

Chartbook on Disability in New York State

2006

**Results from the
Behavioral Risk Factor Surveillance System**

Disability and Health Program
New York State Department of Health

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Executive Summary

Disability is a major public health problem in the United States. About one in seven Americans has a disabling condition that interferes with his or her life activities. Disabilities are disproportionately found among minorities, the elderly, and persons of lower socioeconomic status. In New York State as in the rest of the nation, the aging of the population and its accompanying burden of disease and disability have profound implications for public health, the utilization of medical care, and the need for supportive care. In this context, the measurement and surveillance of the indicators of disability are critical to monitoring the impact of this important public health issue.

Disability is usually assessed through self-report of difficulty in performing or need for help in performing basic self-care activities. A measurable indicator of the prevalence of disability in a given population is limitation in activity caused by chronic health conditions, injuries, and impairments. The *Chartbook on Disability in New York State, 2006* reports results from the New York State Behavioral Risk Factor Surveillance System (NYS BRFSS) survey for 2005 and 2006. In these two years, the NYS BRFSS questionnaire, administered by the NYS Department of Health, included two disability screener questions and two follow-up questions. Together, these four items permitted assessment of the disability status of the state's noninstitutionalized, civilian adult population through responses to questions on activity limitation, use of special equipment, and need for assistance in performing daily activities. Throughout the chartbook, data are provided for three comparison groups: 1) persons reporting disability requiring assistance in daily activities; 2) persons reporting disability, but no assistance is required; and 3) persons reporting no disability.

Prevalence of Disability

Overall, an estimated 19.1% of adult New Yorkers reported a disability. Of this total, 4.6% required assistance in daily activities and 14.5% needed no assistance. In general, the prevalence of disability increased with age and decreased with reported levels of educational attainment and household income. Women with disabilities

were nearly twice as likely as men with disabilities to report the need for assistance in performing daily activities (5.8% vs. 3.2%).

Health Care Coverage, Screening, and Immunization

Adults with disabilities were more likely than those without disabilities to report having some form of health care coverage: 11.2% of those without disabilities reported no coverage compared to only 6.8% of those with disabilities. Coverage for persons with disabilities, however, was more likely to be under a public, government-funded plan. Although adults with disabilities were more likely than the rest of the population to be insured, they were also more likely to report this coverage as being inadequate (underinsured); that is, they were more likely to report a time during the prior 12 months when they could not afford a needed doctor visit. Women aged 50 years or older with disabilities, particularly those requiring assistance, were slightly less likely than the rest of the population to have had a mammogram within the past two years. There were no differences by disability status, however, in women who reported a recent (past three years) Pap test. Among males aged 40 years or older, results suggested that those with disabilities were more likely than those without disabilities to have had a recent (past two years) prostate-specific antigen (PSA) test; there were no differences by disability status, however, in males who reported a recent (within past year) digital rectal examination. Compared to those without disabilities, people aged 50 years or older with disabilities were just as likely to have had a recommended screening procedure for colorectal cancer, i.e., a fecal occult blood test within the previous two years or a sigmoidoscopy or colonoscopy at some prior time. Persons with disabilities were more likely than the rest of the population to have had blood cholesterol check within the previous five years. People with disabilities were also more likely than the rest of the population to have had a flu shot within the previous 12 months. Moreover, persons with disabilities were more likely than the rest of the population to have ever had a pneumonia vaccination. With regard

to oral health, persons with disabilities, in particular those requiring assistance were less likely than those without disabilities to have had a dental visit within the previous 12 months. With regard to visual health, however, adults with disabilities were more likely than those without disabilities to report an eye examination within the past two years (or one year, if diabetes) in which their pupils were dilated.

Chronic Health Conditions

Persons with disabilities are generally more likely than the rest of the population to be burdened with chronic health conditions, and chronic health conditions are the most common reason people have disabilities. Compared to those without disabilities, persons with disabilities, especially those needing assistance, were more likely to report arthritis, diabetes, asthma, hypertension, high blood cholesterol, and osteoporosis. Persons with disabilities were also more likely to report a history of heart attack, angina, or stroke. Adults with visual impairments causing disabilities were more likely to report currently having cataracts, as well as histories of glaucoma or age-related macular degeneration.

Health Risk Factors and Behaviors

Compared to those without disabilities, adults with disabilities were more likely to report being a current smoker (23.0% vs. 17.1%). Adults with disability were less likely to report binge drinking (five or more drinks on one occasion in the past 30 days) (11.1% vs. 16.8%), but were equally as likely as those without disabilities to report heavy drinking (two or more drinks per day for men; one or more per day for women) (5.1% vs. 5.2%). Persons with disabilities were more likely to be obese (body mass index [BMI] of 30.0 or greater) than were those without disabilities (35.4% vs. 20.0%). Recent leisure-time exercise or physical activity also varied by disability status, as adults with disabilities, particularly those needing assistance, were more likely than the rest of the population to report no exercise in the previous month. In addition, those with disabilities were less likely than those without disabilities to report getting the recommended level of physical activity (moderate-intensity physical activity outside of work of 30 or more minutes a day at least

five days a week or vigorous-intensity physical activity outside of work of 20 or more minutes a day at least three days a week). There were essentially no differences by disability status, however, in the daily consumption of five or more servings of fruits and vegetables. Adults with disabilities, particularly those requiring assistance, were more likely than those without disabilities to report falling recently (past three months). Moreover, when those with disabilities, especially those requiring assistance, did fall, it tended to be more serious events: 40.7% of adults with any disabilities who fell reported that the fall caused an injury, compared to 24.6% of those with no disabilities. This percentage was even higher among those with disabilities requiring assistance (54.4%).

Health-Related Quality of Life

Health-related quality-of-life (HRQoL) information on the BRFSS consisted of subjective ratings of health and perceptions of recent health. Respondents rated emotional support, satisfaction with life, and general health status. HRQoL questions on recent health asked respondents to estimate the number of days in the past 30 days that they experienced a number of specified adverse health events.

Persons with disabilities were far more likely to rate their health status as fair or poor than were those without disabilities; over two-thirds (68.7%) of those requiring assistance reported fair or poor health, compared to only 10.4% of those without disabilities. When compared to the population without disabilities, persons with disabilities were also more likely to report frequent days of impaired health in the previous month on every measure, including physical health, mental health, activity limitation due to poor physical or mental health, activity-limiting pain, depressed mood, worry or anxiety, and insufficient rest or sleep. Persons with disabilities were also less likely to report days of feeling very healthy and full of energy. On all measures, the frequency of reported symptom days was directly related to the degree of disability (i.e., requiring no assistance vs. requiring assistance).

Lastly, compared to those without disabilities, persons with disabilities were less likely to report sufficient social emotional support and less likely to report satisfaction with life.

1 Introduction

Disability due to physical, mental, or emotional problems is a major public health problem, resulting in reductions in quality of life and increasing dependence on the health-care system in New York State and the nation. Disabilities disproportionately affect minorities, the elderly, and persons of lower socioeconomic status. As the number of people who survive life-threatening conditions increases, and as the population continues to age, issues associated with disability such as health care access, health care costs, and quality of life become of greater public health concern. In the mid-1980s, there were about 28 million people in the United States aged 65 years or older. The U.S. Bureau of the Census has predicted over twice as many, 59 million, by the year 2025.¹ In New York State, 2000 Census figures show nearly 2.4 million residents aged 65 years or older. By the year 2025, this total is projected to increase by nearly one-third to over 3.2 million. As a result, the measurement and surveillance of the indicators of disability are critical to monitoring their impact on an aging population. This report presents prevalence estimates of disability for various sociodemographic subgroups of adult New Yorkers as well as data on selected health risk factors by disability status.

Methods

Data for this chartbook came from the 2005 and 2006 administrations of the New York State (NYS) Behavioral Risk Factor Surveillance System (BRFSS) questionnaire. The BRFSS is a telephone-based surveillance system supported in part by the Centers for Disease Control and Prevention and administered by the New York State Department of Health. The system is designed to provide information on behaviors and risk factors for chronic and infectious diseases and other health conditions among the noninstitutionalized, civilian adult population aged 18 years and older. The system monitors modifiable risk behaviors and other factors contributing to the leading causes of morbidity and mortality in the population.

In 2005 and 2006, the NYS BRFSS questionnaire included two questions to assess disability in the adult population:

“Are you limited in any way in any activities because of physical, mental, or emotional problems?”

“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?”

“Disability” was defined as a “yes” response to either or both questions. A “no” response to both questions assigned the respondent to the group of persons without disabilities (*No disability*). An affirmative response to at least one of the two items identified the respondent as a person with a disability (*Any disability*), and follow-up questions were asked to further assess the respondent’s limitation status:

“Because of any impairment or health problem, do you need the help of other persons with your personal care needs, such as eating, bathing, dressing, or getting around the house?”

“Because of any impairment or health problem, do you need the help of other persons in handling your routine needs, such as everyday household chores, doing necessary business, shopping, or getting around for other purposes?”

A “yes” response to either or both of these items classified the respondent as a person with a greater degree of disability (*Disability/Assistance*), whereas a negative response to both questions identified the respondent as having a lesser degree of disability (*Disability/No assistance*).

These four categories of disability status (*Disability/Assistance; Disability/No assistance; Any disability; No disability*) serve as the comparison groups throughout this chartbook. (See Appendix for more detail on methods.)

In addition to prevalence estimates, 95% confidence intervals (CIs) were calculated to afford a measure of the precision of the estimates as well as to facilitate subgroup comparisons; these CIs appear as error bars on the charts.

2 Prevalence of Disability

Estimation of the population with disabilities varies depending on the choice of survey and definition. Although disability is generally assessed through self-report of difficulty or need for help in performing self-care activities, different surveys rely upon different conceptual notions of disability, which in turn lead to different population estimates. Moreover, even seemingly minor differences in the phrasing of questions or response options or in the ways of summarizing the data may yield different or even inconsistent pictures of a particular aspect of a disability.²

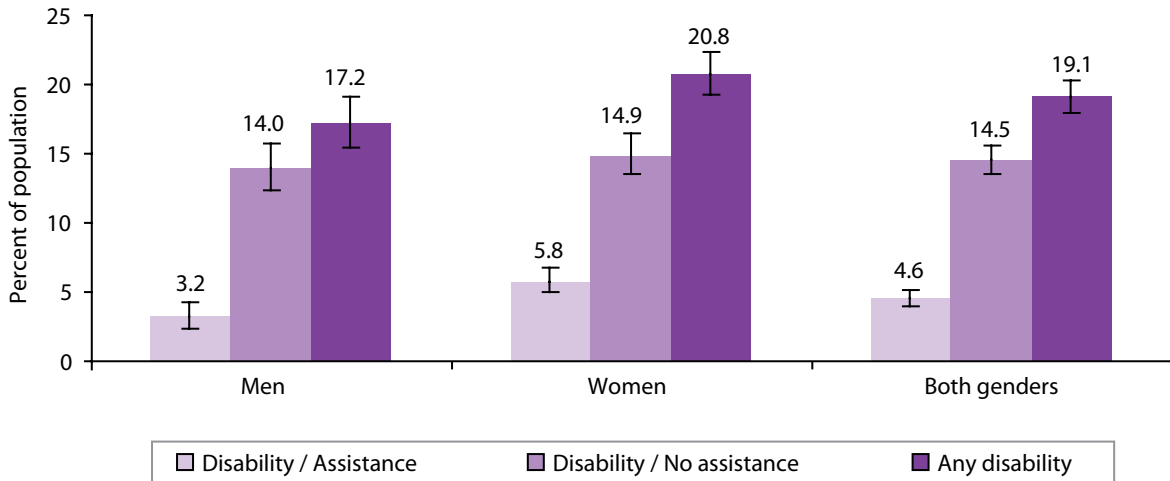
The Behavioral Risk Factor Surveillance System (BRFSS) has been shown to yield prevalence estimates consistent with other national surveys such as the National Health Interview Survey (NHIS) and the Survey of Income and Program Participation (SIPP).³ The BRFSS includes two broad items to identify the adult community-based population with disabilities. The New York State BRFSS includes two additional questions to assess the degree of limitation among those who are identified as having a disability.

Gender

BRFSS Question [Asked only if necessary]

- For example: *What is your sex?*

Figure 1. Prevalence of disability among New York adults by gender.



Note: Error bars represent 95% confidence intervals.

Source: 2006 NYS BRFSS

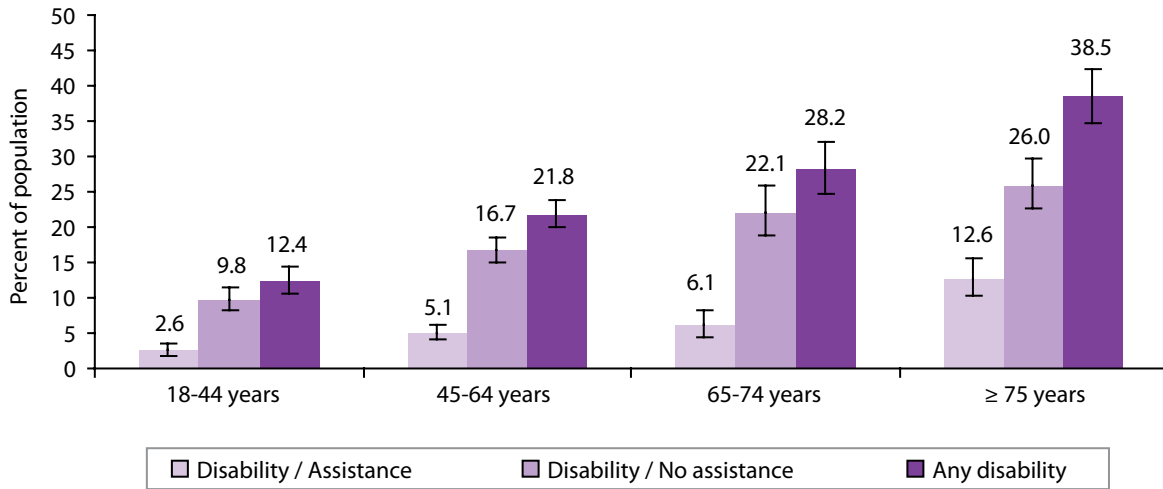
**Overall disability prevalence was greater among women (20.8% vs. 17.2%).
Women were also more likely than men to report the need for assistance in performing daily activities (5.8% vs. 3.2%).**

Age

BRFSS Question

- What is your age?

Figure 2. Prevalence of disability among New York adults by age.



Note: Error bars represent 95% confidence intervals.

Source: 2006 NYS BRFSS

Disability prevalence increased with age, both overall and for each degree of disability.

Race/Ethnicity

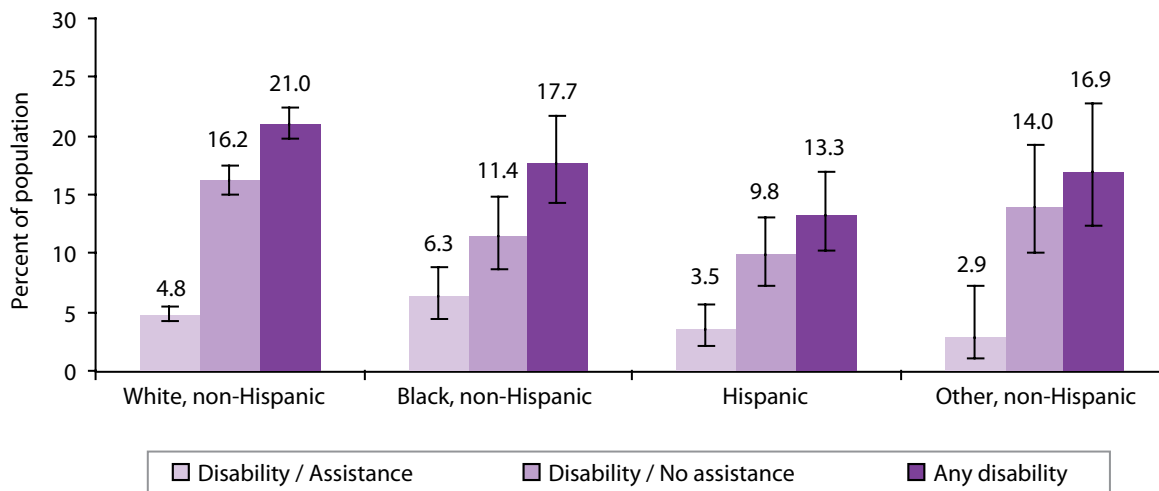
BRFSS Questions

- Are you Hispanic or Latino?
- Which one or more of the following would you say is your race?

[If more than one response]

- Which one of these groups would you say best represents your race?

Figure 3. Prevalence of disability among New York adults by preferred race and Hispanic/Latino ethnicity.



Note: Error bars represent 95% confidence intervals.

Source: 2006 NYS BRFSS

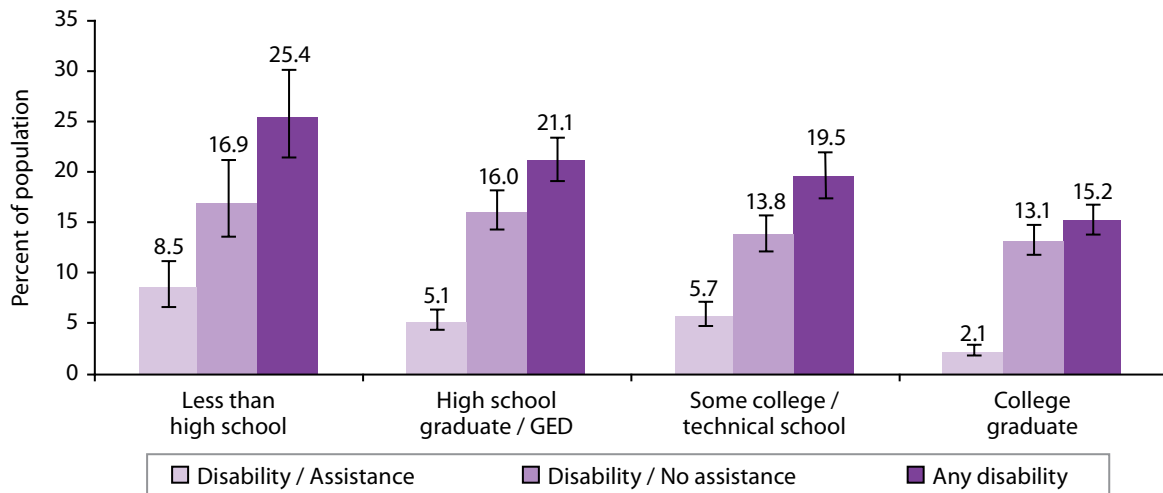
Non-Hispanic whites were more likely than Hispanics to report disability (21.0% vs. 13.3%).

Educational Attainment

BRFSS Question

- What is the highest grade or year of school you completed?

Figure 4. Prevalence of disability among New York adults by educational attainment.



Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

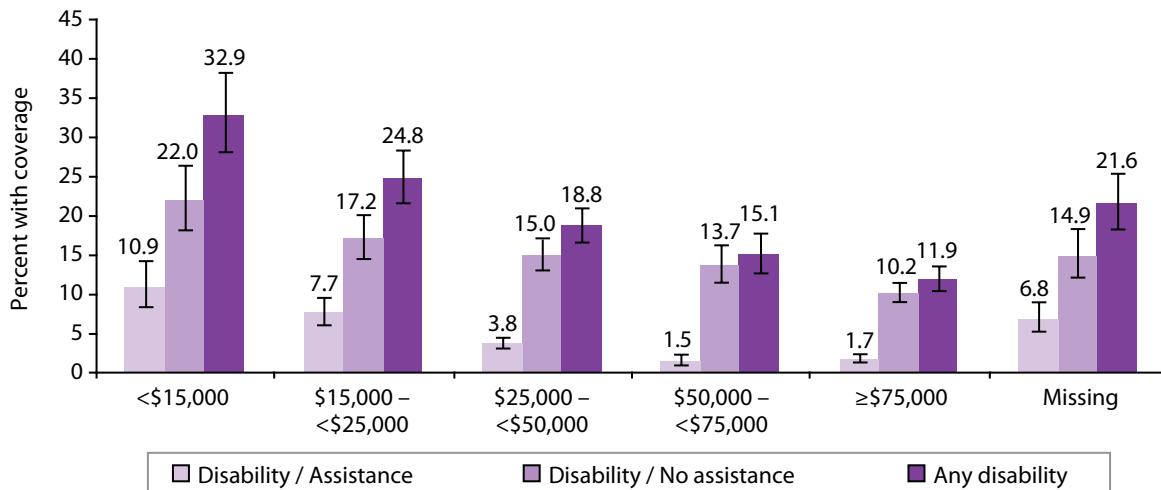
Disability prevalence decreased with increasing level of educational attainment.

