



Health and Disability in North Carolina

2003

A Joint Report from the
North Carolina Office on
Disability and Health
and the State Center for
Health Statistics

March 2004

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The goal of this partnership is to reduce health disparities and promote the health of people with disabilities through an integrated program of policy, practice, and research.

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The State Center for Health Statistics is located in the Division of Public Health within the North Carolina Department of Health and Human Services. The purpose of the State Center is to improve the health of North Carolinians by supplying accurate and timely health data to health professionals, program managers, policy makers, and the citizens of the state.

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PURPOSE OF THIS REPORT

Health and Disability in North Carolina 2003 presents highlights of what is currently known about the health status, health risks, and health-related experiences of people with disabilities in North Carolina. It is based on a compilation of data from the 2000 Census, the N.C. Behavioral Risk Factor Surveillance Survey (BRFSS), and the N.C. Youth Risk Behavior Survey (YRBS), as well as administrative data from the N.C. Core Indicators Project (NCCIP). These data sources identify population health disparities and can serve as the basis for targeting public health interventions and health improvement efforts for North Carolinians with disabilities.

DEFINING DISABILITY

Specific definitions of disability have been driven by government agencies to determine eligibility for benefits and services. As a result, disability has been measured in different ways across surveys and censuses, leading to conflicting estimates of the prevalence of disability. Increasingly, surveys are basing the definition of disability on limitations in daily activities such as working at a job, using a phone, or going outside the home alone. A person is considered to have a disability if he/she needs help to perform the activity, uses equipment, or requires standby help.¹ Furthermore, these limitations are expected to be permanent or long-term (chronic) in duration.

Using a definition of disability based on limitations in activity results in a broad definition of disability that includes some disabilities present from birth and others coming later in life as a consequence of injury, chronic disease, or aging. Disability definitions used in this report differ depending on the data source. A description of each data source and its methods for identifying individuals as having a disability can be found in the Appendices.

BACKGROUND

Attention is being cast both nationally and in North Carolina on eliminating health disparities among underserved populations, including persons with disabilities and ethnic and racial groups. While we do not have a complete understanding of why disability is associated with health disparities, there is evidence that low socioeconomic status, limited access to preventive care and health promotion, the cost of health care and inadequacy of health insurance, as well as attitudinal, communication, and environmental barriers, are among the underlying causes.^{2, 3, 4, 5}

Historically, people with disabilities have not been recognized as a distinct population and there has been limited data on the health status and health-related needs experienced by this population. Monitoring the health behaviors and risks of individuals with disabilities can serve as the foundation for public health action to promote the health of this population. Surveillance systems and administrative data sets serve as important tools for measuring the state's progress over time.

POPULATION DESCRIPTION

Disability in the General Population

United States Census

According to the 2000 U.S. Census, 21.1% of individuals in North Carolina who were 5 years of age and older were identified as having a disability. This is slightly higher than the overall prevalence of disability for this age group in the general U.S. population, which the 2000 Census documented at 19.3%.

Based on the 2000 Census, 8.5% of North Carolina children and youth ages 5 to 20 years are living with a disability. This rises to 20.9% for adults 21 to 64 years of age, and to 45.7% among adults age 65 and older.

| North Carolina | Census Estimate | % With a Disability |
|------------------------------|------------------------|----------------------------|
| Population 5-20 years | 1,749,742 | |
| With a disability | 147,883 | 8.5% |
| Population 21-64 years | 4,642,863 | |
| With a disability | 969,694 | 20.9% |
| Population 65 years and over | 924,128 | |
| With a disability | 422,788 | 45.7% |

Source: U.S. Census Bureau, Census 2000 Summary File 3.

Disability among Adults in North Carolina

North Carolina BRFSS

Another source of population-based prevalence of disability and functional activity limitation is through the N.C. Behavioral Risk Factor Surveillance System (BRFSS). According to the 2001 BRFSS, 25.3% of adults ages 18 and older in North Carolina were living with some type of disability. Table 2 shows the questions used to identify disability and the percentage of persons responding affirmatively to each question.

| Screener | % Yes |
|---|--------------|
| A disability can be physical, mental, emotional, or communication related. Do you consider yourself to have a disability? | 14.1 |
| Do you now have any health problem that requires you to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone? | 6.2 |
| Are you limited in any way in any activities because of physical, mental, or emotional problems? | 15.5 |
| Because of any impairment or health problem, do you have any trouble learning, remembering, or concentrating? | 10.1 |

Data do not represent an unduplicated count, since individuals could respond to more than one screener question.

A review of the N.C. BRFSS data since 1999 indicates an increasing trend in disability prevalence among the adult population. Adult disability prevalence in North Carolina was 21.5% in 1999, 24.4% in 2000, and 25.3% in 2001.

Despite differing methods of identification of disability used by the U.S. Census and the N.C. BRFSS, prevalence estimates are comparable (25.0% for adults 21 and older in the 2000 Census and 25.3% for adults 18 and older for the N.C. BRFSS), lending credence to these approaches for assessing disability prevalence in the population.

Data estimates for the state, as derived from the U.S. Census and the BRFSS Survey, indicate that across the adult life span a substantial number of North Carolinians are living with some type of disability. It is clear that the occurrence of disability increases sharply among middle-aged adults (45-64 years) and continues to increase among the elderly population.

Disability among Youth in North Carolina

For the 2000-2001 school year, the state added three disability screener questions to the Youth Risk Behavior Survey (YRBS) for both the high school and middle school surveys. These YRBS screener questions were based on screener questions from the N.C. BRFSS. The prevalence of high school students in regular classroom settings with self-reported disability in the state was 25%. The prevalence of middle school students in regular classroom settings with self-reported disability in North Carolina was 25%. Tables 3 and 4 show the questions used to identify disability and the percentage of students responding affirmatively to each question. It is of interest that when asked directly, 25% of the students reported disability or activity limitation, in contrast to the approximately 10% of the student population identified for special education services by the schools.

| Table 3. Positive Responses to the N.C. YRBS disability questions by disability subgroup for Grades 9-12 (High School) | |
|---|--------------|
| Screener | % Yes |
| A disability can be physical, mental, emotional, or communication-related. Do you consider yourself to have a disability? | 15.4 |
| Are you limited in any way in any activities because of any impairment or health problem? | 8.2 |
| Because of any impairment or health problem, do you have any trouble learning, remembering, or concentrating? | 8.1 |
| Data do not represent an unduplicated count, since individuals could respond to more than one screener question. | |

Table 4. Positive Responses to the N.C. YRBS disability questions by disability subgroup for Grades 6-8 (Middle School)

| Screeners | % Yes |
|---|--------------|
| A disability can be physical, mental, emotional, or communication-related. Do you consider yourself to have a disability? | 13.4 |
| Are you limited in any way in any activities because of any impairment or health problem? | 13.0 |
| Because of any impairment or health problem, do you have any trouble learning, remembering, or concentrating? | 4.3 |

Data do not represent an unduplicated count, since individuals could respond to more than one screener question.

Demographic Characteristics of North Carolina Adults Associated with Disability

The N.C. BRFSS provides a mechanism for describing the demographic characteristics of North Carolina adults, including those with disabilities. While there were relatively small differences in the percentages of persons with disability on the basis of gender, race, or ethnicity in the 2001 N.C. BRFSS, this was not the case in regard to age, where disability was much more prevalent among the older age groups. (Table 5)

Table 5. 2001 N.C. BRFSS Percentage with a Disability by Gender, Race, Ethnicity, and Age

| | Total Number of Respondents | Number with a Disability | Percent with a Disability* |
|------------------|------------------------------------|---------------------------------|-----------------------------------|
| Total | 5,958 | 1,598 | 25.3 |
| Gender | | | |
| Male | 2,277 | 554 | 23.6 |
| Female | 3,679 | 1,044 | 26.9 |
| Race | | | |
| Caucasian | 4,535 | 1,222 | 25.6 |
| African-American | 1,080 | 295 | 26.0 |
| Other Minority** | 252 | 51 | 18.1 |
| Ethnicity | | | |
| Hispanic | 171 | 39 | 18.8 |
| Not Hispanic | 5,771 | 1,557 | 25.6 |
| Age | | | |
| 18-24 | 525 | 81 | 16.0 |
| 25-34 | 1,112 | 147 | 13.0 |
| 35-44 | 1,233 | 224 | 16.7 |
| 45-54 | 1,103 | 330 | 28.0 |
| 55-64 | 788 | 281 | 33.1 |
| 65+ | 1,144 | 523 | 46.5 |

*Percentages are weighted to population characteristics and cannot be calculated directly from the numbers in the table.

