains as high as the beginning part of this period. One can reasonably assume that there appears to be no progress in reducing the prevalence of smoking in the population overall, and in fact the rate for Hispanic or nonwhite females has slightly increased during the time period of 1995-2004. This would suggest that this cohort would be a likely target group for any future behavioral change programs or efforts.



Uncontrolled hypertension is a well-known risk factor for cardiovascular, cerebrovascular, and end-stage renal diseases. According to the survey, Hispanic or nonwhite females had the highest percentage of hypertension awareness respondents over the period 1995-2004. The other demographic categories appear to have fluctuated randomly with respect to one another. Analysis of trend data showed that there was, overall, a modest upward trend in the percent of the total population who were aware of their hypertension. This trend was statistically significant (slope=0.38, p=0.468).



Hypertension awareness has changed little if any over the time period 1995-2004. It remains above the Healthy People 2010 Objective for this risk factor of 16 percent.

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Being overweight/obese is a risk factor for heart disease, cancer, stroke, and diabetes. According to the Behavioral Risk Factor Survey, the non-Hispanic white female population had lower overweight/obesity rates than those of the other demographic subgroups over the time period 1995-2004.

Overweight/obese is defined to include all respondents to weight and height questions that had a computed body mass index greater than or equal to 25.

Analysis of trend data showed that overall there was a statistically significant upward trend (slope=1.38,  $p < 0.0001$ ) for the population as a whole. Analysis of trend data for the demographic categories of the population for this risk factor

showed that there was a statistically significant upward trend in the prevalence of overweight/obesity for non-Hispanic white males (slope=1.37,  $p < 0.0001$ ) and non-Hispanic white females (slope=1.45,  $p = 0.0001$ ). The analysis further indicates that this association is very strong. Hispanic or nonwhite males also

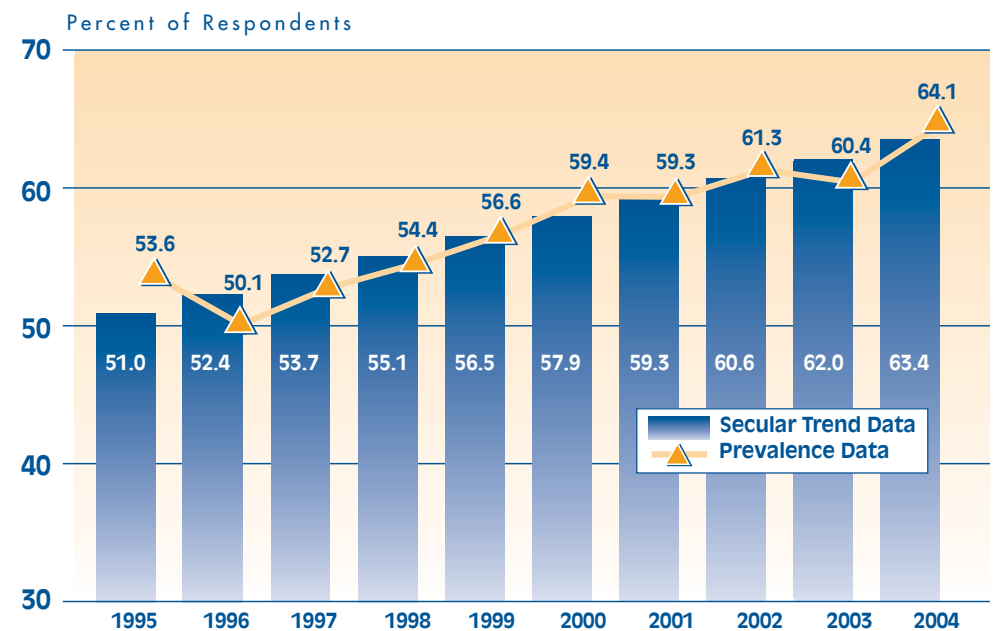
showed a statistically significant upward trend (slope=1.36,  $p = 0.0282$ ). Hispanic or nonwhite females showed an upward, but not statistically significant, trend. There appears to be a very strong indication that the overweight/obesity prevalence has definitely increased over the time period 1995-2004, and this increase has

occurred primarily in the non-Hispanic white population.

The prevalence of being overweight/obese for the total population was 64.1 percent in 2004. If the current trend continues as it has in the immediate past, an overweight/obesity rate of 72.1 percent would be forecast for 2010. The behavioral risk factor of overweight/obesity continues to remain an increasing public health concern in Tennessee.