Household Income

BRFSS Question

- Is your annual household income from all sources less than...\$25,000? ... \$20,000? ...\$15,000? ... \$10,000? ...\$35,000? ...\$50,000? ...\$75,000? ...\$75,000 or more?

Figure 5. Prevalence of disability among New York adults by annual household income.



Note: Error bars represent 95% confidence intervals

SOURCE: 2006 NYS BRFSS

Disability prevalence decreased with increasing household income.

3 Health Care Coverage, Screening, and Immunization

Access to adequate and affordable health care is a greater problem for persons with disabilities than for the general population. Persons with disabilities are disproportionately poor, making it difficult for them to make required co-payments or to purchase essential services and equipment for their rehabilitation.⁴ Moreover, persons with disabilities may have greater difficulty in finding physicians who are knowledgeable about their ongoing health care

needs. They may also have problems obtaining timely medical care and assistive technology that can help prevent minor health problems from becoming significant complications.⁴ It is important for persons with disabilities to have access to appropriate care during the full course of disabling conditions. Such care should be provided in a way that prevents secondary conditions and maximizes individuals' functional abilities in everyday social and work roles.⁴

Health Care Coverage

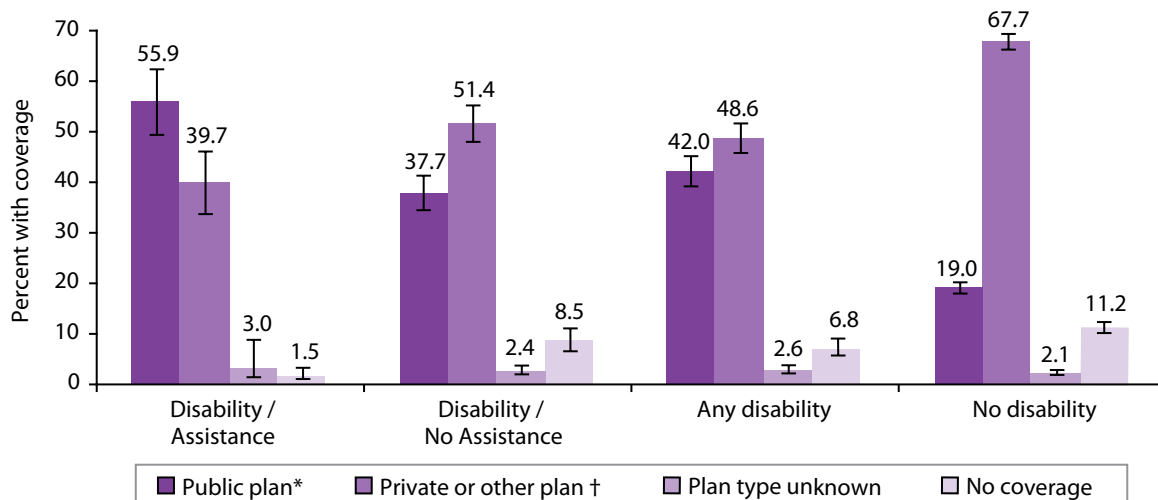
BRFSS Questions

- Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?

[If “yes”]

- What type of health care coverage do you use to pay for most of your medical care?

Figure 6. Distribution of health care coverage types among New York adults, by disability status.



* Medicare; Medicaid; Family Health Plus; Military, Champus, TriCare, or VA; Indian Health Service.

† Employer plan; personal plan; other source.

Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

Adults with disabilities were more likely than adults without disabilities to be covered by some form of health insurance plan. This coverage was more likely to be a public, government-funded plan.

Underinsurance

BRFSS Questions

- Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?

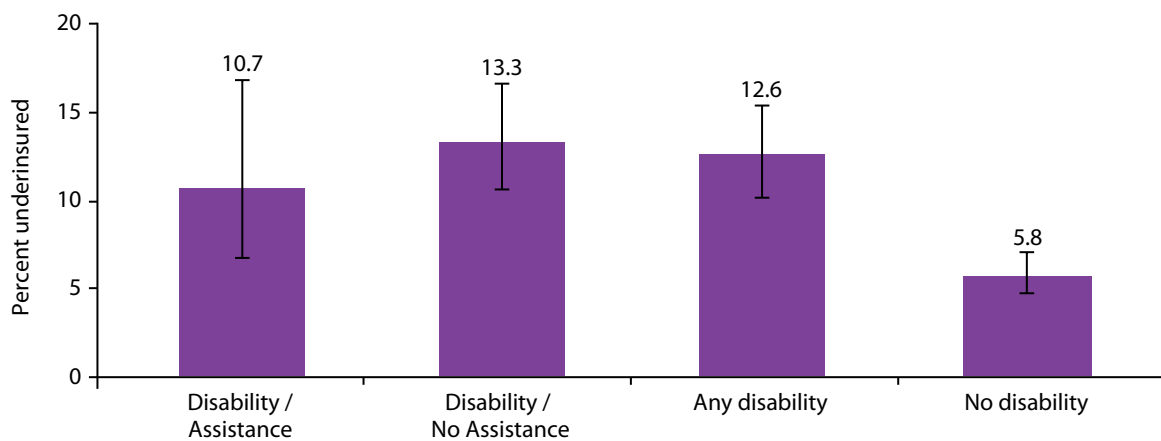
[If “yes”]

- What type of health care coverage do you use to pay for most of your medical care?

[If “no”]

- There are some types of coverage you may not have considered. Please tell me if you have any of the following: [list of insurance types]
- Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?

Figure 7. Percentage of New York adults who were underinsured*, by disability status.



* Insured, but reporting a time in the past 12 months when could not afford a needed doctor visit.

Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

Adults with disabilities were more likely than adults without disabilities to be underinsured (12.6% vs. 5.8%).

Breast Cancer Screening: Mammogram

BRFSS Questions [Asked of female respondents]

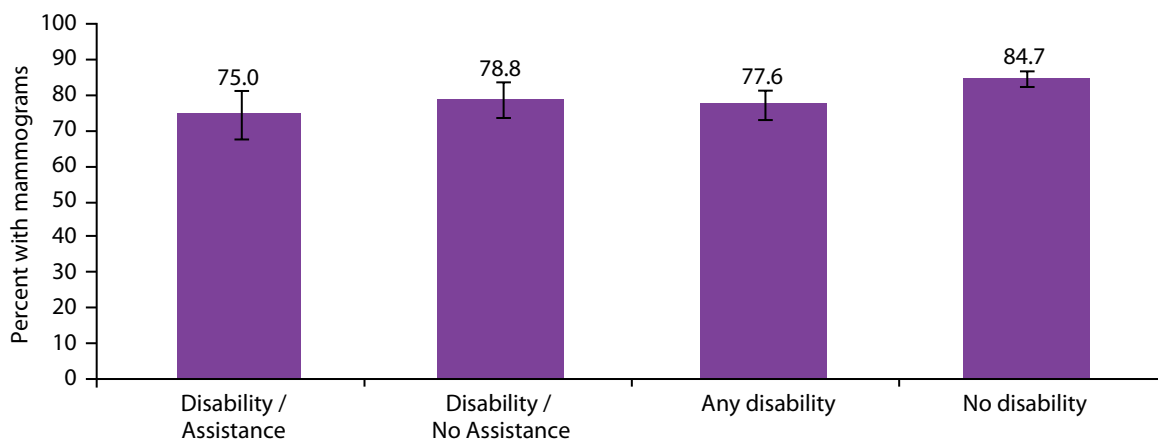
A mammogram is an x-ray of each breast to look for breast cancer.

- Have you ever had a mammogram?

[If “yes”]

- How long has it been since you had your last mammogram?

Figure 8. Percentage of New York women aged 50 years or older who had a mammogram within the past two years, by disability status.



Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

Among women aged 50 years or older, those with disabilities who require assistance were less likely than those without disabilities to have had a mammogram within the past two years (75.0% vs. 84.7%).

Cervical Cancer Screening: Pap Test

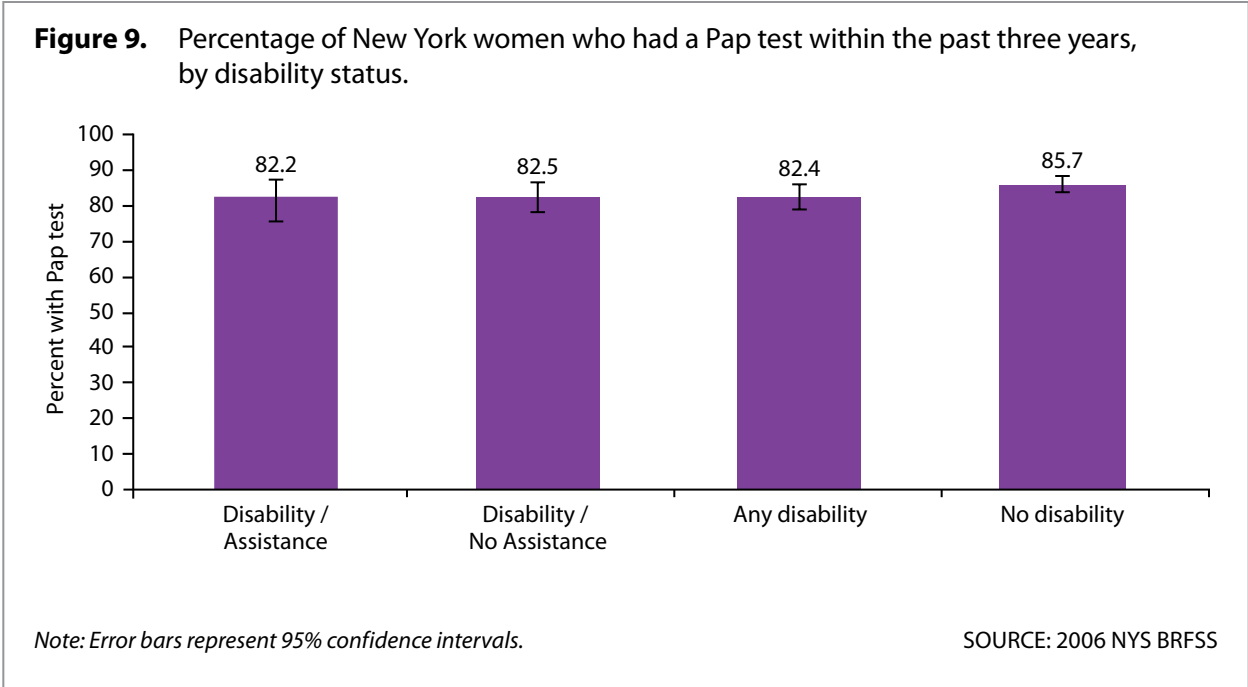
BRFSS Questions [Asked of female respondents]

A Pap test is a test for cancer of the cervix.

- Have you ever had a Pap test?

[If “yes”]

- How long has it been since you had your last Pap test?



Among adult women, there were no differences by disability status in having had a Pap test within the past three years.

Prostate Cancer Screening: Prostate-Specific Antigen (PSA) Test

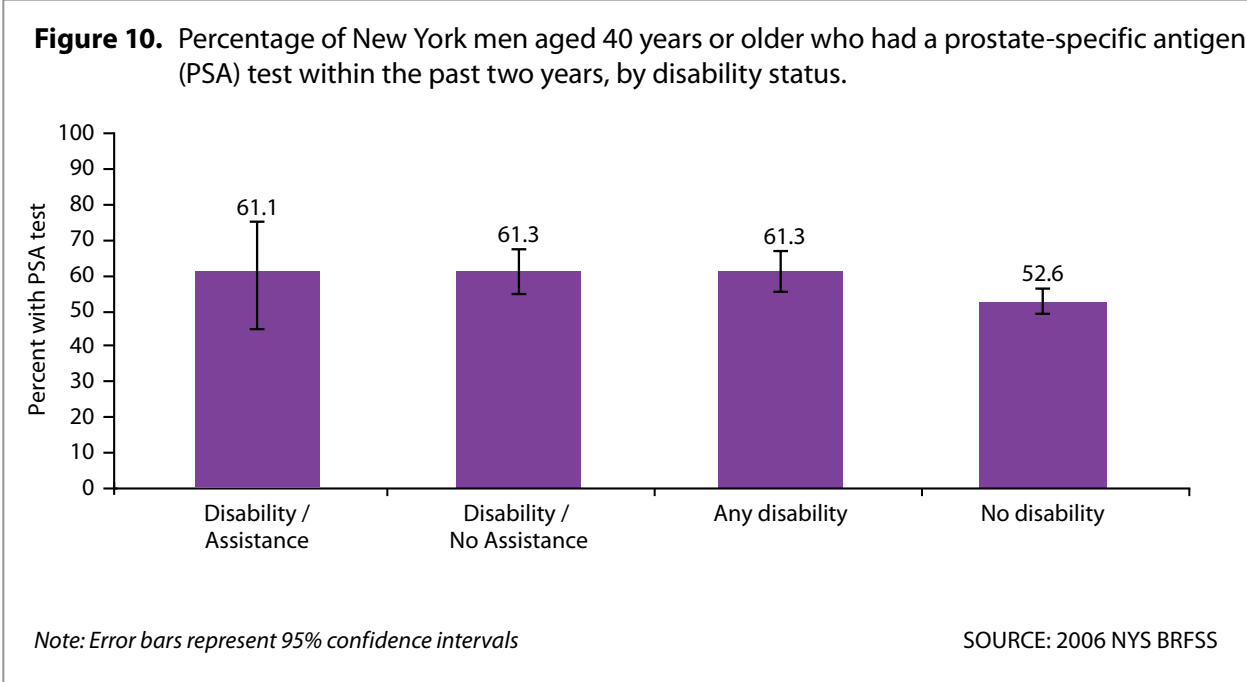
BRFSS Questions [Asked of male respondents aged 40 years or older]

Now, I will ask you some questions about prostate cancer screening. A prostate-specific antigen test, also called a PSA test, is a blood test used to check men for prostate cancer.

- Have you ever had a PSA test?

[If “yes”]

- How long has it been since you had your last PSA test?



Among men aged 40 years or older, there were no differences by disability status in having had a PSA test within the past two years.

Prostate Cancer Screening: Digital Rectal Examination

BRFSS Questions [Asked of male respondents aged 40 years or older]

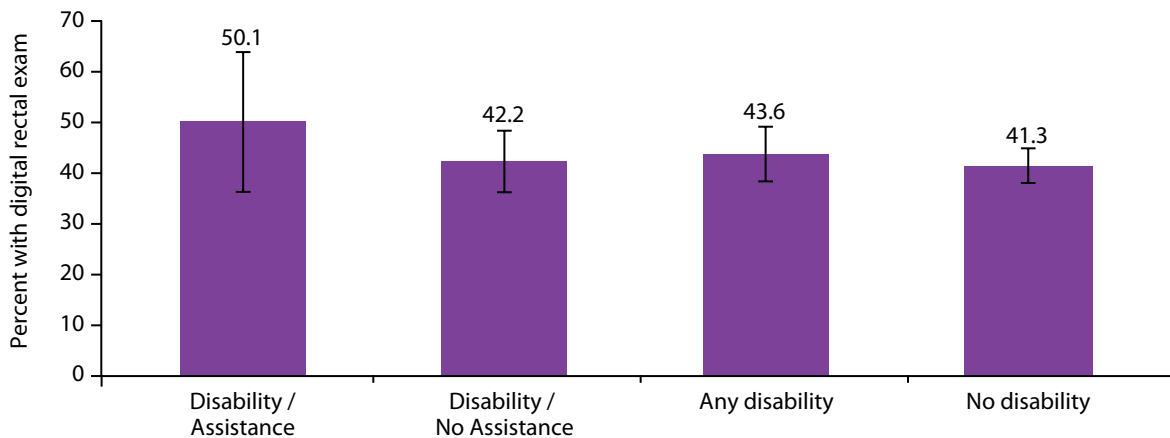
A digital rectal exam is an exam in which a doctor, nurse, or other health professional places a gloved finger into the rectum to feel the size, shape, and hardness of the prostate gland.

- Have you ever had a digital rectal exam?

[If “yes”]

- How long has it been since your last digital rectal exam?

Figure 11. Percentage of New York men aged 40 years or older who had a digital rectal examination within the past year, by disability status.



Note: Error bars represent 95% confidence intervals

SOURCE: 2006 NYS BRFSS

Among men aged 40 years or older, there were no differences by disability status in having had a digital rectal exam within the past year.

Colorectal Cancer Screening: Blood Stool Test

BRFSS Questions [Asked of respondents aged 50 years or older]

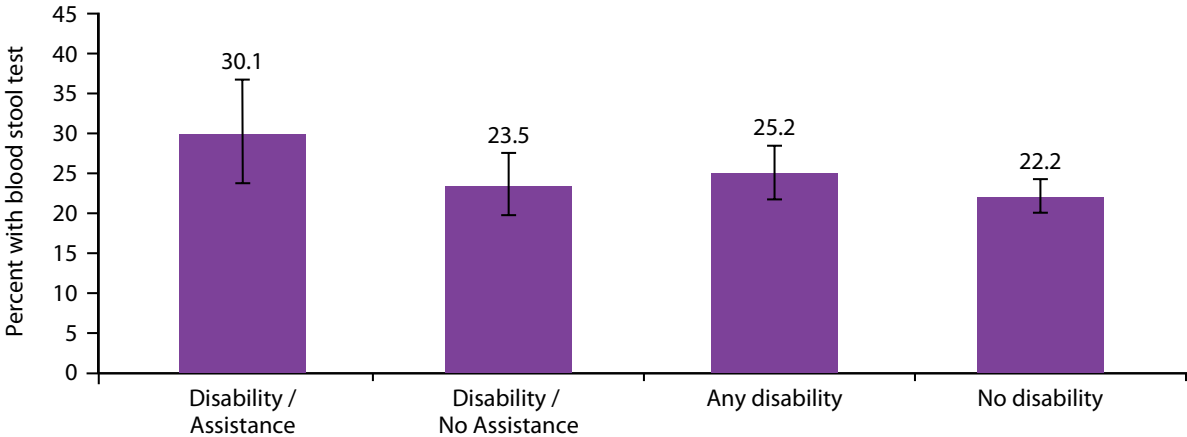
A blood stool test is a test that may use a special kit at home to determine whether the stool contains blood.

- *Have you ever had this test using a home kit?*

[If “yes”]

- *How long has it been since you had your last blood stool test using a home kit?*

Figure 12. Percentage of New York adults aged 50 years or older who had a blood stool test within the past two years, by disability status.



Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

Among adults aged 50 years or older, there were no differences by disability status in having had a blood stool test within the past two years.

