Attachment 5b
2021 NHIS Proposed New Content
Concepts Measured, Duplication, and Proposed Uses of Data

SUMMARY: 2021

New rotating core include items on allergies and psychological distress. New sponsored content includes items on COVID-19 vaccination coverage, epilepsy, myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS), cancer control (i.e., colorectal cancer, prostate cancer, cervical cancer and breast cancer screening), A1C testing, diabetes distress, insulin affordability, occupational health, hepatitis B vaccinations, life satisfaction, and loss of sense of taste and smell.

NEW ROTATING CONTENT

Allergies - Sample Adult and Sample Child

Allergies are a result of our immune system developing antigens against a substance.[1] As the 6th leading cause of chronic illness, allergies affect over 50 million Americans annually.[2] Depending on the severity of allergy symptoms that can range from mild irritation to life-threatening anaphylactic shock, allergies can affect daily life.[1] Prevalent allergies, such as food allergies among children, are a public health concern and require informed implementation of practices to ensure safe environments.[3]

Concepts to be Measured

- Symptoms of hay fever, seasonal or year-round allergies (CURRESP_A, CURRESP_C)
- Doctor diagnosed hay fever, seasonal or year-round allergies (DXRESP_A, DXRESP_C)
- Have an allergy to one or more foods (CURFOOD_A, CURFOOD_C)
- Doctor diagnosed allergy to one or more foods (DXFOOD_A, DXFOOD_C)
- Itchy rash due to eczema or atopic dermatitis (CURSKIN_A, CURSKIN_C)
- Doctor diagnosed eczema or atopic dermatitis (DXSKIN_A, DXSKIN_C)

Duplication and Previous NHIS

- Since 1997, the allergy section asked the sample child whether they were diagnosed by a health professional with any of the four types of allergies: hay fever, food/digestive, respiratory, and skin.

- In 2007, the NHIS also asked whether the sample child had any other allergy. The sample adult has been asked whether they were diagnosed with hay fever since 1997. In 2002, the NHIS also asked the sample adult about allergies to medication, and in 2012, sample adults were asked about diagnosis of digestive, respiratory, and skin allergies

Proposed Use of the Data

The data are intended to produce reliable national estimates of allergy prevalence for the adult, child, and total population.

- According to 2018 NHIS data, 7.7% of adults were diagnosed with hay fever in the past 12 months. Based on 2012 NHIS data, 11.31% of adults were diagnosed with a respiratory allergy (DXRESP_A), 4.11% with a digestive allergy (DXFOOD), 7.17% with a skin allergy in the past 12 months (DXSKIN_A). Based on the annual expected sample of ~30,000 adults, NHIS will be able to produce reliable estimates of allergy prevalence for adults for any subpopulation that is at least 2% of the total population, including adults over age 65 (16%), living with a disability (8.6%), in poverty (11.8%), of Hispanic/Latino descent (18.3%), and some racial subgroups (e.g., Black/African American, 13.4%; Asian, 5.9%).
- Amongst children under 18, 7.2% reported being diagnosed with hay fever, 9.6% reported a respiratory allergy (DXRESP_C), 6.5% reported a food allergy (DXFOOD_C), 12.6% reported a skin allergy in the past 12 months (DXSKIN_C). Reliable estimates for the child population (n ~10,000) for subpopulations that are at least 4% of the total population can be calculated, including those who ever had asthma (10.88%), those in poverty (11.8%), and those of Hispanic descent (18.3%).

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Serious Psychological Distress – Sample Adult

Psychological distress and mental health have been recognized as important facets of population health in the last few decades. The improvement of mental health and mental health disorders was included in the objectives for Healthy People 2020.[1] Findings from the National Health Interview Survey (NHIS) 2009-2013 show that women are more likely to have serious psychological distress than men, prevalence of serious psychological distress decreases as income increases, and adults with serious psychological distress are more likely to have chronic conditions such as chronic obstructive pulmonary disease (COPD), heart disease, and diabetes than adults without serious psychological distress.[2]

Concepts to be Measured

- In last 30 days:
    - Frequency of feeling so sad that nothing could cheer you up: SAD_A
    - Frequency of feeling nervous: NERVOUS_A
    - Frequency of feeling restless or fidgety: RESTLESS_A
    - Frequency of feeling hopeless: HOPELESS_A
    - Frequency of feeling everything was an effort: EFFORT_A
    - Frequency of feeling worthless: WORTHLESS_A

Duplication and Previous NHIS

- These items represent the Kessler-6 Scale (K-6), a shortened version of the Kessler-10. Both scales were developed with support from the U.S. government's National Center for Health Statistics for use in the 1997 redesigned U.S. National Health Interview Survey (NHIS).[3]

- These scales were designed to be sensitive around the threshold for the clinically significant range of the distribution of nonspecific distress to maximize the ability to discriminate cases of serious mental illness (SMI) from non-cases.

