



SEWA-AIFW (Asian Indian Family Wellness)

Project SAHAT (South Asian Health Assessment Tool)

-- Health Assessment for the South Asians living in Minnesota



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1. Executive Summary

This report presents findings from the Minnesota South Asian Health Assessment Tool (SAHAT) survey, including recommendations for policy, research, and practice to address health disparities as well as approaches to integrate the health needs and culture of South Asians into the mainstream health care system.

1.1 Background

The South Asian population in Minnesota has more than doubled since 2000 (21,925) compared to 2010 (44,461). According to the 2010 Census, the South Asian population is the second largest Asian immigrant group in Minnesota with over 44,000 South Asians currently living in Minnesota (Council on Asian Pacific Minnesotans, 2012). The South Asian community is comprised of individuals with families of origin from India, Pakistan, Bangladesh, Bhutan, Nepal, and Sri Lanka as well as South Asians whose past generations originally settled in the Caribbean (Guyana, Jamaica, Suriname, Trinidad, and Tobago).

In spite of significant growth in the South Asian population, there is limited data and research on the health issues faced by this growing population. Little attention has been given to both research and programmatic efforts to better understand and address the health and well being of the South Asian community. Federal and state level studies typically aggregate this community with other Asian Pacific Islander groups such as Chinese, Vietnamese, Korean, etc. and as a result, there is a limited understanding of the health issues specifically faced by the South Asians community.

1.2 Methodology

SEWA-AIFW (Asian Indian Family Wellness) partnered with the Center for Applied Research and Educational Improvement (CAREI) at the University of Minnesota-Twin Cities to conduct a health survey specific to the South Asian community living in Minnesota. This collaboration led to the development of Project SAHAT (South Asian Health Assessment Tool) in order to gain a better understanding of the health issues and challenges in this community. This effort was led by the Executive Director of SEWA-AIFW and a Research Associate from CAREI with assistance from CURA undergraduate students, SEWA-AIFW volunteers, and partners. This study recruited over 1154 self-identified Minnesota South Asian adults (18 years or older) to participate in a paper-based or online survey. The University of Minnesota's Institutional Review Board approved this study. The survey gathered information on (1) health status, (2) lifestyle, (3) health care access, and (4) demographic information. The survey did not collect any personal information (i.e., name, birth date, SSN, address, etc.).

The survey participants included various ages (ranging from 18 through 70 plus), education levels (ranging from less than high school to post graduate degree), and income levels (ranging from \$25,000 to over \$250,000). In order to support the community with limited English speaking skills, the survey was translated into Hindi, Urdu, and Punjabi. Various techniques and approaches to data collection were implemented to ensure broad community participation.

1.3 Key Findings

1. Chronic issues such as diabetes, high cholesterol, and high blood pressure are prevalent in the South Asian community living in Minnesota. Twelve percent of the total participants indicated that they have diabetes, 18% of the total participants indicated that they have high cholesterol, and 14% of the total participants indicated that they have high blood pressure. South Asians living in Minnesota have higher rates of diabetes (12%) compared to the overall population living in Minnesota (7%).
2. The percentage of people with these chronic health issues is higher among participants aged 51 or above.

Health Issue	Age	Percent
Diabetes	51 and older	33% (1 in 3)
High Cholesterol	51-60	37% (1 in 3)
	61-70	42% (2 in 5)
	71 and older	51% (1 in 2)
High Blood Pressure	51-60	35% (1 in 3)
	61-70	44% (2 in 5)
	71 and older	65% (3 in 5)

3. Fifty percent of the participants were either overweight or obese based on western BMI guidelines (Underweight = BMI <18.5, Normal weight = BMI 18.5–24.9, Overweight = BMI 25–29.9, Obese = BMI of 30 or greater). Based on BMI standards for South Asians set by the World Health Organization (WHO) (Overweight = BMI 23-25 and Obese = BMI of 25 or greater), 73% of participants were either overweight or obese. Since even a little excess body fat can significantly increase one's risk of developing diabetes and heart disease, the WHO lowered the BMI limits for South Asians in 2004 to more accurately reflect risk for this population.
4. South Asians living in Minnesota have lower rates of attending wellness checks compared to the overall Minnesota population. For example, 56% of South Asian women reported having had a recent pap smear compared to 88% of all women in Minnesota (MN). Similarly, 60% of South Asian women reported participating in a recent mammogram compared to 81% of all women in MN. South Asian men were also less likely to have received a recent prostate cancer screening, with 26% undergoing a recent prostate cancer screening compared to 40% of all men in MN.
5. Drinking was more prevalent than smoking in the South Asian community living in MN. Only 4% of the participants indicated that they currently smoked, while 33% of the participants indicated that they currently drink alcohol.
6. The following proportions represent participants who reported being either “very dissatisfied” or “dissatisfied” with a recent health care visit because they felt the health care provider did not understand the South Asian:
 - Diet (18% of participants)
 - Culture (19% of participants)
 - Genetic disposition (16% of participants)
 - Family support structure (16% of participants)
 - Religious beliefs (16% of participants)

1.4 Recommendations and next steps

The health survey is the first step in understanding the health issues prevalent in the South Asian community living in Minnesota. Based on the findings from this research, SEWA-AIFW will work with the community to create awareness and implement various programs to improve the overall health of the community. This report will also be distributed widely to health care providers and legislators to increase their awareness of health issues in the South Asian community and start a dialogue about ways to reduce health disparities and make the health care culturally more competent.

The following section includes some key recommendations based on the results of the SAHAT survey.

- **Community Organizations:**
 - **Create programming that is focused on increasing:**
 - awareness about chronic health issues, mental issues, and long term impact (including genetic disposition);
 - participation in preventive care and health screening; and
 - participation in outdoor activities including exercise (especially with those who are pre-diabetic or have a family history of health issues).
- **Health Care Providers:**
 - **In working with South Asian clients:**
 - increase awareness of South Asian culture and develop culturally specific training materials;
 - provide diet guidelines suitable for South Asian clients by developing the United States Department of Agriculture’s “My Plate” based on South Asian diet; and
 - develop effective methods for educating the Minnesota South Asian community on how to effectively navigate the American health care system.
- **Legislators:**
 - **While prioritizing projects, resources, and funds**
 - commit research dollars with a focus specific to the South Asian community living in MN;
 - disaggregate data, to understand issues specific to the South Asian community living in MN; and
 - commit funds and resources related health equity initiative to meet the needs of the underserved and vulnerable South Asians living in Minnesota.
- **Mental Health Professionals:**
 - **Work with community organizations to:**
 - engage MN South Asian community members to come up with new ideas and approaches to remove stigma and denial around mental health;
 - educate the MN South Asian community on signs and behaviors related to mental illness and depression;
 - provide information on available resources; and
 - create a support structure for people in need.