Colorectal Cancer Screening: Sigmoidoscopy or Colonoscopy

BRFSS Questions [Asked of respondents aged 50 years or older]

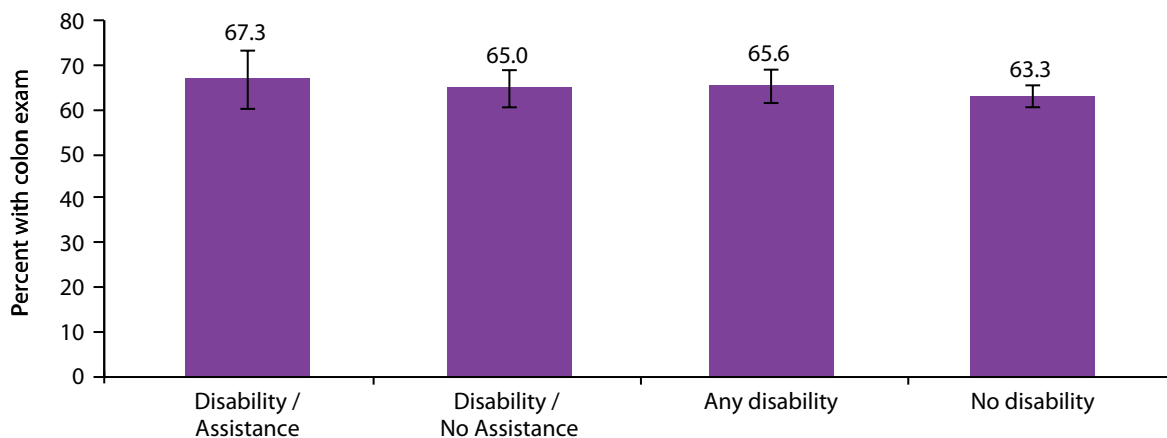
Sigmoidoscopy and colonoscopy are exams in which a tube is inserted in the rectum to view the colon for signs of cancer or other health problems.

- *Have you ever had either of these exams?*

[If “yes”]

- *How long has it been since you had your last sigmoidoscopy or colonoscopy?*

Figure 13. Percentage of New York adults aged 50 years or older who ever had a sigmoidoscopy or colonoscopy, by disability status.



Note: Error bars represent 95% confidence intervals

SOURCE: 2006 NYS BRFSS

Among adults aged 50 years or older, there were no differences by disability status in having ever had a sigmoidoscopy or colonoscopy.

Cholesterol Screening: Blood Cholesterol Check

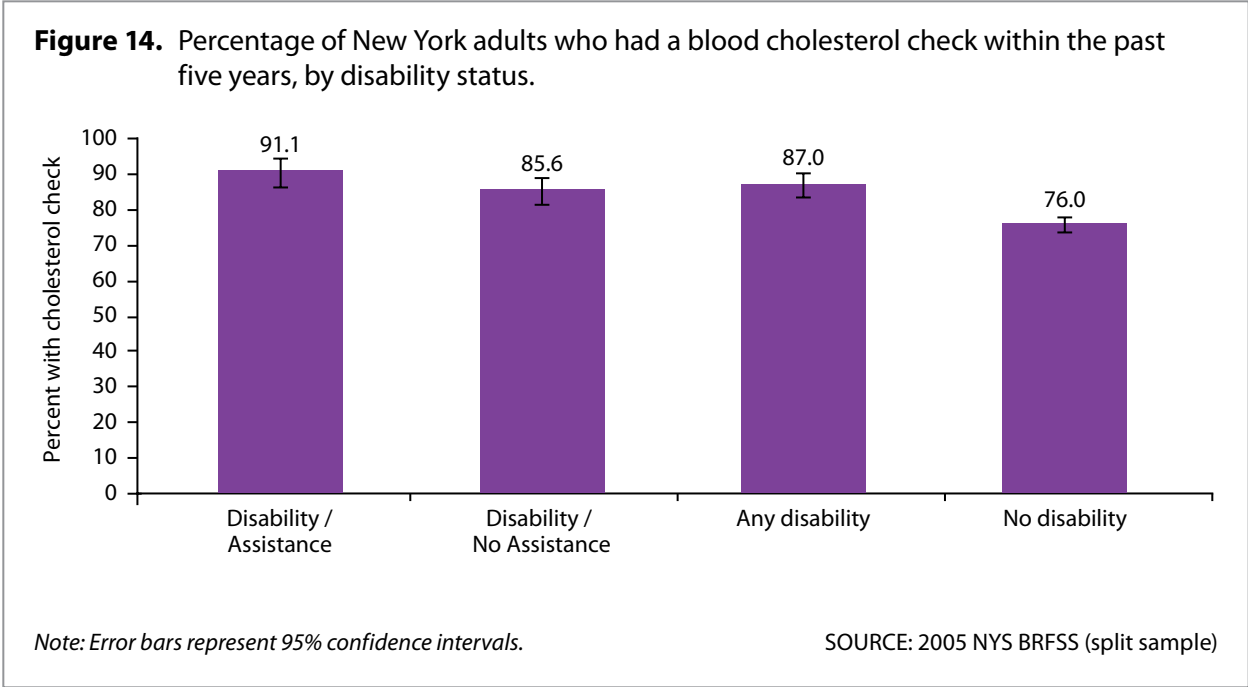
BRFSS Questions

Blood cholesterol is a fatty substance found in the blood.

- Have you ever had your blood cholesterol checked?

[If “yes”]

- About how long has it been since you last had your blood cholesterol checked?



Adults with disabilities were more likely than adults without disabilities to have had their blood cholesterol checked within the past five years (87.0% vs. 76.0%).

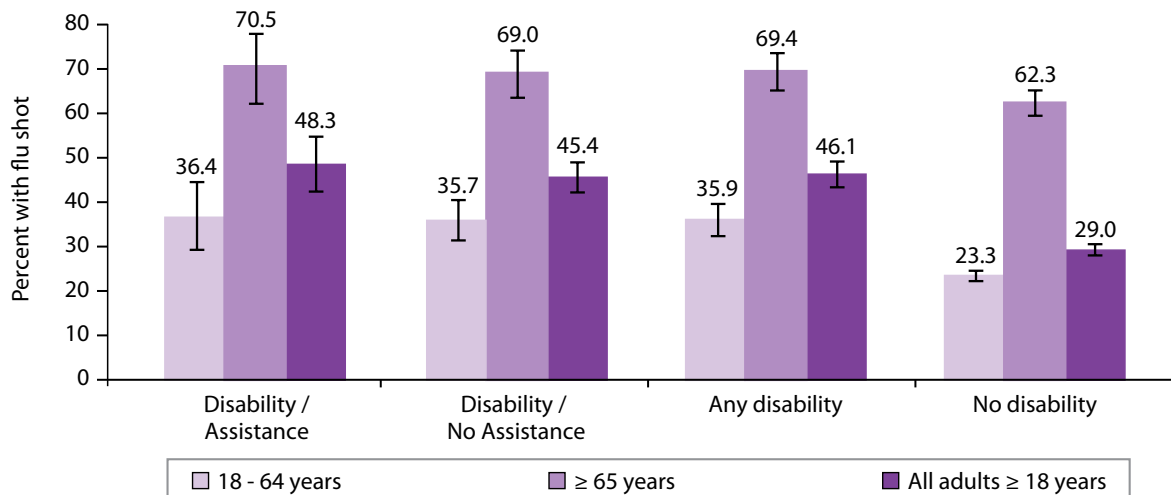
Immunization: Influenza Vaccination

BRFSS Questions

A flu shot is an influenza vaccine injected into your arm.

- During the past 12 months, have you had a flu shot?

Figure 15. Percentage of New York adults who had a flu shot within the past 12 months, by disability status and age.



Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

Among adults aged 18-64 years, those with disabilities were more likely than those without disabilities to have had a flu shot within the past 12 months (35.9% vs. 23.3%).

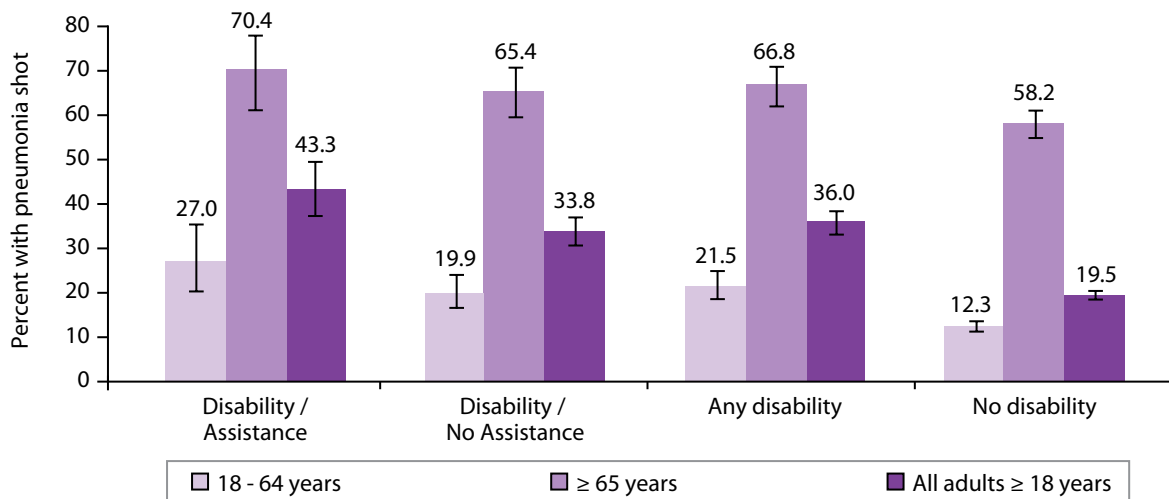
Immunization: Pneumonia Vaccination

BRFSS Question

A pneumonia shot or pneumococcal vaccine is usually given only once or twice in a person's lifetime and is different from the flu shot.

- Have you ever had a pneumonia shot?

Figure 16. Percentage of New York adults who ever had a pneumonia shot, by disability status and age.



Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

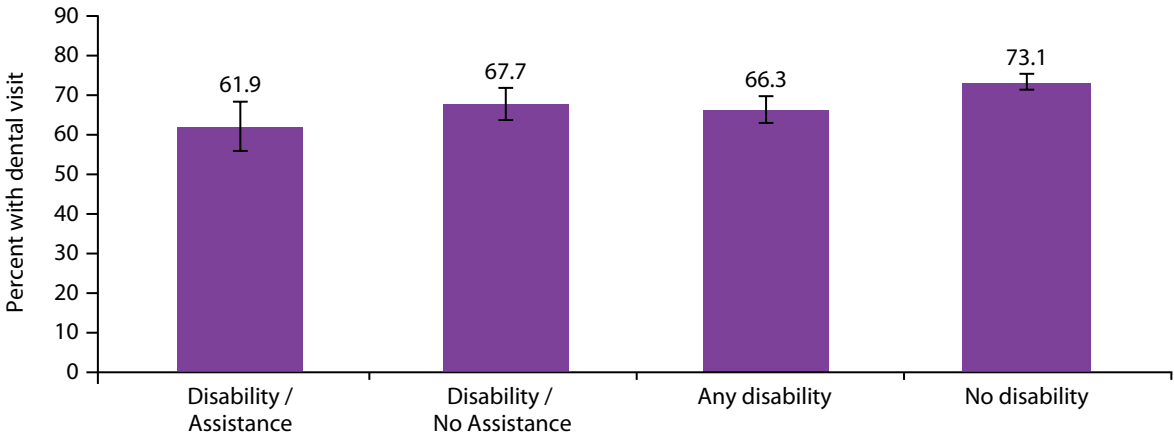
Among adults aged 18-64 years, those with disabilities were more likely than those without disabilities to have ever had a pneumonia shot (21.5% vs. 12.3%).

Oral Health: Visit to Dentist or Dental Clinic

BRFSS Question

- How long has it been since you last visited a dentist or a dental clinic for any reason? Include visits to dental specialists such as orthodontists.

Figure 17. Percentage of New York adults who visited a dentist or dental clinic within the past 12 months, by disability status.



Note: Error bars represent 95% confidence intervals.

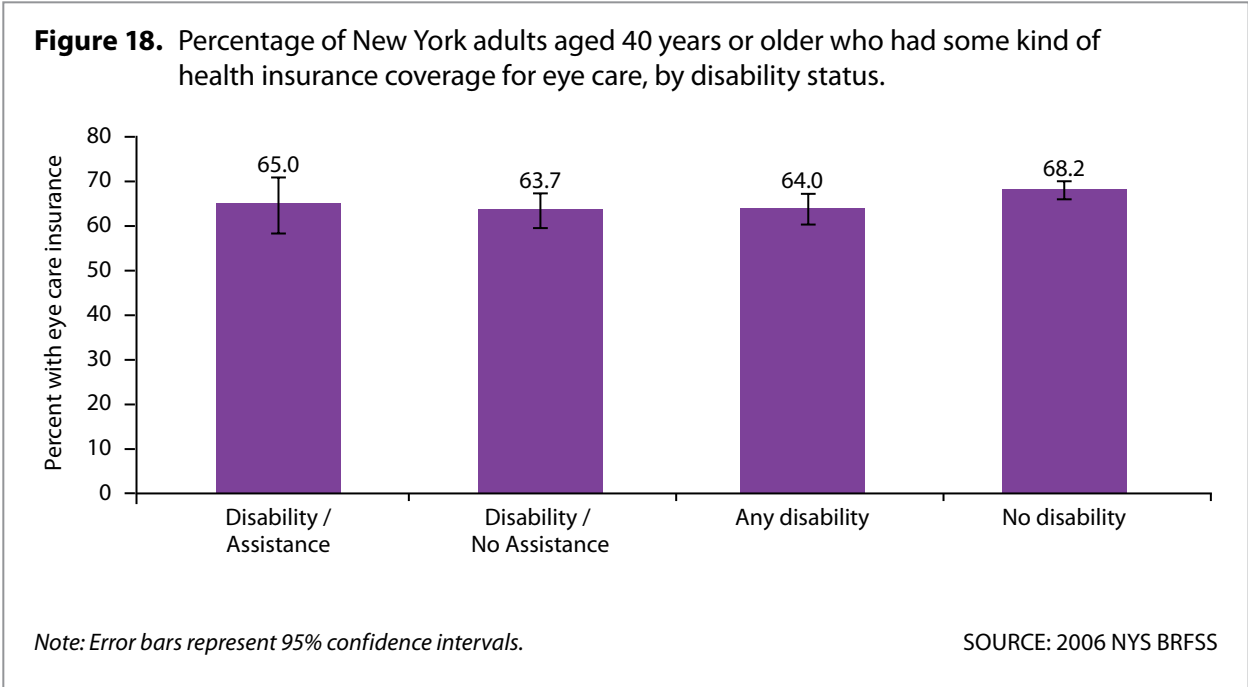
SOURCE: 2006 NYS BRFSS

Adults with disabilities, particularly those who require assistance, were less likely than adults without disabilities to report a dental visit within the past 12 months (66.3% and 61.9% vs. 73.1%, respectively).

Vision Health: Health Insurance Coverage for Eye Care

BRFSS Questions [Asked of respondents aged 40 years or older]

- Do you have any kind of health insurance coverage for eye care?



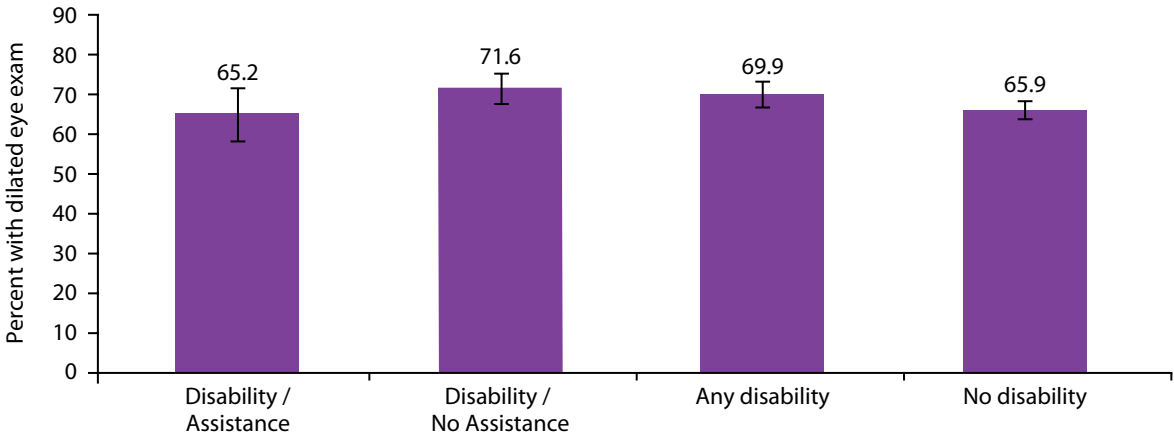
Among adults aged 40 years or older, there were no differences by disability status in having health insurance coverage for eye care.

Vision Health: Dilated Eye Examination

BRFSS Question [Asked of respondents aged 40 years or older]

- *When was the last time you had an eye exam in which the pupils were dilated? This would have made you temporarily sensitive to bright light.*

Figure 19. Percentage of New York adults aged 40 years or older who had a dilated eye examination within the recommended interval*, by disability status.



* Within the past two years, or, if diabetes, within the past 12 months [Healthy People 2010].

Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

Among adults aged 40 years or older, there were no differences by disability status in having had a dilated eye examination within the recommended interval.

4 Chronic Health Conditions

The prevalence of chronic diseases increases with age and is a major cause of disabling conditions. Unlike acute conditions and injuries, chronic diseases often do not have an identifiable point of onset, and they frequently entail gradually progressive declines in functional capacity.⁴

People with chronic disease are at increased risk of functional limitation and disability, and, absent effective preventive measures, the quality of their lives is also likely to decline.⁴ Primary prevention efforts are targeted toward health habits such as smoking, obesity, nutrition, and physical activity, and also include immunization for diseases such as influenza and pneumonia. Secondary prevention measures, on the other hand, seek to halt, reverse, or at least retard the progress of a condition, and are thus especially important for people with chronic disease. Secondary prevention efforts include screening for conditions such as hypertension, diabetes, colorectal cancer, breast cancer, and cervical cancer. These efforts also focus on areas such as stroke prevention and prevention of myocardial infarction.

This section highlights the prevalence by disability status of seven chronic conditions that are significant causes of disability across the age spectrum: arthritis, diabetes, asthma, hypertension, high blood cholesterol, history of myocardial infarction (heart attack), and

history of stroke. Arthritis has been found to be associated with a broad array of activity limitations. Heart disease, on the other hand, has been associated with difficulties in activities requiring endurance, and stroke has been associated with upper extremity and self-care tasks.⁵ Diabetes has been found to be a significant cause of mobility impairments.^{6,7} Hypertension and high blood cholesterol, although chronic conditions in their own right, are more important as risk factors for other health problems such as cardiovascular disease and stroke. Each condition is presented separately on the following pages, although it is recognized that the presence of multiple chronic conditions has a significant impact on disability status, and that many people, especially the elderly, have multiple chronic and potentially disabling conditions.⁴

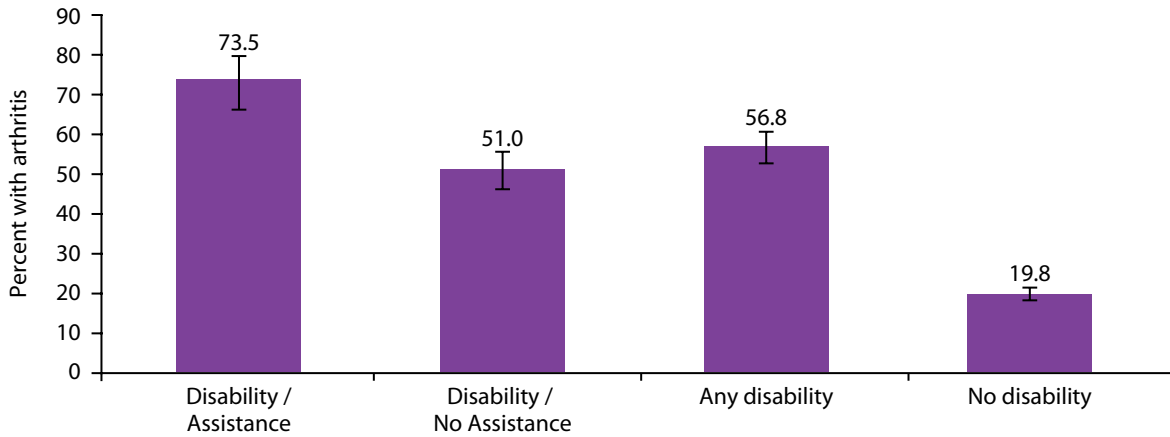
This section also reports the prevalence by disability status of distance vision impairment and three of the most common eye disorders – cataracts, glaucoma, and macular degeneration – based on data from the Visual Impairment and Access to Eye Care module. Eye disease and visual impairment are among the ten most common causes of disability,⁸ affecting a person's ability to work and to care for themselves. They may also result in reduced quality of life and increased risk of premature death.⁹

Arthritis

BRFSS Question

- Have you ever been told by a doctor or other health professional that you have some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia?

