DISABILITY, PHYSICAL ACTIVITY, HEALTH, HEALTH STATUS AND CHRONIC DISEASES IN ADULTS

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ABSTRACT

DISABILITY, PHYSICAL ACTIVITY, HEALTH, HEALTH STATUS, AND CHRONIC DISEASES IN ADULTS

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There is a great deal of concern regarding the levels of physical inactivity in people with disability, which is more prevalent than in the general population. Inactivity in individuals with disabilities can lead to higher rates of chronic diseases and obesity and vice versa. Moreover, disability is increasing in middle-aged adults while decreasing among older adults. This purpose of this dissertation was to: 1) evaluate the prevalence of disability across the lifespan, 2) to examine the relationships between disability (DA), physical activity (PA), and factors associated with them, and 3) to look at the trends in these factors to understand the patterns occurring in middle-aged adults compared with older adults.

Data analyzed for this dissertation were collected as part of the Behavioral Risk Factor Surveillance Survey (BRFSS) conducted between 2003 and 2011. Measures included DA, PA, chronic diseases, sociodemographics, health risk behaviors, and health status.

In our first study, we found that respondents categorized as disabled or functionally limited reported less PA, more chronic diseases, and poorer health behaviors than those categorized as able bodied. There was a higher prevalence of DA in the middle-aged and older adults compared to younger adults. Individuals with lower incomes and those with chronic diseases were more likely to be classified as having a disability compared to individuals with higher incomes and individuals without chronic disease. Our second study showed that middle-aged people were less likely to meet physical activity recommendations compared with older adults. Having a DA and being in poor health were strongly associated with not meeting the PA recommendations. In our third study, we found all the age groups showed an increase in functional limitation and DA over time. Further, among all age groups there was an increase in meeting aerobic recommendations over time. Our studies showed that DA and functional limitation are strongly associated with unhealthy behaviors and chronic diseases and poorer health. Moreover, middle-aged and older adults showed similar results in DA and PA recommendations. Given that physical inactivity has the potential to reduce disability, prevent chronic disease and enhance health, greater public health attention to what is warranted.

DEDICATION

I dedicated this dissertation to my grandparents, Jenny and Abraham Mosseri and Israel and Miriam Kamil. They helped me to appreciate the older adult population in a way that without them I would not have known. Without my grandparents, I also would not have known about this career path. For that I thank you: those who are here and those who have passed.

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Chapter I

INTRODUCTION

In the United States, there are between 50 and 60 million individuals living with a disability ("U.S. Department of Health and Human Services: Office of Disease Prevention and Health Promotion--Healthy People 2010," 2000). Disability can be defined in many different ways: the International Classification of Functioning, Disability, and Health (ICF) of the World Health Organization (WHO), disability is defined as "an interaction between an individual with health conditions and personal or environmental factors". The term disability encompasses impairments, activity limitations, and participation restrictions, and disability is therefore a "complex phenomenon, reflecting the interaction between features of a person's body and features of the society in which he or she lives" (World Health Organization, 2014a). The ICF standardized the classification of changes in body function, body structure, activity, participation levels, and environmental factors influencing health (World Health Organization, 2014a; World Health Organization., 2001), disability can be classified along a continuum starting with impairments, physical limitations, and restrictions in participation involving psychological, physiologic, or anatomic function loss or abnormality (World Health Organization., 2001) a person can have an impairment but not be disabled (Rimmer & Marques, 2012). Physical limitations may affect people with disabilities, limiting work, sports, exercise, or home related activities (Rimmer & Marques,2012). Poorer mental health also affects people with disabilities, limiting their activities, whether from stress, depression, or emotional problems, such as anxiety (Centers for Disease Control and Prevention, 2004). Unfortunately, most adults with

disabilities do not meet the targets for physical activity and are more likely to be inactive than those who do not have a disability (Boslaugh & Andresen, 2006; Rimmer & Rowland, 2008).

Physical activity is defined as bodily movement caused by activating skeletal muscles, resulting in an increase above resting energy expenditure (American College of Sports Medicine, 2013; U.S. Department of Health and Human Services, Public Health Service, & Centers for Disease, 2008). People with disabilities who are of lower socioeconomic status (SES) and of minority status are more likely to be physically inactive (Brand, Alston, & Harley, 2011; Do, 2009). Inactivity in individuals with disabilities can lead to higher rates of chronic diseases and obesity (Nantel, Mathieu, & Prince, 2011; "U.S. Department of Health and Human Services: Office of Disease Prevention and Health Promotion--Healthy People 2010," 2000; Zhao, Ford, Li, Crews, & Mokdad, 2009). Obesity and chronic diseases can also lead to disability (Nantel et al., 2011; Okoro, Hootman, Strine, Balluz, & Mokdad, 2004; Zhao et al., 2009). Further, obesity is an important factor contributing to the increasing prevalence of disability in the middle-age population (Martin & Schoeni, 2014; Rimmer, Braddock, & Pitetti, 1996). Additionally, negative health behaviors including tobacco, alcohol use, and poor sleep are associated with chronic disease and disability (Zhao et al., 2009; Liu et al., 2013; Center for Disease Control, 2013; Vita et al., 1998). In addition, those with a lower education and economic status experience worse health outcomes across all levels of the socioeconomic spectrum (Do, 2009).

Research on disability has focused on older adults due to its high prevalence in this age group (Seeman et al., 2010). Yet, recent data suggests that the prevalence of

disability is decreasing among older adults (Crimmins, 2004; Freedman et al., 2013), and may be increasing among middle-aged adults (Bhattacharya, Choudhry, & Lakdawalla, 2008; Freedman et al., 2002; Martin et al., 2010; Martin & Schoeni, 2014; Seeman et al., 2010; Wang, 2002). This increase may be related to the concurrent increase in the presence of chronic illnesses and obesity (Armour, Courtney-Long, Campbell, & Wethington, 2012; Bauer, Briss, Goodman, & Bowman, 2014; Bhattacharya et al., 2008; Dixon-Ibarra & Horner-Johnson, 2014; Martin et al., 2010; Martin & Schoeni, 2014). Furthermore, few studies have examined the prevalence of disability among adults across the adult lifespan using large, representative national samples (Bhattacharya et al., 2008; Bodde, Seo, & Frey, 2009; Martin et al., 2010; Martin & Schoeni, 2014; Okoro et al., 2004; Stenholm et al., 2014; Vita et al., 1998).

Significance

There has been an apparent increase in disability associated with obesity, chronic diseases and musculoskeletal injuries in middle-aged individuals (Martin et al., 2010; Martin & Schoeni, 2014). Few studies have examined the prevalence of disability in large, representative national samples (Bhattacharya et al., 2008; Bodde et al., 2009; Martin et al., 2010; Martin & Schoeni, 2014; Vita et al., 1998). Further work evaluating the prevalence of disability in middle-aged adults is needed, as is research examining the relationships between disability, physical activity, and factors associated with them. Comparisons between middle-aged, younger and older adults will permit examination of

possible differences in correlates and patterns across the lifespan. Evaluating the trends in these factors also will be helpful in understanding the possible changes in physical activity and disability occurring over time.

Overview

This dissertation consists of three separate but related, studies on adults with and without disability who are in one of three different life stages: young (ages18-44 years), middle-aged (ages 45-64 years), and older adults (ages 65 years and older) and focuses on physical activity and disability, their association with health risk behaviors, chronic disease and health status.

The data for this dissertation are drawn from the Behavioral Risk Factor Surveillance System (BRFSS) conducted between 2003 and 2011. The first study describes (1) the prevalence of disability across younger (ages 18-44 years), middle-aged (ages 45-64 years), and older adults (ages 65 years and older), and (2) sociodemographic factors and health risk behaviors in young, middle-aged, and older adults across levels of disability/ability. The second study identifies the health and sociodemographic correlates of aerobic physical activity and muscle strengthening exercises after adjusting for disability. The third study examines the trends in disability and physical activity in middle aged adults and older adults over a ten-year period from 2003 to 2009 and evaluates which factors are associated with these trends.

Limitations

The papers in this dissertation are limited by:

1. Use of cross sectional data, which does not allow for causal inferences.

2. Self-report measures which could be affected by recall, report and social desirability biases, all of which could all lead to errors (Brown, Yore, Ham, & Macera, 2005). Although physical activity self-report measures can be problematic when measuring for energy expenditure, when measuring group physical activity habits, as we have done so in these papers, they are most effective when used in epidemiological or surveillance studies (Brown et al., 2005).

3. The definition of disability is based on self-reported physical activity limitation and use of special equipment and it is difficult to identify the specific limitations or precise WHO classification (Brown et al., 2005).

4. Limited by how questions are asked on the BRFSS.

Operational Definitions

Disability – In these dissertation papers, disability is defined using the World Health Organization (WHO) definition which defines disability as "an umbrella term for activity limitation, impairments, and participation restrictions" (World Health Organization, 2001).

Functional limitation – Activity limitations limiting work, sports, exercise, or home related activities (World Health Organization, 2013).

Mental health - Mental health is a state of well-being where an individual can manage their potential, stress level, can contribute to their community, and work productively World Health Organization, 2014b).

Chronic diseases – Chronic diseases, also known as noncommunicable diseases, are not passed from person to person. They progress slowly over a long duration of time (34).

Physical activity – "Physical activity is any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level". Physical activity can be categorized is according to mode (type), intensity (how hard), and purpose (occupational, leisure, self-care, etc.) (Physical Activity Guidelines Advisory Committee 2008).

Sociodemographics - Is a way of looking at how individuals or families fit into society using social measures that have been shown to impact people's health and well-being, including sex, education, and race/ethnicity, marital status, work status, income, children under 18 years of age living at home.

Body mass index (BMI) – This is an assessment of weight relative to height, and is calculated by dividing weight in kilograms by height in meters squared. Muscle mass is not considered with this type of anthropometric measure, which can lead to overestimation of body fat (American College of Sports Medicine, 2013; National Institutes of Health National Heart Lung and Blood Institute, 1998).

Health risk behaviors – Behaviors which improve or reduce an individual's health, including smoking, alcohol use/misuse, sleep, and being physically active/inactive.

Health status or Health-related quality of life (HRQOL) – A subjective evaluation of the aspects of life including physical and mental health perceptions and their correlates — including health risks and conditions, functional status, social support, and socioeconomic status (Center for Disease Control and Prevention, 2011).

Organization of the Dissertation

Each of the following three chapters is comprised of a distinct paper examining disability and physical activity. Each paper is written as a journal article and contains its own abstract, introduction, methods, results, and discussion. The dissertation then ends a literature review, appendices, and references.

The first study found in Chapter II describes the patterns of disability and chronic diseases across physical activity levels in younger (ages 18-44 years), middle-aged (ages 45-64 years), and older adults (ages 65 and older) and compares these patterns across the age groups. This research allows for the identification of possible differences in patterns of disability, which may identify opportunities including for prevention efforts across the lifespan. This study describes: (1) the prevalence of disability across younger, middle-aged, and older adults, and (2) sociodemographic factors and health behaviors in young, middle-aged, and older adults across levels of disability/ability. We hypothesized that there will be a higher prevalence of functional limitations and disability in middle-aged and older adults, compared with younger adults. Furthermore, we hypothesized those

with functional limitations and disability will have more chronic diseases and more unhealthy behaviors than able bodied persons.

The second study, found in Chapter III, evaluates the health and sociodemographic correlates of aerobic physical activity in middle-aged and older adults, and (2) the health and sociodemographic correlates of muscle strengthening exercises in middle-aged and older adults. We hypothesized that there will be an association between disability, health status, age, race/ethnicity, and education with both aerobic and muscle strengthening physical activity.

The third study is found in chapter IV. In this study, we examine trends in disability and physical activity in younger, middle-aged and older adults over a six-year period (2003-2009) and factors associated with these trends. We hypothesized that middle-aged adults will have a more rapid increase in rate of disability, compared with younger and older adults over a six year period. We also hypothesized that there will be a decrease in physical activity over time.

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Chapter II

SELF-REPORTED HEALTH, PHYSICAL ACTIVITY AND HEALTH BEHAVIORS AMONG YOUNG, MIDDLE–AGED, AND OLDER ADULTS WITH AND WITHOUT DISABILITY

Abstract

Purpose: To describe the prevalence of levels of disability, physical activity, chronic diseases, and selected health behaviors among adults completing the 2011 Behavioral Risk Factor Surveillance System (BRFSS) survey. **Methods:** Respondents were classified by disability status (disabled, functionally limited, and able bodied) and by age [younger (aged 18-44 years), middle-aged (aged 45-64 years), and older (aged 65+ years)]. Participants' physical activity levels were categorized as meeting both aerobic and muscle strengthening guidelines, meeting aerobic guidelines only, meeting muscle strengthening guidelines only, or meeting neither guidelines. Examined sociodemographics included age, sex, education, race/ethnicity, income, and marital status. The chronic diseases and associated health risk behaviors studied were asthma, cardiovascular diseases, arthritis, diabetes, cancer, and obesity, smoking status, sleep, and alcohol use. Contingency tables, chi square statistics, and odds ratios were used to compare distributions across disability and age categories. **Results:** The analytic sample included 186,844 men and 289,697 women with complete data. Physical activity levels differed across both disability and age categories (p=0.001). Respondents categorized as

disabled or functionally limited reported less physical activity, more chronic diseases, and fewer health behaviors than those categorized as able bodied. There was a higher prevalence of disability in the middle-aged and older adults compared to younger adults. Individuals with lower incomes and those with chronic diseases were more likely to be classified as having a disability compared to individuals with higher incomes and individuals without chronic disease. **Conclusions:** Given that approximately one-third of middle-aged adult were disabled or functionally limited, greater public health attention to this middle-aged cohort is warranted as most health promotion efforts are currently directed toward older adults. Reducing disability in middle-age adults is particularly important because they are of working-age, and the potential economic and long-term impacts of disability could be substantial.

Introduction

Disability is a major health problem associated with physical inactivity, poor health outcomes, and economic costs, and its impact is especially devastating among people of working age (Beckles, Truman, & Centers for Disease Control Prevention, 2013; Bhattacharya, Choudhry, & Lakdawalla, 2008; Boslaugh & Andresen, 2006; Rimmer & Rowland, 2008; "U.S. Department of Health and Human Services: Office of Disease Prevention and Health Promotion--Healthy People 2010," 2000). Impaired activity or functional limitations affect many people with disability, limiting work, sports, exercise, and home related activities (Rimmer & Marques, 2012). Those who are functionally limited are less likely to participate in any physical activity and as a result are, less likely to meet current recommendations for moderate and vigorous intensity

physical activity compared to able bodied individuals (Boslaugh & Andresen, 2006; U.S. Department of Health and Human Services, 2012; U.S. Department of Health and Human Services, Public Health Service, & Centers for Disease, 2008; "U.S. Department of Health and Human Services: Office of Disease Prevention and Health Promotion--Healthy People 2010," 2000; UN World Health Organization (WHO), 2011).

Although activity limitations and physical inactivity among people with disabilities are multi-causal, they may result in greater energy expenditure during activities of daily living and fatigue, creating a disincentive for movement (Heath & Fentem, 1997). Additionally, disabilities or limitations due to underlying disease contribute to reduced physical fitness (aerobic capacity and muscular strength/endurance). Moreover, primary or secondary mental health concerns (e.g., stress, depression, anxiety, emotional problems) or cognitive limitations may also limit activity (Centers for Disease Control and Prevention, 2004; Garber et al., 2010). Compounding the problem of limited activity, people with disability, especially those with comorbid chronic diseases, frequently engage in other unhealthy behaviors such as tobacco use, excessive alcohol consumption, and poor sleep (Center for Disease Control and Prevention, 2013; Liu et al., 2013). Further, environmental factors such as the inaccessibility of exercise facilities composite the challenges to persons with physical disabilities to be active (Centers for Disease & Prevention, 2007; J. H. Rimmer, Riley, Wang, Rauworth, & Jurkowski, 2004).

Research on disability has focused on older adults due to its high prevalence in this age group (Seeman, Merkin, Crimmins, & Karlamangla, 2010). Yet, recent data suggests that the prevalence of disability is decreasing among older adults (Crimmins,

2004; Freedman et al., 2013), and may be increasing among middle-aged adults (Bhattacharya et al., 2008; Freedman, Martin, & Schoeni, 2002; Martin, Freedman, Schoeni, & Andreski, 2010; Martin & Schoeni, 2014; Seeman et al., 2010; Wang, 2002). This increase may be related to the concurrent increase in the presence of chronic illnesses and obesity (Armour, Courtney-Long, Campbell, & Wethington, 2012; Bauer, Briss, Goodman, & Bowman, 2014; Bhattacharya et al., 2008; Dixon-Ibarra & Horner-Johnson, 2014; Martin et al., 2010; Martin & Schoeni, 2014). Nonetheless, few studies have examined the prevalence of disability among adults across the adult lifespan using large, representative national samples (Bhattacharya et al., 2008; Bodde, Seo, & Frey, 2009; Martin et al., 2010; Martin & Schoeni, 2014; Okoro, Hootman, Strine, Balluz, & Mokdad, 2004; Stenholm et al., 2014; Vita, Terry, Hubert, & Fries, 1998). There is a clear need for research evaluating the prevalence of disability across the adult lifespan and for research examining the relationships between disability, health behaviors, and individual characteristics. This research would allow for the possible identification of differences in patterns of disability and possible opportunities for prevention efforts across the lifespan. Therefore, this study describes: 1) the prevalence of disability across younger, middle-aged, and older adults, and 2) sociodemographic factors and health behaviors in young, middle-aged, and older adults across levels of disability/ability. We hypothesized that there will be a higher prevalence of functional limitations and disability in middle-aged and older adults, compared with younger adults. Furthermore, we hypothesized those with functional limitations and disability will have more chronic diseases and more unhealthy behaviors than able bodied persons.

Methods and Procedures

The data analyzed for this study were collected as part of the Behavioral Risk Factor Surveillance Survey (BRFSS) conducted in 2011 (Center for Disease Control and Prevention, 2011). The BRFSS is a random-digit dialing telephone-based health survey used to collect self-reported health information from adults 18+ years of age in all 50 states, and the District of Columbia, Puerto Rico, as well as the U.S. Virgin Islands, and Guam (Centers for Disease Control and Prevention, 2009a, 2009b). It is the largest telephone health survey in the world focusing on health risk behaviors, preventive health practices, and health care access. States use BRFSS data to identify emerging health problems, establish and track progress on meeting health objectives, and to develop and evaluate public health policies and programs (Centers for Disease Control Prevention, 2012). Our study sample included 476,541 adults 18 years of age or older (men=186,844; women=289,697), who had complete data on all study variables.

Measures

Disability

Respondents were categorized as being disabled, functionally limited, or able bodied using two items consistent with the World Health Organization definitions of disability (World Health Organization., 2001). Persons were classified as disabled if they reported an activity limitation and that they used special equipment, such as a mobility

aid, while individuals who reported either an activity limitation or the use of special equipment were categorized as being functionally limited. Those who reported no physical limitations or special equipment use were classified as able bodied.

Physical Activity and Health Risk Behaviors

Respondents' physical activity levels were determined using six items that assessed time spent participating in moderate or vigorous intensity aerobic physical activity and muscle strengthening exercises. Using a classification scheme consistent with current recommendations for physical activity employed by the Centers for Disease Control and Prevention (Guidelines for Physical Activity for Americans, 2008), the following categories were created: 1) met both aerobic and muscle strengthening guidelines, 2) met aerobic guidelines only, 3) met muscle strengthening guidelines only, and 4) did not meet either guidelines. The health risk behaviors of alcohol use, cigarette smoking, and inadequate sleep also were assessed. Males who reported having >5 on one occasion and females who reported having >4 drinks on one occasion were classified as binge drinkers while men having >2 drinks per day and women having >1 drink(s) per day were categorized as heavy drinkers. Those who reported current cigarette smoking were considered smokers. Individuals who reported that they sleep and average of 7-9 hours at night were categorized as having adequate sleep and those reporting an average of less than seven hours as having inadequate sleep while an average of more than nine hours of sleep per night was classified as getting excess sleep.

Chronic Diseases

The examined chronic diseases included asthma, cardiovascular diseases (stroke and heart disease), arthritis, diabetes, cancer (skin cancer, other cancers), and obesity. The presence of these diseases were determined by participants' responses to questions that asked if they had been told by a health care provider they had the disease. Weight status (underweight, healthy weight, overweight, and obese) was determined by using self-reported height and weight to calculate body mass index (BMI) (National Institutes of Health National Heart Lung and Blood Institute, 1998). Participants with a BMI of 30 kg/m^2 or greater were classified as having the chronic disease, obesity. In addition, a chronic disease score was calculated by summing the number of reported chronic diseases, and scores ranged from 0 (no disease) to 7 (all diseases).

Sociodemographics

The examined sociodemographics included age (younger: 18-44 years, middle-aged: 45-64 years, older adults: 65 years and older); race/ethnicity (white/non-Hispanic, black/ non-Hispanic, Hispanic, or other); marital status (married, divorced, widowed, separated, never married, or partnered); education (high school or less, high school graduate, attended college/technical school, or graduated college/technical school); and income (less than $15,000, $15,000 to less than $25,000, $25,000 to less than $35,000, $35,000 to less than $50,000, or $50,000 or more).

Statistical Analyses

The BRFSS 2011 uses a newly implemented weighting method, raking weighting (Centers for Disease & Prevention, 2012), that adjusts for each variable individually in a series of data processing–intensive iterations. As each variable in the weighting process is included in the model, the weights are adjusted until the sample weights are representative of the population. The raking process does not require demographic information for small geographic areas, which, allows more demographic variables (e.g., education level, marital status, etc.) to be included into the statistical weighting process and increases the representativeness of estimates. Raking allows for the incorporation of data obtained from both landline and cellular telephones in the weighting process (Centers for Disease & Prevention, 2012).

Descriptive characteristics (e.g. means ± standard deviations) were calculated for key variables measured on the ordinal or interval scale while variables measured on the nominal scale were summarized as frequencies and percentages. Sociodemographic characteristics were evaluated across disability status and age groups using crosstabs analyses. To examine the distribution of the variables across categories of physical activity, disability and chronic disease, a series of contingency tables were generated and chi-square statistics were used to determine the patterns of prevalence of physical activity and disability levels in young, middle-aged, and older adults. Odds ratios (OR) were used to identify factors associated with disability (disabled/functionally limited vs. able bodied). Logistic regression models were constructed to examine each health behavior, the presence of ≥ 1 chronic disease using the chronic disease score, and

sociodemographic variables. All analyses were executed using SAS survey procedures, version 9.3 (SAS Institute Inc., Cary, North Carolina).

Results

The analytic sample included 186,844 men and 289,697 women. The population's characteristics are shown in table 1.1: 6.3% were disabled, 18.9% had a functional limitation and 74.8% were able bodied. Further, compared with able bodied persons, people with disability were more likely to have lower educational attainment and were more often single (i.e., widowed, divorced, never married). Additionally, more middle-aged and older adults than younger adults were classified as being disabled or functionally limited (see table 1.1).

Figure 1.1 shows physical activity patterns in disabled, functionally limited, and able bodied adults. Compared with abled bodied individuals, people with disability and functional limitations were less physically active and they were less likely to meet any of the physical activity guidelines. People with disability were more likely than abled bodied and people with functionally limitations to engage in muscle strengthening guidelines and less likely to engage in aerobic guidelines. People with a functional limitation were more active than persons with a disability, but less active than able bodied individuals.

Table 1.2 shows the OR for disability, sociodemographic characteristics, health, and health risk behaviors. More older adults than younger adults who were classified as being disabled or functionally limited. Women were 1.2 times more likely to be disabled and functionally limited than men. Further, persons classified as disabled or functionally

limited were more likely to have lower educational attainment, and lower income. In respect to race/ethnicity, whites/non-Hispanics were more likely to be disabled and functionally limited compared to the blacks/Hispanics and those classified as “others”. Individuals with greater educational attainment, the less likely they were to be disabled than those with less education. Individuals with a disability and functionally limited were 5-fold more likely to have at least one chronic disease and they more often had asthma, a history of coronary heart disease or stroke, diabetes, or cancer. People who were underweight, overweight or obese were also more likely to be disabled compared to individuals who were a healthy weight.

Individuals who were classified as either disabled or functionally limited within all three age categories were less likely than abled bodied persons to meet either of the physical activity guidelines. On the other hand, individuals with a disability or functional limitation who were physically active were more likely to meet the recommended targets for aerobic or strength exercise, rather than meet both targets. However, in each age group, persons with a disability had lower rates of participation in both aerobe and muscle strengthening exercises compared with abled bodied persons. Persons of all ages who were more active than disabled persons, but less active than able bodied persons. Those who were disabled or functionally limited slept less than those who were able bodied were more likely to be current smokers than able bodied persons. On the other hand, able bodied persons were about 25% more likely to be a binge drinkers or heavy alcohol user.

Discussion

This study describes the prevalence of disability and functional limitations across three age groups of adults. Study results determined that older adults were more likely to be disabled compared with middle-aged and younger adults and that disability and functional limitations were more common in women than in men. Compared with able bodied persons, people with disability tended to have lower educational attainment and were more often single. Furthermore, persons who were able bodied also were healthier, reporting fewer chronic diseases compared with people with disability or functional limitations.

Patterns of chronic diseases varied across disability groups, with the poorest health among people with disability, followed by people with functional limitations, and able bodied persons being the healthiest based on chronic disease score. This pattern was repeated across each age group, although the proportion of people with disability and functional limitations increased with older age. Individuals with disability were much more likely to have at least one or more chronic diseases compared with those who are functionally limited or able bodied, with about 39% of disabled persons with disability reporting more than one chronic disease. Further, older adults had the greatest number of chronic diseases compared with middle-aged and younger adults. A greater number of chronic diseases imposes considerable burden on physical functioning in all ages (Stenholm et al., 2014).

Not surprisingly, those with less chronic diseases were accompanied by fewer unhealthy behaviors. However, people with disability more commonly smoked and got inadequate sleep, compared with people with functional limitations or able bodied

persons. Interestingly, able bodied persons were more likely to drink excessive amounts of alcoholic beverages, compared with disabled and functionally limited adults.

There were some differences in the patterns of physical activity participation across age groups. Surprisingly, middle-aged and older disabled and functionally limited adults who were physically active were more likely to meet muscle strengthening guidelines than were younger disabled adults. Persons who met neither of the physical activity recommendations were most likely to be disabled or functionally limited, compared with those who met one or both recommendations. It is possible that it is more practical for persons with disabilities to engage in muscle strengthening rather than aerobic training, since it can be done while seated and in the home. People with disabilities often experience environmental barriers and limited access to exercise facilities, which may restrict physical activity participation (Thompson, Zack, Krahn, Andresen, & Barile, 2012). On the other hand, results of this study determined that younger disabled adults more often engaged in aerobic exercise compared with disabled older adults. This could be due to more opportunities for sports and aerobic activities available to younger persons. Middle-aged persons and older adults had similar patterns of meeting or not meeting the aerobic and muscle strengthening guidelines, with able bodied persons in both age groups being the most physically active and disabled individuals being the least active. This finding reinforces results from other studies that have shown that with increasing age and inadequate participation in regular physical activity, there is more likelihood of having a disability (Boslaugh & Andresen, 2006; Thompson et al., 2012).

Older adults have been the primary focus of studies about disability, and fewer studies have examined disability across the adult lifespan. Results of this cross-sectional study show that disability and functional limitations are common in middle aged and older adults. The prevalence of disability and functional limitations among middle-aged people approached that of the older adult levels, which lends credence to previous reports suggesting that the prevalence of disability in middle-age persons is high and may be increasing, (Martin et al., 2010; Martin & Schoeni, 2014; Stenholm et al., 2014). The higher prevalence of disability in middle age may be associated with increasing prevalence of chronic diseases in the U.S. (Dixon-Ibarra & Horner-Johnson, 2014; Stenholm et al., 2014). Supporting these previous study results, are our findings that show that approximately 16% of middle-aged adults in the sample had more than one chronic disease. These results, combined with other available data (Bauer et al., 2014; Bhattacharya et al., 2008; Dixon-Ibarra & Horner-Johnson, 2014; Martin & Schoeni, 2014) are troubling because middle-aged people are of working age, and the decreased ability to complete instrumental activities of daily living and activities of daily living may result in unemployment or underemployment, which is associated with increased medical costs (Martin & Schoeni, 2014; Seeman et al., 2010). In view of the results of our and other studies confirms the need to further evaluate the middle-aged population more closely.

Study results show that persons with a disability or functional limitation were more likely to engage in one or more unhealthy behaviors (i.e., smoking) in addition to physical inactivity. This study is the first study to the authors' knowledge to examine health and health risk behaviors across the range of disability among adults, although this

research is essential if salient intervention strategies are to be developed (Bauer et al., 2014; Bhattacharya et al., 2008; Brown, Yore, Ham, & Macera, 2005; Martin et al., 2010). Health risk behaviors such as smoking, excessive alcohol use, and physical inactivity have been demonstrated to be great contributors to chronic diseases and disability (Bauer et al., 2014). Altering or improving these health risk behaviors will likely reduce the prevalence of associated diseases and consequent disability among adults in enhanced population that could have substantial benefits on a societal and individual level. Furthermore, it is particularly important to get a better understanding of the correlates of disability may help to identify interventions that may reduce disability and/or help to maintain function. Therefore, modification of unhealthy behaviors could result in enhanced health (Berg et al., 2012; Clark et al., 2005; Greaney et al., 2008), and physical activity can enhance physical function and reduce functional limitations (Chakravarty, Hubert, Lingala, & Fries, 2008; Garber et al., 2010; Lee & Park, 2006; Riebe et al., 2009; Rimmer, Nicola, Riley, & Creviston, 2002).