- Since its development, several studies have supported its validity[4-6] and the K-6 has also been included in the annual National Survey on Drug Use and Health, National Comorbidity Survey, and the NHIS equivalents in Canada and Australia.

Proposed Use of the Data

- These data are intended to produce reliable national prevalence estimates of serious psychological distress in the U.S. population. Items can be utilized individually or summed together for a composite K-6 score. To consider the K-6 dichotomously, a cut-off score of 13 is used to indicate the presence of serious psychological distress. For a categorical variable, the continuous K-6 score is classified into four categories: no distress (K6 = 0), low distress (K6 = 1-5), moderate distress (K6 = 6-10), and high distress (K6 = 11-24).[9]

- Data from the 2018 NHIS show that 3.9% of adults experienced psychological distress during the past 30 days.[10]

- Based on a sample size of N~30,000 adults, NHIS will be able to produce reliable prevalence estimates of psychological distress during the past 30 days for adults for any subpopulation that is at least 3% of the total population.

References

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COVID-19 Vaccination - Sample Adult and Sample Child (Content to start sometime around quarter 2 of 2021)

Sponsor: National Center for Immunization and Respiratory Diseases

While no COVID-19 vaccination is available currently, it is likely that one will be developed and made widely available during the 2021 data collection period. The exact nature of the items is unknown until the vaccine is developed, but the following concepts and uses of the data are likely.

Concepts to be Measured

Assuming two doses of the vaccination are required for it to be effective:

- Since [DATE of Availability to be determined], have you had a COVID-19 vaccination?
- How many COVID-19 vaccinations have you received?
- During what month and year did you receive your first COVID-19 vaccination?
- During what month and year did you receive your second COVID-19 vaccination?

Duplication and Previous NHIS

- These questions have been modeled after the influenza vaccination questions to facilitate a waiver application under the National Childhood Vaccine Injury Act (NCVIA) [Public Law 99-660, section 321-Title III] for addition to the NHIS

Proposed Use of the Data

- Like with other data on vaccinations collected on the NHIS, the data will be used to produce national adult, child and population estimates of COVID-19 vaccination coverage. Determining coverage as well as any gaps in coverage is important for developing strategies and communications to improve uptake of COVID-19 vaccination.

- Since the vaccination coverage can be expected to be high, subpopulation comparisons can also be made.

Epilepsy - Sample Adult

Sponsor: National Center for Chronic Disease Prevention and Health Promotion/Division of Population Health

Concepts to be Measured

- Ever diagnosed with seizure disorder or epilepsy (EPIEV_A)
- Currently take medicine to control seizure disorder or epilepsy (EPIMED_A)
- Number of seizures of any type in the past year (EPINUMSEIZ_A)
- Seen neurologist or epilepsy specialist for seizure disorder/epilepsy in the past year (EPIDR_A)

Duplication and Previous NHIS

- Epilepsy-related items are sponsored by the National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP). In 2010, 2013, 2015 and 2017 these questions were on the NHIS to also support the Healthy People 2020 initiative.[3]

- In 2005, the Behavioral Risk Factor Surveillance System (BRFSS) included the following five epilepsy questions: 1) "Have you ever been told by a doctor that you have a seizure disorder or epilepsy?"; 2) "Are you currently taking any medicine to control your seizure disorder or epilepsy?"; 3) "How many seizures have you had in the last 3 months?"; 4) "In the past year, have you seen a neurologist or epilepsy specialist for your epilepsy or seizure disorder?"; and 5) "During the past 30 days, to what extent has epilepsy or its treatment interfered with your normal activities like working, school, or socializing with family or friends?"[2]

- In 2008, the NHIS asked Sample Adult if they ever had epilepsy or seizures. Beginning in 2010 and recurring in 2013, 2015, and 2017, the Sample Adult was asked to report whether a doctor or health professional had told them they ever had a seizure disorder or epilepsy, identical to the wording of the 2021 questionnaire. Additionally in these years, respondents who reported being diagnosed with epilepsy were asked if they were currently taking medication for epilepsy, the number of seizures in the past 12 months, whether they saw a neurologist or epilepsy specialist in the past 12 months, and whether epilepsy interfered with normal activities in the past 30 days. 2021 questionnaire features the same questions minus the one about interference with normal activities.