Next Steps:

- Disseminate information among key stakeholders such as health care providers, community members, health advocates, policy makers, social workers, etc.
- Develop best practices to foster effective partnerships between key stakeholders who are working on eliminating health disparities. This includes developing a health tool kit that can facilitate awareness building and education on South Asian health issues.
- Community based health and wellness programs have been proven to be highly effective in combating health disparities; part of this includes identifying and leveraging existing programs around community health.
- Develop culturally competent training materials for health care providers that includes content specific to working with the South Asian population.
- Identify the role of faith-based organizations in creating health initiatives in the community. In many cultural communities, faith-based organizations function as catalysts in both initiating and sustaining long-term changes in the community. In the case of South Asian health, implementing both awareness and education programs through these organizations can be highly effective as well.
- Work with peer support groups such as cultural clubs and social organizations to create health initiatives as part of their annual programming, which is an effective way to address some of the health discrepancies within the South Asian community.
- Partner with public health organizations and policy organizations to establish resources for research, education, and interventions on eliminating South Asian health disparities that are crucial to bring about the desired changes.

2. Introduction

2.1 Background Information on South Asians in the United States & Minnesota

The South Asian Health Assessment Tool (SAHAT) study was conducted in 2013 by SEWA-AIFW (Asian Indian Family Wellness) in partnership with Center for Applied Research and Educational Improvement (CAREI), University of Minnesota in order to raise the visibility and understanding of the key health issues facing the South Asian community in Minnesota.

SEWA-AIFW (SEWA) is a non-governmental, non-profit organization committed to bringing total family wellness to the South Asian community in Minnesota. Through information gathered via their monthly health clinics, SEWA became concerned about the chronic health issues in the South Asian community such as cardiovascular disease, hypertension, obesity, and diabetes and wanted to gain a better understanding of how these health issues affect the community.

2.1.1 History of South Asian Immigration to the United States

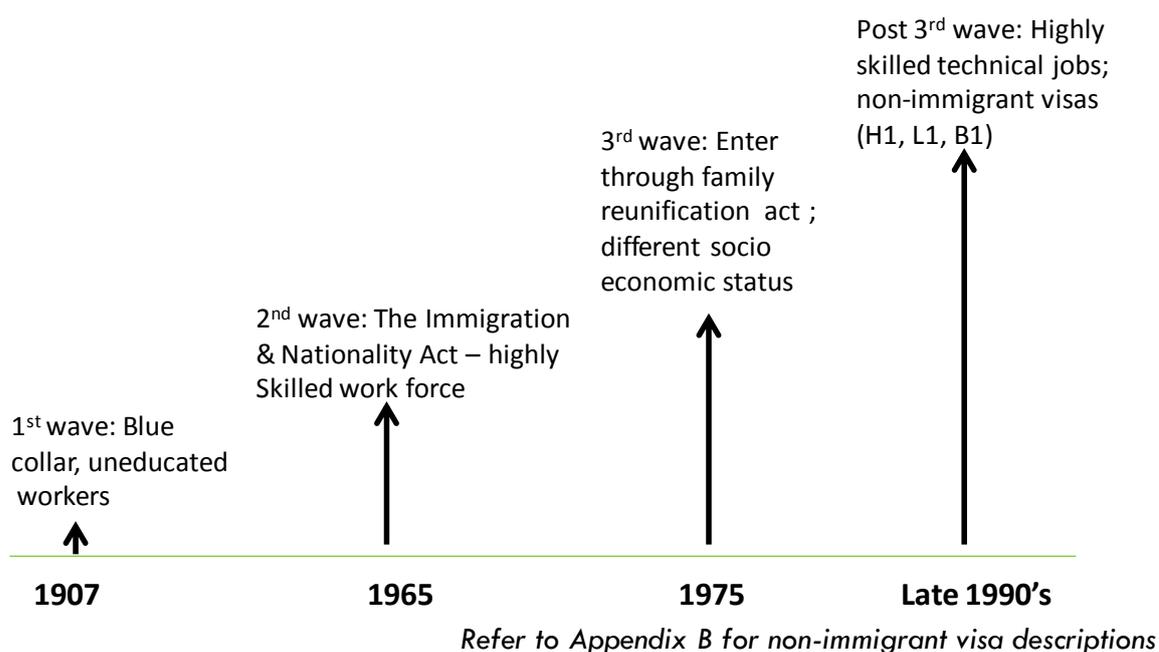
The census of United States enumerates that about 3.4 million South Asians were living in the United States as of 2010 (U.S. Census Bureau, 2010). The most significant wave of South Asian migration to the United States occurred around the turn of the 20th century, the majority of which was facilitated by the U.S. Immigration and Nationality Act of 1965 (Kelkar, 2012). This Act was largely a state sponsored response to meet the perceived gap in science and technology and to create a technological response to Russia's Sputnik adventure (Prashad, 2000). The passage of this historic piece of legislation allowed for highly skilled workers from South Asian countries to meet the labor shortages in several professional sectors, including medical doctors, scientists, and engineers in the United States (Kelkar, 2012). The need to staff medical professionals in the newly placed Medicaid and Medicare programs also facilitated this larger policy response. Changes in immigration policy in 1970 and 1990 created stringent norms for high skill workforce entry into the United States and, although highly qualified professionals continued to immigrate, the numbers began to decline (Prashad, 2000). Unlike the first wave of immigrants in the early 20th century, which was comprised mostly of men who settled in the western coast of the United States to work as farm labor and migrant workers, the post-1965 migrants (i.e., second wave) were comprised of a complex mix of social identities and reflected diversity in occupational skills.

The third wave of South Asian immigration happened in the context of family reunification efforts. This group of immigrants represented a cross section of identities from South Asia and arrived under compelling circumstances unlike the high skilled labor workforce from the previous decades. Many of these immigrants began working class jobs such as employment in convenience stores, motels, and as taxi drivers. The socio-economic status of this group varied greatly from the established public perception about South Asians as an upwardly mobile group.

The most recent influx of immigrants (i.e., post 3rd wave) from South Asia has been part of what is referred to as the "Information Technology (IT) boom". Between 1995 and 2000, a wave of well-educated immigrants arrived in the U.S. to pursue higher education and

employment opportunities as part of the increasing technology sector growth. Forty-four percent of all H1-B specialty occupation visas (under which large numbers of Indian IT firms sent their employees for on-site project work) were people of Indian origin. This most recent group of South Asian immigrants tended to move to metropolitan areas of the United States where the technology industry is more prevalent, resulting in significant growth for this minority community (Vyas, Chaudhary, Ramiah, & Abbasi, 2010).