Persons with better health habits live longer, and disability is delayed and more often compressed into fewer years at the end of life (Vita et al., 1998). Several studies show that when individuals make positive health behavior changes such as increasing physical activity, these changes contribute to a greater desire to continue being active and improve their physical function (Brach, 2004; Greaney et al., 2008; Miller, Rejeski, Reboussin, Ten Have, & Ettinger, 2000; Reynolds & Silverstein, 2003). Berg et al (2012) showed that individuals who reduced or quit smoking were more likely to change other behaviors such as increasing their physical activity (Berg et al., 2012). Physical activity among older adults is positively associated with better physical and mental health, better

physical function and lower body mass index (Garber et al., 2010; Lee & Park, 2006). Lee and Park (2006) found that positive health practices contribute to older adults independence and by targeting multiple behavioral risks can help delay onset of disability in later life (Lee & Park, 2006). Also, among older adults, obesity is associated with lower levels of physical activity and physical function (Riebe et al., 2009). In a study of community dwelling older adults, individuals who were physically active in all BMI categories were less likely to have abnormal physical function scores compared to those who were sedentary (Riebe et al., 2009). Therefore, by modifying health behaviors, there can be an improvement in function/disability and the potential for a causal association between physical activity, function, disability and health behaviors.

Limitations

The BRFSS sampling methods include only non-institutionalized adults, thus it can underestimate the prevalence of disability in the population (Okoro et al., 2004; Thompson et al., 2012). Furthermore, this was a cross-sectional study, which does not allow for causal inferences. The study measures were based on self-report which could be affected by recall and/or social desirability biases (Brown et al., 2005). This study is also limited by the questions that are available and how the BRFSS's questions are asked. Although physical activity self-report measures can be problematic when measuring for energy expenditure, when measuring group physical activity habits, they are most effective when used in epidemiological or surveillance studies (Brown et al., 2005). The definition of disability and functional limitations was not based solely on activity

limitation, but also reporting of mental illness and use of special equipment, making it difficult to identify all of the specific limitations of the respondents (Brown et al., 2005).

Conclusions

Overall older respondents were more often categorized as disabled or functionally limited: however, the prevalence of these conditions in middle-aged adults was not substantially lower than that found among older adults. This suggests that greater public health attention to middle age adults is warranted because disability and functional limitations were associated with chronic diseases and modifiable health behaviors. Middle-aged persons are of working age and the potential economic and long-term impact of disability could be substantial as these individuals age (Bauer et al., 2014; Martin & Schoeni, 2014).

Supporting the possibility of intervention, persons who were disabled or functionally limited reported less physical activity, more chronic diseases, and more unhealthy behaviors than those categorized as able bodied. Moreover, identified patterns of physical activity differed at each level of disability/ability with increasing age suggesting that interventions to reduce disabilities may need to be tailored to life stage. Interestingly, physically active individuals classified as disabled more frequently reported only meeting the strength guidelines than did functionally limited or able bodied people. Although the reasons for this are uncertain, it may be due to the feasibility of participating in muscle strengthening exercises, environmental participation restrictions, or other albeit unidentified factors, it should suggest that interventions are needed to promote aerobic activity to further enhance health and

function. Nonetheless, further study is needed to understand more fully the activity choices of persons with limitations or disability.

The results of this study indicate that public health agencies should place higher priority to efforts in people with disabilities. Health promotion efforts may result in improvements in quality of life, as well as economic benefits, and social benefits in all age groups. Future studies should explore more fully factors contributing to disability among adults and to further the knowledge on how to reduce disability in the middle-aged and older adults.

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Table 1.1: Descriptive Characteristics of Respondents Across Levels of Disability (n=476,541)

		Disabled (n=42,068)	Functionally Limited (n=105,427)	Able Bodied (n=329,046)	$p \leq^{\Omega,\Psi}$
Sex	Male	43.16%	45.40%	50.09%	0.0001
	Female	56.84%	54.60%	49.91%	
Age	18-44 years	15.90%	33.97%	54.25%	0.0001
	45-64 years	44.45%	41.65%	31.70%	
	65+	39.65%	24.38%	14.05%	
Education Level	High School or less	22.74%	17.27%	13.68%	0.0001
	High School Graduate	32.03%	29.97%	28.43%	
	Attended College/Technical School	29.86%	30.74%	30.12%	
	Graduated College/Technical School	15.37%	22.02%	27.77%	
Income	Less than $15,000	28.90%	18.41%	10.76%	0.0001
	$15,000 to less than $25,000	29.06%	20.66%	17.04%	
	$25,000 to less than $35,000	11.85%	12.14%	11.25%	
	$35,000 to less than $50,000	11.55%	13.21%	14.34%	
	$50,000 or more	18.63%	35.58%	46.62%	
Marital Status	Married	41.89%	49.06%	51.83%	0.0001
	Divorced	17.06%	14.35%	8.75%	

	Widowed	19.74%	9.70%	5.13%	
	Separated	3.87%	3.08%	2.27%	
	Never Married	14.45%	19.39%	26.56%	
	A Member of an Unmarried Couple	2.98%	4.42%	5.46%	
Race/ Ethnicity	White - Non-Hispanic	69.93%	73.66%	65.21%	0.0001
	Black - Non-Hispanic	13.98%	9.48%	11.08%	
	Hispanic	9.56%	10.85%	16.38%	
	Other	6.53%	6.00%	7.32%	
Current Asthma (% yes)		20.53%	15.02%	6.25%	0.0001
Past Stroke (% yes)		14.34%	5.30%	1.31%	0.0001
Past Angina or Coronary Disease (% yes)		16.24%	8.24%	2.34%	0.0001
Arthritis (% yes)		70.35%	48.02%	15.26%	0.0001
Diabetes (% yes)		28.96%	15.37%	6.59%	0.0001
Skin Cancer (% yes)		11.68%	8.72%	4.57%	0.0001
Other Cancer (% yes)		15.85%	10.55%	4.72%	0.0001
Chronic Disease** (% yes)		89.32%	75.15%	42.23%	0.0001

Chronic Disease Score $^{\Omega}$	0	10.68%	24.85%	57.77%	0.001
	1	25.23%	35.54%	29.52%	
	2	28.76%	24.35%	9.61%	
	3	21.03%	10.94%	2.47%	
	4	10.11%	3.45%	0.54%	
	5	3.32%	0.76%	0.08%	
	6	0.80%	0.09%	0.01%	
	7	0.08%	0.02%	0%	
BMI	Underweight (<18.5 kg/m^2)	2.36%	1.83%	1.81%	0.0001
	Healthy weight (18.5-24.9 kg/m^2)	22.60%	28.56%	37.44%	
	Overweight (25-29.9 kg/m^2)	29.30%	33.84%	36.88%	
	Obese (≥ 30 kg/m^2)	45.74%	35.77%	23.87%	
Physical Activity	Met Both Guidelines	10.24%	15.46%	22.53%	0.0001
	Met Aerobic Guidelines Only	20.18%	30.22%	32.02%	
	Met Strengthening Guidelines Only	10.48%	8.17%	8.75%	
	Did not meet Either Guideline	59.09%	46.14%	36.70%	
Current Smoker	Yes	24.65%	25.61%	18.09%	0.0001
Alcohol Use	Heavy	8.24%	15.68%	21.47%	0.0001
	None to Moderate	91.76%	84.32%	78.53%	

Sleep Time	<7 hours	1.67%	1.60%	1.11%	0.0001
	7-9 hours	98.14%	98.19%	98.78%	
	>9 hours	0.19%	0.21%	0.11%	

Note: Table includes some missing values due to responses that were missing, refused and unknown. Persons were classified as disabled if they reported an activity limitation and that they used special equipment, such as a mobility aid, while individuals who reported either an activity limitation or the use of special equipment were categorized as being functionally limited. Those answering "no" to both questions were classified as being able bodied. Ω p value refers to crosstabs analysis for each variable categories by disability categories. Φ Each row chi-square is statistically significant ($p<0.05$). Ω Chronic Disease Score is the total of chronic diseases reported from among asthma, past stroke, past angina, arthritis, diabetes, cancer other than skin cancer, and obesity.

Table 1.2: Odds Ratios for Functionally Limited and Disabled vs. Able Bodied Persons (n=476,541)

	Variable	Odds Ratios (95% CI)Ψ
Sex	Male	Ref
	Female	1.23 (1.20-1.27)
Age	18-44 years	Ref
	45-64 years	2.46 (2.38-2.54)
	65+	3.69 (3.57-3.82)

Education Level	High School or less	Ref
	High School Graduate	0.79 (0.75-0.82)
	Attended College/Technical School	0.74 (0.71-0.78)
	Graduated College/Technical School	0.54 (0.52-0.56)
Income	Less than $15,000	Ref
	$15,000 to < $25,000	0.68 (0.65-0.72)
	$25,000 to < $35,000	0.55 (0.52-0.58)
	$35,000 to < $50,000	0.46 (0.44-0.48)
	$50,000 or more	0.35 (0.33-0.36)
Marital Status	Married or member of a couple	0.79 (0.77-0.81)
	Previously or Never Married	Ref
Race/Ethnicity	White - Non-Hispanic	1.49 (1.44-1.54)
	Black, Hispanic or Other	Ref
Current Asthma	Yes	2.94 (2.82-3.07)
	No	Ref
Past Stroke	Yes	6.15 (5.77-6.55)
	No	Ref
Past Angina or Coronary Disease	Yes	4.76 (4.53-4.99)
	No	Ref
Arthritis	Yes	6.41 (6.24-6.59)
	No	Ref
Diabetes	Yes	3.27 (3.16-3.40)
	No	Ref
Skin Cancer	Yes	2.18 (2.09-2.27)
	No	Ref

Other Cancer	Yes	2.72 (2.61-2.84)
	No	Ref
Any chronic Disease	Yes	5.05 (4.89-5.21)
	No	Ref
BMI	Underweight	1.50 (1.36-1.66)
	Normal	Ref
	Overweight	1.23 (1.19-1.27)
	Obese	2.22 (2.14-2.29)
Aerobic and Strengthening	Met Both Guidelines	Ref
	Met Aerobic Guidelines Only	1.38 (1.32-1.44)
	Met Strengthening Guidelines Only	1.59 (1.50-1.69)
	Did not meet Either Guideline	2.14 (2.06-2.23)
Current Smoker	Yes	1.54 (1.49-1.59)
	No	Ref
Alcohol	Misuse	0.59 (0.57-0.61)
	No misuse	Ref

Ψ 95% Confidence Interval (CI) for OR was calculated from the standard error.

Figure 1.1: Physical Activity Behavior in Disabled, Functionally Limited and Able Bodied Adults ages 18 years and above (n=476,541)

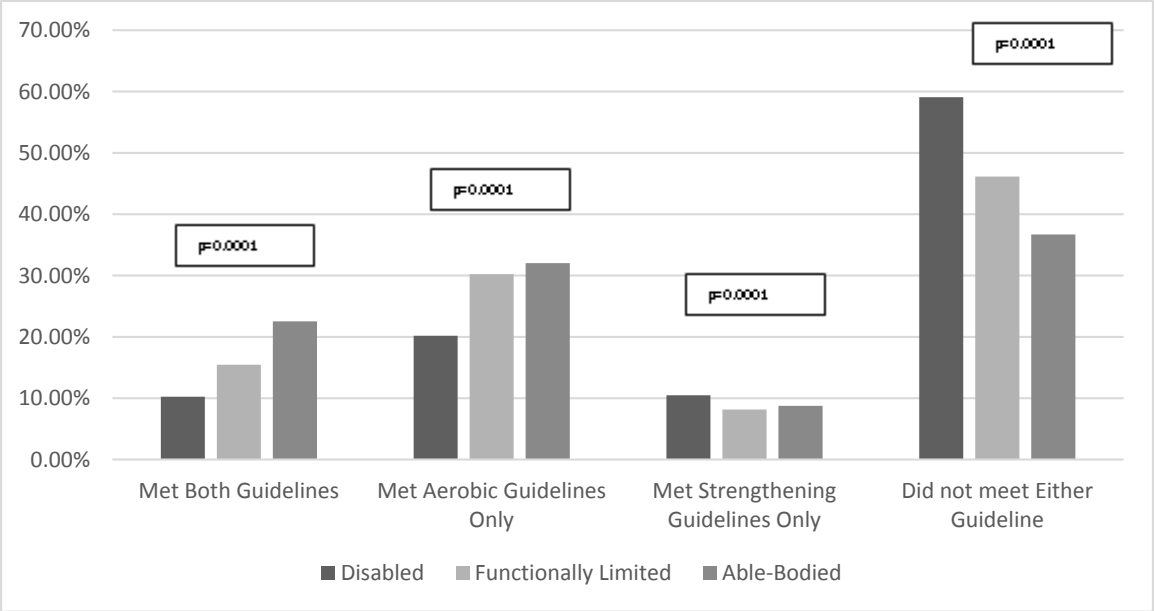

Figure 1 shows physical activity patterns in disabled, functionally limited, and able bodied adults. Compared with abled bodied individuals, people with disability and functional limitations were less physically active and they were less likely to meet any of the physical activity guidelines. People with disability were more likely than abled bodied and people with functionally limitations to engage in muscle strengthening exercise and less likely to engage in aerobic training. People with a functional limitation were more active than persons with a disability, but less active than able bodied individuals.

Chapter III

HEALTH AND SOCIODEMOGRAPHICS CORRELATES OF MEETING AEROBIC AND MUSCLE STRENGTHENING RECOMMENDATIONS IN MIDDLE-AGED AND OLDER ADULTS

Abstract

Purpose: To identify the health and sociodemographic correlates of aerobic physical activity and muscle strengthening exercises in middle-aged and older adults. **Methods:** Respondents were classified by disability status (disabled, functionally limited, and able bodied) and by age [middle-aged (aged 45-64), and older (aged 65+)]. Participants'aerobic and muscle strengthening physical activity participation levels were categorized as meeting aerobic and muscle strengthening recommendation or not. Examined sociodemographics included age, sex, education, race/ethnicity, and income. Health status, and the number of chronic diseases were also examined. A binary logistic regression model was used to evaluate health and sociodemographics correlates of aerobic physical activity and muscle strengthening exercises after adjusting for disability. **Results:** Women were less likely to meet both recommendations compared to men. The lower the educational attainment, the less likely respondents were to meet both recommendations. Middle-aged adults were less likely to meet aerobic recommendations compared with older adults and more likely to meet muscle strengthening recommendations. Disability and poor health status were strongly associated with not meeting the both recommendations. **Conclusion:** Among middle-aged and older adults

sociodemographics, health status, and disability were associated with meeting aerobic and muscle strength recommendations. Being active is important for overall function and better health outcome. There is a large proportion of middle-aged who are not meeting the recommendation compared to past knowledge and a greater public health attention to this middle-aged cohort is needed. This is particularly important because middle-aged persons are of working-age, and the potential economic and long-term impact of disability could be substantial.

Introduction

It is well known that regular participation in physical activity, including aerobic and muscle strengthening improves health, health related quality of life (HRQOL), and physical and mental health (Bize, Johnson, & Plotnikoff, 2007; Brown, Yore, Ham, & Macera, 2005; Brown et al., 2003; Brown et al., 2004; Garber et al., 2011; Garber et al., 2010; Haskell et al., 2007; Rejeski & Mihalko, 2001). However, according to the Centers for Disease Control (CDC), less than 30% of adults regularly engage in the recommended amounts of aerobic physical activity (Center for Disease Control and Prevention, 2010). Statistics for participation in muscle strengthening are sparse (Looker & Wang, 2015). Although there is global concern about the lack of physical activity in the general population (Kohl et al., 2012), physical inactivity in people with disabilities is even more problematic. People with disabilities have a higher prevalence of physical inactivity and are more likely to report poorer health compared to those without disability (Rimmer, 2008; Santiago & Coyle, 2004; U.S. Department of Health and Human Services, 2012). This lack of physical activity can lead to a cascade of events including development of

chronic diseases and obesity, which can lead further to everyday functional limitations or disability, and lower HRQOL (Nantel, Mathieu, & Prince, 2011; van der Ploeg, van der Beek, van der Woude, & van Mechelen, 2004; Weil et al., 2002; Zhao, Ford, Li, Crews, & Mokdad, 2009).

In people with disability, physical activity can reduce functional limitations and disability. Gretebeck and colleagues (2012) described the protective effect of physical activity on those with disability and found that there were less functional limitations in those individuals that participated in some form of physical activity (Gretebeck, Ferraro, Black, Holland, & Gretebeck, 2012). This finding is consistent with other studies of the general population, including the Longitudinal Study of Aging and the Honolulu Heart Study (Boult, Kane, Louis, Boult, & McCaffrey, 1994; Garber et al., 2010; Gretebeck et al., 2012; Nusselder et al., 2008; Young, Masaki, & Curb, 1995). Garber et al (2008) found that self-perceived health status and rarely feeling healthy or full of energy were strong predictors of not meeting adequate activity levels (Garber, Allsworth, Marcus, Hesser, & Lapane, 2008). Several studies looking at middle-aged to older adults have found an association between physical activity and health-related quality of life, where the more physically active, the greater their scores in health related quality of life (HRQOL) (Garber et al., 2010; Heesch, van Uffelen, van Gellecum, & Brown, 2012; Luncheon & Zack, 2012; Nayak, Holmes, Nguyen, & Elting, 2014).

In our previous work, we reported that a large proportion of middle-aged persons were disabled or functionally limited and they were likely to have preventable chronic diseases and unhealthy behaviors than those classified as being able bodied. We also determined that middle-aged persons and older adults had similar patterns of meeting or

not meeting the aerobic and muscle strengthening guidelines, with able bodied persons in both age groups being the most physically active and disabled individuals the least active (Kamil-Rosenberg, 2015). We also found that few adults participated in muscle strengthening exercise, but among those who did, people with disabilities were more likely than healthy people to engage in muscle strengthening. These findings confirm results from other studies that have shown that with increasing age and inadequate participation in regular physical activity, there is more likelihood of having a disability (Boslaugh & Andresen, 2006; Thompson, Zack, Krahn, Andresen, & Barile, 2012). In this paper, we explore correlates of aerobic and muscle strengthening physical activity. Our aims for this study are to expand on our prior research and: (1) identify the health and sociodemographic correlates of aerobic physical activity. We hypothesized that there will be an association between health status, age, race/ethnicity, and education with aerobic physical activity; (2) to identify health and sociodemographic correlates of muscle strengthening exercises. We hypothesized that there will be correlations between health, sociodemographics, and muscle strengthening exercises.

Methods and Procedures

The data analyzed for this study were collected as part of the Behavioral Risk Factor Surveillance Survey (BRFSS) conducted in 2011 (Center for Disease Control and Prevention, 2011). The BRFSS is a random-digit dialing telephone-based health survey used to collect self-reported health information from adults 18+ years of age in all 50 states, and the District of Columbia, Puerto Rico, as well as the U.S. Virgin Islands, and

Guam(Centers for Disease Control and Prevention, 2009a, 2009b). It is the largest telephone health survey in the world that focuses on health risk behaviors, preventive health practices, and health care access that are primarily associated to chronic disease and injury. States use BRFSS data to identify emerging health problems, establish and track health objectives, and develop and evaluate public health policies and programs (Centers for Disease Control Prevention, 2012). Our sample from the 2011 BRFSS included 477,662 adults ≥18 years of age (men=187,237 women= 290,425). For the present study, we limited the analytic sample to include respondents with complete data on all examined study measures.

Measures

Disability

Respondents were categorized as being disabled, functionally limited, or able bodied using two items consistent with the World Health Organization definitions of disability (World Health Organization., 2001). Persons were classified as disabled if they reported an activity limitation and used special equipment such as a mobility aid while individual who reported either an activity limitation or the use of special equipment were categorized as functionally limited, and those answering “no” to both questions were classified as being able bodied.

Physical Activity

Respondents' physical activity levels were determined using six items that assessed the time spent participating in moderate or vigorous aerobic physical activity and muscle strengthening exercises. Using the classification scheme consistent with current recommendations for physical activity employed by the Centers for Disease Control and Prevention (Guidelines for Physical Activity for Americans, 2008), the following two categories were created for aerobic recommendations: (1) meets aerobic recommendations, (2) do not meet aerobic recommendations; and two categories were created for muscle strengthening recommendations: 1) meets muscle strengthening recommendations and (2) do not meet muscle strengthening recommendation.

Health Status or Health-Related Quality of Life (HRQOL)

Respondents' health status was based on one question: "Would you say that in general your health is: 1) Excellent, 2) Very good, 3) Good, 4) Fair, or 5) Poor. This question is the first question of SF-36, a health status survey, and is predictive of the complete scores on the SF-36 (McHorney, Ware, Lu, & Sherbourne, 1994).

Chronic Diseases

The examined chronic diseases included asthma, cardiovascular diseases (stroke and heart disease), arthritis, diabetes, and obesity. The presence of which were determined by questions that asked whether they had been told by a health care provider they had a disease. Obesity status was determined by body mass index (BMI) calculated from self-reported height and weight, and participants with a BMI of 30 Kg/m^2 or greater

were classified as obese (National Institutes of Health National Heart Lung and Blood Institute, 1998). Using these data, we calculated a chronic disease score by summing the number of chronic diseases reported from among asthma, cardiovascular diseases (stroke and heart disease), arthritis, diabetes, and obesity vs. having no disease. The range for the chronic disease score was 0 (no disease) to 6 (all diseases).

Sociodemographics

A number of sociodemographic factors were examined: age, sex, race/ethnicity (white, non-Hispanic, black, non-Hispanic, Hispanic or other); marital status (married/unmarried couple, divorced/separated, widowed, never married); highest year of school completed, and income.

Statistical Analyses

The BRFSS 2011 uses a newly implemented weighting method, raking weighting (Centers for Disease & Prevention, 2012), that adjusts for each variable individually in a series of data processing–intensive iterations. As each variable in the weighting process is included in the model, the weights are adjusted until the sample weights are representative of the population. Raking does not require demographic information for small geographic areas, allowing more demographic variables (e.g., education level, marital status, etc.) into the statistical weighting process, and increasing the representativeness of estimates. Raking also allows for the incorporation of data obtained

from both landline and cellular telephones in the weighting methodology of the BRFSS (Centers for Disease & Prevention, 2012).

Descriptive characteristics were calculated for key variables as means and standard deviations for variables measured on the ordinal or interval scale, while variables measured on the nominal scale were reported as frequencies and percentages. Sociodemographic characteristics were evaluated across categories of meeting aerobic physical activity or muscle strengthening recommendations and age groups using crosstabs analyses. To examine the distribution of the variables across categories of physical activity, disability and chronic disease, a series of contingency tables were generated and chi-square statistics were used to determine the patterns of prevalence of physical activity and disability levels in middle age and older adults.

A series of logistic regression models were used to evaluate the correlates of meeting (yes vs. no) the recommendations for aerobic physical activity and muscle strengthening. Separate models were run for each recommendation and each model included disability category (disabled, functionally limited and able bodied) and age (middle-aged and older adults). Sociodemographic characteristics that were explored as potential correlated included sex, education, race/ethnicity, and health status. Correlates were selected based on lack of multicollinearity, a strong correlation with physical activity and poor correlation with each other and theoretical considerations. The income variable was omitted from multiple regression analysis due to collinearity with education. Due to collinearity between disability and health status for both aerobic recommendations and muscle strength recommendations, three models for each physical activity group were developed. As these two variables were highly correlated, we included them in

separate models. Participants whose data were missing or who answered “don’t know” or “refused” to any of the demographic variables were excluded from the respective analyses (Vezina, Der Ananian, Greenberg, & Kurka, 2014). All analyses were executed using SPSS Statistics 21.0 software for this paper (Windows version 21.0 SPSS Inc. Headquarters, 233 S. Wacker Drive, 11th Floor, Chicago, IL 60606, USA).

Results

Among the sample, 129,832 (38%) men and 208,730 (62%) women met the aerobic recommendations and 132,845 (38%) men and 215,184 (62%) women met the muscle strengthening recommendations. Descriptive characteristics for those who met and did not met the aerobic and muscle strengthening recommendations are shown in tables 2.1 and 2.2. Individuals who were disabled less often met either of the recommendations than individuals who were able bodied. Further, compared with able bodied persons, people who did not meet the aerobic or muscle strengthening recommendations more often had lower educational attainment, lower income, and were more often single (i.e., widowed, divorced, never married). Persons who reported having chronic diseases less often met the aerobic or muscle strengthening recommendations. Further, persons with fair or poor health less often participated in either aerobic or muscle training physical activity.

Table 2.3 shows the odds ratios and the 95% confidence intervals from the logistic regression analyses performed for aerobic physical activity with both disability and health status in the same model. Table 2.4a shows the logistic regression analyses that were performed with aerobic physical activity recommendations as the dependent

variable, and gender, and age (45-64 and 65 and older), education, race, and health status as independent variables. Table 2.4b shows the logistic regression analyses that were performed with aerobic physical activity recommendations as the dependent variable, and gender, and age (45-64 and 65 and older), education, race, and disability as independent variables. Women were less likely to meet the aerobic recommendations. Compared to older adults, the odds of meeting the aerobic recommendations were 14-18% lower in the middle-aged group. Further, the more education that the respondents had, the more likely they were to meet the recommendations. Compared with whites, black and Hispanics were e 37% and 59% lower, respectively less likely to meet the aerobic physical activity recommendations. The better the respondents' felt their health was the more likely they were to meet the aerobic physical activity recommendations. The odds of meeting the recommendations were 67% lower in disabled and 36% lower in functionally limited compared with able bodied.

For the logistic regression models examining meeting the muscle strengthening recommendations, 3 models were performed with similar predictor variables mentioned above, gender, age, disability levels, education, race, and health status. The model that included both the disability and health status group together are seen in table 2.5 (model 1). Here, those with disability and functional limitation were more likely to meet the muscle strengthening recommendations. Model 2 (see table 2.6a) included only the health status and the sociodemographics variables, while model 3 (see table 2.6b) includes disability and sociodemographics variables (model 3). In all three models, women were less likely to meet the muscle strengthening recommendations. However, Hispanics were less likely to meet the strength recommendations (table 2.6a: 0.93 (CI 95% 0.90-.97),

table 2.6b: 0.85 (CI 95% 0.81-0.88). In table 6a, compared to those who reported poor health, the better the respondents felt, the more likely they were to meet the strength recommendations. In model 3 (see Table 2.6b), which did not include health status, persons with a disability or functionally limited were less likely to meet the strength recommendations.

Further inspections of the data showed education attainment was a predictor of meeting the aerobic or strength recommendations. Those who had less education were less likely to meeting aerobic or muscle strengthening recommendations. Further, race/ethnicity were also predictors of not meeting the either recommendations. Compared to non-Hispanic Whites, more than 50% of non-Hispanic Blacks and Hispanics least likely meet either recommendation.

Discussion

Determining whether middle-aged and older adults meet aerobic physical activity and muscle strengthening recommendations is essential because there has been limited data on the importance of physical activity in these age group populations. Martin et al (2014) showed that the middle-aged have an increase in disability, in particular physical function impairments, where the incidence of physical function impairments have plateaued in older adults (Martin & Schoeni, 2014). By evaluating correlates of aerobic and muscle strengthening physical activity in middle-aged and older adults, we identified factors associated with meeting the recommendations. Our findings are consistent with findings of previous studies of the correlates of physical activity in the general consistent with and extend the findings of previous studies of the correlates of physical activity (Boslaugh & Andresen, 2006; Brown et al., 2003; Garber et al., 2008; Vezina et al.,

2014). However, this present study extends prior research by evaluating differences in meeting recommendations for aerobic physical activity and muscle strengthening by disability status.

Compared to older adults, middle-aged adults were less likely to meet the aerobic and more likely to meet the muscle strengthening recommendations. This result is surprising, especially given that Vezina et al (2013) found that in both older adults and middle-aged adults there was a low percentage of those meeting the strength recommendation further showing a decrease in strength with age (Vezina et al., 2014). It is possible that older adults were more likely to meet the aerobic recommendation than middle-aged adults due to an increased amount of free time due to retirement. We have not identified any prior studies that have observed the differences between middle-aged and older adults and meeting aerobic guidelines, and it is imperative that further observations to be warranted.

When looking at self-perceived health status, respondents who perceived their health as being fair or poor were more likely to be in sufficiently active. Previous studies report a strong association with physical activity and health status (Bize et al., 2007; Boslaugh & Andresen, 2006; Garber et al., 2008) and our result are consistent in that persons who perceived themselves as being in excellent or good health were more likely to meet both recommendations compared with those in poor health.

Persons who were disabled were more likely to meet the strength recommendations than engage in aerobic training, if they engaged in any physical activity. Upon examining participation in strengthening exercises, persons who were functionally limited people had similar participation as people with disability similar to

disabled people. This could be due to learning how to perform muscle strengthening exercises in physical therapy or better accessibility to opportunities to participate in muscle strengthening exercise. In contrast, persons who were functionally limited more likely engaged in aerobic exercise than those classified as disabled. Our study is the first to our knowledge that has examined the association between meeting these recommendations with health status and disability in middle-aged adults.

The logistic regression model of the muscle strengthening recommendations including both disability and health status in the same model, demonstrated that the disability and functional limited group were more likely to meet the recommendations. However, when the models were separated where health status was in one model (model 2) and disability was in another model (model 3), disabled and functionally limited persons were less likely to meet the strength recommendations. This was an interesting observation. Garber et al (2008) observed that rarely feeling healthy or full of energy was a strong predictor of being in precontemplation, contemplation, and preparation stages of change, surrogate measures of insufficient physical activity participation, and suggested that a common symptom, fatigue and poor perception affect intentions for physical activity (Garber et al., 2008). Adding to this, those with a disability or functional limitation often have poorer health than able bodied people, and therefore may be less likely to want to participate in physical activity. For this reason, health status could be a mediator of disability. Moreover, health status might have contributed to disability, and, therefore, by separating the models, we were able to observe the relative contributions of both health status and disability. Further research of health status and disability and how they affect physical activity through interventions should be evaluated.