Proposed Use of the Data

- The data are intended to produce reliable national estimates of epilepsy for the adult population since the questions are only asked to the Sample Adult.

- According to the 2017 NHIS data, 2.05% of adults reported ever being told they had a seizure disorder or epilepsy (EPILEP1). 50.64% of this population currently take

medicine to control their epilepsy (EPILEP2); 63.57% reported having 0 seizures in the past year (EPILEP3); and 39.34% have seen a neurologist or epilepsy specialist in the past year (EPILEP4)

- Based on the annual expected sample of ~30,000 adults, NHIS will be able to produce reliable estimates of epilepsy prevalence for adults for any subpopulation that is at least 5% of the total population, including adults over age 65 (16%), living with a disability (8.6%), in poverty (11.8%), of Hispanic/Latino descent (18.3%), and some racial subgroups (e.g., Black/African American, 13.4%).

References

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Chronic Fatigue and Myalgic Encephalomyelitis - Sample Adult

Sponsor: National Center for Emerging and Zoonotic Infectious Diseases

Myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) is an umbrella term that refers to illness characterized by profound fatigue and autonomic and neurocognitive symptoms.[1] The cause of ME/CFS remains unknown, although in many cases symptoms may be triggered by an infection or other prodromal event.[2] Symptoms including fatigue, cognitive dysfunction, pain, sleep disturbance, and post-exertional malaise, last many years and may contribute to impairment or disability.[3] ME/CFS symptoms are often so debilitating that patients are unable to attend work or school full-time.[4]

Estimates of the prevalence of ME/CFS are based on a few population-based studies covering limited areas of the US. Therefore, national estimates suggesting that ME/CFS affects between 836,000 and 2.5 million Americans[5,6] have been extrapolated from study samples in much smaller geographical areas. The COVID-19 pandemic has increased the need for accurate national prevalence information because post-infectious ME/CFS-like symptoms have been reported to be associated with COVID-19,[7] and if associated, could increase the burden of the condition. NHIS data can provide estimates of the lifetime and current prevalence of ME/CFS that are needed to plan for the care of individuals living with ME/CFS and the public health response to this condition.

Concepts to be Measured

- Healthcare provider ever diagnosed Chronic Fatigue Syndrome (CFS) or (Myalgic Encephalomyelitis) ME: CFSEV_A

- Current Chronic Fatigue Syndrome (CFS) or (Myalgic Encephalomyelitis) ME: CFSNOW_A

Duplication and Previous NHIS

- The two ME/CFS-related questions proposed for the 2021 NHIS have not previously been included in NHIS.
- These questions have been fielded as state-added questions of the Behavioral Risk Factor Surveillance System (BRFSS) in a limited number of states in 2014 (five) and 2016 (three); most recently these questions were administered by one state in 2019 as a BRFSS optional module.

Proposed Use of the Data

- The data are intended to produce reliable national ME/CFS lifetime prevalence estimates, given an expected lifetime prevalence of approximately 2%.

- Based on the annual expected sample of ~30,000 adults, NHIS will be able to produce reliable estimates of CFS or ME prevalence for adults for any subpopulation that is at least 7% of the total population

- With sufficient combined years of data, they may also be used to examine the co-occurrence of ME/CFS and COVID-19 diagnoses, and the association of ME/CFS with other NHIS measures, including measures of health status and limitations, functioning/disability, and other co-morbid conditions.

References

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Cancer Control - Sample Adult

Sponsor: National Center for Chronic Disease Prevention and Health Promotion and National Cancer Institute

Concepts to be measured

Colorectal cancer screening

- Colorectal cancer screening test use (COLORECTEV_A, COLORECTYP_A, COLROTH_A, CTCOLEV_A, FITHEV_A, COLOGUARD_A, FITCOLG_A)
- Timing of colorectal cancer screening test (COLWHEN_A, COLSIGWHEN_A, SIGWHEN_A, CTCOLWHEN_A, FITHWHEN_A, CGUARDWHEN_A)
- Reason for having colorectal cancer screening test (COLREASON_A)
- Colonoscopy payment (COLPAY_A)
- Doctor recommended colorectal cancer screening tests to respondents not recently screened (COLPROBLEM_A, COLKIND_A)