It is important to contextualize this brief history of immigration by South Asians in order to frame understandings on health and wellness among members of this community now living in Minnesota.



2.1.2 Diversity in the South Asian Communities based on country of origin & socioeconomic level and the myth of 'model minority'

The South Asian community in the United States includes individuals from different national origins, namely Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, and Sri Lanka. The South Asian diaspora, or generations of South Asians who had earlier settled in other parts of the world such as Africa and Europe and have lived there inter-generationally, are also inferred to in this identity group (South Asian Americans Leading Together (SAALT) & Asian American Federation (AAF) 2012). Indians are, by far, the largest South Asian group living in the United States followed by Pakistanis, Bangladeshis, Nepalis, Sri Lankans, Bhutanese, and Maldivians (SAALT & AAF, 2012). Between 2000 and 2010, the South Asian population grew by about 81% nationally, with the highest increase recorded in the Bhutanese population followed by Nepali, Maldivians and Bangladeshis (SAALT & AAF, 2012).



There is tremendous diversity among the South Asian population in terms of religious beliefs and practices, languages spoken, cultural beliefs, and value systems.

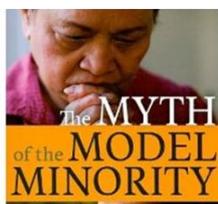
- Some of the common languages spoken among the South Asian diaspora are Hindi, Urdu, Bangla, Sinhalese, Nepali, Burmese, and Tamil.
- Some of the common religious traditions among this community are Hinduism, Islam, Buddhism, Christianity, Jainism, and Zoroastrianism.

Please note that the languages and religious denominational practices that have been outlined here are not exhaustive; rather, they reflect only a slice of the diversity within the South Asian community. Despite the diversity within the different groups, South Asians share some common cultural traits (such as language, religious beliefs, and family values) that have allowed for the consolidation of a South Asian identity (Asian Pacific Islander American Health Forum, 2006).

South Asians tend to reside in metropolitan areas in the United States and 80% of the entire population is concentrated in 30 metropolitan statistical areas (MSA). New York/New Jersey, the San Francisco Bay Area, Chicago, Los Angeles, and Washington, DC Metro Area are the MSA's with the largest numbers of South Asians in the United States. The community is generally perceived to be thriving on many socio-economic, and health indicators; they are characterized as a highly successful immigrant group. This characterization has allowed for the proliferation of the notion of the "model minority" among South Asians (Vyas et al., 2010).

The concept of the "model minority" was created to characterize the Asian American community as a highly successful racial group that has assimilated through their hard work, dexterity, and law-abiding behaviors (Lee & Joo, 2005). The term first emerged in the 1960's during the civil rights movement and has been associated with racial stereotyping that fosters myths about the community by underplaying the significant disparities in health and educational achievements within the group (Chao, Chiu, Chan, Mendoza-Denton, & Kwok, 2013). The history of South Asian immigration to the United States clearly establishes the different trajectories of immigrants between the second and third wave of immigration. Unlike

the second wave of immigrants, third wave immigrants arrived here under considerable economic hardship, which created a very different social, economic, and health mobility from the one espoused by the “model minority” myth.



The “model minority” myth has serious consequences for the health outcomes of South Asians because it oversimplifies the connection between wealth and health in the community (Vyas et al, 2010). It also undermines the lack of English proficiency in the community as well as the presence of a myriad of social problems such as poverty, lack of access to health care, and educational disparities (Vyas et al, 2010). About 50% of Bangladeshis, 32% for Pakistanis, and 23% of Indians in the U.S. live in households with limited English proficiency (SAALT & AAF, 2012). Overall, about 13% of all Asian Americans in the United States live in poverty; one in four Bangladeshis live in poverty, while one in five Pakistanis live in poverty (Vyas et al., 2010). The model minority myth is a misleading characterization framed out of aggregates based on the entire Asian American population without paying much attention to specific disparities between the heterogeneous community members.

2.1.3 Factors affecting health care access for South Asians in the U.S. (role of social support, myths and level of acculturation)

With the rapidly increasing South Asian population in the United States there is a general interest in understanding the context of health care access, needs, and health outcomes of South Asians. The publication of *A Brown Paper: Health of South Asians Living in the United States* in 2002 was a significant step in bringing national attention to specific health care issues facing the community. About 21% of South Asians, compared to 18% of all Americans, do not have health insurance coverage (SAALT & AAF, 2012). This is of particular importance given the context of the U.S. health care system, where availability of insurance coverage often serves as the gateway for standard primary care. As a result, a significant number of South Asians are left without access to routine care (Kao, 2010). Approximately 40% of the South Asian population under age 65 report not having a regular source of health care (Vyas et al., 2010). This lack of access and utilization of care is particularly important given the context of health hazards that are prevalent among the South Asian community. For example, the incidence, prevalence, and morbidity rates from coronary artery diseases are about 50% to 300% higher among South Asians when compared to all Americans (Summary Report, 2010). Similarly, a study by Misra et al. (2010) found that 43% of Indians had high cholesterol levels. There is a high prevalence of diabetes in the South Asian population, which disproportionately affects the quality of life for South Asian patients (Summary Report, 2010). The high incidence of cancers and tuberculosis also present the South Asian community with particular health risks here in the United States (Health Summary, 2010).

Unfortunately, access to quality health care is not necessarily easy within the South Asian community. Several factors such as language barriers, cultural barriers, nature of the health care system, provider-patient discordance in language and beliefs, poverty and lack of access to health insurance, residential segregation, and lack of access to health information are some of the possible causes for health disparities between South Asians and mainstream Americans. Patel, Phillips-Caesar, & Boutin-Foster (2012) identified six categories of beliefs that posed the largest barriers in changing the diet and exercise behaviors of South Asians: gender roles, body image, physical activity misconceptions, cultural priorities, cultural identity, and explanatory models of disease.



Acculturation is often cited as a determinant of health behaviors and outcomes among immigrant populations. The research on South Asians and health clearly demonstrates that acculturation can impact dietary habits and physical activity as immigrants begin to lose touch with their traditional cultural norms. This trend is particularly common among first and second generation immigrants (Sharma, 2006; Joshi et al., 2007). For many South Asian immigrants, the fear of losing one's cultural beliefs and values in the midst of western beliefs creates a particular tension between health beliefs and health outcomes (Patel et al., 2012). This acculturative stress, induced as a result of the immigration experience, can have a significant impact on physical and mental health outcomes for South Asians. Unless implemented with community support and culturally sensitive tools, most behavior modification strategies to engage community members in positive health behaviors are unsuccessful (Patel et al., 2012).