Limitations:

The BRFSS sampling methods include only non-institutionalized adults with telephones and adults willing or able to answer the telephone thus it likely greatly underestimate the prevalence of disability in the population (Okoro, Hootman, Strine, Balluz, & Mokdad, 2004; Thompson et al., 2012). Furthermore, this was a cross-sectional study, which does not allow for causal inferences, but does allow for associations between variables to be identified. The study measures were based on self-report which could be affected by recall and/or social desirability biases (Brown et al., 2005). This study is also limited by the questions that are available and how the BRFSS's questions are asked. Although physical activity self-report measures can be problematic when used to estimate for total energy expenditure, when measuring group physical activity habits, they are most valid when used in epidemiological or surveillance studies (Brown et al., 2005). The definition of disability and functional limitations was based on activity limitations due to physical and mental health causes combined and use of special equipment, making it difficult to identify the specific limitations of the respondents (Brown et al., 2005).

Conclusions

More middle-aged respondent were less likely to meet either physical activity recommendations compared to older adults. This suggests that greater public health attention to this age group may be warranted, particularly because not meeting aerobic and strength recommendations were associated with increased disability and functional

limitations and lower self-perceived health status. Moreover, middle-aged persons are of working age and the potential economic and long-term impact of disability could be substantial as these individuals age (Bauer, Briss, Goodman, & Bowman, 2014; Martin & Schoeni, 2014).

Further study is needed to understand more fully the activity choices of persons with limitations or disability and self-perceived health status.

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Table 2.1: Descriptive Characteristics of Respondents Ages 45 years and Above across Levels of Aerobic Physical Activity (N=466,316)

		Meets Aerobic Recommendation N=242482	Does Not Meet Aerobic Recommendation N=223834	Total N=466316	Chi-Square P-value
Sex	Male	40.7%	35.8%	38.3%	<.0001
	Female	59.3%	64.2%	61.7%	
Age	45-64 years	56.4%	57.1%	56.7%	<.0001
	65+ years	43.6%	42.9%	43.3%	
Disability	Disabled	6.5%	16.4%	11.3%	<.0001
	Functionally Limited	22.4%	27.9%	25.0%	
	Able Bodied	71.1%	55.7%	63.7%	
Income	Less than $15,000	9.3%	16.7%	12.8%	<.0001
	$15,000 to less than $25,000	15.5%	22.0%	18.6%	
	$25,000 to less than $35,000	11.6%	13.3%	12.4%	
	$35,000 to less than $50,000	15.7%	14.9%	15.3%	
	$50,000 or more	47.9%	33.2%	40.9%	
Education Level	Didn't graduate HS	6.0%	12.5%	9.1%	<.0001
	HS Graduate	26.3%	35.6%	30.8%	

	Attended College/ Technical	26.6%	26.4%	26.5%	
	Graduated College/ Technical	41.1%	25.5%	33.6%	
Marital Status	Married	57.2%	50.5%	54.0%	<.0001
	Divorced	15.3%	17.4%	16.3%	
	Widowed	16.9%	19.9%	18.4%	
	Separated	1.6%	2.3%	1.9%	
	Never Married	7.2%	8.2%	7.7%	
	A Member of an Unmarried Couple	1.8%	1.7%	1.7%	
Race/ Ethnicity	White - Non-Hispanic	86.4%	80.4%	83.5%	<.0001
	Black - Non-Hispanic	5.8%	9.2%	7.5%	
	Hispanic	4.5%	7.0%	5.7%	
	Other	3.2%	3.4%	3.3%	
Asthma	Yes	10.7%	14.0%	12.3%	<.0001
	No	89.3%	86.0%	87.7%	
Past Stroke	Yes	4.0%	6.5%	5.2%	<.0001
	No	96.0%	93.5%	94.8%	
Past Angina or Coronary Disease	Yes	6.9%	9.3%	8.1%	<.0001
	No	93.1%	90.7%	91.9%	
Arthritis	Yes	38.7%	46.6%	42.5%	<.0001

	No	61.3%	53.4%	57.5%	
Diabetes	Yes	13.0%	20.2%	16.4%	<.0001
	No	87.0%	79.8%	83.5%	
BMI	Underweight	1.4%	1.7%	1.6%	<.0001
	Normal	36.7%	27.0%	32.1%	
	Overweight	39.2%	35.8%	37.6%	
	Obese	22.6%	35.5%	28.7%	
Chronic Disease	0	40.2%	28.7%	34.7%	<.0001
	1	35.0%	33.3%	34.2%	
	2	16.7%	22.4%	19.4%	
	3	6.1%	10.8%	8.3%	
	4	1.6%	3.8%	2.7%	
	5	0.3%	0.9%	0.6%	
	6	0.0%	0.1%	0.1%	
Health Status	Excellent	20.5%	9.8%	15.4%	<0.0001
	Very Good	35.7%	25.3%	30.7%	
	Good	29.4%	33.2%	31.2%	
	Fair	11.0%	20.5%	15.5%	
	Poor	3.4%	11.2%	7.2%	

Note: Table content are column frequencies table includes some missing values due to responses that were missing, refused and do not know responses. P value refers to crosstabs analysis for each variable categories by aerobic categories. Chi-square is statistically significant ($p<0.05$). Chronic Disease Score is the total of chronic diseases reported from among asthma, past stroke, past angina, arthritis, diabetes, and obesity.

Table 2.2: Descriptive Characteristics of Respondents Ages 45 Years and Above Across Levels of Muscle Strengthening Recommendations (N= 348,029)

		Meets Muscle Strengthening Recommendation N= 82259	Did not meet Muscle Strengthening recommendation N=265770	Total N=348029	Chi-Square P-value
Sex	Male	42.2%	36.9%	38.2%	<.0001
	Female	57.8%	63.1%	61.8%	
Age	45-64 years	60.6%	55.5%	56.7%	<.0001
	65+ years	39.40%	44.50%	43.30%	
Disability	Disabled	9.3%	11.8%	11.2%	<.0001
	Functionally Limited	22.2%	25.9%	25.0%	
	Able Bodied	68.50%	62.30%	63.80%	
Income	Less than $15,000	8.6%	14.3%	12.9%	<.0001
	$15,000 to less than $25,000	13.9%	20.2%	18.7%	
	$25,000 to less than $35,000	10.5%	13.0%	12.4%	
	$35,000 to less than $50,000	14.6%	15.5%	15.3%	
	$50,000 or more	52.5%	37.0%	40.8%	
Education Level	Didn't graduate HS	5.0%	10.5%	9.2%	<.0001
	HS Graduate	22.3%	33.5%	30.8%	

	Attended College/Technical	26.0%	26.6%	26.4%	
	Graduated College/Technical	46.7%	29.4%	33.5%	
Marital Status	Married	57.5%	52.9%	54.0%	<.0001
	Divorced	16.4%	16.3%	16.3%	
	Widowed	14.8%	19.8%	18.6%	
	Separated	1.7%	2.0%	1.9%	
	Never Married	7.9%	7.7%	7.8%	
	A Member of an Unmarried Couple	1.6%	1.3%	1.4%	
Race	White - Non-Hispanic	85.2%	82.9%	83.5%	<.0001
	Black - Non-Hispanic	7.0%	7.7%	7.6%	
	Hispanic	4.3%	6.1%	5.7%	
	Other	3.5%	3.2%	3.3%	
Asthma	Yes	11.3%	12.6%	12.3%	<.0001
	No	88.7%	87.4%	87.7%	
Past Stroke	Yes	4.2%	5.5%	5.2%	<.0001
	No	95.8%	94.5%	94.8%	
Past Angina or Coronary Disease	Yes	6.6%	8.5%	8.0%	<.0001
	No	93.4%	91.5%	92.0%	
Arthritis	Yes	38.8%	43.6%	42.5%	<.0001

	No	61.2%	56.4%	57.5%	
Diabetes	Yes	11.8%	17.1%	16.6%	<.0001
	No	88.1%	82.0%	83.5%	
BMI	Underweight	1.6%	1.6%	1.6%	<.0001
	Normal	39.8%	29.8%	32.2%	
	Overweight	39.8%	29.8%	32.2%	
	Obese	20.3%	31.3%	28.6%	
Chronic Disease Score	0	42.5%	32.3%	34.7%	<0.0001
	1	34.0%	34.3%	34.2%	
	2	15.3%	20.7%	19.4%	
	3	5.9%	9.1%	8.3%	
	4	1.8%	2.9%	2.6%	
	5	0.4%	0.6%	0.6%	
	6	0.1%	0.1%	0.1%	
Health Status	Excellent	24.3%	12.5%	15.3%	<0.0001
	Very Good	35.1%	29.3%	30.7%	
	Good	26.1%	33.0%	31.3%	
	Fair	10.3%	17.2%	15.6%	
	Poor	4.2%	8.1%	7.1%	

Note: Table includes some missing values due to responses that were missing, refused and unknown. P value refers to crosstabs analysis for each variable categories by aerobic categories. Each row chi-square is statistically significant ($p<0.05$). Chronic Disease Score is the total of chronic diseases reported from among asthma, past stroke, past angina, arthritis, diabetes, and obesity.

Table 2.3: Odds Ratios for Meeting Aerobic Recommendations vs. Not Meeting Aerobic Recommendations N=323,657

	Variable	Odds Ratios (95% CI)Ψ
Sex	Male	Ref
	Female	0.84 (0.83-0.85)
Age	45-64 years	0.79 (0.78-0.81)
	65+	Ref
Education Level	High School or less	Ref
	High School Graduate	1.21 (1.17-1.24)
	Attended College/Technical School	1.58 (1.54-1.62)
	Graduated College/Technical School	2.16 (2.10-2.22)
Race/Ethnicity	White - Non-Hispanic	Ref
	Black	0.77 (0.75-0.79)
	Hispanic	0.81 (0.78-0.84)
	Other	0.97 (0.94-1.02)
Health Status	Excellent	3.94 (3.79-4.11)
	Very Good	2.81 (2.71-2.92)
	Good	2.00 (1.94-2.07)
	Fair	1.49 (1.44-1.55)
	Poor	Ref
Disability	Disabled	0.51 (0.49-0.52)
	Functionally Limited	0.82 (0.81-0.84)
	Able Bodied	Ref

Ψ 95% Confidence Interval (CI) for OR was calculated from the standard error

Table 2.4a: Odds Ratios for Meeting Aerobic Recommendations vs. Not Meeting Aerobic Recommendations N=327,695 (Health Status with no Disability)

	Variable	Odds Ratios (95% CI)Ψ
Sex	Male	Ref
	Female	0.82 (0.81-0.84)
Age	45-64 years	0.82 (0.81-0.84)
	65+	Ref
Education Level	High School or less	Ref
	High School Graduate	1.20 (1.17-1.24)
	Attended College/Technical School	1.55 (1.5-1.59)
	Graduated College/Technical School	2.11 (2.05-2.17)
Race/Ethnicity	White - Non-Hispanic	Ref
	Black	0.78 (0.76-0.80)
	Hispanic	0.85 (0.83-0.88)
	Other	0.997 (0.96-1.04)
Health Status	Excellent	5.58 (5.38-5.78)
	Very Good	3.87 (3.75-4.00)
	Good	2.60 (2.52-2.69)
	Fair	1.71(1.65-1.77)
	Poor	Ref

Ψ 95% Confidence Interval (CI) for OR was calculated from the standard error

Table 2.4b: Odds Ratios for Meeting Aerobic Recommendations vs. Not Meeting Aerobic Recommendations N=324,839 (Disability with no Health Status)

	Variable	Odds Ratios (95% CI)Ψ
Sex	Male	Ref
	Female	0.86 (0.85-0.88)
Age	45-64 years	0.82 (0.81-0.83)
	65+	Ref
Education Level	High School or less	Ref
	High School Graduate	1.36 (1.32-1.40)
	Attended College/Technical School	1.90 (1.84-1.95)
	Graduated College/Technical School	2.84 (2.76-2.92)
Race/Ethnicity	White - Non-Hispanic	Ref
	Black	0.69 (0.68-0.71)
	Hispanic	0.72 (0.69-0.74)
	Other	0.90 (0.87-0.94)
Disability	Disabled	0.33 (0.32-0.34)
	Functionally Limited	0.64 (0.63-0.65)
	Able Bodied	Ref

Ψ 95% Confidence Interval (CI) for OR was calculated from the standard error

Note: Table 2.3 shows both disability and health status. Due to a strong correlation between disability and health status, 2.4a and 2.4b were separated with having only health status in table 2.4a and only disability in table 2.4b.

Table 2.5: Odds Ratios for Meeting Muscle Strengthening Recommendations vs. Not Meeting Strengthening Recommendations N=332,820 (Model 1)

	Variable	Odds Ratios (95% CI)Ψ
Sex	Male	Ref
	Female	0.82 (0.81-0.94)
Age	45-64 years	1.06 (1.04-1.08)
	65+	Ref
Education Level	High School or less	Ref
	High School Graduate	1.22 (1.17-1.26)
	Attended College/Technical School	1.68 (1.62-1.75)
	Graduated College/Technical School	2.41 (2.32-2.50)
Race/Ethnicity	White - Non-Hispanic	Ref
	Black	1.13 (1.10-1.17)
	Hispanic	0.95 (0.91-0.99)
	Other	1.13 (1.08-1.18)
Health Status	Excellent	3.10 (2.96-3.25)
	Very Good	2.00 (1.91-2.09)
	Good	1.42 (1.36-1.48)
	Fair	1.13 (1.08-1.19)
	Poor	Ref
Disability	Disabled	1.22 (1.18-1.26)
	Functionally Limited	1.05 (103-1.07)
	Able Bodied	Ref

Ψ 95% Confidence Interval (CI) for OR was calculated from the standard error

Table 2.6a: Odds Ratios for Meeting Strength Recommendations vs. Not Meeting Strength Recommendations N= 323,820 (Model 2)

	Variable	Odds Ratios (95% CI)Ψ
Sex	Male	Ref
	Female	0.83 (0.81-0.84)
Age	45-64 years	1.05 (1.04-1.07)
	65+	Ref
Education Level	High School or less	Ref
	High School Graduate	1.22 (1.17-1.26)
	Attended College/Technical School	1.69 (1.62-1.75)
	Graduated College/Technical School	2.42 (2.42-2.51)
Race/Ethnicity	White - Non-Hispanic	Ref
	Black	1.14 (1.10-1.17)
	Hispanic	0.93 (0.90-.97)
	Other	1.13 (1.08-1.18)
Health Status	Excellent	2.78 (2.67-2.90)
	Very Good	1.81 (1.73-1.88)
	Good	1.30 (1.25-1.36)
	Fair	1.08 (1.03-1.13)
	Poor	Ref

Ψ 95% Confidence Interval (CI) for OR was calculated from the standard error

Table 2.6b: Odds Ratios for Meeting Strength Recommendations vs. Not Meeting Strength Recommendations N=336,243 (Model 3)

	Variable	Odds Ratios (95% CI)Ψ
Sex	Male	Ref
	Female	0.85 (0.83-0.86))
Age	45-64 years	1.10 (1.08-1.11)
	65+	Ref
Education Level	High School or less	Ref
	High School Graduate	1.33 (1.28-1.38)
	Attended College/Technical School	1.94 (1.87-2.02)
	Graduated College/Technical School	3.06 (2.94-3.17)
Race/Ethnicity	White - Non-Hispanic	Ref
	Black	1.01 (0.98-1.05)
	Hispanic	0.85 (0.81-0.88)
	Other	1.04 (0.99-1.09)
Disability	Disabled	0.83 (0.81-0.86)
	Functionally Limited	0.83 (0.81-0.85)
	Able Bodied	Ref

Ψ 95% Confidence Interval (CI) for OR was calculated from the standard error

Note: Table 2.6 (model 1) shows both disability and health status. Due to a strong correlation between disability and health status, 2.6a (model 2) 2.6b (model 3) were separated with having only health status in table 2.6a and only disability in table 2.6b.

Chapter IV

FACTORS ASSOCIATED WITH TRENDS IN PHYSICAL ACTIVITY BY DISABILITY STATUS IN YOUNGER, MIDDLE-AGED, AND OLDER ADULTS FROM 2003 TO 2009

Abstract

Purpose: To evaluate trends in disability and physical activity in younger, middle-aged, and older adults over a 6 year period from 2003 to 2009 and to identify factors associated with these trends. **Methods:** Self-reported data from a random national sample collected during the Behavioral Risk Surveillance Survey conducted over the years from 2003 to 2009. The sample was divided into three age groups: younger (18-44), middle-aged (45-64 years old), and older adults (≥65 years old). Disability was classified into three categories disabled, functionally limited, and able bodied. Physical activity (PA) was categorized as meeting aerobic guidelines, insufficient physical activity, and no physical activity. Examined sociodemographics included age, sex, education, and race/ethnicity, and are summarized using weighted frequencies by disability categories over time. Data also were summarized using weighted frequencies in terms of respondents who met physical activity (PA) recommendations over time. Trends are reported as changes in frequencies over time. **Results:** There was an increase in disability among younger, middle-aged and older adults over time. More middle-aged adults were functionally limited, but the rate remained relatively stable and was similar to the disabled group. Physical activity increased over time in all age groups. Physical

activity among people with disability or functional limitations remained fairly stable with a low prevalence of PA, while able bodied respondents' physical activity increased. **Conclusions**: Disability and physical activity increased in all age groups over the 6 year period. Studies evaluating disability, physical activity guidelines and sociodemographics, specifically age, have not been thoroughly explored especially the interrelationships between these need further clarification.

Introduction

Physical inactivity has become a burden for the public's health due to its high prevalence and strong association with increased morbidity and mortality (van der Ploeg, van der Beek, van der Woude, & van Mechelen, 2004). Physical inactivity is associated with higher risks of developing chronic diseases and conditions such as coronary heart disease, obesity, diabetes mellitus, and arthritis (Bruce, Davis, & Davis, 2005; Suri, Morgenroth, & Hunter, 2012; Weil et al., 2002; Zhao, Ford, Li, Crews, & Mokdad, 2009). In addition, it is associated with greater levels of functional impairments and disability (Boslaugh & Andresen, 2006; Santiago & Coyle, 2004). Poor physical function and disability are associated with low muscle mass, an increase in fat within the muscle, and a decrease in muscle strength (Visser et al., 2005). Furthermore, individuals with functional limitations or disability are more likely to develop chronic diseases (Zhao et al., 2009). Numerous studies have shown the benefit of physical activity in people with disability (Rimmer & Marques, 2012; Rimmer, Riley, Wang, Rauworth, & Jurkowski, 2004; van der Ploeg et al., 2004): however, more than half of people with disabilities do not engage in any type of regular physical activity (Rimmer et al., 2004). For those who

exercise as part of their rehabilitation, physical inactivity may begin after the program has ended because self-initiated exercise programs are usually not undertaken (van der Ploeg et al., 2004).

There are limited studied that have explored both middle-aged and older adults over time. Martin et al (2010, 2014) found that there were many physical limitations including musculoskeletal conditions and chronic diseases that were associated with disability among middle-aged adults between the ages of 50 and 64 years participating in the National Health Interview Survey (NHIS), and that these conditions appeared to be increasing at a rate and pattern that differed from what was observed in older persons (Martin, Freedman, Schoeni, & Andreski, 2010; Martin & Schoeni, 2014).

Trends in physical activity among middle-aged and older adults with disability or functional limitations have not been thoroughly explored, and there is a need to identify trends and factors underlying these trends. Therefore, this study examines the trends in disability and physical activity in younger, middle-aged, and older adults over a six-year period from 2003 to 2009 and to evaluate the factors associated with these trends.

Methods and Procedures

The data analyzed for this study will be taken are from the Behavioral Risk Factor Surveillance Survey (BRFSS), which was conducted biannually from 2003 to 2009 (Center for Disease, 2012). The BRFSS is a random-digit dialing telephone-based health survey that collects self-reported health information from respondents in all 50 states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and Guam via telephone

interviews. It is the largest telephone health survey worldwide focusing on health risk behaviors, preventive health practices, and health care access that is primarily associated to chronic disease and injury. States use the BRFSS data to identify emerging health problems, establish and track health objectives, and develop and evaluate public health policies and programs (Centers for Disease Control Prevention, 2012). The methodology for the BRFSS has been described in detail elsewhere (Centers for Disease Control and Prevention, 2009).

From this sample, we selected three age groups: younger (18-44 years of age), middle aged (45-64 years of age), and older adults (65+ years of age). Sociodemographic questions included were sex, education, and race/ethnicity.

Measures

Disability

Respondents were categorized into three groups: disabled, functionally limited, and able bodied. Disability was defined using two questions. The first asked respondent if they are "limited in any way in any activities because of physical, mental, or emotional problems?", and the second asked "do you now have any health problems that requires you to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone?" Individuals who answered, "yes", to both were categorized as being disabled, those who answered, "yes", to one question and "no" to the other question were categorized as being functionally limited, and those answering "no" to both questions were categorized as able bodied.

Physical Activity

Physical activity levels were determined based on the responses to six questions from the BRFSS (see appendix C). We used the classification scheme for physical activity used by the Centers for Disease Control and Prevention (Center for Disease Control, 2005; UN World Health Organization (WHO), 2011). The BRFSS describes moderate physical activity as physical activity that results in "small increases in breathing or heart rate" and vigorous physical activity as defined as physical activity that result in "large increases in breathing or heart rate" (Carlson, Densmore, Fulton, Yore, & Kohl, 2009). Participants reported time spent in moderate or vigorous physical activity. In this study there were three physical activity categories: 1) meeting either vigorous or moderate physical activity recommendations; and 2) insufficient physical activity and 3) no physical activity.

Sociodemographics

The following sociodemographic factors were examined: age, sex, race/ethnicity (white, non-Hispanic, black, non-Hispanic, Hispanic or other, and highest year of school completed, and income.

Statistical Analyses

The BRFSS database was queried for years 2003, 2005, 2007 and 2009. Demographics were summarized using weighted frequencies by disability categories and by age categories over time. Data are also summarized using weighted frequencies to

determine the percentage of respondents who met the physical activity recommendations over time. Trends are reported as changes in frequencies over time. Weighting serves as a comprehensive adjustment for those who did not answer or respond and forces the total number of cases to equal population estimates for each state, according to the BRFSS (Center for Disease Control, 2009). All analyses were executed using SAS version 9.3 (SAS Institute Inc., Cary, North Carolina).

Results

Table 3.1 shows the characteristics of the respondents from 2003 to 2009. Females were more often disabled than men throughout the examined time period. Among middle-aged and older adults the percent classified as being disabled remained constant over time and ranged from 40-42%. More middle-aged adults were functionally limited than were younger or older adults. The prevalence of physical activity stayed relatively stable over time, and the prevalence was similar to the disabled group compared to the functionally limited and able bodied group.

Table 3.2 shows the weighted percentages of respondents who met physical activity recommendations by respondent characteristics over time. The percentage of able bodied respondents who met the recommendations increased by 4 percentage points from 2003 to 2009. However, the functionally limited and disabled groups experienced minimal change in the percent meeting the recommendation. As a group, Hispanics had the largest jump in respondents meeting the recommendations from 2003 to 2009. Further, an increase in the percent meeting the guidelines occurred in those who only had high school education or less.

Figure 3.1a and figure 3.1b depict the percentages of adults who were disabled and functionally limited adults across age groups. Analyses determined that with increasing age, the percent of people with disability in each disability category increased (see figure 3.1a). Additionally, there was a decrease in the percentage classified as being functionally limited in all of the groups (see figure 3.1b).

Figure 3.2 represents percentages of adults who met physical activity recommendations by age group and time. All the age groups showed increases in meeting the recommendations for aerobic physical activity by approximately 3%.

Discussion

These results on this study show the relationships of physical activity and disability. Analyses determined that physical activity and disability identified among young, middle-aged and older adults increased from 2003 to 2009. Additionally, among all of the age groups there was an increase in the percentage of persons classified as being functionally limited or disabled. Further, among all of the age groups there was an increase in the percent meeting aerobic recommendations throughout the six year time period.

The results of other studies confirm the finding from this study that there has been in increase in persons with disability and a decline in function in the working population ages 40-64 (Martin et al., 2010; Martin & Schoeni, 2014; Seeman, Merkin, Crimmins, & Karlamangla, 2010). Middle-aged persons are of working age and the potential economic and long-term impact of disability could be substantial as these individuals age (Martin &

Schoeni, 2014; Bauer, Briss, Goodman, & Bowman, 2014). Studies evaluating disability, physical activity guidelines and socioeconomic status, specifically age, have not been thoroughly explored especially the interrelationships between these need to further explanations.

Although the prevalence rate of disability found in this study was lower in the middle-aged persons compared with older adults, the notable percentage that were classified as disabled calls for a greater focus on this group to avoid further functional limitations (Martin & Schoeni, 2014). It is, however, important to note due to this being a cross sectional study with a sample consisting of different respondents each year, it does not necessarily mean that the increase in disability was large. Nonetheless, Martin et al (2010, 2014) shows trends of middle-aged adults and the increase in disability, specifically physical functioning, where in older adults' disability plateaus or declines (Martin et al., 2010; Martin & Schoeni, 2014).

Interestingly, we saw an increase in physical activity in all age groups over the six year period. This may be a result of an increase in awareness about the benefits of physical activity in middle-aged and older adults over time throughout the years could be one of the reasons. Another reason could be more accessibility to physical activity (Boslaugh & Andersen, 2006; Visser et al., 2005; Rimmer & Marques, 2012 Rimmer et al., 2004; Seeman et al., 2010).

Limitations

The BRFSS sampling methods include only non-institutionalized adults, thus it can underestimate the prevalence of disability in the population (Okoro, Hootman, Strine,

Balluz, & Mokdad, 2004; Thompson, Zack, Krahn, Andresen, & Barile, 2012). Furthermore, this was a longitudinal study with cross-sectional data, which does not allow for causal inferences, but does allow for associations between variables to be identified. The study measures were based on self-report, which could be affected by recall and/or social desirability biases. Although physical activity self-report measures can be problematic when measuring energy expenditure, they are most effective when used in epidemiological or surveillance studies when assessing group physical activity habits (Brown, Yore, Ham, & Macera, 2005). The definition of disability and functional limitations was not based solely on activity limitation, but also reporting of mental illness and use of special equipment, making it difficult to identify all of the specific limitations of the respondents (Brown et al., 2005). Further limitations include that each year there were different sampling, both in size and different population.

Conclusions

In summary, our findings show that prevalence of disability and of meeting the physical activity guidelines increased with age throughout the six year time period. The finding of increasing rates of disability suggest that greater public health attention to the middle-aged population may be warranted, particularly because of the concomitant growth in the prevalence of chronic diseases and the increasing similarities that middle-aged adults have with the older adult population.