Prostate cancer screening

- Prostate cancer screening test use (PSATEST_A)
- Timing of most recent PSA test (PSAWHEN_A)
- Main reason for most recent PSA test (PSAREASON_A)
- Person who first suggested respondent's most recent PSA test (PSASUGGEST_A)

Cervical cancer screening

- Cervical cancer screening test use (CERVICEV_A, PAPTEST_A, HPVTEST_A)
- Timing of most recent cervical cancer screening test (CERVICWHEN_A)
- Reason for having cervical cancer screening test (CERREASON_A)
- Doctor told respondent what type of cervical cancer screening test(s) they received (TELLCERVIC_A)
- Was follow-up required following cervical cancer screening test (CERVICRES_A)
- Reason for not having cervical cancer screening test (CERVICNOT_A)
- Eligibility for receiving cervical cancer screening- hysterectomy status (HYSTEV_A)

Breast cancer screening

- Breast cancer screening test use (MAMEV_A)
- Timing of most recent mammogram (MAMWHEN_A)
- Mammogram payment (MAMPAY_A)
- Reason for having most recent mammogram (MAMREASON_A)
- Approximate age at first mammogram (MAMAGE1ST_A)
- Reason for not recently having a mammogram (MAMNOT_A)

Duplication and Previous NHIS

- NHIS is the data source for evaluating Healthy People cancer screening objectives, as well as for the NCI's National Cancer Trends Progress Report section on cancer screening and prevention topics.

- While the Behavioral Risk Factor Surveillance System occasionally fields cancer screening questions similar to the NHIS Preventive Services Core cancer screening questions, the NHIS sample is drawn to be nationally representative, while BRFSS is designed to produce state-level estimates.

- Many of the NHIS Cancer Control Supplement cancer screening items do not have similar measures on recent iterations of BRFSS (COLOGUARD_A, CGUARDWHEN_A, COLREASON_A, COLPAY_A, COLPROBLEM_A, COLKIND_A, MAMREASON_A, MAMAGE1ST_A, MAMWHY1ST_A, MAMNOT_A, CERREASON_A, TELLCERVIC_A, CERVICRES_A, CERVICNOT_A)

- Although the NCI's Health Information National Trends Survey sometimes fields questions related to cancer screening, the focus of HINTS is on understanding the U.S. population's public knowledge of, attitudes towards, and use of cancer health-related information as well as to monitor trends in the fields of health communication and health information technology in cancer.

- All but one of the proposed items have been fielded previously on the National Health Interview Survey.

  o The newly proposed item, TELLCERVIC_A, will assess if respondents were told which type of cervical cancer screening test(s) they received. Respondents who were not told which test(s) they received will likely not be able to accurately recall this information. Analysts may use data from this new question to produce more accurate estimates of HPV and pap test use.

- Several items previously fielded on NHIS now feature updated response options. These new response options have been informed by analyses of NHIS data from previous years, research results from non-NHIS sources, and previous cognitive testing reports. Items with updated response options include:

- o PSAREASON_A, CERVICNOT_A, MAMREASON_A, MAMAGE1ST_A, and MAMNOT_A

- Fielding of Cancer Control Supplement questions on screening test use in unison with the Preventive Services rotating core helps to minimize respondent burden

Proposed use of the data

- Data from the nationally representative NHIS will be able to produce reliable national prevalence estimates of cancer screening test use.
- Analysts may use the data to determine uptake of specific types of cancer screening tests (i.e. colonoscopy, Cologuard, etc.) or to determine USPSTF cancer screening guideline concordance.
- NHIS is the data source for monitor progress towards Healthy People cancer screening objectives.[2]
- Regular fielding of these items allows for monitoring of trends in cancer screening test use over time.
- NHIS cancer control supplement questions are an invaluable data source to identify and monitor disparities in cancer screening test use within a nationally representative sample.[2, -6]

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Diabetes A1C Testing

Sponsor: National Center for Chronic Disease Prevention and Health Promotion

The American Diabetes Association (ADA) generally recommends A1C testing at least twice a year for people with diabetes. For some high-risk individuals or those not meeting diabetes management goals, the ADA recommends testing A1C every 3 months.[1]

Concepts to be Measured

- Last time had A1C checked by a doctor, nurse, or other health professional: DIBA1CLAST_A
- Frequency of A1C testing in the last year: DIBA1CNUM_A

Duplication and Previous NHIS

The Behavioral Risk Factor Surveillance System (BRFSS) includes the item CHKHEMO3 in the option Diabetes Module through 2018: "About how many times in the past 12 months has a doctor, nurse, or other health professional checked you for A-one-C?"