**Includes American Indian, Asian, and other minority races.

Table 6. 2001 N.C. BRFSS Percentage with a Disability by Socio-demographic Characteristics

| | Total Number of Respondents | Number with a Disability | Percent with a Disability |
|-------------------------|------------------------------------|---------------------------------|----------------------------------|
| Total | 5,958 | 1,598 | 25.3 |
| Education | | | |
| < High school | 793 | 391 | 43.4 |
| High school grad | 1,772 | 505 | 26.8 |
| Some college | 1,541 | 402 | 23.2 |
| College grad | 1,831 | 295 | 15.1 |
| Household income | | | |
| <\$15,000 | 570 | 305 | 49.3 |
| \$15-\$24,999 | 973 | 337 | 32.2 |
| \$25-\$34,999 | 853 | 193 | 20.3 |
| \$35-\$49,999 | 941 | 161 | 17.2 |
| ≥\$50,000 | 1,549 | 242 | 15.0 |
| Employment | | | |
| Employed | 3,584 | 550 | 14.7 |
| Out of work | 189 | 68 | 36.7 |
| Unable to work | 343 | 314 | 91.2 |
| Retired or other | 1,829 | 664 | 34.5 |

*Percentages are weighted to population characteristics and cannot be calculated directly from the numbers in the table.

In regard to risk factors such as low education, low household income, or lack of employment, substantial group differences in disability were noted. (Table 6)

In 2001, for example, the rate of disability among persons with less than a high school education exceeded 43%. This was nearly three times the rate found among the group of adults with a college degree. Similarly, there were noticeable differences with respect to employment status. Over 91% of those who reported being unable to work said they had a disability. By comparison, only 14.7% of employed adults reported a disability.

The presence of a disability was also strongly associated with very low household income. Approximately one-half (49.3%) of all individuals with a total household income of less than \$15,000 reported a disability. In the top income category (≥\$50,000), 15% of the population reported a disability.

Comment

By 2010, the number of persons age 65 and older in North Carolina is expected to increase by about 22%, almost twice the projected 12.2% population growth rate for the state as a whole. Life expectancy at birth is also expected to increase for all groups.⁶ These demographic changes, in combination with higher survival rates for individuals with congenital, developmental and acquired disabilities, and chronic health conditions, will increase the proportion of people with disabilities in the state. Ongoing surveillance of persons with disabilities and proactive planning become essential in order to prepare for and address these expected changes.

HEALTH RISK BEHAVIORS

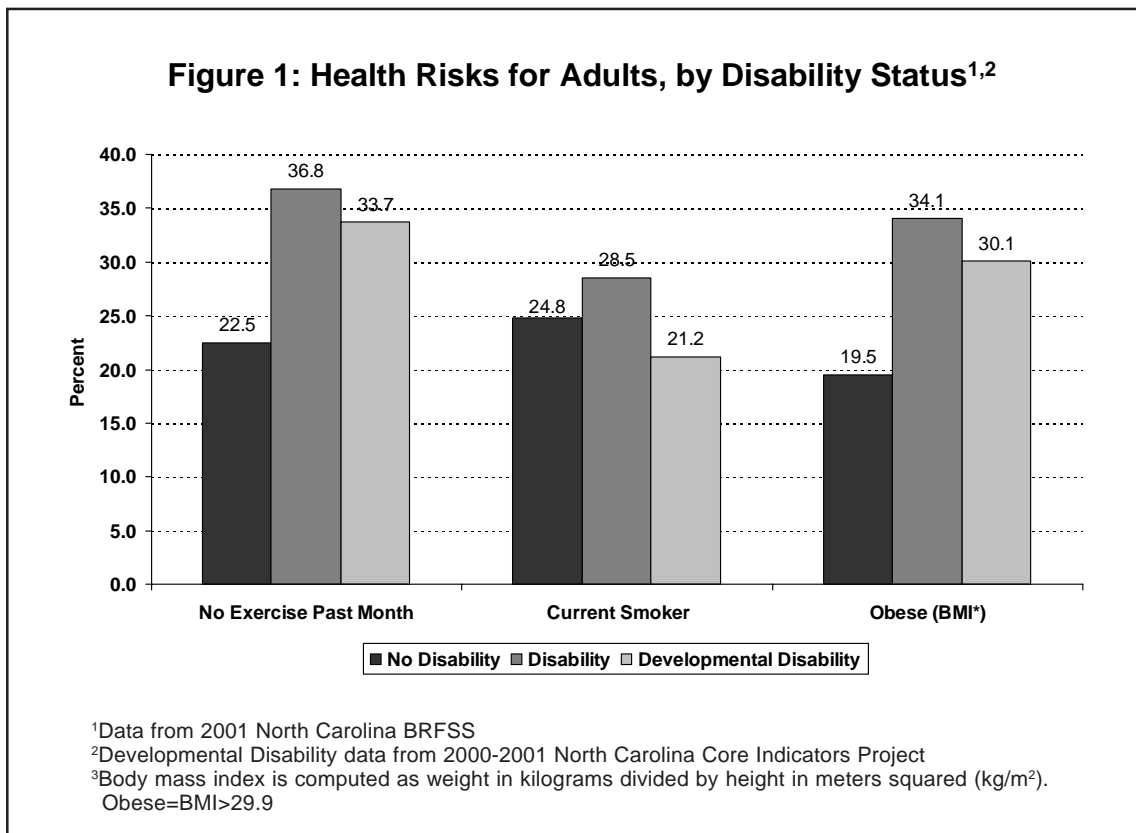
A risk factor is any physical, social, environmental, or behavioral factor that may lead to chronic diseases, conditions, and death. Many behavioral risk factors are modifiable. Changing lifestyle and behaviors can reduce the severity of, and potentially prevent, some major diseases and conditions.

Health Risks among Adults

In Figure 1, information from the N.C. BRFSS is presented on three health risk factors: no physical activity in the past month, smoking, and being obese.

Regular physical activity can reduce the risk of developing many chronic conditions and lower the risk of premature death and disability. According to the 2001 N.C. BRFSS, the rate of no physical activity during the past month was significantly higher among adults with disabilities (36.8%) than among adults who did not report disabilities (22.5%).

A complementary surveillance system to the N.C. BRFSS, the N.C. Core Indicators Project (CIP) collects data on the health risks of the population of adults with developmental disabilities, a population segment not typically captured through the BRFSS. The Core Indicators Project surveys adults who are receiving services through the state developmental disabilities program. The CIP reported an elevated risk of physical inactivity among adults with developmental disabilities (33.7%) in comparison to the adult population without disabilities in North Carolina (22.5%). (Figure 1)