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Table 3.1: Characteristics of Respondents to the BRFSS 2003-2009 by Disability Status (Weighted percentages)

			Disabled (%)	Functionally Limited (%)	Able Bodied (%)
2003	Sex	Male	42.86	46.95	48.88
		Female	57.14	53.05	51.12
	Age	18-44 years	18.61	36.92	56.46
		45-64 years	40.00	38.51	29.67
		65+	41.39	24.57	13.87
	Education Level	Didn't graduate HS	20.03	15.16	11.02
		HS Graduate	33.11	30.98	30.22
		Attended College/Technical	27.22	27.53	26.67
		Graduated College/Technical	19.63	26.32	32.09
	Race	White - Non-Hispanic	72.02	76.05	69.29
		Black - Non-Hispanic	12.49	8.59	9.58
		Hispanic	9.42	9.83	14.44
		Other	6.07	5.53	6.69
	Aerobic Physical Activity	Met PA Recommendations	23.32	40.09	48.50
		Insufficient PA	32.93	38.99	38.66
		No PA	43.75	20.91	12.84
2005	Sex	Male	43.36	45.94	49.33
		Female	56.64	54.06	50.67
	Age	18-44 years	17.88	34.86	56.17
		45-64 years	41.23	40.00	30.11

		65+	40.89	25.14	13.72
	Education Level	Didn't graduate HS	18.74	16.10	11.23
		HS Graduate	32.42	31.21	29.56
		Attended College/Technical	27.54	27.32	25.99
		Graduated College/Technical	21.29	25.37	33.22
	Race	White - Non-Hispanic	71.36	73.80	68.69
		Black - Non-Hispanic	12.60	8.89	9.40
		Hispanic	9.25	11.69	15.62
		Other	6.79	5.62	6.29
	Aerobic Physical Activity	Met PA Recommendations	24.11	39.87	51.09
		Insufficient PA	31.72	38.62	37.96
		No PA	44.17	21.51	10.95
2007	Sex	Male	43.33	46.07	49.38
		Female	56.67	53.93	50.62
	Age	18-44 years	17.36	33.72	55.44
		45-64 years	41.88	40.47	30.99
		65+	40.76	25.81	13.56
	Education Level	Didn't graduate HS	17.88	14.03	10.46
		HS Graduate	33.09	31.28	27.96
		Attended College/Technical	27.64	27.18	26.07
		Graduated College/Technical	21.39	27.51	35.51
	Race	White - Non-Hispanic	70.77	74.26	67.75
		Black - Non-Hispanic	12.60	9.12	9.43

		Hispanic	9.77	10.31	15.59
		Other	6.86	6.31	7.22
	Aerobic Physical Activity	Met PA Recommendations	23.89	40.46	51.83
		Insufficient PA	33.13	39.44	37.84
		No PA	42.98	20.11	10.33
2009	Sex	Male	43.70	46.18	49.42
		Female	56.30	53.82	50.58
	Age	18-44 years	17.36	35.04	54.09
		45-64 years	41.81	40.14	31.95
		65+	40.83	24.82	13.96
	Education Level	Didn't graduate HS	16.66	13.61	9.70
		HS Graduate	33.12	30.66	27.30
		Attended College/Technical	28.73	28.19	26.17
		Graduated College/Technical	21.49	27.54	36.83
	Race	White - Non-Hispanic	69.69	72.81	67.22
		Black - Non-Hispanic	13.45	9.82	10.05
		Hispanic	10.34	11.30	15.79
		Other	6.51	6.07	6.93
	Aerobic Physical Activity	Met PA Recommendations	24.27	40.69	52.49
		Insufficient PA	33.24	40.39	37.69
		No PA	42.50	18.92	9.82

Table 3.2: Weighted Percentages Of Respondents Who Met Physical Activity Recommendations By Respondent Characteristic Over Time

		2003 (%)	2005 (%)	2007 (%)	2009 (%)
Sex	Male	48.48	49.92	50.74	51.87
	Female	43.56	46.40	46.61	46.54
Education	Didn't graduate HS	33.48	37.18	38.47	38.57
	HS Graduate	43.24	45.39	45.86	45.97
	Attended College/Technical	48.17	49.59	49.54	50.27
	Graduated College/Technical	51.47	53.48	53.57	53.80
Age	18-44 years	50.91	52.11	53.01	53.54
	45-64 years	42.77	45.98	46.60	47.35
	65+	36.27	39.76	39.33	39.89
Race	White - Non-Hispanic	48.48	50.30	50.89	51.42
	Black - Non-Hispanic	37.66	41.11	41.17	41.52
	Hispanic	39.17	42.65	43.86	44.12
	Other	45.34	46.83	46.02	48.20
Disability Status	Disabled	23.32	24.11	23.89	24.27
	Functionally Limited	40.09	39.87	40.46	40.69
	Able Bodied	48.50	51.09	51.83	52.49

Figure 3.1a: Percentages of Disabled Adults By Age Group And Time

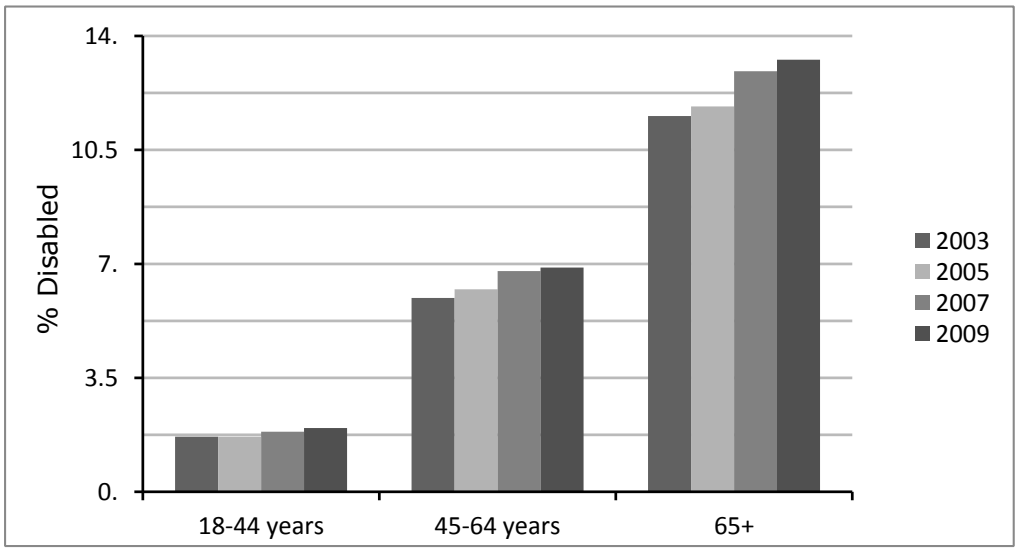


Figure 3.1b: Percentage of Functionally Limited Adults By Age Group And Time

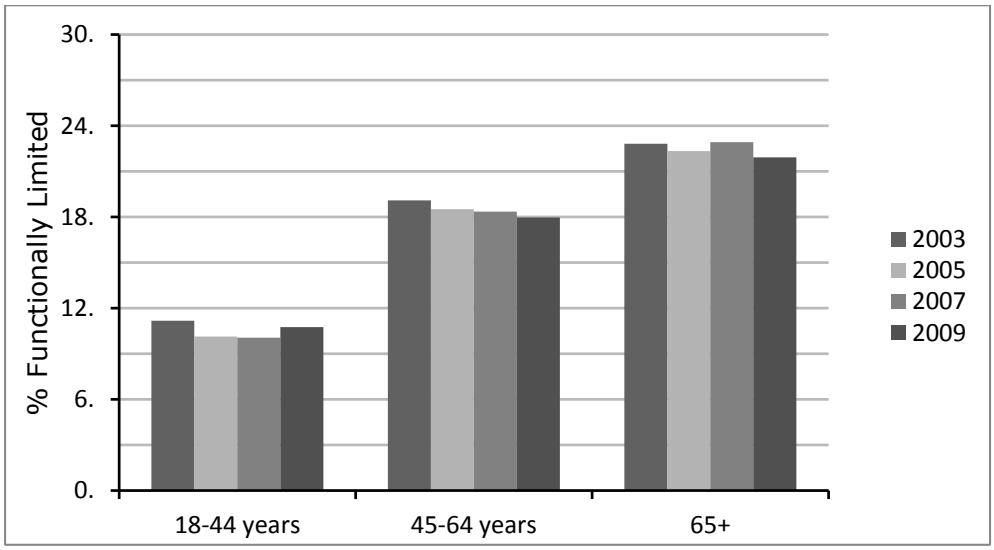
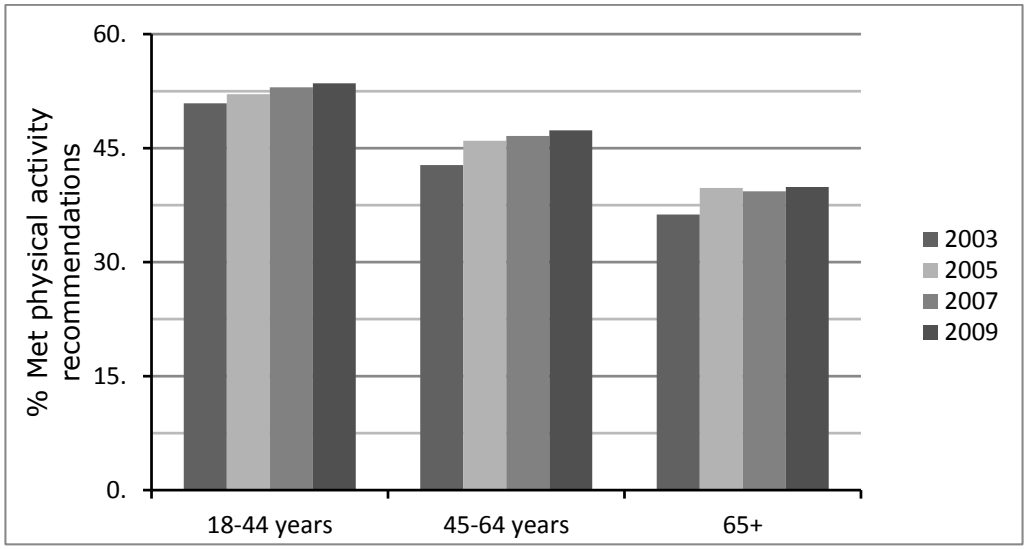


Figure 3.2: Percentage of Adults Who Met Physical Activity Recommendations By Age Group And Time



Appendix A

Literature Review

Introduction

There are between 50 and 60 million individuals living with a disability In the United States ("U.S. Department of Health and Human Services: Office of Disease Prevention and Health Promotion--Healthy People 2010," 2000). Disability is a broad term and can be defined in different ways. The International Classification of Functioning, Disability, and Health (van der Ploeg, van der Beek, van der Woude, & van Mechelen, 2004) of the World Health Organization (WHO) defines disability as being "an interaction between an individual with health conditions, and personal or environmental factors" (Liou, Pi-Sunyer, & Laferrere, 2005; World Health Organization., 2001). Physical limitations affect people with disabilities, limiting work, sports, exercise, or home related activities (Rimmer & Marques, 2012). There is a great deal of concern regarding the levels of physical inactivity in people with disability, which is greater than in the general population (Brand, Alston, & Harley, 2011; Rimmer, 2012).

Research indicated that adults with disability do not meet basic physical activity recommendations (Boslaugh & Andresen, 2006). Inactivity in individuals with disabilities can lead to higher rates of chronic diseases including obesity (Nantel, Mathieu, & Prince, 2011; Zhao, Ford, Li, Crews, & Mokdad, 2009). Conversely, obesity and chronic diseases can also lead to disability and physical inactivity (Nantel, Mathieu, & Prince, 2011; Zhao, Ford, Li, Crews, & Mokdad, 2009). Further, sociodemographic characteristics are associated with a lack of physical activity in those with disability

(Nantel et al., 2011; Zhao et al., 2009). Those with a lower educational attainment and poorer economic status experience worse health outcomes across all levels of the socioeconomic spectrum (Do, 2009). Moreover, with increasing age, the presence of comorbidity is associated with greater burden of difficulties with physical function (Stenholm et al., 2014).

Few reports have examined disability specifically in middle-aged adults in a large, representative national population sample database (Bhattacharya, Choudhry, & Lakdawalla, 2008; Bodde, Seo, & Frey, 2009; Martin, Freedman, Schoeni, & Andreski, 2010; Martin & Schoeni, 2014; Vita, Terry, Hubert, & Fries, 1998). In middle-aged individuals there has been an apparent increase in disability, which is associated with an increase in chronic diseases and musculoskeletal conditions (Martin et al., 2010). Moreover, the interrelationships between disability, physical activity, sociodemographic, and chronic diseases are not well established in the middle-aged population. In this literature review, we evaluated the existing literature that explored new aspects on an important topic.

Disability

Studies using data from the Behavioral Risk Factor Surveillance System (BRFSS) define disability, by asking individuals two questions: “are you limited in any way in any activities because of physical, mental, or emotional problems?” and, “do you now have any health problems that requires you to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone?” Those who answered, “yes”, to both

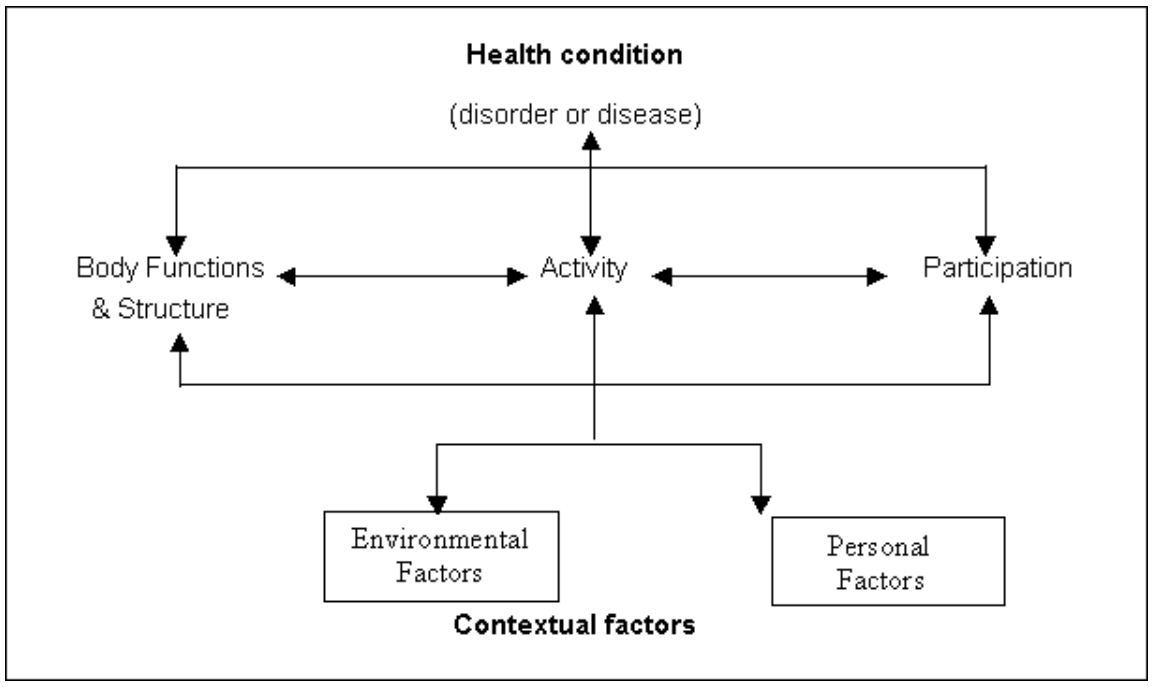
were considered to have a disability. According to the BRFSS in 2009, approximately 30% of adults disclosed activity limitation and about 12% disclosed equipment use (Centers for Disease Control and Prevention, 2009). Assessments of physical disability include activities of daily living (ADLs) and instrumental activities of daily living (IADLs) (Bodde, Seo, & Frey, 2009; Vita, Terry, Hubert, & Fries, 1998). When individuals need assistance with such activities, it signifies the inability to function independently, or dependence on others (Guralnik & Simonsick, 1993; Heath & Fentem, 1997). Although there is a low prevalence of difficulties in performing ADLs in the general population, this is an important marker for in those with disabilities (Guralnik & Simonsick, 1993; Rosenbaum & Stewart, 2004).

The original conceptual framework that helped formulate a definition of disability was the International Classification of Impairments, Disabilities, and Handicaps (ICIDH), published by the World Health Organization (WHO). The ICIDH was a classification tool as a consequence of disease and injury. This framework has a negative portrayal on the terms "disability" or "handicap" (Heath & Fentem, 1997; Rosenbaum & Stewart, 2004). Due to the negative portrayal of disability relayed by the ICIDH definition, WHO revised the ICIDH and it is now called it the International Classification of Functioning, Disability, and Health (ICF), focusing on the aspect of health instead of the consequence of disease (Rosenbaum & Stewart, 2004; World Health Organization., 2001). It includes categories that range across a spectrum of severity and include impairments, physical limitations, and restrictions in participation involving psychological, physiologic, or anatomic function loss or abnormality (Liou et al., 2005; World Health Organization., 2001). Disabilities are a result of the individual's health condition and his/her physical,

social, and/or cultural environment (van der Ploeg et al., 2004; World Health Organization., 2001). The ICF has greatly expanded the understanding of disability and has aided in defining the many factors that contribute to disability including activity limitations, impairments, environmental factors, personal factors, participation restrictions (Adams Adams PF, Kirzinger WK, Martinez M, 2013)

Van der Ploeg et al created a physical activity model for people with a Disability (PAD) using the WHO ICF model (see below) (van der Ploeg et al., 2004).

Figure A-1: World Health Organization International Classification of Functioning, Disability, and Health



Adapted from (UN World Health Organization (WHO), 2011)

Role of Age and Disability

Middle-aged individuals often encounter disability as the result of one or more chronic diseases (Zhao et al., 2009) . Martin et al (2010, 2014) examined the trends in disability of middle-aged adults between the ages of 50 and 64 using the National Health Interview Survey (NHIS). The authors found that musculoskeletal conditions and chronic diseases, such as arthritis, heart problems, diabetes, and back/neck problems were associated with disability in this age group (Martin et al., 2010; Martin & Schoeni, 2014). Furthermore, they found that trends of an increase in functional limitation in middle-aged where in older adults there was a plateau in all limitations (Martin et al., 2010; Martin & Schoeni, 2014). This research was the first to focus on the middle-aged population and identify disability as concern in this age group. Furthermore, in 2013 via the National Center for Health Statistics, adults between ages of 45 and 64 years and those between 65 and 69 years were approximately three times more likely to be unable to work because of health problems than those adults between 18-44 years (Adams, Kirzinger, & Martinez, 2013).

Obesity is an important contributor to the increasing prevalence of disability in the middle-age population (Bhattacharya et al., 2008; Martin et al., 2010). Bhattacharya et al (2008) evaluated trends in those with disability and chronic diseases in working-age individuals and concluded that there should be a focus on reducing obesity prevalence and limiting disability in chronically ill middle-age working class adults as this would lower disability rates in the older adult population (Bhattacharya et al., 2008). Klijs et al found that those individuals ages 55 and older with musculoskeletal disease presented the greatest amount of burden of disability, with cardiovascular diseases coming in second

(Klijs, Nusselder, Looman, & Mackenbach, 2011). Vita et al (1998) evaluated a group of individuals in 1962 and followed up in 1986 and discovered that those with less health risk factors have less lifetime disability as well as less disability at any age (Vita et al., 1998). Seeman et al showed that the rate of disability increases with age (Seeman, Merkin, Crimmins, & Karlamangla, 2010). All of the aforementioned studies support the importance of addressing factors that may d lead to physical limitations when old at an earlier stage in life. Further, Riebe et al (2009) showed that in older adults, obesity was associated with lower levels of physical activity and physical function. However, individuals who were physically active in all BMI categories were less likely to have abnormal physical function scores compared to those who were sedentary (Riebe et al., 2009). Thus the importance of staving off disability no matter one's current state of chronic health is imperative.

Chronic Diseases and Disability

As chronic disease (s) progresses, physical function is often impaired which can lead to a loss of independence. Sarcopenia (loss of muscle mass and strength) is attributed to the loss of muscle mass and function that accompany most chronic diseases (Scott, Blizzard, Fell, & Jones, 2011), and sarcopenia further contributes to the development of disability. Further, chronic diseases are common in persons with disabilities (Kinne, Patrick, & Doyle, 2004), and can have an additive effect upon impairment and functional limitations. Effects of chronic diseases and physiological changes on individuals' function have been shown to influence a person's quality of life

(Guralnik, J.M, LaCroi A.Z., Abbott, R.D., Berkman, L.F., Satterfield, S., Evans, D.A., Wallace, R.B., 1993; Wang, 2002). Bhattacharya et al (2008) found increasing trends in those with disability and chronic diseases among working-age individuals. They concluded that awareness is necessary in preventing disability in the working-age population by decreasing obesity and reducing chronic diseases (Bhattacharya et al., 2008).

The chronic diseases that will be referenced in this review are arthritis, diabetes, obesity, asthma, coronary artery diseases, and stroke. These were chosen because they are the most common chronic diseases in the U.S. and each one is related to disability in one way or another.

Arthritis

Arthritis occurs when the joint is inflamed. It is a term that is used to describe rheumatic diseases and conditions that affect the tissue surrounding the connective tissue and joints (Center for Disease Control and Prevention, 2012a). It is the leading cause of physical limitations. Obesity increases the risk of disability in those with arthritis (McNeil, Binette, & CDC, 2001; Okoro, Hootman, Strine, Balluz, & Mokdad, 2004). Disability prevalence increases with age, normally starting at age 50 (Litwic, Edwards, Dennison, & Cooper, 2013). Arthritis, specifically knee and hip osteoarthritis, has been shown to have the greatest burden due to stiffness and pain, which often leads to disability. With the increase of inactivity, due to pain and stiffness, it has been linked to muscle atrophy and weakness (Litwic et al., 2013). However, physical activity has shown to decrease symptoms including pain, improve mood, functional ability, and quality of

life in people with arthritis. The 2008 Physical Activity Guidelines issued guidelines appropriate for all people and abilities including those with chronic diseases (U.S. Department of Health and Human Services, Public Health Service, & Centers for Disease, 2008).

Diabetes Mellitus

Diabetes Mellitus is a disease where the pancreas does not make insulin or cannot use its own insulin as it should (Center for Disease Control and Prevention, 2012b). It is the second most common cause of disability due to complications associated with the disease (Center for Disease Control and Prevention, 2012b). These complications can involve amputations, renal failure, neuropathies, visual impairments, or obesity (Rimmer, Braddock, & Pitetti, 1996). Physical activity impairments in individuals with type 2 diabetes are associated with diabetic complications as well as common comorbidities (Bruce, Davis, & Davis, 2005). Moreover, limitations or impairments in physical activity, as simple as performing ADL's, can lead to low levels of physical activity, which could cause a vicious cycle to a decline in strength and functional capacity (Gretebeck, Ferraro, Black, Holland, & Gretebeck, 2012).

Asthma

The burden of asthma is influenced by assessment of activity limitations, such that the more burden, the more limitation an individual experiences (Fuhlbrigge et al., 2002). According to the World Health Organization (WHO), asthma has been evaluated

according to its impact on quality of life, such as the years of life lost to disability adding to the years of life lost to premature death. Persons with uncontrolled asthma have higher risk for limitations including outdoor activity, physical activity, and daily activity compared with patients with controlled asthma. Asthma management should include routine assessment of activity limitations care for comorbid conditions (Haselkorn et al., 2010).

Cardiovascular Diseases

Stroke and coronary heart disease are two cardiovascular diseases (CVD) that are important cause of disability in adults (Rimmer & Wang, 2005). CVDs associated with functional limitations and disability increase with age (den Ouden et al., 2013; Guccione et al., 1994). Stroke and other cardiac events, such as a myocardial infarction or bypass surgery, negatively affect regular daily routines as well as physical functioning, limiting activity levels. With a reduction in physical functioning after a stroke and coronary event, there is a loss of strength, which could possibly lead to early sarcopenia and a significant decrease in ADLs and IADLs (Abellan van Kan, 2009; Rimmer & Wang, 2005).

Sociodemographics and Disability and Physical Activity

There are three key components to socioeconomic status (SES): income, education, and employment status. SES has been linked to mortality rates both on

collective level as well as on the individual level, implying that those in lower SES have a higher incidence of all-cause mortality (Adler, Boyce, Chesney, Folkman, & Syme, 1993). A longitudinal study by Breeze et al found that those in lower hierarchy of employment in middle age had four times the odds of poor physical performance in old age. They concluded that low SES in middle age and at retirement age is associated with morbidity in old age (Breeze et al., 2001).

There have been studies that examine of the aspects of SES including environment, neighborhoods, and race in individuals with disability. Race/ethnicity and environmental factors may limit access to physical activity, especially in individuals with disability (Brand et al., 2011; Rimmer, Nicola, Riley, & Creviston, 2002; Rimmer, Riley, Wang, Rauworth, & Jurkowski, 2004). People who live in low income neighborhoods are more often racial/ethnic minorities with a lower health status than whites (Brand et al., 2011; Do, 2009). Fuller-Thompson et al (2009) found that there was a large racial divide in the rates of functional and ADL limitations in individuals with disabilities, which was mostly due to education and lower poverty levels (Fuller-Thomson, Nuru-Jeter, Minkler, & Guralnik, 2009). Further, Majer et al found that those with higher education levels lived longer and were free of disability longer compared to those with lower education levels when evaluating socioeconomic inequalities and health expectancies around retirement age (Majer, Nusselder, Mackenbach, & Kunst, 2011). Individuals with a lower SES and those who are disabled have higher rates physical inactivity than the general population (Rimmer et al., 2002; Schmitz et al., 2009; Brand et. al., 2011). It is important for these individuals with disabilities to be physical activity

and have opportunities for physical activity to be incorporated into their environment to improve overall health (Brand et al., 2011; Fuller-Thomson et al., 2009; Rimmer & Marques, 2012).

Physical Activity and Disability

Physical activity is defined as the bodily movement that activates skeletal muscles, resulting in an increase above resting energy expenditure ((*ACSM's Guidelines for Exercise Testing and Prescription* 2010; U.S. Department of Health and Human Services et al., 2008). Physical inactivity has become a burden for public health (van der Ploeg et al., 2004). Poor physical function and disability is associated with low muscle mass, an increase in fat within the muscle, and a decrease in muscle strength (Visser et al., 2005). There are numerous studies showing the benefits of physical activity. According to the Center for Disease Control, under 30% of the general population of adults attain the recommended amounts of physical activity (Center for Disease Control and Prevention, 2010). More than half of people with disabilities, according to Health People 2010 and 2020, fail to engage in any type of leisure-time physical activity (Rimmer et al., 2004; U.S. Department of Health and Human Services, 2012). For those who were in a rehabilitative program, the inactivity begins after the program has ended and usually not replace with a self-initiated program (van der Ploeg et al., 2004). Although there is concern about the lack of physical activity in the general population, the lack of activity in people with disabilities is even more troubling.

The Healthy People 2010 documented that people with disabilities compared to those without disability have a higher prevalence of physical inactivity (Santiago & Coyle, 2004).

The lack of physical activity can lead to a chronic diseases which can further lead to everyday functional limitations or disability (van der Ploeg et al., 2004). Individuals with disabilities expend more energy in the activities that they do on a daily basis. Due to a possible loss in muscle mass, there is an increase in metabolic cost (Heath & Fentem, 1997). Gretebeck and colleagues observed the protective effect of physical activity on those with disability using a prospective longitudinal study. They found that there were less functional limitations in those individuals that participated in some form of physical activity, which was consistent with other studies (Gretebeck et al., 2012).

Chakravarty et al (2008) evaluated a group of 50 year old and older individuals who were runners compared with age-matched controls from 1984 to 2005 and concluded that that moderate and vigorous running is associated with decrease in disability in middle and older adults (Chakravarty, Hubert, Lingala, & Fries, 2008). According to Brown et al, using the BRFSS in 2001, all people 50 years and older, with and without disability, should get the recommended amount of physical activity, but it is more important to get some type of physical activity in, even if it does not meet the recommended amount (Brown, Yore, Ham, & Macera, 2005).

Physical Activity and the Impact on Disability

Health promotion efforts to promote physical activity and prevent chronic diseases have been evaluated by Rimmer et al in several papers (Rimmer, 1999; Rimmer & Braddock, 2002; Rimmer & Rowland, 2008) where chronic diseases are not always a cause of the disability but a result of later lifestyle change as a result of the disability, which also includes weight gain, fatigue, depression, etc. (Rimmer & Rowland, 2008). By educating health professionals about the benefits of physical activity for people with a disability and increasing access to facilities could help this population how and decrease the prevalence of some of the chronic diseases.

Conclusion

Data on physical activity and disability has been studied mostly in older adults, including those with chronic diseases and/or in lower SES. It has been shown that there are many factors that affect disability. There are limited data on physical activity and disability in middle-age adults. With the information available, there is only a small amount to allow for exploration of the underlying issues that can be observed with this population (Bhattacharya et al., 2008; Martin et al., 2010). By using the BRFSS and by examining trends and interrelationships, which have not been observed, possibly there could be a better understanding on how to address the linkages between all of these variables and aid in addressing the issues in a more productive method.

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Appendix B

IRB Approval

TEACHERS COLLEGE
COLUMBIA UNIVERSITY
OFFICE OF SPONSORED PROGRAMS

Institutional Review Board

August 14, 2013

Shirit Rosenberg
354 West 110th Street Apt. 1A
New York, NY 10025

Dear Shirit,

Thank you for submitting your study entitled, "*Disability, Physical Activity, and Chronic Disease in Middle-Aged and Older Adults;*" the IRB has determined that your study is **Exempt** from committee review **[Category 4]**.

Please keep in mind that the IRB Committee must be contacted if there are any changes to your research protocol. The number assigned to your protocol is **13-384**. Feel free to contact the IRB Office [212-678-4105 or hersch@tc.edu] if you have any questions.

Best wishes for your research work.

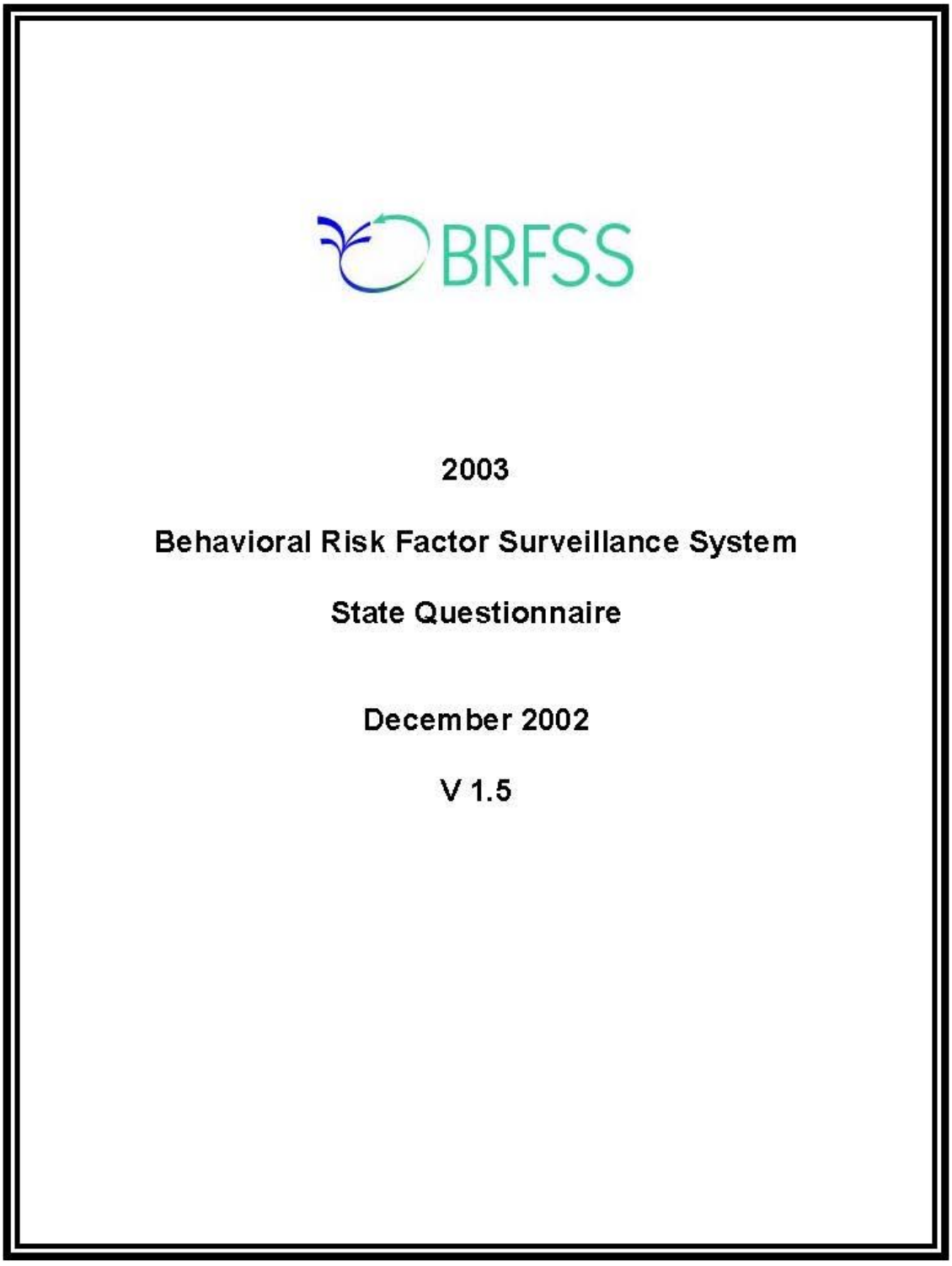
Sincerely,

Karen Froud, Ph.D.
Associate Professor of Speech and Language Pathology
Chair, IRB

cc: File, OSP

Appendix C

BRFSS Questionnaires


BRFSS
2003
Behavioral Risk Factor Surveillance System
State Questionnaire
December 2002
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Behavioral Risk Factor Surveillance System
State Questionnaire

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Interviewer's Script

Interviewer's Script from Field Test

HELLO, I'm calling for the **(health department)** and the Centers for Disease Control and Prevention. My name is **(name)**. We're gathering information on the health of **(state)** residents. Your telephone number has been chosen randomly, and I'd like to ask some questions about health and health practices.