Proposed Use of the Data

- In 2016, only 17 states contributed BRFSS data for a state median estimate: 69.7% of adults with diagnosed diabetes had at least 2 A1C tests in the past 12 months.
- Data from the nationally representative NHIS will be able to produce reliable estimates of the proportion of the diabetes population that meets the guidelines for A1C testing.

References

1. American Diabetes Association. Standards of Medical Care in Diabetes—2020. Clinical Diabetes 2020 Jan; 38(1): 10-38.
2. CDC. US Diabetes Surveillance System. https://gis.cdc.gov/grasp/diabetes/DiabetesAtlas.html#

Diabetes Distress

Sponsor: National Center for Chronic Disease Prevention and Health Promotion

<u>Concepts to be Measured</u>

Diabetes distress results from the emotional burden (e.g., worry, frustration, anger, burnout) of managing diabetes and may negatively affect motivation for diabetes self-care and glycemic control. Diabetes distress and depression are closely related but not interchangeable; they can overlap.[1] About 4.5% of adults with diabetes screen positively for both diabetes distress and depression, and there is a bidirectional relationship between the two conditions.[1]

- Frequency of feeling overwhelmed by the demands of living with diabetes in the last 30 days: DIBSTRESS_A
- Change in the feeling overwhelmed by the demands of living with diabetes between time before coronavirus pandemic and now: DCIBSTRESS_A

<u>Duplication and Previous NHIS</u>

- The 20-item Problem Areas in Diabetes (PAID) Scale and the 17-item Diabetes Distress Scale (DDS) are 2 common measures for detecting diabetes distress.[3] To date, neither the scales nor their individual items have appeared on national surveys to assess diabetes distress.
- The proposed DIBSTRESS_A is a modified version of the DDS screener question assessing "feeling overwhelmed by the demands of living with diabetes." The newly developed item DCIBSTRESS_A will assess whether the level of diabetes distress has changed since the time before the coronavirus pandemic.

<u>Proposed Use of the Data</u>

- Based on a systematic review and meta-analysis, diabetes distress affects almost one third of adults with type 2 diabetes.[2] In one study of 628 people with both type 1 and type 2 diabetes, 43.6% of the participants reported significant diabetes distress.[3]
- The data from the NHIS are intended to produce the first, reliable national prevalence estimates of diabetes distress in the U.S. population with self-reported diabetes.
- Based on a sample size of N~3150 adults with diagnosed diabetes (10.51% of the total sample) and an expected 30% diabetes distress prevalence, NHIS will be able to produce reliable estimates of DIBSTRESS_A for key subpopulations, including those currently taking oral diabetes medication (82.14%) or insulin (30.46%).
- NHIS will be able to produce reliable estimates for each of the 5 categories of DIBSTRESS_A and for each of the 3 categories of DCIBSTRESS_A.
- Future studies using these 2 items will examine correlates of diabetes distress, along with important associations between diabetes distress, preventive service use and access to care.

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Insulin Affordability

Sponsor: National Center for Chronic Disease Prevention and Health Promotion

Concepts Measured

If takes insulin

- (Past 12 months) were any of the following true …you skipped insulin doses to save money: INSSKIP12M_A
- (Past 12 months) …you took less insulin than needed to save money: INSLESS12M_A
- (Past 12 months)…you DELAYED buying insulin to save money: INSDLY12M_A

Duplication and Previous NHIS

- These items have not previously been fielded on the NHIS, but the wording is based on previously fielded items in the NHIS related to cost of prescription medications.

Proposed Use of the Data

- The prevalence of diagnosed diabetes in the adult population is 10.2% and undiagnosed diabetes is about 2.8%, for a total of 13%. According to NHIS 2018 unweighted data, about 20% of persons with diabetes are taking insulin for a total population prevalence of about 3%.
- While subpopulations comparisons cannot be done, with a sample of ~30,000 sample adults, reliable estimates for those struggling with insulin affordability can be made for estimates for of 3% or higher.

References

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Occupational Health

Sponsor: National Institute for Occupational Safety and Health

NIOSH relies on data collected through population-based surveys to study aspects of occupational safety and health that are not well-covered by traditional occupational health surveillance systems. The 2021 OHS concepts will provide a more complete picture of work arrangement characteristics related to psychosocial, mental, financial, and physical stress, and provide information on their associations with health outcomes among U.S. workers. In response to the pandemic, questions will also assess rates of working while ill and work absence due to illness, and how frequently these combine with close proximity to others at work to affect the risk of disease transmission (based on workplace distancing questions added to the NHIS in July 2020).