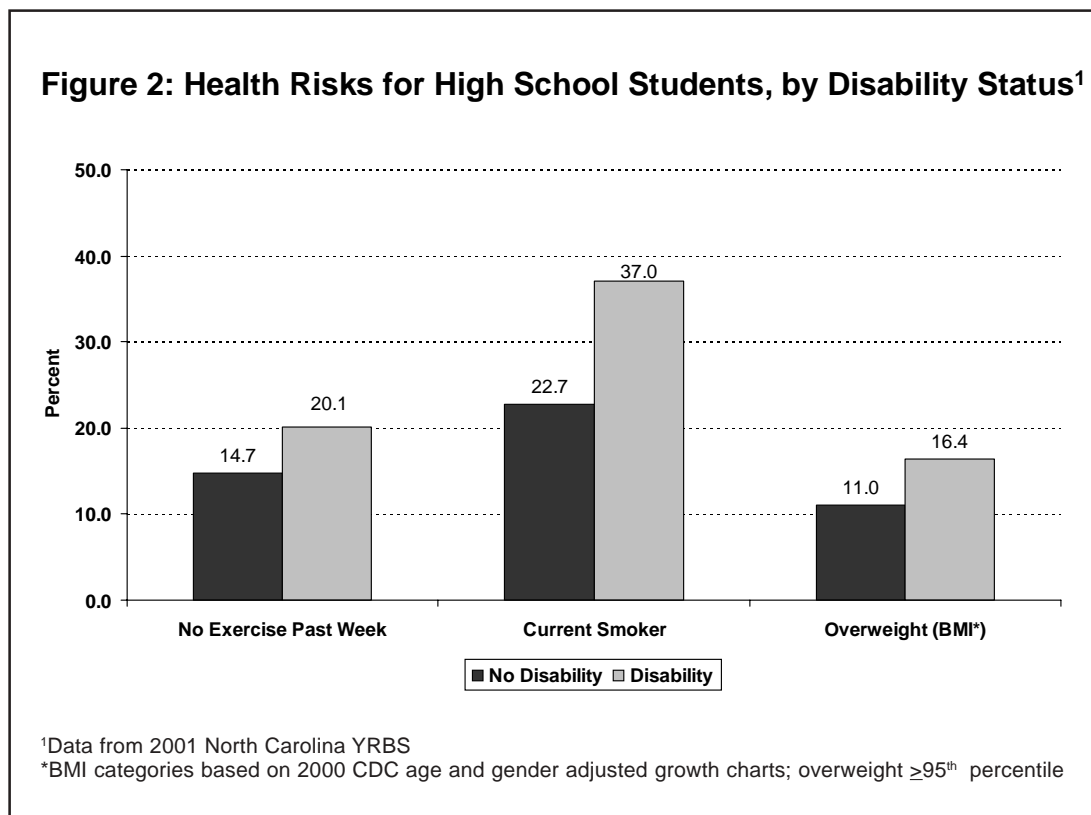
Smoking is a leading cause of preventable death and leads to an increased risk for heart disease, lung cancer, and other respiratory diseases. According to the 2001 N.C. BRFSS, 24.8% of adults without disabilities reported that they smoke cigarettes. In comparison, adults with disabilities were more likely (28.5%) to smoke cigarettes. Adults with developmental disabilities, as measured through the combined 2000 and 2001 N.C. CIP were nearly as likely to smoke (21.2%) as were adults without disabilities from the N.C. BRFSS sample. Increasingly, with the shift from more restrictive to less restrictive community living, adults with developmental disabilities are choosing lifestyles similar to those of the general population.

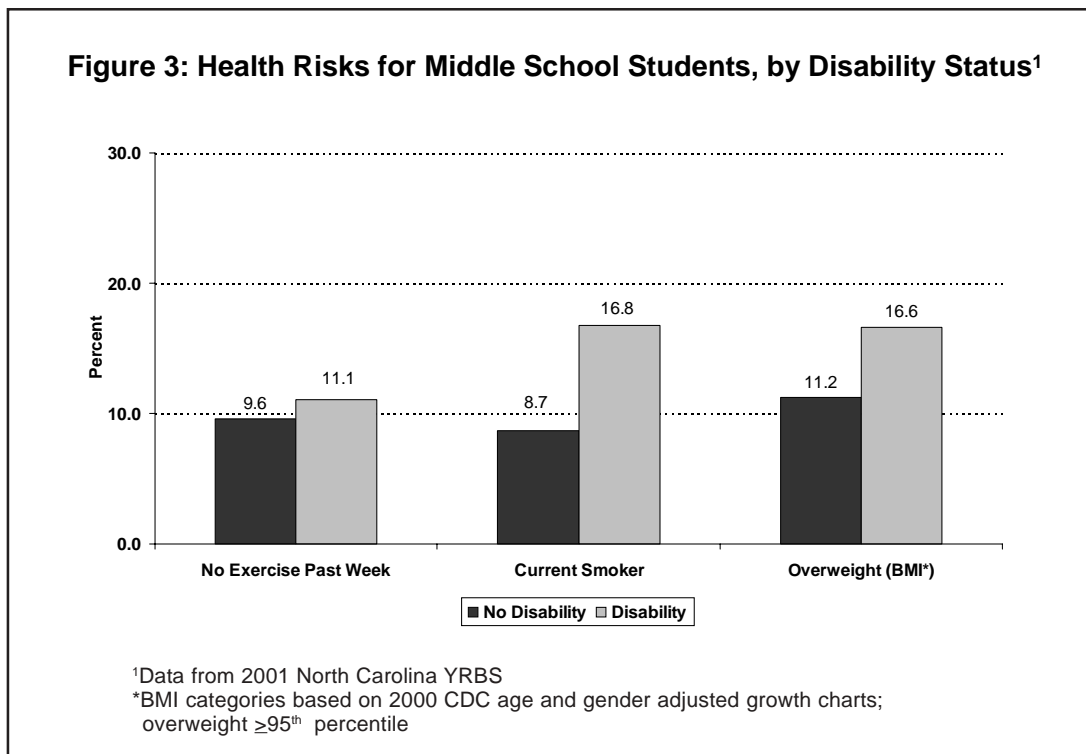
Being obese is a known risk factor for heart disease, hypertension, diabetes, and other chronic conditions. Adults with disabilities captured through the N.C. BRFSS and adults with developmental disabilities from the N.C. CIP were much more likely to be obese, 34.1% and 30.1% respectively, as compared to the population of adults without disabilities, at 19.5%.

Health Risks among Youth

The 2001 N.C. YRBS allows for a comparison of self-reported health risk behaviors among youths identifying themselves with and without disabilities. Among high school and middle school youth in regular education classrooms, those self-reporting disabilities report higher levels of risk behaviors in regard to no exercise, smoking, and being overweight than youth without disabilities. (Figures 2 and 3)

High school students reporting disabilities were more likely to report no exercise in the past week than students not reporting disabilities, 20.1% and 14.7%, respectively. The same held true for middle school students, with 11.1% of youth with disabilities versus 9.6% of youth without disabilities reporting no exercise in the past week.





Considering tobacco use, 37.0% of high school students reporting disabilities reported smoking cigarettes within the past 30 days as compared to 22.7% of their peers without disabilities. Among middle school students, almost twice as many youth who report disabilities report smoking within the past 30 days (16.8%) as compared to 8.7% of those without disabilities.

Finally, both high school and middle school students reporting disabilities were more likely to be overweight than students without disabilities in regular education classrooms (16.4% vs. 11.0% for high school and 16.6% vs. 11.2% for middle school).

Comment

The limited data on health risks among youth indicate that high school and middle school students with disabilities are more likely to report selected health risk behaviors. Youth with disabilities are significantly more likely to smoke and to be overweight than students without disabilities. Youth with disabilities, especially high school students, were more likely to report engaging in no physical activity within the past 30 days compared to youth without self-reported disabilities. Greater attention to inclusion of students with disabilities in school and community-based health promotion and risk reduction efforts is clearly indicated.

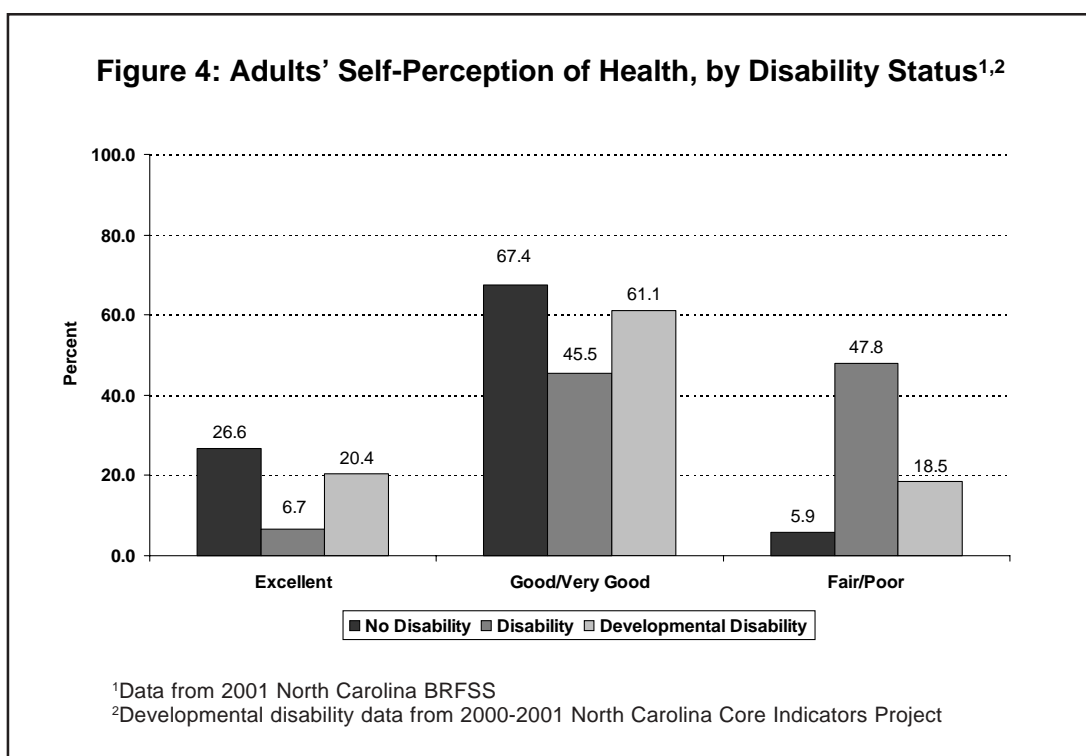
Adults with disabilities are significantly more likely to report no physical activity within the past 30 days and to be obese than adults without disabilities. The rate of current smoking is about the same for adults with and without disabilities. Participation in health promotion activities for adults with disabilities is limited by reduced access to programs and facilities. Health promotion and risk reduction programs available in the community, school, and clinical settings for the general population can be made more accessible to people with disabilities.