Is this **(phone number)** ?

If "no," please read:
Thank you very much, but I seem to have dialed the wrong number. It's possible that your number may be called at a later time. **Stop**

Is this a private residence?

If "no," please read:
Thank you very much, but we are only interviewing private residences. **Stop**

I need to randomly select one adult who lives in your household to be interviewed. How many members of your household, including yourself, are 18 years of age or older?

__ Number of adults

If "1," please read:
Are you the adult?

If "yes," please read:
Then you are the person I need to speak with. Enter 1 man or 1 woman below (Ask gender if necessary). **Go to page 5.**

If "no," please read:
Is the adult a man or a woman? Enter 1 man or 1 woman below. May I speak with **[fill in (him/her) from previous question]**? **Go to "correct respondent" on the next page.**

How many of these adults are men and how many are women?

__ Number of men

__ Number of women

The person in your household that I need to speak with is _____.

If **"you,"** go to page 5

To the correct respondent:

HELLO, I'm calling for the **(health department)** and the Centers for Disease Control and Prevention. My name is **(name)**. We're gathering information on the health of **(state)** residents. You have been chosen randomly to be interviewed, and I'd like to ask some questions about health and health practices.

I won't ask for your name, address, or other personal information that can identify you. You don't have to answer any question you don't want to, and you can end the interview at any time. The interview takes a short time and any information you provide will be confidential. If you have any questions about this survey, I will provide a telephone number for you to call to get more information.

BRFSS

Core Sections

Section 1: Health Status

1.1 Would you say that in general your health is— (73)

Please read:

1 Excellent
2 Very good
3 Good
4 Fair

Or

5 Poor

Do not read:

7 Don't know / Not sure
9 Refused

1.2 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? (74-75)

__ __ Number of days
8 8 None
7 7 Don't know / Not sure
9 9 Refused

1.3 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? (76-77)

__ __ Number of days
8 8 None **[If Q1.2 also "None," go to Q2.1]**
7 7 Don't know / Not sure
9 9 Refused

1.4 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? (78-79)

__ __ Number of days
8 8 None
7 7 Don't know / Not sure
9 9 Refused

Section 2: Health Care Access

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

(80)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

2.2 Do you have one person you think of as your personal doctor or health care provider?

If "No," ask: "Is there more than one or is there no person who you think of?"

(81)

1 Yes, only one
2 More than one
3 No
7 Don't know / Not sure
9 Refused

2.3 Was there a time in the past 12 months when you needed to see a doctor but could not because of the cost?

(82)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 3: Exercise

3.1 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?

(83)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 4: Diabetes

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

If "Yes" and respondent is female, ask: "Was this only when you were pregnant?"
(84)

1 Yes
2 Yes, but female told only during pregnancy
3 No
7 Don't know / Not sure
9 Refused

Section 5: Hypertension Awareness

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

If "Yes" and respondent is female, ask: "Was this only when you were pregnant?"
(85)

1 Yes
2 Yes, but female told only during pregnancy **[Go to next section]**
3 No **[Go to next section]**
7 Don't know / Not sure **[Go to next section]**
9 Refused **[Go to next section]**

5.2 Are you currently taking medicine for your high blood pressure?
(86)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 6: Cholesterol Awareness

6.1 Blood cholesterol is a fatty substance found in the blood. Have you ever had your blood cholesterol checked?
(87)

1 Yes
2 No **[Go to next section]**
7 Don't know / Not sure **[Go to next section]**
9 Refused **[Go to next section]**

6.2 About how long has it been since you last had your blood cholesterol checked? (88)

Read only if necessary:

1 Within the past year (anytime less than 12 months ago)
2 Within the past 2 years (1 year but less than 2 years ago)
3 Within the past 5 years (2 years but less than 5 years ago)
4 5 or more years ago
7 Don't know / Not sure
9 Refused

6.3 Have you ever been told by a doctor, nurse, or other health professional that your blood cholesterol is high? (89)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 7: Fruits and Vegetables

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.

7.1 How often do you drink fruit juices such as orange, grapefruit, or tomato? (90-92)

1__ __ Per day
2__ __ Per week
3__ __ Per month
4__ __ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

7.2 Not counting juice, how often do you eat fruit? (93-95)

1__ __ Per day
2__ __ Per week
3__ __ Per month
4__ __ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

7.3 How often do you eat green salad?

(96-98)

1__ __ Per day
2__ __ Per week
3__ __ Per month
4__ __ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

7.4 How often do you eat potatoes not including french fries, fried potatoes, or potato chips?

(99-101)

1__ __ Per day
2__ __ Per week
3__ __ Per month
4__ __ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

7.5 How often do you eat carrots?

(102-104)

1__ __ Per day
2__ __ Per week
3__ __ Per month
4__ __ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

7.6 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.)

(105-107)

1__ __ Per day
2__ __ Per week
3__ __ Per month
4__ __ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

Section 8: Weight Control

8.1 Are you now trying to lose weight? (108)

1 Yes **[Go to Q8.3]**
2 No
7 Don't know / Not sure
9 Refused

8.2 Are you now trying to maintain your current weight, that is, to keep from gaining weight? (109)

1 Yes
2 No **[Go to Q8.5]**
7 Don't know / Not sure **[Go to Q8.5]**
9 Refused **[Go to Q8.5]**

8.3 Are you eating either fewer calories or less fat to... (110)

lose weight? **[if "Yes" to Q8.1]**

keep from gaining weight? **[If "Yes", to Q8.2]**

Probe for which:

1 Yes, fewer calories
2 Yes, less fat
3 Yes, fewer calories and less fat
4 No
7 Don't know / Not sure
9 Refused

8.4 Are you using physical activity or exercise to ... (111)

lose weight? **[If "Yes" to Q8.1]**

keep from gaining weight? **[If "Yes" to Q8.2]**

1 Yes
2 No
7 Don't know / Not sure
9 Refused

8.5 In the past 12 months, has a doctor, nurse or other health professional given you advice about your weight?

Probe for which:

(112)

1 Yes, lose weight
2 Yes, gain weight
3 Yes, maintain current weight
4 No
7 Don't know / Not sure
9 Refused

Section 9: Asthma

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

(113)

1 Yes
2 No **[Go to next section]**
7 Don't know / Not sure **[Go to next section]**
9 Refused **[Go to next section]**

9.2 Do you still have asthma?

(114)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 10: Immunization

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

(115)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

10.2 Have you ever had a pneumonia shot? This shot is usually given only once or twice in a person's lifetime and is different from the flu shot. It is also called the pneumococcal vaccine.

(116)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 11: Tobacco Use

11.1 Have you smoked at least 100 cigarettes in your entire life? (117)

NOTE: 5 packs = 100 cigarettes

1 Yes
2 No **[Go to next section]**
7 Don't know / Not sure **[Go to next section]**
9 Refused **[Go to next section]**

11.2 Do you now smoke cigarettes every day, some days, or not at all? (118)

1 Everyday
2 Some days
3 Not at all **[Go to next section]**
9 Refused **[Go to next section]**

11.3 During the past 12 months, have you stopped smoking for one day or longer because you were trying to quit smoking? (119)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 12: Alcohol Consumption

12.1 A drink of alcohol is 1 can or bottle of beer, 1 glass of wine, 1 can or bottle of wine cooler, 1 cocktail, or 1 shot of liquor. During the past 30 days, how many days per week or per month did you have at least one drink of any alcoholic beverage? (120-122)

1__ __ Days per week
2__ __ Days in past 30
8 8 8 No drinks in past 30 days **[Go to next section]**
7 7 7 Don't know / Not sure
9 9 9 Refused **[Go to next section]**

12.2 On the days when you drank, about how many drinks did you drink on average? (123-124)

__ __ Number of drinks
7 7 Don't know / Not sure
9 9 Refused

12.3 Considering all types of alcoholic beverages, how many times during the past 30 days did you have 5 or more drinks on an occasion?

(125-126)

__ __	Number of times	
8 8	None	
7 7	Don't know / Not sure	
9 9	Refused	

Section 13: Excess Sun Exposure

The next question is about sunburns, including any time that even a small part of your skin was red for more than 12 hours.

13.1 Have you had a sunburn within the past 12 months?

(127)

1	Yes	
2	No	**[Go to next section]**
7	Don't know / Not Sure	**[Go to next section]**
9	Refused	**[Go to next section]**

13.2 Including times when even a small part of your skin was red for more than 12 hours, how many sunburns have you had within the past 12 months?

(128)

1	One
2	Two
3	Three
4	Four
5	Five
6	Six or more
7	Don't know / Not sure
9	Refused

Section 14: Demographics

14.1 What is your age?

(129-130)

__ __	Code age in years
0 7	Don't know / Not sure
0 9	Refused

14.2 Are you Hispanic or Latino? (131)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

14.3 Which one or more of the following would you say is your race? (132-137)

(Check all that apply)

Please read:

1 White
2 Black or African American
3 Asian
4 Native Hawaiian or Other Pacific Islander
5 American Indian, Alaska Native

Or

6 Other [specify]_____

Do not read:

8 No Additional choices
7 Don't know / Not sure
9 Refused

If more than one response to Q14.3, continue. Otherwise, go to Q14.5

14.4 Which one of these groups would you say best represents your race? (138)

1 White
2 Black or African American
3 Asian
4 Native Hawaiian or Other Pacific Islander
5 American Indian or Alaska Native
6 Other [specify]_____
7 Don't know / Not sure
9 Refused

14.5 Are you...? (139)

Please read:

1 Married
2 Divorced
3 Widowed
4 Separated
5 Never married

Or

6 A member of an unmarried couple

Do not read:

9 Refused

14.6 How many children less than 18 years of age live in your household? (140-141)

__ __ Number of children
8 8 None
9 9 Refused

14.7 What is the highest grade or year of school you completed? (142)

Read only if necessary:

1 Never attended school or only attended kindergarten
2 Grades 1 through 8 (Elementary)
3 Grades 9 through 11 (Some high school)
4 Grade 12 or GED (High school graduate)
5 College 1 year to 3 years (Some college or technical school)
6 College 4 years or more (College graduate)
9 Refused

14.8 Are you currently...?

(143)

Please read:

1 Employed for wages
2 Self-employed
3 Out of work for more than 1 year
4 Out of work for less than 1 year
5 A Homemaker
6 A Student
7 Retired

Or

8 Unable to work

Do not read:

9 Refused

14.9 Is your annual household income from all sources—

(144-145)

If respondent refuses at ANY income level, code '99 Refused'

Read as appropriate:

04 Less than $25,000 **If "no," ask 05; if "yes," ask 03**
($20,000 to less than $25,000)

03 Less than $20,000 **If "no," code 04; if "yes," ask 02**
($15,000 to less than $20,000)

02 Less than $15,000 **If "no," code 03; if "yes," ask 01**
($10,000 to less than $15,000)

01 Less than $10,000 **If "no," code 02**

05 Less than $35,000 **If "no," ask 06**
($25,000 to less than $35,000)

06 Less than $50,000 **If "no," ask 07**
($35,000 to less than $50,000)

07 Less than $75,000 **If "no," code 08**
($50,000 to less than $75,000)

08 $75,000 or more

Do not read:

77 Don't know / Not sure
99 Refused

14.10 About how much do you weigh without shoes? (146-148)

Round fractions up

__ __ __ Weight
pounds
7 7 7 Don't know / Not sure
9 9 9 Refused

14.11 How much would you like to weigh? (149-151)

__ __ __ Weight
pounds
7 7 7 Don't know / Not sure
9 9 9 Refused

14.12 About how tall are you without shoes? (152-154)

Round fractions down

__/__ __ Height
ft / inches
7 7 7 Don't know / Not sure
9 9 9 Refused

14.13 What county do you live in? (155-157)

__ __ __ FIPS county code
7 7 7 Don't know / Not sure
9 9 9 Refused

14.14 Do you have more than one telephone number in your household? Do not include cell phones or numbers that are only used by a computer or fax machine. (158)

1 Yes
2 No **[Go to Q14.16]**
7 Don't know / Not sure **[Go to Q14.16]**
9 Refused **[Go to Q14.16]**

14.15 How many of these telephone numbers are residential numbers? (159)

__ Residential telephone numbers **[6=6 or more]**
7 Don't know / Not sure
9 Refused

14.16 During the past 12 months, has your household been without telephone service for 1 week or more?

(160)

Do not include interruptions of telephone service because of weather or natural disasters.

1 Yes
2 No
7 Don't know / Not sure
9 Refused

14.17 Indicate sex of respondent. Ask only if necessary.

(161)

1 Male **[Go to next section]**
2 Female

If respondent 45 years old or older, go to next section.

14.18 To your knowledge, are you now pregnant?

(162)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 15: Arthritis

The next questions refer to your joints. Please do **NOT** include the back or neck.

15.1 **During the past 30 days**, have you had any symptoms of pain, aching, or stiffness in or around a joint? (163)

1	Yes	
2	No	**[Go to Q15.4]**
7	Don't Know / Not Sure	**[Go to Q15.4]**
9	Refused	**[Go to Q15.4]**

15.2 Did your joint symptoms **first** begin more than 3 months ago? (164)

1	Yes	
2	No	**[Go to Q15.4]**
7	Don't Know / Not Sure	**[Go to Q15.4]**
9	Refused	**[Go to Q15.4]**

15.3 Have you **ever** seen a doctor or other health professional for these joint symptoms? (165)

1 Yes
2 No
7 Don't Know / Not Sure
9 Refused

15.4 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? (166)

1 Yes
2 No
7 Don't Know / Not Sure
9 Refused

Interviewer note: Arthritis diagnoses include the following:

- **rheumatism, polymyalgia rheumatica**
- **osteoarthritis (not osteoporosis)**
- **tendonitis, bursitis, bunion, tennis elbow**
- **carpal tunnel syndrome, tarsal tunnel syndrome**
- **joint infection, Reiter's syndrome**
- **ankylosing spondylitis; spondylosis**
- **rotator cuff syndrome**
- **connective tissue disease, scleroderma, polymyositis, Raynaud's syndrome**
- **vasculitis (giant cell arteritis, Henoch-Schonlein purpura, Wegener's granulomatosis, polyarteritis nodosa)**

If either Q15.2 = 1 or Q15.4 = 1 then continue. Otherwise, go to next section.

15.5 Are you now limited in any way in any of your usual activities because of arthritis or joint symptoms?

(167)

1 Yes
2 No
7 Don't Know / Not Sure
9 Refused

If a respondent question arises about medication, then the interviewer should reply:

"Please answer the question based on how you are when you are taking any of the medications or treatments you might use."

If age is between 18–64 continue. Otherwise, go to next section.

15.6 In this next question we are referring to work for pay. Do arthritis or joint symptoms now affect whether you work, the type of work you do, or the amount of work you do?

(168)

If respondent says he/she is retired or out-of-work, reply: "Did arthritis or joint symptoms cause you to stop working? That is, did it affect whether you work or not?"

1 Yes
2 No
7 Don't Know / Not Sure
9 Refused

Section 16: Falls

This section is to be asked only of people 45 years or older.

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

16.1 In the past 3 months, have you had a fall?

(169)

1 Yes
2 No **[Go to next section]**
7 Don't know / Not sure **[Go to next section]**
9 Refused **[Go to next section]**

16.2 Were you injured? By injured, we mean the fall caused you to limit your regular activities for at least a day or to go see a doctor.

(170)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 17: Disability

The following questions are about health problems or impairments you may have.

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

(171)

1 Yes
2 No
7 Don't know / Not Sure
9 Refused

17.2 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?

(172)

Include occasional use or use in certain circumstances.

1 Yes
2 No
7 Don't know / Not Sure
9 Refused

Section 18: Physical Activity

If "employed" or "self-employed" to core Q14.8 continue. Otherwise, go to Q18.2.

18.1 When you are at work, which of the following best describes what you do? Would you say?

(173)

If respondent has multiple jobs, include all jobs.

Please read:

1 Mostly sitting or standing
2 Mostly walking

Or

3 Mostly heavy labor or physically demanding work

Do not read:

7 Don't know / Not sure
9 Refused

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.

18.2 Now, thinking about the moderate activities you do **[fill in "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?

(174)

1	Yes	
2	No	**[Go to Q18.5]**
7	Don't know / Not sure	**[Go to Q18.5]**
9	Refused	**[Go to Q18.5]**

18.3 How many days per week do you do these moderate activities for at least 10 minutes?

(175-176)

__ __	Days per week	
7 7	Don't know / Not sure	**[Go to Q18.5]**
8 8	Do not do any moderate physical activity for at least 10 minutes at a time	**[Go to Q18.5]**
9 9	Refused	**[Go to Q18.5]**

18.4 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?

(177-179)

__:__ __ Hours and minutes per day
7 7 7 Don't know / Not sure
9 9 9 Refused

18.5 Now, thinking about the vigorous activities you do **[fill in "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?

(180)

1 Yes
2 No **[Go to next section]**
7 Don't know / Not sure **[Go to next section]**
9 Refused **[Go to next section]**

18.6 How many days per week do you do these vigorous activities for at least 10 minutes at a time?

(181-182)

__ __ Days per week
7 7 Don't know / Not sure **[Go to next section]**
8 8 Do not do any vigorous physical activity for at least 10 minutes at a time **[Go to next section]**
9 9 Refused **[Go to next section]**

18.7 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?

(183-185)

__:__ __ Hours and minutes per day
7 7 7 Don't know / Not sure
9 9 9 Refused

Section 19: Veteran's Status

The next question relates to military service in the United States Armed Forces, either in the regular military or in a National Guard or Reserve unit.

19.1 Have you ever served on active duty in the United States Armed Forces, either in the regular military or in a National Guard or military reserve unit?

(186)

1 Yes
2 No **[Go to next section]**
7 Don't know / Not sure **[Go to next section]**
9 Refused **[Go to next section]**

19.2 Which of the following best describes your service in the United States military?

(187)

Please read:

1	Currently on active duty	**[Go to next section]**
2	Currently in a National Guard or Reserve unit	**[Go to next section]**
3	Retired from military service	
4	Medically discharged from military service	
5	Discharged from military service	

Do not read:

7	Don't know / Not sure	**[Go to next section]**
9	Refused	**[Go to next section]**

19.3 In the last 12 months have you received some or all of your health care from VA facilities?

(188)

If "yes" probe for "all" or "some" of the health care.

1	Yes, all of my health care
2	Yes, some of my health care
3	No, no VA health care received
7	Don't know / Not sure
9	Refused

Section 20: HIV/AIDS

If respondent is 65 years old or older, go to next section.

The next few questions are about the national health problem of HIV, the virus that causes AIDS. Please remember that your answers are strictly confidential and that you don't have to answer every question if you don't want to.

I'm going to read two statements about HIV, the virus that causes AIDS. After I read each one, please tell me whether you think it is true or false, or if you don't know.

20.1 A pregnant woman with HIV can get treatment to help reduce the chances that she will pass the virus on to her baby.

(189)

1	True
2	False
7	Don't know / Not Sure
9	Refused

20.2 There are medical treatments available that are intended to help a person who is infected with HIV to live longer. (190)

1 True
2 False
7 Don't know / Not Sure
9 Refused

20.3 How important do you think it is for people to know their HIV status by getting tested? (191)

Please read:

Would you say...?

1 Very important
2 Somewhat important

Or

3 Not at all important

Do not read:

8 Depends on risk
7 Don't know / Not sure
9 Refused

20.4 Have you ever been tested for HIV? Do not count tests you may have had as part of a blood donation. (192)

Include saliva tests.

1	Yes	
2	No	**[Go to Q20.8]**
7	Don't know / Not Sure	**[Go to Q20.8]**
9	Refused	**[Go to 20.8]**

20.5 Not including blood donations, in what month and year was your last HIV test? (193-198)

NOTE: If response is before January 1985, code "Don't know."

__ __ / __ __ __ __	Code month and year
7 7 / 7 7 7 7	Don't know / Not sure
9 9 / 9 9 9 9	Refused

20.6 I am going to read you a list of reasons why some people have been tested for HIV. Not including blood donations, which of these would you say was the MAIN reason for your last HIV test?

(199-200)

Please read:

__ __ Reason code
01 It was required
02 Someone suggested you should be tested
03 You thought you may have gotten HIV through sex or drug use
04 You just wanted to find out whether you had HIV
05 You were worried that you could give HIV to someone
06 **IF FEMALE:** You were pregnant
07 It was done as a part of a routine medical check-up
08 Or you were tested for some other reason

Do not read:

77 Don't know / Not sure
99 Refused

20.7 Where did you have your last HIV test, at a private doctor or HMO office, at a counseling and testing site, at a hospital, at a clinic, in a jail or prison, at home, or somewhere else?

(201-202)

__ __ Facility code
01 Private doctor or HMO
02 Counseling and testing site
03 Hospital
04 Clinic
05 In a jail or prison (or other correctional facility)
06 Home
07 Somewhere else
77 Don't know / Not sure
99 Refused

20.8 I'm going to read you a list. When I'm done, please tell me if any of the situations apply to you. You don't need to tell me which one.

(203)

- You have used intravenous drugs in the past year
- You have been treated for a sexually transmitted or venereal disease in the past year
- You have given or received money or drugs in exchange for sex in the past year
- You had anal sex without a condom in the past year

Do any of these situations apply to you?

1 Yes
2 No
7 Don't know / Not Sure
9 Refused

The next question is about sexually transmitted diseases other than HIV, such as syphilis, gonorrhea, chlamydia, or genital herpes.

20.9 In the past 12 months has a doctor, nurse, or other health professional talked to you about preventing sexually transmitted diseases through condom use?

(204)

1 Yes
2 No
7 Don't know / Not Sure
9 Refused

Closing Statement

Please read:

That's my last question. Everyone's answers will be combined to give us information about the health practices of people in this state. Thank you very much for your time and cooperation.

Or

Transition to Modules and/or State-Added Questions.

2005

Behavioral Risk Factor Surveillance System

Questionnaire

September 2, 2005

Behavioral Risk Factor Surveillance System
2005 Questionnaire

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Interviewer's Script

HELLO, I am calling for the **(health department)** . My name is **(name)** . We are gathering information about the health of **(state)** residents. This project is conducted by the health department with assistance from the Centers for Disease Control and Prevention. Your telephone number has been chosen randomly, and I would like to ask some questions about health and health practices.

Is this **(phone number)** ?

If "no,"
Thank you very much, but I seem to have dialed the wrong number. It's possible that your number may be called at a later time. **STOP**

Is this a private residence?

If "no,"
Thank you very much, but we are only interviewing private residences. **STOP**

Is this a cellular telephone?

If "yes,"
Thank you very much, but we are only interviewing land line telephones and private residences. **STOP**

I need to randomly select one adult who lives in your household to be interviewed. How many members of your household, including yourself, are 18 years of age or older?

__ Number of adults

If "1,"
Are you the adult?

If "yes,"
Then you are the person I need to speak with. Enter 1 man or 1 woman below (Ask gender if necessary). **Go to page 5.**

If "no,"
Is the adult a man or a woman? Enter 1 man or 1 woman below. May I speak with **[fill in (him/her) from previous question]**? **Go to "correct respondent" on the next page.**

How many of these adults are men and how many are women?

__ Number of men

__ Number of women

The person in your household that I need to speak with is _____.

If "you," go to page 4

To the correct respondent:

HELLO, I am calling for the **(health department)** . My name is **(name)** . We are gathering information about the health of **(state)** residents. This project is conducted by the health department with assistance from the Centers for Disease Control and Prevention. Your telephone number has been chosen randomly, and I would like to ask some questions about health and health practices.

Core Sections

I will not ask for your name, address, or other personal information that can identify you. You do not have to answer any question you do not want to, and you can end the interview at any time. Any information you give me will be confidential. If you have any questions, I will provide a telephone number for you to call to get more information.

Section 1: Health Status

1.1 Would you say that in general your health is— (73)

Please read:

1 Excellent
2 Very good
3 Good
4 Fair

Or

5 Poor

Do not read:

7 Don't know / Not sure
9 Refused

Section 2: Healthy Days — Health-Related Quality of Life

2.1 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? (74–75)

__ __ Number of days
8 8 None
7 7 Don't know / Not sure
9 9 Refused

2.2 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?

(76–77)

__ __ Number of days
8 8 None **[If Q2.1 and Q2.2 = 88 ("None"), go to next section]**
7 7 Don't know / Not sure
9 9 Refused

2.3 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?

(78-79)

__ __ Number of days
8 8 None
7 7 Don't know / Not sure
9 9 Refused

Section 3: Health Care Access

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

(80)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

3.2 Do you have one person you think of as your personal doctor or health care provider?

If "No," ask: "Is there more than one, or is there no person who you think of as your personal doctor or health care provider?"

(81)

1 Yes, only one
2 More than one
3 No
7 Don't know / Not sure
9 Refused

3.3 Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?

(82)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

3.4 About how long has it been since you last visited a doctor for a routine checkup? A routine checkup is a general physical exam, not an exam for a specific injury, illness, or condition.

(83)

1 Within past year (1-12 months ago)
2 Within past 2 years (1-2 years ago)
3 Within past 5 years (2-5 years ago)
4 5 or more years ago
7 Don't know / Not sure
8 Never
9 Refused

Section 4: Exercise

4.1 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?

(84)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 5: Diabetes

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

If "Yes" and respondent is female, ask: "Was this only when you were pregnant?"

If respondent says pre-diabetes or borderline diabetes, use response code 4.

(85)

1 Yes
2 Yes, but female told only during pregnancy
3 No
4 No, pre-diabetes or borderline diabetes
7 Don't know / Not sure
9 Refused

Section 6: Hypertension Awareness

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

(86)

If "Yes" and respondent is female, ask: "Was this only when you were pregnant?"

1	Yes	
2	Yes, but female told only during pregnancy	**[Go to next section]**
3	No	**[Go to next section]**
4	Told borderline high or pre-hypertensive	**[Go to next section]**
7	Don't know / Not sure	**[Go to next section]**
9	Refused	**[Go to next section]**

6.2 Are you currently taking medicine for your high blood pressure?

(87)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

Section 7: Cholesterol Awareness

7.1 Blood cholesterol is a fatty substance found in the blood. Have you ever had your blood cholesterol checked?

(88)

1	Yes	
2	No	**[Go to next section]**
7	Don't know / Not sure	**[Go to next section]**
9	Refused	**[Go to next section]**

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

(89)

Read only if necessary:

1	Within the past year (anytime less than 12 months ago)
2	Within the past 2 years (1 year but less than 2 years ago)
3	Within the past 5 years (2 years but less than 5 years ago)
4	5 or more years ago

Do not read:

7	Don't know / Not sure
9	Refused

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

(90)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 8: Cardiovascular Disease Prevalence

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."

8.1 (Ever told) you had a heart attack, also called a myocardial infarction?

(91)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

8.2 (Ever told) you had angina or coronary heart disease?

(92)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

8.3 (Ever told) you had a stroke?

(93)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 9: Asthma

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

(94)

1 Yes
2 No **[Go to next section]**
7 Don't know / Not sure **[Go to next section]**
9 Refused **[Go to next section]**

9.2 Do you still have asthma?

(95)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 10: Immunization

10.1 A flu shot is an influenza vaccine injected into your arm. During the past 12 months, have you had a flu shot?

(96)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

10.2 During the past 12 months, have you had a flu vaccine that was sprayed in your nose? The flu vaccine sprayed in the nose is also called FluMist™.

(97)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

10.3 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?

(98)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 11: Tobacco Use

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

(99)

NOTE: 5 packs = 100 cigarettes

1 Yes
2 No **[Go to next section]**
7 Don't know / Not sure **[Go to next section]**
9 Refused **[Go to next section]**

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

(100)

1	Every day	
2	Some days	
3	Not at all	**[Go to next section]**
7	Don't know/Not sure	**[Go to next section]**
9	Refused	**[Go to next section]**

11.3 During the past 12 months, have you stopped smoking for one day or longer because you were trying to quit smoking?

(101)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

Section 12: Alcohol Consumption

12.1 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?

(102)

1	Yes	
2	No	**[Go to next section]**
7	Don't know / Not sure	**[Go to next section]**
9	Refused	**[Go to next section]**

12.2 During the past 30 days, how many days per week or per month did you have at least one drink of any alcoholic beverage?

(103–105)

1_ _ _	Days per week	
2_ _ _	Days in past 30 days	
8 8 8	No drinks in past 30 days	**[Go to next section]**
7 7 7	Don't know / Not sure	
9 9 9	Refused	

12.3 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 the average?

(106-107)

_ _	Number of drinks
7 7	Don't know / Not sure
9 9	Refused

12.4 Considering all types of alcoholic beverages, how many times during the past 30 days did you have 5 or more drinks on an occasion?