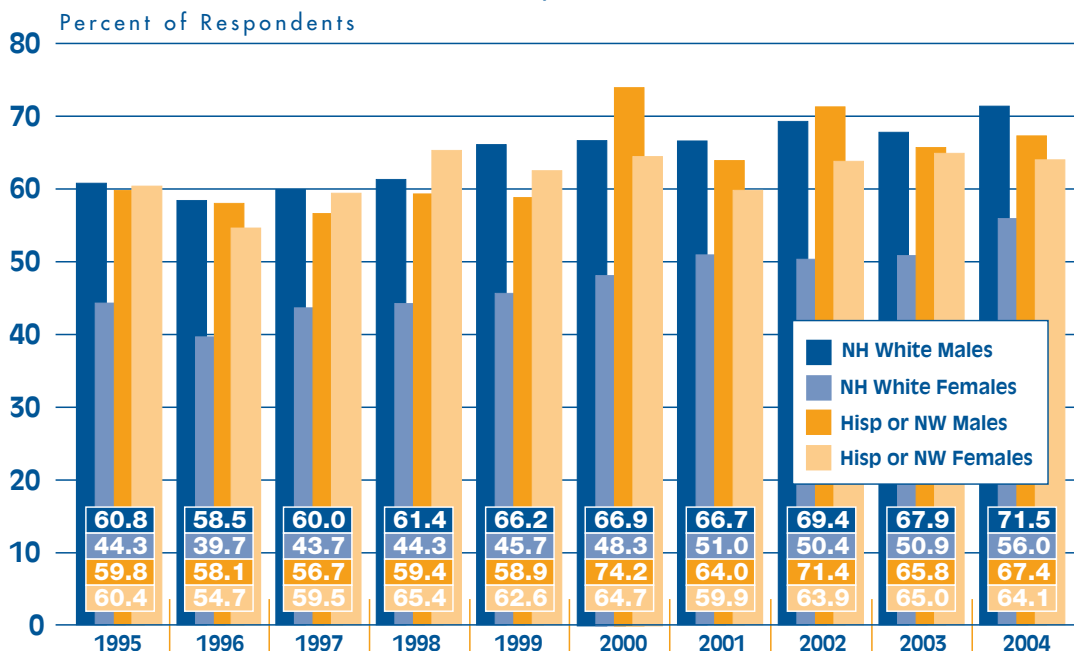
Diabetes is a chronic metabolic disease. In 2003, it was the sixth

**DATA FOR THE PREVALENCE AND SECULAR TREND OF THE TOTAL POPULATION WHO REPORTED OVERWEIGHT/OBESITY\*, TENNESSEE 1995-2004**



\*Includes all respondents to weight and height questions that had a computed body mass index greater than or equal to 25.0.