GENERAL HEALTH

Self-rated health provides a broad indicator of health and well-being, incorporating a variety of physical, emotional, and personal components of health.⁷ In the N.C. Behavioral Risk Factor Surveillance System, N.C. Core Indicators Project, and Youth Risk Behavior Survey, perceived health is measured on a scale ranging from excellent to poor.

Self-Perception of Health among Adults

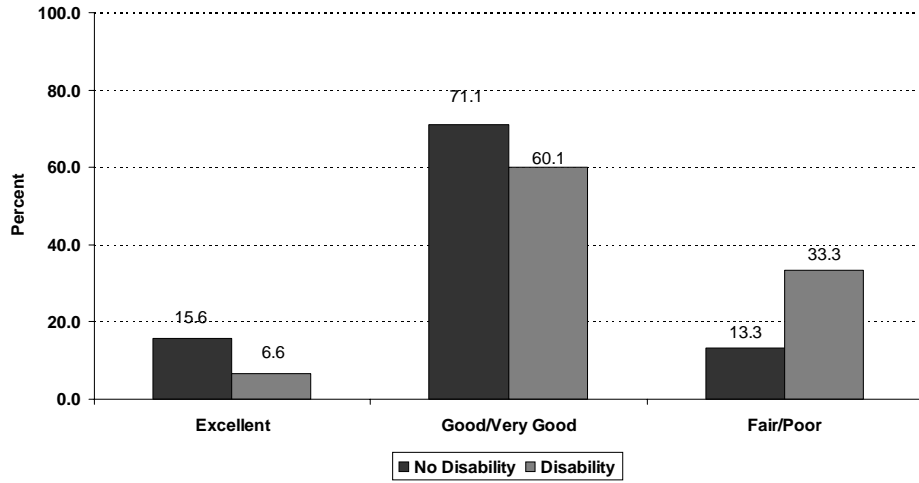
As shown in Figure 4, self-assessed fair/poor health was very prevalent among adults with disabilities. A total of 47.8% of individuals with disabilities and 18.5% of those with developmental disabilities reported their health as fair or poor, remarkably higher than the rate for the group without disabilities (5.9%). Of equal note, however, more than half (52.2%) of adults with disabilities self-rated their health as either good, very good or excellent. This contrasts with the traditional view that equates disability with poor health.



Self-Perception of Health among Youth

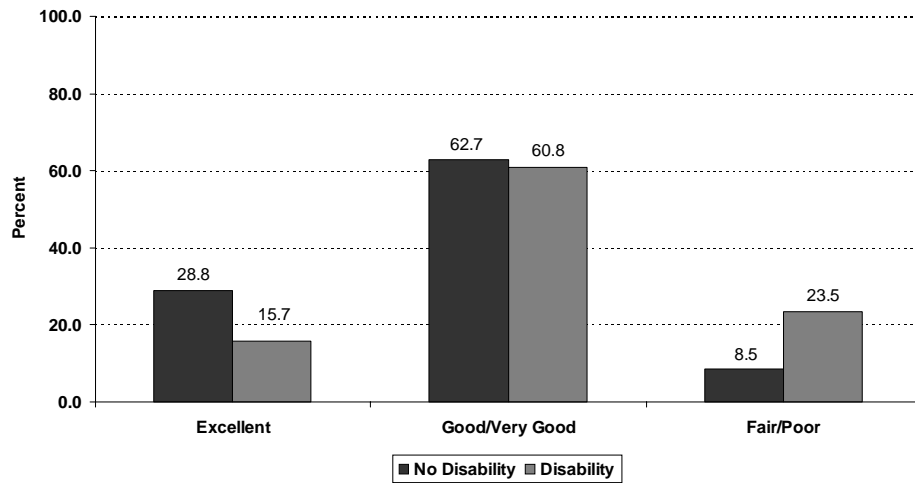
Among high school students in regular education classrooms in North Carolina, youth who identified themselves with disabilities were more than twice as likely to rate their health as fair or poor (33.3%) than were youth not reporting disabilities (13.3%). A similar trend was noted among middle school students, with 23.5% of those with disabilities rating their health as fair or poor, compared to 8.5% without disabilities. (Figures 5 and 6)

Figure 5: High School Students' Self-Perception of Health, by Disability Status¹



¹Data from 2001 North Carolina YRBS

Figure 6: Middle School Students' Self-Perception of Health, by Disability Status¹



¹Data from 2001 North Carolina YRBS

Comment

On a global measure of health status, youth and adults with disabilities are more likely than their non-disabled peers to report being in fair or poor health. However, over 60% of adults with developmental disabilities and high school and middle school youth with disabilities rated their health as good or very good. Presence of a disability is not consistently linked with a perceived diminished health status.

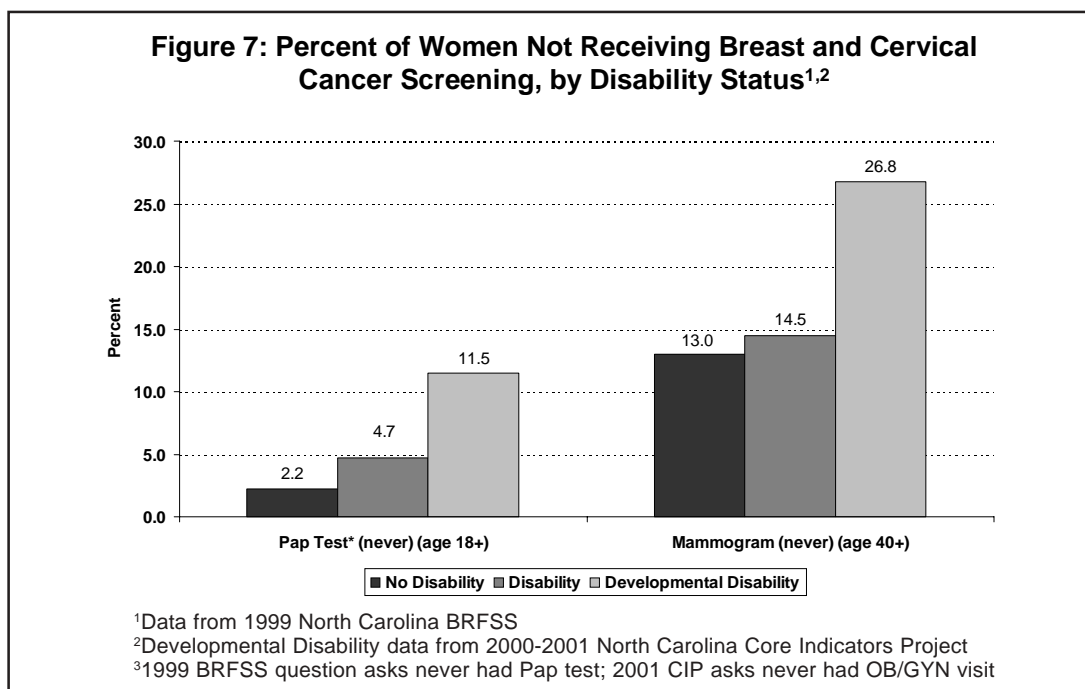
CANCER SCREENING

Routine screening for cancer through regular mammograms and Pap smears for women, prostate cancer screening for men, and colorectal cancer screenings for women and men are early detection strategies recommended for adults above certain ages. Screening services are the community portal for detecting breast, prostate, and colorectal cancer as early as possible, ensuring proper treatment and empowering people facing cancer to cope with the disease and maintain the highest possible quality of life.