(108–109)

_ _	Number of times
8 8	None
7 7	Don't know / Not sure
9 9	Refused

12.5 During the past 30 days, what is the largest number of drinks you had on any occasion?

(110–111)

_ _	Number of times
7 7	Don't know / Not sure
9 9	Refused

Section 13: Demographics

13.1 What is your age?

(112–113)

_ _	Code age in years
0 7	Don't know / Not sure
0 9	Refused

13.2 Are you Hispanic or Latino?

(114)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

13.3 Which one or more of the following would you say is your race? (115–120)

(Check all that apply)

Please read:

1 White
2 Black or African American
3 Asian
4 Native Hawaiian or Other Pacific Islander
5 American Indian or Alaska Native

Or

6 Other [specify]_____

Do not read:

8 No additional choices
7 Don't know / Not sure
9 Refused

CATI note: If more than one response to Q13.3, continue. Otherwise, go to Q13.5

13.4 Which one of these groups would you say best represents your race? (121)

1 White
2 Black or African American
3 Asian
4 Native Hawaiian or Other Pacific Islander
5 American Indian or Alaska Native
6 Other [specify] _____
7 Don't know / Not sure
9 Refused

13.5 Are you...? (122)

Please read:

1 Married
2 Divorced
3 Widowed
4 Separated
5 Never married

Or

6 A member of an unmarried couple

Do not read:

9 Refused

13.6 How many children less than 18 years of age live in your household? (123–124)

_ _ Number of children
8 8 None
9 9 Refused

13.7 What is the highest grade or year of school you completed? (125)

Read only if necessary:

1 Never attended school or only attended kindergarten
2 Grades 1 through 8 (Elementary)
3 Grades 9 through 11 (Some high school)
4 Grade 12 or GED (High school graduate)
5 College 1 year to 3 years (Some college or technical school)
6 College 4 years or more (College graduate)
9 Refused

13.8 Are you currently...? (126)

Please read:

1 Employed for wages
2 Self-employed
3 Out of work for more than 1 year
4 Out of work for less than 1 year
5 A Homemaker
6 A Student
7 Retired

Or

8 Unable to work

Do not read:

9 Refused

13.9 Is your annual household income from all sources— (127–128)

If respondent refuses at ANY income level, code '99' (Refused)

Read only if necessary:

04 Less than $25,000 **If "no," ask 05; if "yes," ask 03**
($20,000 to less than $25,000)

03 Less than $20,000 **If "no," code 04; if "yes," ask 02**
($15,000 to less than $20,000)

02 Less than $15,000 **If "no," code 03; if "yes," ask 01**
($10,000 to less than $15,000)

01 Less than $10,000 **If "no," code 02**

05 Less than $35,000 **If "no," ask 06**
($25,000 to less than $35,000)

06 Less than $50,000 **If "no," ask 07**
($35,000 to less than $50,000)

07 Less than $75,000 **If "no," code 08**
($50,000 to less than $75,000)

08 $75,000 or more

Do not read:

77 Don't know / Not sure
99 Refused

13.10 About how much do you weigh without shoes? (129–132)

Note: If respondent answers in metrics, put "9" in column 129.

Round fractions up

_ _ _ _ Weight
(pounds/kilograms)
7 7 7 7 Don't know / Not sure
9 9 9 9 Refused

13.11 About how tall are you without shoes? (133–136)

Note: If respondent answers in metrics, put "9" in column 133.

Round fractions down

_ _ / _ _ Height
(ft / inches/metrics/centimeters)
7 7 7 7 Don't know / Not sure
9 9 9 9 Refused

13.12 What county do you live in?

(137–139)

	FIPS county code
7 7 7	Don't know / Not sure
9 9 9	Refused

13.13 What is your ZIP Code where you live?

(140-144)

	ZIP Code
7 7 7 7 7	Don't know / Not sure
9 9 9 9 9	Refused

13.14 Do you have more than one telephone number in your household? Do not include cell phones or numbers that are only used by a computer or fax machine.

(145)

1	Yes	
2	No	**[Go to Q13.16]**
7	Don't know / Not sure	**[Go to Q13.16]**
9	Refused	**[Go to Q13.16]**

13.15 How many of these telephone numbers are residential numbers?

(146)

__	Residential telephone numbers **[6=6 or more]**
7	Don't know / Not sure
9	Refused

13.16 During the past 12 months, has your household been without telephone service for 1 week or more? Do not include interruptions of telephone service because of weather or natural disasters.

(147)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

13.17 **Indicate sex of respondent. Ask only if necessary.**

(148)

1	Male	**[Go to next section]**
2	Female	**[If respondent is 45 years old or older, go to next section]**

13.18 To your knowledge, are you now pregnant?

(149)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

Section 14: Veteran's Status

The next question relates to military service in the United States Armed Forces, either in the regular military or in a National Guard or Reserve unit.

14.1 Have you ever served on active duty in the United States Armed Forces, either in the regular military or in a National Guard or military reserve unit?

(150)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 15: Disability

The following questions are about health problems or impairments you may have.

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

(151)

1 Yes
2 No
7 Don't know / Not Sure
9 Refused

15.2 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?

(152)

Include occasional use or use in certain circumstances.

1 Yes
2 No
7 Don't know / Not Sure
9 Refused

Section 16: Arthritis Burden

The next questions refer to the joints in your body. Please do **NOT** include the back or neck.

16.1 During the past 30 days, have you had symptoms of pain, aching, or stiffness in or around a joint? (153)

1	Yes	
2	No	**[Go to Q16.4]**
7	Don't know / Not sure	**[Go to Q16.4]**
9	Refused	**[Go to Q16.4]**

16.2 Did your joint symptoms first begin more than 3 months ago? (154)

1	Yes	
2	No	**[Go to Q16.4]**
7	Don't know / Not sure	**[Go to Q16.4]**
9	Refused	**[Go to Q16.4]**

16.3 Have you ever seen a doctor or other health professional for these joint symptoms? (155)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

16.4 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? (156)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

Interviewer note: Arthritis diagnoses include:

- **rheumatism, polymyalgia rheumatica**
- **osteoarthritis (not osteoporosis)**
- **tendonitis, bursitis, bunion, tennis elbow**
- **carpal tunnel syndrome, tarsal tunnel syndrome**
- **joint infection, Reiter's syndrome**
- **ankylosing spondylitis; spondylosis**
- **rotator cuff syndrome**
- **connective tissue disease, scleroderma, polymyositis, Raynaud's syndrome**
- **vasculitis (giant cell arteritis, Henoch-Schonlein purpura, Wegener's granulomatosis, polyarteritis nodosa)**

CATI note: If either Q16.2=1 (Yes) or Q16.4=1 (Yes) then continue. Otherwise, go to next section.

16.5 Are you now limited in any way in any of your usual activities because of arthritis or joint symptoms?

(157)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

NOTE: If a respondent question arises about medication, then the interviewer should reply: "Please answer the question based on how you are when you are taking any of the medications or treatments you might use."

Section 17: Fruits and Vegetables

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.

17.1 How often do you drink fruit juices such as orange, grapefruit, or tomato?

(158-160)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
4 _ _ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

17.2 Not counting juice, how often do you eat fruit?

(161-163)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
4 _ _ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

17.3 How often do you eat green salad?

(164-166)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
4 _ _ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

17.4 How often do you eat potatoes not including French fries, fried potatoes, or potato chips? (167-169)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
4 _ _ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

17.5 How often do you eat carrots? (170-172)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
4 _ _ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

17.6 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.) (173-175)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
4 _ _ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

Section 18: Physical Activity

CATI note: If Core Q13.8=1 (employed for wages) or 2 (self-employed) then continue. Otherwise, Go to Q18.2.

18.1 When you are at work, which of the following best describes what you do? Would you say— (176)

If respondent has multiple jobs, include all jobs.

Please read:

1 Mostly sitting or standing
2 Mostly walking
3 Mostly heavy labor or physically demanding work

Do not read:

7 Don't know / Not sure
9 Refused

Please read:

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.

18.2 Now, thinking about the moderate activities you do **[fill in "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?

(177)

1	Yes	
2	No	**[Go to Q18.5]**
7	Don't know / Not sure	**[Go to Q18.5]**
9	Refused	**[Go to Q18.5]**

18.3 How many days per week do you do these moderate activities for at least 10 minutes at a time?

(178-179)

_ _	Days per week	
8 8	Do not do any moderate physical activity for at least 10 minutes at a time	**[Go to Q18.5]**
7 7	Don't know / Not sure	**[Go to Q18.5]**
9 9	Refused	**[Go to Q18.5]**

18.4 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?

(180-182)

_ : _ _	Hours and minutes per day
7 7 7	Don't know / Not sure
9 9 9	Refused

18.5 Now, thinking about the vigorous activities you do **[fill in "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?

(183)

1	Yes	
2	No	**[Go to next section]**
7	Don't know / Not sure	**[Go to next section]**
9	Refused	**[Go to next section]**

18.6 How many days per week do you do these vigorous activities for at least 10 minutes at a time?

(184-185)

_ _	Days per week	
8 8	Do not do any vigorous physical activity for at least 10 minutes at a time	**[Go to next section]**
7 7	Don't know / Not sure	**[Go to next section]**
9 9	Refused	**[Go to next section]**

18.7 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?

(186-188)

_ : _ _	Hours and minutes per day
7 7 7	Don't know / Not sure
9 9 9	Refused

Section 19: HIV/AIDS

CATI note: If respondent is 65 years old or older, go to next section.

The next few questions are about the national health problem of HIV, the virus that causes AIDS. Please remember that your answers are strictly confidential and that you don't have to answer every question if you do not want to. Although we will ask you about testing, we will not ask you about the results of any test you may have had.

19.1 Have you ever been tested for HIV? Do not count tests you may have had as part of a blood donation. Include testing fluid from your mouth.

(189)

1	Yes	
2	No	**[Go to Q19.4]**
7	Don't know / Not Sure	**[Go to Q19.4]**
9	Refused	**[Go to Q19.4]**

19.2 Not including blood donations, in what month and year was your last HIV test?

(190–195)

NOTE: If response is before January 1985, code "Don't know."

_ _ / _ _ _ _	Code month and year
7 7 / 7 7 7 7	Don't know / Not sure
9 9 / 9 9 9 9	Refused

19.3 Where did you have your last HIV test — at a private doctor or HMO office, at a counseling and testing site, at a hospital, at a clinic, in a jail or prison, at a drug treatment facility, at home, or somewhere else?

(196–197)

01	Private doctor or HMO office
02	Counseling and testing site
03	Hospital
04	Clinic
05	Jail or prison (or other correctional facility)
06	Drug treatment facility
07	At home
08	Somewhere else

Do not read:

77 Don't know/Not sure
99 Refused

19.4 I'm going to read you a list. When I'm done, please tell me if any of the situations apply to you. You do not need to tell me which one.

- You have used intravenous drugs in the past year.
- You have been treated for a sexually transmitted or venereal disease in the past year.
- You have given or received money or drugs in exchange for sex in the past year.
- You had anal sex without a condom in the past year.

Do any of these situations apply to you?

(198)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 20: Emotional Support and Life Satisfaction

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

20.1 How often do you get the social and emotional support you need?

(199)

Please read:

1 Always
2 Usually
3 Sometimes
4 Rarely
5 Never

Do not read:

7 Don't know / Not sure
9 Refused

20.2 In general, how satisfied are you with your life?

(200)

Please read:

1 Very satisfied
2 Satisfied
3 Dissatisfied
4 Very dissatisfied

Do not read:

7 Don't know / Not sure
9 Refused

Go to Closing Statement or Transition to Modules and/or State-Added Questions

Closing Statement or Transition to Modules and/or State-Added Questions

Closing statement

Please read:

That is my last question. Everyone's answers will be combined to give us information about the health practices of people in this state. Thank you very much for your time and cooperation.

Or

Transition to modules and/or state-added questions

Please read:

Finally, I have just a few questions left about some other health topics.

2007

Behavioral Risk Factor Surveillance System Questionnaire

December 7, 2006

Behavioral Risk Factor Surveillance System
2007 Questionnaire

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Interviewer's Script

HELLO, I am calling for the **__(health department)__**. My name is **_____(name)_____**. We are gathering information about the health of **__(state)__** residents. This project is conducted by the health department with assistance from the Centers for Disease Control and Prevention. Your telephone number has been chosen randomly, and I would like to ask some questions about health and health practices.

Is this **__(phone number)__** ?

If "no,"
Thank you very much, but I seem to have dialed the wrong number. It's possible that your number may be called at a later time. **STOP**

Is this a private residence?

If "no,"
Thank you very much, but we are only interviewing private residences. **STOP**

Is this a cellular telephone?

Read only if necessary: "By cellular telephone we mean a telephone that is mobile and usable outside of your neighborhood".

If "yes,"
Thank you very much, but we are only interviewing land line telephones and private residences. **STOP**

I need to randomly select one adult who lives in your household to be interviewed. How many members of your household, including yourself, are 18 years of age or older?

__ Number of adults

If "1,"
Are you the adult?

If "yes,"
Then you are the person I need to speak with. Enter 1 man or 1 woman below (Ask gender if necessary). **Go to page 5.**

If "no,"
Is the adult a man or a woman? Enter 1 man or 1 woman below. May I speak with **[fill in (him/her) from previous question]**? **Go to "correct respondent" on the next page.**

How many of these adults are men and how many are women?

__ Number of men

__ Number of women

The person in your household that I need to speak with is _____.

If "you," go to page 4

To the correct respondent:

HELLO, I am calling for the **(health department)**. My name is **(name)**. We are gathering information about the health of **(state)** residents. This project is conducted by the health department with assistance from the Centers for Disease Control and Prevention. Your telephone number has been chosen randomly, and I would like to ask some questions about health and health practices.

Core Sections

I will not ask for your last name, address, or other personal information that can identify you. You do not have to answer any question you do not want to, and you can end the interview at any time. Any information you give me will be confidential. If you have any questions, I will provide a telephone number for you to call to get more information.

Section 1: Health Status

1.1 Would you say that in general your health is— (73)

Please read:

1 Excellent
2 Very good
3 Good
4 Fair

Or

5 Poor

Do not read:

7 Don't know / Not sure
9 Refused

Section 2: Healthy Days — Health-Related Quality of Life

2.1 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? (74–75)

_ _ Number of days
8 8 None
7 7 Don't know / Not sure
9 9 Refused

2.2 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?

(76–77)

Number of days
88 None **[If Q2.1 and Q2.2 = 88 (None), go to next section]**
77 Don't know / Not sure
99 Refused

2.3 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?

(78-79)

Number of days
88 None
77 Don't know / Not sure
99 Refused

Section 3: Health Care Access

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

(80)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

3.2 Do you have one person you think of as your personal doctor or health care provider?

If "No," ask: "Is there more than one, or is there no person who you think of as your personal doctor or health care provider?"

(81)

1 Yes, only one
2 More than one
3 No
7 Don't know / Not sure
9 Refused

3.3 Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?

(82)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

3.4 About how long has it been since you last visited a doctor for a routine checkup? A routine checkup is a general physical exam, not an exam for a specific injury, illness, or condition.

(83)

1 Within past year (anytime less than 12 months ago)
2 Within past 2 years (1 year but less than 2 years ago)
3 Within past 5 years (2 years but less than 5 years ago)
4 5 or more years ago
7 Don't know / Not sure
8 Never
9 Refused

Section 4: Exercise

4.1 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?

(84)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 5: Diabetes

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

If "Yes" and respondent is female, ask: "Was this only when you were pregnant?"

If respondent says pre-diabetes or borderline diabetes, use response code 4.

(85)

1 Yes
2 Yes, but female told only during pregnancy
3 No
4 No, pre-diabetes or borderline diabetes
7 Don't know / Not sure
9 Refused

Section 6: Hypertension Awareness

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

(86)

If "Yes" and respondent is female, ask: "Was this only when you were pregnant?"

1	Yes	
2	Yes, but female told only during pregnancy	**[Go to next section]**
3	No	**[Go to next section]**
4	Told borderline high or pre-hypertensive	**[Go to next section]**
7	Don't know / Not sure	**[Go to next section]**
9	Refused	**[Go to next section]**

6.2 Are you currently taking medicine for your high blood pressure?

(87)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

Section 7: Cholesterol Awareness

7.1 Blood cholesterol is a fatty substance found in the blood. Have you EVER had your blood cholesterol checked?

(88)

1	Yes	
2	No	**[Go to next section]**
7	Don't know / Not sure	**[Go to next section]**
9	Refused	**[Go to next section]**

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

(89)

Read only if necessary:

1	Within the past year (anytime less than 12 months ago)
2	Within the past 2 years (1 year but less than 2 years ago)
3	Within the past 5 years (2 years but less than 5 years ago)
4	5 or more years ago

Do not read:

7	Don't know / Not sure
9	Refused

7.3 Have you EVER been told by a doctor, nurse or other health professional that your blood cholesterol is high?

(90)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 8: Cardiovascular Disease Prevalence

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."

8.1 (Ever told) you had a heart attack, also called a myocardial infarction?

(91)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

8.2 (Ever told) you had angina or coronary heart disease?

(92)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

8.3 (Ever told) you had a stroke?

(93)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

BRFSS

Section 9: Asthma

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

(94)

1	Yes	
2	No	**[Go to next section]**
7	Don't know / Not sure	**[Go to next section]**
9	Refused	**[Go to next section]**

9.2 Do you still have asthma?

(95)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

Section 10: Immunization

10.1 A flu shot is an influenza vaccine injected into your arm. During the past 12 months, have you had a flu shot?

(96)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

10.2 During the past 12 months, have you had a flu vaccine that was sprayed in your nose? The flu vaccine sprayed in the nose is also called FluMist™.

(97)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

10.3 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?

(98)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

10.4 Have you EVER received the hepatitis B vaccine? The hepatitis B vaccine is completed after the third shot is given.

(99)

INTERVIEWER NOTE: Response is "Yes" only if respondent has received the entire series of three shots.

1 Yes
2 No
7 Don't know / Not sure
9 Refused

The next question is about behaviors related to Hepatitis B.

10.5 Please tell me if ANY of these statements is true for YOU. Do NOT tell me WHICH statement or statements are true for you, just if ANY of them are:

You have hemophilia and have received clotting factor concentrate
You have had sex with a man who has had sex with other men, even just one time
You have taken street drugs by needle, even just one time
You traded sex for money or drugs, even just one time
You have tested positive for HIV
You have had sex (even just one time) with someone who would answer "yes" to any of these statements
You had more than two sex partners in the past year

Are any of these statements true for you?

(100)

1 Yes, at least one statement is true
2 No, none of these statements is true
7 Don't know / Not sure
9 Refused

Section 11: Tobacco Use

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

(101)

NOTE: 5 packs = 100 cigarettes

1 Yes
2 No **[Go to next section]**
7 Don't know / Not sure **[Go to next section]**
9 Refused **[Go to next section]**

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

(102)

1	Every day	
2	Some days	
3	Not at all	**[Go to next section]**
7	Don't know/Not sure	**[Go to next section]**
9	Refused	**[Go to next section]**

11.3 During the past 12 months, have you stopped smoking for one day or longer because you were trying to quit smoking?

(103)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

Section 12: Demographics

12.1 What is your age?

(104-105)

	Code age in years
0 7	Don't know / Not sure
0 9	Refused

12.2 Are you Hispanic or Latino?

(106)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

12.3 Which one or more of the following would you say is your race?

(107-112)

(Check all that apply)

Please read:

1	White
2	Black or African American
3	Asian
4	Native Hawaiian or Other Pacific Islander
5	American Indian or Alaska Native

Or

6 Other [specify]_____

Do not read:

8 No additional choices
7 Don't know / Not sure
9 Refused

CATI note: If more than one response to Q12.3; continue. Otherwise, go to Q12.5.

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

(113)

1 White
2 Black or African American
3 Asian
4 Native Hawaiian or Other Pacific Islander
5 American Indian or Alaska Native
6 Other [specify] _____

Do not read:

7 Don't know / Not sure
9 Refused

12.5 Have you ever served on active duty in the United States Armed Forces, either in the regular military or in a National Guard or military reserve unit? *Active duty does not include training for the Reserves or National Guard, but DOES include activation, for example, for the Persian Gulf War.*

(114)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

12.6 Are you...?

(115)

Please read:

1 Married
2 Divorced
3 Widowed
4 Separated
5 Never married

Or

6 A member of an unmarried couple

Do not read:

9 Refused

12.7 How many children less than 18 years of age live in your household? (116-117)

Number of children
8 8 None
9 9 Refused

12.8 What is the highest grade or year of school you completed? (118)

Read only if necessary:

1 Never attended school or only attended kindergarten
2 Grades 1 through 8 (Elementary)
3 Grades 9 through 11 (Some high school)
4 Grade 12 or GED (High school graduate)
5 College 1 year to 3 years (Some college or technical school)
6 College 4 years or more (College graduate)

Do not read:

9 Refused

12.9 Are you currently...? (119)

Please read:

1 Employed for wages
2 Self-employed
3 Out of work for more than 1 year
4 Out of work for less than 1 year
5 A Homemaker
6 A Student
7 Retired

Or

8 Unable to work

Do not read:

9 Refused

12.10 Is your annual household income from all sources— (120-121)

If respondent refuses at ANY income level, code '99' (Refused)

Read only if necessary:

0 4	Less than $25,000 ($20,000 to less than $25,000)	**If "no," ask 05; if "yes," ask 03**
0 3	Less than $20,000 ($15,000 to less than $20,000)	**If "no," code 04; if "yes," ask 02**
0 2	Less than $15,000 ($10,000 to less than $15,000)	**If "no," code 03; if "yes," ask 01**
0 1	Less than $10,000	**If "no," code 02**
0 5	Less than $35,000 ($25,000 to less than $35,000)	**If "no," ask 06**
0 6	Less than $50,000 ($35,000 to less than $50,000)	**If "no," ask 07**
0 7	Less than $75,000 ($50,000 to less than $75,000)	**If "no," code 08**
0 8	$75,000 or more	

Do not read:

7 7	Don't know / Not sure
9 9	Refused

12.11 About how much do you weigh without shoes? (122-125)

Note: If respondent answers in metrics, put "9" in column 122.

Round fractions up

_ _ _ _	Weight *(pounds/kilograms)*
7 7 7 7	Don't know / Not sure
9 9 9 9	Refused

CATI note: If Q12.11 = 7777 (Don't Know/Not sure) or 9999 (Refused), skip Q12.13 and Q12.14.

12.12 About how tall are you without shoes?

(126-129)

Note: If respondent answers in metrics, put "9" in column 126.

Round fractions down

_ _ / _ _ Height
(ft / inches/meters/centimeters)
7 7 7 7 Don't know / Not sure
9 9 9 9 Refused

12.13 How much did you weigh a year ago? *[If you were pregnant a year ago, how much did you weigh before your pregnancy?]* **CATI: If female respondent and age <46.**

(130-133)

Note: If respondent answers in metrics, put "9" in column 130.

Round fractions up

_ _ _ _ Weight
(pounds/kilograms)
7 7 7 7 Don't know / Not sure
9 9 9 9 Refused

CATI note: Subtract weight one year ago from current weight. If weight is same, skip Q12.14.

12.14 Was the change between your current weight and your weight a year ago intentional?

(134)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

12.15 What county do you live in?

(135-137)

_ _ _ FIPS county code
7 7 7 Don't know / Not sure
9 9 9 Refused

12.16 What is your ZIP Code where you live?

(138-142)

_ _ _ _ _ ZIP Code
7 7 7 7 7 Don't know / Not sure
9 9 9 9 9 Refused

12.17 Do you have more than one telephone number in your household? Do not include cell phones or numbers that are only used by a computer or fax machine.

(143)

1	Yes	
2	No	**[Go to Q12.19]**
7	Don't know / Not sure	**[Go to Q12.19]**
9	Refused	**[Go to Q12.19]**

12.18 How many of these telephone numbers are residential numbers?

(144)

	Residential telephone numbers **[6 = 6 or more]**
7	Don't know / Not sure
9	Refused

12.19 During the past 12 months, has your household been without telephone service for 1 week or more? Do not include interruptions of telephone service because of weather or natural disasters.

(145)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

12.20 **Indicate sex of respondent. Ask only if necessary.**

(146)

1	Male	**[Go to next section]**
2	Female	**[If respondent is 45 years old or older, go to next section]**

12.21 To your knowledge, are you now pregnant?

(147)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

Section 13: Alcohol Consumption

13.1 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?

(148)

1	Yes	
2	No	**[Go to next section]**
7	Don't know / Not sure	**[Go to next section]**
9	Refused	**[Go to next section]**

13.2 During the past 30 days, how many days per week or per month did you have at least one drink of any alcoholic beverage?

(149-151)

1_ _ _	Days per week	
2_ _ _	Days in past 30 days	
8 8 8	No drinks in past 30 days	**[Go to next section]**
7 7 7	Don't know / Not sure	
9 9 9	Refused	

13.3 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 the average?

(152-153)

	Number of drinks
7 7	Don't know / Not sure
9 9	Refused

13.4 Considering all types of alcoholic beverages, how many times during the past 30 days did you have **X [CATI X = 5 for men, X = 4 for women]** or more drinks on an occasion?

(154-155)

	Number of times
8 8	None
7 7	Don't know / Not sure
9 9	Refused

13.5 During the past 30 days, what is the largest number of drinks you had on any occasion?

(156-157)

	Number of drinks
7 7	Don't know / Not sure
9 9	Refused

Section 14: Disability

The following questions are about health problems or impairments you may have.

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

(158)

1 Yes
2 No
7 Don't know / Not Sure
9 Refused

14.2 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?

(159)

Include occasional use or use in certain circumstances.

1 Yes
2 No
7 Don't know / Not Sure
9 Refused

Section 15: Arthritis Burden

The next questions refer to the joints in your body. Please do **NOT** include the back or neck.

15.1 During the past 30 days, have you had symptoms of pain, aching, or stiffness in or around a joint?

(160)

1 Yes
2 No **[Go to Q15.4]**
7 Don't know / Not sure **[Go to Q15.4]**
9 Refused **[Go to Q15.4]**

15.2 Did your joint symptoms first begin more than 3 months ago?

(161)

1 Yes
2 No **[Go to Q15.4]**
7 Don't know / Not sure **[Go to Q15.4]**
9 Refused **[Go to Q15.4]**

15.3 Have you ever seen a doctor or other health professional for these joint symptoms? (162)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

15.4 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? (163)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

INTERVIEWER NOTE: Arthritis diagnoses include:

- **rheumatism, polymyalgia rheumatica**
- **osteoarthritis (not osteoporosis)**
- **tendonitis, bursitis, bunion, tennis elbow**
- **carpal tunnel syndrome, tarsal tunnel syndrome**
- **joint infection, Reiter's syndrome**
- **ankylosing spondylitis; spondylosis**
- **rotator cuff syndrome**
- **connective tissue disease, scleroderma, polymyositis, Raynaud's syndrome**
- **vasculitis (giant cell arteritis, Henoch-Schonlein purpura, Wegener's granulomatosis, polyarteritis nodosa)**

CATI note: If either Q15.2 = 1 (Yes) or Q.15.4 = 1 (Yes); continue. Otherwise, go to next section.

15.5 Are you now limited in any way in any of your usual activities because of arthritis or joint symptoms? (164)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

INTERVIEWER NOTE: If a respondent question arises about medication, then the interviewer should reply: "*Please answer the question based on how you are when you are taking any of the medications or treatments you might use*."

Section 16: Fruits and Vegetables

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.

16.1 How often do you drink fruit juices such as orange, grapefruit, or tomato? (165-167)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
4 _ _ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

16.2 Not counting juice, how often do you eat fruit? (168-170)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
4 _ _ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

16.3 How often do you eat green salad? (171-173)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
4 _ _ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

16.4 How often do you eat potatoes not including French fries, fried potatoes, or potato chips? (174-176)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
4 _ _ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

16.5 How often do you eat carrots?

(177-179)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
4 _ _ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

16.6 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.)

(180-182)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
4 _ _ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

Section 17: Physical Activity

CATI note: If Core Q12.9 = 1 (employed for wages) or 2 (self-employed) then continue. Otherwise, Go to Q17.2.

17.1 When you are at work, which of the following best describes what you do? Would you say—

(183)

If respondent has multiple jobs, include all jobs.

Please read:

1 Mostly sitting or standing
2 Mostly walking
3 Mostly heavy labor or physically demanding work

Do not read:

7 Don't know / Not sure
9 Refused

Please read:

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.

17.2 Now, thinking about the moderate activities you do **[fill in "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?

(184)

1	Yes	
2	No	**[Go to Q17.5]**
7	Don't know / Not sure	**[Go to Q17.5]**
9	Refused	**[Go to Q17.5]**

17.3 How many days per week do you do these moderate activities for at least 10 minutes at a time?

(185-186)

	Days per week	
8 8	Do not do any moderate physical activity for at least 10 minutes at a time?	**[Go to Q17.5]**
7 7	Don't know / Not sure	**[Go to Q17.5]**
9 9	Refused	**[Go to Q17.5]**

17.4 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?

(187-189)

_ : _ _	Hours and minutes per day
7 7 7	Don't know / Not sure
9 9 9	Refused

17.5 Now, thinking about the vigorous activities you do **[fill in "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?

(190)

1	Yes	
2	No	**[Go to next section]**
7	Don't know / Not sure	**[Go to next section]**
9	Refused	**[Go to next section]**

17.6 How many days per week do you do these vigorous activities for at least 10 minutes at a time?

(191-192)

_ _	Days per week	
8 8	Do not do any vigorous physical activity for at least 10 minutes at a time	**[Go to next section]**
7 7	Don't know / Not sure	**[Go to next section]**
9 9	Refused	**[Go to next section]**

17.7 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?

(193-195)

_:_ _	Hours and minutes per day
7 7 7	Don't know / Not sure
9 9 9	Refused

Section 18: HIV/AIDS

CATI note: If respondent is 65 years old or older, go to next section.

The next few questions are about the national health problem of HIV, the virus that causes AIDS. Please remember that your answers are strictly confidential and that you don't have to answer every question if you do not want to. Although we will ask you about testing, we will not ask you about the results of any test you may have had.

18.1 Have you ever been tested for HIV? Do not count tests you may have had as part of a blood donation. Include testing fluid from your mouth.

(196)

1	Yes	
2	No	**[Go to next section]**
7	Don't know / Not Sure	**[Go to next section]**
9	Refused	**[Go to next section]**

18.2 Not including blood donations, in what month and year was your last HIV test?

(197-202)

NOTE: If response is before January 1985, code "Don't know."

CATI INSTRUCTION: If the respondent remembers the year but cannot remember the month, code the first two digits 77 and the last four digits for the year.

_ _/	Code month and year
7 7/7 7 7 7	Don't know / Not sure
9 9/9 9 9 9	Refused

18.3 Where did you have your last HIV test — at a private doctor or HMO office, at a counseling and testing site, at a hospital, at a clinic, in a jail or prison, at a drug treatment facility, at home, or somewhere else?

