



HSS Community Service Plan

Advancing the State's Public Health Priorities



New York State Department of Health Prevention Agenda HSS Three-Year Community Service Plan (2019 – 2021)

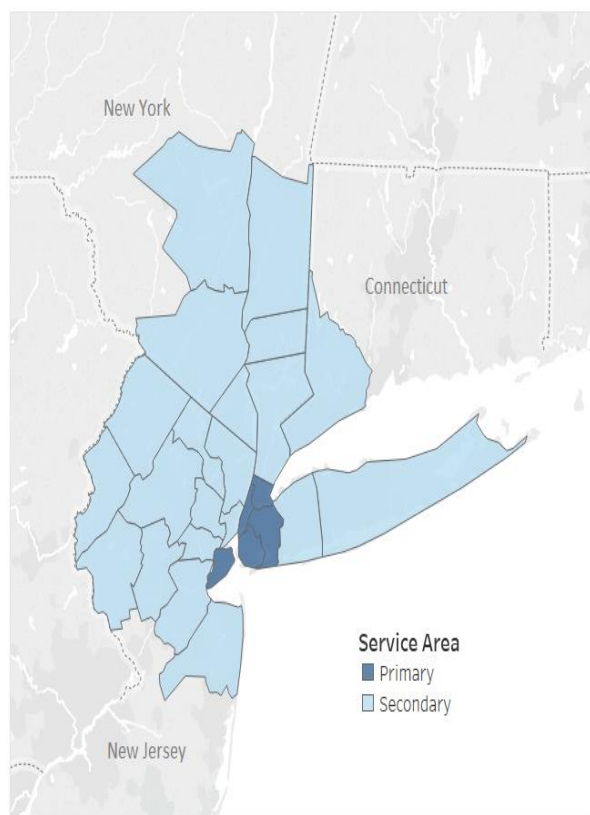
A. Community Health Assessment

1. Description of Community Assessed

Founded in 1863, HSS is the nation’s oldest orthopedic hospital, world-renowned for its expertise in musculoskeletal and rheumatologic conditions. As an academic medical center and specialty hospital focused on musculoskeletal patient care primarily in the fields of orthopedics and rheumatology, HSS has established an ongoing commitment to physical wellness and providing patients with the highest standards of health care. HSS recognizes that the need for community outreach and service continues to grow, especially in the context of an increasingly diverse community and rapidly aging baby boomer generation. The Hospital’s commitment to community service – exemplified by its history of implementing initiatives that provide the highest level of care to patients and improving the health of the public – has continued for over a century and resonates with the health needs of many New Yorkers, particularly culturally diverse communities, LGBT, children and older adults.

HSS’ primary service area consists of the five boroughs of New York City (NYC) - Manhattan, Bronx, Brooklyn, Queens and Richmond; while its secondary service area is comprised of suburban areas in Northern NY, Northern and Central New Jersey, Connecticut and Long Island as seen in Figure 1 below. Given its specialized focus on musculoskeletal and rheumatologic care, the Hospital’s reach and impact extend beyond its immediate service area to communities around the world.

Figure 1: HSS service areas



Service Area	Region	County
Primary	New York City	Bronx
		Kings
		Manhattan
		Queens
		Richmond
Secondary	Connecticut	Fairfield
	Long Island	Nassau
		Suffolk
	Northern & Central New Jersey	Bergen
		Essex
		Hudson
		Hunterdon
		Middlesex
		Monmouth
		Morris
		Passaic
		Somerset
		Sussex
		Union
		Warren
	Northern New York	Dutchess
		Orange
		Putnam
		Rockland
		Ulster
		Westchester

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2. Community Profile

To better understand the health needs of our community, secondary data was reviewed at the national, state and city level to identify gaps and health disparities that exist. Data collected include socio-demographics, health status and quality of life, health behavior and life style, and use, access to care and health educational needs.

a. Demographics of the Community

According to 2018 census data, the NYC community consists of an estimated 8,398,748 people, of which 42% identified as White, 29% identified as Hispanic or Latino, 24% identified as Black or African American, and 14% identified as Asian.¹ This racial and ethnic diversity is further highlighted by the city's immigrant population – between 2013-2017, over one-third (37%) of the City's population was foreign-born.

At the same time, the older adult population continues to grow, with the New York City Department of Aging projecting that in 2040, approximately 21% of NYC residents will be ages 60 and older, up from 16% in 2000.² Compared to the population, older adults face unique health disparities:³

- Less than 40% of older adults are meeting the Centers for Disease Control and Prevention (CDC) recommendation of 150 minutes of moderate physical activity per week
- Over 70% of older adults face difficulties with activities of daily living, including bathing, dressing, walking, and climbing stairs
- In terms of musculoskeletal health, arthritis affects over half (51%) of all older adults in NYC

HSS has remained dedicated to improving the health of communities where dramatic health disparities exist in our primary and secondary service areas. According to the NYC Department of Health and Mental Hygiene (DOHMH) Community Health Profiles, the following health disparities exist:⁴

- In NYC, fall-related hospitalizations among adults ages 65 and older are highest in the South Beach and Willowbrook community districts of Staten Island and in the Upper East Side
- Only 65% living in Bensonhurst, Mott Haven and Melrose, and Hunts Point and Longwood reported participating in any physical activity in the past 30 days, compared to the NYC average of 73%

HSS is also dedicated to improving the health of Asian communities residing in New York City. The Asian American community is the fastest growing racial group in the United States, and the fastest growing demographic of Asian American older adults is in New York City.⁵ In 2016, Asian American older adults made up 16% of all older adults in New York City ages 50 years

¹ U.S. Census Bureau. (2018). *Quick facts – New York city, New York*. [Table]. Retrieved from <https://www.census.gov/>

² New York City Department for the Aging. (2018). *"Plan 2025": Aging Services in an Era of Rapid Population Growth*. New York, NY.

³ New York City Department of Health and Mental Hygiene. (2019). *Health of Older Adults in New York City*. New York, NY.

⁴ New York City Department of Health and Mental Hygiene. (2018). *2018 Community Health Profiles Map Atlas*. New York, NY.

⁵ Asian American Federation. (2016). *Asian American Seniors in New York City: An Updated Snapshot*. New York, NY.

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and older.³ As a community, Asians in NYC are primarily an immigrant population that is rich in cultural and linguistic diversity.⁶ Health disparities highlighted below exist among the Asian population in Chinatown as well as Flushing, Queens:^{7,8}

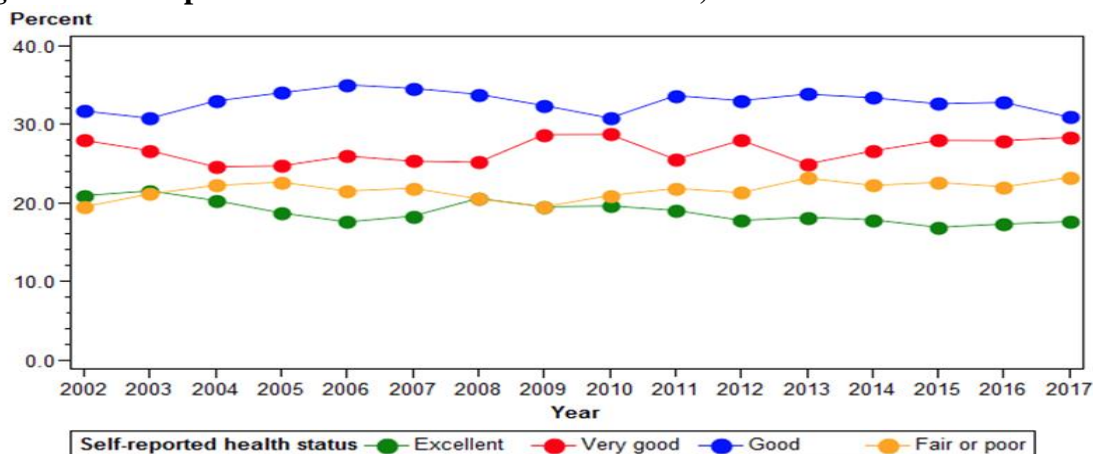
- In both Chinatown and Flushing, the percentage of residents with limited English proficiency is higher than the NYC average of 23%, at 28% and 51% respectively
- The poverty rate for Flushing is 25% as compared to 20% in New York City
- Among older adults ages 65 years and older, falls-related hospitalizations were higher in Chinatown than the New York City average

b. Health status and quality of life

According to the New York City DOHMH, 22% of NYC residents self-reported their health as fair to poor, a trend that has been increasing over the past several years (Figure 2).⁹ This stands in contrast to the national average, which is lower, at 18.4 percent.¹⁰ On the other hand, Paramus residents were less likely to self-report their health as fair or poor (10.8%).¹¹ Unlike self-reported health, New York City residents (12.8%) were less likely to report poor mental health than the national average (35.6%).^{9,10} Regionally, the rates of poor mental health in Fairfield County, Westchester County, Paramus, and Nassau County were 12%, 11%, 10%, and 16% respectively.

11, 12, 13, 14

Figure 2. Self-reported health status of NYC residents, 2002-17¹⁵



⁶ Asian American Federation. (2013). *Asian Americans of the Empire State: Growing Diversity and Common Needs*. New York, NY

⁷ Hinterland K, Naidoo M, King L, Lewin V, Myerson G, Noubissi B, Woodward M, Gould LH, Gwynn RC, Barbot O, Bassett MT. Community Health Profiles 2018, Queens Community District 7: Flushing and Whitestone; 2018; 49(59):1-20.

⁸ Hinterland K, Naidoo M, King L, Lewin V, Myerson G, Noubissi B, Woodward M, Gould LH, Gwynn RC, Barbot O, Bassett MT. Community Health Profiles 2018, Manhattan Community District 3: Lower East Side and Chinatown; 2018; 3(59):1-20.

⁹ New York City Department of Health and Mental Hygiene. Epiquery: NYC Interactive Health Data System - Community Health Survey 2016. <https://nyc.gov/health/epiquery>

¹⁰ Kaiser Family Foundation analysis of the Centers for Disease Control and Prevention (CDC)'s Behavioral Risk Factor Surveillance System (BRFSS) 2013-2017 Survey Results.

¹¹ Professional Research Consultants. (2016). 2016 Community Health Needs Assessment Report: The Valley Hospital Service Area. Omaha, NE.

¹² Stamford Health. (2016). *2016 Stamford Hospital Community Health Needs Assessment*. Retrieved from

<https://www.stamfordhealth.org/app/files/public/2254/Community-Health-Assessment-Needs.pdf>

¹³ Westchester County Department of Health. (2016). *2016-2018 Community Health Improvement Plan*. Retrieved from

<https://health.westchestergov.com/images/stories/Data-Stats/CHA-CHIP-Report2016-2018.pdf>

¹⁴ Northwell Health. (2016). *Northwell Health Community Service Plan 2016-2019: Nassau County Service Area CHNA*. Retrieved from

<https://www.northwell.edu/sites/northwell.edu/files/d7/Northwell%20Health%20Nassau%20County%20CHNA%202016.pdf>

¹⁵ New York City Department of Health and Mental Hygiene. Community Health Survey [2002-17]; public use dataset accessed on 28 August 2019.

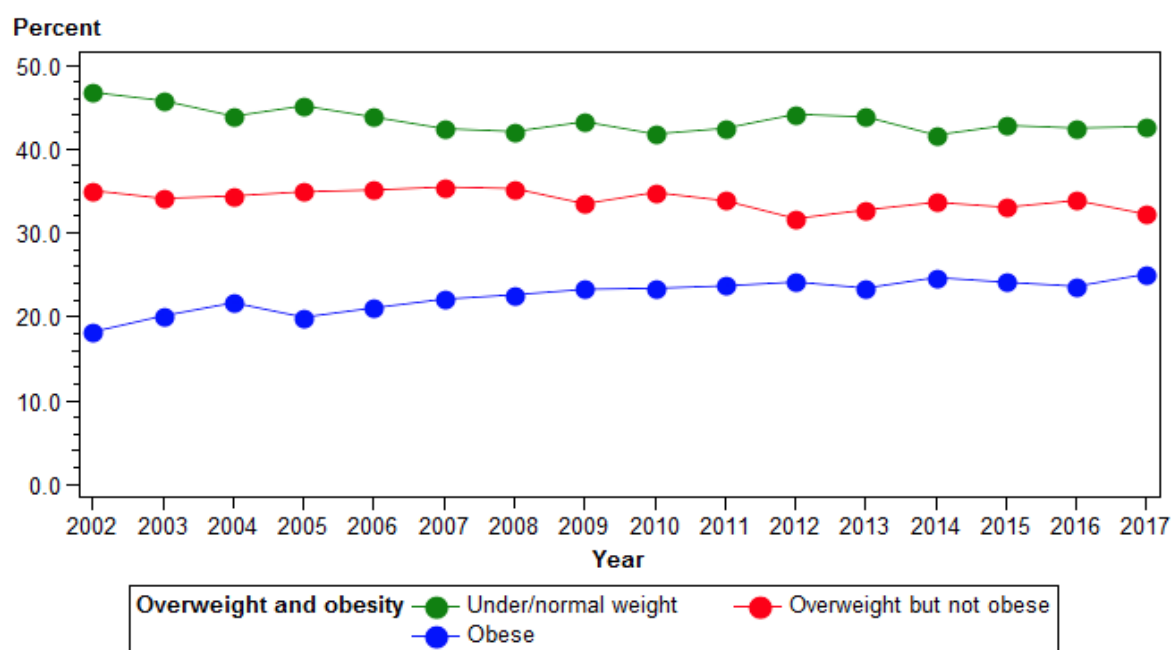
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With regards to musculoskeletal and rheumatological conditions, HSS’ 2016 CHNA found the prevalence of osteoarthritis to be 30.3 percent. While higher than the national prevalence of 22.7 percent, the finding was consistent with the numbers reported in Paramus (30.0%) and Suffolk County (30.6%).^{11,12,16} Similarly, the prevalence of osteoporosis among HSS’ service areas (27.6%) was higher compared to the national prevalence (10.3%).¹⁷

c. Health behavior and lifestyle

Nationally, the percentage of adults who are overweight or obese is 65.4%, similar to what is observed in New York City (56%), Paramus (61.1%), and Suffolk County (59.6%).^{9,10,11,12} This highlights the prevalence of unhealthy lifestyles, which is further reflected in rates of physical inactivity. Whereas 21% of the country do not meet the CDC physical activity guidelines, close to one-third (31%) of New York City residents do not meet the same guidelines, and over three-quarters (79%) of Suffolk County residents reported engaging in no physical activity in the past 30 days.^{9,12} For both obesity and rate of physical activity, trends over time do not suggest major shifts in patterns of healthy behavior (Figures 3 and 4).

Figure 3. Prevalence of overweight and obesity in NYC, 2002-17 ¹⁵

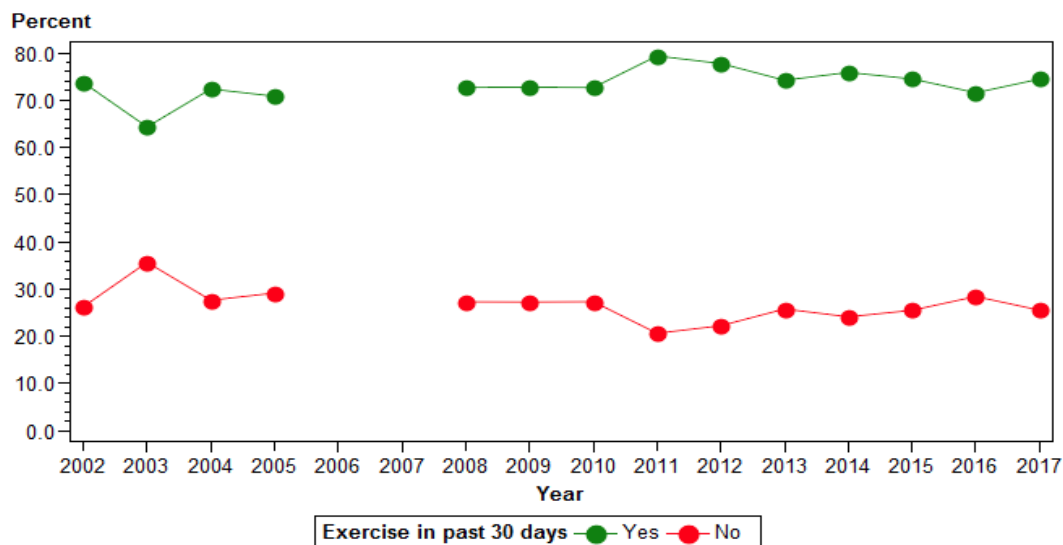


¹⁶ Barbour KE, Helmick CG, Boring M, Brady TJ. (2017). *Vital Signs: Prevalence of Doctor-Diagnosed Arthritis and Arthritis-Attributable Activity Limitation — United States, 2013–2015*. MMWR Morb Mortal Wkly Rep 2017; 66:246–253. DOI: <http://dx.doi.org/10.15585/mmwr.mm6609e1>.

¹⁷ Wright, N. C., Looker, A. C., Saag, K. G., Curtis, J. R., Delzell, E. S., Randall, S., & Dawson-Hughes, B. (2014). The recent prevalence of osteoporosis and low bone mass in the United States based on bone mineral density at the femoral neck or lumbar spine. *Journal of bone and mineral research : the official journal of the American Society for Bone and Mineral Research*, 29(11), 2520–2526. doi:10.1002/jbmr.2269

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Figure 4. NYC residents who engaged in exercise in the past 30 days, 2002-17 ¹⁵



In examining the current health behavior landscape, it has never been more crucial to also consider opioid use and abuse. Across the country, between 21 and 29 percent of patients misuse opioids prescribed for chronic pain.¹⁸ In New York City alone, there were 1075 opioid-related overdose deaths reported in 2016, an alarming increase from the 753 deaths reported in 2015.¹⁹ Furthermore, 18% of the 2016 opioid-related overdose deaths involved the use of prescription opioids.

d. Use of and access to care

Health coverage in HSS service areas does not differ drastically by region. In New York City, 89.1% of residents have health insurance coverage compared to 94.9% in Paramus and 89.7% in Suffolk County.¹¹ In examining trends over time, there was an uptick in health coverage across the city in 2013, likely corresponding to the onset of the health exchanges through the Affordable Care Act (Figure 5).

While health coverage across regional sites is comparable, disparities exist in access to care. In 2016, approximately one out of every ten (10.5%) New York City residents did not get access to health care when needed in the past year (Figure 6), a surprising finding considering that only 4.4% of people across the country reported the same.⁹ Additionally in Stamford and Paramus, 21% and 40% of residents reported difficulties with healthcare access in the past year.¹¹

¹⁸ National Institute on Drug Abuse. (2019). Opioid Overdose Crisis. Retrieved from <https://www.drugabuse.gov/drugs-abuse/opioids/opioid-overdose-crisis>

¹⁹ The City of New York Office of the Mayor. (2016). *Healing NYC: Preventing Overdoses, Saving Lives*. New York, NY.

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Figure 5. NYC health insurance coverage, 2002-17 ¹⁵

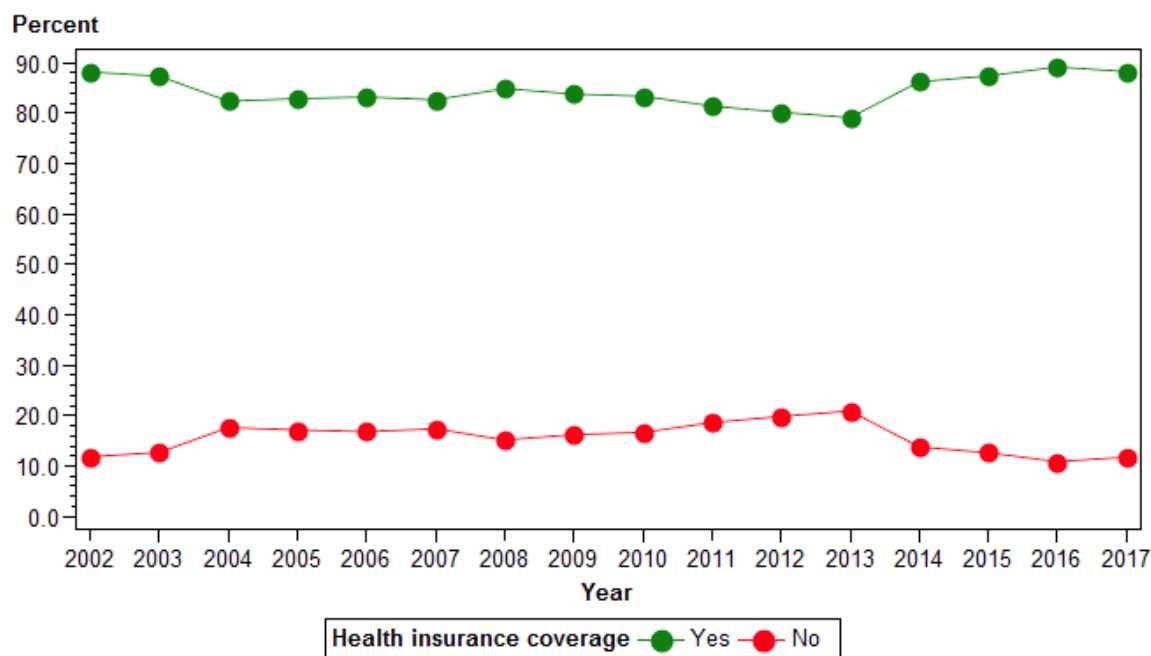
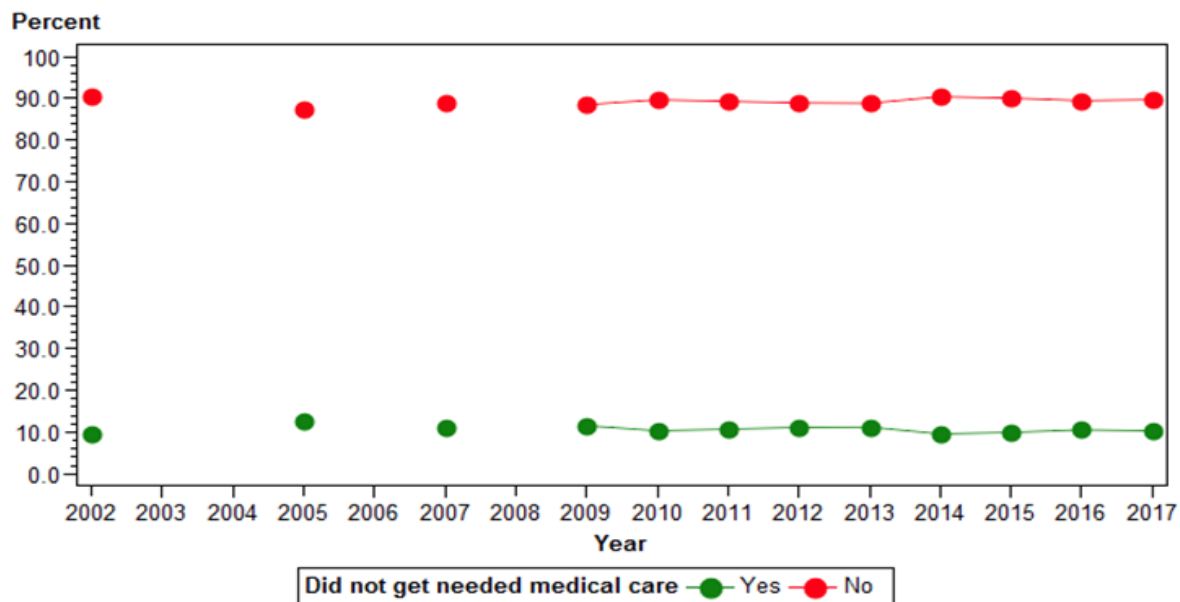


Figure 6. NYC residents who could not access medical care when needed in the past 12 months, 2002-17 ¹⁵

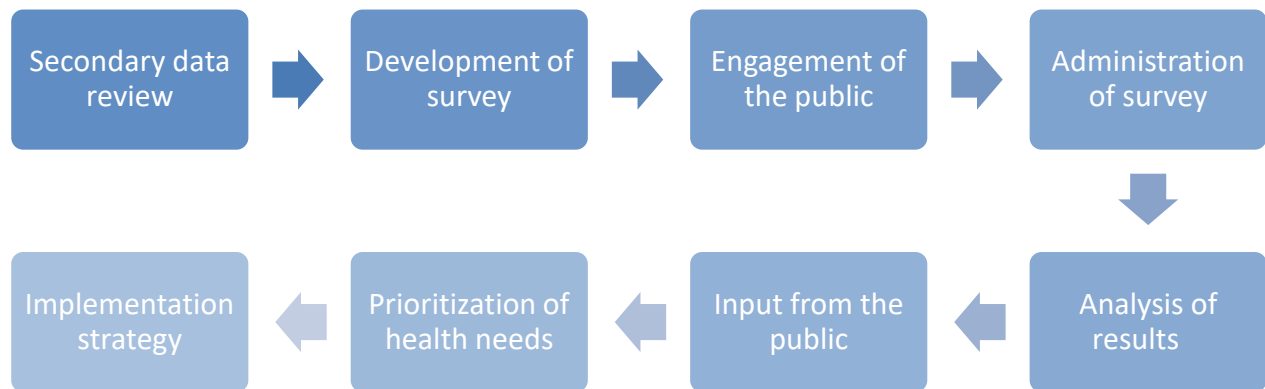


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3. Community Assessment - Process and Methods

The HSS community health needs assessment (CHNA) process was driven by the collection and analysis of primary and secondary data. Our community partners, such as government agencies, educational systems, community-based organizations (CBOs) and health and human service entities were engaged to assess the needs of the community. This section is a summary of primary and secondary data collected throughout the CHNA process. The overall CHNA involved multiple steps that are depicted in the flow chart below.

Figure 7. 2019 CHNA Process



An anonymous, large-scale CHNA was conducted between March 1, 2019 and April 1, 2019 in order to determine our community’s health care, educational, and support needs in relation to muscle, bone and joint health. The CHNA helped to: 1) guide strategic planning; 2) inform our education, outreach and support programs; 3) determine any gaps that may exist in current programming; and 4) select the public health priorities of the CSP to support the statewide prevention agenda. The survey explored several aspects of the community: (1) health status and quality of life; (2) health behavior and lifestyle; (3) use of and access to care; 4) health education needs and (5) socio-demographic characteristics. In an effort to reach the medically underserved population, an oversampling approach was used in selecting zip codes identified as Medically Underserved Areas (MUA) derived from the U.S. Department of Health and Human Services (<http://www.hrsa.gov/shortage/mua/index.html>).

A 60-question survey was developed through a collective effort by a four-member HSS CHNA steering committee, community partners, internal stakeholders and the public. The CHNA steering committee identified validated research questions to be addressed, drafted the individual survey questions, and identified community partners and internal stakeholders to review and provide input to survey development. Collaboration with these groups was crucial to the success of this survey, with valuable feedback provided on survey construction and length. In an effort to reach a culturally diverse community, the survey was translated into Spanish, Chinese and Russian using a culturally sensitive back translation approach.

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The survey was administered via six methods: mail, online, email, social media, QR codes, and in-person. Ultimately, 11,410 surveys were completed during the four-week survey period. Of all the 11,410 responses, the majority were completed by email (81%) followed by mail (29%), in-person (7%), and mail (7%).

CHNA Results

In our total sample, the majority of respondents were Whites/Caucasians (79%) and non-Hispanics/Latinos/Latinos (91%), females (67%) with a mean age of 63.1 (range: 18-99 years). Majority of respondents had high educational backgrounds with over half (65%) completing a college and post graduate education with 23% earning \$50,000 - \$100,000K and 49% earning more than \$100,000 annually. English (96%) was the predominant language spoken at home, with more than half reporting being married. In our sub-samples that represent patients from underserved communities (public/uninsured and MUA), the majority of respondents were more racially diverse (only 46% and 47% were Whites/Caucasians respectively), less educated (66% and 53% had lower than a college degree respectively), more likely to earn less than \$50,000 of annual household income (80% and 58% respectively) and had public insurance or no insurance (72% and 38% respectively).

The following summarizes the major findings from the CHNA survey:

- Overall health status of respondents (83%) was rated positively (good to excellent). The leading musculoskeletal conditions in the community were Osteoarthritis (OA), some other form of arthritis and Osteoporosis (OP)
- Among respondents diagnosed with a musculoskeletal condition, the most reported symptoms experienced within 30 days were joint/bone pains or aches (84%), stiffness (79%) and muscle pains or aches (73%)
- Over half of respondents (53%) reported some pain interference with usual/daily activities with a majority (65%) indicating stooping, bending or kneeling as the top difficulty
- More than one-quarter of respondents (27%) fell in the past year with 67% informing their healthcare provider about their falls
- One-quarter of respondents (25%) reported poor physical health for more than two weeks
- Most respondents reported no mental health problems (60%) but one-quarter of respondents from the hospital's Ambulatory Care Center (ACC) that serve patients from racially/ethnically diverse and lower socioeconomic backgrounds experienced frequent mental health problems
- Lack of physical activity (PA) was reported by many respondents with only 23% and 22% meeting CDC recommended levels of moderate and vigorous physical activity respectively, while half of respondents (50%) did muscle-strengthening exercise at least once a week. More than half of respondents (54%) had been told by their doctor in the past 12 months to do physical activity/exercise while 31% had been told to lose weight
- For diet, three-quarter of respondents (75%) reported eating healthy; however, 61% indicated interest to eat healthier. Overall, the main barrier to eating healthy reported by nearly half of the respondents (44%) was "taking too much time and effort to prepare." However, cost was reported as the top barrier to eating healthy in the ACC, public/uninsured and MUA sub-samples, mainly among Hispanics

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- For pain management, more than half of respondents (52.6%) reported using prescription pain killers with 86% indicating they should not take more than the recommended dosage of prescription medication when feeling pain more than usual. However, almost two-thirds of respondents (64%) reported never using complementary treatments (i.e. yoga, meditation, mindful breathing) to manage their pain
- Almost all respondents reported having some form of health insurance/coverage
- Majority of respondents reported taking preventive care measures over the past year, with almost three-quarters (74%) receiving a flu shot. However, only 10% reported receiving a STI/HIV screening
- Almost all respondents (90%) had access to healthcare when they needed it. However, among those who had no access to healthcare, challenges in getting an appointment and cost were the leading barriers. While 94% of respondents stated that they generally followed their provider's medical advice, common barriers to adherence were concerns about side effects and feeling that treatment would not help
- High provider-patient communication (i.e. generally took steps to communicate with their provider) was reported among majority of respondents
- Lack of self-efficacy to manage their chronic condition was a concern among many respondents with more than half (51%) having no/little confidence in managing their musculoskeletal conditions
- English was the most preferred language of reading medical or health care information among respondents
- The most popular place for respondents to obtain health information or advice was the doctor's office (91%) followed by the Internet (55%), with 7% needing assistance when reading instructions, pamphlets, or other written health materials
- There is a lack of knowledge of educational resources in the community with over three-quarter of respondents (79%) indicating that they had not taken an educational course or class to learn how to manage their musculoskeletal health/condition
- There was also a lack of confidence among respondents that taking a course/class will help manage their musculoskeletal conditions with 45% being somewhat confident
- Brochures/flyers (58%) and online lectures (50%) were the preferred platforms in receiving health education. In addition, participating in exercise classes was the most preferred health education activity among half of respondents (50%), followed by online lectures at HSS (47%) and podcasts (31%)
- The leading health topics that respondents were interested in were "How to exercise and manage my condition", Osteoarthritis (OA), and Back pain

Full CHNA survey results are available in Appendix A.

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4. Community Assets and Resources

HSS works to strengthen its extensive community education, wellness, support and outreach initiatives through its collaborations with community organizations, public schools, city and state agencies, universities, clinical settings, and the private sector. In addition to the HSS’ strategy in addressing identified health needs, below is a listing of existing healthcare facilities/community resources available to respond to community health needs identified.

Clinical/Academic Partnerships

- Asian American/Asian Research Institute, City University of New York
- Charles B. Wang Community Health Center
- Chinese Community Partnership for Health, New York-Presbyterian/Lower Manhattan Hospital
- Clinical Translational Science Center, Community Engagement Core, Weill Cornell Medical College
- Coalition of Chinese American IPA
- HSS China Orthopedic Education Exchange
- Mt. Sinai Medical Center, Adolescent Health Center
- New York-Presbyterian/Morgan Stanley Children's Hospital at Columbia University Medical Center, Pediatric Rheumatology Service
- New York-Presbyterian/Columbia University Medical Center – The Mens Clinic at Audubon Clinic
- New York-Presbyterian/Weill Cornell Medical Center – Health Outreach® Program
- New York-Presbyterian Hospital
- New York University Silberman School of Social Work
- Touro College Graduate School of Social Work
- Translational Research Institute for Pain in Later Life (TRIPLL)
- University of Delaware
- Weill Cornell Medical College, Department of Psychiatry

Community-Based Organization Partners

- 92nd Y
- All Community Adult Day Centers
- Amani Public Charter School
- American Heart Association, Fairfield & Westchester Counties
- American Red Cross
- AmeriCares Free Clinics
- Arthritis Foundation – NY Chapter
- Asian Health and Social Service Council
- Asphalt Green
- Association of Chinese American Physicians (ACAP)
- Bayside High School
- Brown Gardens Assisted Living Facility
- Breakaway Hoops
- Blue Ridge High School
- Blondes Vs. Brunette Football
- Building One Community
- Cardoza High School
- Chinese American Medical Society (CAMS)
- Carter Burden Network, Leonard Covello Senior Program
- Centercourt Sports
- Charter School of Excellence
- Children’s Aid Society
- Chinese-American Planning Council
- CUNYAC
- Chatham High School
- Chelsea Piers CT
- Chinese Consolidated Benevolent Association
- Community Health Center, Inc.
- Concerned Home Managers for the Elderly (COHME)

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- Cristo Rey High School Bronx
 - Dominican College
 - Dorot, Inc.
 - East Harlem Community Health Committee (EHCHC)
 - Fifth Avenue Presbyterian Church
 - Friends Academy High School
 - Girl Scouts of Jersey Shore
 - Golden Eagle Adult Day Center
 - Gouverneur Court
 - Greenwich Alliance for Education
 - Harlem Lacrosse
 - Hempstead High School
 - Isabella Geriatric Center
 - Jewish Association Services for the Aged (JASA)
 - KIPP High School
 - Lenox Hill Neighborhood House and (St. Peter's Church)
 - LaGuardia Senior Citizens Center
 - Lupus Research Alliance
 - Lupus Foundation of America
 - Manhattan Country Day School
 - Marywood University
 - Maspeth High School
 - Medicare Rights Center
 - Mott Street Senior Center
 - Neighbors Link Stamford
 - Norwalk Senior Center, South Norwalk
 - New York Chinatown Senior Citizen Center
 - New York Foundation for Senior Citizens
 - New York Road Runners Club (NYRR)
 - Nightingale High School
 - Oceanside Stallions Football
 - Over 60 Senior Neighborhood
 - Planned Parenthood of NYC
 - Prime Care Home Health Agency
 - Project Sunshine
 - PS 76- Harlem
 - Public School Athletic League
 - Sacred Heart High School
 - Selfhelp Innovative Senior Center
 - Service Program for Older People
 - Spondylitis Association of America
 - Stamford Department of Health
 - Stamford Hospital
 - Stamford Senior Center
 - Stamford YMCA
 - Stanley M. Isaacs Neighborhood Center
 - St. Mary's School- Manhasset
 - Tarrytown YMCA
 - The Calhoun School
 - The Center for Information & Study on Clinical Research Participation (CISCRIP)
 - The Collegiate School
 - The Myositis Association
 - The Scleroderma Foundation
 - Urban Health Plan, Inc.
 - Visiting Nurse Service of New York
 - Wendy Hilliard Gymnastics
 - West Side Interagency Council on the Aging (WSIACA)
 - Xavier High School
 - YM & YWHA – Washington Heights/Inwood
 - Young Women's Leadership School (Astoria)
- Government/Public Partners**
- MTA Paratransit Access-A-Ride Program
 - National Institute for Arthritis and Musculoskeletal Disease (NIAMS) – National Multicultural Outreach Initiative
 - New York City Department for the Aging
 - New York City Department of Health and Mental Hygiene
 - New York City Public Schools
 - New York Public Libraries
 - New York State Department of Health

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- Office of Women's Health, U.S.
Department of Health and Human
Services
- Department of Youth and
Community Development

B. Community Service Plan (CSP)

1. Community Engagement and Selection Process

Recognizing that the development of community health programming requires a concerted effort of our community, we involved varied constituents (i.e. internal stakeholders, community partners including the local public health department, and the public) in guiding the selection of the health priorities for the CSP. Our approach to community engagement is described below.

i. Internal stakeholders

Recognizing that the development of community health programming requires a concerted effort by all members of the organization, we involved various representatives from HSS departments (i.e. Education Institute, Nursing, Social Work, Nutrition, Rehabilitation, Ambulatory Care Centers, Service Excellence and Language Services, Regional Markets, Patient Experience, Medical Staff and Attendings, Development, Public Relations and Marketing, Digital Communications and Quality). Moreover, the knowledge and experience of physicians, nurses, social workers and other staff that have a vested interest in serving the community help to inform the direction of CSP programs. An internal stakeholder meeting was held on August 13, 2019 with 20 staff in attendance to discuss CHNA results, identify community health priorities and intervention strategies. In addition, a CSP taskforce was developed from members of HSS Departments of Public and Patient Education, Social Work Programs and Nursing to discuss possible directions for CSP health priorities using results from the CHNA.

ii. Community Partners

Feedback from community partners was critical to driving the assessment and selection of public health priorities for the Hospital. Community partners' knowledge of their respective communities helped to identify gaps in community programming – or more specifically, areas where HSS could use its areas of expertise to make a lasting public health impact. Community partners involved include:

- Greater New York Hospital Association (GNYHA)
- New York City Department of Health and Mental Hygiene (NYC DOHMH) – Office of Policy, Planning and Strategic Data Use
- Arthritis Foundation – New York Chapter
- Clinical & Translational Science Center (CTSC) – Weill Cornell Medicine
- New York Presbyterian Hospital
- Medicare Rights Center
- New York City Department of Aging
- S.L.E. Lupus Foundation
- Selfhelp Innovative Senior Center
- Isabella Geriatric
- Touro College Graduate School of Social Work
- Visiting Nurses Services
- Charles B. Wang Community Health Center

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- Spondylitis Association of America
- Stamford YMCA
- NY Sports Connection

A community partners meeting was held on June 19, 2019 with 23 individuals from five community partner organizations in attendance. During the meeting, we shared the CHNA results, elicited feedback and ranked health issues according to the communities they serve. CHNA results were received positively and there was extensive discussion about how results accurately depicted the various communities served and how these results could be used to impact the community at large. Specifically, there were discussions about access to community initiatives and ways in which HSS could extend the reach of its programs. See Appendix B for minutes of the community partners meeting and details of health needs ranking.