Most studies on acculturation are quite linear and they only take into account length of stay and language proficiency while discounting other important indicators impacting acculturation, such as the experience of racism and discrimination and its impact on upward mobility, and the loss of cultural pride (John, de Castro, Martin, Duran, & Takeuchi, 2012). Many studies on immigrant health experiences have cited social support as an important factor for good health. The loss of traditional extended family structure, kinship supports, and geographical and cultural displacement create significant challenges and impact health outcomes. Many elders in the South Asian community report feeling socially isolated, change in gender roles create stress for both men and women, and there is additional stress associated with conforming to dominant language skills and western cultural norms (Vyas et al., 2010). In order to contextualize South Asian health, it is important to understand the role of acculturation and social support on the health of the population.

2.1.4 Characteristics of the South Asian population in Twin Cities, MN

The Asian population in Minnesota makes up approximately 4% of the total state population. The largest South Asian group in Minnesota is of Asian Indian descent and makes up approximately 15% of the total Asian population (Kao, 2012). The other South Asian communities living in Minnesota immigrated from Sri Lanka, Pakistan, Nepal, Bangladesh, and Bhutan.

Most of Minnesota's Asian population live in the metro areas of Minneapolis and St Paul, but there are sizeable numbers living in suburban areas as well. Among the South Asians living in Minnesota, Bangladeshis account for the highest Limited English Proficiency skills (LEP) with 46%, followed by Pakistanis with 26%, Indians with 22%, and Sri Lankans with 22% LEP.

While 42% of the overall Asian population in Minnesota earned a Bachelor's degree, there is a wide range of education among the ethnicities. In Minnesota more than 55% of Indian, Pakistanis, and Sri Lankans hold a Bachelors degree, while 47% of Bangladeshis earned a Bachelor's degree (Kao, 2012). Among the South Asians living in Minnesota, 23% of Pakistanis and Bangladeshis lack health insurance and 12% of Indians are uninsured (Kao, 2012). Even though the average household income for Asians in Minnesota was higher than Whites per-capita, this is not an accurate portrayal of the community because a large number of household members work in Asian families (Kao, 2012). Poverty rates were highest among Bangladeshis at around 20%, followed by Pakistanis (15%), Sri Lankans (9%), and Indians (8%) (Kao, 2012).

2.2 Rationale

In order to understand the magnitude and the extent of the health issues facing the South Asian community in Minnesota, SEWA-AIFW (also known as SEWA) reviewed similar regional studies from other parts of the United States.

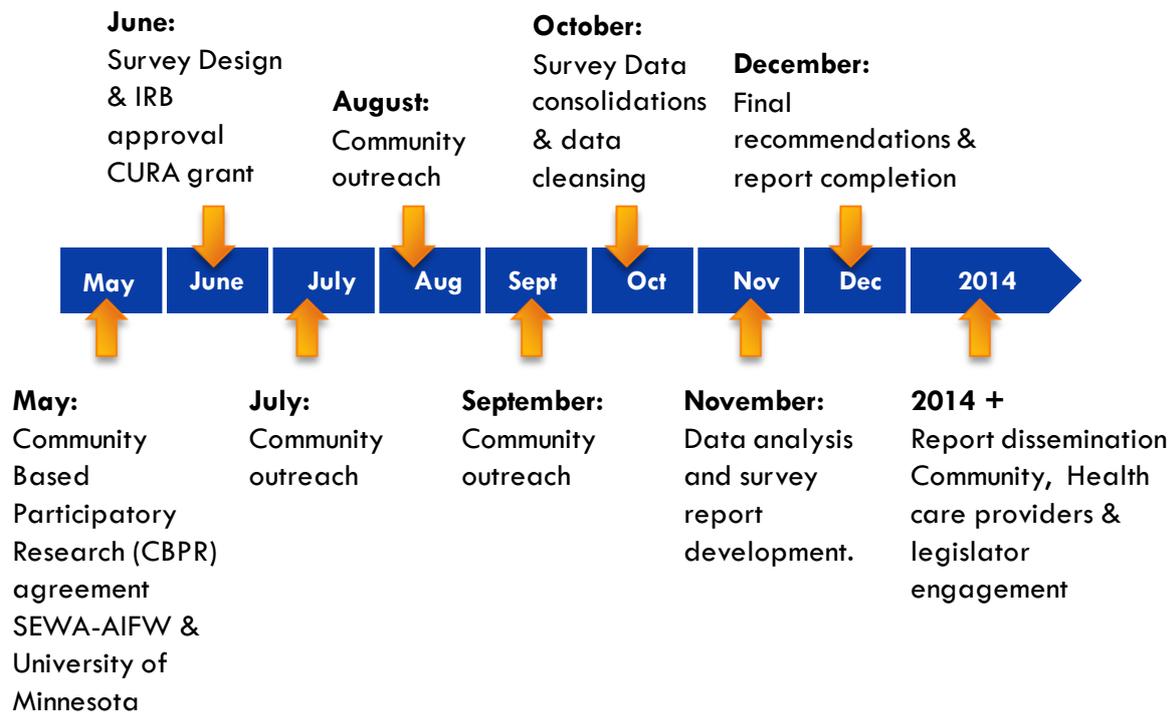
- a) In 2010, Project SAHNA (South Asian Health Needs Assessment) was conducted in Washington D.C area to better understand the health needs, behaviors, and perceptions of South Asians living in Washington, D.C (Vyas, Chaudhary, Ramiah, & Abbasi, 2010)
- b) Health care issues affecting South Asians in the United States were explored by South Asian Americans Leading Together (SAALT) in 2009. According to their report, South Asians confront a range of health issues, many of which are similar to the overall population in the United States, but also include other issues that affect community members at higher rates. Primary health concerns for South Asians include heart disease, diabetes, cancer, and tuberculosis (SAALT, 2009).

SEWA felt that these studies had limitations and were not comprehensive. SEWA wanted to get an accurate representation of the South Asians living in Minnesota and evaluate any differences between Minnesota and other regional studies.

- a) The South Asian population in Minnesota has doubled to 44,000 between 2000 and 2010, and 75% are first generation South Asians. Compared to New York City, Chicago, and Washington DC, the growth in the South Asian population in Minnesota is more recent due to high demand for highly skilled workforce.
- b) The weather in Minnesota is different from the East or West coasts where such studies were conducted. South Asians living in this cold northern state have to face many more unique adjustments to diet and lifestyle.

In 2013, SEWA decided to develop and conduct a comprehensive health survey (SAHAT – South Asian Health Assessment Tool) specifically for South Asians living in Minnesota in order to gain a better understanding of the health issues and challenges faced by this community.