Figure 20. Percentage of New York adults with doctor-diagnosed arthritis, by disability status.



Note: Error bars represent 95% confidence intervals.

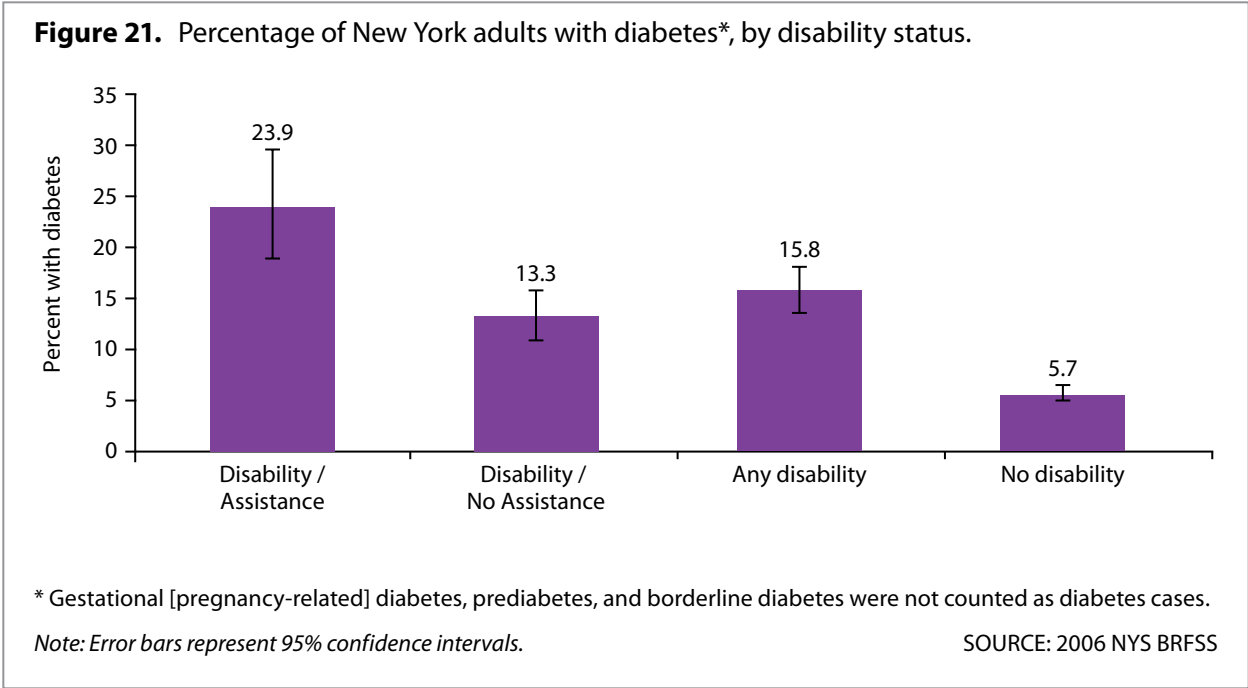
SOURCE: 2005 NYS BRFSS (split sample)

Adults with disabilities, particularly those who require assistance, were more likely than adults without disabilities to report doctor-diagnosed arthritis (56.8% and 73.5% vs. 19.8%, respectively).

Diabetes

BRFSS Question

- Have you ever been told by a doctor that you have diabetes?



Adults with disabilities, particularly those who require assistance, were more likely than adults without disabilities to have diabetes (15.8% and 23.9% vs. 5.7%, respectively).

Asthma

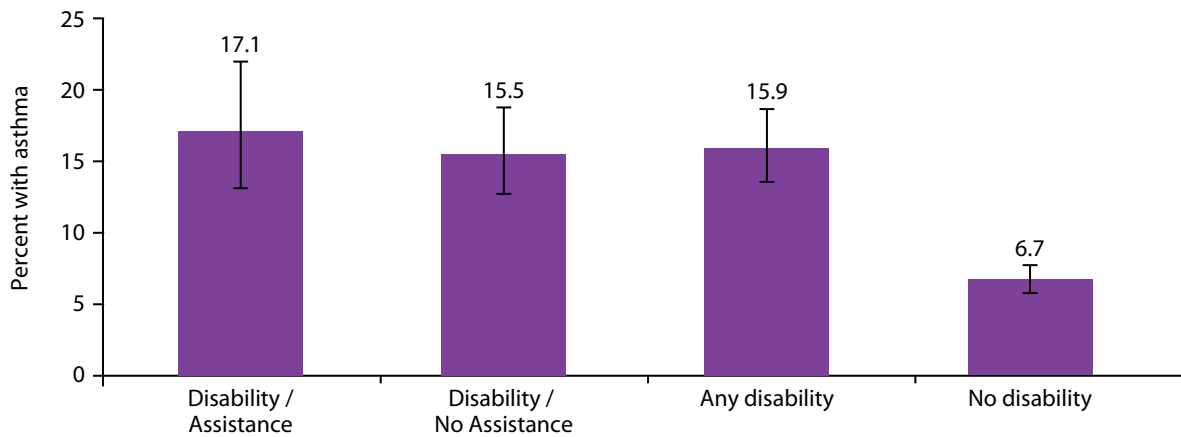
BRFSS Question

- Have you ever been told by a doctor, nurse, or other health professional that you had asthma?

[If "yes"]

- Do you still have asthma?

Figure 22. Percentage of New York adults with current asthma, by disability status.



Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

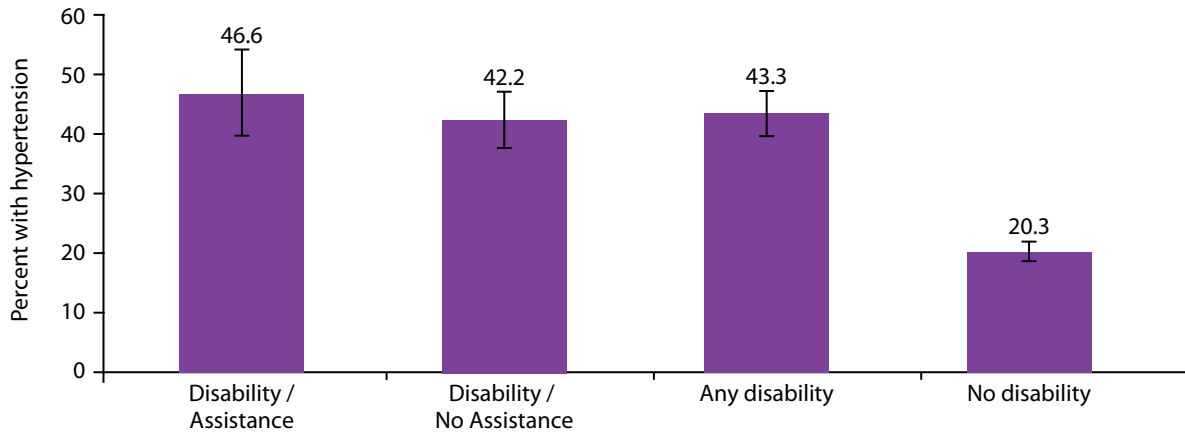
Adults with disabilities were more likely than adults without disabilities to have current asthma (15.9% vs. 6.7%).

Hypertension

BRFSS Question

- Have you ever been told by a doctor, nurse, or other health professional that you have high blood pressure?

Figure 23. Percentage of New York adults with hypertension, by disability status.



Note: Error bars represent 95% confidence intervals.

SOURCE: 2005 NYS BRFSS (split sample)

Adults with disabilities were more likely than adults without disabilities to have high blood pressure (43.3% vs. 20.3%).

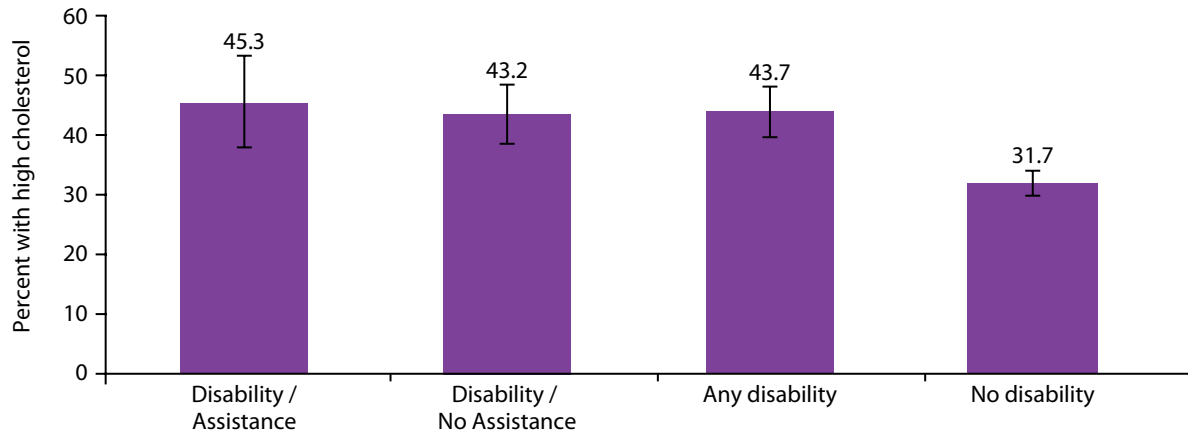
High Blood Cholesterol

BRFSS Questions

Blood cholesterol is a fatty substance found in the blood.

- Have you ever had your blood cholesterol checked?
- Have you ever been told by a doctor, nurse, or other health professional that your blood cholesterol is high?

Figure 24. Of New York adults who ever had their blood cholesterol checked, percentage that were told it was high, by disability status.



Note: Error bars represent 95% confidence intervals.

SOURCE: 2005 NYS BRFSS (split sample)

Among adults who have ever had their blood cholesterol checked, those with disabilities were more likely than those without disabilities to have high blood cholesterol (43.7% vs. 31.7%).

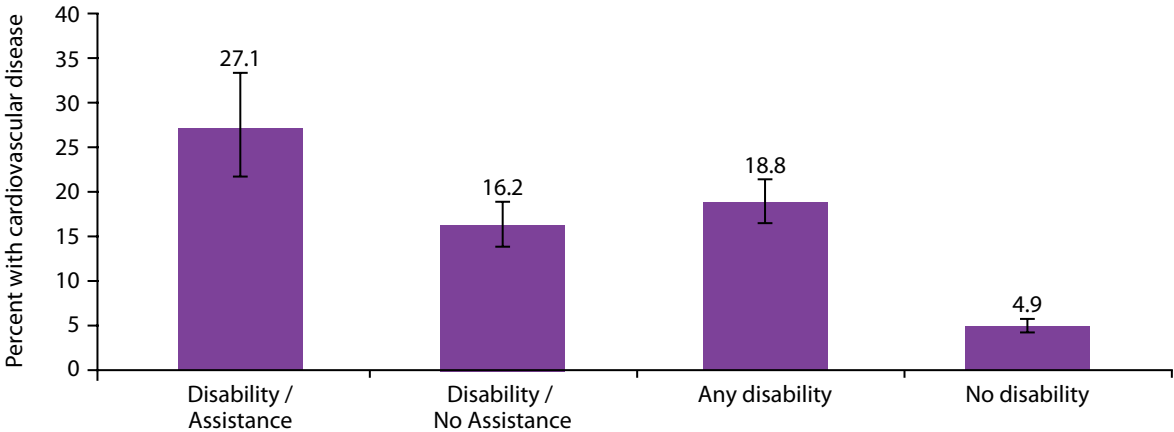
Cardiovascular Disease

BRFSS Questions

Now I would like to ask you some questions about cardiovascular disease. Has a doctor, nurse, or other health professional ever told you that you had any of the following? For each, tell me "Yes," "No," or you're "Not sure."

- [Ever told] you had a heart attack, also called a myocardial infarction?
- [Ever told] you had angina or coronary heart disease?
- [Ever told] you had a stroke?

Figure 25. Percentage of New York adults with a history of cardiovascular disease (heart attack, angina, or stroke), by disability status.



Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

Adults with disabilities, particularly those who require assistance, were more likely than adults without disabilities to have a history of cardiovascular disease (18.8% and 27.1% vs. 4.9%, respectively).

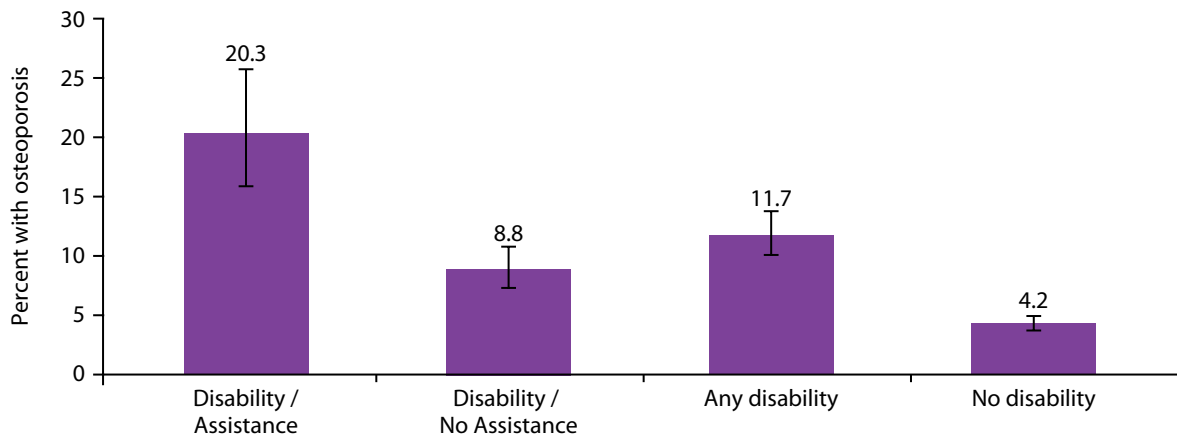
Osteoporosis

BRFSS Question

Osteoporosis is a condition where bones become brittle and break (fracture) more easily. It is not the same condition as osteoarthritis, a joint disease.

- Have you ever been told by a doctor, nurse, or other health professional that you have osteoporosis?

Figure 26. Percentage of New York adults with osteoporosis, by disability status.



Note: Error bars represent 95% confidence intervals.

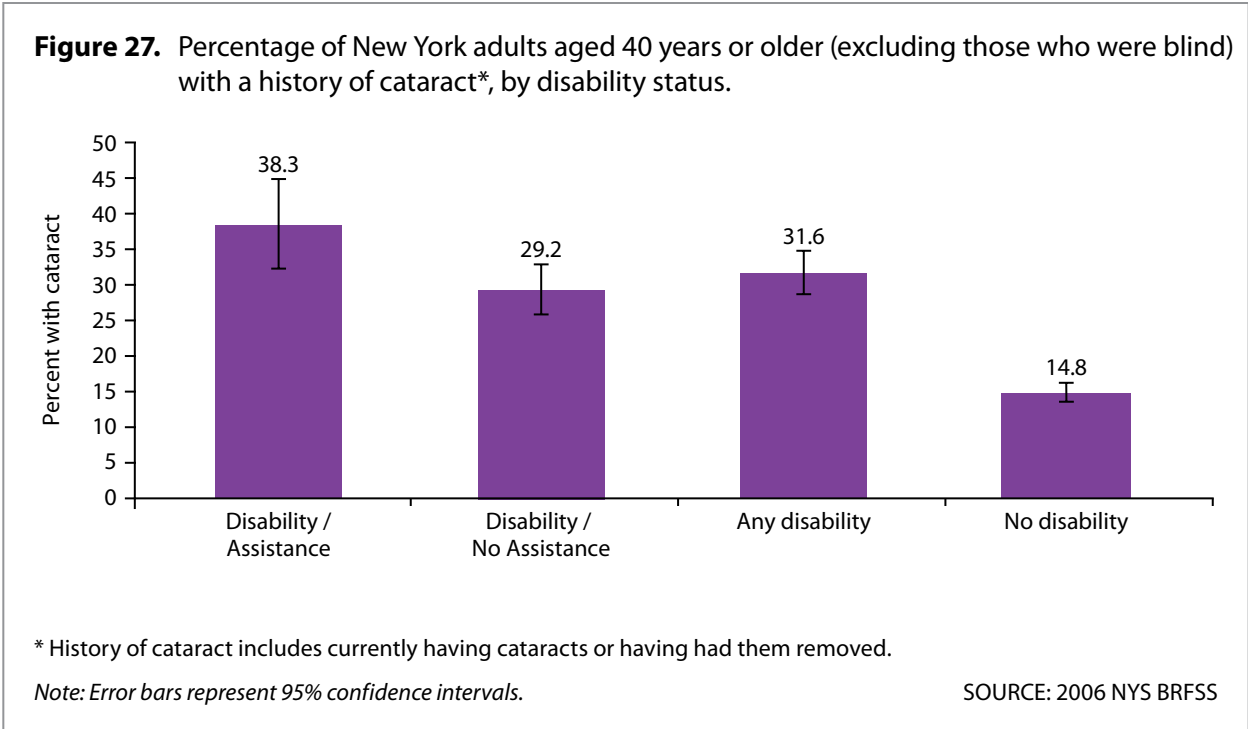
SOURCE: 2006 NYS BRFSS

Adults with disabilities, particularly those who require assistance, were more likely than adults without disabilities to have osteoporosis (11.7% and 20.3% vs. 4.2%, respectively).

Cataract

BRFSS Question [Asked of respondents aged 40 years or older]

- Have you been told by an eye doctor or other health care professional that you now have cataracts?

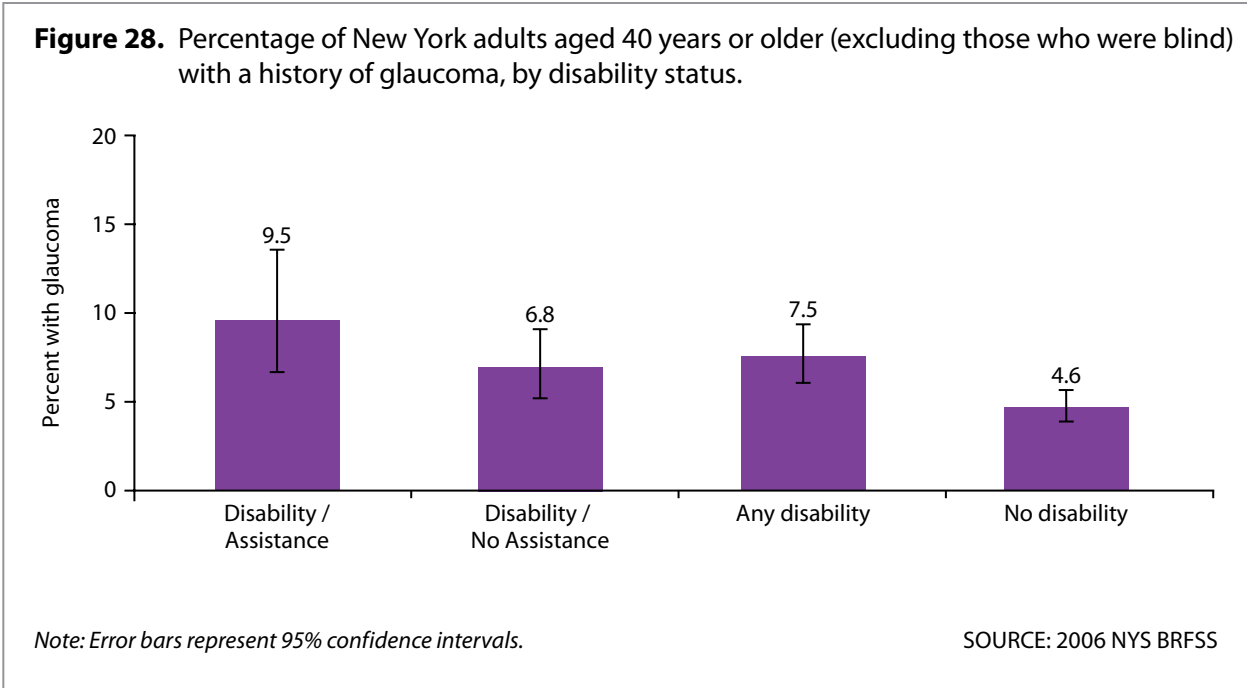


Among adults aged 40 years or older, those with disabilities were more likely than those without disabilities to have a history of cataract (31.6% vs. 14.8%).