Cervical and Breast Cancer Screening

Figure 7 presents the rates of cervical cancer screening and mammograms for North Carolina women with and without disabilities (BRFSS) and with developmental disabilities (CIP). Women with disabilities were twice as likely (4.7%) as women without disabilities (2.2%) to report never having had a Pap test. The N.C. CIP data indicate that 11.5% of women with developmental disabilities had never visited a gynecologist. These data are in contrast to the U.S. Preventive Services Task Force, which recommends Pap tests once every three years for all women age 18 and older (unless they are high-risk or have had previous abnormal Pap tests, in which case yearly tests are recommended).

In regard to breast cancer screening among women 40 years of age and older, women with disabilities were slightly more likely to have never had a mammogram (14.5%) than were women without disabilities (13.0%). Additionally, women with developmental disabilities over 40 years of age were significantly less likely to be screened, with 26.8% reporting that they had *never* had a mammogram. Women are advised to have mammograms every one or two years beginning with their fortieth birthday.⁸

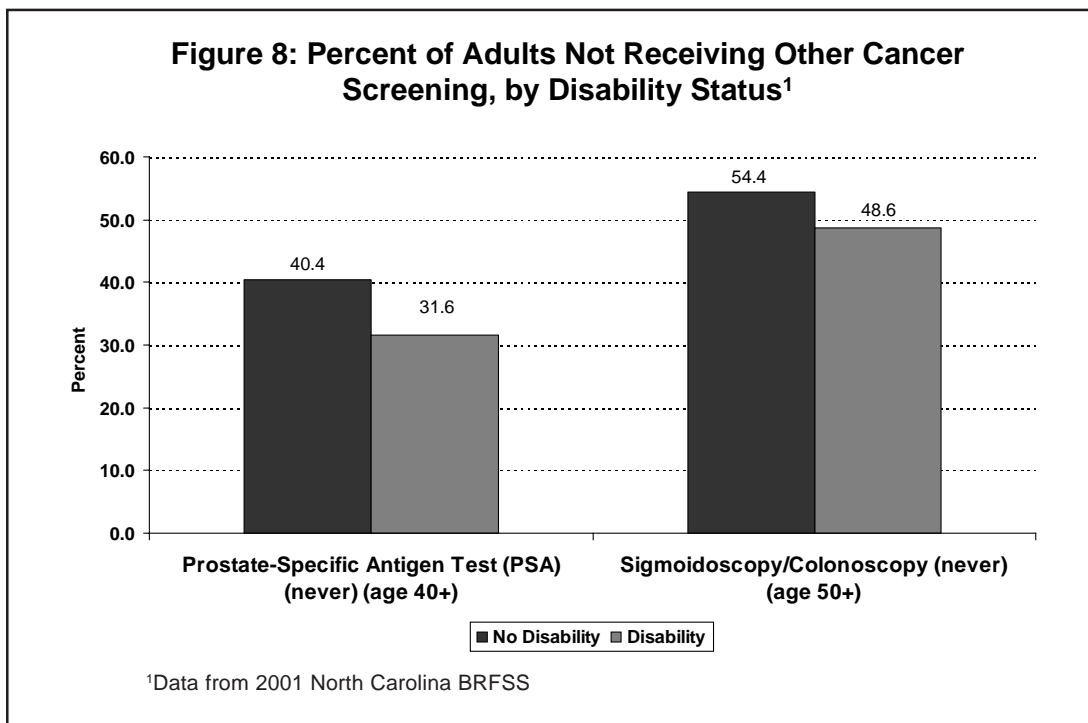


Prostate Cancer Screening

According to the N.C. BRFSS (Figure 8), men without disabilities were more likely to have never had a prostate-specific antigen test than men with disabilities (age 40 and older). The American Cancer Society (ACS) and other major medical organizations recommend that physicians offer annual prostate cancer screening to all men beginning at age 50 who have a life expectancy of at least 10 years. The ACS also recommends annual screening for men who are at increased risk, African-Americans, and men with a brother or father who had prostate cancer.

Colorectal Cancer Screening

The BRFSS identifies adults age 50 and over who never have had colorectal cancer screening (sigmoidoscopy or colonoscopy). As indicated in Figure 8, adults with disabilities reported better rates of colorectal cancer screening than those without disabilities. Among adults age 50 and older with disabilities, 48.6% reported never having had colorectal cancer screening, compared to 54.4% of adults without disabilities. The U.S. Preventive Services Task Force recommends regular colorectal cancer screening for all persons age 50 and older. The frequency of screening depends on the modality. Sigmoidoscopy is recommended every 5 years, and colonoscopy every 10 years, for average-risk people.



Comment

There were not consistent patterns of cancer screening service use by the populations of North Carolina adults with and without disabilities.

Women with disabilities were less likely to receive recommended cancer screenings than their non-disabled peers. The N.C. CIP data further documented women with developmental disabilities at significantly increased risk for not receiving breast and cervical cancer screening.

In the case of prostate and colorectal screenings, the screening rates for persons with disabilities were higher than for adults without disabilities. This could be due in part to the older age (on average) of persons with disabilities. It is important to note, however, that a large gap remains between recommended and actual practice for all adults, with nearly 40% of the state’s men age 40 and older reporting never having had a PSA test and approximately 50% of adults age 50 and older reporting never having had a sigmoidoscopy or colonoscopy.

Efforts should be made to increase awareness, both in the medical community and among people with disabilities, of the importance of cancer screening and strategies for improving use of services.

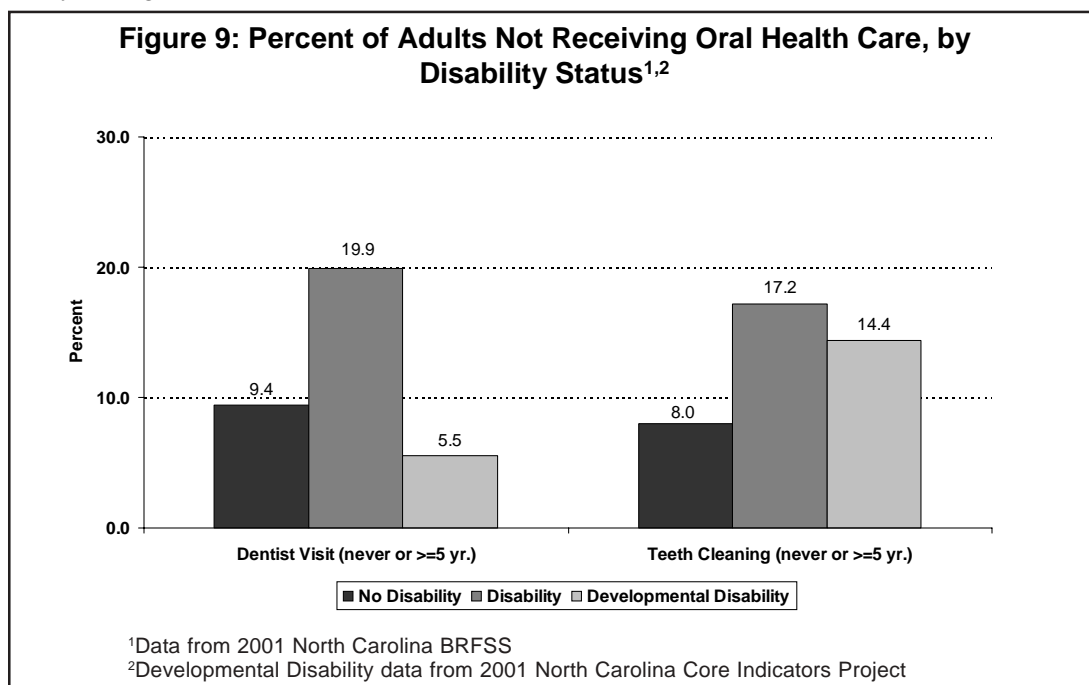
ORAL HEALTH

Oral health is essential to general health and well-being. Oral diseases are progressive and become more complex over time. They can affect our ability to eat, the foods we choose, how we look, and the way we communicate. These diseases can affect economic productivity and compromise one’s ability to work at home, at school, or on the job. In addition, there is increasing evidence that serious gum disease may be a factor in cardiovascular disease and stroke. Routine visits to the dentist are an important component of overall preventive health care.⁹