2.3 SAHAT Project Timeline



3. Methodology

3.1 Research Questions

The research questions for this study were:

1. What is the perceived health status of the South Asian community in MN? Is there a gender difference in the perception of health status?
2. What are the chronic health issues faced by the South Asian community in MN? Are there any difference in the health issues by gender, age, income, education, number of years in the USA, lifestyle, health care access, and health behavior?
3. What is the BMI (overweight and obese levels) in the South Asian community living in MN? Does it differ by age, gender, income, education, and lifestyle?
4. What are the lifestyle choices (smoking, drinking, exercise, meditation, and fast food intake) that are being made in the SA community? Are there any differences in the lifestyle by gender, age, education and income?
5. What is the preventive health care and health screening behavior of the South Asian community in MN?
6. What is the status of mental health issues for the South Asian community in MN?
7. What are the health care barriers faced by the South Asian community in MN (diet, culture, family support, interpretation service, health information, etc.)?

3.2 Research Methods and Design

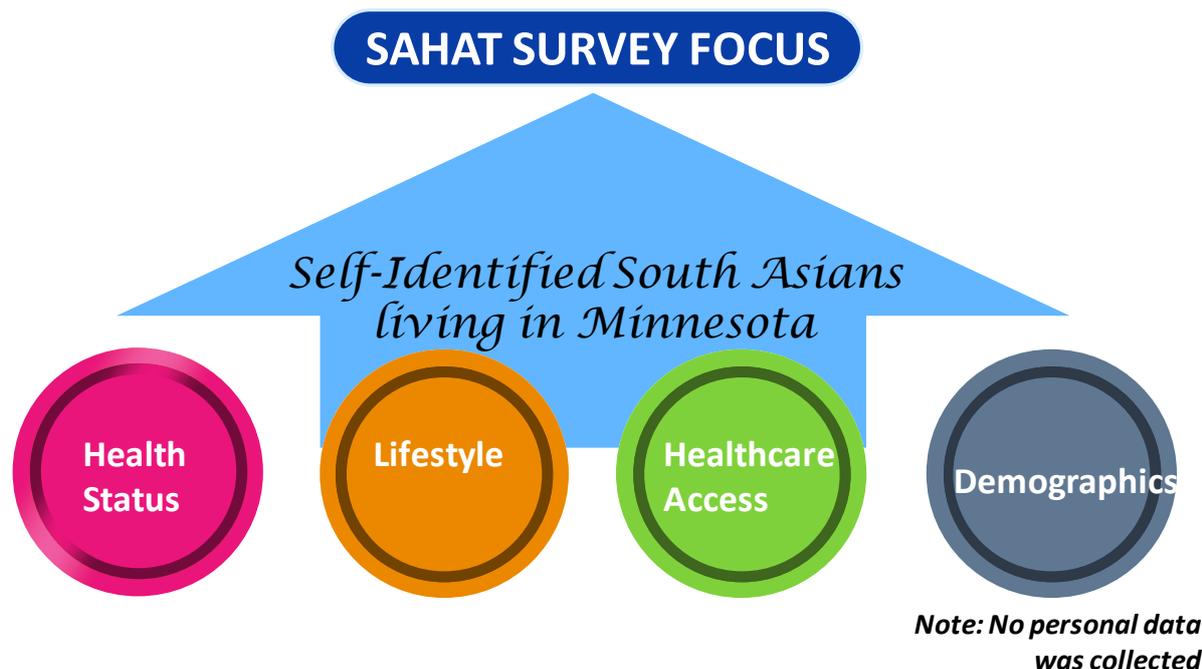
This study originated from SEWA-AIFW, who has been working in the South Asian community in Minnesota for 10 years. The Executive Director of SEWA approached the Center for Applied Research and Educational Improvement (CAREI) to provide assistance in developing and implementing this research study on the health status of South Asians in Minnesota. It was decided that a survey would be the appropriate methodology for data collection to gain a baseline understanding of the health issues that are prevalent within the South Asian community.

The Executive Director of SEWA and a Research Associate at CAREI developed the survey instrument. The survey was then piloted and input was provided from community members from the South Asian community. CAREI obtained approval for this study from the University of Minnesota Institutional Review Board.

3.3 Research Instrument

The survey consisted of 58 questions about general health status, lifestyle, health care access and attitudes, and demographics. Example questions include “How would you describe your health status?” and “Have you ever had any of the following conditions or illnesses?”

SEWA and CAREI administered the survey to South Asian individuals 18 years of age and older residing in Minnesota. The data was collected from June of 2013 through September of 2013. The survey was distributed through two methods: online survey administration using Survey Monkey and paper-based surveys. Since the South Asian population has much linguistic diversity, the paper survey was translated into Hindi, Punjabi, and Urdu languages.



(See a sample copy of the SAHAT instrument in Appendix A)

General *Health Status* section focused on physical and mental health status. The *Lifestyle* section included questions about exercise, smoking, drinking, and dietary habits. The *Health Care Access* section asked about health insurance, primary care doctor, regular physical check-ups and screenings, sources of health related information, barriers to seeking health care, and satisfaction with the health care provider's knowledge of the South Asian culture. *Demographic information* section included questions about gender, age, place of birth, country of origin, immigration status, length of stay in the U.S., marital status, zip code, level of education, income, employment status, type of profession, and religious affiliation.

3.4 Research Sample

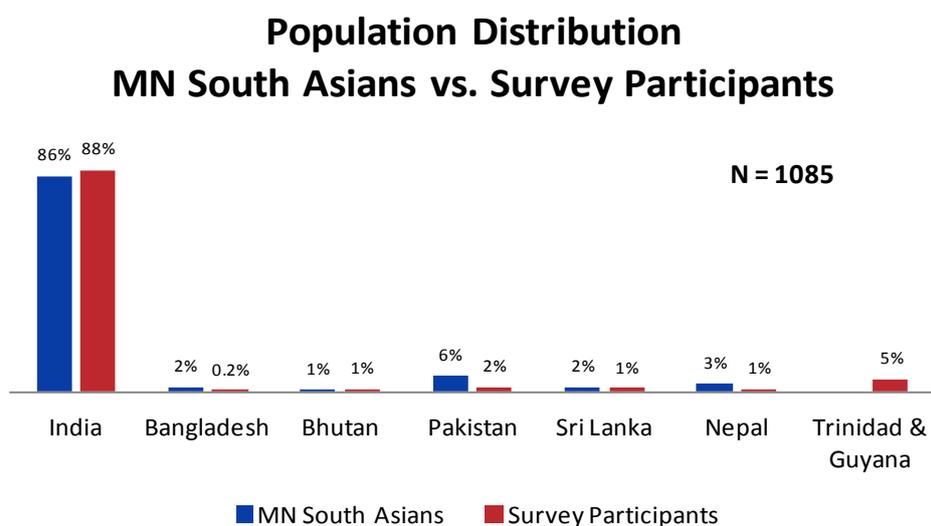
This study used a snowball sampling design, which is a non-probability, convenience sampling technique where existing study subjects recruit future subjects from among their acquaintances. Thus, the sample group appears to grow like a rolling snowball. As the sample builds up, enough data is gathered to be useful for research. This sampling technique is often used in hidden populations, such as the South Asian community in Minnesota, which are difficult for researchers to access. The survey was open from June 19, 2013 to September 30, 2013. The sample size of 1,154 is based on the number of surveys collected in this time period.