The NYC DOHMH was also involved in the entire CHNA process by providing valuable feedback in developing the CHNA survey, and prioritizing health needs which guided HSS in the selection of public health priorities that resonate with the health care needs of New Yorkers. The NYCDOH also participated in our community partners meeting aforementioned.

HSS also met frequently with GNYHA, a trade association, to inform the structure and process for selecting its public health priorities. In-person meetings and conference calls were held with GNYHA on 01/12/2018, 05/11/2018, 10/19/18, 12/14/2018, 03/13/2019 and 05/29/2019 to discuss NYS DOH CSP requirements and federal requirements for the CHNA. In addition, GNYHA provided guidance and clarification regarding specific CSP requirements.

iii. General public

To further HSS' commitment to developing programs that improve the health of our culturally diverse communities, obtaining feedback from the public and medically underserved, low-income, and minority populations was instrumental in driving the Hospital's assessment and selection of public health. To that end, seven community forums were held to allow community members an opportunity to prioritize health needs which provided HSS with the appropriate direction in selecting its CSP health priorities. Specific dates, locations, and attendance for the community forums were as follows:

Table 2: Community forum reach

Date	Location	Attendance
June 12, 2019	Stamford Senior Center, Stamford, CT	40
June 13, 2019	Building One Community Center, Stamford, CT	15
June 13, 2019	HSS Campus, NYC	14
June 14, 2019	Webinar	2
June 17, 2019	Chinatown Community Center, Visiting Nurse Service of New York, NY	53
June 20, 2019	Selfhelp Innovative Senior Center, Flushing, NY	22
June 26, 2019	Leonard Covello Senior Center, Carter Burden Network, NY	21
Total		179

A total of 179 community members participated in the community forums. At each community forum, participants were asked to rank the top 10 health indicators from a list of 25 identified in

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the CHNA according to order of importance (where 1 ranks the highest). Ranking results were calculated using a simple point system in which each ranking is assigned a point value from 1-10, with the indicator ranked 1 receiving 10 points and the indicator ranked 10 receiving 1 point. The indicators that received the most collective points were identified as the top priorities for the participants at each respective event. See Appendix C for summaries of community forums and details of ranking.

Based on the engagement processes outlined above, the top 10 significant health priorities identified were:

1. Osteoarthritis
2. Osteoporosis
3. Joints, muscle, and bone pains
4. Falls and balance
5. Rheumatoid arthritis
6. Stress and mental health
7. Lifestyle i.e. Poor diet, obesity, lack of exercise
8. Fatigue
9. Stiffness
10. Complementary alternatives to manage pain

Selection of NYS Priorities and Rationale

As a specialty hospital focused on musculoskeletal and rheumatologic conditions, HSS is in a unique position to address the needs identified above. However, to ensure that the selection of public health priorities align with NYSDOH Prevention Agenda 2019-2024, HSS has chosen to focus on priority area ***Preventing Chronic Disease*** with emphasis on ***Healthy eating and food security*** and ***Preventive care and management*** as focus areas. The rationale of public health priorities selected is described below -

Focus Area 1: Healthy eating and food security

Goal 1.2: Increase skills and knowledge to support healthy food and beverage choices

Obesity and overweight are the second leading cause of preventable death in the US²⁰. Obesity is a significant risk factor for many chronic diseases and conditions including type 2 diabetes, asthma, high blood pressure, high cholesterol, stroke, heart disease, certain types of cancer, and osteoarthritis²¹. Over half of New York State residents (61.2%) and New York City adults (58.3%) are overweight or obese. Ever more, these conditions are being seen in children and adolescents.²² Approximately, 15.3% of children ages 10 years and older are obese.²³ Within the overweight population, underserved groups including communities with high poverty levels, communities of color, and adults with low education levels are affected at disproportional rates.

²⁰ BRFSS Brief: Overweight and Obesity New York State Adults, 2017 - https://www.health.ny.gov/statistics/brfss/reports/docs/1908_brfss_overweight_and_obesity.pdf

²¹ BRFSS Brief: Overweight and Obesity New York State Adults, 2017 - https://www.health.ny.gov/statistics/brfss/reports/docs/1908_brfss_overweight_and_obesity.pdf

²² BRFSS Brief: Overweight and Obesity New York State Adults, 2017 - https://www.health.ny.gov/statistics/brfss/reports/docs/1908_brfss_overweight_and_obesity.pdf

²³ The State of Obesity in New York, 2017 - <https://www.stateofobesity.org/states/ny/>

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For example, Hispanics and non-Hispanic blacks experience higher rates of obesity, at 27.1% and 35.5% respectively, than non-Hispanic whites (25.3%).²⁴ Long-term health consequences including increased risk of heart disease, high blood pressure, arthritis, stroke, and cancer.

Healthy eating in accordance with USDA MyPlate guidelines has been shown to have an inverse relationship to obesity. For example, an increase in whole grain intake has been shown to prevent weight gain, whereas refined-grain intake has been associated with weight gain.²⁵ Additionally, fruit and vegetable intake has been shown to reduce the risk of chronic disease and weight gain.²⁶ Conversely, data suggests that children who consume larger amounts of fried foods prepared away from home (i.e. fast food) have poorer diet quality, and consumption of these fried foods can lead to weight gain and obesity.²⁷ Consumption of sugar-sweetened beverages, including soda and fruit juice, have also been shown to lead to weight gain and obesity.²⁸ Furthermore, those who chose water over diet beverages may see increased weight loss and better weight maintenance.²⁹ In addition to food choices, portion size has been shown to have an impact on weight gain. For example, studies have shown that large portion sizes, even when food is not palatable, can lead to overeating.³⁰

In addition, results from the Hospital's CHNA suggest that nutrition and physical activity are health concerns among members of the HSS community. Specifically, 25% of the total sample rated their diet negatively, and only 22% were meeting CDC recommended guidelines for vigorous physical activity. Nevertheless, 54% had received medical instructions to do more physical activity and 31% had been told to lose weight. Associations were found between barriers to healthy eating and socio-economic status, such as race, ethnicity, level of education and household income.

Given our area of specialty, the Hospital understands that maintaining a healthy weight and being physically active play an important role in the development and strength of bones and muscles throughout life. Bone and cartilage in children are continuously developing; however, the excess weight of obesity erodes weight-bearing joints and results in musculoskeletal health issues that may continue into adulthood.³¹ There is a strong need for a multifaceted approach to reducing obesity in children by improving the diet and exercise levels of the entire family, which HSS has incorporated into its obesity-focused programming.

²⁴ Center for Disease Control and Prevention (CDC) – Adult Obesity Prevalence Maps, 2017 - <https://www.cdc.gov/obesity/data/prevalence-maps.html>

²⁵ Liu S., Willett W, Manson J, Hu F, et al. G., Relation between changes in intakes of dietary fiber and grain products and changes in weight and development of obesity among middle-aged women. *Am J Clin Nutr.* 2003 ;78(5):920-7 <https://www.ncbi.nlm.nih.gov/pubmed/14594777>

²⁶ Boeing H, Bechthold A, Bub A, et al. Critical review: vegetables and fruit in the prevention of chronic diseases. *Eur J Nutr.* 2012;51(6):637–663. doi:10.1007/s00394-012-0380-y

²⁷ Taveras E, Berkey C, Rifas-Shiman S, et al. Association of consumption of fried food away from home with body mass index and diet quality in older children and adolescents. *Pediatrics.* 2005 Oct;116(4):e518-24.

²⁸ Malik VS, Popkin BM, Bray GA, Després JP, Hu FB. Sugar-sweetened beverages, obesity, type 2 diabetes mellitus, and cardiovascular disease risk. *Circulation.* 2010;121(11):1356–1364. doi:10.1161/CIRCULATIONAHA.109.876185

²⁹ Madjd, A , Taylor, MA , Delavari, A , Malekzadeh, R , Macdonald, IA , Farshchi, HR . Effects of replacing diet beverages with water on weight loss and weight maintenance: 18-month follow-up, randomized clinical trial. *International journal of obesity* (2005). 2018; 42 (4) :835-840 . <https://www.ncbi.nlm.nih.gov/pubmed/29633983>. doi:10.1038/ijo.2017.306.

³⁰ Wansink B and Junyong K. Bad Popcorn in Big Buckets: Portion Size Can Influence Intake as Much as Taste. *Journal o Nutrition Education and Behavior* (2005); 37 (5): 242-245

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Focus Area 2: Preventive care and management

Goal 4.4: Improve self-management skills for individuals with chronic diseases, including asthma, arthritis, cardiovascular disease, diabetes and prediabetes and obesity in the community setting

Public health data shows that musculoskeletal and rheumatologic conditions are important concerns on the national and local level, and older adults and ethnically diverse individuals are disproportionately affected by these issues. Approximately 54 million people in the United States have been diagnosed with some form of arthritis including osteoarthritis (OA), rheumatoid arthritis, gout, lupus or fibromyalgia. The CDC reports that from 2013 to 2015 approximately 44% of those diagnosed with arthritis reported arthritis-attributable activity limitation (23.7 million adults). OA, which is the leading cause of disability in the US (affecting 30.8 million Americans and 21.5% of New Yorkers) affects nearly half of all older Americans. It is also prevalent in all racial/ethnic groups: 41.3 million non-Hispanic whites, 4.4 million Hispanic adults, 6.1 million non-Hispanic blacks, and 1.5 million non-Hispanic Asians.

Osteoporosis (OP) is the leading cause of fractures in the aging population, with osteoporosis or low bone density affecting nearly 54 million Americans and about half of women aged 50 and older. Moreover, studies show that the prevalence of knee osteoarthritis is 16-75% higher in Asian females than in age-matched White females.³² Asian Americans are less likely to meet physical activity (PA) guidelines than other racial/ethnic groups, and PA levels are especially low for Chinese Americans in NYC.³³ Results from our 2019 CHNA are also consistent with these findings indicating gender and racial disparities with OP disproportionately affecting women and Asians.

Systemic Lupus Erythematosus (SLE) is a life-threatening, multi-system autoimmune illness, which disproportionately affects African Americans, Asians, and Latinos. Research demonstrates that these communities experience significant health disparities in illness severity and outcomes³⁴. Gender disparities are also seen with SLE disproportionately affecting women nine times more than men; however, males with SLE still represent 4-22% of all SLE patients³⁵. Lupus mortality is associated with disease severity, and social factors such as lower social-economic status (SES) and health access. In addition, lower SES is consistently and significantly associated with both poorer physical functioning and depressive symptomatology³⁶. Not surprising, research also shows that depression is a common morbidity found among patients

³² Ahn, H., Weaver, M., Lyon, D., Choi, E., & Fillingim, R. B. (2017). Depression and pain in Asian and White Americans with knee osteoarthritis. *Journal of Pain*, 18(10), 1229-1236. doi: 10.1016/j.jpain.2017.05.007

³³ Yi, S. S., Roberts, C., Lightstone, A. S., Shih, M., & Trinh-Shevrin, C. (2015). Disparities in meeting physical activity guidelines for Asian-Americans in two metropolitan areas in the United States. *Annals of epidemiology*, 25(9), 656–660.e2. doi:10.1016/j.annepidem.2015.05.002

³⁴ Alarcón, G. S., Calvo-Alén, J., McGwin, G., Uribe, A. G., Toloza, S. M., Roseman, J. M., et al. (2006). Systemic lupus erythematosus in a multiethnic cohort: LUMINA XXXV. predictive factors of high disease activity over time. *England DOI - 10.1136/ard.200X.046896*: BMJ Publishing Group. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1798273/>

³⁵ Lu, L., Wallace, D., Ishimori, M., Scofield, R., & Weisman, M. (2010). Review: Male systemic lupus erythematosus: A review of sex disparities in this disease. London, England: SAGE Publications. doi:10.1177/0961203309350755

³⁶ LAURA TRUPIN, M. CHRISTINE TONNER, JINOOS YAZDANY, LAURA J. JULIAN, LINDSEY A. CRISWELL, PATRICIA P. KATZ, et al. (2008). The role of neighborhood and individual socioeconomic status in outcomes of systemic lupus erythematosus. *The Journal of Rheumatology*, 35(9), 1782. Retrieved from MEDLINE database. Retrieved from <http://www.jrheum.org/content/35/9/1782.abstract>

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with SLE, affecting up to 60% of adults and 20% of pediatric patients³⁷. This morbidity is associated with adverse outcomes including poorer medication adherence, and higher healthcare utilization in individuals with SLE, making early identification and intervention critical³⁸. Racial/ethnic disparities are also seen with depression with Latinos/Hispanics and African American teens and young adults being disproportionately affected³⁹. The stigma of mental illnesses that is often prevalent in the Latino and African American communities also increases the severity of psychiatric symptoms and decreases treatment adherence⁴⁰.

Inflammatory Arthritis (IA) includes a group of complex chronic, progressive, and systemic inflammatory diseases with the most prevalent being Rheumatoid Arthritis (RA) (1.5 million nationally)⁴¹; Ankylosing Spondylitis (AS) (2.7 million)⁴²; Psoriatic Arthritis (PsA) (2.25 million)⁴³ and Gout (8.3 million)⁴⁴. While these conditions have unique and distinct manifestations, they all share common symptoms of progressive joint damage and pain, and in all but gout, debilitating fatigue. These symptoms have great impact on physical and psychosocial functioning, resulting in profound impact on family, social and work roles^{45,46,47}. There is ample support in the literature which indicates that people with RA, AS and PsA have a significantly higher prevalence of depression, anxiety and psychological distress than the general public.⁴⁸ Findings in our 2019 CHNA are also consistent with this research; respondents with RA were significantly more likely to report more than 2 weeks of poor mental health. This common comorbidity has important implications for outcomes in inflammatory arthritis patients. Specifically, studies have found that depression and anxiety are associated with, and may impact, treatment response and long-term outcomes, including reduction in likelihood of achieving remission in RA.^{49, 50, 51} Research has looked at “treatment preferences, adherence, trust in physicians, patient-physician communication, health literacy and depression” as possible causal factors of disparities in RA. Further, the prevalence of depression among Hispanic RA patients is even higher than that of their non-Hispanic white counterparts, and a strong predictor of diminished health related functional status. This effect is more prominent in Spanish-speaking Hispanics. These findings underscore the need for culturally appropriate interventions which

³⁷ Knight, A. M., Trupin, L., Katz, P., Yelin, E., & Lawson, E. F. (2018). Depression risk in young adults with juvenile- and Adult-Onset lupus: Twelve years of followup. *Arthritis Care & Research*, 70(3), 475-480. doi:10.1002/acr.23290

³⁸ Knight, A. M., Trupin, L., Katz, P., Yelin, E., & Lawson, E. F. (2018). Depression risk in young adults with juvenile- and Adult-Onset lupus: Twelve years of followup. *Arthritis Care & Research*, 70(3), 475-480. doi:10.1002/acr.23290

³⁹ Kann, L., McManus, T., Harris, W. A., Shanklin, S. L., Flint, K. H., Queen, B., et al. (2018). Youth risk behavior surveillance — united states, 2017. *Morbidity and Mortality Weekly Report. Surveillance Summaries* (Washington, D.C. : 2002), 67(8), 1-114. doi:10.15585/mmwr.ss6708a1

⁴⁰ LIVINGSTON. (2010). Correlates and consequences of internalized stigma for people living with mental illness: A systematic review and meta-analysis. *England DOI - 10.1016/j.socscimed.2010.09.030*; Elsevier. Retrieved from <https://doi.org/10.1016/j.socscimed.2010.09.030>

⁴¹ Centers for Disease Control and Prevention. Arthritis-Related Statistics, http://www.cdc.gov/arthritis/data_statistics/arthritis-related-stats.htm

⁴² Center of Disease Control's National Health and Nutrition Examination Survey (NHANES) program

⁴³ Estimated that 7.5 million people have Psoriasis (National Psoriasis Foundation). Recent studies suggest that of these, approximately 30% develop PsA Gladman, DD, Antoni, C, Mease, P, Clegg, DO, Nash, P. *Ann Rheum Dis* 2005;64:ii14-1117

⁴⁴ Lu, L., Wallace, D. J., Ishimori, M. L., Scofield, R. H., & Weisman, M. H. (2009). Review: Male systemic lupus erythematosus: A review of sex disparities in this disease. *Lupus*, 19(2), 119-129. doi:10.1177/0961203309350755

⁴⁵ Dures, E, Almeida, C, Caesley, J, Peterson, A, Ambler, N, Morris, M, et al. Extended report: Patient preferences for psychological support in inflammatory arthritis: A multicentre survey. *Ann Rheum Dis*, 2014

⁴⁶ Evers, WM, Kraaimaat, FW, van Riel, PLCM, de Jong, AJL. Tailored cognitive-behavioral therapy in early rheumatoid arthritis for patients at risk: a randomized control trial. *Pain* 100, 2002; 143-153

⁴⁷ Kotsis, K, Voulgari, P, Tsifetaki, N, Machado, MO, Carvalho, AF, Creed, F, et al. Anxiety and depressive symptoms and illness perceptions in psoriatic arthritis and associations with physical health-related quality of life. *Arthritis Care Res*, 2012; 64:10:1593-1601. First published online: 27 Sep 2012

⁴⁸ Dregan A, Matcham F, Harber-Aschan L, et al. Common mental disorders within chronic inflammatory disorders: a primary care database prospective investigation. *Annals of the Rheumatic Diseases*. 2019; 78(5): 688-695.

⁴⁹ Matcham F, Norton S, Scott DL, et al. Symptoms of depression and anxiety predict treatment response and long-term physical health outcomes in rheumatoid arthritis: secondary analysis of a randomized controlled trial. *Rheumatology*; 2016; 55(2):268-278.

⁵⁰ Michelsen B, Kristianslund EK, Sexton J, et al. Do depression and anxiety reduce the likelihood of remission in rheumatoid arthritis and psoriatic arthritis? Data from the prospective multicentre NOR-DMARD study. *Annals of the Rheumatic Diseases*; 2017; **76**: 1906-1910

⁵¹ Euesden J, Matcham F, Hotopf M, et al. The relationship between mental Health, Disease Severity, and Genetic Risk for Depression in Early Rheumatoid Arthritis. *Psychosom Med*. 2017; 79(6):638-645.

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focus on destigmatization and treatment of mental health issues- as an integral part of support in managing inflammatory arthritis.

Chronic pain is one of the most common conditions among older adults and is associated with disability, avoidance of activity, falls, depression, anxiety, sleep impairment and isolation.⁵² Adults with arthritis have seven times the odds of experiencing chronic pain than those without.⁵³ Furthermore, research indicates that culturally diverse populations experience even greater health disparities around pain management.⁵⁴ African American and Hispanic individuals tend to report greater pain severity, and African American individuals report more pain-related disability. Lower educational attainment and fewer economic resources are also associated with chronic pain and pain severity.⁵⁵ Over the last 25 years, there have been high numbers of physicians prescribing opioids for chronic pain while there is limited availability of alternatives for identifying, managing, and treating pain.³ Research also indicates that approximately 70% of individuals using opioids on a long-term basis have musculoskeletal disorders (e.g. low back pain, spondylosis, OA and RA).⁵⁶ However, the environment is changing from pharmacologic treatment as a stand-alone intervention for chronic pain.⁵⁷ There is strong evidence that suggests that non-opioid treatments, including exercise, education, meditation therapies and yoga can provide relief to those suffering from chronic pain.^{58,59}

There is ample evidence in the literature which indicates that there is a need for exercise interventions to manage and prevent chronic conditions. The CDC has reported that approximately 60% of American adults have a chronic condition, and 40% have two or more.⁶⁰ That number rises as Americans get older, with 75% of older adults having multiple chronic conditions.⁶¹ Yet the majority of Americans do not make major lifestyle changes following diagnosis of a serious chronic disease, either in the short term or long term.⁶² This suggests that many older adults miss the opportunity to take critical steps to manage, and often prevent, chronic conditions. In addition, national surveys demonstrate that many older Americans do not engage in regular leisure-time physical activity⁶³ and that their diet is far below the levels

⁵² Abdulla A, Adams N, Bone M, Elliot AM, Gaffin J, Jones D, et al. Guidance on the management of pain in older people. *Age Ageing* 2013; 42 (Suppl 1); 1-57. <https://www.ncbi.nlm.nih.gov/pubmed/23420266/>

⁵³ Janevic, M.R., McLaughlin, S.J., Heapy, A.A., Thacker, C., & Piette, J.D. (2017). Racial and Socioeconomic disparities in disabling chronic pain: Findings from the health and retirement study. *The Journal of Pain*, 18 (12), 1459-1467. doi:10.1016/j.pain.2017.07.005
<https://www.ncbi.nlm.nih.gov/pubmed/28760648>

⁵⁴ Shavers, Vickie L., et al. (2010) Race, ethnicity, and pain among the U.S. adult population. *Journal of Health Care for the Poor and Underserved*, vol. 21, no. 1, pp.177-220. doi:10.1353/hpu.0.0255.

⁵⁵ Janevic, M.R., McLaughlin, S.J., Heapy, A.A., Thacker, C., & Piette, J.D. (2017). Racial and Socioeconomic disparities in disabling chronic pain: Findings from the health and retirement study. *The Journal of Pain*, 18 (12), 1459-1467. doi:10.1016/j.pain.2017.07.005
<https://www.ncbi.nlm.nih.gov/pubmed/28760648>

⁵⁶ UnitedHealth Group (2017) Long-term use of opioid prescriptions and prospects for innovation in prevention, treatment and pain management. Retrieved from: <http://www.unitedhealthgroup.com/~media/UHG/PDF/2017/UNH-Clinical-Innovation-Report-Opioids.ashx?la=en>

⁵⁷ IOM (Institute of Medicine). (2011). *Relieving pain in America: A blueprint for transforming prevention, care, education, and research*. Washington, DC: The National Academies Press. <https://www.ncbi.nlm.nih.gov/pubmed/22553896>

⁵⁸ National Academies of Sciences, Engineering, and Medicine. (2017). *Pain management and the opioid epidemic: Balancing societal and individual benefits and risks of prescription opioid use*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/24781>

⁵⁹ HHS Office & Assistant Secretary for Health. (2018, December 28). Draft report on pain management best practices. <https://www.hhs.gov/ash/advisory-committees/pain/reports/2018-12-draft-report-on-updates-gaps-inconsistencies-recommendations/index.html>

⁶⁰ CDC's National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP) - <https://www.cdc.gov/chronicdisease/pdf/infographics/chronic-disease-H.pdf>

⁶¹ National Council on Aging. <https://www.ncoa.org/news/resources-for-reporters/get-the-facts/healthy-aging-facts/>

⁶² Newsom, J.T., Huguet, N., McCarthy, M.J., Ramage-Morin, P., Kaplan, M.S., Bernier, J., McFarland, B.H., & Odekirk, J. (2012). Health behavior change following chronic illness in middle and later life. *The Journals of Gerontology, Series B: Psychological and Social Sciences*, 67(3), 279-288.

⁶³ Center for Disease Control and Prevention (CDC), 2014 - Adults Need More Physical Activity - <https://www.cdc.gov/physicalactivity/inactivity-among-adults-50plus/index.html>

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recommended for optimal muscle and bone health.⁶⁴ Interestingly, however, more older adults in NYC were physically active (39%)⁶⁵ than older adults nationally (28%).⁶⁶

The need for culturally-relevant education regarding chronic disease preventive care and management is evident in the literature. Research has suggested that ethnically diverse communities encounter linguistic/cultural barriers to healthcare and therefore may miss opportunities to learn how to prevent and manage their chronic conditions. For example, studies have shown that language and cultural barriers limit satisfactory health care for many Asians, who generally lack access to recommended levels of preventative care, counseling, and medical care. Furthermore, limited English proficiency is a major issue and contributor to a lack of knowledge regarding the prevention and management of musculoskeletal health issues, as data has shown that 38% of NYC Asians have limited English proficiency, compared to 16% of the entire NYC population.⁶⁷ Results from the our 2019 CHNA also suggest that chronic disease preventive care, management education and exercise programming are greatly needed, particularly among underserved communities which are affected by health disparities. Specifically, there is a lack of knowledge around educational resources in the community with over three-quarters of respondents (79%) indicating that they had not taken an educational course or class to learn how to manage their musculoskeletal health/condition. This could be attributed to the lack of self-efficacy among CHNA respondents to manage their chronic condition (51%).

In conclusion, extensive literature has shown that many individuals with chronic musculoskeletal and rheumatologic conditions, including older adults and lower-income, ethnically diverse individuals, are in need of chronic disease preventive care and management education, and exercise programming in both clinical and community settings. To address these needs, HSS aims to provide effective programming to improve health outcomes and enhance the quality of life of its community.

⁶⁴ Office of Disease Prevention and Health Promotion: Dietary Guidelines 2015 – 2020 - <https://health.gov/dietaryguidelines/2015/guidelines/>

⁶⁵ New York City Department of Health: Health of Older Adults in New York City, 2017 <https://www1.nyc.gov/assets/doh/downloads/pdf/episrv/2019-older-adult-health.pdf>

⁶⁶ Center for Disease Control and Prevention (CDC), 2014 - Adults Need More Physical Activity - <https://www.cdc.gov/physicalactivity/inactivity-among-adults-50plus/index.html>

⁶⁷ Asian American Federation (2013). *Asian Americans of the Empire State: Growing Diversity and Common Needs*. New York, NY.

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2. CSP Workplan

The CSP workplan provides a detailed description of intervention strategies and activities addressing two of the NYS Prevention Agenda priorities. Please refer to the [Excel worksheet](#) for more information.

3. Maintaining Engagement with Community Partners

Effective and sustainable relationships with key stakeholder groups are crucial to the success of HSS community health initiatives. HSS works very closely with its community partners in the development, implementation and evaluation of hospital and joint hospital/partner programs. Ongoing communication is vital to sustained community partner engagement and is accomplished through regular meetings to discuss community needs, hear feedback about programs and their effectiveness, plan future programs, and share results of evaluations. Furthermore, info-graphic reports will be shared with community partners to highlight impact of programs on the community. HSS, in conjunction with its community partners, will implement continuous quality improvement (CQI) activities in order to track and evaluate its programs to ensure they are effective and meet the needs of patients and the public. This is achieved through regular program evaluations (such as questionnaires, surveys, phone interviews, and debrief sessions) assessing program effectiveness as well as patient/public needs and interests. Any necessary changes are discussed among program staff and where applicable, community partners, then implemented as quickly as possible.

4. Dissemination of the Plan to the Public

HSS is dedicated to improving the health of its patients and the public through the design, implementation and evaluation of cutting-edge community programs and services, which are included in its community service plan. Communicating these programs to diverse audiences as widely as possible is essential. To this end, the CSP Executive Summary will be shared with the public through the following means –

- The Hospital's community benefits webpage <https://www.hss.edu/community.asp>
- Social media (Facebook, and Twitter)
- HSS annual community benefit report
- Info-graphic reports

This Community Service Plan has been adopted by HSS Community Benefit and Services
Committee of the Board of Trustees.

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Appendix A. Detailed key findings of the CHNA results

Executive Summary

Background

In 2019, Hospital for Special Surgery (HSS) developed a Community Health Needs Assessment (CHNA) survey to assess the needs of its community and guide the development of the New York State Department of Health (NYSDOH) comprehensive Community Service Plan. The survey explored several areas: (1) health status and quality of life, (2) health behavior and lifestyle, (3) use of and access to care, and (4) socio-demographic characteristics.

Methodology

The survey was administered in Spanish, Chinese and Russian with an overwhelming response in English (98.0%), and implemented through various means (i.e. the web, email, QR-code, Survey Gizmo, mail and in-person) over a four-week time frame (March 1 – April 1, 2019). Surveys were completed by 11,410 patients and community members with email yielding majority of the responses (81%).

Results

The section below highlights findings from key areas explored in the survey.

1. **Socio-demographic characteristics.** The socio-demographic profile of survey respondents indicated that the majority were females (67%) with a mean age of 63.1 (range: 18-99 years). Majority of the respondents were Whites/Caucasians (79%) and non-Hispanics/Latinos/Latinos (91%) while others identified as Hispanics/Latinos/Latinos (10%), Blacks/African Americans (10%), Asians (5%), American Indians (1%), and other races (7%). Respondents had high educational backgrounds with over half (65%) completing college and post graduate education. Respondents were mid to high level income earners with 23% earning \$50,000 - \$100,000K and 49% earning more than \$100,000 of annual household income. English (96%) was the predominant language spoken at home. More than half of respondents (54%) were married; while 70% do not live alone with a majority living in Manhattan (24%).
2. **Health status and Quality of Life.** Overall health status of respondents (83%) was rated positively (good to excellent). The leading musculoskeletal condition in the community was Osteoarthritis (OA). Among respondents diagnosed with a musculoskeletal condition, the most reported symptom experienced within 30 days were joint/bone pains or aches (84%), stiffness (79%) and muscle pains or aches (73%). Over half of respondents (53%) reported some pain interference with usual/daily activities with a majority (65%) indicating stooping, bending or kneeling as the top difficulty. More than a-quarter of respondents (27%) fell in the past year with 67% informing their healthcare provider about their falls. One-quarter of respondents (25%) reported poor physical health for more than two weeks while most respondents reported no mental health problems (60%).
3. **Health behavior and lifestyles.** According to Centers for Disease Control and Prevention (CDC) recommended guidelines, regular physical activity (PA) was defined as at least 150 minutes of moderate activity, 75 minutes of vigorous activity, or at least one day of muscle-strengthening activities per week. Lack of PA was a concern such that over two-thirds of respondents (69%)

reported not meeting CDC's recommended levels of PA (moderate, vigorous, muscle strengthening). More than half of respondents (54%) had been told by their doctor in the past 12 months to do physical activity/exercise while 31% had been told to lose weight. For diet, three-quarter of respondents (75%) reported eating healthy; however, 61% indicated interest to eat healthier. For pain management, more than half of respondents (53%) reported using prescription pain killers with 86% disagreeing to taking more than the recommended dosage of prescription medication when feeling pain more than usual. However, almost two-thirds of respondents (64%) reported never using complementary treatments (i.e. yoga, meditation, mindful breathing) to manage their pain.

4. **Use of and Access to Care.** Almost all respondents (97%) reported having some form of health insurance/coverage with a majority having Medicare (53%). Most respondents reported taking preventive care measures over the past year, with almost three-quarters (74%) receiving a flu shot. However, only 10% reported receiving a STI/HIV screening. Almost all respondents (90%) had access to healthcare when they needed it. However, among those who had no access to healthcare, challenges in getting an appointment and cost were the leading barriers. While 94% of respondents stated that they generally followed their provider's medical advice, common barriers to adherence were concerns about side effects and feeling that treatment would not help. High provider-patient communication (i.e. generally took steps to communicate with their provider) was also reported among majority of respondents (83%). Lack of self-efficacy to manage chronic condition was a concern among many respondents with more than half (51%) having no/little confidence in managing their musculoskeletal conditions. English was the most preferred language of reading medical or health care information among respondents. The most popular place for respondents to obtain health information or advice was the doctor's office (91%) followed by the Internet (55%) with 7% needing assistance when reading instructions, pamphlets, or other written health materials.
5. **Health Education Needs.** There is a lack of educational awareness in the community with over three-quarter of respondents (79%) indicating that they had not taken an educational class to learn how to manage their musculoskeletal health/condition. There was also a lack of confidence among respondents that taking a course/class will help manage their musculoskeletal conditions with 68% having little/no confidence. Brochures/flyers (58%) and online lectures (50%) were the preferred platforms in receiving health education. In addition, participating in exercise classes was the most preferred health education activity among half of respondents (50%), followed by online lectures at HSS (47%) and podcasts (31%). The leading health topics that respondents were interested in were How to exercise and manage my condition, Osteoarthritis (OA), and Back pain.

Conclusion

Ultimately, the data uncovered by the assessment will lead to the prioritization of our community health needs and contribute to meaningful discussions with the public and community partners via the community forums. This will support program development and the implementation of the Hospital's three-year Community Service Plan (CSP), which will include evidence-based programs and services that are important to members of the HSS community.

See detailed key findings of the 2019 CHNA survey below.

Key Findings Report

Background

HSS conducted an anonymous, large-scale Community Health Needs Assessment (CHNA) survey from March 1 to April 1, 2019 to assess the needs of the community served and guide the development of the New York State Department of Health (NYSDOH) comprehensive Community Service Plan. The survey explored several areas which include:

- Social demographic characteristics
- Health status and quality of life
- Health behavior and lifestyle
- Use of and access to care
- Educational needs

Methodology

- The CHNA survey was completed by 11,410 HSS patients and members of its community
- The CHNA survey was administered in English, Spanish, Chinese and Russian with an overwhelming response in English (98.0%). The rest of the responses were in Spanish (1.1%), Chinese (0.8%) and Russian (0.2%)
- The CHNA survey was administered online (i.e. web and email via Survey Gizmo), by mail and in-person with email yielding majority of the responses (80.6%). Table 1 below shows a detailed breakdown of responses by administration mode

Data Analysis

- Primary analyses were conducted in the total sample of 11,410 respondents
- In order to further examine the total sample, and identify health disparities that exists, secondary analyses were conducted in four sub-groups listed below with results presented throughout this report.
 - HSS Regional sites (n=260) – This group represents HSS patients from HSS’ regional locations i.e. Long Island, NY; Stamford, CT and Paramus, NJ
 - HSS Ambulatory Care Centers; ACC (n = 341) – This group represents HSS patients from more racially/ethnically diverse and lower socioeconomic backgrounds i.e. 72nd street and Rheumatology, 6th floor
 - Public/uninsured respondents (n = 1,015) – This group represent respondents who either lacked health insurance or were covered by Medicaid or Medicare/Medicaid
 - Medically Underserved Areas (MUA) (n=1,170) – This group represent respondents from zip codes of Medically Underserved Areas (MUA) (<http://www.hrsa.gov/shortage/mua/index.html>)

Results

- This report highlights results from descriptive summaries, chi-tests and correlations to determine statistically significant associations between socio-demographics, health status and quality of life, health behavior and lifestyle, use of and access to care and educational needs across all samples

2019 HSS COMMUNITY HEALTH NEEDS ASSESSMENT (CHNA) FULL REPORT

Table 1: 2019 CHNA Response Breakdown by Administration Method

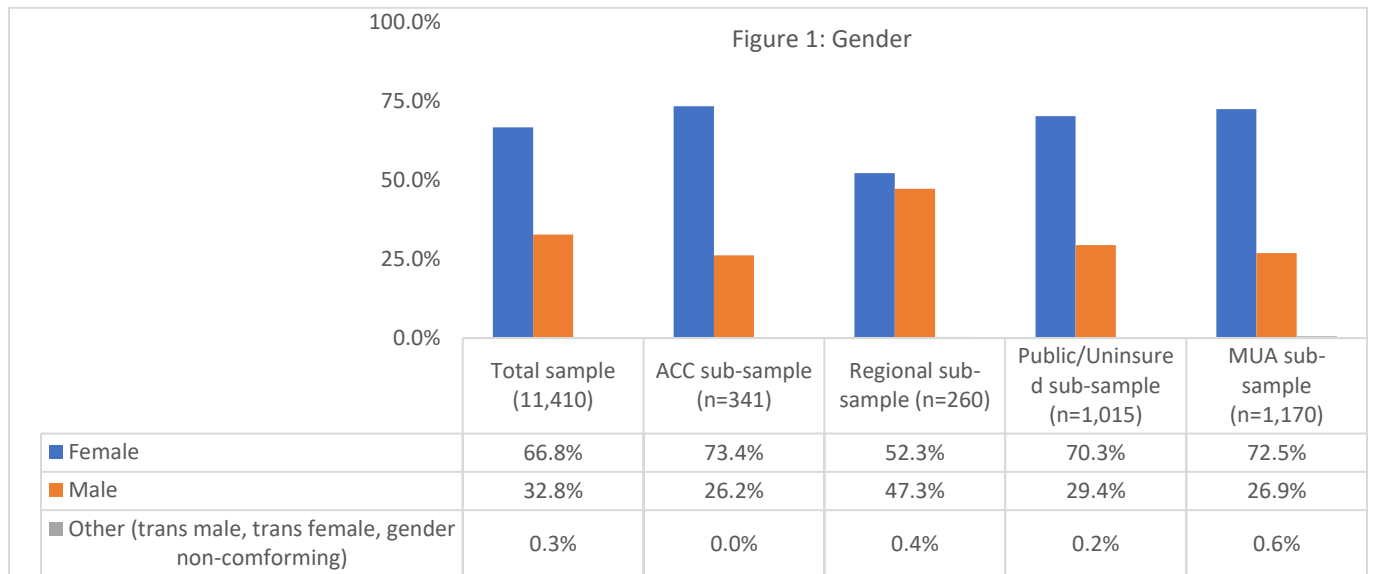
Admin. Method	Subset	Language	Original N	Response Total	Response Rate	% Response of Total
Web	Facebook	English	N/A	13	N/A	0.1%
	Twitter	English	N/A	5		0.0%
	HSS website	English	N/A	18		0.2%
		Russian		1		
	PPED website	English	N/A	15		0.1%
	Web Total		N/A	52	N/A	0.5%
Survey Gizmo (panel service)	N/A	English	591	591	100%	5.2%
	Survey Gizmo Total		591	591	100%	5.2%
QR-codes	HSS sites (main campus and regional)	English	1000	13	1.3%	0.1%
	QR-code Total		1000	13	1.3%	0.1%
Email	PPED	English	694	221	31.8%	1.9%
	HSS Patient	English	105,062	8794	8.4%	77.1%
		Chinese		12		
		Russian		12		
		Spanish		58		
	Newsletter	English	8,311	20	0.2%	0.2%
		Chinese		1		
	Social Work	English	551	81	14.7%	0.7%
		Spanish		1		
	Email Total		114618	9200	8.0%	80.6%
Mail	PPED	English	13,900	465	3.3%	4.1%
		Spanish		1		
		QR-code		2		
	Social Work	English	1,226	69	5.6%	0.6%
		Chinese		11		
		Spanish		14		
		QR-code		8		
	Purchased	English	7,500	139	1.9%	1.2%
		Chinese		12		
		Russian		5		
		Spanish		19		
	Mail Total		22626	745	3.3%	6.5%
In Person	PPED	English	140	21	15.0%	0.2%
		Chinese		50		
	ACC (72nd Str, Rheum 6th floor)	English	645	313	48.5%	2.7%
		Russian		5		
		Spanish		23		
	Other HSS sites (HSS main 8th flr, Pt Access, Pavillion 3rd & 4th flr)	English	405	61	15.1%	0.5%
	Nursing	English	192	32	16.7%	0.3%
		Spanish		4		
	Regional sites (Long Island, Stamford, Paramus)	English	350	259	74.0%	2.3%
		Spanish		1		
	Social Work	English	130	39	30.0%	0.3%
		Spanish		1		
	In Person Total		1862	809	61.7%	7.1%
Grand Total				11,410		