Oral Health among Adults

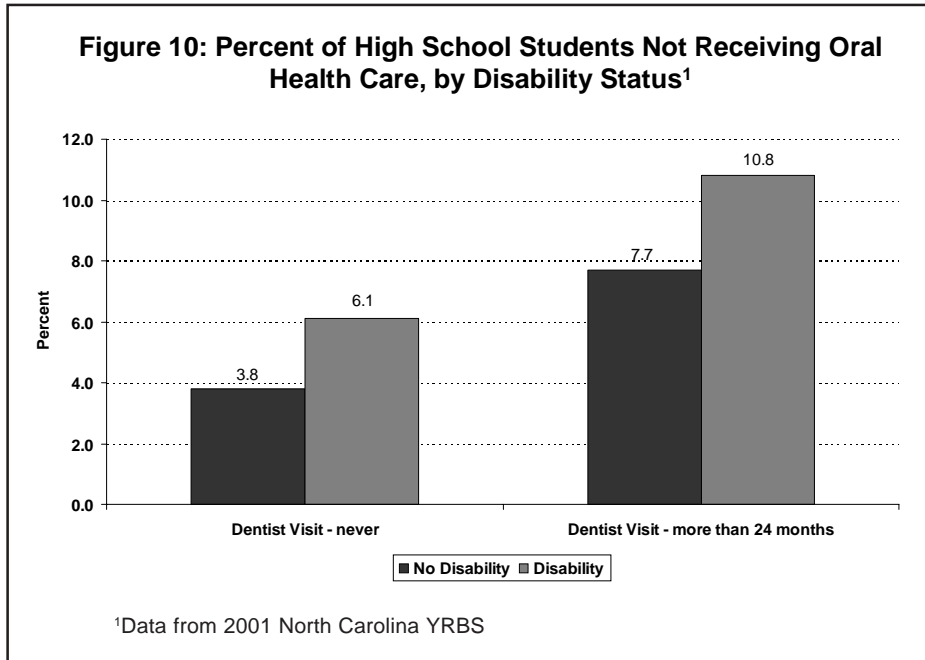
In Figure 9, dental service utilization is compared for adults with and without disabilities (BRFSS) and for those with developmental disabilities (CIP). The two types of oral health services compared were most recent dentist visit and most recent teeth cleaning. Significant disparities in oral health care were noted for adults with disabilities. Among adults with disabilities, 19.9% reported never having visited a dentist or not in the past 5 years. For adults with developmental disabilities, this rate drops to 5.5%, as compared to adults without disabilities at 9.4%.

With regard to teeth cleaning, 17.2% of adults with disabilities, 14.4% of adults with developmental disabilities, and 8.0% of adults without disabilities reported never having had their teeth cleaned or that it had been more than 5 years ago.

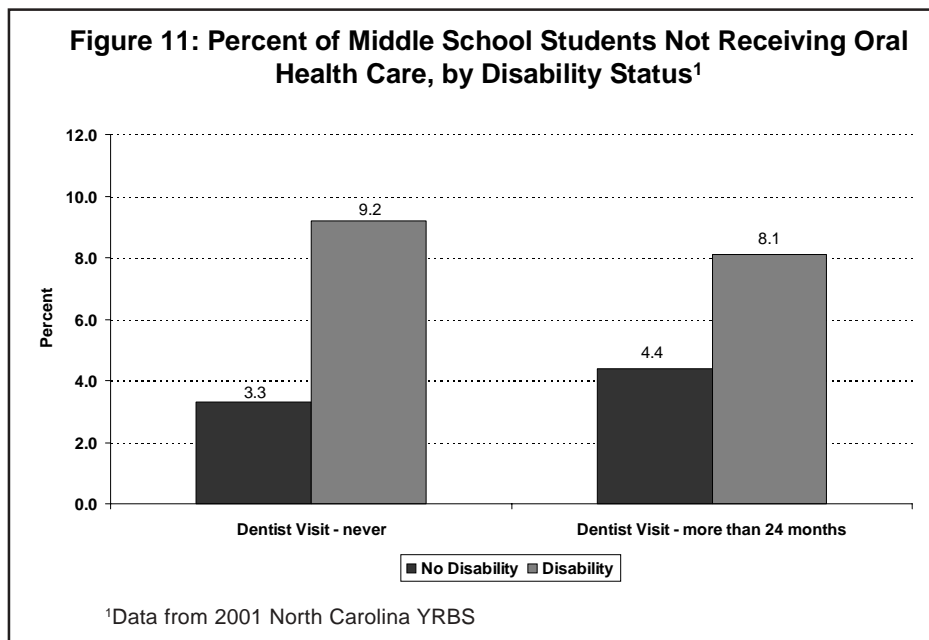


Oral Health among Youth

The 2001 N.C. YRBS allows for a comparison of oral health care use among students identifying with and without disabilities. Among high school students, those reporting disability were substantially more likely to have never visited a dentist (6.1%) than those without a disability (3.8%). In addition, youth with self-reported disabilities were more likely to report not having visited a dentist in more than 24 months, 10.8% vs. 7.7%. (Figure 10)



Similar disparities are shown in Figure 11, with middle school students with disabilities being almost three times as likely as students without disabilities to report never having visited a dentist (9.2% vs. 3.3%), and almost twice as likely to report not having visited a dentist in more than 24 months (8.1% vs. 4.4%).



Comment

The data document that disparities in access to oral health care exist across population groups in North Carolina. The oral health data for adults and youth with and without disabilities and adults with developmental disabilities generally indicate that those with disabilities are at increased risk and vulnerability for not having their oral health care needs met. Effective methods to prevent oral disease are known.¹⁰ Community-based oral health promotion and disease prevention programs should be reviewed to identify outreach and community service activities to close gaps in access to care for persons with disabilities.

MENTAL AND EMOTIONAL HEALTH

Emotional support has been found to protect against health problems such as heart disease, pregnancy complications, and depression.¹¹ Conversely, inadequate social support has been correlated with poorer quality of life¹² as well as with physical and mental health problems.¹³ While the N.C. BRFSS does provide insight into the prevalence of social support and perceived stress, it is somewhat limited in its coverage of mental health issues. Data from the N.C. Core Indicators Project and the N.C. YRBS provide additional insight into the mental and emotional health status of adults with developmental disabilities and youth with disabilities.

Mental and Emotional Health among Adults With Disabilities

According to the 2001 N.C. BRFSS, adults with disabilities were nearly twice as likely to report inadequate emotional support compared to adults without disabilities (6.7% versus 3.6%). As reported through the N.C. Core Indicators Project, 24.0% of adults with developmental disabilities reported that they had no one to talk with or that they often felt lonely.

A strong indicator of stress is the number of major life changes (positive or negative) one experiences, such as marriage, gaining or losing a family member, or moving to a new residence. According to the N.C. CIP, adults with developmental disabilities reported very high rates of stressful life events occurring in the past year, including: change in direct-support staff (52.3%), death of a close friend or family member (35.6%), and moving to a new residence (34.5%).

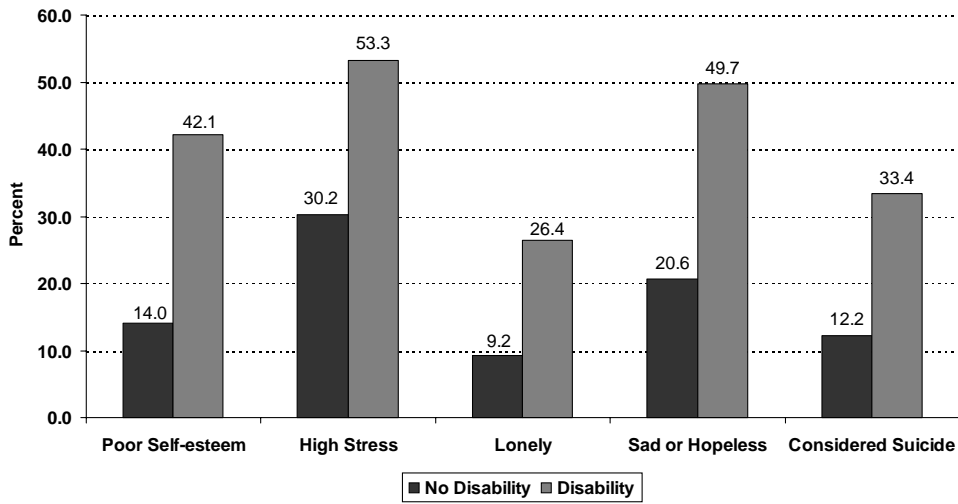
The N.C. Core Indicators Project also revealed that 40.6% of adults with developmental disabilities had a co-occurring psychiatric diagnosis documented in their case file. Those reported with the greatest frequency were psychotic disorders (20.6%), mood disorders (16.4%), anxiety disorders (5.6%), and other psychiatric diagnoses (6.2%) such as personality disorders and eating disorders.