<u>Concepts Measured</u>

- Employer deducts or withholds taxes from pay (self-employment): JOBTAX_A
- Degree of earnings change from month to month: not at all, a small amount, a moderate amount, a large amount (income variability): JOBCHGEARN_A
- Usual hours of work on main job: daytime shift, evening shift, night shift, rotating shift, something else (shiftwork): JOBSHIFT_A
- Ease in changing work schedule for family obligations: very easy, somewhat easy, somewhat difficult, very difficult (schedule flexibility): JOBCHGSCH_A
- Does work schedule change on a regular basis (schedule predictability): JOBVARYSCH_A
- How far in advance do you know the hours you will work (schedule predictability): JOBADVSCH_A
- Next 12 months, how likely to lose job or be laid off: very likely, fairly likely, not too likely, not at all likely (job insecurity): JOBLKYLOSS_A
- Past 3 months, how many days work while physically ill (presenteeism): JOBWRKSICK_A
- Past 3 months, number days missed because of illness (illness absenteeism): JOBMISS_A

<u>Duplication and Previous NHIS</u>

- NIOSH has previously studied many occupational health outcomes included in National Health Interview Survey Occupational Health Supplements (NHIS-OHS) conducted in 2010 and 2015 (See https://www.cdc.gov/niosh/topics/nhis/default.html).
- Topics covered in 2010 and 2015 include supplemental work history, non-standard work arrangements (a single question), shift work, hostile work environment, environmental

tobacco smoke, carpal tunnel syndrome, work-life imbalance, and worry about unemployment.

- The 2010 NHIS-OHS supplement also included an additional measure of supplemental work history, temporary work, skin hazards, outdoor work, vapor fumes exposure, filing of workers' compensation claims for injury/ poisoning, asthma, and dermatitis.
- The 2015 NHIS-OHS supplement also included measures of supervisory responsibility, job demands, job control, supervisory support, safety, safety climate, ergonomic exposure, workplace health promotion, and low back pain.
- The 2021 OHS questions build on the 2010 and 2015 NHIS-OHS's sponsored questions but with a narrower focus.
- The question on job insecurity (JOBLKYLOSS_A) has been fielded by Gallup.

Proposed Use of the Data

- Previous analyses of associations of health risks with work arrangements have often focused more specifically on temporary agency and contract workers, who represent two prominent forms of nonstandard work arrangements, and found that they are often more likely than other workers to experience financial stress, increased exposure to poor psychosocial work environments, safety hazards, job stress, and poor health-related quality of life (Asfaw et al, 2017; Alterman et al, 2017; Ray et al., 2017; Foley, 2017). The 2021 OHS supplement will allow identification of a broader, more diverse set of work arrangements to study their associations with psychological and physical health outcomes. This can help identify target populations and research questions for more in-depth future investigations of possible influence of work arrangements on health and well-being, using other data sources.

- The OHS supplement will support research that builds upon previous findings suggesting the association of several features of work arrangements with health risks and outcomes. Researchers have shown that aspects of nonstandard work are associated with depression, sickness presenteeism, injury, musculoskeletal disorders, and lower health-related quality of life (Virtanen et al., 2008; Im et al, 2012; Foley, 2017; Lewchuck et al., 2003; Ray et al., 2017). However, these studies are based in other countries or on samples of workers from a restricted set of industries or occupations. Researchers have also found that job insecurity, in particular is associated with poor self-rated health, frequent mental distress, and depression (Peckham et al., 2019; Ferrie et al., 2003; Virtanen et al., 2011; Burgard et al., 2009). NIOSH researchers have shown in cross-sectional analyses that lack of health insurance is associated with other features of nonstandard work (Alterman et al., 2017, Su et al., 2019, Asfaw et al., 2017). In addition, unpredictable work shifts have been associated with work-family conflict (Arlinghaus 2019) which has been linked to mental health. (Oshio 2017)

- Some of the defining elements of work arrangements are covered by the annual or rotating content of the NHIS core adult questionnaire. These include employment status, work hours, income, and health insurance. In 2021, the NHIS will also collect information on occupation and industry, which can help to provide at least broad indications of where nonstandard work arrangements may be associated with negative

health outcomes. The 2021 NHIS-OHS is designed to collect data on additional work arrangement elements not found in the NHIS core. This will provide a more complete opportunity to study associations between job arrangement characteristics and health outcomes.