The participants included South Asian men and women living in Minnesota aged 18 years and older from various income levels, education levels, and social economic status. A total of 1,154 completed surveys were collected.

Below were the demographics of the sample:

1. **Gender distribution of MN South Asian survey participants (N=1154):** 94% (N=1084) of the participants provided information about their gender. Of those participants, 55% were male and 45% were female.

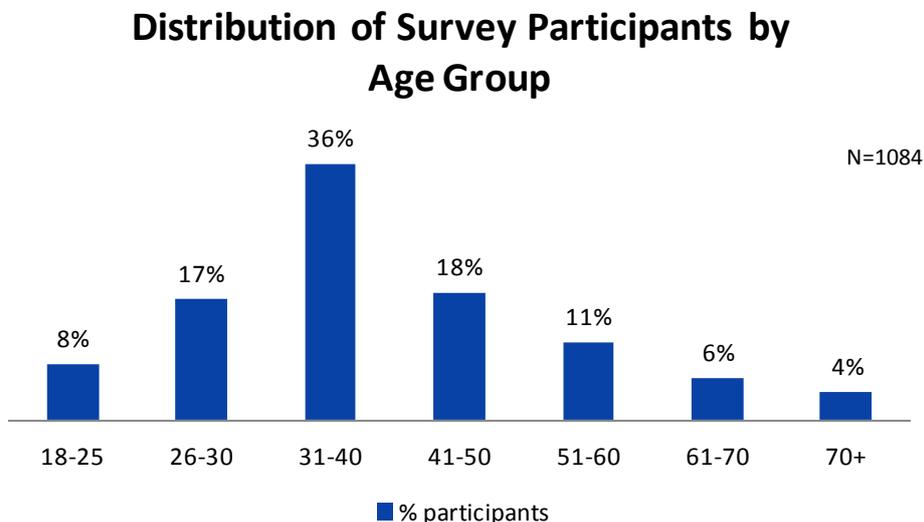
2. **Immigration Status of MN South Asian survey participants (N=1154):** 93% (N=1076) of the participants provided information on their immigration status. Of those participants, 45% are United States citizens, 19% hold a green card, 23% have a non-immigrant visa such as H1 or L1 (see appendix B for description of visa status), 7% have a non-immigrant dependent visa (H4, L2 or F2), 3% have a student visa, and 3% indicated other (e.g., visitor, Uvisa, etc.).
3. **Marital Status of MN South Asian survey participants (N=1154):** 93% (N=1072) of the participants provided information about their marital status. Of those participants, 14% of the participants were single, 83% married, 1% divorced, and 2% widowed.
4. **Professions of MN South Asian survey participants (N=1154):** 90% (N=1043) of respondents indicated their profession. Of these respondents, 41% work in a technical and engineering field, 11% hold jobs related to general management, 8% work in business and finance, 7% work in medical, research, or academia, 6% retired, 4% small business owners, 2% teachers, 2% home makers, 2% lawyers, 1% unskilled labor, 1% students, and 6% indicated other (e.g., insurance, non-profit, lab technician etc).
5. **Religious Affiliations of MN South Asian survey participants (N=1154):** 57% (N=721) of the participants indicated that they were religious. Of these participants, the most prevalent religions were Hindu (72%), Sikh (14%), Christians (i.e., Roman Catholic, Christian, Presbyterian, and Catholic) (6%), Jain (4%), Islam (1%), Buddhist (1%), and other (2%).
6. **State distribution within India of MN South Asian survey participants (N=1154):** 70% (N=821) of respondents indicated from what state in India they immigrated. Of them, 22% were from Andhra Pradesh, 11% from Tamilnadu, 10% from Maharashtra, 7% from Karnataka, 6% from Punjab, 4% from Gujarat, 4% from Kerala, 3% from Delhi, 3% from Uttar Pradesh, 2% from Madhya Pradesh, 2% from West Bengal, and 3% were from other states.
7. **MN South Asian Survey Participant Distribution compared to the South Asian Population in Minnesota (Figure 1):**



Participation in the SAHAT survey is representative of the distribution of the South Asian population in Minnesota. There are over 42,000 South Asians living in Minnesota, according to

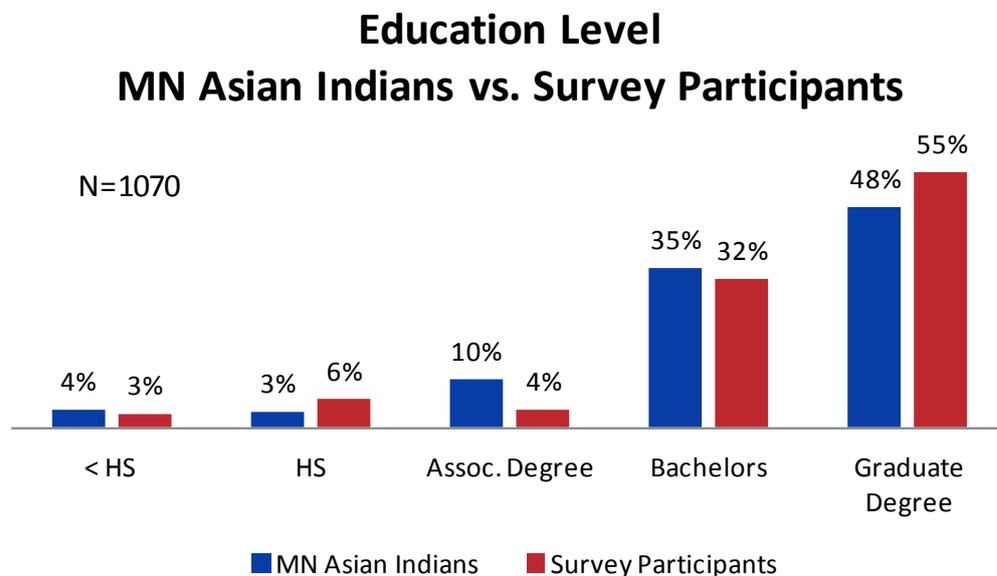
2010 U.S. census data (Council on Asian Pacific Minnesotans, 2012) [Graphic illustration South Asian population in Minnesota].