**PERCENT OF RESPONDENTS WHO REPORTED OVERWEIGHT/OBESITY\* BY RACE AND GENDER, TENNESSEE 1995-2004**

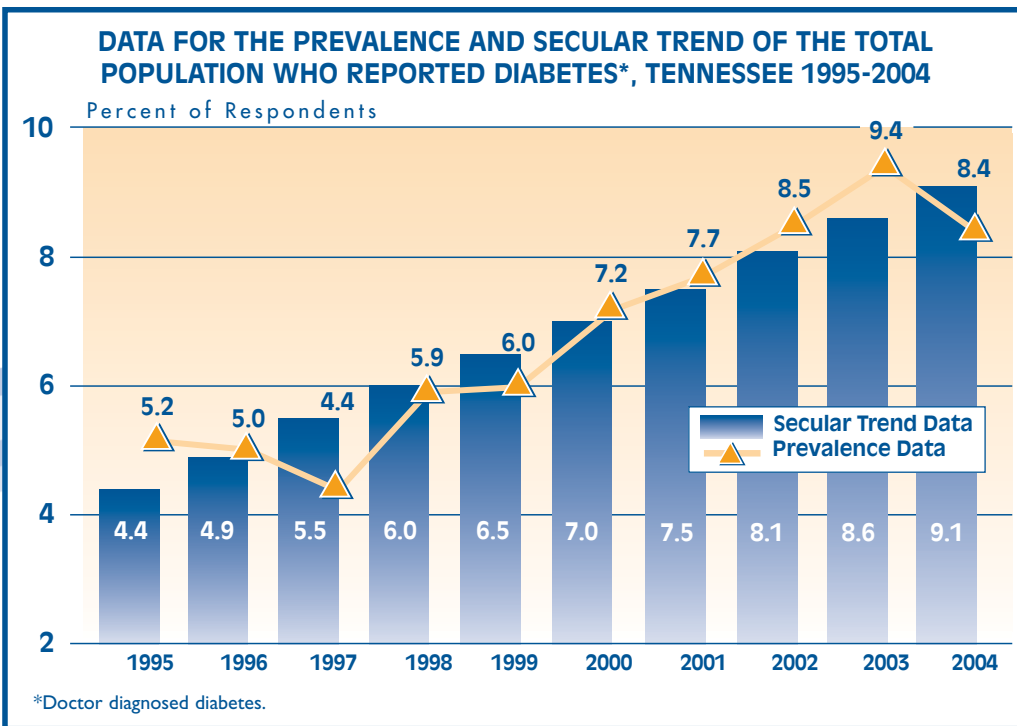


\*Includes all respondents to weight and height questions that had a computed body mass index greater than or equal to 25.0.

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leading cause of death in Tennessee and a contributing cause for various other deaths including cardiovascular disease. According to the survey, Hispanic or nonwhite females consistently reported the highest prevalence rates for most of the years during the 1995-2004 period. The other demographic categories appeared to fluctuate randomly in relation to one another. Analysis of trend showed that overall there was a statistically significant upward trend (slope=0.53, p=<0.0001) for the population as a whole. This is a strong indication that the prevalence of diabetes has been increasing over the period 1995-2004.

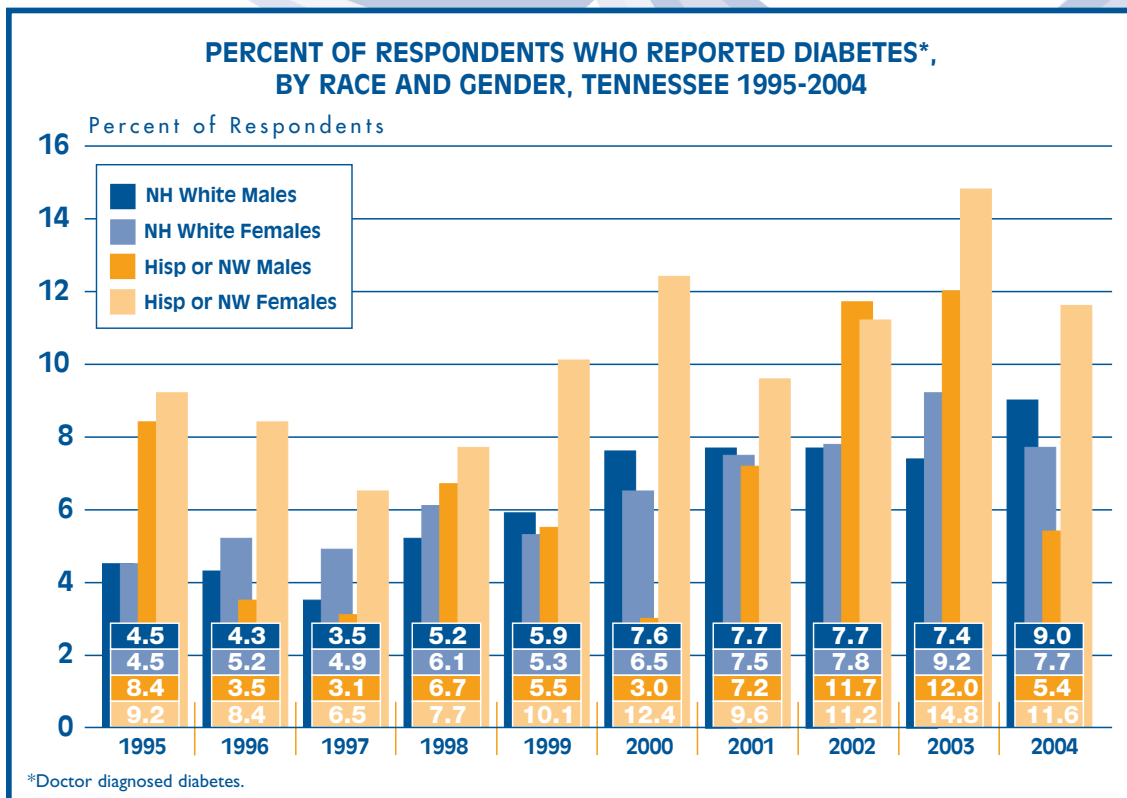
The current rate in Tennessee of 8.4 percent in 2004 is well above the Healthy People 2010 Objective for diabetes of 25 per 1,000 persons or 2.5 percent. This relationship only appears to be worsening. Should the current upward trend continue as it has been in the recent past, a prevalence rate of 12.2 would be forecast for 2010.