- The NHIS-OHS supplement will be used to look at the association between different types of work arrangements (e.g., self-employed vs. not self-employed, shift-work vs. non shift-work, secure vs. insecure, etc.) and health care access, as well as select health outcomes including serious psychological distress, anxiety, depression, self-rated health, injuries, and cardiovascular disease. For work arrangements consisting of about 10% of the adult population or more, any prevalence estimates of health outcomes greater than 2% of all adults will be reliable. For work arrangements consisting of 2% of the adult population, prevalence estimates of health outcomes greater than 5% will be reliable.

- The NHIS OHS will also look at the prevalence of presenteeism and absenteeism across different industry sectors. This will provide new information about where workers find it difficult to avoid risks of infectious disease transmission in the workplace. The OHS will have sufficient power to provide useful measures. For example, food preparation and healthcare each represent about 10% of the total population and office and administrative support represents about 15% of the total population. For industry sectors of this size, any prevalence estimates greater than 2% will be reliable. For smaller industry sectors (e.g., 3% of employed Americans, or 2% of all adults), prevalence estimates greater than or equal to 5% will be reliable. We predict that, for most industry sectors, at least 10% of adult workers will have worked while physically ill within the past 3 months and at least 3% will have missed a day of work due to illness within the 3 months. (Susser and Ziebarth 2016, Maestas 2020, CDC 2004)

- There are some limitations to the use of these data in the NHIS. Sampling error is likely to have a substantial impact on statistics from small subpopulations such as workers in nonstandard work arrangements. In addition, because it is household based, it may underrepresent low income earners and earners in agriculture and mining. Causality cannot be established from cross-sectional data. Instead the NHIS-OHS supplement provides information about associations between work arrangements and health outcomes that will be useful for public health planning, monitoring and evaluation, as other data sources are lacking.

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Life Satisfaction – Sample Adult

Sponsor: National Center for Chronic Disease Prevention and Health Promotion, CDC Office of the Chief Operating Officer, National Institutes of Health Office of Disease Prevention

Concepts to be Measured

- Using a scale of 0 to 10, where 0 means "very dissatisfied" and 10 means "very satisfied", how do you feel about your life as a whole these days: LSATIS11_A
- In general, how satisfied are you with your life? Would you say very satisfied, satisfied, dissatisfied, or very dissatisfied?: LSATIS4_A

Duplication and Previous NHIS

- The ordinal scale has never been fielded on the NHIS. The source of this item is from the 2018 Canadian Community Health Survey. It has been fielded on the CCHS for the past 25 years. The form of the question is consistent with OECD Guidelines on Measuring Subjective Well-being.
- The categorical scale that includes very satisfied to very dissatisfied response options has previously been fielded in the NHIS and BRFSS.

Proposed Use of the Data

- These data are intended to produce a reliable national prevalence estimate of life satisfaction among the adult population.
- It will be used as one of the HP2030 Overall Health and Well-being Measures (OHM, formerly called the Foundation Health Measures), which are broad, global outcome measures of overall health and well-being intended to assess the Healthy People 2030 Vision.
- We are including both versions of the question on the survey in the 2021 to evaluate the the congruence between the points on the 0-10 scale from the item from the Canadian Community Health Survey and the response options from the former NHIS/BRFSS question.
- According to the 2017 BRFSS, approximately 47% of the U.S. adults were very satisfied. The annual NHIS sample would be of sufficient size for reliable estimates in nearly all subgroups.

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Hepatitis Vaccinations - Sample Adult

Sponsor: National Center for Immunization and Respiratory Diseases

Hepatitis B virus (HBV) is a type of viral hepatitis transmitted through sexual contact, contaminated blood, or from an infected mother to her newborn HBV may cause a liver infection that is acute or short-term, but may also cause chronic or long-term infection (National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, 2020). Hepatitis A is a serious liver disease. It is usually spread through close personal contact with an infected person or when a person unknowingly ingests the virus from objects, food, or drinks that are contaminated by small amounts of stool from an infected person.(Centers for Disease Control and Prevention, 2020)

Vaccinations have been developed for both diseases. One of the longstanding objectives of the NHIS is to assess vaccination coverage in the noninstitutionalized civilian population.

Concepts to be Measured

- Ever received the hepatitis B vaccine: SHTHEPB_A
- Ever received the hepatitis A vaccine: SHTHEPA_A
- Ever lived with someone with hepatitis: LIVEHEP_A

Duplication and Previous NHIS

- All three of these items have been previously fielded on the NHIS.