8. Age distribution of MN South Asian survey participants (Figure 2):



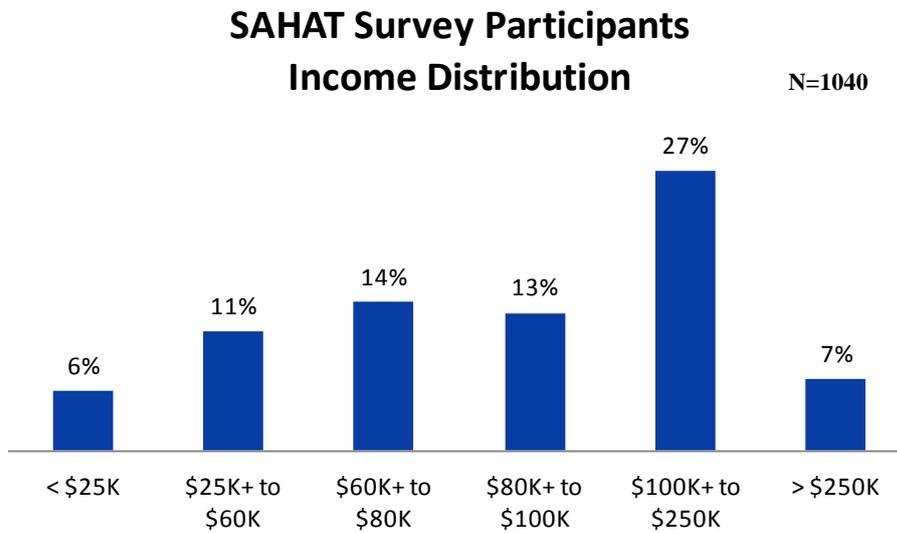
The age group distribution shows a standard distribution across ages with the majority of participants being aged 31-40. According to 2010 census data, 64% of Asians are of a working-age (18 to 64). This distribution is representative of the Minnesota Asian American population (U.S. Census Bureau, 2011).

9. Education levels of MN South Asian survey participants compared to MN South Asian Indians (Figure 3):



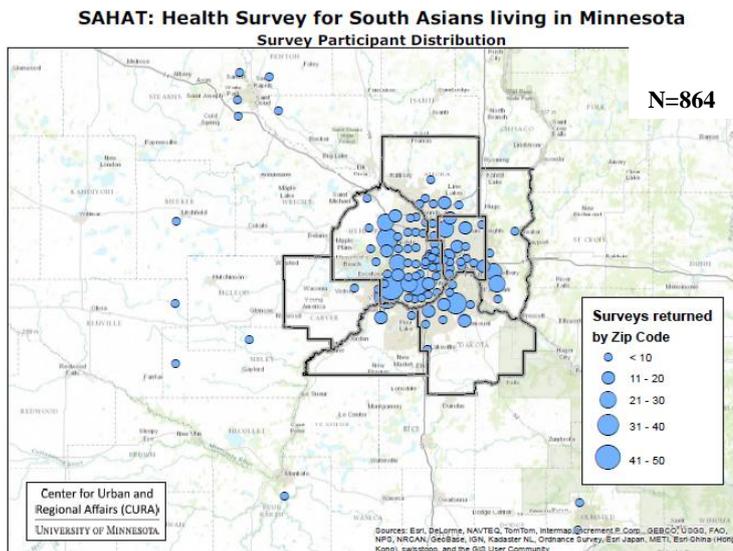
The distribution of the survey participants by education level is representative of the MN Asian Indian population (U.S. Census Bureau, 2011).

10. Income level distribution of MN South Asians survey participants (Figure 4):



This graph shows the income distribution of the participants. This survey was able to capture the respondents from various income levels.

11. Distribution of MN South Asian survey participants by county (Figure 5):



The distribution of the survey participants by county is representative of the MN South Asian population. The majority of South Asians live in Hennepin, Dakota, Ramsey, and Anoka Counties.

3.5 Methods of Data Collection

The data collection effort was led by the Executive Director of SEWA-AIFW and the Research Associate from CAREI, along with undergraduate students (sponsored by Center for Urban and Regional Affairs (CURA) from University of Minnesota, SEWA-AIFW volunteers, and SEWA partners.

SEWA, with the help of two undergraduate research assistants from University of Minnesota, collected 1,154 completed surveys from the South Asian community. Data was collected using a modified snowball sampling method. SEWA has a large reach within the South Asian community and reached out to its community members. Researchers targeted community events that drew large populations of South Asians. Additionally, online searches were conducted to locate local South Asian community events and gatherings. Once researchers reached out to organizations and groups of people, they were referred to additional organizations and groups of people who were then contacted to see if they could distribute the survey.

Various techniques and approach were implemented to ensure broad community participation.

- Community outreach at various social events: Distributed flyers to those who were interested in taking the survey online. The community members also had an option to complete the paper survey onsite.
- Cultural and religious organizations member listserv: Through their listservs, South Asian social and cultural organizations encouraged their members to participate in the online SAHAT health survey. The members were reminded multiple times in order to encourage participation.
- South Asian businesses: Dropped off flyers at various grocery stores and Indian restaurants.
- The community members completed paper surveys at various religious centers such as SV temple, Hindu Mandir, Gayathri Mandir, Vishnu Mandir, and Gurudwara. The religious leaders played an important role in educating their members in terms of importance of participating in the survey and encouraged them to participate.
- Leveraged various listserv such as University of Minnesota professors, South Asian Student Association, etc.
- Friends and contacts of the SEWA volunteers emailed the flyer with survey details and encouraged them to participate in the survey.
- Worked with community leaders from Pakistani, Sri Lankan, Nepalese, and Bhutanese organizations and sought their help to get their community members involved in the survey.

Reaching the community through social events and religious centers helped SEWA reach the broader population with different education levels and social status.

3.6 Methods of Data Analysis

Online data was entered electronically through Survey Monkey. The two research assistants and SEWA's Executive Director entered the paper and pen survey data manually. The data was cleaned by CAREI and SEWA. The two databases were merged and descriptive statistics were run to locate data entry errors. Data analysis was performed by CAREI using the

Statistics Package for Social Sciences (SPSS) computer data analysis software. Descriptive statistics and crosstabs were run to gain a better understanding of the health status of the South Asian community. As the data were being analysed, additional analyses were conducted based on questions that emerged during preliminary analyses.