Mental and Emotional Health among Youth

The 2001 N.C. YRBS documented self-reported mental/emotional health status of high school and middle school students with and without disabilities. Inadequate emotional support was reported by a high percentage of students with disabilities, with 26.4% reporting feeling lonely as compared to 9.2% of high school students without disabilities (Figure 12). High school students with disabilities also reported elevated levels of high stress (53.3%) as compared to their peers without disabilities (30.2%).

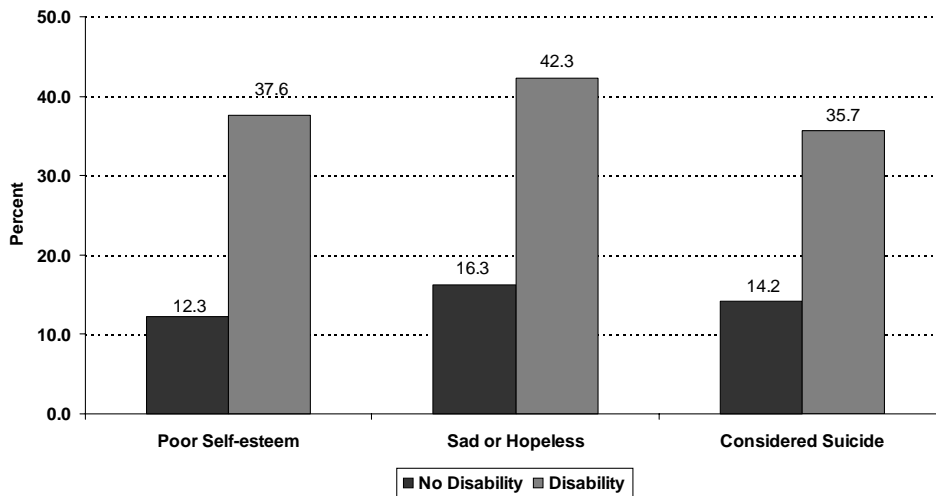
In addition, as indicated in Figures 12 and 13, the 2001 N.C. YRBS documented high rates of self-reported suicide ideation, poor self-esteem, and feelings of sadness or hopelessness for high school and middle school students with disabilities, substantially higher than for their peers not reporting disabilities.

Figure 12: High School Students' Mental Health, by Disability Status¹



¹Data from 2001 North Carolina YRBS

Figure 13: Middle School Students' Mental Health, by Disability Status¹



¹Data from 2001 North Carolina YRBS

Comment

Adults with disabilities, especially those with developmental disabilities, and students with disabilities have very low levels of self-reported social support and very high levels of self-reported stress. Middle and high school students with disabilities reported significantly increased levels of suicide ideation, poor self-esteem, and sad and hopeless feelings compared to their peers without disabilities. High rates of co-occurring psychiatric diagnoses were noted for adults with developmental disabilities.

These data document the need for increased education of service providers, teachers, families, and the general public on recognition of the signs and symptoms of mental and emotional health problems in youth and adults with disabilities. Strategies to address social isolation are needed, as well as assisting adolescents and adults with disabilities in accessing preventive and therapeutic mental health services, as appropriate.

The high levels of stress and limited control over major life events experienced by adults with developmental disabilities documents the importance of assessing and monitoring the physical and mental health of this population as part of efforts to increase independence and quality of life.

CONCLUSION

This report highlights key disparity issues related to disability and health in North Carolina. North Carolinians with disabilities have lower educational attainment, higher rates of unemployment, and lower incomes than the general population of adults, consistent with findings from an earlier study.¹⁴ Important health disparities between people with and without disabilities have also been documented. For example, people with disabilities are more likely to have: excess weight; reduced physical activity; reduced access to breast and cervical cancer screening; reduced access to oral health care; and higher rates of inadequate social support, stress, and compromised emotional and mental health.

In recent years, Healthy People 2010 and Healthy Carolinians have recognized the importance of eliminating health and service disparities for children and adults with disabilities to prevent chronic disease and to promote health and functional independence. Strategies that promote the participation of people with disabilities in services and address the physical, attitudinal, and educational accessibility of programs and services hold promise for improving access and utilization, and ultimately, health outcomes.

We hope that the data presented in this report will serve as a resource for health and disability professionals and for the diverse population of people with disabilities in North Carolina as they develop priorities and design health promoting policies and services.

REFERENCES

1. National Institute on Aging. *Older Americans 2000: Key Indicators of Well Being*. Federal Interagency Forum on Aging Related Statistics, 2000.
2. State Center for Health Statistics. 2001 N.C. Behavioral Risk Factor Surveillance Survey (BRFSS) website: <http://www.schs.state.nc.us/SCHS/brfss>.
3. N.C. Office on Disability and Health. *Women with Disabilities in N.C.: Their Views on Health Care*. UNC Frank Porter Graham Child Development Institute, 1999.
4. N.C. Office on Disability and Health. *Assessing the Health-related Needs of Youth with Disabilities and Chronic Health Conditions in N.C.* UNC Frank Porter Graham Child Development Institute, 2000.
5. Iezzoni LI, McCarthy EP, Davis RB, Siebens H. Mobility impairments and use of screening and preventive services. *American Journal of Public Health* 2000; 90:955-61.
6. N.C. Office of State Budget, Planning, and Management website: <http://osbm.state.nc.us/>.
7. Centers for Disease Control and Prevention. *Measuring Health Days*. Atlanta, Georgia: CDC, November 2000.
8. Agency for Healthcare Research and Quality. *Screening for Breast Cancer: Recommendations and Rationale*, February 2002. [online position statement] website: <http://www.ahrq.gov/clinic/3rduspstf/breastcancer/brcanrr.htm>.
9. U.S. Department of Health and Human Services. *Oral Health in America: A Report of the Surgeon General – Executive Summary*. Rockville, MD: U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health, 2000.
10. U.S. Department of Health and Human Services. *A National Call to Action to Promote Oral Health*. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institutes of Health, National Institute of Dental and Craniofacial Research. NIH Publication No. 03-5303, May 2003.
11. House, J.S., et.al. Social relationships and health. *Science* 1998; 241:540-545.
12. Lunsy Y, Benson BA. Association between perceived social support and strain, and positive and negative outcome for adults with mild intellectual disability. *Journal of Intellectual Disability Research* 2001; 45:106-14.
13. Szalda-Petree A, Traci M, Seekins T, Spas D. *Life Quality and Health for Adults with Developmental Disabilities: Executive Summary*. Missoula (MT): RTC Rural: Research & Training Center on Rural Rehabilitation Services, 2000.
14. State Center for Health Statistics. *Health Risks among North Carolina Adults: 1999. A Report from the Behavioral Risk Factor Surveillance System, 2001* [special section on persons with disabilities]. Available at <http://www.schs.state.nc.us/SCHS/pubs>.

APPENDICES

Description of Disability Data Sources

Healthy People 2010

Description of Disability Data Sources

UNITED STATES CENSUS

The Census Bureau collects population characteristic data in the U. S. Census every 10 years. Since 1790, the country has regularly counted its people and their activities, products, and possessions and has noted the changes taking place over time. The census of populations is used to apportion seats in the House of Representatives and determine state legislative district boundaries. Census information is also used for planning and distribution of funds by state and federal agencies. For example, the federal government distributes funds and develops programs for people with disabilities and the elderly under the Rehabilitation Act. Federal grants are awarded under the Older Americans Act based on the number of elderly people with physical and mental disabilities. State and community agencies use Census data to plan for eligible recipients under the Medicare and Medicaid programs. Since 1970, questions that identify persons with disabilities have been included in the Census. The questions provide information that helps to define disability as a limitation in the ability to perform one or more major life activities. The disability item obtains information about health conditions that limit an individual in activities such as working at a job, going outside the home alone, and taking care of personal needs such as bathing, dressing, or getting around the house. While the prevalence of the individual activity limitations are of interest, the ability to identify persons with a limitation in one or more activities helps determine a valid overall measure of disability status.