4

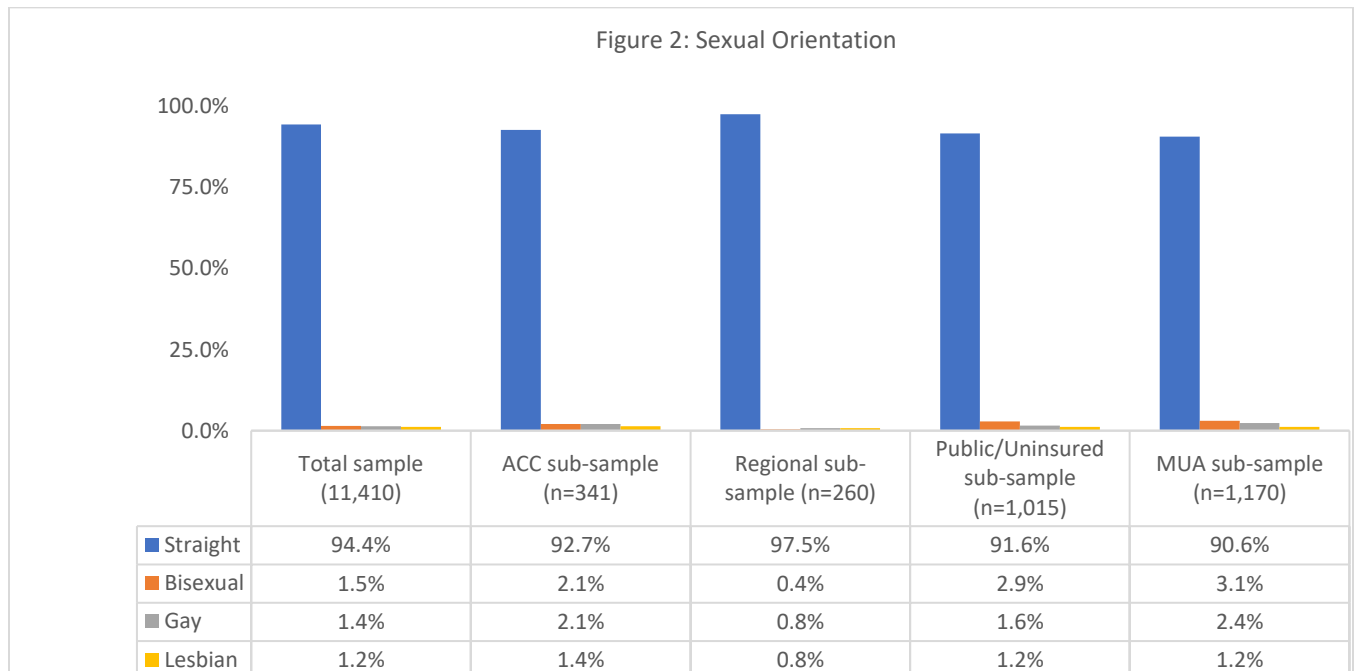
*Please note - P

A. Socio-Demographic Profile

Gender

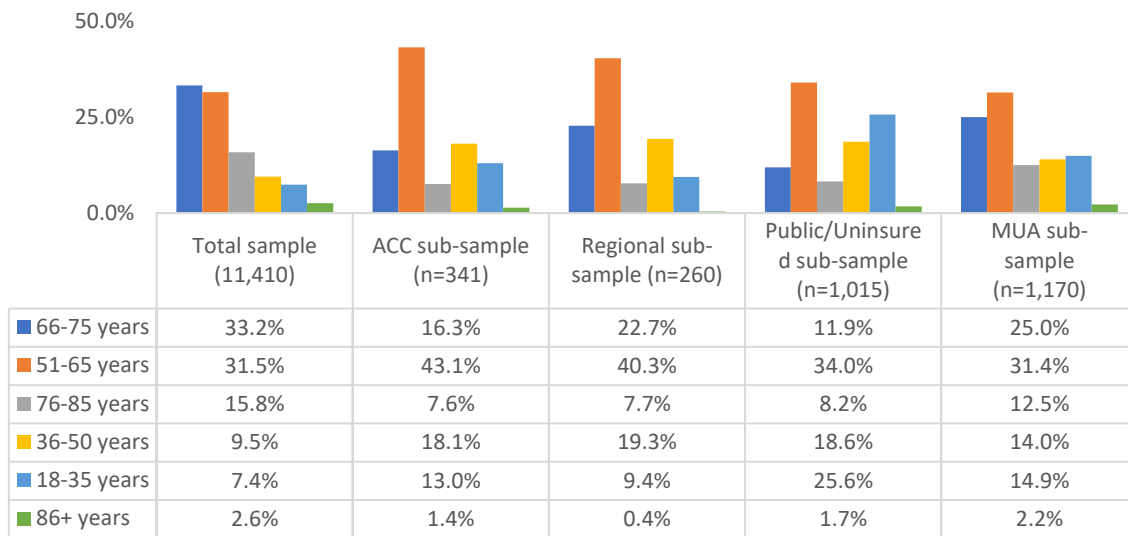


Sexual Orientation



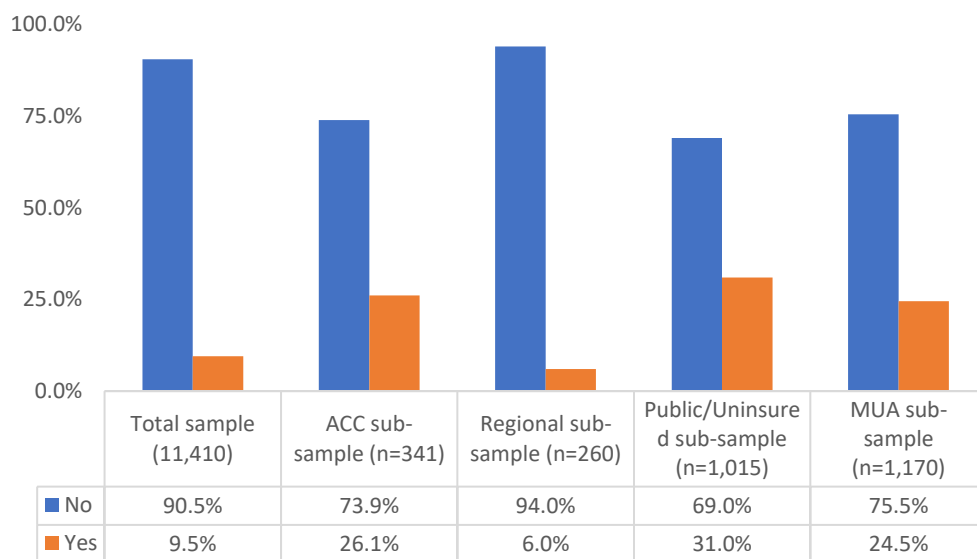
Age

Figure 3: Age group

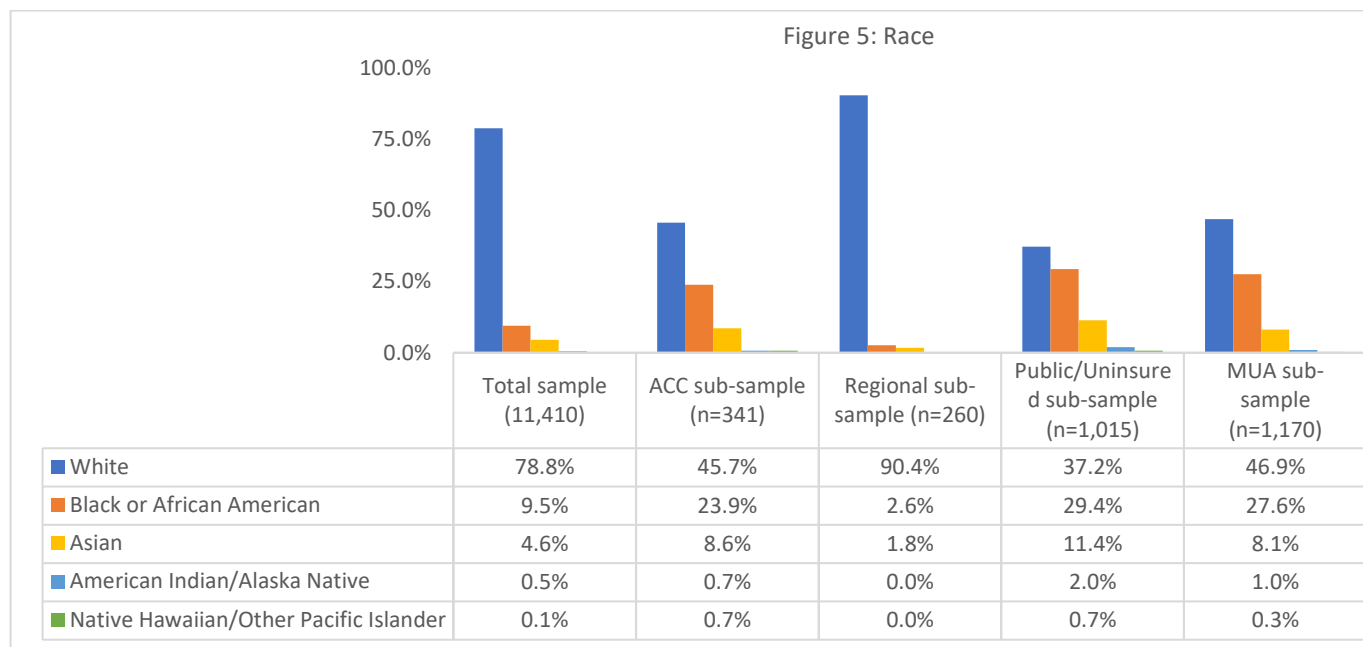


Ethnicity

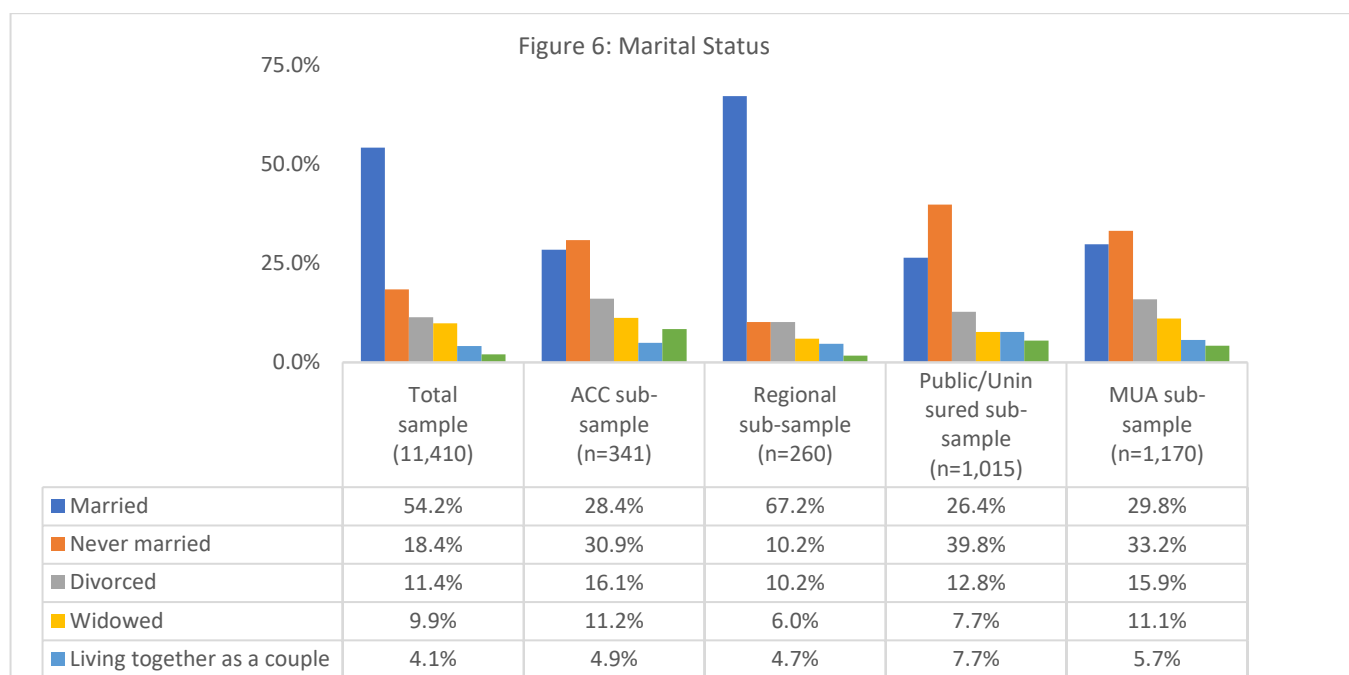
Figure 4: Hispanic/Latino



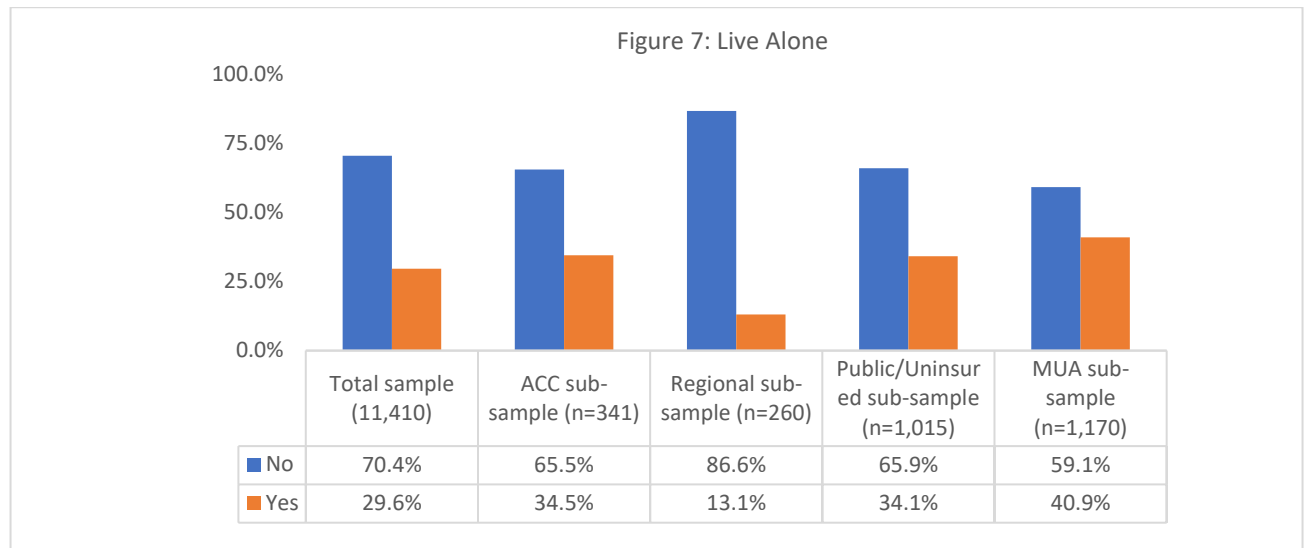
Race



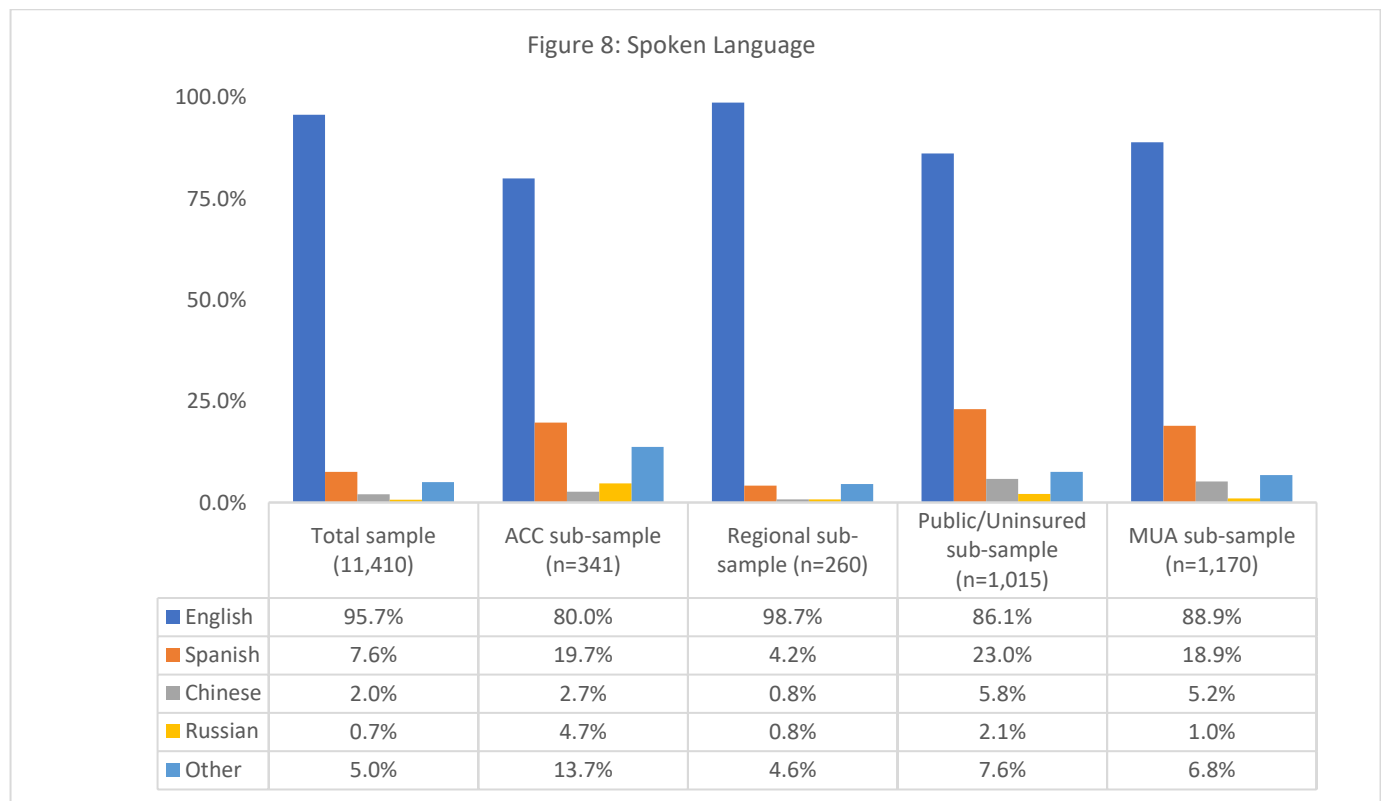
Marital status



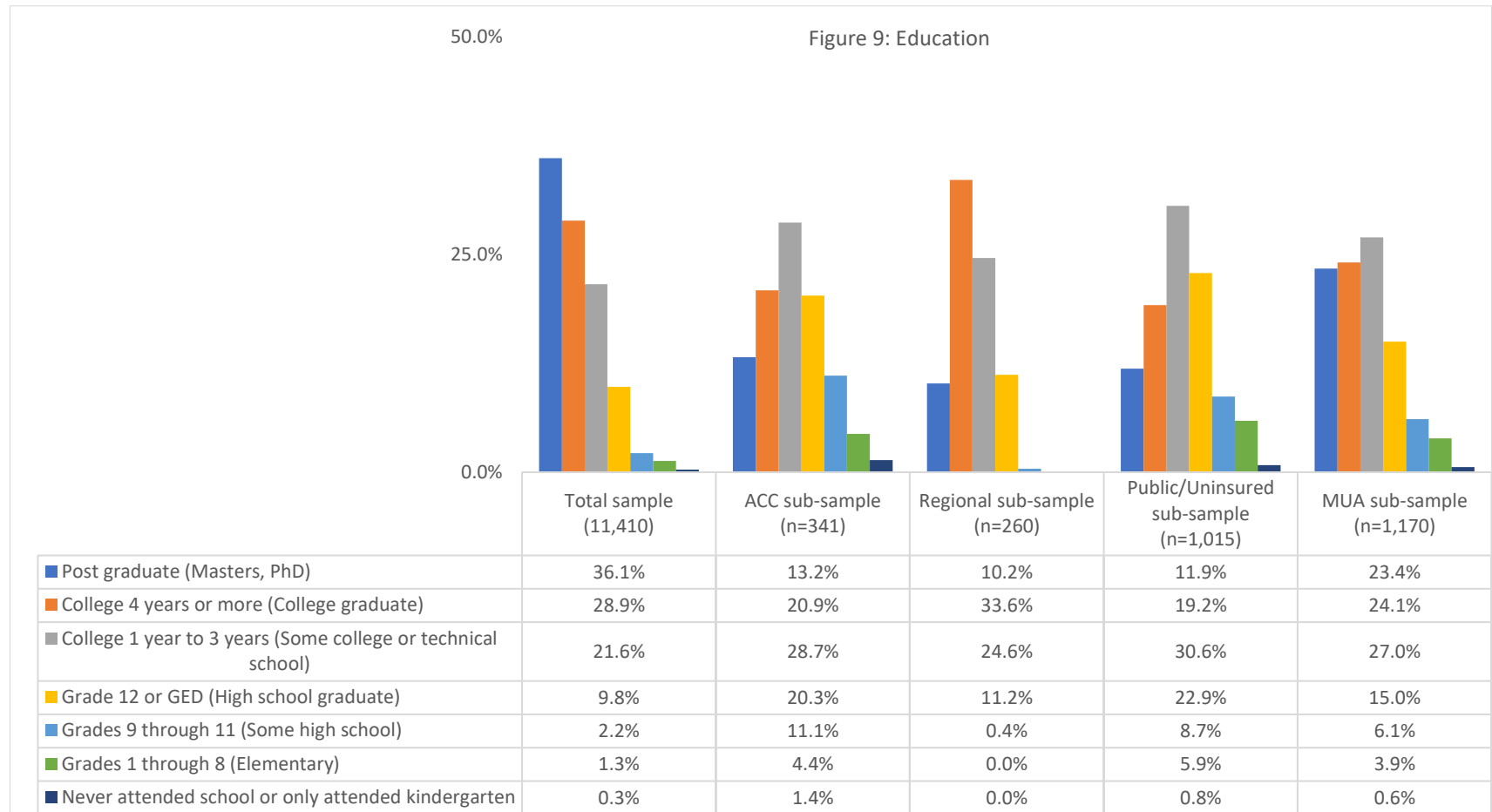
Living Alone



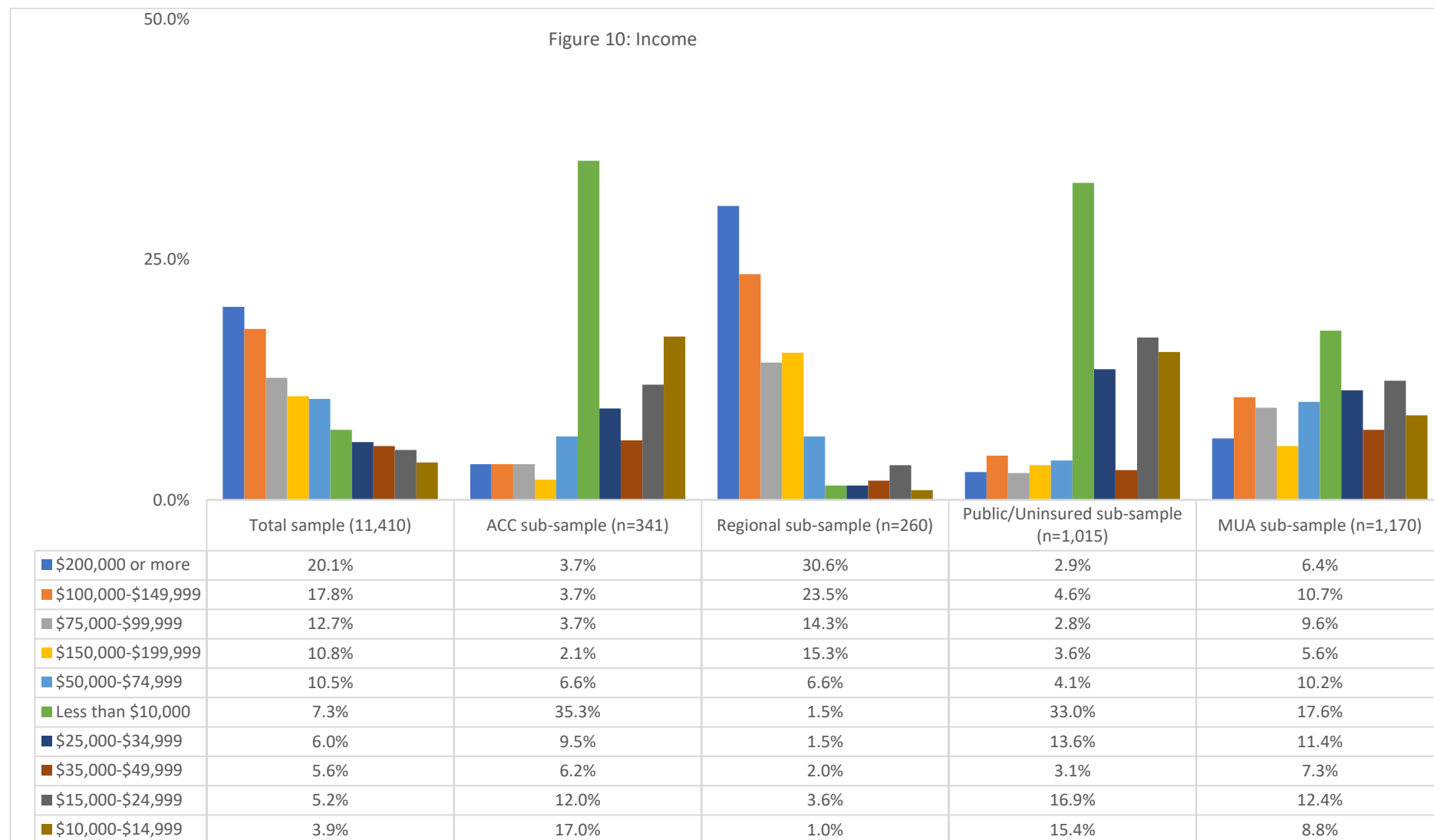
Spoken Language



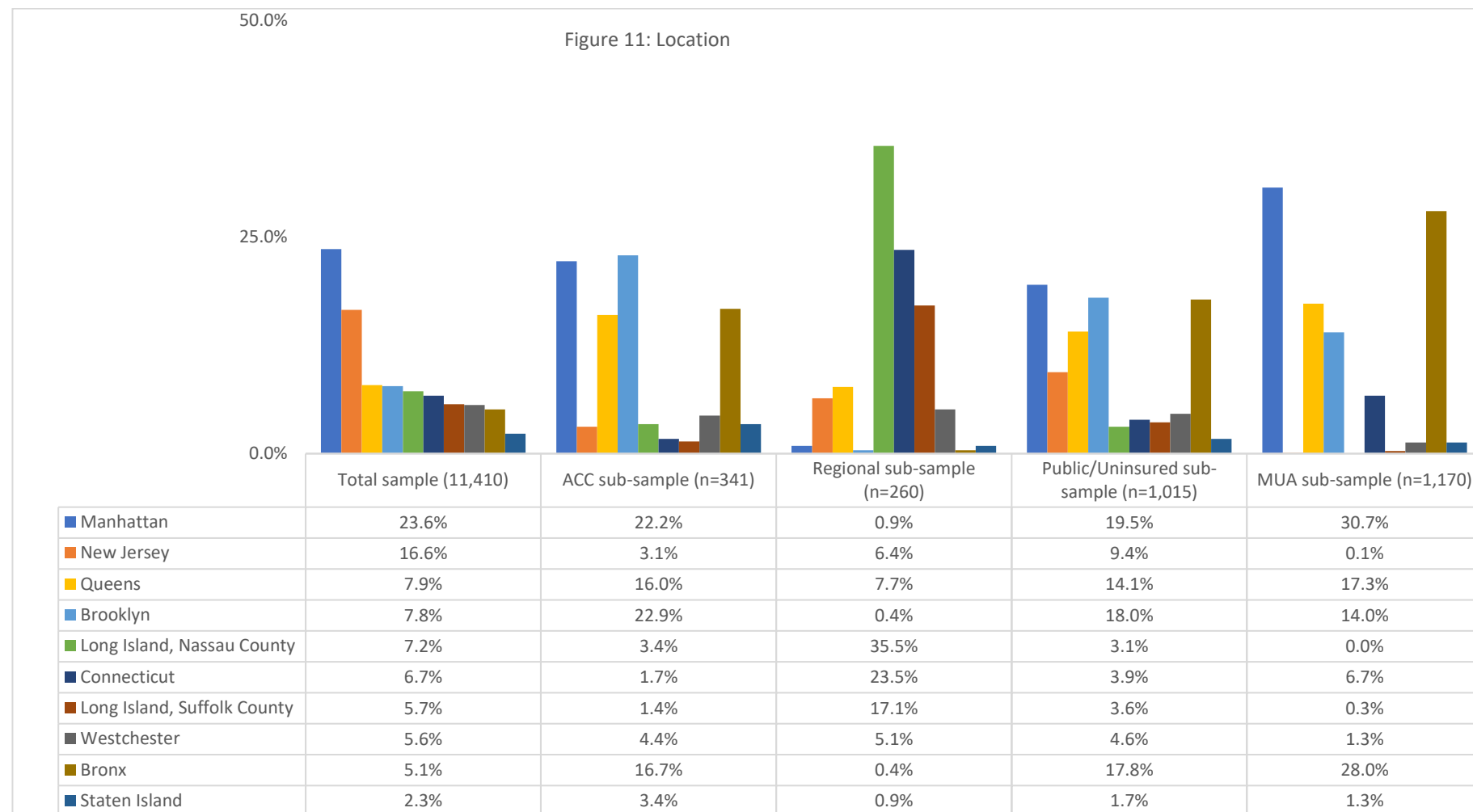
Education



Income



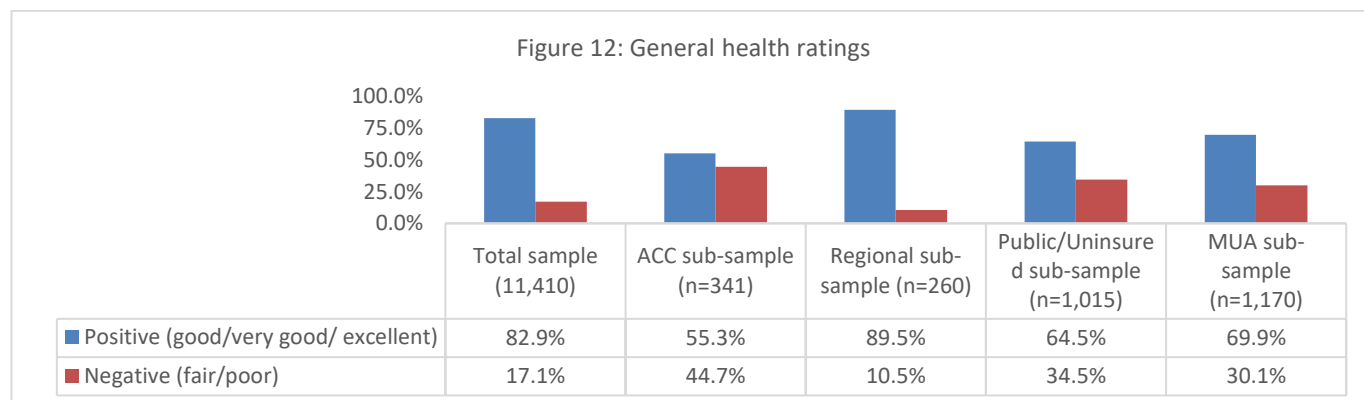
Geographic location



A. Health Status & Quality of Life

General Health

- Figure 12 below highlights respondents' rating of their general health
- Majority of the respondents across all samples rated their general health as excellent/very good/good
- 21.6% of the total sample, 49.1% of the ACC sub-sample, 49.5% of the public/uninsured sub-sample and 34% of the MUA sub-sample rated their health negatively (poor or fair), compared to 22.4% in New York City and 15.9% nationally

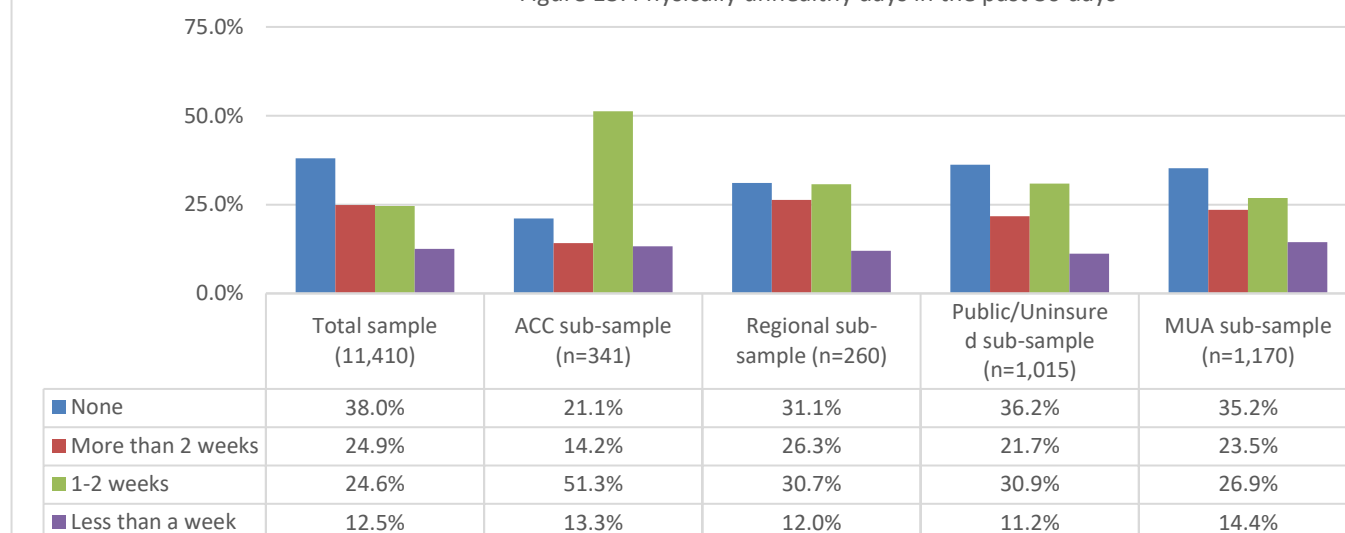


- General health was significantly associated with race and ethnicity such that:
 - Hispanics/Latinos were more likely to rate their health negatively in the total sample (30.6% ; $p \leq 0.001$), public/uninsured (40.1%; $p \leq 0.001$), ACC (55.4%; $p \leq 0.01$) and MUA sub-samples (36.3%; $p \leq 0.001$)
 - American Indians (33.3%) were more likely to rate their health negatively in the total sample (33.3%; $p \leq 0.001$), public/uninsured (50.0%; $p \leq 0.001$) and MUA sub-samples (54.5%; $p \leq 0.001$)

Physical Health

- Figure 13 shows the physically unhealthy days in the past 30 days (i.e. physical health including physical illness and injury) reported by respondents from all samples:
 - Using the CDC Healthy Days measure and physically unhealthy definition to assess physical health, results show that majority of respondents in all samples were physically healthy except in the ACC sub-sample, where most respondents (51.3%) experienced 1-2 weeks of poor physical health. See below for details:

Figure 13: Physically unhealthy days in the past 30 days



In the total sample, statistically significant associations were found with regards to physical health:

- Physical health was significantly associated with musculoskeletal conditions such that:
 - Respondents diagnosed with OA ($p \leq 0.001$), RA ($p \leq 0.001$), Lupus ($p \leq 0.001$), Fibromyalgia ($p \leq 0.001$), Gout ($p \leq 0.05$), some other form of arthritis ($p \leq 0.001$) and OP ($p \leq 0.001$) were more likely to report 14+ days of poor physical health
- Physical health was significantly associated with gender such that:
 - Females (69.9%) were more likely to report 14+ days of poor physical health compared to males (29.6%); $p \leq 0.01$
- Physical health was significantly associated with age such that:
 - Respondents between the age of 51-65 years (34.5%) and 66-75 (29.9%) were more likely to report more than 2 weeks of poor physical health; $p \leq 0.001$
- Physical health was significantly associated with ethnicity such that:
 - Non-Hispanics/Latinos (88.3%) were more likely to report more than 2 weeks of poor physical health compared to Hispanics/Latinos (11.7%); $p \leq 0.001$
- Physical health was significantly associated with physical activity (PA) such that:
 - Those who did not meet CDC-recommended levels of moderate PA (85.1%) were more likely to report more than 2 weeks of poor physical health; $p \leq 0.001$
 - Those who did not meet CDC-recommended levels of vigorous PA (86.3%) were more likely to report more than 2 weeks of poor physical health; $p \leq 0.01$
 - Those who did not meet CDC-recommended levels of muscle strengthening PA (66.4%) were more likely to report more than 2 weeks of poor physical health; $p \leq 0.001$ level

In the regional sub- sample, statistically significant associations were found with regards to physical health:

- Physical health was significantly associated with musculoskeletal conditions such that:

- Respondents diagnosed with having some other form of arthritis were more likely to report more than 2 weeks of being physically unhealthy; $p \leq 0.05$
- Physical health was significantly associated with physical activity (PA) such that:
 - Those who did not meet CDC-recommended levels of vigorous PA (83.6%) were more likely to report more than 2 weeks of poor physical health; $p \leq 0.05$
 - Those who did not meet CDC-recommended levels of muscle strengthening (63.0%) were more likely to report more than 2 weeks of poor physical health; $p \leq 0.001$

In the public/uninsured sub-sample, statistically significant associations were found with regards to physical health:

- Physical health was significantly associated with musculoskeletal conditions such that:
 - Respondents diagnosed with OA ($p \leq 0.001$), RA ($p \leq 0.001$), Lupus ($p \leq 0.001$), Fibromyalgia ($p \leq 0.001$), Gout ($p \leq 0.01$), some other form of arthritis ($p \leq 0.001$) and OP ($p \leq 0.001$) were more likely to report more than 2 weeks of poor physical health
- Physical health was significantly associated with age such that:
 - Respondents between the age of 51-65 years (41.9%) were more likely to report more than 2 weeks of poor physical health; $p \leq 0.001$
- Physical health was significantly associated with PA such that:
 - Those who did not meet CDC-recommended levels of moderate PA (86.9%) were more likely to report more than 2 weeks of poor physical health; $p \leq 0.05$
 - Those who did not meet CDC-recommended levels of muscle strengthening (74.2%) were more likely to report more than 2 weeks of poor physical health; $p \leq 0.001$

In the MUA sub-sample, statistically significant associations were also found with regards to physical health:

- Physical health was significantly associated with musculoskeletal conditions such that:
 - Respondents diagnosed with OA ($p \leq 0.001$), RA ($p \leq 0.001$), Lupus ($p \leq 0.001$), Fibromyalgia ($p \leq 0.001$), Gout ($p \leq 0.01$), some other form of arthritis ($p \leq 0.001$) and OP ($p \leq 0.001$) were more likely to report more than 2 weeks of poor physical health
- Physical health was significantly associated with age such that respondents between the age of 51-65 years (37.2%) were more likely to report more than 2 weeks of poor physical health; $p \leq 0.05$
- Physical health was significantly associated with race and ethnicity such that Whites/Caucasians (48.7%) were more likely to report more than 2 weeks of poor physical health; $p \leq 0.001$
- Physical health was significantly associated with PA such that:
 - Those who did not meet CDC-recommended levels of moderate PA (88.6%) were more likely to report more than 2 weeks of poor physical health; $p \leq 0.001$
 - Those who did not meet CDC-recommended levels of vigorous PA (87.8%) were more likely to report more than 2 weeks of poor physical health; $p \leq 0.01$
 - Those who did not meet CDC-recommended levels of muscle strengthening (74.3%) were more likely to report more than 2 weeks of poor physical health; $p \leq 0.001$

Musculoskeletal Conditions

- Table 2 depict respondents who had been diagnosed with various musculoskeletal and rheumatologic conditions
- Across all five samples, OA was the leading musculoskeletal condition reported. These results align with national statistics showing that OA is the most common form of arthritis (affecting over 30 million adults in 2015 per CDC).