In analyzing the trend data for the more detailed demographic sub classifications of the population for this risk factor; it was noted that diabetes prevalence for non-Hispanic white males (slope=0.56, p=0.0002), for non-Hispanic white females (slope=0.46, p=0.0002), and for Hispanic or nonwhite females (slope=0.59, p=0.0150) showed statistically significant upward trends.

The trend for Hispanic or nonwhite males fluctuated throughout the period 1995-2004 and did not show any statistical significance. The increase in the prevalence of diabetes appears to be more pronounced in the non-Hispanic white race/ethnicity groups. The prevalence of diabetes is a behavioral risk factor which is currently on the increase and remains of continuing public health concern.

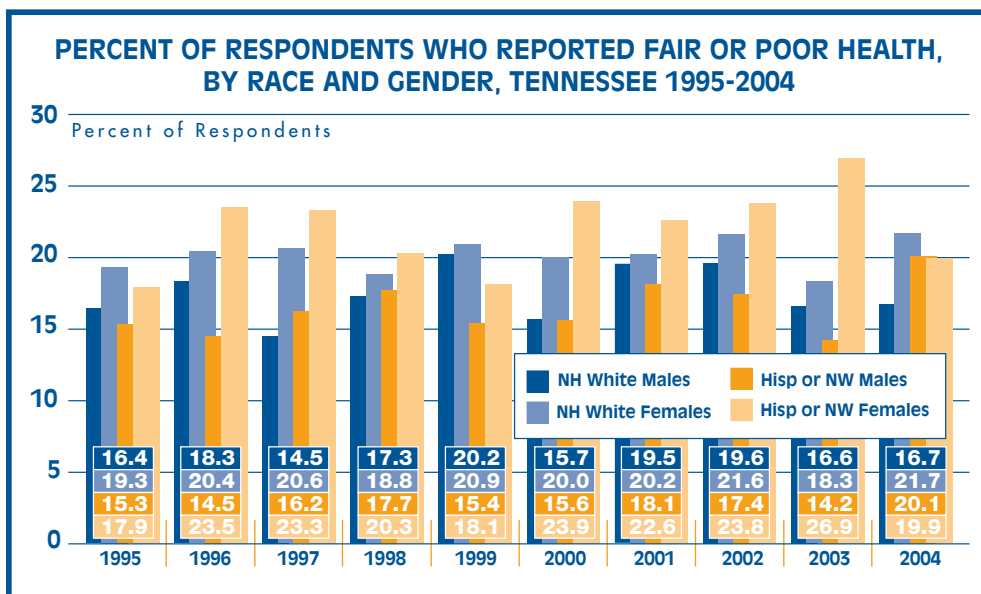
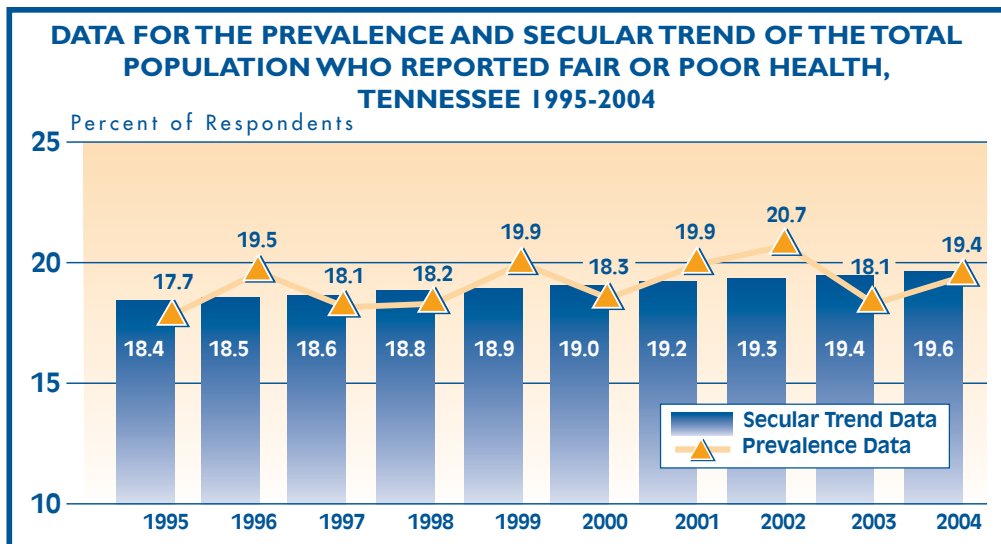
The Behavioral Risk Factor Survey interviews respondents regarding