Glaucoma

BRFSS Question [Asked of respondents aged 40 years or older]

- Have you ever been told by an eye doctor or other health care professional that you had glaucoma?



Among adults aged 40 years or older, those with disabilities were more likely than those without disabilities to have a history of glaucoma (7.5% vs. 4.6%).

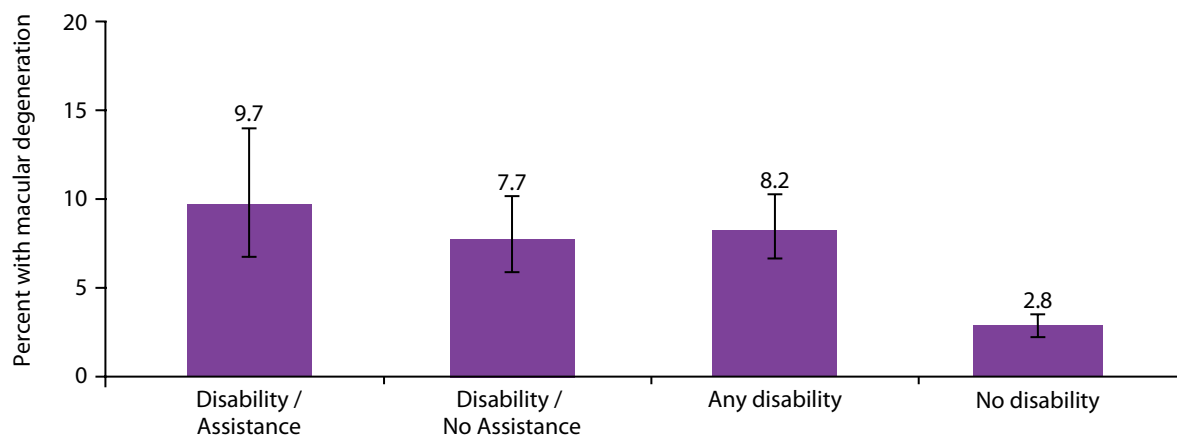
Age-Related Macular Degeneration

BRFSS Question [Asked of respondents aged 40 years or older]

Age-related macular degeneration (AMD) is a disease that blurs the sharp, central vision you need for “straight-ahead” activities such as reading, sewing, and driving. AMD affects the macula, the part of the eye that allows you to see fine detail.

- Have you ever been told by an eye doctor or other health care professional that you had age-related macular degeneration?

Figure 29. Percentage of New York adults aged 40 years or older (excluding those who were blind) with a history of age-related macular degeneration, by disability status.



Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

Among adults aged 40 years or older, those with disabilities were more likely than those without disabilities to have a history of age-related macular degeneration (8.2% vs. 2.8%).

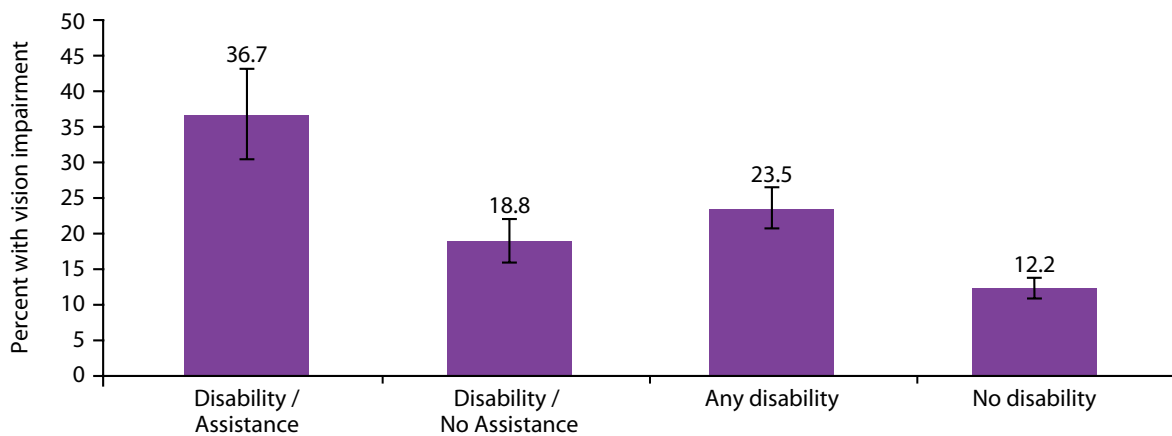
Distance Vision Impairment

BRFSS Question [Asked of respondents aged 40 years or older]

I would like to ask you questions about how much difficulty, if any, you have doing certain activities. If you usually wear glasses or contact lenses, please rate your ability to do them while wearing glasses or contact lenses.

- *How much difficulty, if any, do you have in recognizing a friend across the street? Would you say...no difficulty, a little difficulty, moderate difficulty, extreme difficulty, unable to do because of eyesight, [or] unable to do for other reasons?*

Figure 30. Percentage of New York adults aged 40 years or older (excluding those who were blind) with distance vision impairment*, by disability status.



* Responding "a little difficulty," "moderate difficulty," "extreme difficulty," or "unable to do because of eyesight."

Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

Among adults aged 40 years or older, those with disabilities, particularly those who require assistance, were more likely than those without disabilities to have distance vision impairment (23.5% and 36.7% vs. 12.2%, respectively).

5 Health Risk Factors and Behaviors

Behavioral risk factors consist of personal decisions and habits that affect one's health and over which one has considerable control.⁴ Despite the fact, however, that interventions aimed at promoting more healthful behaviors among the population may prevent or decrease disability, such health-damaging behaviors are extremely resistant to permanent change.¹⁰

Risk-reducing, health-promoting activities are especially important for the elderly with chronic disease because they are already predisposed to functional limitation and disability.⁴ Adopting healthful behaviors even late in life can be beneficial, perhaps preventing the progression

of impairments to functional limitations and disability. A number of behavioral risk factors have been found to be predictors of disability onset, including smoking, lack of exercise, and excess weight. Smoking has been associated with mobility loss, even after adjustment for presence of chronic conditions. Lack of exercise has also been demonstrated to place individuals at increased risk of disability, whereas decreased risk has been shown in those who are physically active. In addition, the risk of mobility loss in individuals who are overweight has been clearly demonstrated.¹¹

Smoking

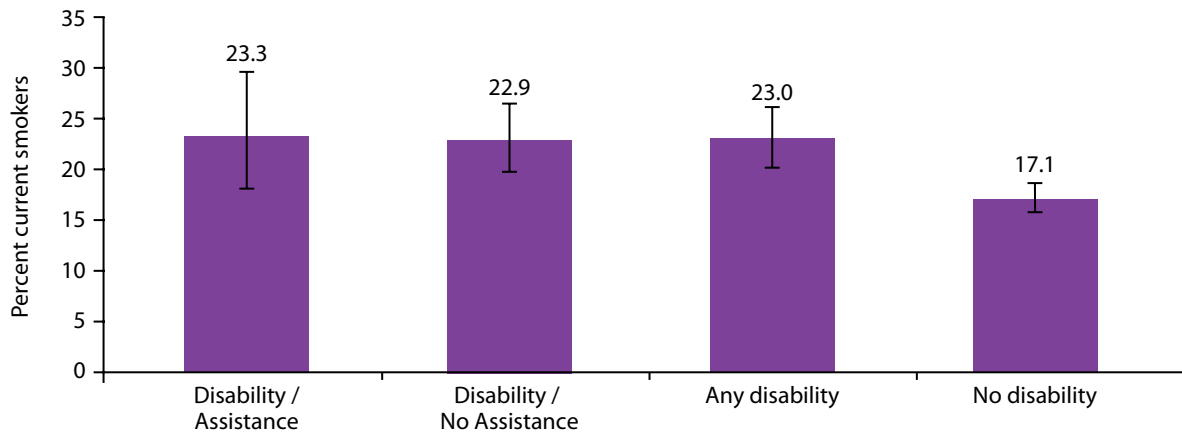
BRFSS Questions

- Have you smoked at least 100 cigarettes in your entire life?

[If “yes”]

- Do you now smoke cigarettes every day, some days, or not at all?

Figure 31. Percentage of New York adults who were current cigarette smokers*, by disability status.



* Smoked at least 100 cigarettes in their lifetime and currently smoke some days or every day.

Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

Adults with disabilities were more likely than adults without disabilities to be current cigarette smokers (23.0% vs. 17.1%).

Alcohol Consumption: Binge Drinking

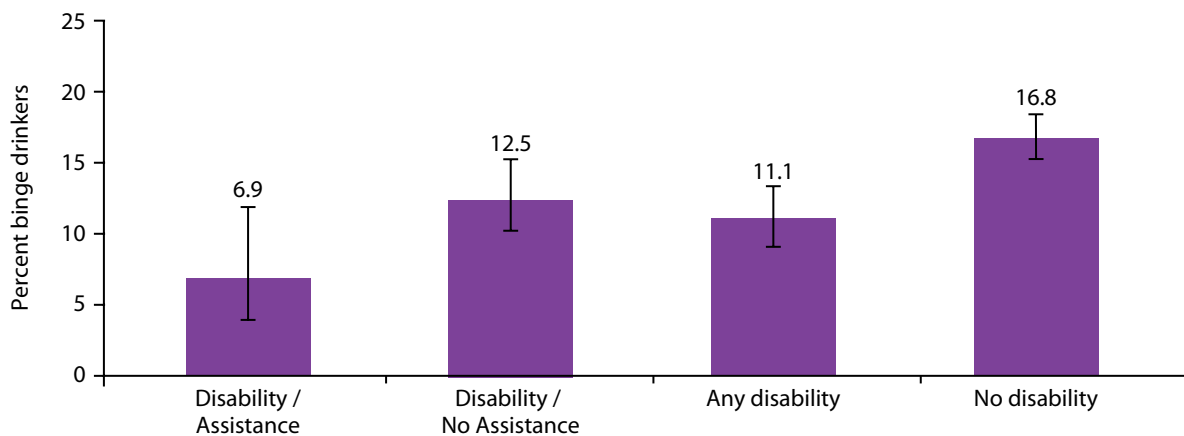
BRFSS Questions

- During the past 30 days, have you had at least one drink of any alcoholic beverage such as beer, wine, a malt beverage or liquor?

[If “yes”]

- During the past 30 days, how many days per week or per month did you have at least one drink of any alcoholic beverage?
- Considering all types of alcoholic beverages, how many times during the past 30 days did you have [five (for men), four (for women)] or more drinks on an occasion?

Figure 32. Percentage of New York adults who engaged in binge drinking*, by disability status.



* Men who had five or more drinks on one occasion in the past 30 days, and women who had four or more drinks on one occasion in the past 30 days.

Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

Adults with disabilities were less likely than adults without disabilities to engage in binge drinking (11.1% vs. 16.8%).

Alcohol Consumption: Heavy Drinking

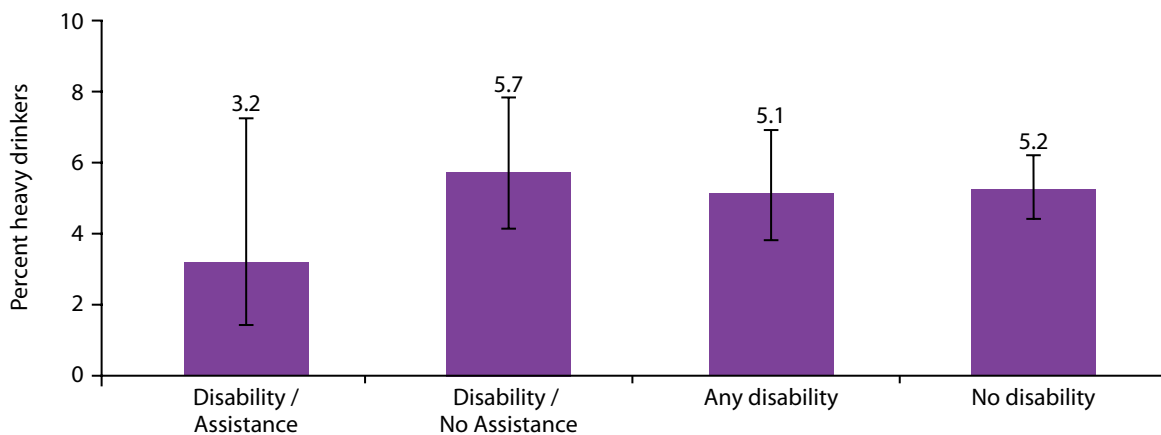
BRFSS Questions

- During the past 30 days, have you had at least one drink of any alcoholic beverage such as beer, wine, a malt beverage or liquor?

[If “yes”]

- During the past 30 days, how many days per week or per month did you have at least one drink of any alcoholic beverage?
- One drink is equivalent to a 12-ounce beer, a 5-ounce glass of wine, or a drink with one shot of liquor. During the past 30 days, on the days when you drank, about how many drinks did you drink on average?

Figure 33. Percentage of New York adults who engaged in heavy drinking*, by disability status.



* Men who had more than two drinks per day during the past 30 days, and women who had more than one drink per day during the past 30 days.

Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

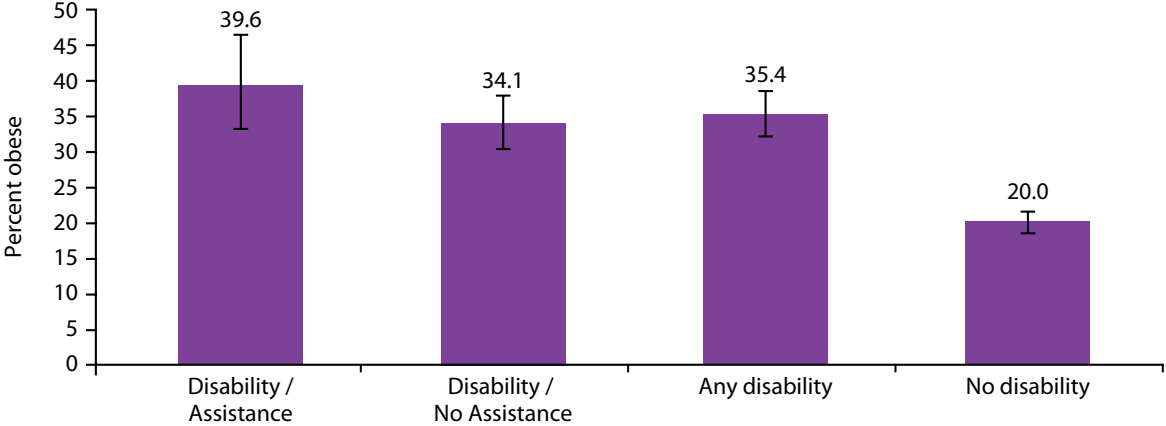
There were no differences by disability status among adults who engaged in heavy drinking.

Obesity

BRFSS Questions

- About how much do you weigh without shoes?
- About how tall are you without shoes?

Figure 34. Percentage of New York adults who were obese*, by disability status.



* Body mass index (BMI, calculated as weight in kilograms divided by the square of height in meters) of 30.0 or higher.

Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

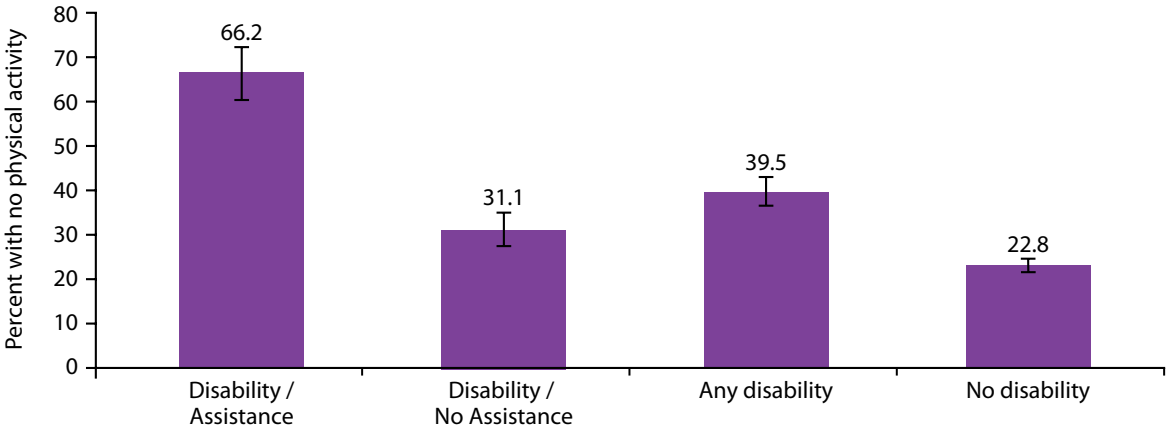
Adults with disabilities were more likely than adults without disabilities to be obese (35.4% vs. 20.0%).

Physical Activity: Leisure-Time Physical Activity

BRFSS Question

- During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?

Figure 35. Percentage of New York adults with no leisure-time physical activity during the past month, by disability status.



Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

Adults with disabilities, particularly those who require assistance, were more likely than adults without disabilities to have no leisure-time physical activity during the past month (39.5% and 66.2% vs. 22.8%, respectively).

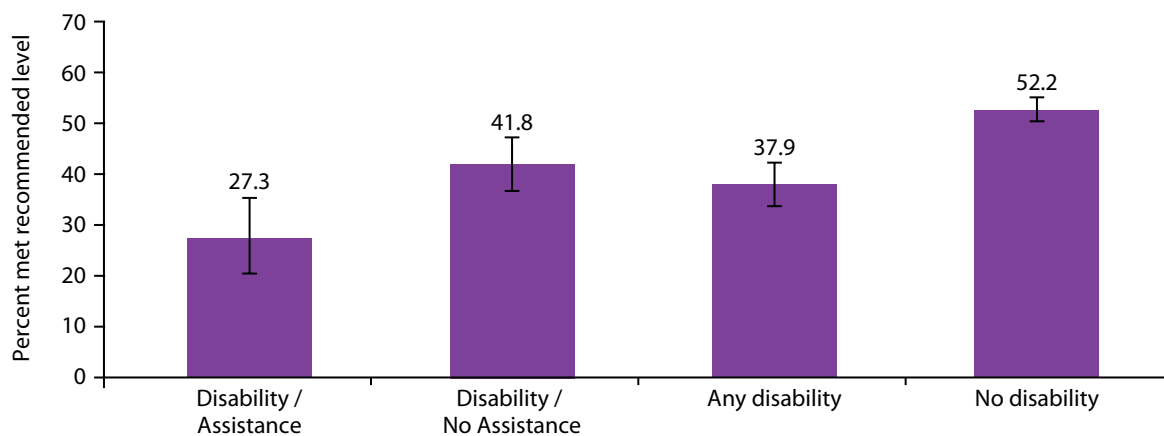
Physical Activity: Recommended Physical Activity

BRFSS Questions

We are interested in two types of physical activity: vigorous and moderate. Vigorous activities cause large increases in breathing or heart rate while moderate activities cause small increases in breathing or heart rate.