Table 2: Musculoskeletal conditions

	Total (n=11,410)	ACC sub- sample (n=341)	Regional subsample (n=260)	Public/Uninsured subsample (n=1,015)	MUA sub- sample (n=1,170)
Osteoarthritis (OA)	64.5%	49.0%	57.4%	48.9%	56.1%
Some other form of arthritis	30.7%	33.9%	41.1%	38.4%	32.4%
Osteoporosis (OP)	25.8%	20.1%	19.1%	22.1%	23.3%
Rheumatoid arthritis (RA)	15.3%	34.3%	9.9%	30.3%	24.6%
Gout	6.8%	5.9%	6.4%	7.0%	7.0%
Fibromyalgia	6.5%	10.0%	6.4%	11.6%	8.2%
Lupus	4.4%	9.6%	1.4%	11.6%	9.7%

Reported Symptoms Associated with Musculoskeletal Conditions

- Table 3 below show respondents diagnosed with musculoskeletal conditions and their symptoms
- Results show that joint/ bone pain or aches, muscle pain or aches and stiffness were the three most common symptoms among respondents with musculoskeletal conditions, as depicted in the table below:

Table 3: Reported symptoms associated with musculoskeletal conditions

	Total (n=11,410)	ACC sub- sample (n=341)	Regional subsample (n=260)	Public/Uninsured subsample (n=1,015)	MUA sub- sample (n=1,170)
Joint/ bone pain or aches	84.0%	90.0%	94.1%	86.4%	84.4%
Stiffness	78.5%	72.3%	79.3%	71.1%	74.1%
Muscle pain or aches	72.7%	82.3%	74.1%	76.0%	74.5%
Fatigue	51.5%	58.0%	48.1%	57.5%	54.8%
Problems with balance	34.3%	51.5%	26.7%	43.0%	39.8%
Mood changes	26.7%	44.6%	17.0%	42.3%	38.1%
Trouble with concentrating	21.2%	33.3%	10.4%	34.3%	29.0%
Changes in memory	17.5%	28.6%	5.9%	31.1%	25.7%
Weight changes	17.4%	29.0%	12.6%	31.7%	26.6%
Hair loss	13.0%	20.8%	5.2%	24.0%	19.8%
Skin rash	12.6%	16.5%	8.9%	19.4%	15.4%

- In the total sample, statistically significant associations were found among respondents experiencing certain symptoms based on their musculoskeletal conditions, as shown in Table 4 below
- Respondents in the total sample who had RA, Fibromyalgia and some other form of arthritis experienced all 11 symptoms highlighted in Table 4 below
- Majority of respondents in the total (53.4%), ACC (83.5%), regional (76.6%), public/uninsured (69.0%) and MUA (58.8%) samples who reported arthritis or joint symptoms experienced limitations in their daily activities

Table 4: Musculoskeletal Conditions by Reported Symptoms – Total Sample

	OA	RA	Lupus	Fibromyalgia	Gout	Some other form of OA	OP
Joint/ bone pain or aches	***	***	**	***		***	
Stiffness	***	***		***		***	
Muscle pain or aches	***	***	***	***		***	***
Fatigue	***	***	***	***	**	***	***
Problems with balance	***	***	***	***	***	***	***
Mood changes	**	***	***	***	**	***	***
Trouble with concentrating	*	***	***	***	*	***	***
Changes in memory		***	***	***	***	***	***
Weight changes		***	***	***	***	***	**
Hair loss		***	***	***		***	***
Skin rash		***	***	***	*	***	***
***	denotes statistically significant associations between the condition and reported symptom at the $p < 0.001$ level						
**	denotes statistically significant associations between the condition and reported symptom at the $p < 0.01$ level						
*	denotes statistically significant associations between the condition and reported symptom at the $p < 0.05$ level						

In the total sample, significant socio-demographic differences were found with regards to musculoskeletal conditions:

- Musculoskeletal conditions were significantly associated with geographic locations such that:
 - Respondents living in Manhattan were more likely to be diagnosed with OA (55.5%) and OP (33.2%); $p \leq 0.001$
 - Respondents living in the Bronx (23.2%) followed by Queens (20.6%) were more likely to be diagnosed with RA; $p \leq 0.001$
 - Respondents living in Queens and Staten Island, were more likely to be diagnosed with Lupus (9.6% and 9.2% respectively; $p < 0.001$) and Gout (31.1% each; $p < 0.01$ level)
- Musculoskeletal conditions were significantly associated with gender, such that:
 - Females were more likely to report having OA (55.5%, $p \leq 0.001$), RA (14.9%, $p \leq 0.001$), Lupus (5.5%; $p \leq 0.001$), Fibromyalgia (7.7%; $p \leq 0.001$), and OP (29.0%; $p \leq 0.001$). While males were more likely

to have Gout (11.9%; $p \leq 0.001$) and some other form of arthritis (28.6%; $p \leq 0.01$). The data aligns with CDC findings stating that most types of arthritis are more common in women, while gout is more common in men.

- Musculoskeletal conditions were significantly associated with age such that:
 - Respondents aged 18-35 years (7.7%) and 36-50 years (8.9%) were more likely to be diagnosed with Lupus, and the likelihood decreased with respondents age ($p \leq 0.001$)
 - Respondents aged 66-75 years were more likely to have OA (62.7%), some other form of arthritis (27.0%), OP (25.7%), RA (14.6%), Gout (7.8%) and Fibromyalgia (6.4%); $p \leq 0.001$
 - Respondents aged 76-85 years were more likely to be diagnosed with OA (61.4%), OP (36.9%), some other form of arthritis (30.3%), RA (15.1%) and Gout (8.3%); $p \leq 0.001$
 - Respondents aged 86+ years were more likely to be diagnosed with OA (60.5%), OP (45.4%), some other form of arthritis (36.6%), Gout (13.7%) and RA (12.3%); $p \leq 0.001$
- Musculoskeletal conditions were significantly associated with race and ethnicity such that:
 - Whites/Caucasians more likely to report having OA (55.2%) and OP (23.4%); $p \leq 0.001$
 - Native Hawaiians were more likely to report having RA (25.0%); $p \leq 0.001$
 - Asians were more likely to report having Lupus (16.5%); $p \leq 0.001$
 - American Indians were more likely to report having some other form of OA (27.6%) and Fibromyalgia (12.9%); $p \leq 0.01$
 - Non-Hispanics/Latinos were more likely to report having OA (52.9%), some other form of arthritis (25.6%), OP (22.3%) and Gout (6.4%); $p \leq 0.001$. While Hispanics/Latinos were more likely to report having RA (22.3%), Lupus (9.5%) and Fibromyalgia (9.5%); $p \leq 0.001$

In the regional sub-sample, significant socio-demographic differences were found with regards to musculoskeletal conditions:

- Musculoskeletal conditions were significantly associated with gender such that females were more likely to report having OP (21.9%) compared to males (3.3%); $p \leq 0.001$
- Musculoskeletal conditions were significantly associated with age, such that respondents aged 66-75 years and 76-85 years were more likely to be diagnosed with OA (78.6% and 72.4% respectively; $p \leq 0.001$) and OP (25.0% and 18.4%; $p \leq 0.05$ respectively)

In the ACC sub-sample, significant socio-demographic differences were found with regards to musculoskeletal conditions:

- Musculoskeletal conditions were significantly associated with gender such that females were more likely to report having OP (33.1%; $p \leq 0.001$), Lupus (15.7%; $p \leq 0.01$) and Fibromyalgia (14.8%; $p \leq 0.05$).
- Musculoskeletal conditions were significantly associated with age, such that respondents aged 76-85 years and 66-75 years were more likely to be diagnosed with OA (78.6% and 72.4% respectively; $p \leq 0.001$) and OP (90.0% and 41.7 % respectively; $p \leq 0.05$)
- Musculoskeletal conditions were significantly associated with ethnicity such that Hispanics/Latinos were more likely to report having RA (52.1%; $p \leq 0.01$), and Fibromyalgia (20.0; $p \leq 0.05$)

In the public/uninsured sub-sample, significant socio-demographic differences were found with regards to musculoskeletal conditions:

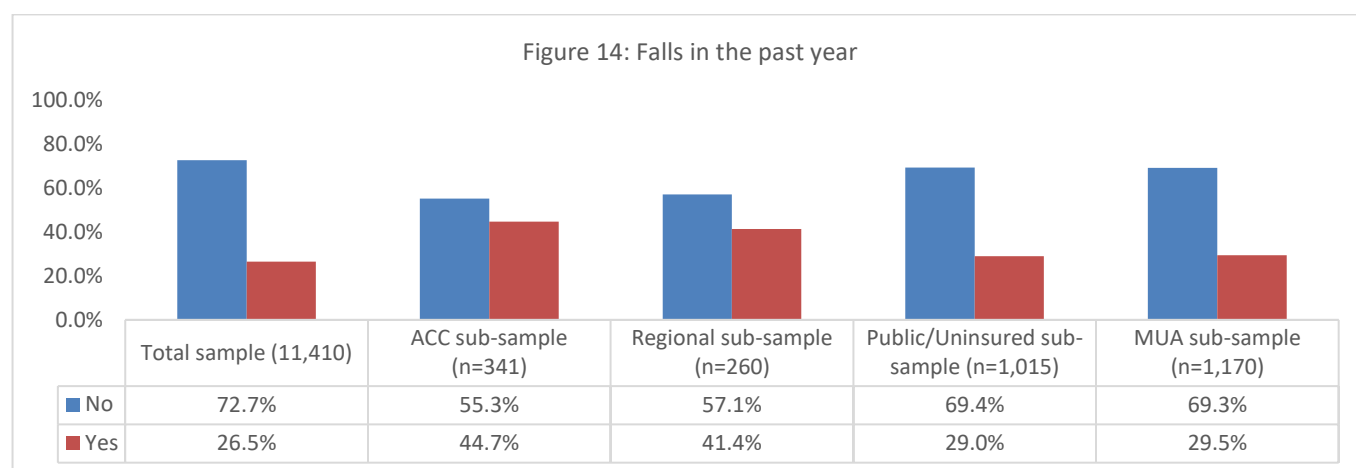
- Musculoskeletal conditions were significantly associated with geographic locations such that:
 - Respondents living in Staten Island were more likely to be diagnosed with OA (50%; $p \leq 0.05$), Fibromyalgia (36.4%; $p \leq 0.05$) and Lupus (30%; $p \leq 0.01$). While respondents living in Manhattan were more likely to be diagnosed with OP (23.4%; $p \leq 0.05$)
- Musculoskeletal conditions were significantly associated with gender, such that females were more likely to report having OA (34.0%; $p \leq 0.001$), RA (22.7%; $p \leq 0.01$), OP (18.5%; $p \leq 0.001$) and Lupus (10.5%; $p \leq 0.01$)
- Musculoskeletal conditions were significantly associated with age such that:
 - Respondents aged 66-75 years were more likely to have OA (62.7%) and Fibromyalgia (18.3%); $p \leq 0.001$
 - Respondents aged 76-85 years were more likely to be diagnosed with OA (63.5%), RA (44.6%), Gout (20.9%) and OP (40.0%); $p \leq 0.001$
 - Respondents aged 86+ years were more likely to be diagnosed with some other form of arthritis (72.7%); $p \leq 0.001$
- Musculoskeletal conditions were significantly associated with race and ethnicity such that:
 - Asians were more likely to report having OP (22.1%); $p \leq 0.05$
 - Whites/Caucasians (31.8%) and American Indians (31.3%) were more likely to report having some other form of arthritis; $p \leq 0.05$
 - Non-Hispanics/Latinos were more likely to report having OA (32%; $p \leq 0.01$) while Hispanics/Latinos were more likely to report having RA (25%; $p \leq 0.01$) and Fibromyalgia (10.1%; $p \leq 0.05$)

In the MUA sub-sample, significant socio-demographic differences were found with regards to musculoskeletal conditions:

- Musculoskeletal conditions were significantly associated with gender such that:
 - Females were more likely to report having OA (46.3%; $p \leq 0.001$), RA (20.6%; $p \leq 0.05$), OP (23.2%; $p \leq 0.001$), Fibromyalgia (8.7%; $p \leq 0.01$) and Lupus (10.3%; $p \leq 0.01$)
 - Males were more likely to report having Gout (9.4%; $p \leq 0.05$)
- Musculoskeletal conditions were significantly associated with age, such that:
 - Respondents aged 66-75 years were more likely to have RA (26%; $p \leq 0.001$)
 - Respondents aged 76-85 years were more likely to be diagnosed with some other form of arthritis (37.8%; $p \leq 0.001$)
 - Respondents aged 86+ years were more likely to be diagnosed with OA (68.2%), OP (58.8%) and Gout (12.5%); $p \leq 0.001$
- Musculoskeletal conditions were significantly associated with race and ethnicity such that:
 - Whites/Caucasians (52.3%; $p \leq 0.05$) and Non-Hispanics/Latinos (46.2%; $p \leq 0.001$) were more likely to report having OA
 - American Indians and Hispanics/Latinos were more likely to report having RA (40%; $p \leq 0.05$ and 25.4%; $p \leq 0.01$ respectively) and Fibromyalgia (27.3%; $p \leq 0.05$ and 11.0%; $p \leq 0.01$ respectively)
 - Asians were more likely to report having Lupus (26.2%); $p \leq 0.001$

Falls & Fractures

- Figure 14 shows if respondents had fallen down in the past year
- Majority of respondents indicated that they had not fallen in the past year. See below for details:



- In all samples, 16.1% of the total, 18.8% of ACC, 6.4% of regional, 14.3% of public/uninsured and 14.4% of MUA respondents reported fractures from their falls
- Among those who had fallen, majority of respondents in the total (66.8%), ACC (71.9%), regional (59.6%), public/uninsured (65.7%) and MUA (68.8%) samples had talked to their doctor or healthcare provider about their fall

In the total sample, significant differences were found with regards to falls

- Falls were significantly associated with geographic location such that:
 - Respondents living in Manhattan (31.6%), Brooklyn (29.4%), Westchester (26.6%) and Queen (26.4%) were more likely to fall; $p \leq 0.001$
 - Among the respondents living in Queens that fell, 73.7% talked to their doctor or healthcare provider about their falls; $p \leq 0.01$
- Falls were significantly associated with gender such that:
 - Falls were more common among females (28.9%) and gender non-conforming (50%); $p \leq 0.001$
- Falls were significantly associated with age such that:
 - The oldest respondents (aged 86+ years) were more likely (40.2%) to fall, followed by those aged 76-85 years (32.3%); $p \leq 0.001$. This data supports research showing that the severity of falls-related consequences increase with age, such that in 2012, older New Yorkers accounted for more than 2/3 of all adult fall-related deaths and hospitalizations.
 - Among respondents aged 76-85 years that fell, 20.3% reported fractures from their fall; $p \leq 0.001$
 - Among respondents aged 85+ years and 76-85 years (81.2% and 71.2% respectively) talked to their doctor or healthcare provider about their fall; $p \leq 0.001$
- Falls were significantly associated with race such that:
 - American Indians (37.5%) and African Americans (28.4%) were more likely to fall; $p \leq 0.001$
 - Among the American Indians that fell, 16.7% reported fractures from their fall; $p \leq 0.001$

- Falls were significantly associated with physical activity (PA) such that:
 - Those who did not meet CDC-recommended levels of vigorous PA (27.6%) were more likely to fall; $p \leq 0.001$. Among these respondents, 61.6% reported their falls to their doctor; $p \leq 0.05$
 - Respondents who did not meet CDC-recommended levels of muscle strengthening (29.7%) were more likely to fall; $p \leq 0.001$. Among these respondents, 63.7% reported their falls to their doctor; $p \leq 0.001$
 - This data strongly support research that has shown that physical inactivity and a sedentary lifestyle are risk factors for developing fragility fractures, and that PA reduces the risk of osteoporosis, fractures, and falls-related injuries
- Falls were significantly associated with musculoskeletal conditions such that:
 - Respondents diagnosed with OA (28.9%; $p \leq 0.001$), RA (33.3%; $p \leq 0.001$), Lupus (71%; $p \leq 0.05$), Fibromyalgia (38.9%; $p \leq 0.001$), Gout (31.6%; $p \leq 0.05$), some other form of arthritis (28%; $p \leq 0.05$), and OP (34%; $p \leq 0.001$) were more likely to fall in the past year

In the ACC sub-sample, significant associations were found with regards to falls:

- Falls were significantly associated with musculoskeletal conditions such that respondents diagnosed with OA (51.3%; $p \leq 0.05$) were more likely to fall in the past year

In the public/uninsured sub-sample, significant associations were found with regards to falls:

- Falls were significantly associated with physical activity (PA) such that:
 - Those who did not meet CDC-recommended levels of moderate PA (26.5%) were more likely to fall; $p \leq 0.05$. Among these respondents, 57.3% reported their falls to their doctor; $p \leq 0.05$
- Falls were significantly associated with musculoskeletal conditions such that:
 - Respondents diagnosed with OA (38.3%; $p \leq 0.001$), RA (40.2%; $p \leq 0.001$), Lupus (41.9%; $p \leq 0.01$), Fibromyalgia (54%; $p \leq 0.001$), Gout (51.4%; $p \leq 0.01$), some other form of arthritis (35.6%; $p \leq 0.01$), and OP (41.7%; $p \leq 0.001$) were more likely to fall in the past year.

In the MUA sub-sample, significant associations were found with regards to falls:

- Falls were significantly associated with gender such that falls were more common among females (31.3%) and gender non-conforming (80%); $p \leq 0.05$
- Falls were significantly associated with age such that:
 - The oldest respondents (aged 86+ years) were more likely (54.2%) to fall, followed by those aged 76-85 years (35.1%); $p \leq 0.05$. Among respondents aged 85+ years and 76-85 years (76.9% and 69.6% respectively) talked to their doctor or healthcare provider about their fall; $p \leq 0.011$
- Falls were significantly associated with physical activity (PA) such that Those who did not meet CDC-recommended levels of moderate PA (32.1%) were more likely to fall; $p \leq 0.01$.
- Falls were significantly associated with musculoskeletal conditions such that
 - Respondents diagnosed with OA (34.6%; $p \leq 0.01$), RA (38.9%; $p \leq 0.01$), Lupus (38.9%; $p \leq 0.05$) and Fibromyalgia (47.5%; $p \leq 0.01$) were more likely to fall in the past year

Mental Health

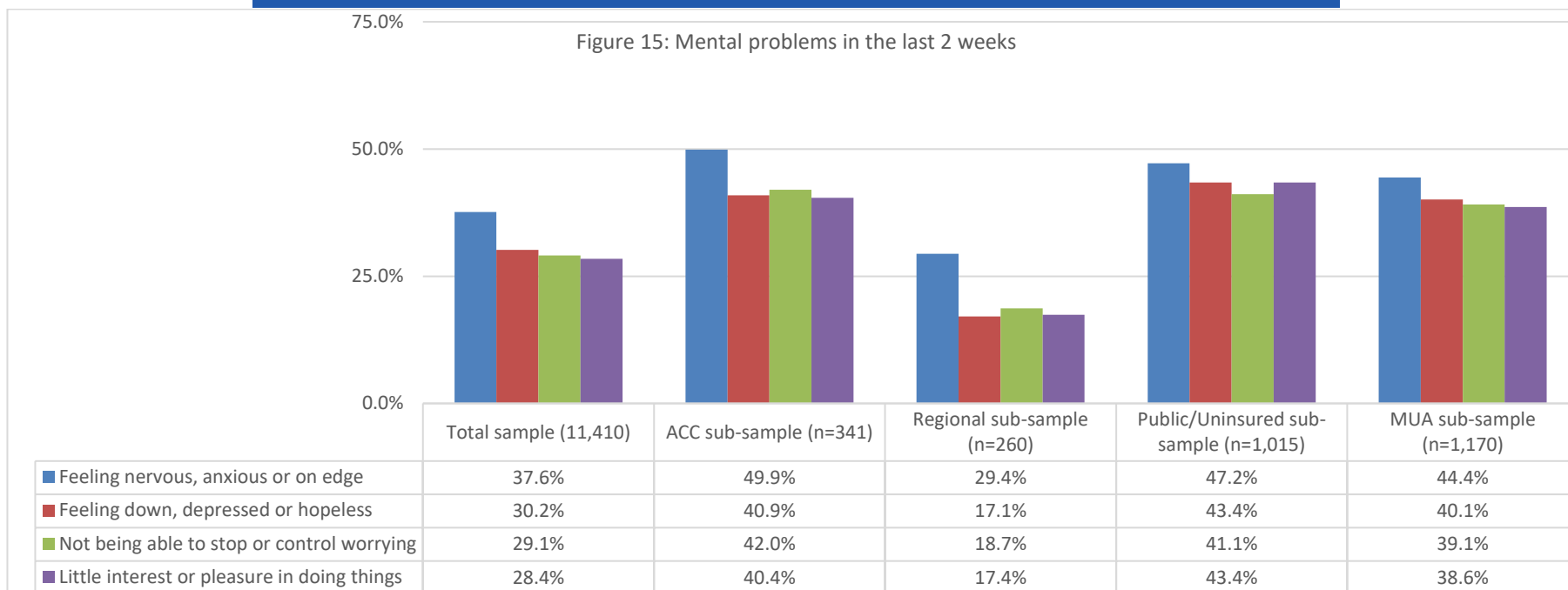
- Table 5 shows mentally unhealthy days in the past 30 days (i.e. mental health which included stress, depression, and problems with emotion) from all samples:
 - Majority of respondents across all five samples reported no mentally unhealthy days in the past 30 days
 - However, using the CDC Healthy Days measure and mentally unhealthy definition to assess mental health, results show that 24.5% of respondents from the ACC sub-sample were mentally unhealthy.

Table 5: Mentally unhealthy in the past 30 days

Mentally Unhealthy	Total (N=11,710)	ACC sub-sample (n=341)	Regional subsample (n=260)	Public/Uninsured subsample (n=1,015)	MUA sub-sample (n=1,170)
None	60.3%	51.0%	72.0%	50.1%	50.8%
Less than one week	22.9%	16.3%	16.9%	21.0%	21.2%
1-2 weeks	7.6%	8.2%	4.5%	12.3%	14.0%
More than 2 weeks	9.2%	24.5%	6.6%	16.7%	13.9%

- Figure 15 below highlights respondents' experiences with mental health problems within the past two weeks.
- Across all five samples, feeling nervous, anxious or on edge was the leading mental problem reported.

Figure 15: Mental problems in the last 2 weeks



In the total sample, statistically significant associations were found with regards to mental health:

- Mental health was significantly associated with geographic location such that:
 - Respondents living in the Bronx (16.4%) were more likely to report more than 2 weeks of poor mental health; $p \leq 0.001$
- Mental health was significantly associated with gender such that:
 - Respondents who considered themselves to be Gender non-conforming (30.0%) were more likely to report more than 2 weeks of poor mental health; $p \leq 0.001$
- Mental health was significantly associated with age such that:
 - The youngest respondents (18-35 years) and oldest respondents (86+ years) were more likely to report more than 2 weeks of poor mental health (14.8% and 11.9% respectively; $p \leq 0.001$)
- Mental health was significantly associated with race and ethnicity such that:
 - American Indians (18.8%) followed by Hispanics/Latinos (17.2%) and Other race (16.6%) were more likely to report more than 2 weeks of poor mental health ($p \leq 0.001$)

- Mental health was significantly associated with musculoskeletal conditions such that:
 - Respondents with OA (9.3%; $p \leq 0.001$), RA (14.1%; $p \leq 0.001$), Lupus (19.6%; $p \leq 0.001$), Fibromyalgia (20.7%; $p \leq 0.001$), some other form of arthritis (11.7%; $p \leq 0.001$) and OP (11.8%; $p \leq 0.001$) were more likely to report more than 2 weeks of poor mental health
- Mental health was significantly associated with physical activity (PA) such that:
 - Those who did not meet CDC-recommended levels of vigorous PA (10.1%) were more likely to report poor mental health; $p \leq 0.001$
 - Those who did not meet CDC-recommended levels of moderate PA (10.0%) were more likely to report poor mental health; $p \leq 0.001$
 - Respondents who did not meet CDC-recommended levels of muscle strengthening (12.4%) were more likely to report poor mental health; $p \leq 0.001$.

In the regional sub-sample, statistically significant associations were found with regards to mental health:

- Mental health was significantly associated with age such that:
 - Respondents aged 66-75 years (8.0%) and 51-65 years (7.9%) more likely to report more than 2 weeks of poor mental health; $p \leq 0.05$
- Mental health was significantly associated with musculoskeletal conditions such that:
 - Respondents with Fibromyalgia (11.1%; $p \leq 0.05$) were more likely to report more than 2 weeks of poor mental health

In the public/uninsured sub-sample, statistically significant associations were found with regards to mental health:

- Mental health was significantly associated with ethnicity such that Hispanics/Latinos (21.6%) were more likely to report more than 2 weeks of poor mental health; $p \leq 0.001$
- Mental health was significantly associated with musculoskeletal conditions such that:
 - Respondents with RA (25.6%; $p \leq 0.001$), Lupus (29.0%; $p \leq 0.001$), Fibromyalgia (25.8%; $p \leq 0.01$), some other form of arthritis (22.7%; $p \leq 0.01$) and OP (18.4%; $p \leq 0.05$) were more likely to report more than 2 weeks of poor mental health

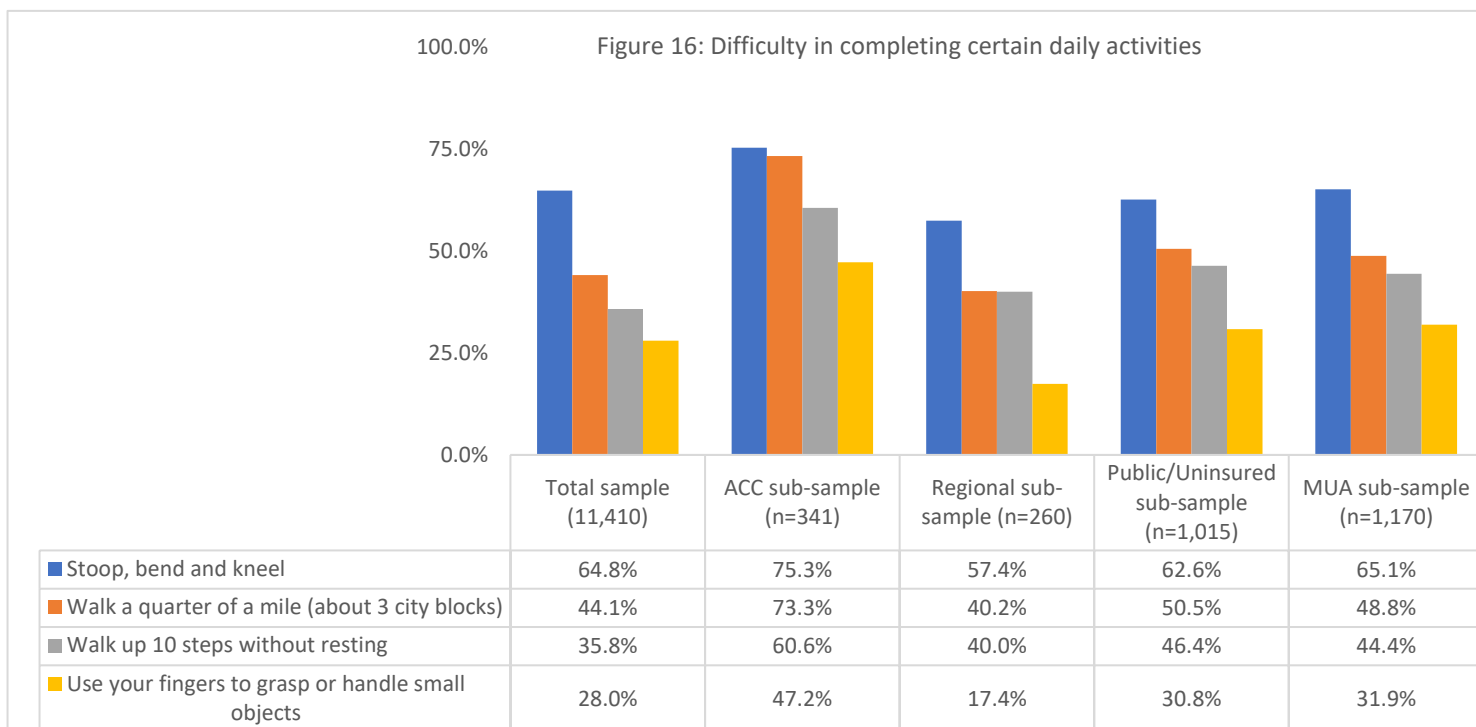
In the MUA sub-sample, statistically significant associations were found with regards to mental health:

- Mental health was significantly associated with age such that:
 - Respondents aged 18-35 years (15.8%) and 51-65 years (15.7%) were more likely to report more than 2 weeks of poor mental health; $p \leq 0.001$
- Mental health was significantly associated with race and ethnicity such that:
 - Native Hawaiians (33.3%; $p \leq 0.01$) followed by Other race (20.2%; $p \leq 0.01$) and Hispanics/Latinos (19.9%; $p \leq 0.001$) were more likely to report more than 2 weeks of poor mental health
- Mental health was significantly associated with physical activity such that:
 - Respondents who did not meet CDC-recommended levels of muscle strengthening (17.1%) were more likely to report poor mental health; $p \leq 0.05$

- Mental health was significantly associated with musculoskeletal conditions such that:
 - Respondents diagnosed with OA (17.3%; $p \leq 0.01$), RA (21.8%; $p \leq 0.001$), Lupus (28.2%; $p \leq 0.001$), Fibromyalgia (25.4%; $p \leq 0.001$), some other form of arthritis (19.9%; $p \leq 0.01$) and OP (22.0%; $p \leq 0.01$) were more likely to report more than 2 weeks of poor mental health

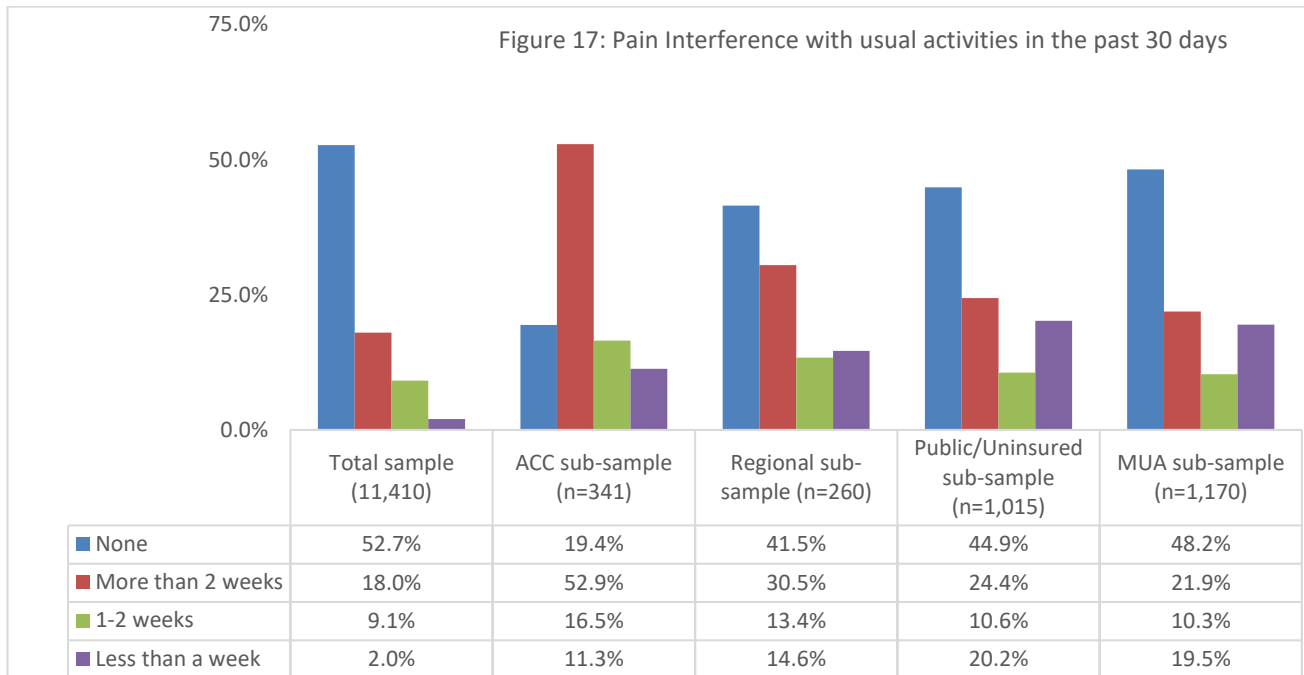
Difficulty in Certain Daily Activities

- Figure 16 below highlights difficulty in completing certain daily activities in all samples
- Among respondents from all five samples, stooping, bending or kneeling was the most common reported difficulty



Pain Interference

- Figure 17 below shows pain interference with usual activities in the past 30 days in all samples
- Majority of the respondents in all samples experienced no pain inference except in the ACC sub-sample, where most respondents (52.9%) reported 14 days or more of pain interference in the past 30 days



In the total sample, statistically significant associations were found with regards to pain interference:

- Pain interference was significantly associated with geographic location such that:
 - Respondents living in the Bronx (22.4%) followed by Long Island - Nassau and Suffolk counties (21.5% and 21.4% respectively) were more likely to report pain interference with their usual activities for 14+ days; $p \leq 0.001$
- Pain interference was significantly associated with gender such that:
 - Females (18.9%) and gender non-conforming (30.0%) were more likely to report pain interference with their usual activities for 14+ days; $p \leq 0.05$
- Pain interference was significantly associated with age such that:
 - Respondents aged 36-50 years (23.1%) followed by 51-65 years (21.6%) were more likely to report pain interference with their usual activities for 14+ days; $p \leq 0.001$
- Pain interference was significantly associated with race and ethnicity such that:
 - American Indians (25.8%) followed by Other race (24.8%) and Hispanics/Latinos (23.5%) were more likely to report pain interference with their usual activities for 14+ days; $p \leq 0.001$.
- Pain interference was significantly associated with PA such that:
 - Those who did not meet CDC-recommended levels of vigorous (20.1%), moderate (19.4%) and muscle strengthening (24.9%) PA were more likely to report pain interference with their usual activities for 14+ days; $p \leq 0.001$

- Respondents who were told by their doctor to lose weight (20.9%) and do exercise/PA (19.4%) were more likely to report pain interference with their usual activities for 14+ days; $p \leq 0.001$
- Pain interference was significantly associated with diet such that:
 - Respondents who reported eating unhealthy diets (23.7%) were more likely to report pain interference with their usual activities for 14+ days; $p \leq 0.001$
- Pain interference was significantly associated with musculoskeletal conditions such that:
 - Respondents diagnosed with OA (20.0%; $p \leq 0.001$), RA (28.0%; $p \leq 0.001$), Lupus (27.3%; $p \leq 0.001$), Fibromyalgia (37.7%; $p \leq 0.001$), Gout (20.4%; $p \leq 0.05$), some other form of arthritis (25.2%; $p \leq 0.001$) and OP (20.2%; $p \leq 0.001$) were more likely to report pain interference with their usual activities for more than 2 weeks

In the ACC sub-sample, statistically significant associations were found with regards to pain interference:

- Pain interference was significantly associated with PA such that:
 - Respondents who did not meet CDC-recommended levels of muscle strengthening (59.3%) were more likely to report pain interference with their usual activities for 14+ days; $p \leq 0.01$.
 - Respondents who were told by their doctor to lose weight (55.4%) were more likely to report pain interference with their usual activities for 14+ days; $p \leq 0.05$
 - Respondents who were not told by their doctor to do exercise/PA (54.6%) were more likely to report pain interference with their usual activities for 14+ days; $p \leq 0.01$
- Pain interference was significantly associated with diet such that:
 - Respondents who reported eating unhealthy diets (23.7%) were more likely to report pain interference with their usual activities for 14+ days; $p \leq 0.001$
- Pain interference was significantly associated with musculoskeletal conditions such that:
 - Respondents diagnosed with OA (58.9%; $p \leq 0.05$) were more likely to report pain interference with their usual activities for more than 2 weeks

In the regional sub-sample, statistically significant associations were found with regards to pain interference:

- Pain interference was significantly associated with PA such that:
 - Respondents who did not meet CDC-recommended levels of muscle strengthening (37.6%) were more likely to report pain interference with their usual activities for 14+ days; $p \leq 0.01$.
- Pain interference was significantly associated with musculoskeletal conditions such that:
 - Respondents diagnosed with RA (15.4%; $p \leq 0.01$) were more likely to report pain interference with their usual activities for more than 2 weeks

In the public/uninsured sub-sample, statistically significant associations were found with regards to pain interference:

- Pain interference was significantly associated with geographic location such that:
 - Respondents living in Staten Island (56.3%) followed by Long Island - Nassau County (40.7%) were more likely to report pain interference with their usual activities for 14+ days; $p \leq 0.05$
- Pain interference was significantly associated with gender such that:

- Females (25.9%) were more likely to report pain interference with their usual activities for 14+ days; $p \leq 0.05$
- Pain interference was significantly associated with age such that:
 - Respondents aged 51-65 years (33.5%) followed by 66-75 years (31.1%) were more likely to report pain interference with their usual activities for 14+ days; $p \leq 0.001$
- Pain interference was significantly associated with PA such that:
 - Those who did not meet CDC-recommended levels of vigorous (25.5%; $p \leq 0.05$) and muscle strengthening PA (32.7%; $p \leq 0.001$) were more likely to report pain interference with their usual activities for 14+ days;
 - Respondents who were told by their doctor to lose weight (28.8%; $p \leq 0.01$) and do exercise/PA (26.2%; $p \leq 0.001$) were more likely to report pain interference with their usual activities for 14+ days
- Pain interference was significantly associated with diet such that:
 - Respondents who reported eating unhealth diets (27.0%) were more likely to report pain interference with their usual activities for 14+ days; $p \leq 0.05$
- Pain interference was significantly associated with musculoskeletal conditions such that:
 - Respondents with diagnosed OA (38.9%; $p \leq 0.001$), RA (43.8%; $p \leq 0.001$), Lupus (35.5%; $p \leq 0.01$), Fibromyalgia (46.8%; $p \leq 0.001$), Gout (43.2%; $p \leq 0.01$), some other form of arthritis (35.0%; $p \leq 0.001$) and OP (39.8%; $p \leq 0.001$) were more likely to report pain interference with their usual activities for more than 2 weeks