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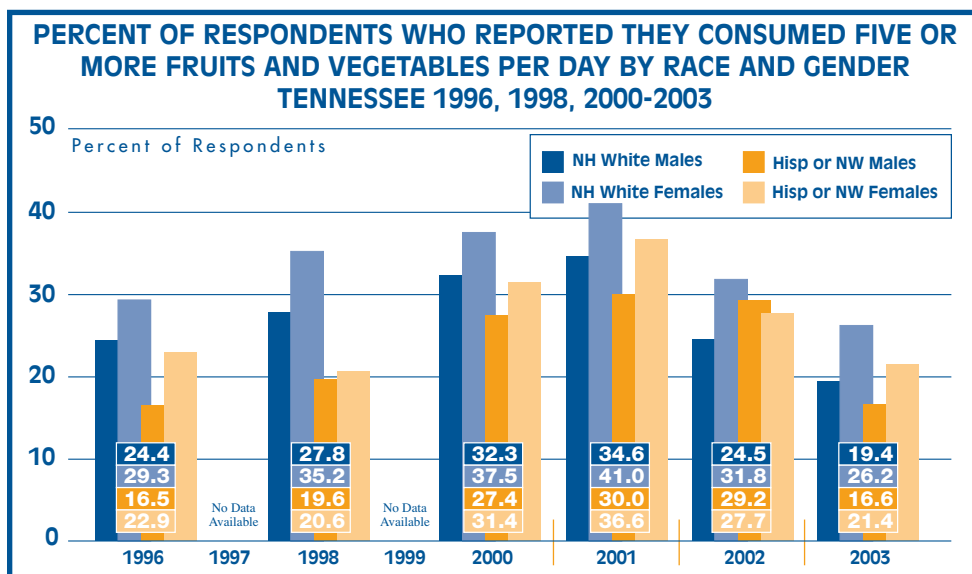
their self-reporting health status, and collects additional information on those reporting fair or poor health. No discernable differences in the percentage of respondents who reported fair or poor health by demographic categories were noted. Analysis of trend data showed that overall there was a slight upward trend over the time period 1995-2004, however, this trend was not statistically significant. Analysis of trend data for each of the more detailed demographic categories of the population indicated the same result: a slightly upward non-statistically significant trend. Thus,



In general, the survey showed that the non-Hispanic white females and Hispanic or nonwhite females appear to have had the highest percentage of the population reporting that they consumed five or more fruits and vegetables daily for most of the years presented during the time period 1996-2003. Due to the lack of complete data over this time period, no formal analysis discussion will be presented. In viewing the data, however, it appears that the percentage of respondents who reported that they consumed five or more fruits and vegetables per day had been steadily increasing throughout the period 1996-2001, then began to

there appears to be little if any change in the percent of respondents who reported fair or poor health over the period 1995-2004.

Good nutrition is a good health habit for promoting a healthy life and a preventive lifestyle. The percent of the population who reported they consumed five or more fruits and vegetables per day was surveyed every other year from 1996-2000 before being surveyed annually starting in 2001. Therefore, there is only data available for 1996, 1998, and 2000-2003. Data for 2004 is not available.