- Now, thinking about the moderate activities you do [when you are not working (if employed or self-employed)] in a usual week, do you do moderate activities for at least 10 minutes at a time, such as brisk walking, bicycling, vacuuming, gardening, or anything else that causes some increase in breathing or heart rate?
- How many days per week do you do these moderate activities for at least 10 minutes at a time? On days when you do moderate activities for at least 10 minutes at a time, how much total time per day do you spend doing these activities?
- Now, thinking about the vigorous activities you do [when you are not working (if employed or self-employed)] in a usual week, do you do vigorous activities for at least 10 minutes at a time, such as running, aerobics, heavy yard work, or anything else that causes large increases in breathing or heart rate?
- How many days per week do you do these vigorous activities for at least 10 minutes at a time? On days when you do vigorous activities for at least 10 minutes at a time, how much total time per day do you spend doing these activities?

Figure 36. Percentage of New York adults who met the recommended level of physical activity*, by disability status.



* Moderate-intensity physical activity outside of work of 30 or more minutes a day at least five days a week or vigorous-intensity physical activity outside of work of 20 or more minutes a day at least three days a week [Healthy People 2010].

Note: Error bars represent 95% confidence intervals.

SOURCE: 2005 NYS BRFSS (split sample)

Adults with disabilities, particularly those who require assistance, were less likely than adults without disabilities to meet the recommended level of physical activity (37.9% and 27.3% vs. 52.5%, respectively).

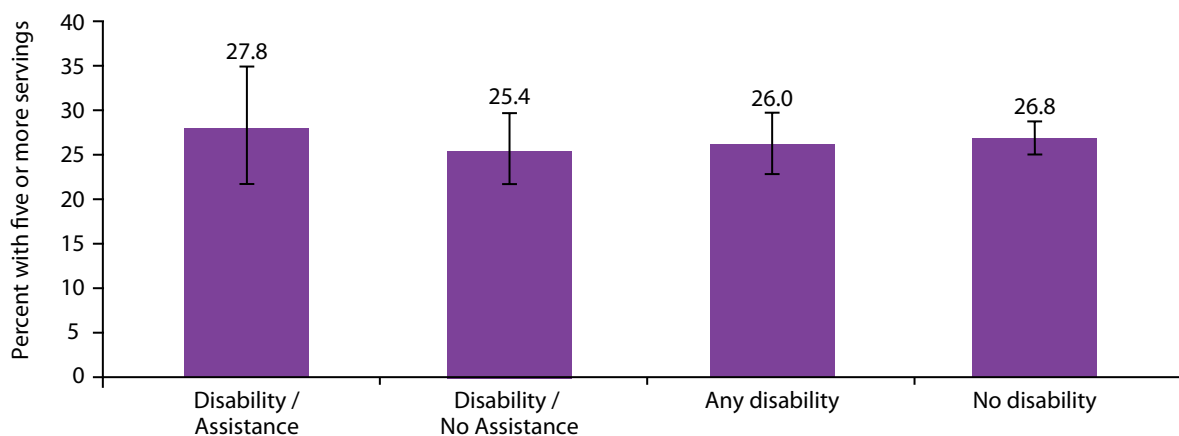
Fruits and Vegetables Consumption

BRFSS Questions

These next questions are about the foods you usually eat or drink. Please tell me how often you eat or drink each one, for example, twice a week, three times a month, and so forth. Remember, I am only interested in the foods you eat. Include all foods you eat, both at home and away from home.

- How often do you drink fruit juices such as orange, grapefruit, or tomato?
- Not counting juice, how often do you eat fruit?
- How often do you eat green salad?
- How often do you eat potatoes not including French fries, fried potatoes, or potato chips?
- How often do you eat carrots?
- Not counting carrots, potatoes, or salad, how many servings of vegetables do you usually eat? (Example: A serving of vegetables at both lunch and dinner would be two servings.)

Figure 37. Percentage of New York adults who consumed five or more servings of fruits and vegetables per day, by disability status.



Note: Error bars represent 95% confidence intervals.

SOURCE: 2005 NYS BRFSS (split sample)

There were no differences by disability status among adults for consumption of five or more servings of fruits and vegetables per day.

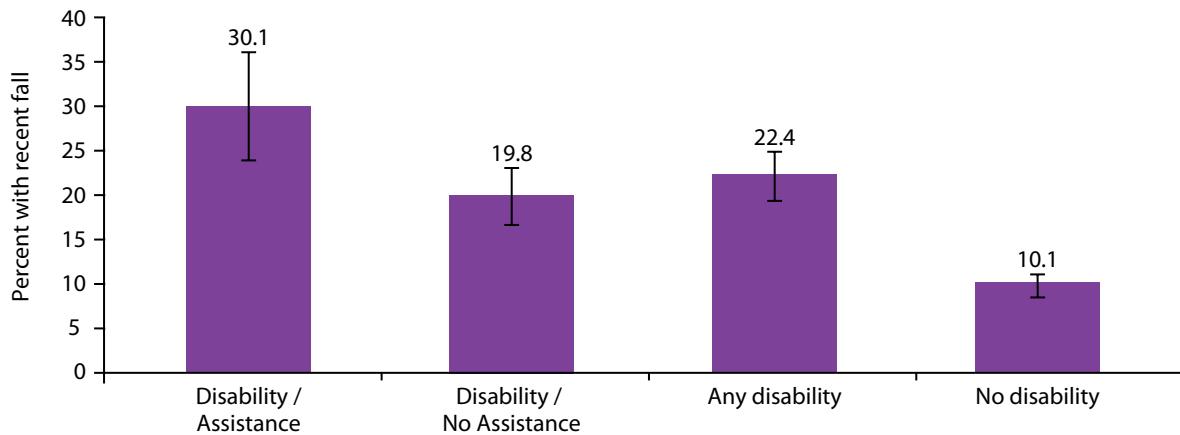
Falls: Recent Falls

BRFSS Questions [Asked of respondents aged 45 years or older]

The next questions ask about recent falls. By a fall, we mean when a person unintentionally comes to rest on the ground or another lower level.

- In the past 3 months, how many times have you fallen?

Figure 38. Percentage of New York adults aged 45 years or older with at least one self-reported fall during the past three months, by disability status.



Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

Among adults aged 45 years or older, those with disabilities, particularly those who require assistance, were more likely than those without disabilities to have fallen at least once during the past three months (22.4% and 30.1% vs. 10.1%, respectively).

Falls: Recent Injury-Causing Falls

BRFSS Questions [Asked of respondents aged 45 years or older]

The next questions ask about recent falls. By a fall, we mean when a person unintentionally comes to rest on the ground or another lower level.

- In the past 3 months, how many times have you fallen?

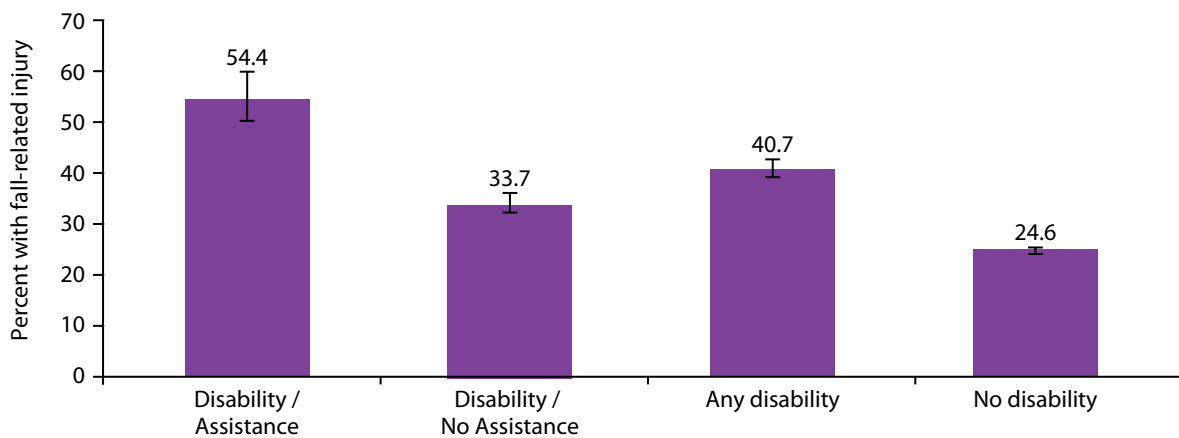
[If at least one fall]

- Did this fall cause an injury?

[If “yes”]

- How many of these falls caused an injury? By an injury, we mean the fall caused you to limit your regular activities for at least a day or to go see a doctor.

Figure 39. Among New York adults aged 45 years or older with at least one self-reported fall during the past three months, percentage who were injured at least once, by disability status.



Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

Among adults aged 45 years or older who had fallen at least once during the past three months, those with disabilities, particularly those who require assistance, were more likely than those without disabilities to be injured at least once (40.7% and 54.4% vs. 24.6%, respectively).

6 Health-Related Quality of Life

Quality of life (QoL) generally corresponds to total well-being, encompassing both physical and psychosocial determinants.¹² Components of QoL include performance of social roles, physical status, emotional status, social interactions, intellectual functioning, economic status, and self-perceived or subjective health status.^{12,13,14} Quality of life for persons with disabilities is an outcome that reflects the influence and interaction of environmental factors, the life course of an individual or group, the disabling process, and opportunity.¹⁵ Health-related quality of life (HRQoL) refers to the “physical, psychological, and social domains of health, seen as distinct areas that are influenced by a person’s experiences, beliefs, expectations, and perceptions.”¹⁶ HRQoL is multidimensional and is composed of, at a minimum, physical functioning, psychological well-being, social and role functioning, and health perceptions.^{17,18} HRQoL measures can be outcomes of other health events such as access to care,¹⁹ impact of chronic conditions,²⁰ or the effects of aging.²¹ Therefore the surveillance of HRQoL is important to monitoring changes in the health of people and populations. HRQoL is related to both self-reported chronic diseases and their risk factors.¹

Health-related quality-of-life information on the BRFSS has consisted of both subjective ratings

of health and perceptions of recent health. The HRQoL questions on perceived physical and mental health and function have become an important component of health surveillance and are generally considered valid indicators of service needs and intervention outcomes. Self-rated health, in particular, is considered to be a reliable indicator of a person’s perceived health and is a good global assessment of a person’s well-being. Moreover, it has proved a more powerful predictor of mortality and morbidity than many objective measures of health.²²

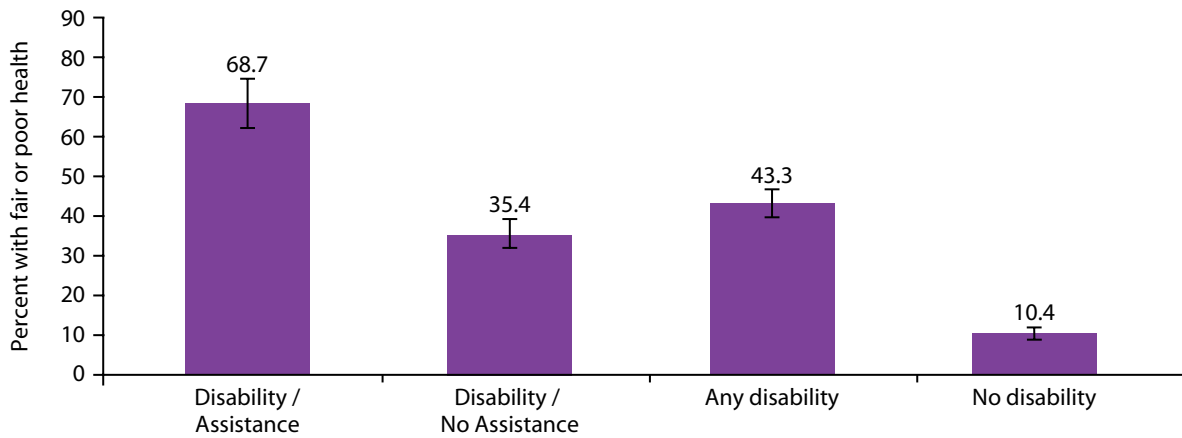
The 14 HRQoL questions on the BRFSS have been shown to have adequate validity and acceptability for use with people with disabilities in both surveillance and research.^{23,24} The HRQoL questions on recent health elicited information on the respondents’ estimates of impaired health days during the prior month by asking respondents to estimate the number of days in the past 30 that they had experienced a number of adverse health events. The rationale for these items is that HRQoL is a time-related phenomenon that is best measured with reference to a specified period of time.¹ A recall period of 30 days is long enough to capture variability in health status, while still being within the limits of most persons’ memories.²⁵

Health Status: Self-Rated Health

BRFSS Question

- Would you say that in general your health is excellent, very good, good, fair, or poor?

Figure 40. Percentage of New York adults with fair or poor self-rated health, by disability status.



Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

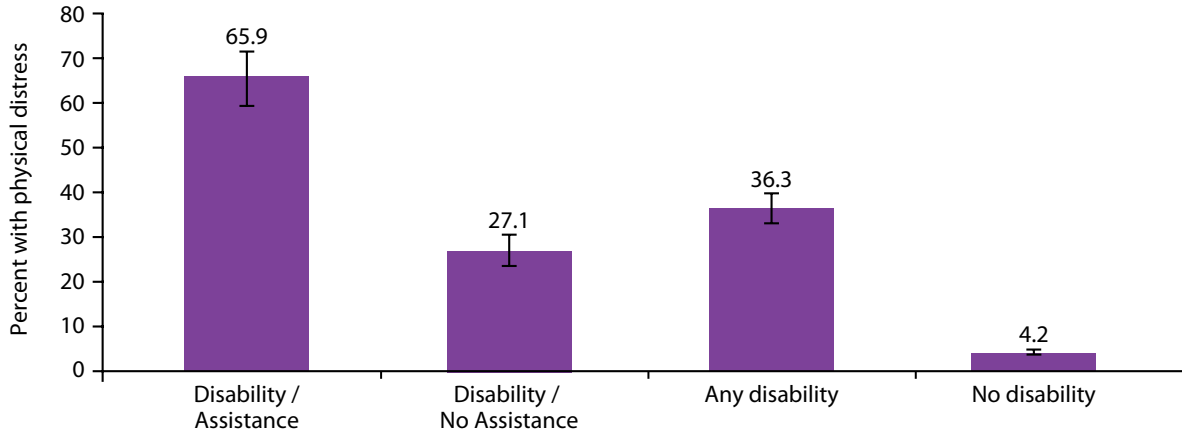
Adults with disabilities, particularly those who require assistance, were more likely than adults without disabilities to have fair or poor self-rated health (43.3% and 68.7% vs. 10.4%, respectively).

Healthy Days: Physical Health

BRFSS Question

- Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?

Figure 41. Percentage of New York adults with frequent physical distress*, by disability status.



* 14 or more days in the past 30 days in which physical health was not good.

Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

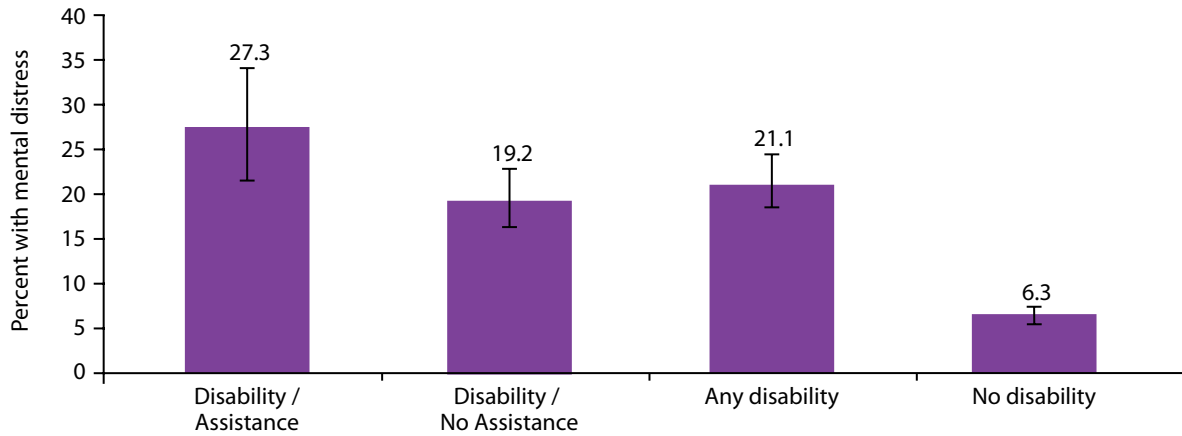
Adults with disabilities, particularly those who require assistance, were more likely than adults without disabilities to have frequent physical distress (36.3% and 65.9% vs. 4.2%, respectively).

Healthy Days: Mental Health

BRFSS Question

- Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?

Figure 42. Percentage of New York adults with frequent mental distress*, by disability status.



* 14 or more days in the past 30 days in which mental health was not good.

Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

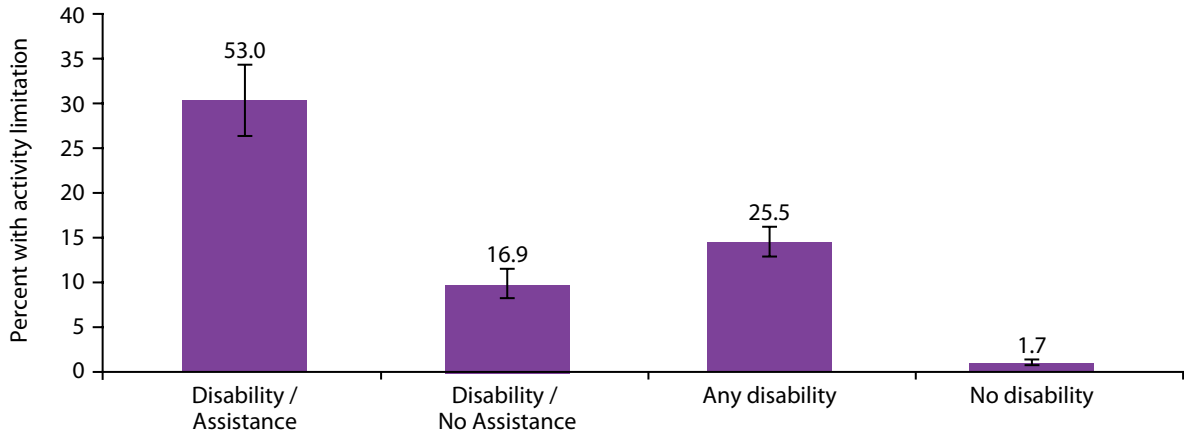
Adults with disabilities were more likely than adults without disabilities to have frequent mental distress (21.1% vs. 6.3%).

Healthy Days: Activity Limitation

BRFSS Question

- During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation?

Figure 43. Percentage of New York adults with frequent activity limitation*, by disability status.



* 14 or more days in the past 30 days in which poor physical or mental health kept from doing usual activities.

Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

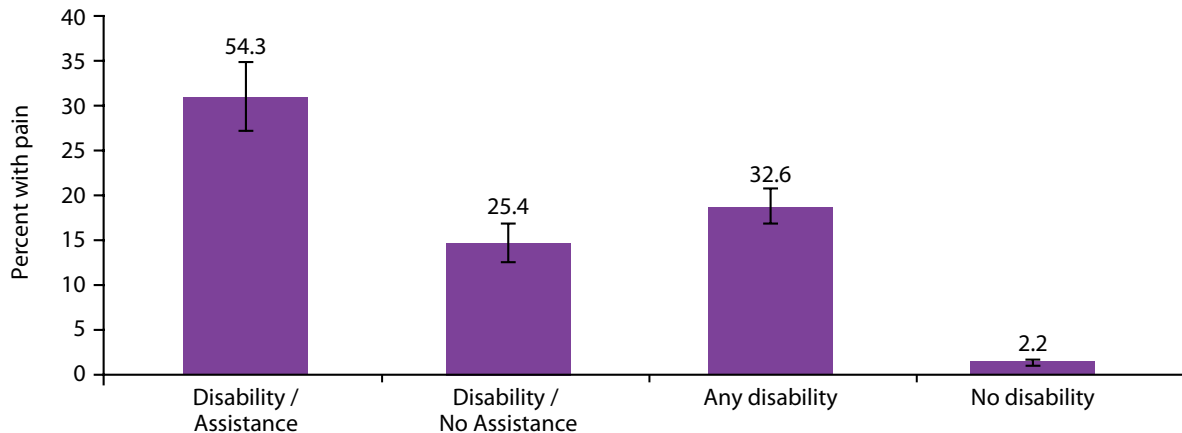
Adults with disabilities, particularly those who require assistance, were more likely than adults without disabilities to have frequent activity limitation due to poor physical or mental health (25.2% and 53.0% vs. 1.7%, respectively).