(203-204)

01 Private doctor or HMO office
02 Counseling and testing site
03 Hospital
04 Clinic
05 Jail or prison (or other correctional facility)
06 Drug treatment facility
07 At home
08 Somewhere else
77 Don't know/Not sure
99 Refused

CATI note: Ask Q.18.4; if Q.18.2 = within last 12 months. Otherwise, go to next section.

18.4 Was it a rapid test where you could get your results within a couple of hours?

(205)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 19: Emotional Support and Life Satisfaction

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

19.1 How often do you get the social and emotional support you need?

INTERVIEWER NOTE: If asked, say "please include support from <u>any</u> source".

(206)

Please read:

1 Always
2 Usually
3 Sometimes
4 Rarely
5 Never

Do not read:

7 Don't know / Not sure
9 Refused

19.2 In general, how satisfied are you with your life?

(207)

Please read:

1 Very satisfied
2 Satisfied
3 Dissatisfied
4 Very dissatisfied

Do not read:

7 Don't know / Not sure
9 Refused

Section 20: Gastrointestinal Disease

Now I would like to ask you some questions about diarrhea that you may have experienced and about medical care you might have sought for your diarrheal illness.

20.1 In the past 30 days, did you have diarrhea that began within the 30 day period? *Diarrhea is defined as 3 or more loose stools in a 24-hour period.*

(208)

1 Yes
2 No **[Go to Core closing statement]**
7 Don't know / Not sure **[Go to Core closing statement]**
9 Refused **[Go to Core closing statement]**

20.2 Did you visit a doctor, nurse or other health professional for this diarrheal illness?

Note: Do not answer "Yes" if you just had telephone contact with a health professional.

(209)

1 Yes
2 No **[Go to Core closing statement]**
7 Don't know / Not sure **[Go to Core closing statement]**
9 Refused **[Go to Core closing statement]**

20.3 When you visited your health care professional, did you provide a stool sample for testing?

(210)

1 Yes
2 No **[Go to Core closing statement]**
7 Don't know / Not sure **[Go to Core closing statement]**
9 Refused **[Go to Core closing statement]**

Core Closing Statement or Transition to Modules and/or State-Added Questions

Closing statement

Please read:

That is my last question. Everyone's answers will be combined to give us information about the health practices of people in this state. Thank you very much for your time and cooperation.

Or

Transition to modules and/or state-added questions

Please read:

Finally, I have just a few questions left about some other health topics.

2009

Behavioral Risk Factor Surveillance System Questionnaire

December 30, 2008

Behavioral Risk Factor Surveillance System
2009 Draft Questionnaire

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Interviewer's Script

HELLO, I am calling for the **__(health department)__**. My name is **_____(name)_____**. We are gathering information about the health of **__(state)__** residents. This project is conducted by the health department with assistance from the Centers for Disease Control and Prevention. Your telephone number has been chosen randomly, and I would like to ask some questions about health and health practices.

Is this **__(phone number)__** ?

If "no,"
Thank you very much, but I seem to have dialed the wrong number. It's possible that your number may be called at a later time. **STOP**

Is this a private residence in **__(state)__** ?

If "no,"
Thank you very much, but we are only interviewing private residences in **__(state)__**. **STOP**

Is this a cellular telephone?

[Read only if necessary: "By cellular telephone we mean a telephone that is mobile and usable outside of your neighborhood."

If "yes,"
Thank you very much, but we are only interviewing land line telephones and private residences. **STOP**

I need to randomly select one adult who lives in your household to be interviewed. How many members of your household, including yourself, are 18 years of age or older?

__ Number of adults

If "1,"
Are you the adult?

If "yes,"
Then you are the person I need to speak with. Enter 1 man or 1 woman below (Ask gender if necessary). **Go to page 5.**

If "no,"
Is the adult a man or a woman? Enter 1 man or 1 woman below. May I speak with **[fill in (him/her) from previous question]**? **Go to "correct respondent" on the next page.**

How many of these adults are men and how many are women?

__ Number of men

__ Number of women

The person in your household that I need to speak with is _____.

If "you," go to page 4

To the correct respondent:

HELLO, I am calling for the **__(health department)__.** My name is **_____(name)_____.** We are gathering information about the health of **__(state)__** residents. This project is conducted by the health department with assistance from the Centers for Disease Control and Prevention. Your telephone number has been chosen randomly, and I would like to ask some questions about health and health practices.

BRFSS

Core Sections

I will not ask for your last name, address, or other personal information that can identify you. You do not have to answer any question you do not want to, and you can end the interview at any time. Any information you give me will be confidential. If you have any questions about the survey, please call **(give appropriate state telephone number)**.

Section 1: Health Status

1.1 Would you say that in general your health is— (73)

Please read:

1 Excellent
2 Very good
3 Good
4 Fair

Or

5 Poor

Do not read:

7 Don't know / Not sure
9 Refused

Section 2: Healthy Days — Health-Related Quality of Life

2.1 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? (74–75)

Number of days
88 None
77 Don't know / Not sure
99 Refused

2.2 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?

(76–77)

	Number of days	
8 8	None	**[If Q2.1 and Q2.2 = 88 (None), go to next section]**
7 7	Don't know / Not sure	
9 9	Refused	

2.3 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?

(78-79)

	Number of days
8 8	None
7 7	Don't know / Not sure
9 9	Refused

Section 3: Health Care Access

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

(80)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

3.2 Do you have one person you think of as your personal doctor or health care provider?

If "No," ask: "Is there more than one, or is there no person who you think of as your personal doctor or health care provider?"

(81)

1	Yes, only one
2	More than one
3	No
7	Don't know / Not sure
9	Refused

3.3 Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?

(82)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

3.4 About how long has it been since you last visited a doctor for a routine checkup? A routine checkup is a general physical exam, not an exam for a specific injury, illness, or condition.

(83)

1 Within past year (anytime less than 12 months ago)
2 Within past 2 years (1 year but less than 2 years ago)
3 Within past 5 years (2 years but less than 5 years ago)
4 5 or more years ago
7 Don't know / Not sure
8 Never
9 Refused

Section 4: Sleep

The next question is about getting enough rest or sleep.

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

(84-85)

Number of days
8 8 None
7 7 Don't know / Not sure
9 9 Refused

Section 5: Exercise

5.1 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?

(86)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

BRFSS

Section 6: Diabetes

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

If "Yes" and respondent is female, ask: "Was this only when you were pregnant?"

If respondent says pre-diabetes or borderline diabetes, use response code 4.

(87)

1 Yes
2 Yes, but female told only during pregnancy
3 No
4 No, pre-diabetes or borderline diabetes
7 Don't know / Not sure
9 Refused

Section 7: Hypertension Awareness

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

(88)

If "Yes" and respondent is female, ask: "Was this only when you were pregnant?"

1	Yes	
2	Yes, but female told only during pregnancy	**[Go to next section]**
3	No	**[Go to next section]**
4	Told borderline high or pre-hypertensive	**[Go to next section]**
7	Don't know / Not sure	**[Go to next section]**
9	Refused	**[Go to next section]**

7.2 Are you currently taking medicine for your high blood pressure?

(89)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

BRFSS

Section 8: Cholesterol Awareness

8.1 Blood cholesterol is a fatty substance found in the blood. Have you EVER had your blood cholesterol checked?

(90)

1	Yes	
2	No	**[Go to next section]**
7	Don't know / Not sure	**[Go to next section]**
9	Refused	**[Go to next section]**

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

(91)

Read only if necessary:

1	Within the past year (anytime less than 12 months ago)
2	Within the past 2 years (1 year but less than 2 years ago)
3	Within the past 5 years (2 years but less than 5 years ago)
4	5 or more years ago

Do not read:

7	Don't know / Not sure
9	Refused

8.3 Have you EVER been told by a doctor, nurse or other health professional that your blood cholesterol is high?

(92)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

Section 9: Cardiovascular Disease Prevalence

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."

9.1 (Ever told) you had a heart attack, also called a myocardial infarction?

(93)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

9.2 (Ever told) you had angina or coronary heart disease? (94)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

9.3 (Ever told) you had a stroke? (95)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 10: Asthma

10.1 Have you ever been told by a doctor, nurse, or other health professional that you had asthma? (96)

1 Yes
2 No **[Go to next section]**
7 Don't know / Not sure **[Go to next section]**
9 Refused **[Go to next section]**

10.2 Do you still have asthma? (97)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 11: Tobacco Use

11.1 Have you smoked at least 100 cigarettes in your entire life? (98)

NOTE: 5 packs = 100 cigarettes

1 Yes
2 No **[Go to Q11.5]**
7 Don't know / Not sure **[Go to Q11.5]**
9 Refused **[Go to Q11.5]**

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

(99)

1	Every day	
2	Some days	
3	Not at all	**[Go to Q11.4]**
7	Don't know / Not sure	**[Go to Q11.5]**
9	Refused	**[Go to Q11.5]**

11.3 During the past 12 months, have you stopped smoking for one day or longer because you were trying to quit smoking?

(100)

1	Yes	**[Go to Q11.5]**
2	No	**[Go to Q11.5]**
7	Don't know / Not sure	**[Go to Q11.5]**
9	Refused	**[Go to Q11.5]**

CATI note: If Q11.2 = 3 (Not at all); continue. Otherwise, go to Q11.5.

11.4 How long has it been since you last smoked cigarettes regularly?

(101-102)

0 1	Within the past month (less than 1 month ago)
0 2	Within the past 3 months (1 month but less than 3 months ago)
0 3	Within the past 6 months (3 months but less than 6 months ago)
0 4	Within the past year (6 months but less than 1 year ago)
0 5	Within the past 5 years (1 year but less than 5 years ago)
0 6	Within the past 10 years (5 years but less than 10 years ago)
0 7	10 years or more
0 8	Never smoked regularly
7 7	Don't know / Not sure
9 9	Refused

11.5 Do you currently use chewing tobacco, snuff, or snus every day, some days, or not at all?

(103)

NOTE: Snus (Swedish for snuff) is a moist smokeless tobacco, usually sold in small pouches that are placed under the lip against the gum.

1	Every day
2	Some days
3	Not at all

Do not read:

7	Don't know / Not sure
9	Refused

BRFSS

Section 12: Demographics

12.1 What is your age? (104-105)

Code age in years
0 7 Don't know / Not sure
0 9 Refused

12.2 Are you Hispanic or Latino? (106)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

12.3 Which one or more of the following would you say is your race? (107-112)

(Check all that apply)

Please read:

1 White
2 Black or African American
3 Asian
4 Native Hawaiian or Other Pacific Islander
5 American Indian or Alaska Native

Or

6 Other [specify]_____

Do not read:

8 No additional choices
7 Don't know / Not sure
9 Refused

CATI note: If more than one response to Q12.3; continue. Otherwise, go to Q12.5.

12.4 Which one of these groups would you say best represents your race? (113)

1 White
2 Black or African American
3 Asian
4 Native Hawaiian or Other Pacific Islander
5 American Indian or Alaska Native
6 Other [specify] _____

Do not read:

7 Don't know / Not sure
9 Refused

12.5 Have you ever served on active duty in the United States Armed Forces, either in the regular military or in a National Guard or military reserve unit? Active duty does not include training for the Reserves or National Guard, but DOES include activation, for example, for the Persian Gulf War.

Would you say...?

(114)

1 Yes, now on active duty
2 Yes, on active duty during the last 12 months, but not now
3 Yes, on active duty in the past, but not during the last 12 months
4 No, training for Reserves or National Guard only
5 No, never served in the military
7 Don't know / Not sure
9 Refused

12.6 Are you...?

(115)

Please read:

1 Married
2 Divorced
3 Widowed
4 Separated
5 Never married

Or

6 A member of an unmarried couple

Do not read:

9 Refused

12.7 How many children less than 18 years of age live in your household?

(116-117)

_ _ Number of children
8 8 None
9 9 Refused

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

(118)

Read only if necessary:

1 Never attended school or only attended kindergarten
2 Grades 1 through 8 (Elementary)
3 Grades 9 through 11 (Some high school)
4 Grade 12 or GED (High school graduate)
5 College 1 year to 3 years (Some college or technical school)
6 College 4 years or more (College graduate)

Do not read:

9 Refused

12.9 Are you currently...?

(119)

Please read:

1 Employed for wages
2 Self-employed
3 Out of work for more than 1 year
4 Out of work for less than 1 year
5 A Homemaker
6 A Student
7 Retired

Or

8 Unable to work

Do not read:

9 Refused

12.10 Is your annual household income from all sources—

(120-121)

If respondent refuses at ANY income level, code '99' (Refused)

Read only if necessary:

04 Less than $25,000 ($20,000 to less than $25,000) **If "no," ask 05; if "yes," ask 03**

03 Less than $20,000 ($15,000 to less than $20,000) **If "no," code 04; if "yes," ask 02**

02 Less than $15,000 ($10,000 to less than $15,000) **If "no," code 03; if "yes," ask 01**

01 Less than $10,000 **If "no," code 02**

05 Less than $35,000 **If "no," ask 06**
($25,000 to less than $35,000)

06 Less than $50,000 **If "no," ask 07**
($35,000 to less than $50,000)

07 Less than $75,000 **If "no," code 08**
($50,000 to less than $75,000)

08 $75,000 or more

Do not read:

77 Don't know / Not sure
99 Refused

12.11 About how much do you weigh without shoes? (122-125)

Note: If respondent answers in metrics, put "9" in column 122.

Round fractions up

_ _ _ _ Weight
(pounds/kilograms)
7 7 7 7 Don't know / Not sure
9 9 9 9 Refused

CATI note: If Q12.11 = 7777 (Don't Know/Not sure) or 9999 (Refused), skip Q12.13 and Q12.14.

12.12 About how tall are you without shoes? (126-129)

Note: If respondent answers in metrics, put "9" in column 126.

Round fractions down

_ _ / _ _ Height
(f t / inches/meters/centimeters)
7 7/7 7 Don't know / Not sure
9 9/9 9 Refused

12.13 How much did you weigh a year ago? *[If you were pregnant a year ago, how much did you weigh before your pregnancy?]* **CATI: If female respondent and age <46.**

(130-133)

Note: If respondent answers in metrics, put "9" in column 130.

Round fractions up

_ _ _ _	Weight *(pounds/kilograms)*	
7 7 7 7	Don't know / Not sure	**[Go to Q12.15]**
9 9 9 9	Refused	**[Go to Q12.15]**

CATI note: Subtract weight one year ago from current weight. If weight is same, skip Q12.14.

12.14 Was the change between your current weight and your weight a year ago intentional?

(134)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

12.15 What county do you live in?

(135-137)

_ _ _	FIPS county code
7 7 7	Don't know / Not sure
9 9 9	Refused

12.16 What is your ZIP Code where you live?

(138-142)

_ _ _ _ _	ZIP Code
7 7 7 7 7	Don't know / Not sure
9 9 9 9 9	Refused

12.17 Do you have more than one telephone number in your household? Do not include cell phones or numbers that are only used by a computer or fax machine.

(143)

1	Yes	
2	No	**[Go to Q12.19]**
7	Don't know / Not sure	**[Go to Q12.19]**
9	Refused	**[Go to Q12.19]**

12.18 How many of these telephone numbers are residential numbers?

(144)

_ Residential telephone numbers **[6 = 6 or more]**
7 Don't know / Not sure
9 Refused

12.19 During the past 12 months, has your household been without telephone service for 1 week or more? Do not include interruptions of telephone service because of weather or natural disasters.

(145)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

[CELL PHONE QUESTIONS—to be inserted following Q12.19]

12.20 **Indicate sex of respondent. Ask only if necessary.**

(146)

1 Male **[Go to next section]**
2 Female **[If respondent is 45 years old or older, go to next section]**

12.21 To your knowledge, are you now pregnant?

(147)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 13: Caregiver Status

People may provide regular care or assistance to a friend or family member who has a health problem, long-term illness, or disability.

13.1 During the past month, did you provide any such care or assistance to a friend or family member?

(148)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 14: Disability

The following questions are about health problems or impairments you may have.

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

(149)

1 Yes
2 No
7 Don't know / Not Sure
9 Refused

14.2 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?

(150)

Include occasional use or use in certain circumstances.

1 Yes
2 No
7 Don't know / Not Sure
9 Refused

Section 15: Alcohol Consumption

15.1 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?

(151)

1 Yes
2 No **[Go to next section]**
7 Don't know / Not sure **[Go to next section]**
9 Refused **[Go to next section]**

15.2 During the past 30 days, how many days per week or per month did you have at least one drink of any alcoholic beverage?

(152-154)

1 _ _ Days per week
2 _ _ Days in past 30 days
8 8 8 No drinks in past 30 days **[Go to next section]**
7 7 7 Don't know / Not sure
9 9 9 Refused

15.3 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 the average?

(155-156)

Note: A 40 ounce beer would count as 3 drinks, or a cocktail drink with 2 shots would count as 2 drinks.

	Number of drinks
7 7	Don't know / Not sure
9 9	Refused

15.4 Considering all types of alcoholic beverages, how many times during the past 30 days did you have **X [CATI X = 5 for men, X = 4 for women]** or more drinks on an occasion?

(157-158)

	Number of times
8 8	None
7 7	Don't know / Not sure
9 9	Refused

15.5 During the past 30 days, what is the largest number of drinks you had on any occasion?

(159-160)

	Number of drinks
7 7	Don't know / Not sure
9 9	Refused

Section 16: Immunization

16.1 A flu shot is an influenza vaccine injected into your arm. During the past 12 months, have you had a flu shot?

(161)

1	Yes	
2	No	**[Go to Q16.3]**
7	Don't know / Not sure	**[Go to Q16.3]**
9	Refused	**[Go to Q16.3]**

16.2 During what month and year did you receive your most recent flu shot?

(162-167)

_ _ / _ _ _ _	Month / Year
7 7 / 7 7 7 7	Don't know / Not sure
9 9 / 9 9 9 9	Refused

16.3 During the past 12 months, have you had a flu vaccine that was sprayed in your nose? The flu vaccine sprayed in the nose is also called FluMist™.

(168)

1	Yes	
2	No	**[Go to Q16.5]**
7	Don't know / Not sure	**[Go to Q16.5]**
9	Refused	**[Go to Q16.5]**

16.4 During what month and year did you receive your most recent flu vaccine that was sprayed in your nose?

(169-174)

__/____	Month / Year
77/7777	Don't know / Not sure
99/9999	Refused

16.5 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?

(175)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

[Pandemic Influenza Questions---to be inserted following Section 16: Immunization]

BRFSS

Section 17: Arthritis Burden

Next I will ask you about arthritis.

17.1 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?

(176)

1	Yes	
2	No	**[Go to next section]**
7	Don't know / Not sure	**[Go to next section]**
9	Refused	**[Go to next section]**

INTERVIEWER NOTE: Arthritis diagnoses include:

- **rheumatism, polymyalgia rheumatica**
- **osteoarthritis (not osteoporosis)**
- **tendonitis, bursitis, bunion, tennis elbow**
- **carpal tunnel syndrome, tarsal tunnel syndrome**
- **joint infection, Reiter's syndrome**
- **ankylosing spondylitis; spondylosis**
- **rotator cuff syndrome**
- **connective tissue disease, scleroderma, polymyositis, Raynaud's syndrome**
- **vasculitis (giant cell arteritis, Henoch-Schonlein purpura, Wegener's granulomatosis, polyarteritis nodosa)**

Arthritis can cause symptoms like pain, aching, or stiffness in or around the joint.

17.2 Are you now limited in any way in any of your usual activities because of arthritis or joint symptoms?

(177)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

INTERVIEWER INSTRUCTION: If a question arises about medications or treatment, then the interviewer should say: "Please answer the question based on your current experience, regardless of whether you are taking any medication or treatment."

INTERVIEWER NOTE: Q17.3 should be asked of all respondents regardless of employment status.

17.3 In this next question, we are referring to work for pay. Do arthritis or joint symptoms now affect whether you work, the type of work you do, or the amount of work you do?

(178)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

INTERVIEWER INSTRUCTION: If respondent gives an answer to each issue (whether works, type work, or amount of work), then if any issue is "yes" mark the overall response as "yes." If a question arises about medications or treatment, then the interviewer should say: "Please answer the question based on your current experience, regardless of whether you are taking any medication or treatment."

17.4 During the past 30 days, to what extent has your arthritis or joint symptoms interfered with your normal social activities, such as going shopping, to the movies, or to religious or social gatherings?

(179)

Please read [1-3]:

1 A lot
2 A little
3 Not at all

Do not read:

7 Don't know / Not sure
9 Refused

INTERVIEWER INSTRUCTION: If a question arises about medications or treatment, then the interviewer should say: "Please answer the question based on your current experience, regardless of whether you are taking any medication or treatment."

17.5 Please think about the past 30 days, keeping in mind all of your joint pain or aching and whether or not you have taken medication. DURING THE PAST 30 DAYS, how bad was your joint pain ON AVERAGE? *Please answer on a scale of 0 to 10 where 0 is no pain or aching and 10 is pain or aching as bad as it can be.*

(180-181)

Enter number [00-10]
7 7 Don't know / Not sure
9 9 Refused

BRFSS

Section 18: Fruits and Vegetables

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.

18.1 How often do you drink fruit juices such as orange, grapefruit, or tomato? (182-184)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
4 _ _ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

18.2 Not counting juice, how often do you eat fruit? (185-187)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
4 _ _ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

18.3 How often do you eat green salad? (188-190)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
4 _ _ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

18.4 How often do you eat potatoes not including French fries, fried potatoes, or potato chips? (191-193)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
4 _ _ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

18.5 How often do you eat carrots?

(194-196)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
4 _ _ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

18.6 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.)

(197-199)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
4 _ _ Per year
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

Section 19: Physical Activity

CATI note: If Core Q12.9 = 1 (Employed for wages) or 2 (Self-employed); continue. Otherwise, go to Q19.2.

19.1 When you are at work, which of the following best describes what you do? Would you say—

(200)

If respondent has multiple jobs, include all jobs.

Please read:

1 Mostly sitting or standing
2 Mostly walking
3 Mostly heavy labor or physically demanding work

Do not read:

7 Don't know / Not sure
9 Refused

Please read:

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.

19.2 Now, thinking about the moderate activities you do **[fill in "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?

(201)

1	Yes	
2	No	**[Go to Q19.5]**
7	Don't know / Not sure	**[Go to Q19.5]**
9	Refused	**[Go to Q19.5]**

19.3 How many days per week do you do these moderate activities for at least 10 minutes at a time?

(202-203)

	Days per week	
8 8	Do not do any moderate physical activity for at least 10 minutes at a time?	**[Go to Q19.5]**
7 7	Don't know / Not sure	**[Go to Q19.5]**
9 9	Refused	**[Go to Q19.5]**

19.4 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?

(204-206)

:	Hours and minutes per day
7 7 7	Don't know / Not sure
9 9 9	Refused

19.5 Now, thinking about the vigorous activities you do **[fill in "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?

(207)

1	Yes	
2	No	**[Go to next section]**
7	Don't know / Not sure	**[Go to next section]**
9	Refused	**[Go to next section]**

19.6 How many days per week do you do these vigorous activities for at least 10 minutes at a time?

(208-209)

	Days per week	
8 8	Do not do any vigorous physical activity for at least 10 minutes at a time	**[Go to next section]**
7 7	Don't know / Not sure	**[Go to next section]**
9 9	Refused	**[Go to next section]**

19.7 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?

(210-212)

_:_ _	Hours and minutes per day
7 7 7	Don't know / Not sure
9 9 9	Refused

Section 20: HIV/AIDS

CATI note: If respondent is 65 years old or older, go to next section.

The next few questions are about the national health problem of HIV, the virus that causes AIDS. Please remember that your answers are strictly confidential and that you don't have to answer every question if you do not want to. Although we will ask you about testing, we will not ask you about the results of any test you may have had.

20.1 Have you ever been tested for HIV? Do not count tests you may have had as part of a blood donation. Include testing fluid from your mouth.

(213)

1	Yes	
2	No	**[Go to Q20.5]**
7	Don't know / Not sure	**[Go to Q20.5]**
9	Refused	**[Go to Q20.5]**

20.2 Not including blood donations, in what month and year was your last HIV test?

(214-219)

NOTE: If response is before January 1985, code "Don't know."

CATI INSTRUCTION: If the respondent remembers the year but cannot remember the month, code the first two digits 77 and the last four digits for the year.

_ _/_ _ _ _	Code month and year
7 7/7 7 7 7	Don't know / Not sure
9 9/9 9 9 9	Refused

20.3 Where did you have your last HIV test — at a private doctor or HMO office, at a counseling and testing site, at a hospital, at a clinic, in a jail or prison, at a drug treatment facility, at home, or somewhere else?

(220-221)

0 1	Private doctor or HMO office
0 2	Counseling and testing site
0 3	Hospital
0 4	Clinic
0 5	Jail or prison (or other correctional facility)
0 6	Drug treatment facility
0 7	At home
0 8	Somewhere else
7 7	Don't know / Not sure
9 9	Refused

CATI note: Ask Q20.4; if Q20.2 = within last 12 months. Otherwise, go to Q20.5.

20.4 Was it a rapid test where you could get your results within a couple of hours?

(222)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

20.5 I'm going to read you a list. When I'm done, please tell me if any of the situations apply to you. You do not need to tell me which one.

- You have used intravenous drugs in the past year.
- You have been treated for a sexually transmitted or venereal disease in the past year.
- You have given or received money or drugs in exchange for sex in the past year.
- You had anal sex without a condom in the past year.

Do any of these situations apply to you?

(223)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

\

Section 21: Emotional Support and Life Satisfaction

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

21.1 How often do you get the social and emotional support you need?

INTERVIEWER NOTE: If asked, say "please include support from <u>any</u> source."

(224)

Please read:

1 Always
2 Usually
3 Sometimes
4 Rarely
5 Never

Do not read:

7 Don't know / Not sure
9 Refused

21.2 In general, how satisfied are you with your life?

(225)

Please read:

1 Very satisfied
2 Satisfied
3 Dissatisfied
4 Very dissatisfied

Do not read:

7 Don't know / Not sure
9 Refused

BRFSS

Section 22: Cancer Survivors

Now I am going to ask you about cancer.

22.1 Have you EVER been told by a doctor, nurse, or other health professional that you had cancer?

(226)

Read only if necessary: By "other health professional" we mean a nurse practitioner, a physician's assistant, social worker, or some other licensed professional.

1	Yes	
2	No	**[Go to Core closing Statement]**
7	Don't know / Not sure	**[Go to Core closing Statement]**
9	Refused	**[Go to Core closing Statement]**

22.2 How many different types of cancer have you had?

(227)

1	Only one	
2	Two	
3	Three or more	
7	Don't know / Not sure	**[Go to Core closing Statement]**
9	Refused	**[Go to Core closing Statement]**

22.3 At what age were you told that you had cancer?

(228-229)

	Code age in years	**[97 = 97 and older]**
9 8	Don't know / Not sure	
9 9	Refused	

CATI note: If Q22.2 = 2 (Two) or 3 (Three or more), ask: "At what age was your first diagnosis of cancer?"

INTERVIEWER NOTE: This question refers to the first time they were told about their first cancer.

22.4 What type of cancer was it?

(230-231)

If Q22.2 = 2 (Two) or 3 (Three or more), ask: "With your most recent diagnoses of cancer, what type of cancer was it?"

INTERVIEWER NOTE: Please read list only if respondent needs prompting for cancer type (i.e., name of cancer) [1-28]:

Breast
01 Breast cancer

Female reproductive (Gynecologic)
02 Cervical cancer (cancer of the cervix)
03 Endometrial cancer (cancer of the uterus)
04 Ovarian cancer (cancer of the ovary)

Head/Neck
05 Head and neck cancer
06 Oral cancer
07 Pharyngeal (throat) cancer
08 Thyroid

Gastrointestinal
09 Colon (intestine) cancer
10 Esophageal (esophagus)
11 Liver cancer
12 Pancreatic (pancreas) cancer
13 Rectal (rectum) cancer
14 Stomach

Leukemia/Lymphoma (lymph nodes and bone marrow)
15 Hodgkin's Lymphoma (Hodgkin's disease)
16 Leukemia (blood) cancer
17 Non-Hodgkin's Lymphoma

Male reproductive
18 Prostate cancer
19 Testicular cancer

Skin
20 Melanoma
21 Other skin cancer

Thoracic
22 Heart
23 Lung

Urinary cancer:
24 Bladder cancer
25 Renal (kidney) cancer

Others

26 Bone
27 Brain
28 Neuroblastoma
29 Other

Do not read:

77 Don't know / Not sure
99 Refused

[CELL PHONE QUESTIONS to be inserted in Demographics Section following Q12.19]

12.19a Do you have a cell phone for personal use? Please include cell phones used for both business and personal use.

(232)

1 Yes **[Go to Q12.19c]**
2 No
7 Don't know / Not sure
9 Refused

12.19b Do you share a cell phone for personal use (at least one-third of the time) with other adults?

(233)

1 Yes **[Go to Q12.19d]**
2 No **[Go to Q12.20]**
7 Don't know / Not sure **[Go to Q12.20]**
9 Refused **[Go to Q12.20]**

12.19c. Do you usually share this cell phone (at least one-third of the time) with any other adults?

(234)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

12.19d. Thinking about all the phone calls that you receive on your landline and cell phone, what percent, between 0 and 100, are received on your cell phone?

(235-237)

_ _ _ Enter percent (1 to 100)
888 Zero
777 Don't know / Not sure
999 Refused

Closing Statement or Transition to Modules and/or State-Added Questions

Closing statement

Please read:

That was my last question. Everyone's answers will be combined to give us information about the health practices of people in this state. Thank you very much for your time and cooperation.

Or

Transition to modules and/or state-added questions

Please read:

Finally, I have just a few questions left about some other health topics.

2011

Behavioral Risk Factor Surveillance System Questionnaire

January 27, 2011

Behavioral Risk Factor Surveillance System
2011 Draft Questionnaire

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Interviewer's Script

HELLO, I am calling for the **__(health department)__**. My name is **_____(name)_____**. We are gathering information about the health of **__(state)__** residents. This project is conducted by the health department with assistance from the Centers for Disease Control and Prevention. Your telephone number has been chosen randomly, and I would like to ask some questions about health and health practices.