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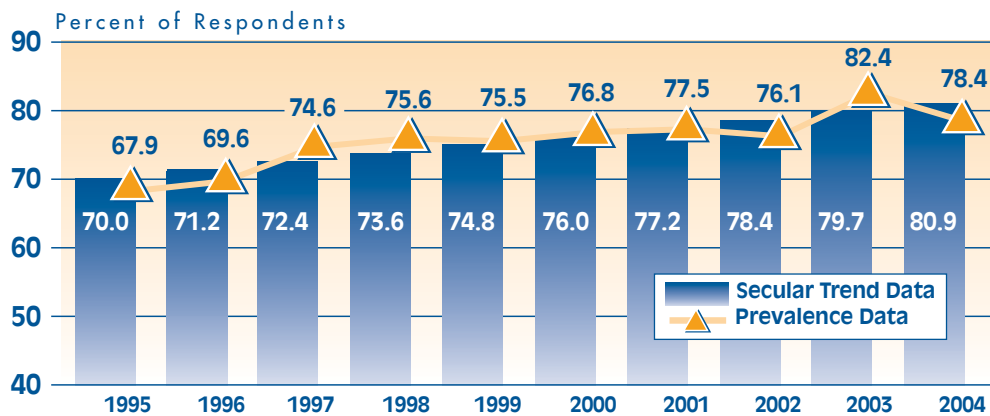
recede for the next two years 2002-2003. This observation applies not only to the population as a whole but to each demographic subcategory as well. This behavioral risk factor seems now to be declining after having moved in positive direction in the early part of the time period.

Having a mammogram is a very important and highly effective diagnostic screening procedure in the early detection and prevention of breast cancer, especially in women age 50 and over. Of the population surveyed over 1995-2004, there was very little

discernable difference between the two demographic racial/ethnicity groups in the percent of women 50 years of age and older who reported having had a mammogram within the previous two years. The fluctuation in percentage rates appeared to be fairly random between the two groups.

Analysis of trend data showed that overall there was a statistically significant upward trend in the percent of women having a mammogram within the last two years (slope=1.15,  $p=0.0230$ ). This was also true for the race/ethnicity categories for this behavioral risk factor. Both non-Hispanic white females (slope=1.12,  $p=0.0020$ ) and Hispanic nonwhite females (slope=1.44,  $p=0.0115$ ) had statistically significant upward

**DATA FOR THE PREVALENCE AND SECULAR TREND OF THE TOTAL WOMEN RESPONDENTS AGED 50 AND OLDER WHO HAD A MAMMOGRAM WITHIN THE LAST TWO YEARS, TENNESSEE 1995-2004**

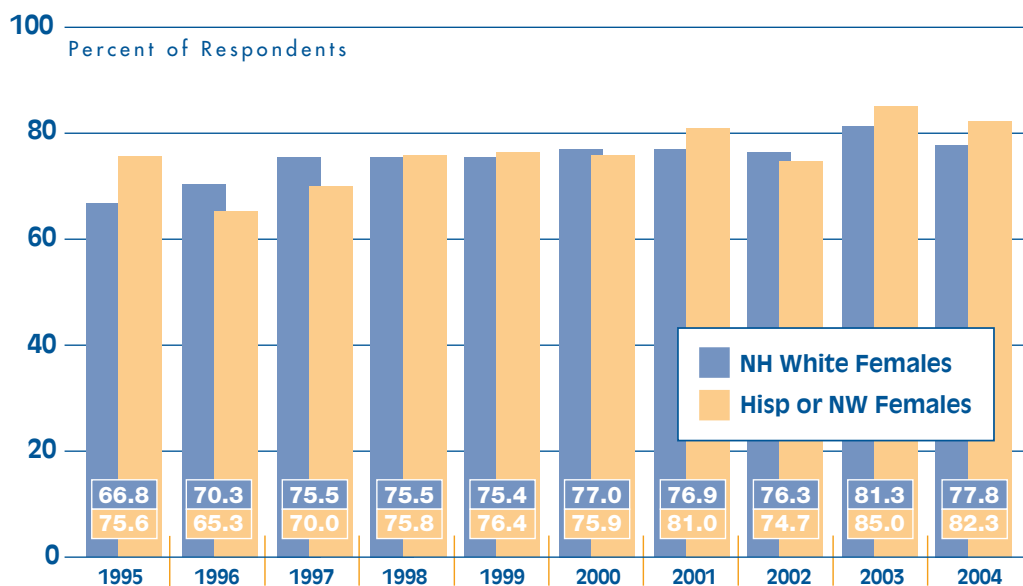


trends. Should this current trend of women age 50 and older having a mammogram within the past two years continue, a prevalence rate of 87.3 percent would be forecast for 2010. This appears to be a very positive finding for this risk factor.