In the MUA sub-sample, statistically significant associations were found with regards to pain interference:

- Pain interference was significantly associated with geographic location such that:
 - Respondents living in the Staten Island (40.0%) were more likely to report pain interference with their usual activities for 14+ days; $p \leq 0.05$
- Pain interference was significantly associated with gender such that:
 - Females (23.8%) were more likely to report pain interference with their usual activities for 14+ days; $p \leq 0.05$
- Pain interference was significantly associated with age such that:
 - Respondents aged 51-65 years (29.8%) were more likely to report pain interference with their usual activities for 14+ days; $p \leq 0.01$
- Pain interference was significantly associated with race and ethnicity such that:
 - Other race (30.5%; $p \leq 0.01$) followed by American Indian (27.3%; $p \leq 0.01$) and Hispanics/Latinos (26.1%; $p \leq 0.05$) were more likely to report pain interference with their usual activities for 14+ days.
- Pain interference was significantly associated with PA such that:
 - Those who did not meet CDC-recommended levels of vigorous (23.2%; $p \leq 0.01$), moderate (23.7%; $p \leq 0.01$) and muscle strengthening (29.7%; $p \leq 0.001$.) were more likely to report pain interference with their usual activities for 14+ days
 - Respondents who were told by their doctor to do exercise/PA (23.8%) were more likely to report pain interference with their usual activities for 14+ days; $p \leq 0.001$
- Pain interference was significantly associated with diet such that:

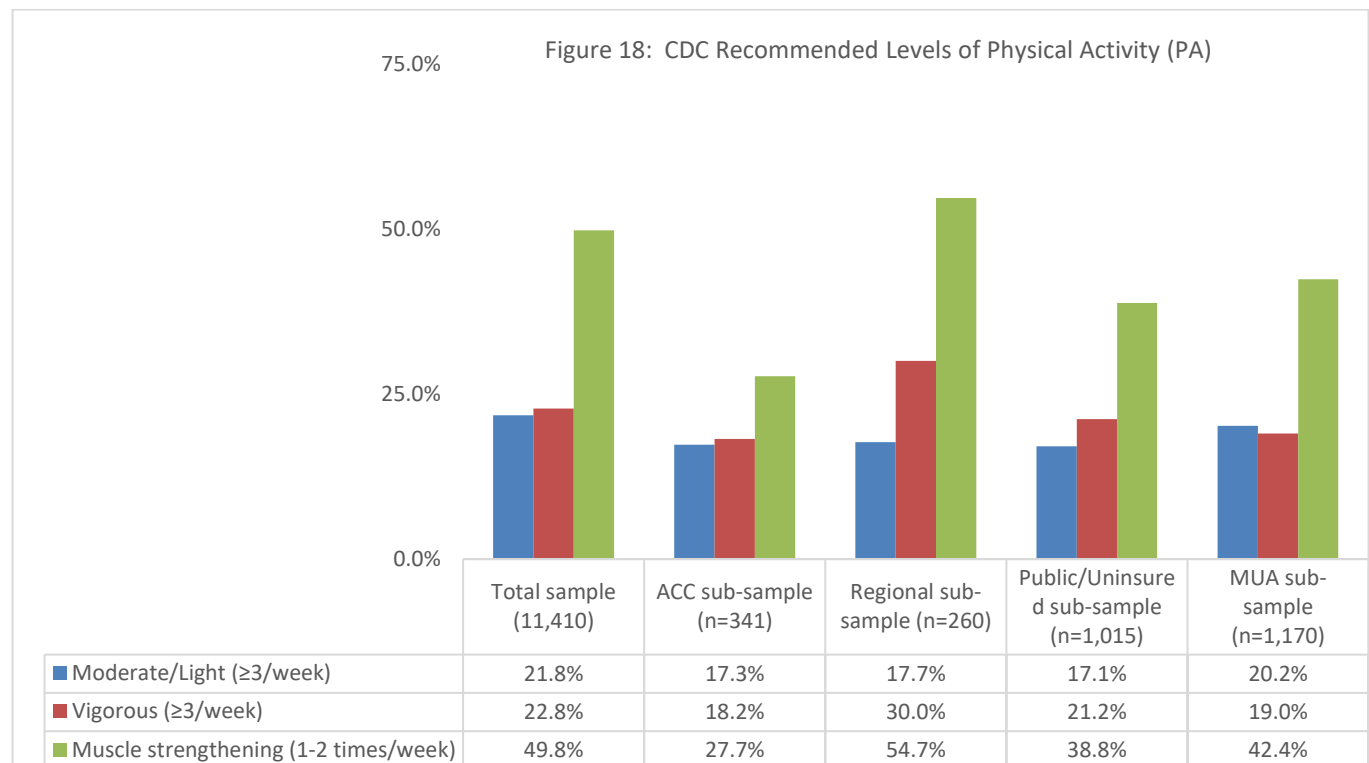
- Respondents who reported eating unhealthy diets (29.2%) were more likely to report pain interference with their usual activities for 14+ days; $p \leq 0.05$
- Statistically significant associations were found between pain interference and musculoskeletal conditions such that:
 - Respondents with diagnosed OA (31.1%; $p \leq 0.001$), RA (38.4%; $p \leq 0.001$), Lupus (31.9%; $p \leq 0.05$), Fibromyalgia (46.7%; $p \leq 0.001$), Gout (42.3%; $p \leq 0.001$), some other form of arthritis (32.8%; $p \leq 0.001$) and OP (32.2%; $p \leq 0.001$) were more likely to report pain interference with their usual activities for more than 2 weeks

B. Health Behavior & Life Style

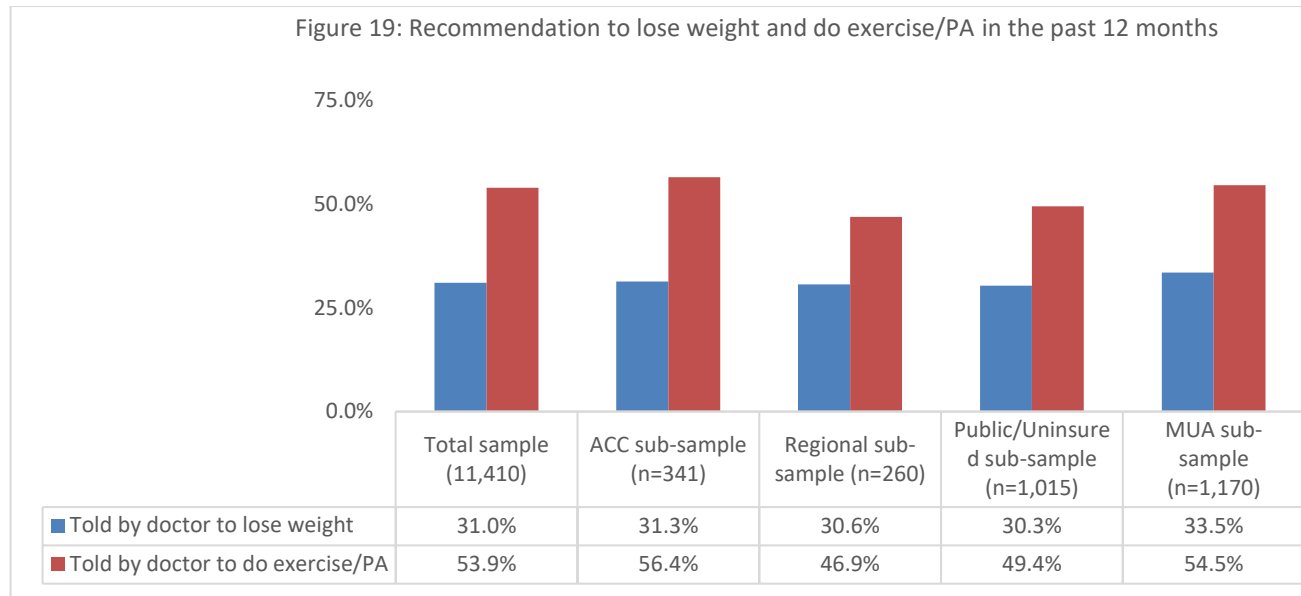
Physical Activity (PA)

According to CDC physical activity guidelines, adults need at least 150 minutes of moderate leisure-time physical activities, 75 minutes vigorous leisure-time physical activities, and at least one day of muscle-strengthening activities per week.

- Figure 18 below illustrates CDC recommended levels of PA in all samples
- Lack of PA was a concern for many respondents, such that majority of respondents across all five samples did not meet CDC's recommended levels of moderate and vigorous PA



- Figure 19 below illustrates the percentage of respondents across the five samples that had been told by their doctor to lose weight and do exercise/PA in the past 12 months



In the total sample, statistically significant associations were found with regards to levels of PA:

- Physical activity was found to be significantly associated with geographic location such that:
 - Respondents living in Staten Island did not meet CDC-recommended levels of vigorous (89.9%) and moderate PA (91.0%); $p \leq 0.001$
 - Respondents living in Queens were less likely to meet CDC-recommended levels of muscle strengthening PA (62.5%); $p \leq 0.001$
 - Respondents living in Manhattan (74.2%) followed by those living in Connecticut (71.6%) were less likely to be told by their doctors to lose weight; $p \leq 0.001$
- Physical activity was found to be significantly associated with gender such that:
 - Females (80.6%) and gender non-conforming respondents (80.0%) did not meet CDC-recommended levels of vigorous PA; $p \leq 0.001$
 - Females (53.7%) were less likely to meet CDC-recommended levels of muscle strengthening; $p \leq 0.001$
 - Non-gender conforming respondents (88.9%) and females (70.5%) were less likely to be told by their doctors to lose weight; $p \leq 0.001$
 - Females (55.4%) were more likely to be told by their doctors to do exercise/PA; $p \leq 0.05$
- Physical activity was found to be significantly associated with age such that:
 - Respondents aged 86+ years (91.1%) followed by 76-85 years (83.2%) did not meet CDC-recommended levels of vigorous PA; $p \leq 0.001$
 - Respondents aged 86+ years (86.9%) followed by 76-85 years (78.4%) were more likely to be told by their doctor to lose weight; $p \leq 0.001$

- Respondents aged 66-75 years (56.8%) were more likely to be told by their doctors to do exercise/PA while respondents aged 18-35 years (57.2%) were less likely to be told by their doctors to exercise/PA; $p \leq 0.001$
- Physical activity was found to be significantly associated with race and ethnicity such that:
 - Asians followed by Blacks/African Americans were less likely to meet CDC-recommended levels of vigorous (83.4% and 80.1% respectively; $p \leq 0.01$) and moderate PA (85.2% and 84.7% respectively; $p \leq 0.001$)
 - Hispanics/Latinos were less likely to meet CDC-recommended levels of moderate (83.3%) and muscle strengthening PA (59.5%); $p < 0.001$
 - Native Hawaiians (85.7%; $p \leq 0.001$) and Non-Hispanics/Latinos (69.1%; $p \leq 0.05$) were less likely to be told by their doctor to lose weight
- Physical activity was found to be significantly associated with musculoskeletal conditions such that
 - Respondents with OA (74.7%; $p \leq 0.001$), RA (84.3%; $p \leq 0.001$), Lupus (81.9%; $p \leq 0.001$), Fibromyalgia (86.1%; $p \leq 0.001$), some other form of arthritis (79.4%; $p \leq 0.01$) and OP (82.7%; $p \leq 0.001$) were less likely to meet CDC-recommended levels of vigorous PA; $p \leq 0.001$
 - Respondents with diagnosed RA (84.7%; $p \leq 0.001$), Fibromyalgia (84.1%; $p \leq 0.01$) and some other form of arthritis (81.7%; $p \leq 0.001$) were less likely to meet CDC-recommended levels of moderate PA
 - Respondents with diagnosed RA (64.9%; $p \leq 0.001$), Lupus (65.2%; $p \leq 0.001$), Fibromyalgia (71.2%; $p \leq 0.001$), Gout (56.2%; $p \leq 0.01$), some other form of arthritis (56.3%; $p \leq 0.01$) and OP (55.2%; $p \leq 0.001$) were less likely to meet CDC-recommended levels of muscle strengthening PA
 - Respondents with diagnosed OA (72.0%; $p \leq 0.001$), RA (63.3%; $p \leq 0.001$), Fibromyalgia (56.9%; $p \leq 0.001$), Gout (53.9%; $p \leq 0.001$), some other form of arthritis (64.7%; $p \leq 0.01$) and OP (79.4%; $p \leq 0.001$) were less likely to be told by their doctor to lose weight
 - Respondents diagnosed with OA (58.8%; $p \leq 0.001$), RA (60.1%; $p \leq 0.001$), Lupus (59.1%; $p \leq 0.05$), Fibromyalgia (68.8%; $p \leq 0.001$), Gout (60.3%; $p \leq 0.001$), some other form of arthritis (59.3%; $p \leq 0.01$) and OP (60.3%; $p \leq 0.001$) were more likely to be told by their doctor to do exercise/PA

In the ACC sub- sample, statistically significant associations were found with regards to levels of PA:

- Physical activity was found to be significantly associated with gender such that:
 - Females (78.8%) were less likely to meet CDC-recommended levels of muscle strengthening PA; $p \leq 0.01$
 - Males (79.5%) were more likely to be told by their doctors to lose weight; $p \leq 0.05$
- Physical activity was found to be significantly associated with musculoskeletal condition such that:
 - Respondents with diagnosed OA (89.1%; $p \leq 0.05$) were less likely to meet CDC-recommended levels of vigorous PA
 - Respondents with Fibromyalgia (95.5%; $p \leq 0.05$) were less likely to meet CDC-recommended levels of moderate PA
 - Respondents with Lupus (90.5%; $p \leq 0.05$) were less likely to meet CDC-recommended levels of muscle strengthening PA
 - Respondents with diagnosed OA (55.0%; $p \leq 0.01$) and Fibromyalgia (61.9%; $p \leq 0.01$) were less likely to be told by their doctor to lose weight

- Respondents with diagnosed OA (64.5%; $p \leq 0.05$) were more likely to be told by their doctor to do exercise/PA

In the regional sub- sample, statistically significant associations were found with regards to level of PA:

- Physical activity was found to be significantly associated with age such that:
 - Respondents aged 86+ years and 76-85 years were less likely to meet CDC-recommended levels of vigorous (100% and 88.9% respectively) and muscle strengthening PA (100% and 72.2% respectively); $p \leq 0.01$
 - The oldest (86+ years) and youngest (18-35 years) respondents were less likely to be told by their doctor to lose weight (100% and 90.9% respectively); $p \leq 0.05$
- Physical activity was found to be significantly associated with race such that:
 - Other race (91.7%) followed by Whites/Caucasians (84.9%) did not meet CDC-recommended levels of moderate PA; $p \leq 0.01$
- Physical activity was found to be significantly associated with musculoskeletal conditions such that:
 - Respondents with diagnosed Gout (100%; $p \leq 0.05$), some other form of arthritis (80.4%; $p \leq 0.05$) did not meet CDC-recommended levels of vigorous PA
 - Respondents with diagnosed Gout (77.8%; $p \leq 0.05$) did not meet CDC-recommended levels of moderate PA
 - Respondents with some other form of arthritis (62.5%; $p \leq 0.001$) did not meet CDC-recommended levels of muscle strengthening PA
 - Respondents with diagnosed OP (92.0%; $p \leq 0.01$) were less likely to be told by their doctor to lose weight
 - Respondents with diagnosed RA (76.9%; $p \leq 0.05$) and Gout (88.9%; $p \leq 0.05$) were more likely to be told by their doctor to do exercise/PA

In the public/uninsured sub- sample, statistically significant associations were found with regards to levels of PA:

- Physical activity was found to be significantly associated with gender such that:
 - Females did not meet CDC-recommended levels of vigorous (82.0%; $p \leq 0.01$) and muscle strengthening PA (66.7%; $p \leq 0.001$)
 - Females (66.9%) were less likely to be told by their doctors to lose weight; $p \leq 0.05$
- Physical activity was found to be significantly associated with age such that:
 - Respondents aged 86+ years (87.5%) did not meet CDC-recommended levels of muscle strengthening PA; $p \leq 0.001$
 - The oldest respondents (86+ years) were less likely to be told by their doctor to lose weight (81.3%); $p \leq 0.05$
 - The oldest (86+ years) and youngest (18-35 years) respondents were less likely to be told by their doctor to PA (62.5% and 60.4% respectively); $p \leq 0.01$
- Physical activity was found to be significantly associated with race and ethnicity such that:
 - Asians did not meet CDC-recommended levels of moderate PA (87.3%); $p \leq 0.05$

- Non-Hispanics/Latinos did not meet CDC-recommended levels of vigorous PA (81.9%; $p \leq 0.01$) while Hispanics/Latinos did not meet CDC-recommended levels of moderate PA (86.8%; $p \leq 0.05$)
- Physical activity was found to be significantly associated with musculoskeletal conditions such that:
 - Respondents with OP (88.9%; $p \leq 0.01$) did not meet CDC-recommended levels of vigorous PA
 - Respondents with OA (69.2%; $p \leq 0.001$) did not meet CDC-recommended levels of moderate PA
 - Respondents with RA (75.2%; $p \leq 0.001$), Fibromyalgia (74.2%; $p \leq 0.05$), some other form of arthritis (65.0%; $p \leq 0.05$) and OP (72.9%; $p \leq 0.01$) did not meet CDC-recommended levels of muscle strengthening PA
 - Respondents diagnosed with OA (59.8%; $p \leq 0.001$), RA (58.6%; $p \leq 0.001$), Fibromyalgia (50.8%; $p \leq 0.05$), Gout (50.0%; $p \leq 0.05$), some other form of arthritis (62.0%; $p \leq 0.01$) were less likely to be told by their doctor to lose weight
 - Respondents diagnosed with OA (61.0%; $p \leq 0.001$), RA (61.5%; $p \leq 0.001$), Lupus (68.3%; $p \leq 0.001$), Fibromyalgia (66.7%; $p \leq 0.01$), some other form of arthritis (58.7%; $p \leq 0.01$) and OP (61.2%; $p \leq 0.01$) were more likely to be told by their doctor to do exercise/PA

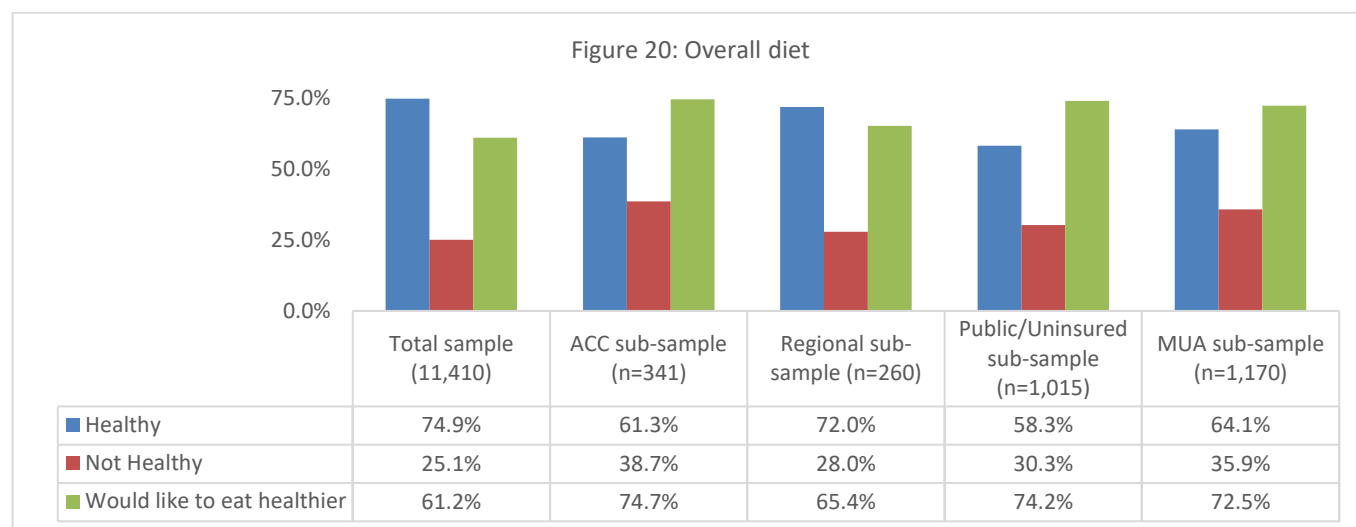
In the MUA sub- sample, statistically significant associations were found with regards to levels of PA:

- Physical activity was found to be significantly associated with gender such that:
 - Females did not meet CDC-recommended levels of vigorous (83.6%) and muscle strengthening (60.3%) PA; $p \leq 0.01$
 - Females (57.1%) were more likely to be told by their doctors to lose weight; $p \leq 0.05$
- Physical activity was found to be significantly associated with age such that:
 - Respondents aged 66-75 years (85.8%) did not meet CDC-recommended levels of vigorous PA; $p \leq 0.01$
 - Respondents aged 86+ years (62.5%) did not meet CDC-recommended levels of muscle strengthening PA; $p \leq 0.05$
 - Respondents 76-85 years (77.7%) were less likely to be told by their doctor to lose weight; $p \leq 0.01$
 - Respondents 86+ years (60.0%) followed by 66-75 years (59.3%) were more likely to be told by their doctor to do exercise/PA; $p \leq 0.05$
- Physical activity was found to be significantly associated with race and ethnicity such that:
 - Native Hawaiian (100%) followed by Blacks/African Americans (86.7%) did not meet CDC-recommended levels of moderate PA; $p \leq 0.001$
 - Non-Hispanics/Latinos did not meet CDC-recommended levels of vigorous PA (82.6%; $p \leq 0.05$) while Hispanics/Latinos did not meet CDC-recommended levels of moderate PA (84.7%; $p \leq 0.05$)
- Physical activity was found to be significantly associated with musculoskeletal conditions such that:
 - Respondents with OA (84.8%; $p \leq 0.05$) did not meet CDC-recommended levels of vigorous PA
 - Respondents with OA (69.2%; $p \leq 0.001$), RA (87.5%; $p \leq 0.01$) and some other form of arthritis (84.7%; $p \leq 0.05$) did not meet CDC-recommended levels of moderate PA
 - Respondents with OA (62.7%; $p \leq 0.001$), RA (70.6%; $p \leq 0.001$), Fibromyalgia (78.3%; $p \leq 0.001$), Gout (76.9%; $p \leq 0.01$), some other form of arthritis (63.9%; $p \leq 0.05$) and OP (69.2%; $p \leq 0.001$) did not meet CDC-recommended levels of muscle strengthening PA

- Respondents with diagnosed OA (61.6%; $p \leq 0.01$), RA (58.6%; $p \leq 0.001$), Gout (51.9%; $p \leq 0.05$) and some other form of arthritis (55.5%; $p \leq 0.001$) were less likely to be told by their doctor to lose weight
- Respondents with diagnosed OA (62.4%; $p \leq 0.001$), RA (62.5%; $p \leq 0.01$), Fibromyalgia (77.0%; $p \leq 0.001$), some other form of arthritis (62.3%; $p \leq 0.01$) and OP (65.9%; $p \leq 0.001$) were more likely to be told by their doctor to do exercise/PA

Diet

- Figure 20 below illustrates the overall diet of respondents across the five samples
- Majority of respondents across all five sample reported a healthy overall diet; however, they would like to eat healthier



In the total sample, statistically significant associations were found with regards to diet:

- Overall diet was found to be significantly associated with geographic location such that:
 - Respondents living in Manhattan (78.8%) were more likely to report that their overall diet as healthy; $p \leq 0.001$. While respondents living in the Bronx (78.3%) were more likely to indicate interest in eating healthier; $p \leq 0.001$
- Overall diet was found to be significantly associated with gender such that:
 - Females (63.0%) and gender non-conforming respondents (70.0%) were more likely to indicate interest in eating healthier; $p \leq 0.05$
- Overall diet was found to be significantly associated with age such that:
 - Respondents aged 76-85 years (82.0%) followed by 86+ years (81.8%) were more likely to report that their overall diet as healthy; $p \leq 0.001$
 - Respondents aged 18-35 years and 36-50 years (72.6%) were more likely to indicate interest in eating healthier; $p \leq 0.001$
- Overall diet was found to be significantly associated with race and ethnicity such that:
 - Whites/Caucasians (78.0%), Non-Hispanics/Latinos (76.2%) and Asians (72.9%) were more likely to report that their overall diet as healthy; $p \leq 0.001$

- Hispanics/Latinos (78.5%), Asians (77.7%) and American Indians (76.7%) were more likely to indicate interest in eating healthier; $p \leq 0.001$
- Overall diet was found to be significantly associated with musculoskeletal conditions such that:
 - Respondents diagnosed with OA (77.5%; $p \leq 0.001$), RA (66.4%; $p \leq 0.001$), Lupus (66.8%; $p \leq 0.01$), Fibromyalgia (67.5%; $p \leq 0.001$), Gout (70.5%; $p \leq 0.05$), some other form of arthritis (71.5%; $p \leq 0.001$) and OP (79.0%; $p \leq 0.001$) were more likely to report that their overall diet as healthy
 - Respondents diagnosed with RA (66.2%; $p \leq 0.001$), Lupus (71.25; $p \leq 0.001$), Fibromyalgia (73%; $p \leq 0.001$), some other form of arthritis (63.0%; $p \leq 0.05$) and OP (56.5%; $p \leq 0.001$) were more likely to indicate interest in eating healthier

In the ACC sub-sample, statistically significant associations were found with regards to diet:

- Overall diet was found to be significantly associated with race and ethnicity such that:
 - Asians (75.0%) were more likely to report that their overall diet as healthy; $p \leq 0.001$. While Hispanics/Latinos (84.3%) were more likely to indicate interest in eating healthier; $p \leq 0.05$
- Overall diet was found to be significantly associated with musculoskeletal conditions such that:
 - Respondents with Fibromyalgia were more likely to report that their overall diet as unhealthy (100%; $p \leq 0.01$) and indicate interest in eating healthier (73%; $p \leq 0.001$)

In the regional sub-sample, statistically significant associations were found with regards to diet:

- Overall diet was found to be significantly associated with musculoskeletal conditions such that respondents with OP (59.1%; $p \leq 0.01$) were more likely to indicate interest in eating healthier

In the public/uninsured sub-sample, statistically significant associations were found with regards to diet:

- Overall diet was found to be significantly associated with geographic location such that:
 - Respondents living in Staten Island (68.8%) were more likely to report that their overall diet as healthy; $p \leq 0.05$.
- Overall diet was found to be significantly associated with gender such that:
 - Males (70.6%) were more likely to report that their overall diet as healthy; $p \leq 0.001$.
- Overall diet was found to be significantly associated with age such that:
 - Respondents aged 66-75 (80.0%) years were more likely to indicate interest in eating healthier; $p \leq 0.05$
- Overall diet was found to be significantly associated with race and ethnicity such that:
 - Asians (72.1%) and non-Hispanics/Latinos (63.0%) were more likely to report that their overall diet as healthy while American Indians (61.1%) and Hispanics/Latinos (53.1%) were more likely to report that their overall diet as unhealthy; $p \leq 0.001$
 - Hispanics/Latinos (81.1%; $p \leq 0.01$) and Asians (81.4%; $p \leq 0.05$) were more likely to indicate interest in eating healthier
- Overall diet was found to be significantly associated with musculoskeletal conditions such that:

- Respondents diagnosed with RA (51.4%; $p \leq 0.01$) were more likely to report that their overall diet as unhealthy while respondents with Lupus (83.9%; $p \leq 0.05$) were more likely to indicate interest in eating healthier

In the MUA sub-sample, statistically significant associations were found with regards to diet:

- Overall diet was found to be significantly associated with geographic location such that:
 - Respondents living in Westchester (93.3%) were more likely to report that their overall diet as healthy; $p \leq 0.001$.
- Overall diet was found to be significantly associated with age such that:
 - Respondents aged 66-75 years (73.6%) were more likely to report that their overall diet as healthy; while those aged 36-50 years (82.9%) were more likely to indicate interest in eating healthier; $p \leq 0.001$
- Overall diet was found to be significantly associated with race and ethnicity such that:
 - Asians (76.4%), Whites/Caucasians (73.8%) and non-Hispanics/Latinos (68.9%) were more likely to report that their overall diet as healthy; $p \leq 0.001$
 - Hispanics/Latinos (83.9%), Asians (80.5%; $p \leq 0.001$) and Blacks/African Americans (80.5%) were more likely to indicate interest in eating healthier; $p \leq 0.001$
- Overall diet was found to be significantly associated with musculoskeletal conditions such that:
 - Respondents diagnosed with RA (50%; $p \leq 0.01$), Fibromyalgia (52.5%; $p \leq 0.05$), Gout (51.9%; $p \leq 0.05$) and some other form of arthritis (55.0%; $p \leq 0.001$) were more likely to report that their overall diet as healthy
 - Respondents diagnosed with OA (66.3%; $p \leq 0.01$), Lupus (88.9%; $p \leq 0.01$) and Fibromyalgia (86.7%; $p \leq 0.01$) were more likely to indicate interest in eating healthier

Barriers to Eating Healthy

- Table 6 below shows barriers to eating healthy in all samples
- When asked to identify the barriers to eating more healthily, the leading responses involved “cost”, “taking too much time to prepare”, and “family/friend not eating healthy” across all samples, as seen in table below:

Table 6: Healthy eating barriers

	Total sample (11,410)	ACC sub- sample (n=341)	Regional sub-sample (n=260)	Public/Uninsured sub-sample (n=1,015)	MUA sub- sample (n=1,170)
Takes too much time to prepare	43.5%	30.5%	47.4%	35.3%	40.1%
Family/ friend do not eat healthy	29.3%	21.8%	30.7%	30.9%	29.6%
Cost	24.3%	46.6%	14.9%	57.6%	44.0%
Don't like the taste	22.3%	13.8%	18.4%	23.7%	24.0%
Don't know what to eat	21.0%	28.2%	16.7%	33.2%	23.9%
Don't have the place to buy	7.6%	10.9%	4.4%	19.4%	15.3%

In the total sample, statistically significant associations were found with regards to barriers to eating healthy:

- Barriers to eating healthy was found to be significantly associated with geographic location such that:
 - Respondents living in Queens (52.3%) were more likely to report “takes too much time to prepare” as a barrier to eating healthy; $p \leq 0.001$
- Barriers to eating healthy was found to be significantly associated with age such that:
 - Respondents aged between 18-35 years were more likely to report “cost” (56.1%) and “family and friends do not eat that way” (38.5%) as barriers to eating healthy; $p \leq 0.001$. While respondents aged between 36-50 years (56.5%) were more likely to report “takes too much time to prepare” as a barrier to eating healthy; $p \leq 0.001$
- Barriers to eating healthy was found to be significantly associated with race and ethnicity such that:
 - Blacks/African Americans (53.7%) and Hispanics/Latinos (55.2%) were more likely to report “cost” as a barrier to eating healthy; $p \leq 0.001$
 - Asians (55.4%) were more likely to report “takes too much time to prepare” as a barrier to eating healthy; $p \leq 0.001$
 - American Indians (52.4%) were more likely to report “family and friends do not eat that way” as a barrier to eating healthy; $p \leq 0.01$

In the ACC sub-sample, statistically significant associations were found with regards to barriers to eating healthy

- Barriers to eating healthy was found to be significantly associated with ethnicity such that:
 - Hispanics/Latinos (82.4%) were more likely to report “cost” as a barrier to eating healthy; $p \leq 0.01$
 - Non-Hispanics/Latinos (57.7%) were more likely to report “takes too much time to prepare” as a barrier to eating healthy; $p \leq 0.05$

In the regional sub-sample, statistically significant associations were found with regards to barriers to eating healthy

- Barriers to eating healthy was found to be significantly associated ethnicity such that Hispanics/Latinos (50.9%) were more likely to report “cost” as a barrier to eating healthy; $p \leq 0.05$

In the public/uninsured sub-sample, statistically significant associations were found with regards to barriers to eating healthy

- Barriers to eating healthy was found to be significantly associated with geographic location such that:
 - Respondents living in Manhattan (75.9%) were more likely to report “cost” as a barrier to eating healthy; $p \leq 0.001$
 - Respondents living in Staten Island (55.6%) and Queens (54.8%) were more likely to report “takes too much time to prepare” as a barrier to eating healthy; $p \leq 0.05$
- Barriers to eating healthy was found to be significantly associated with age such that:
 - Respondents aged between 18-35 (66.7%) years and 66-75 years (66.1%) were more likely to report “cost” (56.1%) as a barrier to eating healthy; $p \leq 0.01$

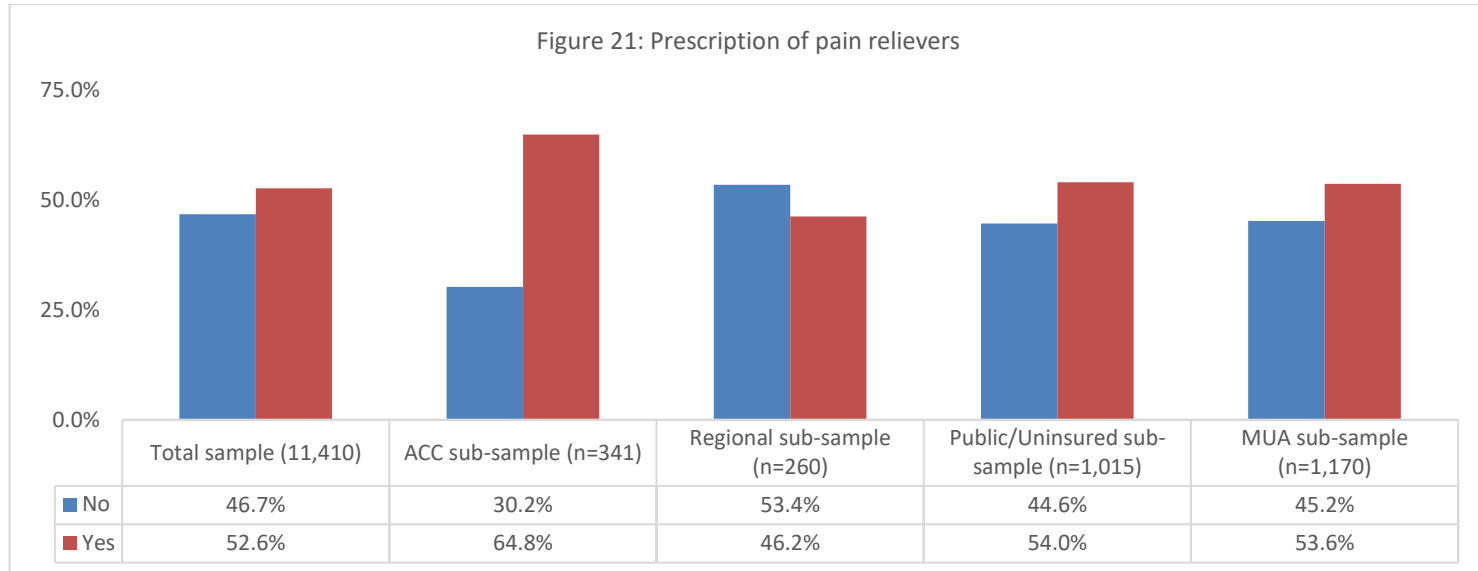
- While respondents aged between 86+ years (75%) were more likely to report “family and friends do not eat that way” as a barrier to eating healthy; $p \leq 0.05$
- Barriers to eating healthy was found to be significantly associated with race and ethnicity such that:
 - Asians (69.1%), Blacks/African Americans (67.5%) and American Indian (53.8%) were more likely to report “cost” as a barrier to eating healthy; $p \leq 0.001$
 - Hispanics/Latinos (69.7%) were more likely to report “cost” as a barrier to eating healthy; $p \leq 0.001$
 - Asians (58.8%) were more likely to report “takes too much time to prepare” as a barrier to eating healthy; $p \leq 0.001$
 - American Indians (63.6%) were more likely to report “family and friends do not eat that way” as a barrier to eating healthy; $p \leq 0.01$

In the MUA sub-sample, statistically significant associations were found with regards to barriers to eating healthy

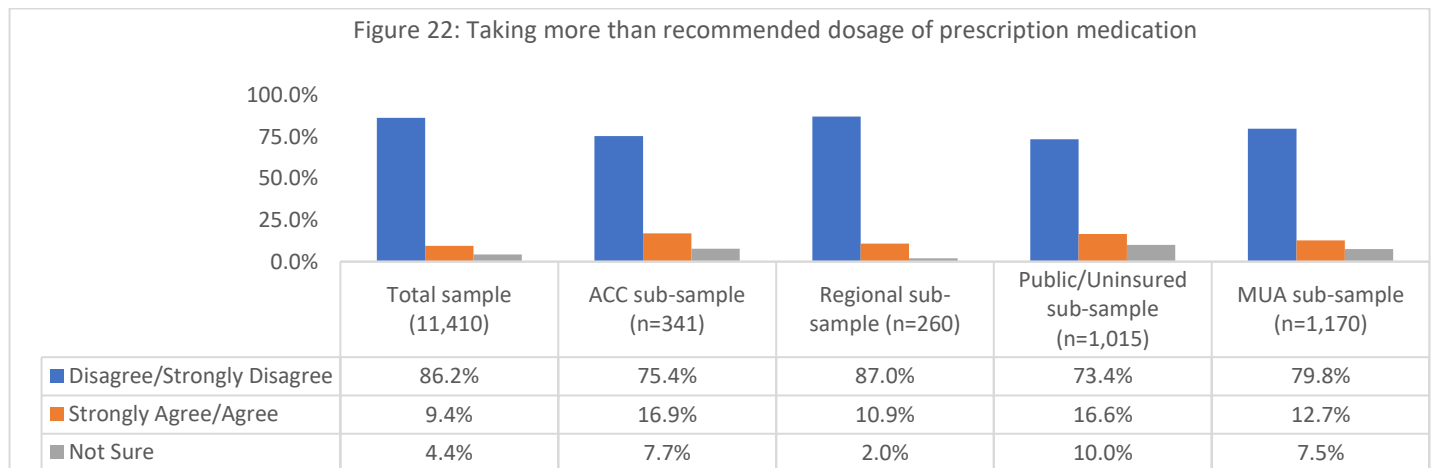
- Barriers to eating healthy was found to be significantly associated with geographic location such that:
 - Respondents living in the Bronx (54.2%) were more likely to report “cost” as a barrier to eating healthy; $p \leq 0.05$
 - Respondents living in Queens (55.1%) were more likely to report “takes too much time to prepare” as a barrier to eating healthy; $p \leq 0.01$
- Barriers to eating healthy was found to be significantly associated with age such that:
 - Respondents aged between 18-35 (57.9%) years and 36-50 years (55.4%) were more likely to report “cost”; $p \leq 0.001$
 - While respondents aged between 86+ years (75%) were more likely to report “family and friends do not eat that way” as a barrier to eating healthy; $p \leq 0.05$
- Barriers to eating healthy was found to be significantly associated with race and ethnicity such that:
 - Asians (62.3%) and Hispanics/Latinos (66.7%) were more likely to report “cost” as a barrier to eating healthy; $p \leq 0.001$
 - Asians (69.5%) were more likely to report “takes too much time to prepare” as a barrier to eating healthy; $p \leq 0.001$