Is this **__(phone number)__** ?

If "no,"
Thank you very much, but I seem to have dialed the wrong number. It's possible that your number may be called at a later time. **STOP**

Is this a private residence in **__(state)__** ?

If "no,"
Thank you very much, but we are only interviewing private residences in **__(state)__** . **STOP**

Is this a cellular telephone?

[Read only if necessary: "By cellular (or cell) telephone we mean a telephone that is mobile and usable outside of your neighborhood."

If "yes,"
Thank you very much, but we are only interviewing land line telephones and private residences. **STOP**

I need to randomly select one adult who lives in your household to be interviewed. How many members of your household, including yourself, are 18 years of age or older?

__ Number of adults

If "1,"
Are you the adult?

If "yes,"
Then you are the person I need to speak with. Enter 1 man or 1 woman below (Ask gender if necessary). **Go to page 5.**

If "no,"
Is the adult a man or a woman? Enter 1 man or 1 woman below. May I speak with **[fill in (him/her) from previous question]**? **Go to "correct respondent" on the next page.**

How many of these adults are men and how many are women?

__ Number of men

__ Number of women

The person in your household that I need to speak with is _____.

If "you," go to page 4

To the correct respondent:

HELLO, I am calling for the **(health department)**. My name is **(name)**. We are gathering information about the health of **(state)** residents. This project is conducted by the health department with assistance from the Centers for Disease Control and Prevention. Your telephone number has been chosen randomly, and I would like to ask some questions about health and health practices.

Core Sections

I will not ask for your last name, address, or other personal information that can identify you. You do not have to answer any question you do not want to, and you can end the interview at any time. Any information you give me will be confidential. If you have any questions about the survey, please call **(give appropriate state telephone number)**.

Section 1: Health Status

1.1 Would you say that in general your health is—?

(73)

Please read:

1 Excellent
2 Very good
3 Good
4 Fair

Or

5 Poor

Do not read:

7 Don't know / Not sure
9 Refused

Section 2: Healthy Days — Health-Related Quality of Life

2.1 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?

(74–75)

_ _ Number of days
8 8 None
7 7 Don't know / Not sure
9 9 Refused

2.2 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?

(76–77)

Number of days
88 None **[If Q2.1 and Q2.2 = 88 (None), go to next section]**
77 Don't know / Not sure
99 Refused

2.3 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?

(78-79)

Number of days
88 None
77 Don't know / Not sure
99 Refused

Section 3: Health Care Access

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

(80)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

3.2 Do you have one person you think of as your personal doctor or health care provider?

If "No," ask: "Is there more than one, or is there no person who you think of as your personal doctor or health care provider?"

(81)

1 Yes, only one
2 More than one
3 No
7 Don't know / Not sure
9 Refused

3.3 Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?

(82)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

3.4 About how long has it been since you last visited a doctor for a routine checkup? A routine checkup is a general physical exam, not an exam for a specific injury, illness, or condition.

(83)

1 Within past year (anytime less than 12 months ago)
2 Within past 2 years (1 year but less than 2 years ago)
3 Within past 5 years (2 years but less than 5 years ago)
4 5 or more years ago
7 Don't know / Not sure
8 Never
9 Refused

Section 4: Hypertension Awareness

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

(84)

Read only if necessary: By "other health professional" we mean a nurse practitioner, a physician's assistant, or some other licensed health professional.

If "Yes" and respondent is female, ask: "Was this only when you were pregnant?"

1 Yes
2 Yes, but female told only during pregnancy **[Go to next section]**
3 No **[Go to next section]**
4 Told borderline high or pre-hypertensive **[Go to next section]**
7 Don't know / Not sure **[Go to next section]**
9 Refused **[Go to next section]**

4.2 Are you currently taking medicine for your high blood pressure?

(85)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 5: Cholesterol Awareness

5.1 Blood cholesterol is a fatty substance found in the blood. Have you EVER had your blood cholesterol checked?

(86)

1 Yes
2 No **[Go to next section]**
7 Don't know / Not sure **[Go to next section]**
9 Refused **[Go to next section]**

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

(87)

Read only if necessary:

1 Within the past year (anytime less than 12 months ago)
2 Within the past 2 years (1 year but less than 2 years ago)
3 Within the past 5 years (2 years but less than 5 years ago)
4 5 or more years ago

Do not read:

7 Don't know / Not sure
9 Refused

5.3 Have you EVER been told by a doctor, nurse or other health professional that your blood cholesterol is high?

(88)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 6: Chronic Health Conditions

Now I would like to ask you some questions about general health conditions.

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."

6.1 (Ever told) you that you had a heart attack also called a myocardial infarction?

(89)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

6.2 (Ever told) you had angina or coronary heart disease?

(90)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

6.3 (Ever told) you had a stroke?

(91)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

6.4 (Ever told) you had asthma?

(92)

1 Yes
2 No **[Go to Q6.6]**
7 Don't know / Not sure **[Go to Q6.6]**
9 Refused **[Go to Q6.6]**

6.5 Do you still have asthma?

(93)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

6.6 (Ever told) you had skin cancer?

(94)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

6.7 (Ever told) you had any other types of cancer?

(95)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

6.8 (Ever told) you have (COPD) chronic obstructive pulmonary disease, emphysema or chronic bronchitis?

(96)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

6.9 (Ever told) you have some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia?

(97)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

INTERVIEWER NOTE: Arthritis diagnoses include:

- rheumatism, polymyalgia rheumatica
- osteoarthritis (not osteoporosis)
- tendonitis, bursitis, bunion, tennis elbow
- carpal tunnel syndrome, tarsal tunnel syndrome
- joint infection, Reiter's syndrome
- ankylosing spondylitis; spondylosis
- rotator cuff syndrome
- connective tissue disease, scleroderma, polymyositis, Raynaud's syndrome
- vasculitis (giant cell arteritis, Henoch-Schonlein purpura, Wegener's granulomatosis,
- polyarteritis nodosa)

6.10 (Ever told) you have a depressive disorder (including depression, major depression, dysthymia, or minor depression)?

(98)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

6.11 (Ever told) you have kidney disease? Do NOT include kidney stones, bladder infection or incontinence.

INTERVIEWER NOTE: Incontinence is not being able to control urine flow.

(99)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

6.12 Has a doctor, nurse or other health professional ever said that you have vision impairment in one or both eyes, even when wearing glasses? (100)

1	Yes
2	No
3	Not applicable (blind)
7	Don't know / Not sure
9	Refused

6.13 (Ever told) you have diabetes? (101)

If "Yes" and respondent is female, ask: "Was this only when you were pregnant?"

If respondent says pre-diabetes or borderline diabetes, use response code 4.

1	Yes
2	Yes, but female told only during pregnancy
3	No
4	No, pre-diabetes or borderline diabetes
7	Don't know / Not sure
9	Refused

CATI note: If Q6.13 = 1 (Yes), go to Diabetes Optional Module (if used). If any other response to Q6.13, go to Pre-Diabetes Optional Module (if used). Otherwise, go to next section.

Section 7: Tobacco Use

7.1 Have you smoked at least 100 cigarettes in your entire life? (102)

NOTE: 5 packs = 100 cigarettes

1	Yes	
2	No	**[Go to Q7.5]**
7	Don't know / Not sure	**[Go to Q7.5]**
9	Refused	**[Go to Q7.5]**

7.2 Do you now smoke cigarettes every day, some days, or not at all? (103)

1	Every day	
2	Some days	
3	Not at all	**[Go to Q7.4]**
7	Don't know / Not sure	**[Go to Q7.5]**
9	Refused	**[Go to Q7.5]**

7.3 During the past 12 months, have you stopped smoking for one day or longer because you were trying to quit smoking?

(104)

1	Yes	**[Go to Q7.5]**
2	No	**[Go to Q7.5]**
7	Don't know / Not sure	**[Go to Q7.5]**
9	Refused	**[Go to Q7.5]**

7.4 How long has it been since you last smoked a cigarette, even one or two puffs?

(105-106)

0 1	Within the past month (less than 1 month ago)
0 2	Within the past 3 months (1 month but less than 3 months ago)
0 3	Within the past 6 months (3 months but less than 6 months ago)
0 4	Within the past year (6 months but less than 1 year ago)
0 5	Within the past 5 years (1 year but less than 5 years ago)
0 6	Within the past 10 years (5 years but less than 10 years ago)
0 7	10 years or more
7 7	Don't know / Not sure
9 9	Refused

7.5 Do you currently use chewing tobacco, snuff, or snus every day, some days, or not at all?

Snus (rhymes with 'goose')

NOTE: Snus (Swedish for snuff) is a moist smokeless tobacco, usually sold in small pouches that are placed under the lip against the gum.

(107)

1	Every day
2	Some days
3	Not at all

Do not read:

7	Don't know / Not sure
9	Refused

Section 8: Demographics

8.1 What is your age? (108-109)

Code age in years
0 7 Don't know / Not sure
0 9 Refused

8.2 Are you Hispanic or Latino? (110)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

8.3 Which one or more of the following would you say is your race? (111-116)

(Check all that apply)

Please read:

1 White
2 Black or African American
3 Asian
4 Native Hawaiian or Other Pacific Islander
5 American Indian or Alaska Native

Or

6 Other [specify]_____

Do not read:

8 No additional choices
7 Don't know / Not sure
9 Refused

CATI note: If more than one response to Q8.3; continue. Otherwise, go to Q8.5.

8.4 Which one of these groups would you say best represents your race? (117)

Please read:

1 White
2 Black or African American
3 Asian

4 Native Hawaiian or Other Pacific Islander
5 American Indian or Alaska Native

Or

6 Other [specify]_____

Do not read:

7 Don't know / Not sure
9 Refused

8.5 Have you ever served on active duty in the United States Armed Forces, either in the regular military or in a National Guard or military reserve unit? Active duty does not include training for the Reserves or National Guard, but DOES include activation, for example, for the Persian Gulf War. (118)

1 Yes
2 No

Do not read:

7 Don't know / Not sure
9 Refused

8.6 Are you...? (119)

Please read:

1 Married
2 Divorced
3 Widowed
4 Separated
5 Never married

Or

6 A member of an unmarried couple

Do not read:

9 Refused

8.7 How many children less than 18 years of age live in your household? (120-121)

_ _ Number of children
8 8 None
9 9 Refused


BRFSS

8.8 What is the highest grade or year of school you completed? (122)

Read only if necessary:

1 Never attended school or only attended kindergarten
2 Grades 1 through 8 (Elementary)
3 Grades 9 through 11 (Some high school)
4 Grade 12 or GED (High school graduate)
5 College 1 year to 3 years (Some college or technical school)
6 College 4 years or more (College graduate)

Do not read:

9 Refused

8.9 Are you currently...? (123)

Please read:

1 Employed for wages
2 Self-employed
3 Out of work for more than 1 year
4 Out of work for less than 1 year
5 A Homemaker
6 A Student
7 Retired

Or

8 Unable to work

Do not read:

9 Refused

8.10 Is your annual household income from all sources— (124-125)

If respondent refuses at ANY income level, code '99' (Refused)

Read only if necessary:

04 Less than $25,000 ($20,000 to less than $25,000) **If "no," ask 05; if "yes," ask 03**

03 Less than $20,000 ($15,000 to less than $20,000) **If "no," code 04; if "yes," ask 02**

02 Less than $15,000 ($10,000 to less than $15,000) **If "no," code 03; if "yes," ask 01**

01 Less than $10,000 **If "no," code 02**

05 Less than $35,000 **If "no," ask 06**
($25,000 to less than $35,000)

06 Less than $50,000 **If "no," ask 07**
($35,000 to less than $50,000)

07 Less than $75,000 **If "no," code 08**
($50,000 to less than $75,000)

08 $75,000 or more

Do not read:

77 Don't know / Not sure
99 Refused

8.11 About how much do you weigh without shoes? (126-129)

NOTE: If respondent answers in metrics, put "9" in column 126.

Round fractions up

_ _ _ _ Weight
(pounds/kilograms)
7 7 7 7 Don't know / Not sure
9 9 9 9 Refused

8.12 About how tall are you without shoes? (130-133)

NOTE: If respondent answers in metrics, put "9" in column 130.

Round fractions down

_ _ / _ _ Height
(ft / inches/meters/centimeters)
7 7/7 7 Don't know / Not sure
9 9/9 9 Refused

8.13 What county do you live in? (134-136)

_ _ _ ANSI County Code (formerly FIPS county code)
7 7 7 Don't know / Not sure
9 9 9 Refused

8.14 What is the ZIP Code where you live? (137-141)

_ _ _ _ _	ZIP Code
7 7 7 7 7	Don't know / Not sure
9 9 9 9 9	Refused

8.15 Do you have more than one telephone number in your household? Do not include cell phones or numbers that are only used by a computer or fax machine. (142)

1	Yes	
2	No	**[Go to Q8.17]**
7	Don't know / Not sure	**[Go to Q8.17]**
9	Refused	**[Go to Q8.17]**

8.16 How many of these telephone numbers are residential numbers? (143)

_	Residential telephone numbers **[6 = 6 or more]**
7	Don't know / Not sure
9	Refused

8.17 Do you have a cell phone for personal use? Please include cell phones used for both business and personal use. (144)

1	Yes	**[Go to Q8.19]**
2	No	
7	Don't know / Not sure	
9	Refused	

8.18 Do you share a cell phone for personal use (at least one-third of the time) with other adults? (145)

1	Yes	**[Go to Q8.20]**
2	No	**[Go to Q8.21]**
7	Don't know / Not sure	**[Go to Q8.21]**
9	Refused	**[Go to Q8.21]**

8.19 Do you usually share this cell phone (at least one-third of the time) with any other adults? (146)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

8.20 Thinking about all the phone calls that you receive on your landline and cell phone, what percent, between 0 and 100, are received on your cell phone?

(147-149)

_ _ _	Enter percent (1 to 100)
8 8 8	Zero
7 7 7	Don't know / Not sure
9 9 9	Refused

8.21 Do you own or rent your home?

(150)

1	Own
2	Rent
3	Other arrangement
7	Don't know / Not sure
9	Refused

INTERVIEWER NOTE: "Other arrangement" may include group home, staying with friends or family without paying rent.

NOTE: Home is defined as the place where you live most of the time/the majority of the year.

8.22 **Indicate sex of respondent. Ask only if necessary.**

(151)

1	Male	**[Go to next section]**
2	Female	**[If respondent is 45 years old or older, go to next section]**

8.23 To your knowledge, are you now pregnant?

(152)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

Section 9: Fruits and Vegetables

These next questions are about the fruits and vegetables **you** ate or drank during the past 30 days. Please think about all forms of fruits and vegetables including cooked or raw, fresh, frozen or canned. Please think about all meals, snacks, and food consumed at home and away from home.

I will be asking how often **you** ate or drank each one: for example, once a day, twice a week, three times a month, and so forth.

INTERVIEWER NOTE: If respondent responds less than once per month, put "0" times per month. If respondent gives a number without a time frame, ask: "Was that per day, week, or month?"

9.1 During the past month, how many times per day, week or month did you drink 100% PURE fruit juices? Do not include fruit-flavored drinks with added sugar or fruit juice you made at home and added sugar to. Only include 100% juice.

(153-155)

1 _ _	Per day
2 _ _	Per week
3 _ _	Per month
5 5 5	Never
7 7 7	Don't know / Not sure
9 9 9	Refused

INTERVIEWER NOTE: Do not include fruit drinks with added sugar or other added sweeteners like Kool-aid, Hi-C, lemonade, cranberry cocktail, Tampico, Sunny Delight, Snapple, Fruitopia, Gatorade, Power-Ade, or yogurt drinks.
Do not include fruit juice drinks that provide 100% daily vitamin C but include added sugar.

Do not include vegetable juices such as tomato and V8 if respondent provides but include in "other vegetables" question 9.6.

DO include 100% pure juices including orange, mango, papaya, pineapple, apple, grape (white or red), or grapefruit. Only count cranberry juice if the R perception is that it is 100% juice with no sugar or artificial sweetener added. 100% juice blends such as orange-pineapple, orange-tangerine, cranberry-grape are also acceptable as are fruit-vegetable 100% blends. 100% pure juice from concentrate (i.e., reconstituted) is counted.

9.2 During the past month, not counting juice, how many times per day, week, or month did you eat fruit? Count fresh, frozen, or canned fruit

(156-158)

1 _ _	Per day
2 _ _	Per week
3 _ _	Per month
5 5 5	Never
7 7 7	Don't know / Not sure
9 9 9	Refused

Read only if necessary: "Your best guess is fine. Include apples, bananas, applesauce, oranges, grape fruit, fruit salad, watermelon, cantaloupe or musk melon, papaya, lychees, star fruit, pomegranates, mangos, grapes, and berries such as blueberries and strawberries."

INTERVIEWER NOTE: Do not count fruit jam, jelly, or fruit preserves.

Do not include dried fruit in ready-to-eat cereals.

Do include dried raisins, cran-raisins if respondent tells you - *but due to their small serving size they are not included in the prompt*.

Do include cut up fresh, frozen, or canned fruit added to yogurt, cereal, jello, and other meal items.

Include culturally and geographically appropriate fruits that are not mentioned (e.g. genip, soursop, sugar apple, figs, tamarind, bread fruit, sea grapes, carambola, longans, lychees, akee, rambutan, etc.).

9.3 During the past month, how many times per day, week, or month did you eat cooked or canned beans, such as refried, baked, black, garbanzo beans, beans in soup, soybeans, edamame, tofu or lentils. Do NOT include long green beans.

(159-161)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

Read only if necessary: "Include round or oval beans or peas such as navy, pinto, split peas, cow peas, hummus, lentils, soy beans and tofu. Do NOT include long green beans such as string beans, broad or winged beans, or pole beans."

INTERVIEWER NOTE: Include soybeans also called edamame, TOFU (BEAN CURD MADE FROM SOYBEANS), kidney, pinto, hummus, lentils, black, black-eyed peas, cow peas, lima beans and white beans.
Include bean burgers including garden burgers and veggie burgers.

Include falafel and tempeh.

9.4 During the past month, how many times per day, week, or month did you eat dark green vegetables for example broccoli or dark leafy greens including romaine, chard, collard greens or spinach?

(162-164)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

INTERVIEWER NOTE: Each time a vegetable is eaten it counts as one time.

INTERVIEWER NOTE: Include all raw leafy green salads including spinach, mesclun, romaine lettuce, bok choy, dark green leafy lettuce, dandelions, komatsuna, watercress, and arugula.

Do not include iceberg (head) lettuce if specifically told type of lettuce. Include all cooked greens including kale, collard greens, choys, turnip greens, mustard greens.

9.5 During the past month, how many times per day, week, or month did you eat orange-colored vegetables such as sweet potatoes, pumpkin, winter squash, or carrots?
(165-167)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

Read only if needed: "Winter squash have hard, thick skins and deep yellow to orange flesh. They include acorn, buttercup, and spaghetti squash."

FOR INTERVIEWER: Include all forms of carrots including long or baby-cut.

Include carrot-slaw (e.g. shredded carrots with or without other vegetables or fruit).

Include all forms of sweet potatoes including baked, mashed, casserole, pie, or sweet potatoes fries.

Include all hard-winter squash varieties including acorn, autumn cup, banana, butternut, buttercup, delicate, hubbard, kabocha (Also known as an Ebisu, Delica, Hoka, Hokkaido, or Japanese Pumpkin; blue kuri), and spaghetti squash. Include all forms including soup.

Include pumpkin, including pumpkin soup and pie. Do not include pumpkin bars, cake, bread or other grain-based desert-type food containing pumpkin (i.e. similar to banana bars, zucchini bars we do not include).

9.6 Not counting what you just told me about, during the past month, about how many times per day, week, or month did you eat OTHER vegetables? Examples of other vegetables include tomatoes, tomato juice or V-8 juice, corn, eggplant, peas, lettuce, cabbage, and white potatoes that are not fried such as baked or mashed potatoes.
(168-170)

1 _ _ Per day
2 _ _ Per week
3 _ _ Per month
5 5 5 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

Read only if needed: "Do not count vegetables you have already counted and do not include fried potatoes."

INTERVIEWER NOTE: Include corn, peas, tomatoes, okra, beets, cauliflower, bean sprouts, avocado, cucumber, onions, peppers (red, green, yellow, orange); all cabbage including American-style cole-slaw; mushrooms, snow peas, snap peas, broad beans, string, wax-, or pole-beans.

Include any form of the vegetable (raw, cooked, canned, or frozen).

Do not include products consumed usually as condiments including ketchup, catsup, salsa, chutney, relish.

Do include tomato juice if respondent did not count in fruit juice.

Include culturally and geographically appropriate vegetables that are not mentioned (e.g. daikon, jicama, oriental cucumber, etc.).

Do not include rice or other grains.

Section 10: Exercise (Physical Activity)

The next few questions are about exercise, recreation, or physical activities other than your regular job duties.

INTERVIEWER INSTRUCTION: If respondent does not have a "regular job duty" or is retired, they may count the physical activity or exercise they spend the most time doing in a regular month.

10.1 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? (171)

1	Yes	
2	No	**[Go to Q10.8]**
7	Don't know / Not sure	**[Go to Q10.8]**
9	Refused	**[Go to Q10.8]**

10.2. What type of physical activity or exercise did you spend the most time doing during the past month? (172-173)

_ _	(Specify)	**[See Coding List A]**
7 7	Don't know / Not Sure	**[Go to Q10.8]**
9 9	Refused	**[Go to Q10.8]**

INTERVIEWER INSTRUCTION: If the respondent's activity is not included in the Coding List A, choose the option listed as "Other ".

INTERVIEWER NOTE: Housework may be included as a physical activity or exercise spent and can be coded as "Other".

10.3 How many times per week or per month did you take part in this activity during the past month? (174-176)

1_ _	Times per week
2_ _	Times per month
7 7 7	Don't know / Not sure
9 9 9	Refused

10.4 And when you took part in this activity, for how many minutes or hours did you usually keep at it?

(177-179)

_:_ _	Hours and minutes
7 7 7	Don't know / Not sure
9 9 9	Refused

10.5 What other type of physical activity gave you the next most exercise during the past month?

(180-181)

_ _	(Specify)	**[See Coding List A]**
8 8	No other activity	**[Go to Q10.8]**
7 7	Don't know / Not Sure	**[Go to Q10.8]**
9 9	Refused	**[Go to Q10.8]**

INTERVIEWER INSTRUCTION: If the respondent's activity is not included in the Coding List A, choose the option listed as "Other".

INTERVIEWER NOTE: Housework may be included as a physical activity or exercise spent and can be coded as "Other".

10.6 How many times per week or per month did you take part in this activity during the past month?

(182-184)

1_ _	Times per week
2_ _	Times per month
7 7 7	Don't know / Not sure
9 9 9	Refused

10.7 And when you took part in this activity, for how many minutes or hours did you usually keep at it?

(185-187)

_:_ _	Hours and minutes
7 7 7	Don't know / Not sure
9 9 9	Refused

10.8 During the past month, how many times per week or per month did you do physical activities or exercises to STRENGTHEN your muscles? Do NOT count aerobic activities like walking, running, or bicycling. Count activities using your own body weight like yoga, sit-ups or push-ups and those using weight machines, free weights, or elastic bands.

(188-190)

1_ _ Times per week
2_ _ Times per month
8 8 8 Never
7 7 7 Don't know / Not sure
9 9 9 Refused

Section 11: Disability

The following questions are about health problems or impairments you may have.

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

(191)

1 Yes
2 No
7 Don't know / Not Sure
9 Refused

11.2 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?

(192)

NOTE: Include occasional use or use in certain circumstances.

1 Yes
2 No
7 Don't know / Not Sure
9 Refused

Section 12: Arthritis Burden

If Q6.9 = 1 (yes) then continue, else go to next section.

Next, I will ask you about your arthritis.

Arthritis can cause symptoms like pain, aching, or stiffness in or around a joint.

12.1 Are you now limited in any way in any of your usual activities because of arthritis or joint symptoms?

(193)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

INTERVIEWER INSTRUCTION: If a question arises about medications or treatment, then the interviewer should say: "Please answer the question based on your current experience, regardless of whether you are taking any medication or treatment."

INTERVIEWER NOTE: Q12.2 should be asked of all respondents regardless of employment. status.

12.2 In this next question, we are referring to work for pay. Do arthritis or joint symptoms now affect whether you work, the type of work you do, or the amount of work you do?

(194)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

INTERVIEWER INSTRUCTION: If respondent gives an answer to each issue (whether works, type of work, or amount of work), then if any issue is "yes" mark the overall response as "yes." If a question arises about medications or treatment, then the interviewer should say: "Please answer the question based on your current experience, regardless of whether you are taking any medication or treatment."

12.3 During the past 30 days, to what extent has your arthritis or joint symptoms interfered with your normal social activities, such as going shopping, to the movies, or to religious or social gatherings?

(195)

Please read [1-3]:

1 A lot
2 A little
3 Not at all

Do not read:

7 Don't know / Not sure
9 Refused

INTERVIEWER INSTRUCTION: If a question arises about medications or treatment, then the interviewer should say: "Please answer the question based on your current experience, regardless of whether you are taking any medication or treatment."

12.4 Please think about the past 30 days, keeping in mind all of your joint pain or aching and whether or not you have taken medication. DURING THE PAST 30 DAYS, how bad was your joint pain ON AVERAGE? *Please answer on a scale of 0 to 10 where 0 is no pain or aching and 10 is pain or aching as bad as it can be.*

(196-197)

_ _	Enter number [00-10]
7 7	Don't know / Not sure
9 9	Refused

Section 13: Seatbelt Use

13.1 How often do you use seat belts when you drive or ride in a car? Would you say—

(198)

Please read:

1	Always
2	Nearly always
3	Sometimes
4	Seldom
5	Never

Do not read:

7	Don't know / Not sure
8	Never drive or ride in a car
9	Refused

Section 14: Immunization

14.1 Now I will ask you questions about seasonal flu vaccine. There are two ways to get the seasonal flu vaccine, one is a shot in the arm and the other is a spray, mist, or drop in the nose called FluMist™. During the past 12 months, have you had either a seasonal flu shot or a seasonal flu vaccine that was sprayed in your nose?

(199)

1	Yes	
2	No	**[Go to Q14.4]**
7	Don't know / Not sure	**[Go to Q14.4]**
9	Refused	**[Go to Q14.4]**

14.2 During what month and year did you receive your most recent flu shot injected into your arm or flu vaccine that was sprayed in your nose?

(200-205)

_ _ / _ _ _ _	Month / Year
7 7 / 7 7 7 7	Don't know / Not sure
9 9 / 9 9 9 9	Refused

14.3 At what kind of place did you get your last flu shot/vaccine?

(206-207)

01	A doctor's office or health maintenance organization (HMO)
02	A health department
03	Another type of clinic or health center (Example: a community health center)
04	A senior, recreation, or community center
05	A store (Examples: supermarket, drug store)
06	A hospital (Example: inpatient)
07	An emergency room
08	Workplace
09	Some other kind of place
10	Received vaccination in Canada/Mexico (Volunteered – Do not read)
11	A school
77	Don't know / Not sure **(*Probe:* "How would you describe the place where you went to get your most recent flu vaccine?"**

Do not read:

99	Refused

14.4 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?

(208)

1	Yes
2	No
7	Don't know / Not sure
9	Refused

Section 15: Alcohol Consumption

15.1 During the past 30 days, how many days per week or per month did you have at least one drink of any alcoholic beverage such as beer, wine, a malt beverage or liquor?

(209-211)

1 _ _	Days per week	
2 _ _	Days in past 30 days	
888	No drinks in past 30 days	**[Go to next section]**
777	Don't know / Not sure	**[Go to next section]**
999	Refused	**[Go to next section]**

15.2 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 the average?

(212-213)

NOTE: A 40 ounce beer would count as 3 drinks, or a cocktail drink with 2 shots would count as 2 drinks.

_ _	Number of drinks
77	Don't know / Not sure
99	Refused

15.3 Considering all types of alcoholic beverages, how many times during the past 30 days did you have **X [CATI X = 5 for men, X = 4 for women]** or more drinks on an occasion? (214-215)

	Number of times
8 8	None
7 7	Don't know / Not sure
9 9	Refused

15.4 During the past 30 days, what is the largest number of drinks you had on any occasion? (216-217)

	Number of drinks
7 7	Don't know / Not sure
9 9	Refused

Section 16: HIV/AIDS

The next few questions are about the national health problem of HIV, the virus that causes AIDS. Please remember that your answers are strictly confidential and that you don't have to answer every question if you do not want to. Although we will ask you about testing, we will not ask you about the results of any test you may have had.

16.1 Have you ever been tested for HIV? Do not count tests you may have had as part of a blood donation. Include testing fluid from your mouth. (218)

1	Yes	
2	No	**[Go to Q16.3]**
7	Don't know / Not sure	**[Go to Q16.3]**
9	Refused	**[Go to Q16.3]**

16.2 Not including blood donations, in what month and year was your last HIV test? (219-224)

NOTE: If response is before January 1985, code "Don't know."
CATI INSTRUCTION: If the respondent remembers the year but cannot remember the month, code the first two digits 77 and the last four digits for the year.

/	Code month and year
7 7/7 7 7 7	Don't know / Not sure
9 9/9 9 9 9	Refused / Not sure

16.3 I'm going to read you a list. When I'm done, please tell me if any of the situations apply to you. You do not need to tell me which one.

- You have used intravenous drugs in the past year.
- You have been treated for a sexually transmitted or venereal disease in the past year.
- You have given or received money or drugs in exchange for sex in the past year.

- You had anal sex without a condom in the past year.

Do any of these situations apply to you?

(225)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Closing Statement or Transition to Modules and/or State-Added Questions

Closing Statement

Please read:

That was my last question. Everyone's answers will be combined to give us information about the health practices of people in this state. Thank you very much for your time and cooperation.

Or

Transition to modules and/or state-added questions

Please read:

Finally, I have just a few questions left about some other health topics.