Healthy Days: Pain

BRFSS Question

- During the past 30 days, for about how many days did pain make it hard for you to do your usual activities, such as self-care, work, or recreation?

Figure 44. Percentage of New York adults with frequent pain*, by disability status.



* 14 or more days in the past 30 days in which pain made it hard to do usual activities.

Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

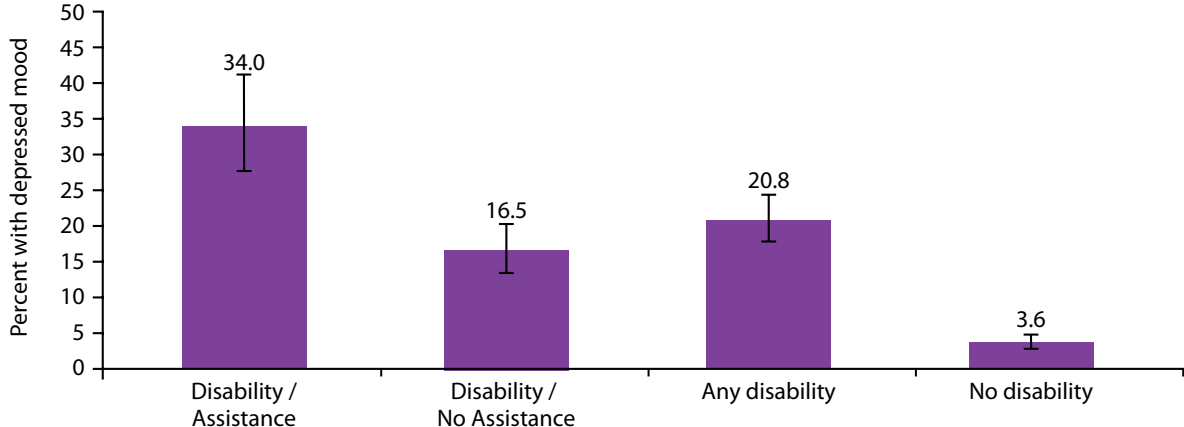
Adults with disabilities, particularly those who require assistance, were more likely than adults without disabilities to report frequent activity-limiting pain (32.8% and 54.3% vs. 2.2%, respectively).

Healthy Days: Depressed Mood

BRFSS Question

- During the past 30 days, for about how many days have you felt sad, blue, or depressed?

Figure 45. Percentage of New York adults with frequent depressed mood*, by disability status.



* 14 or more days in the past 30 days in which felt sad, blue, or depressed.

Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

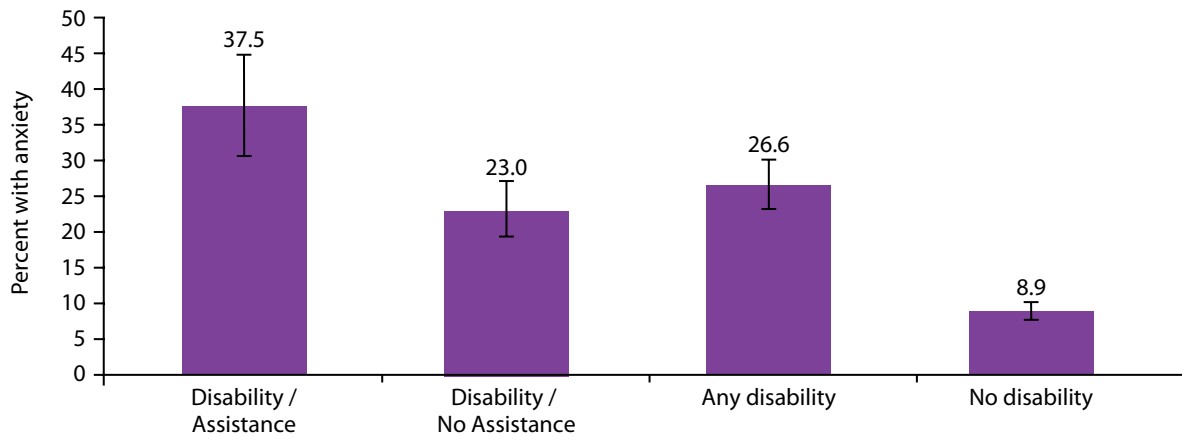
Adults with disabilities, particularly those who require assistance, were more likely than adults without disabilities to have frequent depressed mood (20.8% and 34.0% vs. 3.6%, respectively).

Healthy Days: Anxiety

BRFSS Question

- During the past 30 days, for about how many days have you felt worried, tense, or anxious?

Figure 46. Percentage of New York adults with frequent anxiety*, by disability status.



* 14 or more days in the past 30 days in which felt worried, tense, or anxious.

Note: Error bars represent 95% confidence intervals.

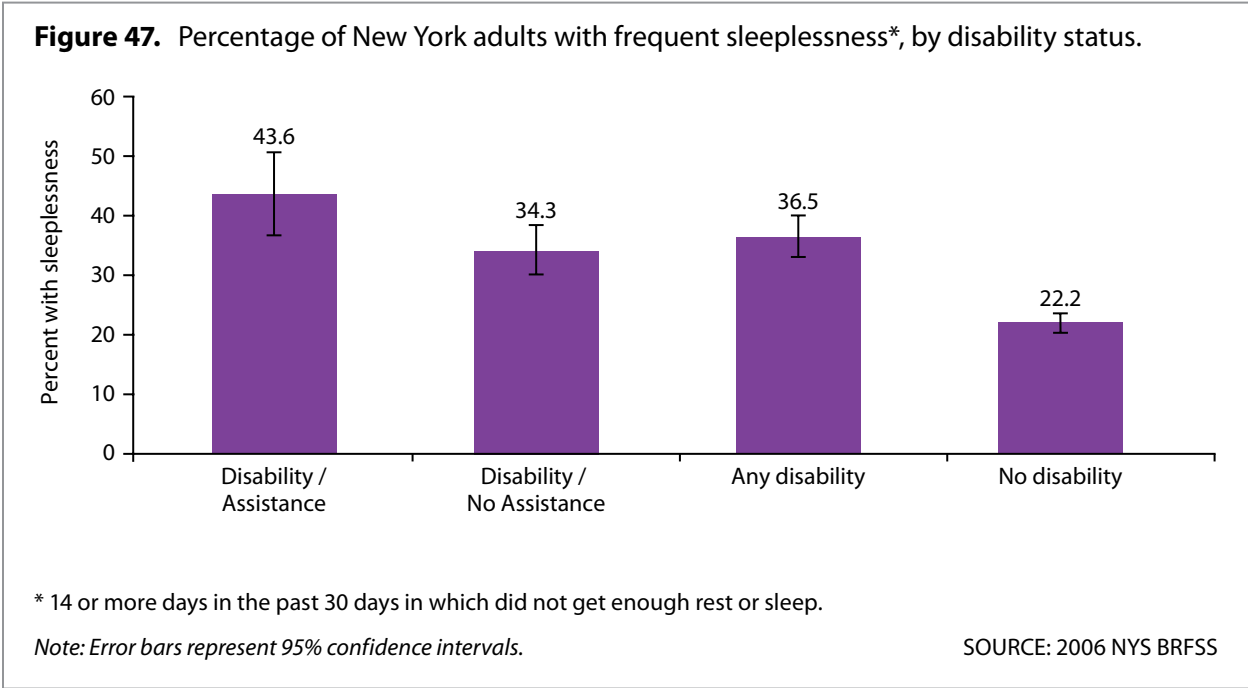
SOURCE: 2006 NYS BRFSS

Adults with disabilities, particularly those who require assistance, were more likely than adults without disabilities to have frequent anxiety (26.6% and 37.5% vs. 8.9%, respectively).

Healthy Days: Sleeplessness

BRFSS Question

- During the past 30 days, for about how many days have you felt you did not get enough rest or sleep?



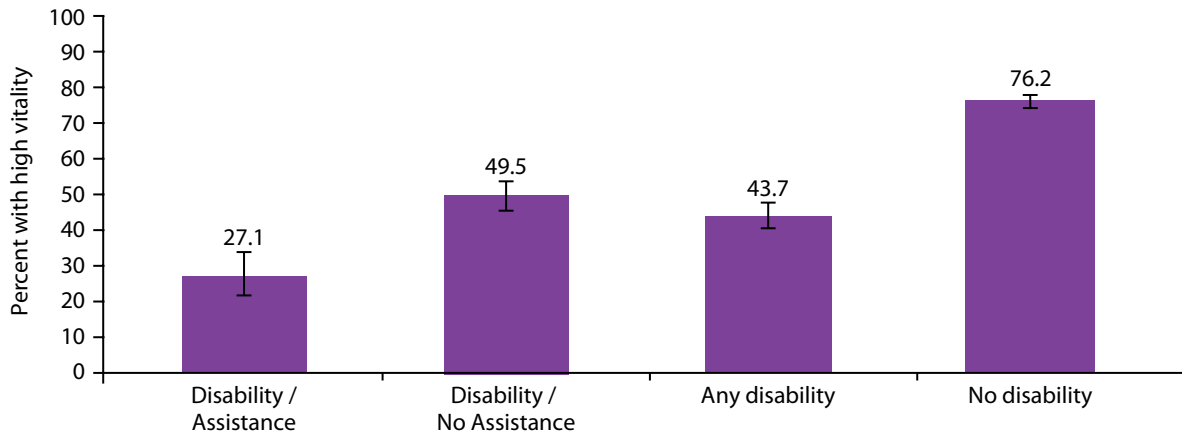
Adults with disabilities were more likely than adults without disabilities to have frequent sleeplessness (36.5% vs. 22.2%).

Healthy Days: High Vitality

BRFSS Question

- During the past 30 days, for about how many days have you felt very healthy and full of energy?

Figure 48. Percentage of New York adults with frequent high vitality*, by disability status.



* 14 or more days in the past 30 days in which felt very healthy and full of energy.

Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

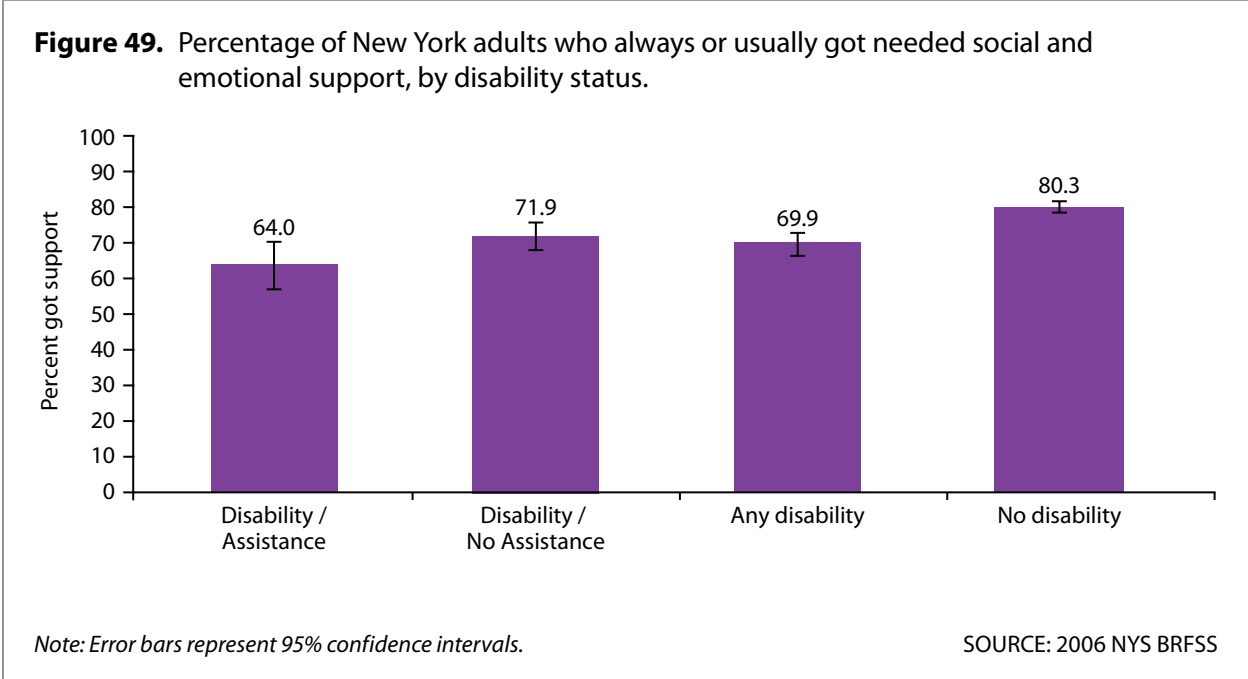
Adults with disabilities, particularly those who require assistance, were less likely than adults without disabilities to have frequent high vitality (43.7% and 27.1% vs. 76.2%, respectively).

Social and Emotional Support

BRFSS Question

The next two questions are about emotional support and your satisfaction with life.

- How often do you get the social and emotional support you need? [always, usually, sometimes, rarely, or never]



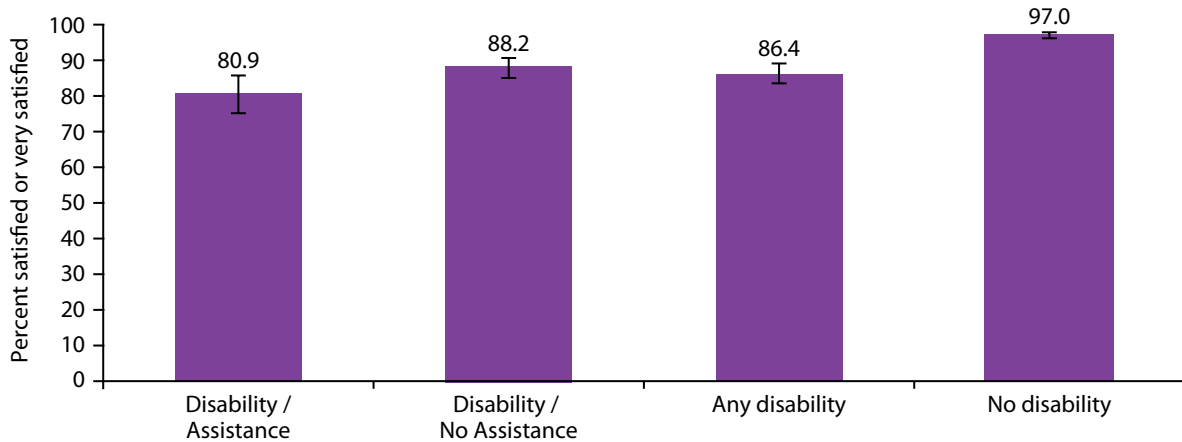
Adults with disabilities were less likely than adults without disabilities to always or usually get the social and emotional support they need (69.9% vs. 80.3%).

Satisfaction with Life

BRFSS Question

- *In general, how satisfied are you with your life? [very satisfied, satisfied, dissatisfied, or very dissatisfied]*

Figure 50. Percentage of New York adults who were satisfied or very satisfied with life, by disability status.



Note: Error bars represent 95% confidence intervals.

SOURCE: 2006 NYS BRFSS

Adults with disabilities were less likely than adults without disabilities to be satisfied or very satisfied with life (86.4% vs. 97.0%).

7 Discussion

Disability prevalence among New Yorkers was shown to vary directly by age and inversely by levels of education and household income. Research has shown that persons with more education are much less likely to be disabled than are those with less education, as are those with higher incomes working in white-collar jobs.²⁶ More educated persons have up to 50 percent lower disability rates than the less educated, perhaps because of factors such as less exposure to occupational hazards and fewer employment-related musculoskeletal injuries.^{26,27} Also, positive health behaviors such as avoidance of smoking are seen among better-educated people, and they may use more medical services.²⁷ Women in the survey had a higher prevalence of disability than did men. In the general population, women have a higher rate of disability than men, due primarily to women's higher average longevity and the fact that activity limitation increases sharply with age.²⁸ The analysis also revealed a lower prevalence of disability among Hispanics compared to the non-Hispanic whites, although this difference was no longer significant after age adjustment (results not shown). Ethnic differences are probably due to a variety of factors in addition to age, including income, education, and other socioeconomic disparities²⁹ as well as possible cultural differences in how disability is experienced and reported.²⁸

Current cigarette smoking, obesity, and inadequate physical activity, risk factors that have been consistently associated with mobility loss,³⁰ were shown to be more prevalent among New Yorkers with disabilities. The greater prevalence of current cigarette smoking among persons with disabilities is consistent with other reports on smoking behavior in this population.³¹ The association of cigarette smoking with disability could be explained by its known association with several disabling chronic conditions, including heart disease, stroke, cancer, and chronic obstructive pulmonary disease.^{32,33}

The higher prevalence of obesity found among New Yorkers with disabilities is not surprising given the documented association between weight status and disabling conditions. Several studies have shown body weight to be related

to functional disability.³⁴⁻³⁶ Moreover, obesity has been found to be associated with a greater risk for both lower-body^{37,38} and upper-body osteoarthritis,³⁹ leading directly to disability. Obesity may also be indirectly associated with disability through diseases related to weight status. Excess weight is associated with increased incidence of cardiovascular disease, type 2 diabetes mellitus, and stroke.⁴⁰ Heart disease has been associated with difficulties in activities requiring endurance, stroke has been associated with difficulty in use of the upper extremities and in performing basic self-care tasks,⁴¹ and diabetes has been found to be a significant cause of mobility impairments.^{42,43}

New Yorkers with disabilities were less likely than those without disabilities to report meeting recommended levels of physical activity. Recent evidence has shown that physical inactivity itself can be a primary cause of disability.⁴⁴⁻⁴⁷ Physical inactivity results in a cycle where it contributes to obesity, obesity exacerbates disability, and disability impedes exercise.^{48,49} Furthermore, adults with disabling conditions or disabilities are more likely to face barriers to regular exercise, thus contributing to the higher prevalence of obesity among this population.⁵⁰ These include environmental and disability-specific barriers, such as availability of accessible facilities and transportation. In addition, physical impairments, including pain and weakness, may hinder or preclude certain physical activities.

Disability is a major health burden across the entire age spectrum. Historically, it has been equated with inferior health status, with the health needs of persons with disabilities considered only in relation to their particular limitations. Often the management of the primary disabling condition has been the overriding concern, with less attention paid to the generally recommended standards of health screening and disease prevention. Significant data suggest that persons with disabilities do not participate in wellness programs or some health screening activities at the same level as do persons without disabilities.⁵¹ For example, *Healthy People 2010* has indicated that among women aged 40 years or older, those with disabilities are less likely than those without disabilities to have had a mammogram.⁵²

Studies that examined health screening rates among groups with mobility limitations have reported even greater differences. The 2000 National Health Interview Survey found that among nonelderly adults, the percentage with mobility limitations who received preventive health services, including cholesterol screening and blood pressure checks, was considerably lower than that of persons without disabilities.⁵³ Moreover, women with major lower extremity mobility difficulties have been found to report much lower rates of Pap smears and mammograms.⁵⁴

In the current study, New York women aged 50 years or older with a greater degree of disability were found to be less likely than those without disabilities to report having had a mammogram within the past two years. Overall, however, results suggest that adult New Yorkers with disabilities fare quite well compared to those without disabilities in receiving most health screening services and vaccinations. Those with disabilities were at least as likely as those without disabilities to have reported recommended screenings for cervical, prostate, and colorectal cancer, and were actually more likely to have reported recent blood cholesterol checks, flu shots, and pneumonia vaccinations.