Proposed Use of the Data

- According to data collected from the 2015-2018 National Health and Nutrition Examination Survey (NHANES), the prevalence of hepatitis B vaccination, based on blood test results, was 25.2% (Kruszon-Moran, et al., 2020). Based on a sample of ~30,000 sample adults, reliable estimates can be produced for any subpopulation with a prevalence as low as 1%, which is to say any subpopulation.

- Data from the 2017 NHIS reported hepatitis A vaccination coverage ($\geq$2 doses) was 10.9% for adults $\geq$19 years, and 6.1% for adults $\geq$50 years, similar to the estimates for 2016, while coverage among adults 19-49 years was 15.7% in 2017, a 2.3 percentage points increase compared with 2016. (Hung, et al., 2017). Based on a sample of -30,000 sample adults, reliable estimates can be expected for most other subpopulations.

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Taste and Smell - Sample Adult

Sponsor: National Institute on Deafness and Other Communication Disorders

Concepts to be Measured

- Past 12 months, have you had difficulty with sense of smell or ability to detect odors (SMELLDF_A)
- Compared to when you were (25 years old / 5 years younger), ability to smell (better, worse, no change)(SMELLCOMP_A)
- Past 12 months, smell an unpleasant, bad, metallic, or burning odor when nothing is there (SMELLPHT_A)
- Past 12 months, difficulty with your ability to taste sweet, sour, salty, or bitter foods and drinks (TASTEDF_A)
- Compared to when you were (25 years old / 5 years younger), ability to taste sweet, sour, salty, or bitter foods and drinks (better, worse, no change) (TASTECOMP_A)
- Compared to when you were (25 years old / 5 years younger), ability to taste flavors such as chocolate, vanilla, or strawberry (better, worse, no change) (TASTEFLAV_A)
- Past 12 months had an unwanted taste or other sensation in mouth that does not go away (TASTEUNW_A)
- Ever discussed any problem with, or a change in your ability to taste or smell, with a doctor or other health professional (TSTSMHP_A)
    o When was the last time discussed any problem with ability to taste or smell with a doctor or other health professional (TSTSMLAST_A)
- Past 12 months, had any of the following
    o … a head cold or flu for longer than a month (COLDFLU12M_A)
    o … persistent dry mouth (DRYMOUTH12M_A)

For those with positive coronavirus diagnosis

- Had coronavirus symptoms include losing sense of smell, having distortions, or smelling odors that were not there? (CVDSYMSM_A)
    o Has your sense of smell fully or partially recovered? (CVDSMREC_A)

- Had coronavirus symptoms include losing ability to taste or having unwanted tastes or sensations in your mouth that did not go away (CVDSYMTST_A)

o   Has ability to taste fully or partially recovered? (CVDTSTREC_A)

Duplication and Previous NHIS

- With the exception of head colds or flu (which was last on the NHIS in 2018) and persistent dry mouth (which was fielded as part of the 2008 Oral Health Supplement) none of the items have appeared on the NHIS

- Items similar to the first nine concepts listed above related to sense of taste and smell as well as discussing such with a health professional (SMELLDF_A, SMELLCOMP_A, SMELLPHT_A, TASTEDF_A, TASTECOMP_A, TASTEFLAV_A, TSTSMHP_A, TSTSMLAST_A were fielded on the NHANES in the years 2011-2014

Proposed Use of the Data

- All of the items (except those related to coronavirus), but especially TSTSMHP_A and TSTSMLAST_A will be used to address the Healthy People 2030 objective to increase the proportion of adults with smell or taste disorders who discuss the problem with a provider (HOSCD 12)

- Using data from 2013-2014 NHANES, the estimated prevalence is 13.5% for smell impairment and 17.3% for taste impairment. For smell, but not taste, prevalence estimates increased with age and were higher in men and ethnic minorities.   Based on a projected NHIS sample size of ~30,000, reliable estimates will be able to be produced for both taste and smell impairments for most subgroups (Liu, et al., 2016)

- Data currently collected from the 2020Q3 NHIS indicates that about 3% of the population has a positive coronavirus diagnosis. Given the current incidence rate of between 30,000 and 40,000 cases per day, it is not unreasonable to expect the prevalence rate to reach 5-6% during the 2021 data collection year. Based on a sample adult size of ~ 30,000 there is sufficient power to produce a reliable estimate for taste and smell problems related to the coronavirus as long as the taste and smell estimate is at least 2% of the COVID-19 population.

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