In Table A, the disability screening questions for the 2000 U.S. Census are listed. People are able to respond affirmatively to more than one question.

Table A. 2000 U.S. Census disability screening questions

| Screeners |
|--|
| Does this person have any of the following long-lasting conditions: a. Blindness, deafness, or a severe vision or hearing impairment? b. A condition that substantially limits one or more basic activities such as walking, climbing stairs, reaching, lifting, or carrying? |
| Because of a physical, mental, or emotional condition lasting 6 months or more, does this person have any difficulty in doing any of the following activities: a. Learning, remembering, or concentrating? b. Dressing, bathing, or getting around inside the home? c. (Answer if this person is 16 years old or over.) Going outside the home alone to shop or visit a doctor's office? d. (Answer if this person is 16 years old or over.) Working at a job or business? |

For more information on people with disabilities and the U.S. Census, visit: www.census.gov/hhes/www/disability.html.

N.C. BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM (BRFSS)

The Behavioral Risk Factor Surveillance System (BRFSS) is a state-based system of health surveys that was established in 1984 by the Centers for Disease Control and Prevention (CDC) and state health departments. Information regarding health risk behaviors, clinical preventive health practices, and health-care access, primarily related to chronic disease and injury, is obtained from a representative sample of adults in each state. For the majority of states, BRFSS is the only source for this type of information. Data are collected monthly in all 50 states.

Approximately 200,000 adult interviews are completed each year, making BRFSS the largest health survey conducted by telephone in the world. Not only is BRFSS a unique source of risk behavior data for states, but the system is also useful in measuring progress toward Healthy People 2010 objectives for the states and the nation. Multiple leading health indicators for 2010 can be assessed through BRFSS (e.g., cancer screening, diagnosed diabetes, influenza or pneumococcal vaccination, obesity, smoking, and binge drinking).

From its inception, BRFSS was designed to allow states to add questions of their own choosing to their surveys. The North Carolina Division of Public Health has participated in the BRFSS since 1984. While surveillance through the BRFSS has been used to design efforts to promote health and prevent disease among North Carolinians, it is only since 1998 that data have been available to identify the population of non-institutionalized North Carolina adults with disabilities and activity limitations. The 2001 N.C. BRFSS was the state's largest to date, both in terms of the number of interviews conducted and questions included in the survey, with over 6,000 interviews conducted. Also for the first time, the N.C. BRFSS over-sampled 10 of the most populous counties to produce long-sought local-level BRFSS estimates. The rest of the state was divided into three regions, primarily consisting of rural counties.

As a telephone survey, BRFSS has certain limitations. First, the survey is based on noninstitutionalized populations and excludes persons residing elsewhere (e.g., nursing homes or long-term-care facilities). Second, the data are based on self-reports, which can be subject to bias. Third, persons without a residential telephone are not included; therefore, BRFSS might exclude certain persons of lower socioeconomic status or households with cellular phones only. On the positive side, BRFSS is an ongoing state-based survey that provides program planners with a unique opportunity to compare changes in risk behaviors at the local, state, and national levels.

In Table B, the disability screening questions for the N.C. BRFSS are listed. People are able to respond affirmatively to more than one question.

Table B. N.C. BRFSS Disability Screening Questions

| Screeners |
|---|
| A disability can be physical, mental, emotional, or communication-related. Do you consider yourself to have a disability? |
| Are you limited in any way in any activities because of physical, mental, or emotional problems? |
| Because of any impairment or health problem, do you have any trouble learning, remembering, or concentrating? |
| Do you now have any health problem that requires you to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone? |

For more information on people with disabilities and the N.C. BRFSS, visit: <http://www.schs.state.nc.us/SCHS/brfss>.

N.C. YOUTH RISK BEHAVIOR SURVEY (YRBS)

The Youth Risk Behavior Survey (YRBS) monitors six categories of priority health-risk behaviors among youth and young adults, including behaviors that contribute to unintentional injuries and violence, tobacco use, alcohol and other drug use, unhealthy dietary behaviors, and physical inactivity. The YRBS includes a national school-based survey conducted by CDC as well as state, territorial, and local school-based surveys conducted by education and health agencies.

Health and education officials at national, state, and local levels are using the YRBS data to analyze and improve policies and programs to reduce priority health-risk behaviors among youth. The YRBS data also are being used to measure progress toward achieving 16 national health objectives for 2010 and three of the 10 leading health indicators. (Youth Risk Behavior Survey – United States, 2001, MMWR*)

While the YRBS relies on a sampling of randomly selected schools and randomly selected classes at each chosen middle school (grades 6-8) and high school (grades 9-12), the methodology does not include self-contained special education classes in the sampling frame. In 2001, N.C. YRBS used disability screening questions that were adapted from the N.C. BRFSS to identify youth in regular classrooms with activity limitations. Until 2001, there were no screening questions to distinguish between youth with and without disabilities and activity limitations in regular classroom settings. No assistance is offered to youth in completing their self-administered questionnaire.

In Table C, the disability screening questions for the 2001 N.C. YRBS are listed. Youth were able to respond affirmatively to more than one question.

*Centers for Disease Control and Prevention. *Surveillance Summaries*, June 28, 2002. MMWR 2002: 51 (No. SS-4)

Table C. N.C. YRBS Disability Screening Questions for Grades 9-12 (High School) and for Grades 6-8 (Middle School).

| |
|---|
| Screener |
| A disability can be physical, mental, emotional, or communication-related. Do you consider yourself to have a disability? |
| Are you limited in any way in any activities because of any impairment or health problem? |
| Because of any impairment or health problem, do you have any trouble learning, remembering, or concentrating? |

N.C. CORE INDICATORS PROJECT

The Core Indicators Project (CIP) was launched in 1997 by the National Association of State Directors of Developmental Disabilities Services (NASDDDS) to develop nationally recognized performance and outcome indicators that would enable a state’s developmental disabilities service authority to benchmark the performance of its service system. North Carolina has been participating in the Core Indicators Project since 1999.

Because, for the most part, individuals with developmental disabilities are not captured by the telephone interview methodology used by the Behavioral Risk Factor Surveillance System (BRFSS), health indicator questions were developed and incorporated as an addendum to the N.C. CIP consumer survey. Health items for the N.C. CIP were adapted from the N.C. BRFSS. Special consideration was given to unique response biases and other methodological challenges particular to surveying a population with developmental disabilities. The health items were field-tested in a group of adults with developmental disabilities to verify comprehensibility.**

A random sample of 946 adults with developmental disabilities living in the community was drawn from the North Carolina Developmental Disability Service registry in two years of sampling (2000-2001, 2001-2002) to comprise the developmental disabilities group. Adults living in state-operated mental retardation centers were excluded from these analyses to correspond to BRFSS methodology, which excludes individuals living in institutional settings.

**Havercamp SM. *Health Indicators 2000-2001: A Part of the North Carolina Core Indicators Project*. Chapel Hill, NC: University of North Carolina Center for Development and Learning, 2001.

Healthy People 2010: Health Objectives for the Nation

Healthy People 2010 is a comprehensive set of health objectives to be achieved over the first decade of the century. It is designed to serve as a roadmap for improving the health of all people in the United States. *Healthy People 2010* is designed to achieve two overarching goals:

- to increase the quality and years of life; and
- to eliminate health disparities.

Healthy People 2010 (HP2010) features a new focus area on the health of people with disabilities. This focus area is highlighted by 13 objectives in Chapter 6, Disability and Secondary Conditions. In addition to the new chapter, the importance of health promotion and disease prevention in the lives of people with disabilities is integrated throughout *HP2010*. Of the 467 *HP2010* objectives, 207 (sub)objectives include people with disabilities, including 12 of the tracking objectives for the national leading health indicators. In this way, disability is being used as a demographic to identify health disparities within the general population. For more information on Healthy People with Disabilities, see the Centers for Disease Control and Prevention, Disability and Health, at: <http://www.cdc.gov/ncbddd/dh>.