One of the two overarching goals stated in *Healthy People 2010* is to increase the quality and years of healthy life.⁵² Given the aging of the population and the accompanying increase in the risk of chronic disease, efforts toward identifying and intervening on factors that link disability, depression, and quality of life must continue.⁵⁵ Life with a chronically limiting condition can have substantial negative effect on perceived quality of life, but this effect is neither inevitable nor immutable.⁵⁵ As we continue progress toward meeting the objectives of *Healthy People 2010*, the measurement and surveillance of disability indicators will be critical to monitoring the effectiveness of programs designed to reduce secondary conditions, promote better health behaviors, and improve quality of life among persons with disabilities. Any approach to monitoring the status of the population of individuals with disabilities must include a broad range of measures. Although the NYSDOH Disability and Health Program has focused its public health interventions primarily on persons with mobility impairments, it will continue to monitor all aspects of the disability issue under its guiding document, the *New York State Strategic Plan for Health Promotion for Persons with Disabilities*.

Appendix A: Methods

Data Source

The Behavioral Risk Factor Surveillance System (BRFSS) is a telephone survey limited to the noninstitutionalized, civilian adult (aged 18 years or older) population. The system monitors modifiable risk behaviors and other factors contributing to the leading causes of morbidity and mortality in the population. BRFSS data are useful for planning, initiating, and supporting health promotion and disease prevention programs at state and federal levels, and for monitoring progress toward achieving health objectives for the state and nation. The New York State Department of Health (NYSDOH) has administered the BRFSS survey annually since 1985, and since 1993 has collected information on disability.

Sample

Disability and other health-related questions were asked of 7,796 respondents in New York State in 2005 and of 5,928 respondents in 2006. In the 2005 survey, however, a split-sample survey administration was used. As a result, the two follow-up disability questions (a state-added module) were asked of only 3,982 respondents. Therefore, the 2005 results reported in this chartbook are from analysis of the 3,982 records, which have responses to all four disability questions, not on the full sample. (Charts with 2005 results have the designation “split sample” in a footnote.) Data were weighted to adjust for the selection probabilities and the estimates of age-sex-race distribution of adults in the state. The sample size resulted in estimates for a weighted population of 14,559,309 persons in 2005 and 14,742,007 in 2006.

Assessment of Disability

For the purposes of this chartbook, the definition of “disability” was based on responses to two questions that were part of the BRFSS core section in 2005 and 2006:

- “Are you limited in any way in any activities because of physical, mental, or emotional problems?”
- “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?”

A “no” response to both questions assigned the respondent to the group of persons without disabilities (*No disability*). An affirmative response to at least one of these two questions identified the respondent as a person with a disability (*Any disability*), and two follow-up questions (a state-added module in 2005 and 2006) were asked to further assess the respondent’s limitation status:

- “Because of any impairment or health problem, do you need the help of other persons with your personal care needs, such as eating, bathing, dressing, or getting around the house?”
- “Because of any impairment or health problem, do you need the help of other persons in handling your routine needs, such as everyday household chores, doing necessary business, shopping, or getting around for other purposes?”

A “yes” response to either or both of these questions classified the respondent as a person with a greater degree of disability (*Disability / Assistance*), whereas a “no” response to both questions identified the respondent as having a lesser degree of disability (*Disability / No assistance*). These four categories of disability status (*Disability / Assistance; Disability / No assistance; Any disability; No disability*) serve as the comparison groups throughout this chartbook.

Data Analysis

Item responses of “don’t know/not sure” and “refused” were treated as missing values and, with the exception of household income, were dropped from the analysis. (Response to questions on household income resulted in more than 10 percent refusals.) The distribution of disability across selected sociodemographic, health status, chronic condition, and risk factor subgroups was assessed by generating weighted point estimates of proportions and 95% confidence intervals, which indicate the precision of the estimates and permit assessment of subgroup differences. All estimates and associated errors were generated

using SAS-callable SUDAAN software (PROC CROSSTAB procedure),⁵⁶ which accounted for the multistage, stratified sampling of the survey.

Limitations

Findings based on the BRFSS survey are subject to several limitations. The BRFSS does not sample persons younger than 18 years old, thus the findings may not represent the true prevalence of disability in New York State. Moreover, given that the BRFSS targets only the civilian noninstitutionalized population, the survey cannot measure disability among the institutionalized population, which carries a substantial burden of activity limitation. The BRFSS excludes persons without telephones.

The survey represents undocumented self-reported data; self-reported indicators of activity limitation have not been validated as measures of disability. The case definition questions used in this analysis do not account for duration of disability. Persons not included are those whose health condition would not permit a telephone interview, for example, those who are hearing impaired; have cognitive, speech, and other communication impairments; have limited physical stamina; or could not get to the telephone.³ Although the weighting procedure controls for nonresponse, caution should be exercised in the interpretation of results because missing data from nonparticipants might vary from those provided by survey respondents.³

Appendix B: Data Tables

This section contains tables of the data that are the basis of the charts in this chartbook. The data come from the 2005 and 2006 New York State BRFSS. (All tabulated data are from the 2006 survey unless specifically

indicated as being from the 2005 survey.) The 95% confidence interval (CI) is given for each percentage estimate, providing values for the upper and lower bounds of the error bars depicted on the charts.

Table B1. Prevalence of Disability Among New York Adults by Demographic Characteristics, New York State Behavioral Risk Factor Surveillance System, 2006.

Characteristic	Degree ^b of disability					
	Any disability ^a		Need assistance ^c		Need no assistance ^d	
	% ^e	95% CI ^e	%	95% CI	%	95% CI
Total New York State	19.1	17.9-20.3	14.5	13.4-15.6	4.6	4.0-5.2
Gender						
Male	17.2	15.4-19.1	3.2	2.4-4.2	14.0	12.4-15.8
Female	20.8	19.2-22.4	5.8	5.0-6.7	14.9	13.6-16.4
Age (years)						
18-44	12.4	10.8-14.3	2.6	1.9-3.6	9.8	8.3-11.5
45-64	21.8	14.9-23.8	5.1	4.2-6.2	16.7	15.0-18.5
65-74	28.2	24.6-32.1	6.1	4.5-8.2	22.1	18.8-25.8
≥ 75	38.5	34.6-42.6	12.6	10.2-15.4	26.0	22.6-29.7
Race/ethnicity						
White, non-Hispanic	21.0	19.6-22.4	4.8	4.2-5.6	16.2	15.0-17.4
Black, non-Hispanic	17.7	14.3-21.7	6.3	4.5-8.8	11.4	8.6-14.9
Hispanic	13.3	10.4-17.0	3.5	2.2-5.6	9.8	7.3-13.1
Other, non-Hispanic	16.9	12.3-22.7	2.9	1.1-7.2	14.0	10.0-19.3
Educational attainment						
Less than high school	25.4	21.1-30.3	8.5	6.4-11.3	16.9	13.2-21.3
High school graduate / GED	21.1	18.8-23.6	5.1	4.0-6.5	16.0	13.9-18.2
Some college / technical school	19.5	17.1-22.1	5.7	4.4-7.3	13.8	11.8-16.0
College graduate	15.2	13.6-17.0	2.1	1.6-2.9	13.1	11.5-14.8
Annual household income						
< \$15,000	32.9	27.8-38.4	10.9	8.1-14.5	22.0	17.8-26.7
\$15,000 - < \$25,000	24.8	21.4-28.6	7.7	5.9-9.9	17.2	14.3-20.5
\$25,000 - < \$50,000	18.8	16.4-21.4	3.8	2.9-4.9	15.0	12.8-17.5
\$50,000 - < \$75,000	15.1	12.6-18.1	1.5	0.8-2.8	13.7	11.2-16.5
≥ \$75,000	11.9	10.2-13.8	1.7	1.1-2.7	10.2	8.7-12.0
[Missing ^f]	21.6	18.1-25.6	6.8	5.0-9.2	14.9	11.8-18.5

^a All respondents who report activity limitations due to physical, mental, or emotional problems OR have health problems that require the use of special equipment.

^b Given a reported disability, status as needing assistance from others in activities of daily living.

^c Because of impairment or health problem, need help of other persons with personal care needs OR in handling routine needs.

^d Need no help of other persons either with personal care needs or in handling routine needs.

^e % =Percentage; 95% CI =Confidence interval (at the 95 percent probability level). Percentages are weighted to population characteristics.

^f "Missing" category included because more than 10% of the sample did not report income.

Table B2. Prevalence of Health Care Coverage, Screening, and Immunization Among New York Adults, by Disability Status, New York State Behavioral Risk Factor Surveillance System, 2005 and 2006.

Coverage, screening, or immunization status	Degree ^b of disability							
	No disability		Any disability ^a		Need assistance ^c		Need no assistance ^d	
	% ^e	95% CI ^e	%	95% CI	%	95% CI	%	95% CI
Health care coverage								
Public plan	19.0	17.5-20.5	42.0	38.7-45.4	55.9	48.9-62.6	37.7	33.9-41.7
Private or other plan	67.7	65.7-69.6	48.6	45.2-52.0	39.7	33.0-46.7	51.4	47.4-55.3
Plan type unknown]	2.1	1.6-2.8	2.6	1.6-4.1	3.0	0.9-8.9	2.4	1.5-3.9
No coverage	11.2	9.8-12.9	6.8	5.0-9.3	1.5	0.6-3.6	8.5	6.1-11.6
Underinsurance	5.8	4.7-7.1	12.6	10.3-15.4	10.7	6.7-16.8	13.3	10.6-16.6
Mammogram past 2 years (women ≥ 50 years)	84.7	82.3-86.7	77.6	73.2-81.4	75.0	67.5-81.3	78.8	73.2-83.4
Pap test past 3 years (women)	85.7	83.4-87.6	82.4	78.6-85.7	82.2	75.4-87.5	82.5	77.7-86.4
PSA test past 2 years (men ≥ 40 years)	52.6	49.0-56.2	61.3	55.2-67.0	61.1	44.7-75.3	61.3	54.8-67.5
Digital rectal exam past 2 years (men ≥ 40 years)	41.3	38.0-44.7	43.6	38.2-49.3	50.1	36.2-63.9	42.2	36.3-48.4
Blood stool test past year (≥ 50 years)	22.2	20.2-24.3	25.2	22.0-28.6	30.1	23.8-37.2	23.5	19.9-27.4
Sigmoidoscopy or colonoscopy ever (≥ 50 years)	63.3	60.8-65.7	65.6	61.8-69.2	67.3	60.2-73.6	65.0	60.5-69.2
Blood cholesterol check past 5 years [2005 BRFSS]	76.0	73.7-78.1	87.0	83.5-89.8	91.1	86.3-94.4	85.6	81.2-89.1
Flu shot past 12 months								
18-64 years	23.3	21.6-25.2	35.9	31.7-40.3	36.4	28.6-44.9	35.7	30.9-40.9
≥ 65 years	62.3	58.7-65.8	69.4	64.4-74.1	70.5	61.5-78.2	69.0	62.9-74.6
≥ 18 years	29.0	27.4-30.8	46.1	42.7-49.5	48.3	41.7-55.0	45.4	41.4-49.3
Pneumonia vaccination ever								
18-64 years	12.3	10.8-14.1	21.5	18.0-25.4	27.0	19.8-35.7	19.9	16.1-24.4
≥ 65 years	58.2	54.4-61.9	66.8	61.5-71.7	70.4	60.7-78.5	65.4	59.0-71.3
≥ 18 years	19.5	18.0-21.1	36.0	32.9-39.3	43.3	36.8-50.0	33.8	30.2-37.5
Visit to dentist or dental clinic past 12 months	73.1	71.2-74.8	66.3	62.9-69.5	61.9	55.5-67.9	67.7	63.6-71.4
Eye care insurance coverage (≥ 40 years)	68.2	66.1-70.2	64.0	60.7-67.2	65.0	58.4-71.0	63.7	59.8-67.5
Dilated eye exam within recommended interval (≥ 40 years)	65.9	63.7-68.0	69.9	66.6-73.1	65.2	58.1-71.7	71.6	67.8-75.1

^a All respondents who report activity limitations due to physical, mental, or emotional problems OR have health problems that require the use of special equipment.

^b Given a reported disability, status as needing assistance from others in activities of daily living.

^c Because of impairment or health problem, need help of other persons with personal care needs OR in handling routine needs.

^d Need no help of other persons either with personal care needs or in handling routine needs.

^e % =Percentage; 95% CI =Confidence interval (at the 95 percent probability level). Percentages are weighted to population characteristics.

Table B3. Prevalence of Chronic Health Conditions Among New York Adults, by Disability Status, New York State Behavioral Risk Factor Surveillance System, 2005 and 2006.

Chronic health condition	Degree ^b of disability							
	No disability		Any disability ^a		Need assistance ^c		Need no assistance ^d	
	% ^e	95% CI ^e	%	95% CI	%	95% CI	%	95% CI
Doctor-diagnosed arthritis	19.8	18.3-21.4	56.8	52.6-60.9	73.5	66.0-79.8	51.0	46.2-55.9
Diabetes	5.7	5.0-6.5	15.8	13.7-18.2	23.9	19.0-29.7	13.3	11.0-15.9
Asthma	6.7	5.8-7.7	15.9	13.5-18.6	17.1	13.1-22.0	15.5	12.7-18.7
Hypertension [2005 BRFSS]	20.3	18.8-22.0	43.3	39.4-47.3	46.6	39.3-54.1	42.2	37.5-46.9
High blood cholesterol [2005 BRFSS]	31.7	29.6-33.8	43.7	39.6-48.0	45.3	37.8-53.0	43.2	38.2-48.2
History of cardiovascular disease	4.9	4.2-5.7	18.8	16.5-21.3	27.1	21.6-33.3	16.2	13.8-18.9
Osteoporosis	4.2	3.6-4.8	11.7	10.0-13.6	20.3	15.8-25.6	8.8	7.2-10.7
Cataracts (≥ 40 years)	14.8	13.4-16.2	31.6	28.6-34.7	38.3	32.1-44.8	29.2	25.9-32.8
Glaucoma (≥ 40 years)	4.6	3.8-5.6	7.5	6.0-9.4	9.5	6.6-13.5	6.8	5.1-9.0
Age-related macular degeneration (≥ 40 years)	2.8	2.2-3.5	8.2	6.6-10.2	9.7	6.6-13.9	7.7	5.9-10.1
Distance vision impairment (≥ 40 years)	12.2	10.8-13.7	23.5	20.7-26.5	36.7	30.4-43.4	18.8	15.9-22.1

^a All respondents who report activity limitations due to physical, mental, or emotional problems OR have health problems that require the use of special equipment.

^b Given a reported disability, status as needing assistance from others in activities of daily living.

^c Because of impairment or health problem, need help of other persons with personal care needs OR in handling routine needs.

^d Need no help of other persons either with personal care needs or in handling routine needs.

^e % =Percentage; 95% CI =Confidence interval (at the 95 percent probability level). Percentages are weighted to population characteristics.

Table B4. Prevalence of Health Risk Factors and Behaviors Among New York Adults, by Disability Status, New York State Behavioral Risk Factor Surveillance System, 2005 and 2006.

Health risk factor or behavior	Degree ^b of disability							
	No disability		Any disability ^a		Need assistance ^c		Need no assistance ^d	
	% ^e	95% CI ^e	%	95% CI	%	95% CI	%	95% CI
Current cigarette smoking	17.1	15.7-18.7	23.0	20.2-26.1	23.3	18.0-29.6	22.9	19.6-26.5
Binge drinking	16.8	15.3-18.5	11.1	9.2-13.4	6.9	3.9-11.9	12.5	10.1-15.2
Heavy drinking	5.2	4.4-6.2	5.1	3.8-6.8	3.2	1.4-7.2	5.7	4.1-7.8
Obesity	20.0	18.5-21.6	35.4	32.2-38.8	39.6	33.0-46.6	34.1	30.5-38.9
No leisure-time physical activity past month	22.8	21.2-24.6	39.5	36.2-43.0	66.2	60.0-71.8	31.1	27.4-35.0
Recommended physical activity [2005 BRFSS]	52.5	50.2-54.7	37.9	33.8-42.3	27.3	20.6-35.2	41.8	36.8-47.0
Fruits and vegetables consumption (≥ 5 servings per day) [2005 BRFSS]	26.8	25.0-28.8	26.0	22.7-29.6	27.8	21.6-35.0	25.4	21.6-29.6
At least one fall during past 3 months (≥ 45 years)	10.1	9.0-11.4	22.4	19.8-25.4	30.1	24.5-36.5	19.8	16.9-23.2
If at least one fall during past 3 months, at least one causing an injury (≥ 45 years)	24.6	19.6-30.4	40.7	34.1-47.6	54.4	42.6-65.7	33.7	26.2-42.1

^a All respondents who report activity limitations due to physical, mental, or emotional problems OR have health problems that require the use of special equipment.

^b Given a reported disability, status as needing assistance from others in activities of daily living.

^c Because of impairment or health problem, need help of other persons with personal care needs OR in handling routine needs.

^d Need no help of other persons either with personal care needs or in handling routine needs.

^e % =Percentage; 95% CI =Confidence interval (at the 95 percent probability level). Percentages are weighted to population characteristics.

Table B5. Prevalence of Health-Related Quality of Life (HRQoL) Factors Among New York Adults, by Disability Status, New York State Behavioral Risk Factor Surveillance System, 2006.

HRQoL factor	Degree ^b of disability							
	No disability		Any disability ^a		Need assistance ^c		Need no assistance ^d	
	% ^e	95% CI ^e	%	95% CI	%	95% CI	%	95% CI
Self-rated health fair or poor	10.4	9.1-11.8	43.3	40.0-46.8	68.7	62.3-74.6	35.4	31.6-39.3
Frequent physical distress	4.2	3.5-5.0	36.3	33.1-39.7	65.9	59.3-71.9	27.1	23.8-30.7
Frequent mental distress	6.3	5.4-7.4	21.1	18.3-24.2	27.3	21.4-34.0	19.2	16.1-22.8
Frequent activity limitation	1.7	1.3-2.4	25.2	22.3-28.3	53.0	46.0-60.0	16.9	14.2-20.0
Frequent pain	2.2	1.8-2.8	32.6	29.3-36.2	54.3	47.4-61.0	25.4	21.8-29.4
Frequent depressed mood	3.6	2.8-4.6	20.8	17.8-24.2	34.0	27.7-41.2	16.5	13.2-20.3
Frequent anxiety	8.9	7.8-10.2	26.6	23.3-30.2	37.5	30.8-44.8	23.0	19.3-27.2
Frequent sleeplessness	22.2	20.5-24.0	36.5	33.1-40.1	43.6	36.7-50.8	34.2	30.3-38.3
Frequent high vitality	76.2	74.4-78.0	43.7	40.2-47.3	27.1	21.4-33.7	49.5	45.3-53.7
Social and emotional support (always or usually)	80.3	78.5-82.0	69.9	66.4-73.3	64.0	57.0-70.4	71.9	67.7-75.8
Satisfaction with life (satisfied or very satisfied)	97.0	96.3-97.6	86.4	83.7-88.7	80.9	74.8-85.7	88.2	85.2-90.7

^a All respondents who report activity limitations due to physical, mental, or emotional problems OR have health problems that require the use of special equipment.
^b Given a reported disability, status as needing assistance from others in activities of daily living.
^c Because of impairment or health problem, need help of other persons with personal care needs OR in handling routine needs.
^d Need no help of other persons either with personal care needs or in handling routine needs.
^e % =Percentage; 95% CI =Confidence interval (at the 95 percent probability level). Percentages are weighted to population characteristics.

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