Physical activity and fitness are good health habits for promoting a healthy life and a preventive lifestyle. The percent of the population who reported no physical activity was surveyed from 1996 through 2004. There was no survey for this risk factor for 1995 so the trend analysis for it will be based on nine years of data rather than ten years of data used for the other risk factors in this report. Of the population surveyed during this time period, females of both race/ethnicity categories, in general, reported a higher percentage of physical inactivity than males. More detailed data not presented here indicated that physical activity decreased with age.

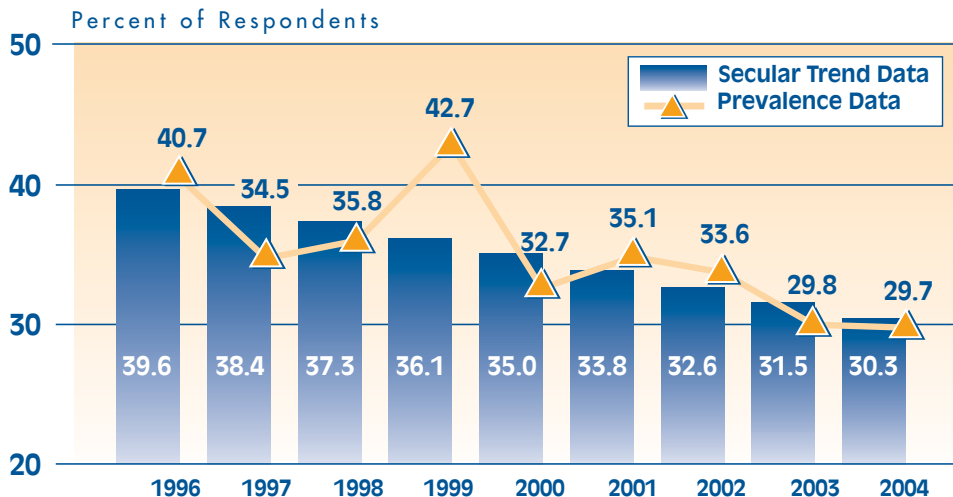
Analysis of trend data showed that overall there was a downward trend in the percent of respondents who reported no leisure time physical activity during the time period 1996-2004. This trend was statistically significant (slope=-1.17,  $p=0.0265$ ). Analysis of trend data for each of the more detailed demographic categories of the population indicates similar results. All demographic categories show a downward trend. Only for non-Hispanic white males and non-Hispanic white females

**PERCENT OF WOMEN RESPONDENTS AGED 50 AND OLDER WHO HAD A MAMMOGRAM WITHIN LAST TWO YEARS, BY RACE, TENNESSEE 1995-2004**



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## DATA FOR THE PREVALENCE AND SECULAR TREND OF NO PHYSICAL ACTIVITY FOR THE TOTAL POPULATION, TENNESSEE 1996-2004



need of community-based programs that promote healthy lifestyles, and programs that provide education to reduce the risk of heart disease, stroke, cancer, and other diseases that could lead to premature mortality.

*(Prevalence Data – The percent of a population that is affected with a particular condition at a given time.*

*Secular Trend Data – Data relating to a continuing period of time.)*

Please visit the Tennessee Department of Health website: [tennessee.gov/health](http://tennessee.gov/health)

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was this downward trend statistically significant, (slope=-1.18,  $p=0.0118$ ) and (slope=-0.94,  $p=.0184$ ) respectively. While the strength of this association is not universally strong demographically, the direction of the trend appears to be very positive for this behavioral risk factor. It is hoped that people are becoming aware of the benefits of physical activity and fitness. The 2010 Healthy People Objective is to reduce the percent of adults who engage in no leisure-time physical activity to 20.0 percent. Tennessee's 2004 percentage for the population as a whole is 29.7, well above this objective. If the current trend continues a percent rate of physical inactivity of 23.1 would be predicted.

To increase the span of healthy life is a challenge for health officials in Tennessee as well as the nation. Health promotion strategies can play an important role in influencing personal choices for good health habits and preventative lifestyles. Prevention intervention programs, such as Tennessee's Better Health Initiative designed to promote physical activity and fitness, good nutrition, along with educating the population to the health risks of diabetes, tobacco, alcohol, drugs, and a sedentary lifestyle, are important tools toward increasing years of healthy life. The Behavioral Risk Factor Surveillance System can assist in identifying those individuals in

## PERCENT OF RESPONDENTS WHO REPORTED NO PHYSICAL ACTIVITY, BY RACE AND GENDER, TENNESSEE 1996-2004