Pain Management

- Figure 21 below illustrates the use of prescription pain relievers in the past 12 months across the five samples
- Majority of respondents across all samples reported using prescription pain relievers in the past 12 months except in the regional sub-sample. See below for details:

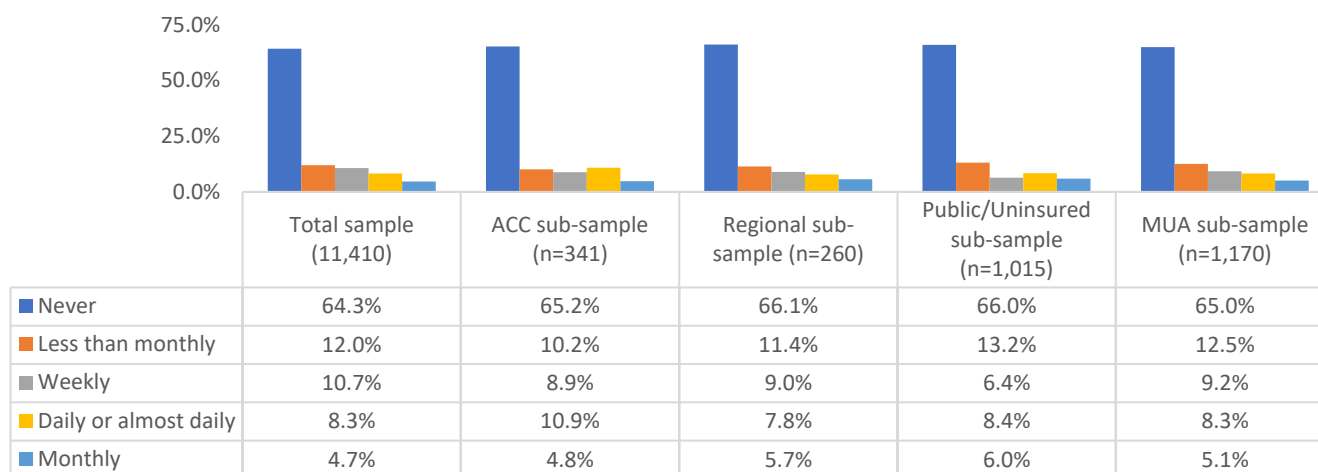


- Figure 22 below illustrates respondents' level of agreement to taking more than recommended dosage of prescription medication when feeling pain more than usual across the five samples
- Majority of respondents disagreed to taking more than recommended dosage of prescription when feeling pain more than usual. See below for details:



- Figure 23 below illustrates respondents' use of complementary treatments (i.e. yoga, meditation, mindful breathing) to manage pain across the five samples
- Majority of respondents have never used complementary treatments (i.e. yoga, meditation, mindful breathing) to manage their pain

Figure 23: Use of complementary treatments to manage pain



In the total sample, statistically significant associations were found with regards to pain management:

- Pain management was found to be significantly associated with gender such that:
 - Males (75.6%) reported never using complementary treatments to manage their pain; $p < 0.001$
- Pain management was found to be significantly associated with age such that:
 - Respondents aged 51-65 years were more likely to use prescription pain relievers (56.8%) and reported never using complementary treatments to manage their pain (61.5%); $p < 0.001$
 - Respondents aged 86+ years also reported never using complementary treatments to manage their pain (75.4%); $p < 0.001$
- Pain management was found to be significantly associated with race and ethnicity such that:
 - Native Hawaiians (71.4%) reported never using complementary treatments to manage their pain; $p < 0.05$
- Pain management was found to be significantly associated with musculoskeletal conditions such that:
 - Respondents diagnosed with OA (57.5%; $p \leq 0.001$), RA (66.8%; $p \leq 0.001$), Lupus (59.6%; $p \leq 0.01$), Fibromyalgia (71.1%; $p \leq 0.001$), Gout (63.9%; $p \leq 0.001$) and some other form of arthritis (58.6%; $p \leq 0.001$) were more likely to use prescription pain relievers
 - Respondents diagnosed with OA (61.4%; $p \leq 0.001$), RA (58.5%; $p \leq 0.001$), Lupus (51.4%; $p \leq 0.001$), Fibromyalgia (48.9%; $p \leq 0.001$) and OP (60.0%; $p \leq 0.001$) reported never using complementary treatments to manage their pain

In the ACC sub-sample, statistically significant associations were found with regards to pain management:

- Pain management was found to be significantly associated with geographic location such that:
 - Respondents living in Queens (77.3%) reported never using complementary treatments to manage their pain; $p \leq 0.001$
- Pain management was found to be significantly associated with gender such that:
 - Females (66.2%) reported never using complementary treatments to manage their pain; $p < 0.05$

- Pain management was found to be significantly associated with age such that:
 - Respondents aged 51-65 years were more likely to use prescription pain relievers (71.7%) to manage their pain (61.5%); $p \leq 0.05$
- Pain management was found to be significantly associated with race and ethnicity such that:
 - Native Hawaiians (71.4%) reported never using complementary treatments to manage their pain; $p \leq 0.05$
- Pain management was found to be significantly associated with musculoskeletal conditions such that:
 - Respondents diagnosed with OA (72.7%; $p \leq 0.05$), RA (74.7%; $p \leq 0.05$), Fibromyalgia (85.7%; $p \leq 0.05$) and some other form of arthritis (79.5%; $p \leq 0.001$) were more likely to use prescription pain relievers

In the regional sub-sample, statistically significant associations were found with regards to pain management:

- Pain management was found to be significantly associated with gender such that:
 - Males (78.8%) reported never using complementary treatments to manage their pain; $p \leq 0.001$
- Pain management was found to be significantly associated with age such that:
 - Respondents aged 76-85 years (76.5%) and 66-75 years (72.0%) reported never using complementary treatments to manage their pain; $p \leq 0.01$
- Pain management was found to be significantly associated with musculoskeletal conditions such that:
 - Respondents diagnosed with Gout (87.5%; $p \leq 0.05$) were more likely to use prescription pain relievers
 - Respondents diagnosed with OA (66.7%; $p \leq 0.01$) and Fibromyalgia (33.3%; $p \leq 0.001$) reported never using complementary treatments to manage their pain

In the public/uninsured sub-sample, statistically significant associations were found with regards to pain management:

- Pain management was found to be significantly associated with gender such that:
 - Males (52.7%; $p \leq 0.05$) were more likely to use prescription pain relievers and reported never using complementary treatments to manage their pain (69.4%; $p \leq 0.01$)
- Pain management was found to be significantly associated with age such that:
 - Respondents aged 18-35 years were more likely to use prescription pain relievers (67.1%); $p \leq 0.01$
 - Respondents aged 86+ years also reported never using complementary treatments to manage their pain (75.0%); $p < 0.01$
- Pain management was found to be significantly associated with race and ethnicity such that:
 - Native Hawaiians (71.4%) reported never using complementary treatments to manage their pain; $p < 0.05$
- Pain management was found to be significantly associated with musculoskeletal conditions such that:
 - Respondents diagnosed with OA (60.0%; $p \leq 0.001$), RA (81.4%; $p \leq 0.001$), Lupus (54.4%; $p \leq 0.05$), Fibromyalgia (79.0%; $p \leq 0.001$), Gout (86.9%; $p \leq 0.001$), some other form of arthritis (71.2%; $p \leq 0.001$) and OP (71.2%; $p \leq 0.001$) were more likely to use prescription pain relievers

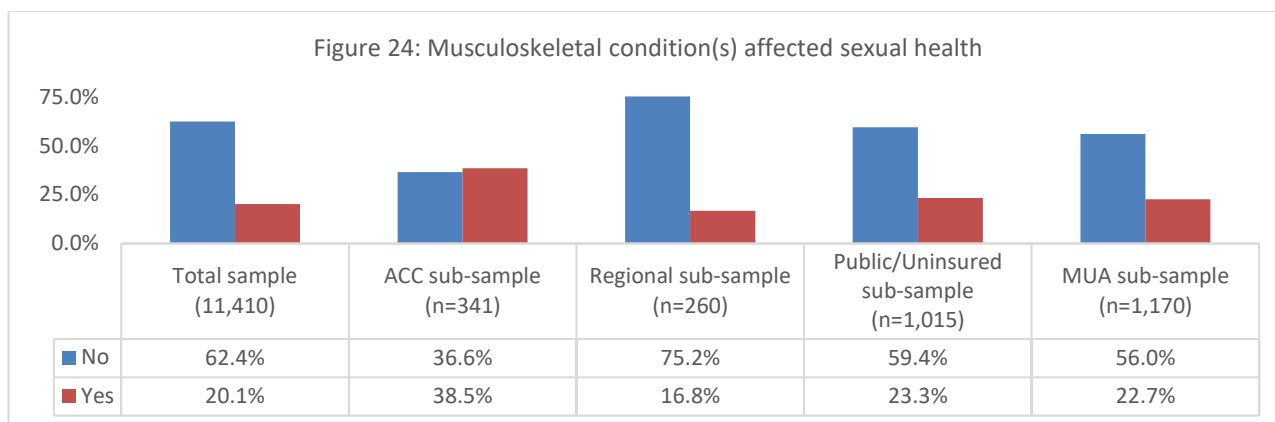
- Respondents diagnosed with OA (61.4%; $p \leq 0.001$), Lupus (51.4%; $p \leq 0.001$) and OP (61.2%; $p \leq 0.001$) reported never using complementary treatments to manage their pain

In the MUA sub-sample, statistically significant associations were found with regards to pain management:

- Pain management was found to be significantly associated with gender such that:
 - Males (74.5%) reported never using complementary treatments to manage their pain; $p \leq 0.05$
- Pain management was found to be significantly associated with age such that:
 - Respondents aged 18-35 years were more likely to use prescription pain relievers (61.7%); $p \leq 0.01$
 - Respondents aged 86+ years also reported never using complementary treatments to manage their pain (69.6%); $p < 0.01$
- Pain management was found to be significantly associated with musculoskeletal conditions such that:
 - Respondents diagnosed with OA (62.0%; $p \leq 0.001$), RA (76.4%; $p \leq 0.001$), Fibromyalgia (70.0%; $p \leq 0.01$), Gout (67.3%; $p \leq 0.05$) and some other form of arthritis (65.3%; $p \leq 0.001$) were more likely to use prescription pain relievers
 - Respondents diagnosed with OA (60.9%; $p \leq 0.001$) and OP (60.7%; $p \leq 0.001$) reported never using complementary treatments to manage their pain

Sexual Health

- Figure 24 below illustrates if respondents diagnosed with musculoskeletal conditions affected their sexual health
- Majority of respondents across all samples indicated that their musculoskeletal condition(s) did not affect their sexual health except in the ACC sub-sample. See below for details:



- When asked to specify the effect of muscle, bone or joint conditions on sexual health, the leading responses were limitation of motion; decreased sexual desire and satisfaction; and decreased sexual intercourse across all samples. See below for more details:

Table 7: The effects of musculoskeletal conditions on sexual health

	Total sample (11,410)	ACC sub- sample (n=341)	Regional sub-sample (n=260)	Public/Uninsured sub-sample (n=1,015)	MUA sub- sample (n=1,170)
Limitation of motion/pain	64.2%	59.6%	72.2%	58.7%	60.0%
Decreased sexual desire and satisfaction	53.7%	58.5%	55.6%	55.3%	54.0%
Decreased sexual intercourse/intimacy	42.8%	41.5%	44.4%	38.9%	40.4%
Decreased sense of sexual attractiveness	30.2%	25.5%	22.2%	33.2%	30.6%
Vaginal Dryness	20.6%	10.6%	11.1%	15.4%	18.3%
Erectile dysfunction/ Impotence	18.7%	11.7%	27.8%	16.8%	17.4%
Increased sensitivity to being touched	13.4%	14.9%	22.2%	15.9%	12.3%
Urinary tract infection	7.6%	6.4%	2.8%	8.7%	6.8%
Other	7.2%	10.6%	0.0%	11.1%	7.7%
Infertility	1.3%	4.3%	0.0%	2.9%	2.1%
Pregnancy	1.1%	2.1%	0.0%	2.9%	1.3%

In the total sample, statistically significant associations were found with regards to sexual health:

- Sexual health was found to be significantly associated with gender such that:

- Trans females (100.0%) and Trans males (50.0%) were more likely to indicate their musculoskeletal conditions affected their sexual health; ($p \leq 0.001$)
- Sexual health found to be significantly associated with age such that:
 - Respondents aged 36-50 years (25.5%) were more likely to indicate their musculoskeletal conditions affected their sexual health; ($p \leq 0.001$)
- Sexual health was found to be significantly associated with race and ethnicity such that:
 - American Indians (30.0%) and Hispanics/Latinos (24.5%) were more likely to indicate their musculoskeletal conditions affected their sexual health; ($p \leq 0.01$)

In the ACC sub-sample, statistically significant associations were found with regards to sexual health:

- Sexual health was found to be significantly associated with age such that:
 - Respondents aged 51-65 years (51.0%) were more likely to indicate their musculoskeletal conditions affected their sexual health; ($p \leq 0.01$)
- Sexual health was found to be significantly associated with race such that:
 - American Indians (30.0%) and Hispanics/Latinos (24.5%) were more likely to indicate their musculoskeletal conditions affected their sexual health; ($p \leq 0.01$)

In the public/uninsured sub-sample, statistically significant associations were found with regards to sexual health:

- Sexual health was found to be significantly associated with gender such that:
 - Males (28.2%) were more likely to indicate their musculoskeletal conditions affected their sexual health; ($p \leq 0.05$)
- Sexual health was found to be significantly associated with age such that:
 - Respondents aged 51-65 years (31.4%) were more likely to indicate their musculoskeletal conditions affected their sexual health; ($p \leq 0.001$)
- Sexual health was found to be significantly associated with race and ethnicity such that:
 - Whites/Caucasians (30.0%) and Hispanics/Latinos (25.6%) were more likely to indicate their musculoskeletal conditions affected their sexual health; ($p \leq 0.01$)

In the MUA sub-sample, statistically significant associations were found with regards to sexual health:

- Sexual health was found to be significantly associated with gender such that:
 - Males (24.9%) were more likely to indicate their musculoskeletal conditions affected their sexual health; ($p \leq 0.05$)
- Sexual health was found to be significantly associated with age such that:
 - Respondents aged 36-50 years (29.1%) were more likely to indicate their musculoskeletal conditions affected their sexual health; ($p \leq 0.001$)
- Sexual health was found to be significantly associated with ethnicity such that:
 - Hispanics/Latinos (28.0%) were more likely to indicate their musculoskeletal conditions affected their sexual health; ($p \leq 0.05$)

C. Use of and Access to Care

Insurance Coverage

- Figure 25 below shows health insurance coverage among respondents in all samples
- Nearly all respondents in all samples had some form of health insurance coverage compared to 87.6% of New Yorkers. See details on insurance type specified in Table 8 below:

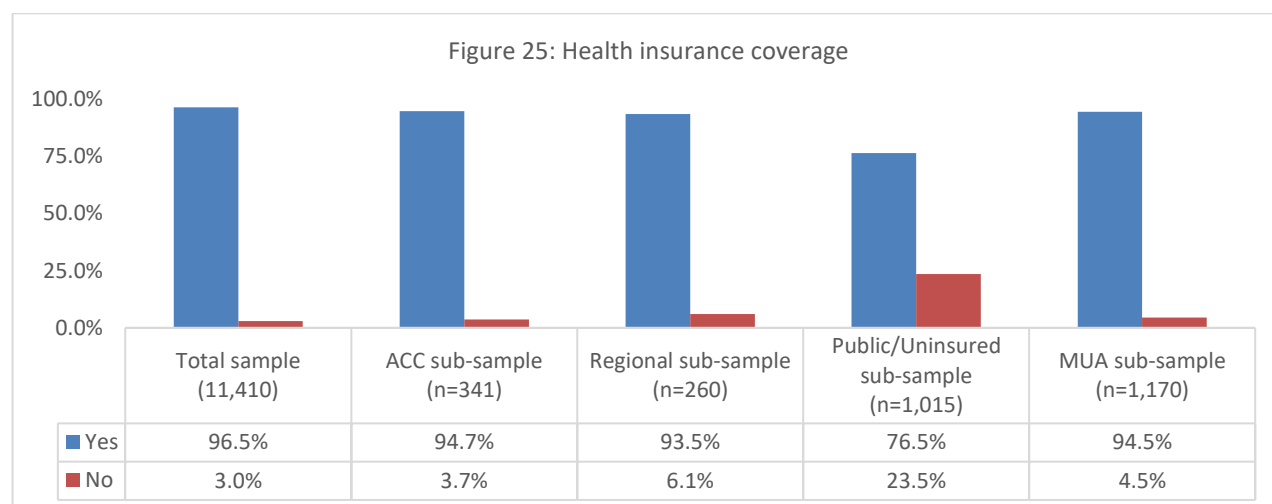


Table 8: Type of insurance coverage

	Total sample (11,410)	ACC sub- sample (n=341)	Regional sub- sample (n=260)	Public/Uninsured sub-sample (n=1,015)	MUA sub- sample (n=1,170)
Medicare	53.3%	38.7%	31.3%	29.4%	47.5%
A plan purchased through an employer or union	38.8%	11.7%	65.4%	2.3%	29.8%
Medicaid	10.6%	68.0%	1.9%	100.0%	33.3%
A plan that you or another family member buys on your own	8.0%	2.7%	4.8%	2.3%	4.8%
Some other source	2.2%	1.6%	0.0%	1.2%	2.0%
TRICARE (formerly CHAMPUS), VA, or Military	0.8%	0.4%	0.0%	0.4%	0.4%
Don't Know	0.5%	1.6%	0.0%	0.3%	0.6%
Alaska Native, Indian Health Service, Tribal Health Services	0.0%	0.0%	0.0%	0.1%	0.0%

In the total sample, statistically significant associations were found with regards to health insurance coverage:

- Health insurance coverage was found to be significantly associated with geographic location such that:
 - Respondents living in New jersey (21.7%) were more likely to have no insurance coverage; $p \leq 0.001$
- Health insurance coverage was found to be significantly associated with age such that:
 - Respondents aged 18-35 (37.6%) years were more likely to have no insurance coverage; $p \leq 0.001$;

- Health insurance coverage was found to be significantly associated with race and ethnicity such that:
 - Whites/Caucasians (43.7%) and non-Hispanics/Latinos (9.1%) were more likely to have no insurance coverage; $p \leq 0.001$

In the ACC sub-sample, statistically significant associations were found with regards to health insurance coverage:

- Health insurance coverage was found to be significantly associated with geographic location such that:
 - Respondents living in Manhattan (30.0%) were more likely to have no insurance coverage; $p \leq 0.05$

In the regional sub-sample, statistically significant associations were found with regards to health insurance coverage:

- Health insurance coverage was found to be significantly associated with race and ethnicity such that:
 - Whites/Caucasians (43.7%) and non-Hispanics/Latinos (9.1%) were more likely to have no insurance coverage; $p \leq 0.001$

In the public/uninsured sub- sample, statistically significant associations were found with regards to health insurance coverage:

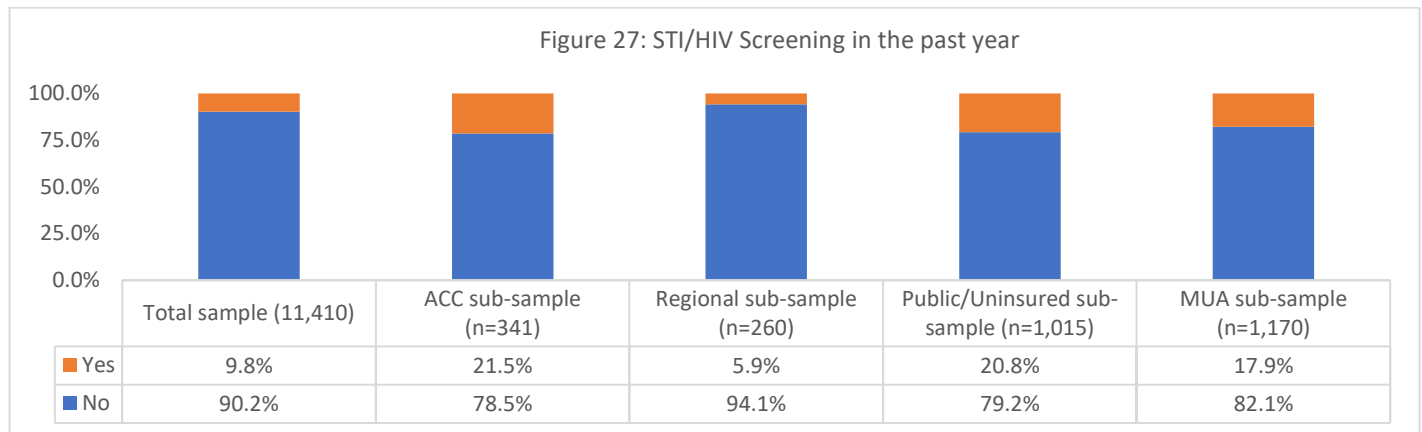
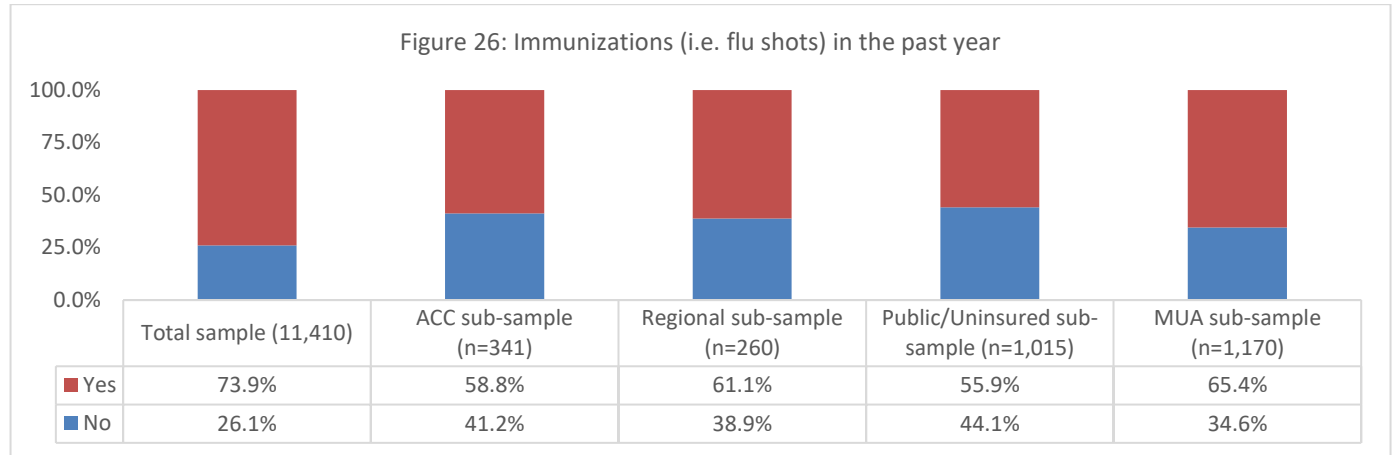
- Health insurance coverage was found to be significantly associated with geographic location such that:
 - Respondents living in New jersey (21.7%) were more likely to have no insurance coverage; $p \leq 0.001$
- Health insurance coverage was found to be significantly associated with age such that:
 - Respondents aged 18-35 (37.6%) years were more likely to have no insurance coverage; $p \leq 0.001$;

In the MUA sub-sample, statistically significant associations were found with regards to health insurance coverage:

- Health insurance coverage was found to be significantly associated with age such that:
 - Respondents aged 18-35 (52.9%) years were more likely to have no insurance coverage; $p \leq 0.001$;
- Health insurance coverage was found to be significantly associated with race and ethnicity such that:
 - Blacks/African Americans (43.1%; $p \leq 0.01$) and non-Hispanics/Latinos (61.2%; $p \leq 0.05$) were more likely to have no insurance coverage

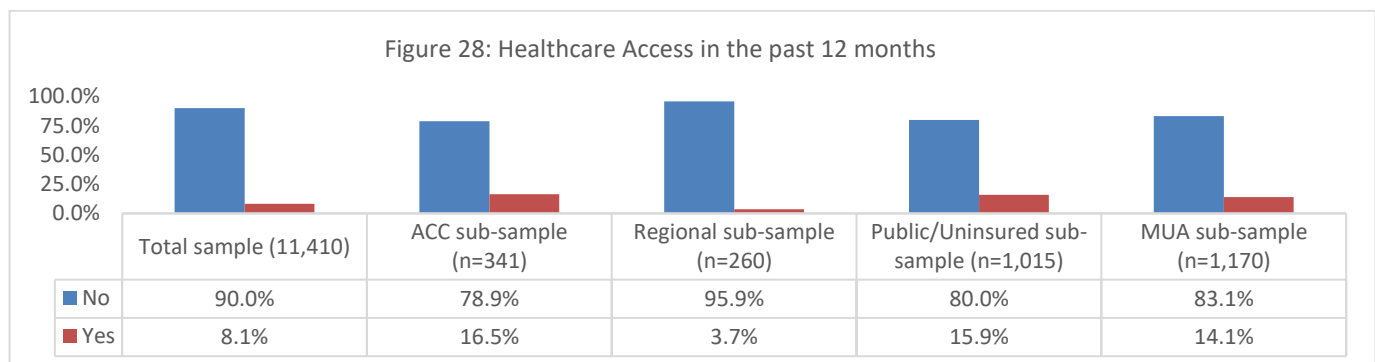
Immunizations & Health Screenings

- Figures 26 and 27 below shows health screenings received across all samples:



Healthcare Access

- Figure 28 below shows access to medical care when needed in the past 12 months
- 8.1% of the total, 16.5% of the ACC, 3.7% of regional, 15.9% of public/uninsured and 14.1% of the MUA respondents indicated that they could not access a healthcare provider when they needed to in the past 12 months, compared to 5.3% of Americans and 12% of New Yorkers



- Barriers to accessing necessary healthcare are listed in table 9 below, which indicates that accessibility issues and cost were the leading barriers cited across all samples

Table 9: Barriers to medical care in the past 12 months

	Total sample (11,410)	ACC sub-sample (n=341)	Regional sub-sample (n=260)	Public/Uninsured sub-sample (n=1,015)	MUA sub-sample (n=1,170)
Hard to get an appointment	26.9%	31.3%	33.3%	28.3%	26.2%
Cost	23.1%	21.9%	50.0%	28.3%	18.9%
Service not covered by insurance	20.1%	28.1%	16.7%	17.3%	13.9%
Office not patient-friendly (such as long wait time, hours not convenient)	16.2%	9.4%	16.7%	13.4%	17.2%
Not sure where to go	16.0%	15.6%	16.7%	14.2%	17.2%
Lack of transportation	9.6%	18.8%	0.0%	18.1%	9.8%
No health insurance	8.3%	25.0%	16.7%	26.8%	13.9%
Family responsibilities (such as no child care available)	7.3%	6.3%	33.3%	7.1%	8.2%
Language services (such as could not get healthcare in my language)	1.3%	0.0%	0.0%	3.1%	0.0%

In the total sample, statistically significant associations were found with barriers to healthcare:

- Healthcare access was found to be significantly associated with geographic location such that:
 - Respondents living in Manhattan (27.5%) were more likely to report that they were unable to access a healthcare provider in the past year; $p \leq 0.001$
- Healthcare access was found to be significantly associated with gender such that:
 - Females (69.2%) were more likely to report that they were unable to access a healthcare provider in the past year; $p \leq 0.05$
- Healthcare access was found to be significantly associated with age such that:
 - Respondents aged 51-65 years (35.4%) were more likely to report that they were unable to access a healthcare provider in the past year and indicated cost (39.3%) as a barrier; $p \leq 0.001$
- Healthcare access was found to be significantly associated with race and ethnicity such that:
 - Whites/Caucasians (65.8%; $p \leq 0.001$) were more likely to report that they were unable to access a healthcare provider in the past year and indicated cost (56.5%; $p \leq 0.5$) as a barrier
 - Non-Hispanics/Latinos (84.0%) were more likely to report that they were unable to access a healthcare provider in the past year; $p \leq 0.001$

In the ACC sub-sample, statistically significant associations were found with barriers to healthcare:

- Healthcare access was found to be significantly associated with race and ethnicity such that:
 - Non-Hispanics/Latinos (73.2%) were more likely to report that they were unable to access a healthcare provider in the past year compared to Hispanics/Latinos (26.8%); $p \leq 0.01$

In the regional sub-sample, statistically significant associations were found with barriers to healthcare:

- Healthcare access was found to be significantly associated with race and ethnicity such that:

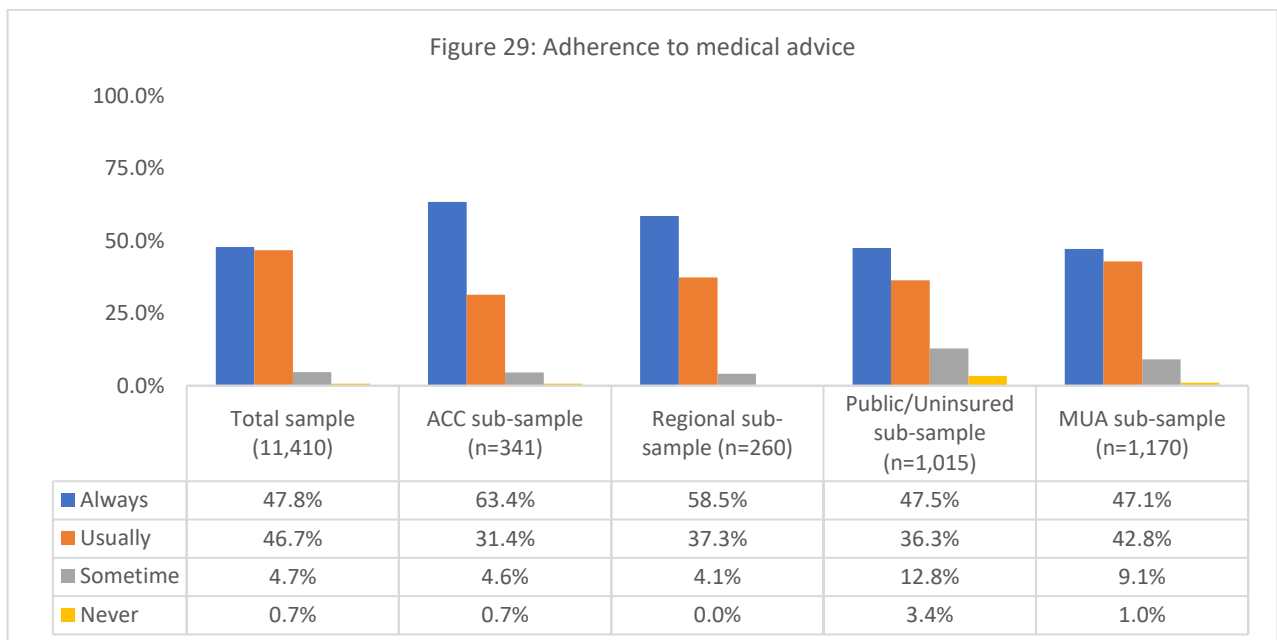
- Whites/Caucasians (57.1%; $p \leq 0.01$) and Non-Hispanics/Latinos (71.4%) were more likely to report that they were unable to access a healthcare provider in the past year

In the public/uninsured sub-sample, statistically significant associations were found with barriers to healthcare:

- Healthcare access was found to be significantly associated with race such that:
 - Blacks/African Americans were more likely to report cost (41.2%; $p \leq 0.01$) and accessibility issues (22.9%; $p \leq 0.01$) as barriers to healthcare in the past year

Adherence

- Figure 29 below shows adherence to medical advice
- Most respondents in all samples reported high levels of adherence with their healthcare providers' medical advice, stating that they "always" or "usually" followed their advice. These data dramatically contrast with research suggesting that around 40% of patients do not adhere to treatment regimens.



In the total sample, statistically significant associations were found with adherence to medical advice:

- Adherence to medical advice was found to be significantly associated with geographic location such that:
 - Respondents living in Manhattan (24.1%) were more adherent to medical advice; $p \leq 0.001$
- Adherence to medical advice was found to be significantly associated with gender such that:
 - Females (67.8%) were less adherent to medical advice; $p \leq 0.01$
- Adherence to medical advice was found to be significantly associated with age such that:
 - Respondents aged 18-35 years (36.9%) were less adherent to medical advice; $p \leq 0.001$
- Adherence to medical advice was found to be significantly associated with race and ethnicity such that:
 - Whites/Caucasians (81.5%) were more adherent to medical advice than the other races; $p \leq 0.001$

- Non-Hispanics/Latinos (91.8%) were more adherent to medical advice than Hispanics/Latinos (8.2%); $p \leq 0.001$
- Adherence to medical advice was found to be significantly associated with musculoskeletal conditions such that:
 - Those diagnosed with OA (52.8%) were more adherent to medical advice; $p \leq 0.001$

In the ACC sub-sample, statistically significant associations were found with adherence to medical advice:

- Adherence to medical advice was found to be significantly associated with race and ethnicity such that:
 - Blacks/African Americans (53.8%) were less adherent to medical advice; $p \leq 0.01$

In the regional sub-sample, statistically significant associations were found with adherence to medical advice:

- Adherence to medical advice was found to be significantly associated with race and ethnicity such that:
 - Whites/Caucasians (91.5%) were more adherent to medical advice compared to the other races; $p \leq 0.01$

In the public/uninsured sub-sample, statistically significant associations were found with adherence to medical advice:

- Adherence to medical advice was found to be significantly associated with geographic location such that:
 - Respondents living in Brooklyn (21.9%) followed by the Bronx (20.5%) were less adherent to medical advice; $p \leq 0.05$
- Adherence to medical advice was found to be significantly associated with age such that:
 - Respondents aged 18-35 years (59.2%) were less adherent to medical advice; $p \leq 0.001$
- Adherence to medical advice was found to be significantly associated with race and ethnicity such that:
 - Blacks/African Americans (40.6%) were less adherent to medical advice; $p \leq 0.001$. While non-Hispanics/Latinos (71.2%) were more adherent to medical advice; $p \leq 0.01$

In the MUA sub-sample, statistically significant associations were found with adherence to medical advice:

- Adherence to medical advice was found to be significantly associated with geographic location such that:
 - Respondents living in the Bronx (40.0%) were less adherent to medical advice; $p \leq 0.05$
- Adherence to medical advice was found to be significantly associated with age such that:
 - Respondents aged 18-35 years (42.3%) were less adherent to medical advice; $p \leq 0.001$
- Adherence to medical advice was found to be significantly associated with race and ethnicity such that:
 - Blacks/African Americans (36.0%; $p \leq 0.001$) and non-Hispanics/Latinos (62.5%; $p \leq 0.01$) were less adherent to medical advice

Barriers to following Healthcare Provider's Medical Advice

- Table 10 below shows reported barriers to following a healthcare provider's medical advice
- When asked to provide reasons for not adhering to medical advice, results demonstrate that "concerns about side effects" and "not feeling that treatment was necessary" were the top two barriers cited by all samples. See below for more details

Table 10: Barriers to following healthcare provider's medical advice

	Total sample (11,410)	ACC sub-sample (n=341)	Regional sub-sample (n=260)	Public/Uninsured sub-sample (n=1,015)	MUA sub-sample (n=1,170)
Worried about side effects	30.9%	30.4%	21.2%	41.5%	38.2%
Didn't feel treatment would help	25.4%	20.1%	24.1%	29.5%	28.4%
Condition not severe enough	22.7%	10.9%	19.7%	22.5%	24.8%
Prefer to use complementary treatment	18.8%	15.8%	13.9%	24.8%	23.1%
Did not agree with doctor	16.3%	7.1%	14.6%	17.4%	16.2%
Concerned about the cost	16.0%	16.3%	11.7%	26.4%	21.3%
Provider didn't explain	15.0%	20.7%	13.1%	22.3%	19.3%
Forgot to take medicine	14.1%	20.7%	13.1%	27.5%	19.1%
Did not fit my schedule	13.7%	11.4%	22.6%	17.4%	16.6%
Provider doesn't understand my culture	2.1%	5.4%	2.2%	7.7%	4.5%

In the total sample, statistically significant associations were found with barriers to following medical advice:

- Barriers to following medical advice was found to be significantly associated with geographic location such that:
 - Respondents living in Manhattan (24.5%) were more likely to feel concerned about cost of treatment as a barrier to following medical advice; $p \leq 0.001$
- Barriers to following medical advice was found to be significantly associated with gender such that:
 - Females were more likely to report treatment would not help (69.5%), cost of treatment (72.6%), side effects (73.3%), and prefer to use complementary treatment (75.5%) as barriers to following medical advice ; $p \leq 0.001$
- Barriers to following medical advice was found to be significantly associated with age such that:
 - Respondents aged 66-75 years (31.9%) were more likely to feel that treatment would not help (31.9%; $p \leq 0.001$) as a barrier to following medical advice. While those aged 51-65 years were more likely to report cost of treatment (35.0%; $p \leq 0.001$), side effects (32.0%; $p \leq 0.01$) and prefer to use complementary treatment (35.2%) as barriers to following medical advice; $p \leq 0.001$
- Barriers to following medical advice was found to be significantly associated with race and ethnicity such that:
 - Whites/Caucasians were more likely to report cost of treatment (67.2%; $p \leq 0.001$), treatment would not help (77.2%; $p \leq 0.01$), and prefer to use complementary treatment (73.6%; $p \leq 0.001$) as barriers to following medical advice

- Non-Hispanics/Latinos were more likely to report cost of treatment (86.0%; $p \leq 0.001$), side effects (89.0%; $p \leq 0.01$), and prefer to use complementary treatment (88.3%; $p \leq 0.01$) as barriers to following medical advice
- Barriers to following medical advice was found to be significantly associated with musculoskeletal conditions such that:
 - Respondents diagnosed with OA (52.5%; $p \leq 0.01$) were more likely to report treatment would not help and side effects (51.9%; $p \leq 0.05$) as barriers to following medical advice

In the ACC sub-sample, statistically significant associations were found with barriers to following medical advice:

- Barriers to following medical advice was found to be significantly associated with age such that:
 - Respondents aged 18-35 years (33.3%) were more likely to report their condition was not severe enough as a barrier to following medical advice; $p \leq 0.05$
- Barriers to following medical advice was found to be significantly associated with musculoskeletal conditions such that:
 - Respondents diagnosed with OA were more likely to report treatment would not help (62.1%; $p \leq 0.05$) and side effects (59.5%; $p \leq 0.05$)
 - Respondents diagnosed with OP (53.3%; $p \leq 0.05$) were more likely to report their condition was not severe enough as a barrier to following medical advice

In the regional sub-sample, statistically significant associations were found with barriers to following medical advice:

- Barriers to following medical advice was found to be significantly associated with race and ethnicity such that:
 - Whites/Caucasians were more likely to report cost of treatment (68.8%; $p \leq 0.01$) and prefer to use complementary treatment (73.7%; $p \leq 0.05$) as barriers to following medical advice;
 - Non-Hispanics/Latinos were more likely to report cost of treatment (62.5%; $p \leq 0.001$) and prefer to use complementary treatment (77.8%; $p \leq 0.05$) as barriers to following medical advice

In the public/uninsured sub-sample, statistically significant associations were found with barriers to following medical advice:

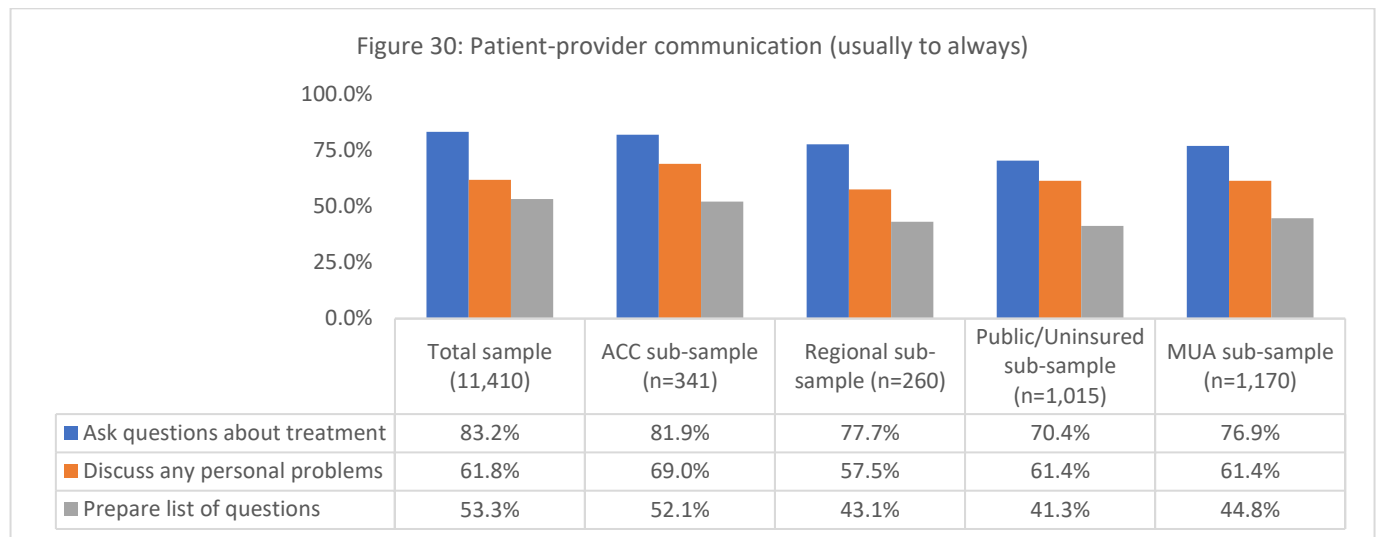
- Barriers to following medical advice was found to be significantly associated with gender such that:
 - Females were more likely to report side effects (74.6%) as a barrier to following medical advice; $p \leq 0.05$
- Barriers to following medical advice was found to be significantly associated with age such that:
 - Respondents aged 18-35 years (38.6%) were more likely to report cost of treatment as a barrier to following medical advice; $p \leq 0.05$
- Barriers to following medical advice was found to be significantly associated with race and ethnicity such that:
 - Blacks/African Americans were more likely to report side effects (37.2%) as a barrier to following medical advice; $p \leq 0.05$

In the MUA sub-sample, statistically significant associations were found with barriers to following medical advice:

- Barriers to following medical advice was found to be significantly associated with gender such that:
 - Females were more likely to report treatment would not help (74.3%; $p \leq 0.05$), cost of treatment (78.1%; $p \leq 0.05$) and side effects (76.5%; $p \leq 0.01$) as barriers to following medical advice
- Barriers to following medical advice was found to be significantly associated with age such that:
 - Respondents aged 66-75 years (24.6%) were more likely to report prefer to use complementary treatment as a barrier to following medical advice; $p \leq 0.05$

Provider-Patient Communication

- Figure 30 below shows percentage of high provider-patient communication in all samples
- Most respondents in all samples reported high levels of provider-patient communication. See details below:



In the total sample, statistically significant associations were found with regards to lack of provider-patient communication:

- Lack of provider-patient communication was found to be associated with education such that:
 - Respondents with more than high school education were less likely to prepare a list of questions (36.5%) and ask questions about treatment (42.5%); $p \leq 0.001$
- Lack of provider-patient communication was found to be associated with geographic location such that:
 - Respondents living in Manhattan were less likely to prepare a list of questions (20.2%) and ask questions about treatment (42.5%); $p \leq 0.001$
- Lack of provider-patient communication was found to be associated with gender such that:
 - Females were less likely to prepare a list of questions (62.9%) and ask questions about treatment (61.2%); $p \leq 0.001$
- Lack of provider-patient communication was found to be associated with age such that:

- Respondents aged 51-65 years were less likely to prepare a list of questions (34.5%; $p \leq 0.001$), ask questions about treatment (30.7%; $p \leq 0.001$) and discuss personal problems (30.4%; $p \leq 0.01$)
- Lack of provider-patient communication was found to be associated with race and ethnicity such that:
 - Whites/Caucasians were less likely to prepare a list of questions (74.8%), ask questions about treatment (65.9%) and discuss personal problems (78.4%); $p \leq 0.001$
 - Non-Hispanics/Latinos were less likely to prepare a list of question (88.4%) and ask questions about treatment (83.9%); $p \leq 0.001$

In the ACC sub-sample, statistically significant associations were found with regards to lack of provider-patient communication:

- Lack of provider-patient communication was found to be associated with education, such that:
 - Respondents with more than high school education were less likely to ask questions about treatment (56.3%); $p \leq 0.001$
- Lack of provider-patient communication was found to be associated with race such that:
 - Blacks/African Americans (31.1%) were less likely ask questions about treatment; $p \leq 0.01$

In the regional sub-sample, statistically significant associations were found with regards to lack of provider-patient communication:

- Lack of provider-patient communication was found to be associated with education, such that:
 - Respondents with more than high school education were less likely to prepare a list of questions (40.9%); $p \leq 0.01$
- Lack of provider-patient communication was found to be associated with age such that:
 - Respondents aged 51-65 years were less likely to prepare a list of questions (44.0%); $p \leq 0.001$
- Lack of provider-patient communication was found to be associated with race and ethnicity, such that:
 - Whites/Caucasians were less likely to prepare a list of questions (85.2%; $p \leq 0.001$) and discuss personal problems (86.2%; $p \leq 0.05$)
 - Non-Hispanics/Latinos were less likely to prepare a list of question (89.3%) and ask questions about treatment (83.9%); $p \leq 0.001$

In the public/uninsured sub-sample, statistically significant associations were found with regards to lack of provider-patient communication:

- Lack of provider-patient communication was found to be associated with education such that:
 - Respondents with more than high school education were less likely to prepare a list of questions (59.1%) and ask questions about treatment (61.3%); $p \leq 0.001$
- Lack of provider-patient communication was found to be associated with geographic location, such that:
 - Respondents living in the Bronx were less likely to prepare a list of questions (20.0%); $p \leq 0.05$
- Lack of provider-patient communication was found to be associated with age, such that:

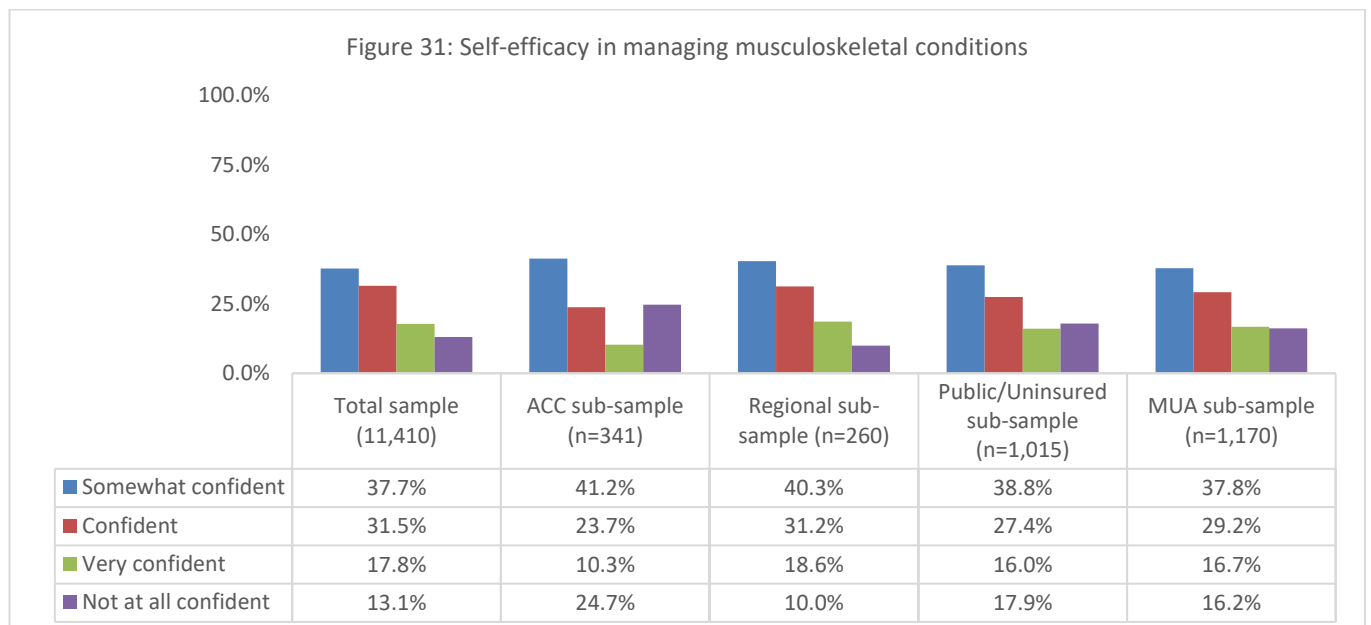
- Respondents aged 18-35 years were less likely to prepare a list of questions (33.1%; $p \leq 0.001$), ask questions about treatment (37.2%; $p \leq 0.001$)
- Lack of provider-patient communication was found to be associated with race and ethnicity, such that:
 - Blacks/African Americans were less likely to prepare a list of questions (34.5%; $p \leq 0.01$) and ask questions about treatment (33.7%; $p \leq 0.001$)
 - Non-Hispanics/Latinos were less likely to ask questions about treatment (61.2%; $p \leq 0.01$)

In the public/uninsured sub-sample, statistically significant associations were found with regards to lack of provider-patient communication:

- Lack of provider-patient communication was found to be associated with education such that:
 - Respondents with more than high school education were less likely to prepare a list of questions (46.5%) and ask questions about treatment (50.8%); $p \leq 0.001$
- Lack of provider-patient communication was found to be associated with age, such that:
 - Respondents aged 51-65 years were less likely to prepare a list of questions (29.0%; $p \leq 0.001$), ask questions about treatment (26.9%; $p \leq 0.001$), and
- Lack of provider-patient communication was found to be associated with race and ethnicity, such that:
 - Whites/Caucasians were less likely to prepare a list of questions (41.1%; $p \leq 0.001$), ask questions about treatment (32.2%; $p \leq 0.001$) and discuss personal problems (45.7%; $p \leq 0.01$)
 - Non-Hispanics/Latinos were less likely to prepare a list of questions (72.0%) and ask questions about treatment (65.3%); $p \leq 0.001$

Self-Efficacy

- Figure 31 below shows respondents' self-efficacy in managing their musculoskeletal conditions in all samples
- Majority of respondents across all samples reported being somewhat confident in managing symptoms of their musculoskeletal conditions. See below for more details



In the total sample, statistically significant associations were found with regards to lack of confidence in self-management:

- Lack of confidence in self-management was found to be significantly associated with education, such that respondents with post-college education (33.2%) were more likely to report little/no confidence in managing their condition; $p \leq 0.001$
- Lack of confidence in self-management was found to be significantly associated with gender, such that females (62.9%) were more likely to report little/no confidence in managing their condition; $p \leq 0.001$
- Lack of confidence in self-management was found to be significantly associated with musculoskeletal conditions, such that those diagnosed with OA (56.3%) were more likely to report little/no confidence in managing their condition; $p \leq 0.001$

In the ACC sub-sample, statistically significant associations were found with regards to lack of confidence in self-management:

- Lack of confidence in self-management was found to be significantly associated with gender, such that females (78.9%) were more likely to report little/no confidence in managing their condition; $p \leq 0.01$

In the public/uninsured sub-sample, statistically significant associations were found with regards to lack of confidence in self-management:

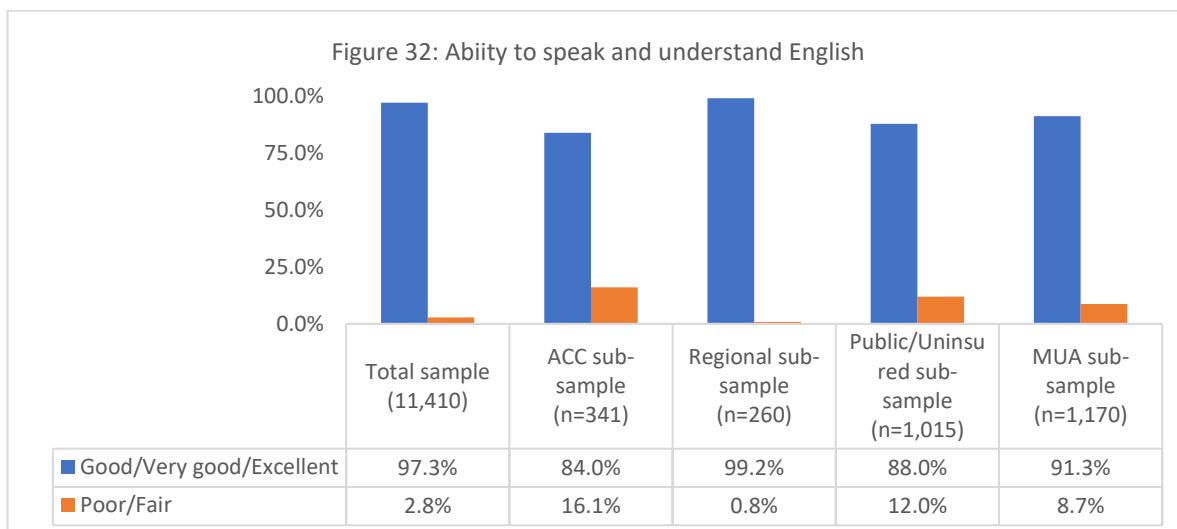
- Lack of confidence in self-management was found to be significantly associated with education, such that respondents with more than high school education (54.7%) were more likely to report little/no confidence in managing their condition; $p \leq 0.001$
- Lack of confidence in self-management was found to be significantly associated with gender, such that females (74.2%) were more likely to report little/no confidence in managing their condition; $p \leq 0.001$
- Lack of confidence in self-management was found to be significantly associated with race, such that Whites/Caucasians (34.43%) were more likely to report little/no confidence in managing their condition; $p \leq 0.05$

In the MUA sub-sample, statistically significant associations were found with regards to lack of confidence in self-management:

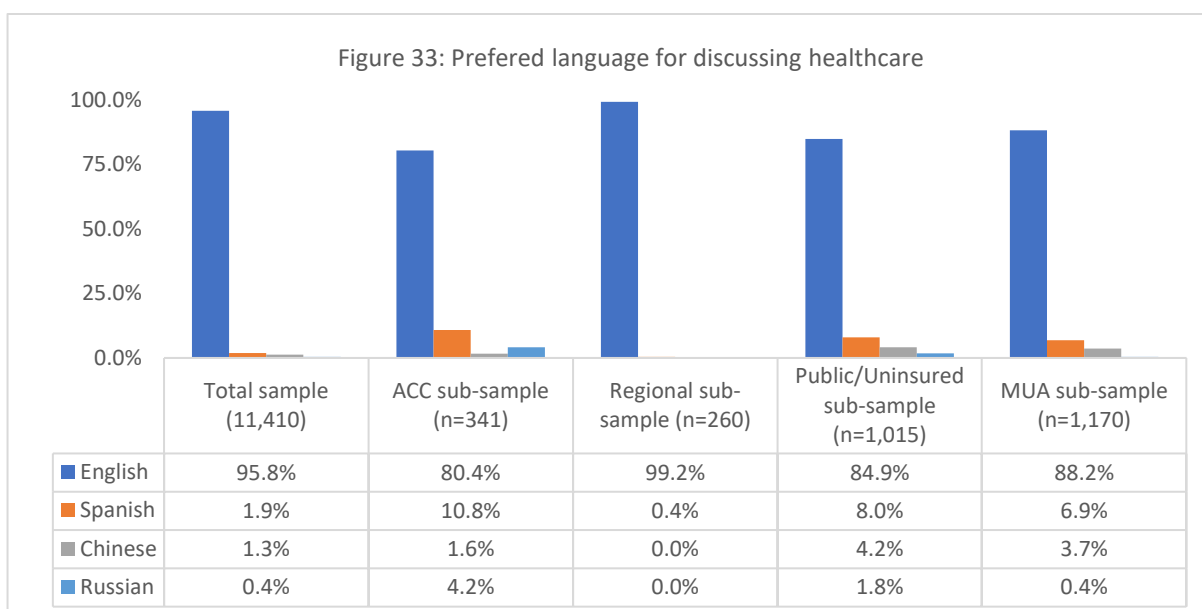
- Lack of confidence in self-management was found to be significantly associated with education, such that: respondents with more than high school education (42.2%) were more likely to report little/no confidence in managing their condition; $p \leq 0.05$
- Lack of confidence in self-management was found to be significantly associated with gender, such that females (76.1%) were more likely to report little/no confidence in managing their condition; $p \leq 0.01$

Health Literacy

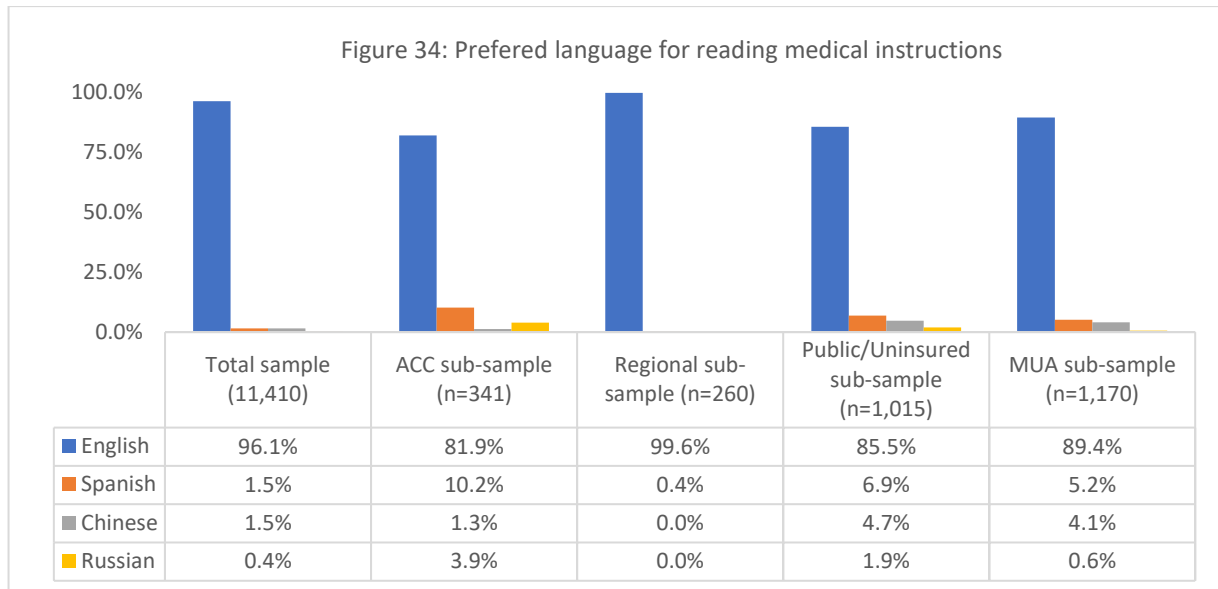
- Figure 32 below shows respondents' ability to speak and understand English
- Majority of respondents across all samples rated their ability to speak and understand English from "good" to "excellent". See below for more details



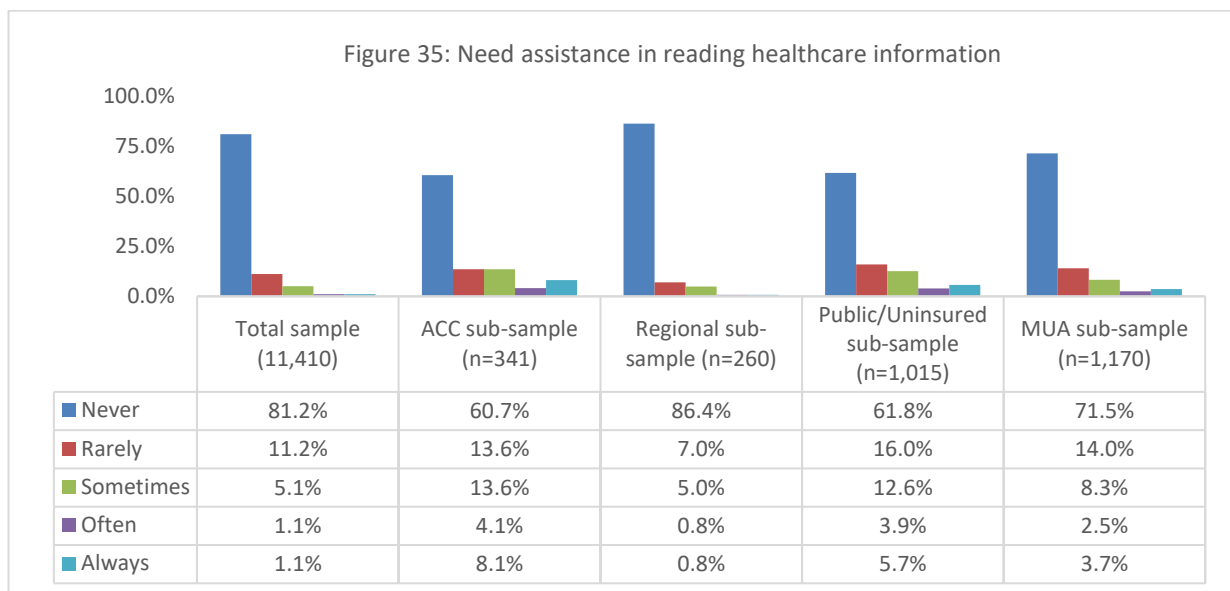
- Figure 33 below shows preferred language for discussing healthcare across all samples
- Majority of respondents across all samples preferred English for discussing health. See below for more details:



- Figure 34 below shows preferred language for reading medical instruction across all samples
- Majority of respondents across all samples preferred English for reading medical instructions. See below for more details:



- Table 35 below shows if respondents need assistance in reading healthcare information across all samples
- Majority of respondents across all samples reported they never needed assistance when reading instructions, pamphlets, or other written materials from doctors or pharmacies. See below for details:



In the total sample, statistically significant associations were found with regards to health literacy:

- Health literacy was found to be significantly associated with race and ethnicity such that:
 - Asians (46.0%) and non-Hispanics/Latinos (67.8%) reported their ability to speak English as "Poor"; $p \leq 0.001$

- Asians preferred discussing (98.9%) healthcare information in Chinese while Whites/Caucasians preferred reading (92.3%) healthcare information in Russian; $p \leq 0.001$
- Non-Hispanics/Latinos (100%) preferred discussing and reading healthcare information in Russian; $p \leq 0.001$

In the ACC sub-sample, statistically significant associations were found with regards to health literacy:

- Health literacy was found to be significantly associated with race and ethnicity such that:
 - Whites/Caucasians (58.3%) and non-Hispanics/Latinos (66.7%) reported their ability to speak English as “Poor”; $p \leq 0.001$
 - Whites/Caucasians and Asians (100%) preferred discussing and reading healthcare information in non-English (Russian and Chinese); $p \leq 0.001$
 - Non-Hispanics/Latinos (100%) preferred discussing and reading healthcare information in non-English (Chinese and Russian); $p \leq 0.001$

In the regional sub-sample, statistically significant associations were found with regards to health literacy:

- Health literacy was found to be significantly associated with race and ethnicity such that:
 - Other race (100%) preferred discussing and reading healthcare information in Spanish; $p \leq 0.001$
 - Hispanics/Latinos (100%) preferred discussing healthcare information in Spanish; $p \leq 0.001$

In the public/uninsured sub-sample, statistically significant associations were found with regards to health literacy:

- Health literacy was found to be significantly associated with race and ethnicity such that:
 - Asians (41.8%) and non-Hispanics/Latinos (63.8%) reported their ability to speak English as “Poor”; $p \leq 0.001$
 - Asians (100%) preferred discussing healthcare information in Chinese while Whites/Caucasians (93.8%) preferred reading medical instruction in Russian; $p \leq 0.001$
 - Non-Hispanics/Latinos (100%) preferred discussing and reading healthcare information in Russian; $p \leq 0.001$

In the MUA sub-sample, statistically significant associations were found with regards to health literacy:

- Health literacy was found to be significantly associated with race and ethnicity such that:
 - Asians (51.2%) and non-Hispanics/Latinos (58.3%) reported their ability to speak English as “Poor”; $p \leq 0.001$
 - Asians and Whites/Caucasians (100%) preferred discussing healthcare information in non-English (Chinese and Russian) while Asians (90.5%) preferred reading medical instruction in Chinese; $p \leq 0.001$
 - Non-Hispanics/Latinos (100%) preferred discussing healthcare information in non-English (Chinese and Russian) while reading healthcare information was preferred in Russian; $p \leq 0.001$

Health Information/Advice

- Table 11 below shows where respondents usually obtain health information and advice
- Most respondents indicated the “Doctor’s office” as where they would usually obtain health information. See below for more details:

Table 11: Health information/advice resources

	Total sample (11,410)	ACC sub- sample (n=341)	Regional sub-sample (n=260)	Public/Uninsured sub-sample (n=1,015)	MUA sub- sample (n=1,170)
Doctor’s office	91.1%	85.5%	95.4%	78.7%	85.6%
Internet	54.8%	30.9%	44.7%	38.2%	47.6%
Friends/Colleagues	25.9%	14.5%	24.1%	18.8%	22.5%
Family	24.5%	22.0%	27.8%	23.1%	22.6%
Clinic or health center	15.4%	36.6%	7.6%	36.9%	28.9%
Hospital Outpatient Department	6.7%	11.7%	3.8%	12.7%	10.4%
Don’t seek health information or advice often	6.5%	4.6%	2.5%	5.2%	7.6%
Hospital Emergency Room	5.7%	10.3%	2.5%	14.1%	8.1%
Health Maintenance Organization (HMO)	3.9%	2.8%	2.1%	6.7%	7.2%

In the total sample, statistically significant associations were found with regards to obtaining health information:

- Obtaining health information was found to be significantly associated with education such that:
 - Respondents who completed high school or GED education (21.9%) were more likely to obtain health information/advice from a clinic or health center; $p \leq 0.001$
 - Respondents with post-college education were more likely to obtain health information/advice from the doctor’s office (91.3%), internet (60.0%) and family/colleagues (29.9%); $p \leq 0.001$
- Obtaining health information was found to be significantly associated with geographic location such that:
 - Respondents living in Bronx (34.1%) were more likely to obtain health information/advice from a clinic/health center (34.1%); $p \leq 0.001$
 - Respondents living in Connecticut (92.6%) were more likely to obtain health information/advice from a doctor’s office; $p \leq 0.001$
 - Respondents living in Manhattan (30.4%) were more likely to obtain health information/advice from friends/colleagues; $p \leq 0.001$
 - Respondents living in Westchester (61.5%) were more likely to obtain health information/advice from the internet; $p \leq 0.001$
- Obtaining health information was found to be significantly associated with gender such that:
 - Gender non-conforming respondents (40.0%) were more likely to obtain health information/advice from friends/colleagues; $p \leq 0.001$
 - Females (54.4%) were more likely to obtain health information/advice from the internet; $p \leq 0.001$
- Obtaining health information was found to be significantly associated with age such that:

- Respondents aged 18-35 (64.3%) were more likely to obtain health information/advice from a clinic/health center; $p \leq 0.001$
- Respondents aged 66-75 years (90.7%) and 76-85 years (90.0%) were more likely to obtain health information/advice from a doctor's office; $p \leq 0.001$
- Respondents aged 66-75 years (56.5%) were more likely to obtain health information/advice from the internet; $p \leq 0.001$
- Obtaining health information was found to be significantly associated with race/ethnicity such that:
 - American Indians (43.3%) were more likely to obtain health information/advice from a clinic/health center; $p \leq 0.001$
 - Whites/Caucasians were more likely to obtain health information/advice from a doctor's office (91.3%), friends/colleagues (26.7%) and internet (56.5%); $p \leq 0.001$
 - Hispanics/Latinos were more likely to obtain health information/advice from a clinic/health center (32.8%) while Non-Hispanics/Latinos were more likely to obtain health information/advice a doctor's office (89.8), friends/colleagues (26.1%) and the internet (54.8%); $p \leq 0.001$

In the ACC sample, statistically significant associations were found with regards to obtaining health information

- Obtaining health information was found to be significantly associated with education such that:
 - Respondents with post-college education were more likely to obtain health information/advice from a doctor's office (92.3%; $p \leq 0.001$) and the internet (35.9%; $p \leq 0.05$);
- Obtaining health information was found to be significantly associated with race/ethnicity such that:
 - American Indians (100.0%) were more likely to obtain health information/advice a doctor's office; $p \leq 0.001$
 - Hispanics/Latinos were more likely to obtain health information/advice from a clinic/health center (48.6%; $p \leq 0.01$) while Non-Hispanics/Latinos were more likely to obtain health information/advice from a doctor's office (84.8%; $p \leq 0.001$)

In the sub-regional sample, statistically significant associations were found with regards to obtaining health information:

- Obtaining health information was found to be significantly associated with gender such that:
 - Females were more likely to obtain health information/advice from a doctor's office (93.6%; $p \leq 0.01$)
- Obtaining health information was found to be significantly associated with age such that:
 - Respondents aged 18-35 (18.2%; $p \leq 0.01$) were more likely to obtain health information/advice from a clinic/health center while those aged 36-50 years (60.0%; $p \leq 0.05$) were more likely to obtain health information/advice from the internet
- Obtaining health information was found to be significantly associated with race/ethnicity such that:
 - Blacks/African Americans (92.7%) were more likely to obtain health information/advice from a doctor's office; $p \leq 0.01$. While Asians (75.0%) were more likely to obtain health information/advice from friends/colleagues; $p \leq 0.05$.

In the public/uninsured sub-sample, statistically significant associations were found with regards to obtaining health information:

- Obtaining health information was found to be significantly associated with education such that:
 - Respondents with post-college education were more likely to obtain health information/advice from a doctor's office (85.0%; $p \leq 0.001$), friends/colleagues (30.1%; $p \leq 0.01$), and the internet (52.2%; $p \leq 0.001$)
- Obtaining health information was found to be significantly associated with geographic location such that:
 - Respondents living in Manhattan (34.1%) were more likely to obtain health information/advice from a clinic/health center while those living in Westchester (52.4%) were more likely to obtain health information/advice from the internet; $p \leq 0.01$
- Obtaining health information was found to be significantly associated with age such that:
 - Respondents aged 76-85 years (84.4%) were more likely to obtain health information/advice from a doctor's office; $p \leq 0.05$
- Obtaining health information was found to be significantly associated with race/ethnicity such that:
 - American Indians (44.4%) were more likely to obtain health information/advice from a clinic/health center while Whites/Caucasians (83.3%) were more likely to obtain health information/advice from a doctor's office; $p \leq 0.001$
 - Hispanics/Latinos (42.8%; $p \leq 0.001$) were more likely to obtain health information/advice from a clinic/health center while Non-Hispanics/Latinos were more likely to obtain health information/advice from a doctor's office (78.3%; $p \leq 0.01$) and friends/colleagues (19.8%; $p \leq 0.05$)

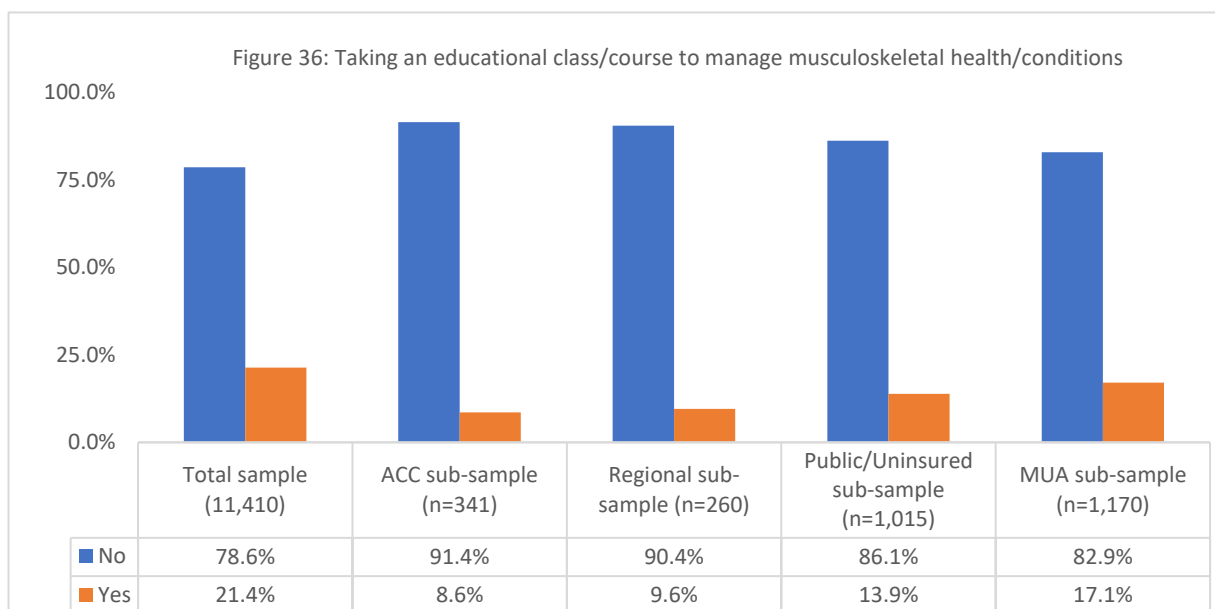
In the MUA sub-sample, statistically significant associations were found with regards to obtaining health information:

- Obtaining health information was found to be significantly associated with education such that:
 - Respondents who completed high school or GED (40.6%) were more likely to obtain health information/advice from a clinic or health center; $p \leq 0.001$
 - Respondents with post-college education were more likely to obtain health information/advice from a doctor's office (89.8%), family/colleagues (30.1%), and the internet (65.0%); $p \leq 0.001$
- Obtaining health information was found to be significantly associated with geographic location such that:
 - Respondents living in the Bronx (34.6%) were more likely to obtain health information/advice from a clinic/health center; $p \leq 0.01$ while those living in Suffolk and Nassau county (33.3%) were more likely to obtain health information/advice from the internet; $p \leq 0.05$
- Obtaining health information was found to be significantly associated with gender such that:
 - Gender non-conforming respondents were more likely to obtain health information/advice from friends/colleagues and the internet (60.0%); $p \leq 0.05$
- Obtaining health information was found to be significantly associated with age such that:
 - Respondents aged 18-35 (40.5%) were more likely to obtain health information/advice from a clinic/health center; $p \leq 0.001$ while those aged 76-85 years (90.8%) were more likely to obtain health information/advice from a doctor's office; $p \leq 0.05$

- Obtaining health information was found to be significantly associated with race/ethnicity such that:
 - American Indians (63.6%) were more likely to obtain health information/advice from a clinic/health center while Whites/Caucasians were more likely to obtain health information/advice from a doctor's office (89.3%), friends/colleagues (28.9%) and the internet (55.6%); $p \leq 0.001$
 - Hispanics/Latinos (40.1%; $p \leq 0.001$) were more likely to obtain health information/advice from a clinic/health center while Non-Hispanics/Latinos were more likely to obtain health information/advice from a doctor's office (83.6%; $p \leq 0.001$), friends/colleagues (24.1%; $p \leq 0.05$) and the internet (50.1%; $p \leq 0.001$)

Health Education Needs

- Figure 36 shows if respondents have taken any educational class/course to manage their musculoskeletal condition
- Majority of respondents across all samples indicated they had not taken an educational course or class to learn how to manage their musculoskeletal health/condition. See below for details



In the total sample, statistically significant associations were found with regards to health education:

- Lack of health education was found to be significantly associated with geographic location such that:
 - Respondents living in the Bronx (85.3%) followed by Long Island – Nassau County (84.3%) and Westchester (82.9%) reported lack of education in managing their musculoskeletal condition(s); $p \leq 0.001$
- Lack of health education was found to be significantly associated with gender such that:
 - Most non-conforming gender (90.0%) and males (83.7%) reported lack of health education in managing their musculoskeletal condition(s); $p \leq 0.001$
- Lack of health education was found to be significantly associated with age such that:

- Respondents aged 18-35 years (86.6%) reported lack of health education in managing their musculoskeletal condition; $p \leq 0.001$. This improved as respondents increased in age
- Lack of health education was found to be significantly associated with race/ethnicity such that:
 - Native Hawaiians (100%) followed by Hispanics/Latinos (86.3%), American Indians (83.3%) and Blacks/African Americans (83.4%) reported lack of health education in managing their musculoskeletal condition(s); $p \leq 0.01$

In the public/uninsured sub-sample, statistically significant associations were found with regards to health education:

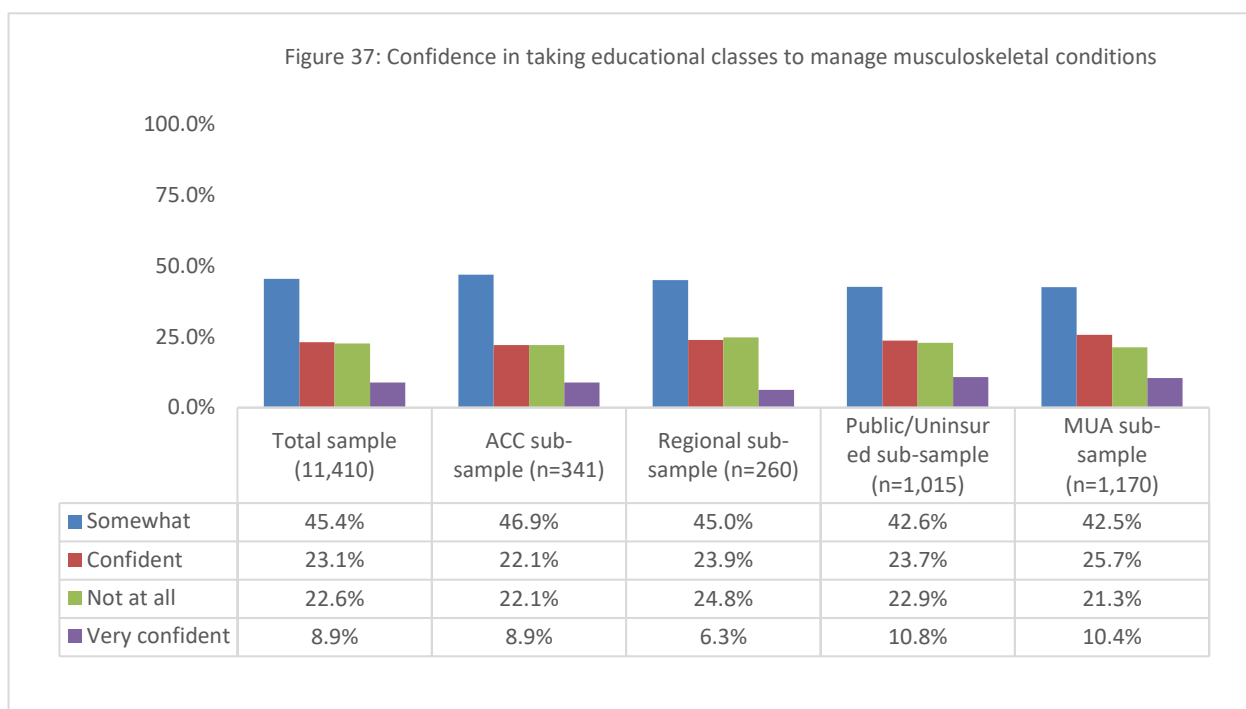
- Lack of health education was found to be significantly associated with geographic location such that:
 - Respondents living in the Bronx and Brooklyn (90.2%) reported lack of education in managing their musculoskeletal condition(s); $p \leq 0.05$
- Lack of health education was found to be significantly associated with race/ethnicity such that:
 - Hispanics/Latinos (89.6%) reported lack of education in managing their musculoskeletal condition(s); $p \leq 0.05$

In the MUA sub-sample, statistically significant associations were found with regards to health education:

- Lack of health education was found to be significantly associated with geographic location such that:
 - Respondents living in Long Island – Nassau and Suffolk counties, and Westchester (100.0%) reported lack of education in managing their musculoskeletal condition(s); $p \leq 0.05$
- Lack of health education was found to be significantly associated with gender such that:
 - Males (88.0%) reported lack of education in managing their musculoskeletal condition(s); $p \leq 0.05$
- Lack of health education was found to be significantly associated with age such that:
 - Respondents aged 18-35 years (88.7%) reported lack of health education in managing their musculoskeletal condition(s); $p \leq 0.01$. This improved as respondents increased in age
- Lack of health education was found to be significantly associated with race/ethnicity such that:
 - Hispanics/Latinos (90.8%) reported lack of health education in managing their musculoskeletal condition(s); $p \leq 0.001$

Level of confidence - education to manage musculoskeletal conditions

- Figure 37 shows respondents' level of confidence that taking a course/class will help manage their musculoskeletal condition
- Majority of respondents across all samples reported being somewhat confident that taking a course/class will help manage their musculoskeletal conditions. See below for more details:



In the total sample, statistically significant associations were found with regards to confidence in taking educational classes to managing musculoskeletal conditions:

- Lack of confidence in taking educational classes to managing musculoskeletal conditions was found to be significantly associated with geographic location such that:
 - Respondents living in Manhattan (23.7%) and Westchester (23.7%) reported no confidence that taking a course/class will help manage their musculoskeletal conditions; $p \leq 0.01$
- Lack of confidence in taking educational classes to managing musculoskeletal conditions was found to be significantly associated with gender such that:
 - Non-conforming gender respondents (55.6%) followed by males (24.1%) reported no confidence that taking a course/class will help manage their musculoskeletal conditions; $p \leq 0.05$
- Lack of confidence in taking educational classes to managing musculoskeletal conditions was found to be significantly associated with race/ethnicity such that:
 - Most Whites/Caucasians (23.7%) and non-Hispanics/Latinos (22.7%) reported no confidence that taking a course/class will help manage their musculoskeletal conditions; $p \leq 0.001$

In the ACC sub-sample, statistically significant associations were found with regards to confidence in taking educational classes to managing musculoskeletal conditions:

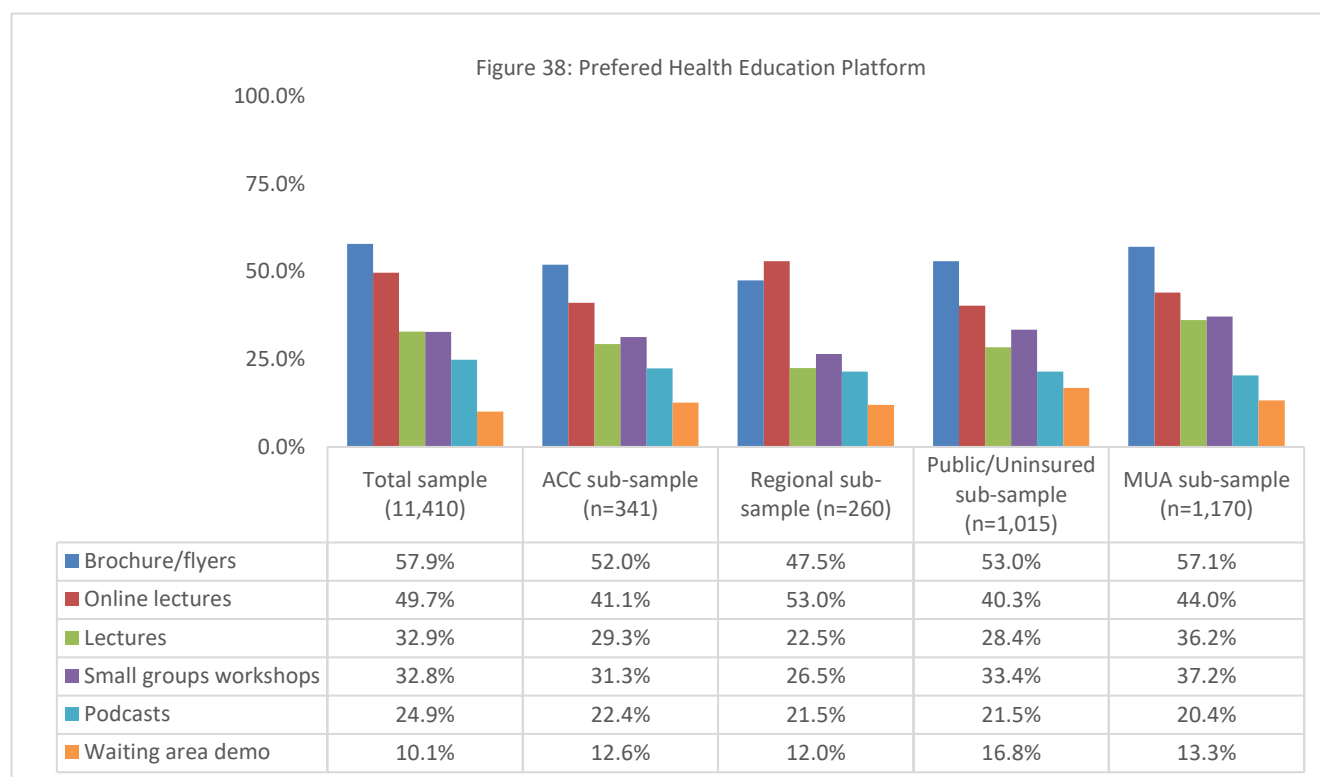
- Lack of confidence in taking educational classes to managing musculoskeletal conditions was found to be significantly associated with gender such that:
 - Most males (24.3%) reported no confidence that taking a course/class will help manage their musculoskeletal conditions; $p \leq 0.05$

In the MUA sub-sample, statistically significant associations were found with regards to confidence in taking educational classes to managing musculoskeletal conditions:

- Lack of confidence in taking educational classes to managing musculoskeletal conditions was found to be significantly associated with race/ethnicity such that:
 - Most Whites/Caucasians (25.8%) reported no confidence that taking a course/class will help manage their musculoskeletal conditions; $p \leq 0.001$

Health Education Platform

- Figure 38 shows preferred platform to receive health education
- Majority of respondents across all samples indicated brochure/flyers, online lectures and lectures as the top three preferred platforms to receive health education. See below for more details:



In the total sample, statistically significant associations were found with regards to preferred platform of receiving health education:

- Platform of receiving health education was found to be significantly associated with geographic location such that:
 - Respondents living in Manhattan (39.0%) indicated lectures as their preferred platform for receiving health education; $p \leq 0.001$
 - Respondents living in Westchester (52.6%) indicated online lectures as their preferred platform for receiving health education; $p \leq 0.001$
- Platform of receiving health education was found to be significantly associated with gender such that:
 - Females (32.9%) indicated brochure/flyers (53.0%; $p \leq 0.05$) and lectures (32.9%; $p \leq 0.001$) as their preferred platforms for receiving health education
- Platform of receiving health education was found to be significantly associated with age such that:
 - The oldest respondents (86+ years) indicated lectures (40.7%; $p \leq 0.001$) as their preferred platform for receiving health education
 - Respondents aged 51-65 years indicated online lectures (51.0%) as their preferred platform for receiving health education; $p \leq 0.001$
 - Respondents aged 66-75 years (55.6%) followed by those aged 76-85 years (54.1%) indicated brochures/flyers as their preferred platform for receiving health education; $p \leq 0.001$
- Platform of receiving health education was found to be significantly associated with race and ethnicity such that:
 - Asians (36.4%) indicated lectures as their preferred platform for receiving health education; $p \leq 0.05$
 - Whites/Caucasians (46.5%) followed by Blacks/African Americans (42.6%) indicated online lectures as their preferred platform for receiving health education; $p \leq 0.001$
 - American Indians (56.7%; $p \leq 0.01$) followed by Blacks/African Americans (55.0%; $p \leq 0.01$), White (52.8%; $p \leq 0.01$) and non-Hispanics/Latinos (52.9%; $p \leq 0.05$) indicated brochures/flyers as their preferred platform for receiving health education

In the ACC sub-sample, statistically significant associations were found with regards to preferred platform of receiving health education:

- Platform of receiving health education was found to be significantly associated with age such that:
 - The youngest respondents (18-35 years) indicated online lectures (43.6%) as their preferred platform for receiving health education; $p \leq 0.05$

In the regional sub-sample, statistically significant associations were found with regards to preferred platform of receiving health education:

- Platform of receiving health education was found to be significantly associated with age such that:
 - Respondents aged 36-50 years indicated online lectures (57.8%) as their preferred platform for receiving health education; $p \leq 0.05$

In the public/uninsured sub-sample, statistically significant associations were found with regards to preferred platform of receiving health education:

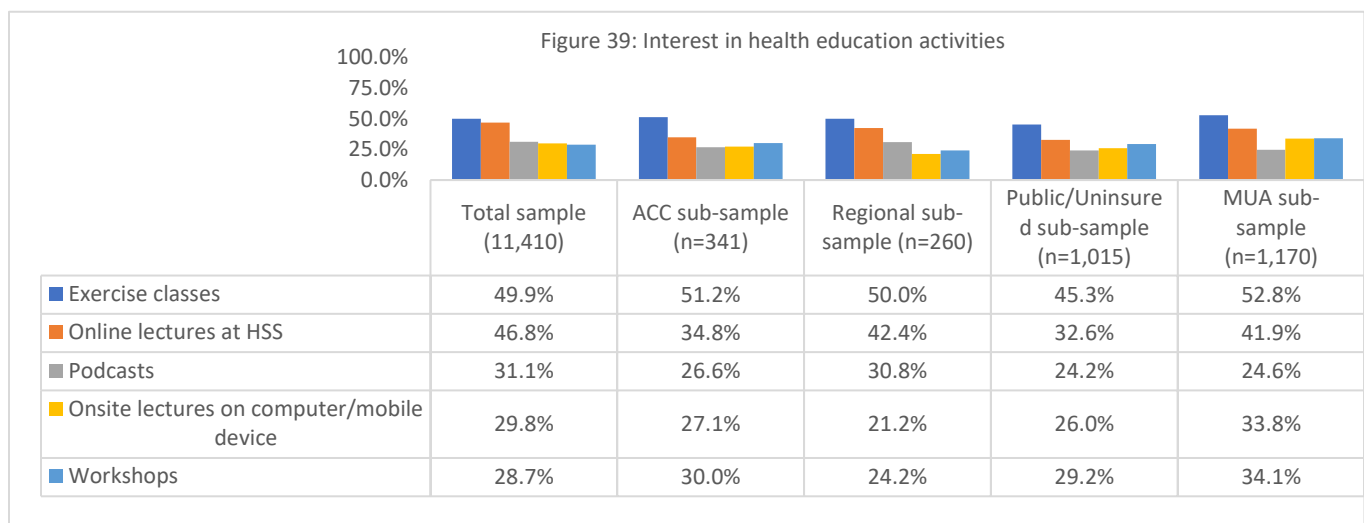
- Platform of receiving health education was found to be significantly associated with age such that:
 - Respondents aged 51-65 years (41.6%) followed by those aged 18-35 years (40.5%) indicated online lectures as their preferred platform for receiving health education; $p \leq 0.01$
 - Respondents aged 76-85 years (35.1%) followed by 66-75 years (33.3%) indicated lectures as their preferred platform for receiving health education; $p \leq 0.05$
 - Respondents aged 66-75 years (59.5%) followed by those aged 76-85 years (53.2%) indicated brochures/flyers as their preferred platform for receiving health education; $p \leq 0.01$

In the MUA sub-sample, statistically significant associations were found with regards to preferred platform of receiving health education:

- Platform of receiving health education was found to be significantly associated with age such that:
 - The oldest respondents (86+ years) indicated lectures (48.0%; $p \leq 0.001$) while the youngest respondents (18-35 years) indicated online lectures (46.4%; $p \leq 0.05$) as their preferred platform for receiving health education
 - Respondents aged 66-75 years (60.5%) indicated brochures/flyers as their preferred platform for receiving health education; $p \leq 0.01$
- Platform of receiving health education was found to be significantly associated with race and ethnicity such that:
 - Whites/Caucasians (46.3%) indicated online lectures as their preferred platform for receiving health education; $p \leq 0.01$

Interests in Health Education Activities

- Figure 39 shows health education activities that respondents are interested in
- Majority of respondents across all samples are interested in participating in exercise classes and online lectures. See below for more details:



In the total sample, statistically significant associations were found with regards to preferred health education activity:

- Health education activity was found to be significantly associated with geographic location such that:
 - Respondents living in Manhattan indicated exercise classes (51.7%), workshops (33.6%) and onsite lectures (38.7%) as their preferred health education activities; $p \leq 0.001$
 - Respondents living in Long Island – Suffolk County (50.5%) followed by New Jersey (49.6%) indicated online lectures as their preferred health education activity; $p \leq 0.001$
 - Respondents living in Westchester (35.4%) indicated podcasts as their preferred health education activity; $p \leq 0.001$
- Health education activity was found to be significantly associated with gender such that:
 - Females indicated exercise classes (52.9%), workshops (30.3%) and onsite lectures (30.7%) as their preferred health education activities; $p \leq 0.001$
- Health education activity was found to be significantly associated with age such that:
 - Respondents aged 36-50 years reported exercise classes (55.1%; $p \leq 0.001$), podcasts (38.9%; $p \leq 0.001$), workshops (32.1%; $p \leq 0.01$) and onsite lectures (29.8%; $p \leq 0.01$) as their preferred health education activities
 - Respondents aged 51-65 years reported online lectures (49.4%; $p \leq 0.001$) as their preferred health education activity
- Health education activity was found to be significantly associated with race and ethnicity such that:
 - American Indians (33.3%) and Blacks/African Americans (32.9%) indicated workshops as their preferred health education activity; $p \leq 0.001$
 - Whites/Caucasians and non-Hispanics/Latinos indicated online lectures (47.0% and 45.2% respectively) and podcasts (31.3% and 30.3%) as their preferred health education activities; $p \leq 0.001$

In the ACC sub-sample, statistically significant associations were found with regards to preferred health education activity:

- Health education activities was found to be significantly associated with geographic location such that:
 - Respondents living in Staten Island indicated online lectures (60.5%) as their preferred health education activity; $p \leq 0.05$
- Health education activities was found to be significantly associated with age such that:
 - Respondents aged 36-50 years reported exercise classes podcasts (34.6%) as their preferred health education activity; $p \leq 0.05$

In the regional sub-sample, statistically significant associations were found with regards to preferred health education activity:

- Health education activity was found to be significantly associated with gender such that:
 - Females indicated exercise classes (53.6%) as their preferred health education activity; $p \leq 0.01$
- Health education activity was found to be significantly associated with age such that:

- Respondents aged 36-50 years reported exercise classes podcasts (34.6%) as their preferred health education activity; $p \leq 0.05$
- Health education activity was found to be significantly associated with race and ethnicity such that:
 - Asians (75.0%) indicated onsite lectures as their preferred health education activity; $p \leq 0.05$

In the public/uninsured sub-sample, statistically significant associations were found with regards to preferred health education activity:

- Health education activity was found to be significantly associated with geographic location such that:
 - Respondents living in Long Island-Nassau County indicated exercise classes (58.6%) while those living in Long Island – Suffolk County (42.4%) indicated online lectures as their preferred health education activity; $p \leq 0.01$
- Health education activity was found to be significantly associated with gender such that:
 - Females indicated exercise classes (42.8%) as their preferred health education activity; $p \leq 0.05$
- Health education activity was found to be significantly associated with age such that:
 - Respondents aged 18-35 years reported exercise classes (44.0%) while those aged 51-65 years reported online lectures (28.4%) as their preferred health education activity; $p \leq 0.05$
- Health education activity was found to be significantly associated with race such that:
 - Whites/Caucasians indicated podcasts (28.4%) as their preferred health education activity; $p \leq 0.01$

In the MUA sub-sample, statistically significant associations were found with regards to preferred health education activity:

- Health education activity was found to be significantly associated with geographic location such that:
 - Respondents living in Manhattan indicated exercise classes (52.5%) while those living in Westchester (66.7%) indicated online lectures as their preferred health education activity; $p \leq 0.05$
- Health education activity was found to be significantly associated with gender such that:
 - Females indicated exercise classes (51.0%; $p \leq 0.001$), workshops (33.1%; $p \leq 0.05$) and onsite lectures (32.6%; $p \leq 0.01$) as their preferred health education activities
- Health education activity was found to be significantly associated with age such that:
 - Respondents aged 56-55 years reported exercise classes (54.8%) while those aged 66-75 years reported onsite lectures (36.3%) as their preferred health education activity; $p \leq 0.05$
- Health education activity was found to be significantly associated with race and ethnicity such that:
 - Whites/Caucasians indicated online lectures (48.0%; $p \leq 0.001$) and podcasts (27.3%; $p \leq 0.01$) as their preferred health education activities
 - Non-Hispanics/Latinos indicated exercise classes (49.1%; $p < 0.05$), online lectures (41.2%; $p < 0.001$), onsite lectures (31.8%; $p < 0.05$) and podcasts (23.6%; $p < 0.05$) as their preferred health education activities

Interests in Health Topics

- Table 12 shows health topics that respondents are interested in
- Across all samples, the most popular health topic is “How to exercise and manage my pain”. See below for more details:

Table 12: Interests in health topics

	Total sample (11,410)	ACC sub- sample (n=341)	Regional sub- sample (n=260)	Public/Uninsured sub-sample (n=1,015)	MUA sub- sample (n=1,170)
How to exercise and manage my condition	58.9%	57.6%	53.8%	53.5%	58.6%
OA	50.8%	47.6%	49.2%	36.1%	45.4%
Back pain	49.6%	53.6%	50.8%	51.6%	50.3%
Ways to improve my mobility	48.9%	52.4%	35.9%	45.6%	48.9%
OP	26.9%	24.0%	20.0%	20.0%	25.7%
RA	17.6%	37.6%	19.0%	25.8%	23.7%
Doctor-patient communication	16.6%	20.4%	12.8%	22.4%	23.1%
Fibromyalgia	7.4%	12.0%	11.3%	11.6%	10.0%
Gout	5.3%	6.8%	5.1%	6.4%	6.5%
Lupus	5.0%	10.4%	4.1%	10.4%	10.0%

In the total sample, statistically significant associations were found with regards to health topics:

- Specific health topics were found to be significantly associated with geographic location such that:
 - Respondents living in Staten Island (49.4%) followed by Manhattan (48.9%) and New Jersey (47.2%) were more likely to report “OA” as a health topic they would be interested in; $p \leq 0.01$
- Specific health topics were found to be significantly associated with gender such that:
 - Females were more likely to report “OA” (48.8%; $p \leq 0.001$) and “How to exercise to manage my condition” (54.3%; $p \leq 0.05$) as health topics they would be interested in
- Specific health topics were found to be significantly associated with age such that:
 - Respondents aged 36-50 years (49.0%) were more likely to report “Back pain” as a health topic they would be interested in; $p \leq 0.01$
 - Respondents aged 66-75 years (52.9%) were more likely to report “OA” as a health topic they would be interested in; $p \leq 0.001$
 - Respondents aged 76-85 years (48.5%) were more likely to report “Ways to improve my mobility” as a health topic they would be interested in; $p \leq 0.01$
- Specific health topics were found to be significantly associated with race and ethnicity such that:
 - Whites/Caucasians (48.1%) and non-Hispanics/Latinos (47.0%) were more likely to report “OA” as a health topic they would be interested in; $p \leq 0.001$

- American Indians (60.0%; $p \leq 0.05$) followed by Hispanics/Latinos (53.7%; $p \leq 0.001$) and Other race (51.0%; $p \leq 0.05$) were more likely to report “Back pain” as a health topic they would be interested in
- Whites/Caucasians (53.9%) followed by Blacks/African Americans (53.3%) were more likely to report “How to exercise to manage my condition” as a health topic they would be interested in; $p \leq 0.05$

In the ACC sub-sample, statistically significant associations were found with regards to health topics:

- Specific health topics were found to be significantly associated with age such that:
 - Respondents aged 18-35 years (61.5%) were more likely to report “How to exercise and manage my condition” as a health topic they would be interested in; $p \leq 0.05$

In the regional sub-sample, statistically significant associations were found with regards to health topics:

- Specific health topics were found to be significantly associated with gender such that:
 - Females (48.0%) were more likely to report “OA” as a health topic they would be interested in; $p \leq 0.05$
- Specific health topics were found to be significantly associated with age such that:
 - Respondents aged 18-35 years (68.2%) were more likely to report “How to exercise and manage my condition” as a health topic they would be interested in; $p \leq 0.01$
 - Respondents aged 66-75 years (62.3%) followed by respondents aged 76-85 year (61.1%) were more likely to report “OA” as a health topic they would be interested in; $p \leq 0.01$
- Specific health topics were found to be significantly associated with race and ethnicity such that:
 - Hispanics/Latinos (64.3%) followed by Whites/Caucasians (28.6%) and Asians (25.0%) were more likely to report “ways to improve my mobility” as a health topic they would be interested in; $p \leq 0.01$

In the public/uninsured sub-sample, statistically significant associations were found with regards to health topics:

- Specific health topics were found to be significantly associated with geographic location such that:
 - Respondents living in Staten Island (50.0%) were more likely to report “OA” as a health topic they would be interested in; $p \leq 0.05$
- Specific health topics were found to be significantly associated with gender such that:
 - Females were more likely to report “OA” (35.5%; $p \leq 0.01$) and “Back pain” (48.5%; $p \leq 0.05$) as health topics they would be interested in
- Specific health topics were found to be significantly associated with age such that:
 - Respondents aged 86+ years were more likely to report “OA” (56.3%; $p \leq 0.001$) and “Ways to improve my mobility” (56.3%; $p \leq 0.01$) as health topics they would be interested in
- Specific health topics were found to be significantly associated with race and ethnicity such that:

- Whites/Caucasians (37.8%; $p \leq 0.05$) were more likely to report “OA” and “How to exercise to manage my condition” (51.5%; $p \leq 0.05$) as health topics they would be interested in
- Non-Hispanics/Latinos (34.1%; $p \leq 0.05$) were more likely to report “OA” while Hispanics/Latinos (52.1%; $p \leq 0.01$) were more likely to report “Back pain” as health topics they would be interested in

In the MUA sub-sample, statistically significant associations were found with regards to health topics:

- Specific health topics were found to be significantly associated with gender such that:
 - Females (44.7%) were more likely to report “OA” as a health topic they would be interested in; $p \leq 0.01$
- Specific health topics were found to be significantly associated with age such that:
 - Respondents aged 86+ years (68.0%) were more likely to report “OA” as a health topic they would be interested in; $p \leq 0.001$
- Specific health topics were found to be significantly associated with race and ethnicity such that:
 - Whites/Caucasians (49.3%; $p \leq 0.001$) were more likely to report “OA” and “How to exercise and manage my condition” (58.9%; $p \leq 0.05$) as health topics they would be interested in.
 - While American Indians (90.9%; $p \leq 0.01$) were more likely to report “Back pain” as a health topic they would be interested in
 - Non-Hispanics/Latinos (44.8%; $p \leq 0.001$) were more likely to report “OA” while Hispanics/Latinos (54.5%; $p \leq 0.01$) were more likely to report “Back pain” as health topics they would be interested in

Appendix B. Minutes of community partners meeting, and prioritization of health needs

**Community Health Needs Assessment (CHNA)
Community Partners Meeting Summary
June 19, 2019**

Attendees:

Goal: The goal of the meeting was to share the CHNA results, elicit feedback and prioritize

Names	Organization
Adena Batterman	HSS
Alexandra Jurenko	
Ambar Tavera	
Eliza Ngan-Ditten	
Jack Davis	
Joan Westreich	
Juliette Kleinman	
Pamela Sanchez-Villagomez	
Priscilla Toral	
Roberta Horton	
Robyn Wiesel	
Sandra Goldsmith	
Amy Shah	New York City Department of Health and Mental Hygiene
Kenny Kwok	Touro College Graduate School of Social Work
Teresa Lin	Visiting Nurse Service of New York
Jeff Zhu	Weill Cornell Medicine Clinical and Translational Science Center

health needs.

CHNA Results

- CHNA results were presented at the meeting and were received positively
- Discussions largely focused around the sociodemographic disparities of the results, with breakdowns looking at the ambulatory care center sub-group, regional sub-group, public/uninsured subgroup, and medically underserved area sub-group
- Additional comments centered around areas with potential for growth, such as awareness of medical resources at complementary treatments
- Community partners extensively commented on whether the data fully represents the population served
 - Specifically, there were discussions around the large proportion of CHNA respondents who reported a high annual income
- Feedback highlighted requests to place an additional focus on the CHNA data collection methods

Ranking Results

- Community partners ranked health issues according to the communities they serve, and the top five health priorities identified were:
 1. Stress and mental health
 2. Osteoarthritis
 3. Lack of health education
 4. Fatigue
 5. Joint, muscle, or bone pain
 6. Rheumatoid arthritis
 7. Complementary alternatives to manage pain
 8. Falls and balance
 9. Lifestyle
 10. Osteoporosis

Appendix C. Summary report of community forums and prioritization of health needs

2019 HSS CHNA Community Forum Report

Goal: To share the Community Health Needs Assessment (CHNA) results and provide the opportunity for community members to prioritize their health needs.

Method: Eight community forums were hosted in the following locations below:

Table 1: Community forum details

Date	Location	Number of People Present
June 12, 2019	Stamford Senior Center Stamford, CT	40
June 13, 2019	Building One Community Center Stamford, CT	15
June 13, 2019	Hospital for Special Surgery	14
June 14, 2019	Webinar	2
June 17, 2019	Chinatown Community Center, Visiting Nurse Service of New York Manhattan, NY	53
June 19, 2019	Community Partners Meeting, Hospital for Special Surgery	23
June 20, 2019	Selfhelp Innovative Senior Center, Selfhelp Community Services Flushing, NY	22
June 26, 2019	Leonard Covello Senior Center, Carter Burden Network Manhattan, NY	21
Total		179

A total of 190 community members participated in the community forums. At each community forums, participants were asked to rank five health indicators, from a list of 25, identified in the CHNA according to order of importance (where 1 ranks the highest). Ranking results were calculated using a simple point system in which each ranking is assigned a point value from 1-5, with the indicator ranked 1 receiving 5 points and the indicator ranked 5 receiving 1 point. The indicators that received the most collective points were identified as the top priorities for the participants at the respective event. Surveys were administered on paper and electronically via an URL link.

Results: Community members were asked to rank the health needs most important to them and give their perspective on community health issues in an open discussion. Top five health needs varied across locations as seen in **Table 2** below.

Table 2. Health needs ranking

Rank	Overall (n= 131)	Stamford Senior Center (n=29)	Building One Community Center (n=12)	HSS (n= 13)	Webinar (n= 2)	Chinatown Community Center (n= 40)	Selfhelp Innovative Senior Center (n= 18)	Leonard Covello Senior Center (n= 17)
1	Osteoporosis	Joints, muscle, or bone pains	Rheumatoid arthritis	Osteoporosis	Complementary alternatives to manage pain	Osteoporosis	Osteoarthritis	Fatigue
2	Osteoarthritis	Osteoporosis	Joints, muscle, or bone pains (tied)	Osteoarthritis	Stiffness	Osteoarthritis	Osteoporosis	Stress and mental health
3	Joints, muscle, or bone pains	Falls and balance	Lack of health education (tied)	Fatigue	Osteoarthritis	Falls and balance	Rheumatoid arthritis	Gout
4	Falls and balance	Stress and mental health	Osteoarthritis	Stiffness	Stress and mental health	Joints, muscle, or bone pains	Joints, muscle, or bone pains	Stiffness
5	Rheumatoid arthritis	Lifestyle	Stress and mental health	Joints, muscle, or bone pains	Lifestyle	Rheumatoid arthritis	Falls and balance	Osteoporosis (tied)
6	Stress and mental health	Rheumatoid arthritis	Complementary alternatives to manage pain	Falls and balance	Joints, muscle, or bone pains	Gout	Gout	Osteoarthritis (tied)
7	Fatigue	Osteoarthritis	Lifestyle	Stress and mental health	Falls and balance	Lifestyle	Stiffness	Other forms of arthritis (tied)
8	Lifestyle i.e. Poor diet, obesity, lack of exercise	Lack of health education	Osteoporosis	Rheumatoid arthritis	Rheumatoid arthritis (tied)	Stress and mental health	Lifestyle	Falls and balance
9	Lack of health education	Complementary alternatives to manage pain	Fatigue	Complementary alternatives to manage pain	Osteoporosis, Fatigue (tied)	Fatigue	Fatigue	Joints, muscle, or bone pains
10	Stiffness	Fatigue	Falls and balance	Lifestyle	Gout, Lack of health education (tied)	Stiffness	Lack of health education	Lifestyle

Health Concerns

HSS engaged community members to discuss health issues and concerns in their local community. Although health needs differed across each location, one consistent theme across all community forums was the need for additional educational programs to help prevent and manage muscle, bone and joint health conditions. See below for health needs identified in each community forum:

- **Stamford Senior Center:** Community members expressed that language is a barrier when seeing a provider. Diet, falls prevention, mental health and bone health were indicated as important health issues.
- **Building One Community Center:** Community members requested information regarding access to the regional clinic.
- **HSS:** Community members considered treatment side effects and physician trust to be a barrier towards adherence to medical care. They also expressed interest in more advanced health education programming.
- **Chinatown Community Center, VNSNY:** Community members reported that they did not use complementary therapies for managing pain due to lack of knowledge but did express interest in receiving education around these therapies. With health education, community members indicated lectures, as the preferred education activity.
- **Selfhelp Innovative Senior Center:** Community members expressed that patient/provider communication was not an issue with primary care physicians with whom they have an established relationship, but more of an issue with specialists.
- **Leonard Covello Senior Center:** Community members indicated that osteoarthritis, falls prevention, and exercise are important health issues. Specifically, there was interest in learning how to exercise safely.

Demographic information (n=134)

- Nearly three-quarters (74.8%) of participants filled out an evaluation after participating in the community forum. As seen below, majority of community members were female (82.7%), aged 70-79 (45.9%), Non-Hispanic/Latino (61.7%) and Asians (55.9%).

Figure 1. Gender

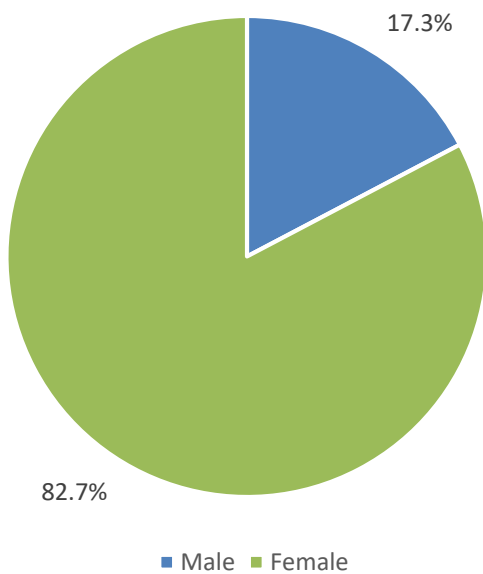


Figure 2. Age

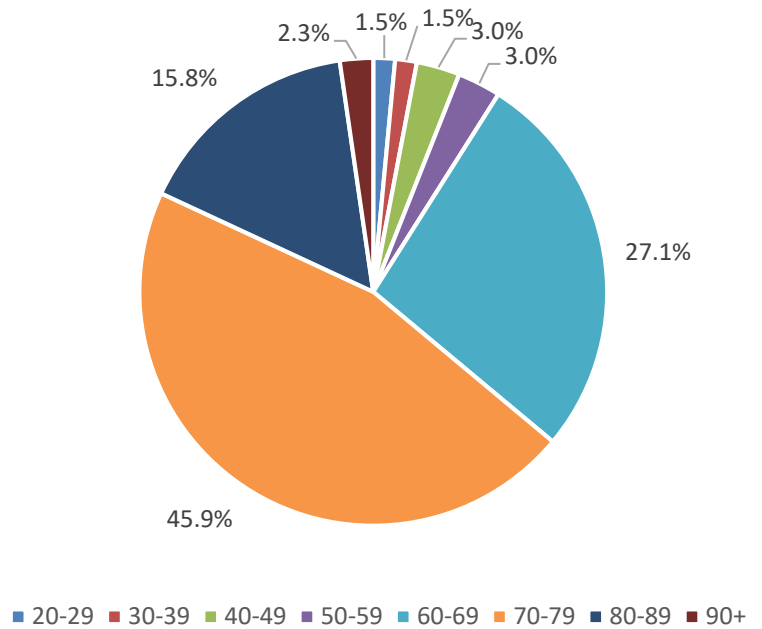


Figure 3. Ethnicity

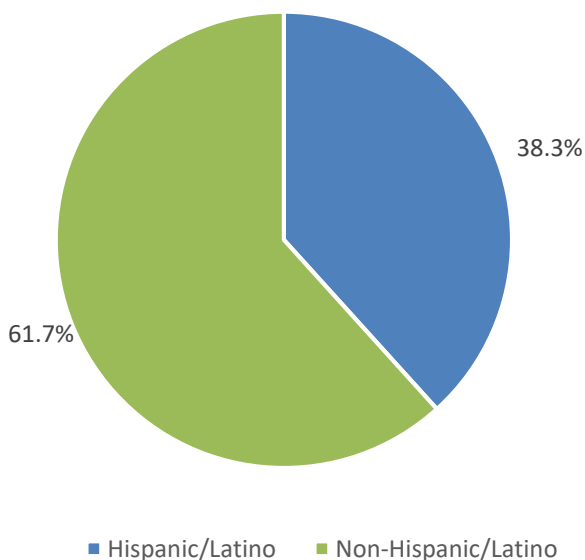
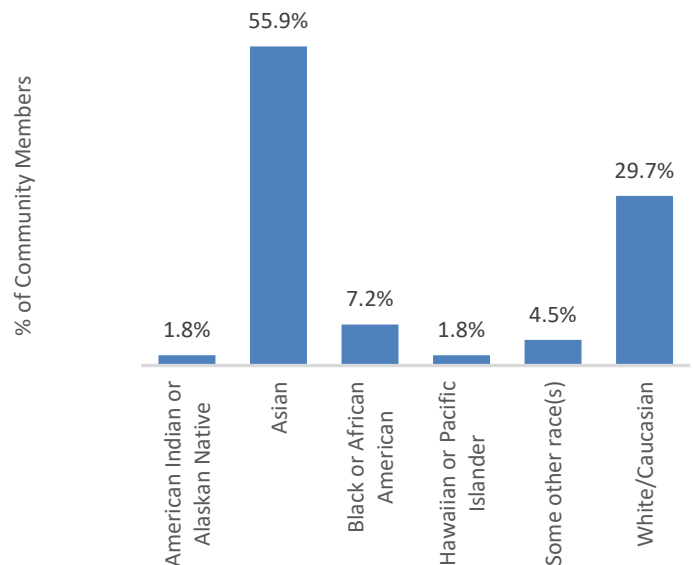


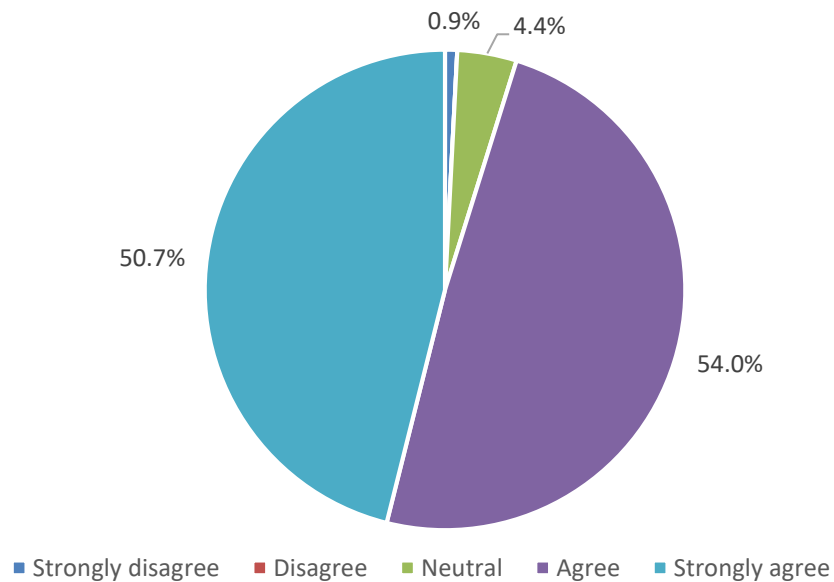
Figure 4. Race



Satisfaction (n=124)

- The community forums were well received by participants as 94.7% strongly agree/agree that they were satisfied with the forum.

Figure 5. Overall, I was satisfied with this program



- When asked about the most valuable component of the forum, major themes included the information/results, and the discussion component/audience interaction.
- When asked about how to improve the forum, common responses included having more forums/programs, offering more time for the audience to participate, and a greater focus on nutrition and mental health.