3.7 Limitations of the Study Design

The sampling method used for this study was effective in getting to the select few people of the target population because there was no systematic way of locating the members of the South Asian community in Minnesota. By contacting participants through social and religious organizations, the researchers were able to gain the trust of the community members so they were comfortable enough to participate in a survey that asked for personal health information. In the social sciences it is sometimes beyond the researcher's ability to recruit a randomly selected representative sample and snowball method might be inevitable. One needs to take the results of this study keeping in mind that there is no way to know if the sample reached was actually representative of the true South Asian population in MN.

Three other limitations of the survey were:

- **Not all questions were open-ended.** The majority of the questions provided a list of choices for the participants to select from, rather than the option to write-in their individual response. Although many questions had an option for participants to select "other" and write in their response, this could have potentially constrained the collection of full array of choices.
- **All of the statistics presented are based on self-report data.** The self-report of being diagnosed with a certain disease could not be confirmed using medical records, which meant that the actual rates of these illnesses in the MN SA population may be over- or under-reported by the SAHAT survey respondents.
- **The method of collecting data on chewing tobacco.** Survey data on the tobacco smoking section began with the question whether the participants smoked tobacco. If they answered "no", they were directed to skip the rest of the questions in that section. If the participants chewed tobacco and if they responded "no" to the question, then details about their chewing tobacco habits may be underreported.

4. Data Analyses

4.1 Research Questions

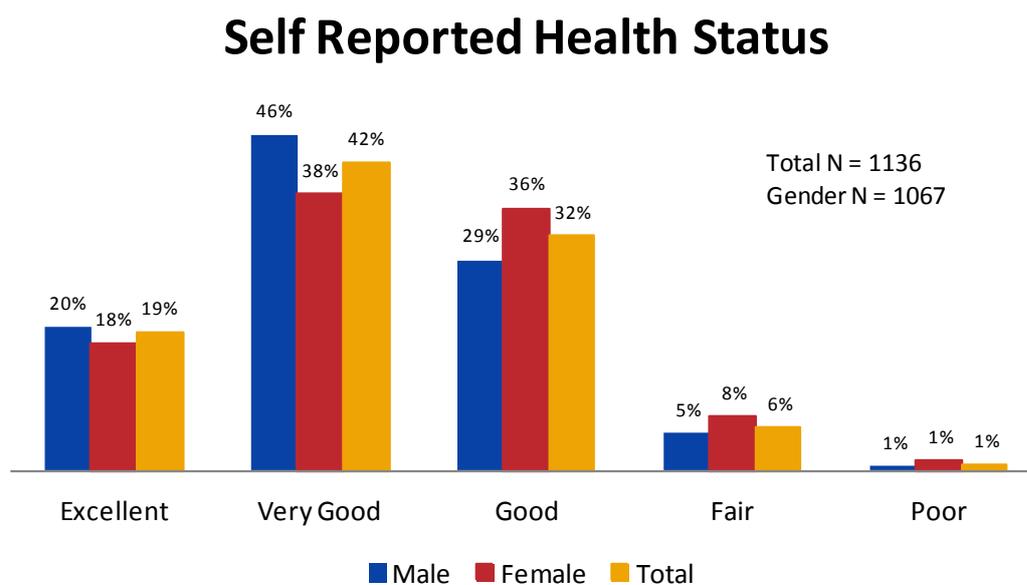
The research questions for this study were:

1. What is the perceived health status of the South Asian community in MN? Is there a gender difference in the perception of health status?
2. What are the chronic health issues faced by the South Asian community in MN? Are there any difference in the health issues by gender, age, income, education, number of years in the USA, lifestyle, health care access, and health behaviors?
3. What is the BMI (overweight and obesity levels) in the South Asian community living in MN? Does it differ by age, gender, income, education, and lifestyle?
4. What are the lifestyle choices (smoking, drinking, exercise, meditation, and fast food intake) that are being made in the MN South Asian community? Are there any differences in the lifestyle by gender, age, education and income?
5. What is the preventive health care and health screening behavior of the South Asian community in MN?
6. What is the status of mental health issues for the South Asian community in MN?
7. What are the health care barriers faced by the South Asian community in MN (diet, culture, family support, interpretation service, health information etc.)?

The data analysis was conducted using the number of participants who responded to each question. Therefore, the number of participants varies depending on the question.

4.1.1 What is the perceived health status of the South Asian (SA) community in Minnesota (MN)? Is there a gender difference in the perception of health status?

The self reported health status (Figure 6):

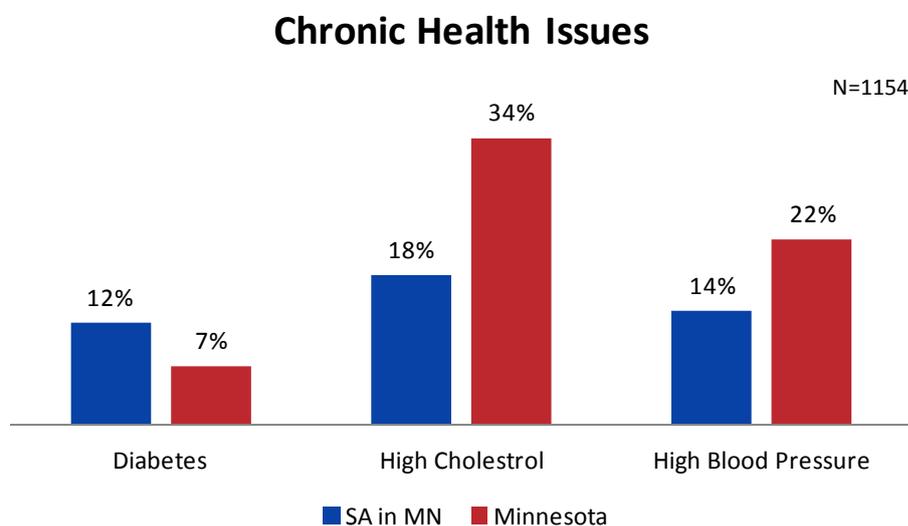


Ninety-one percent of the survey participants (South Asians living in Minnesota) indicated that their health status was excellent, very good, or good. Only 9% indicated that they felt that their health was either fair or poor. These results are similar to the results reported by other Minnesotans. (BRFSS, 2011)

According to The Behavioral Risk Factor Surveillance System (BRFSS) 2011 data, 88% of the respondents in Minnesota self-reported having excellent health, very good health, or good health, and 12% reported having fair health or poor health (Centers for Disease Control and Prevention 2011).

4.1.2 What are the chronic health issues in the SA community in MN? Are there differences in the health issues by gender, age, income, education, number of years in the USA, health care access, and health behaviors?

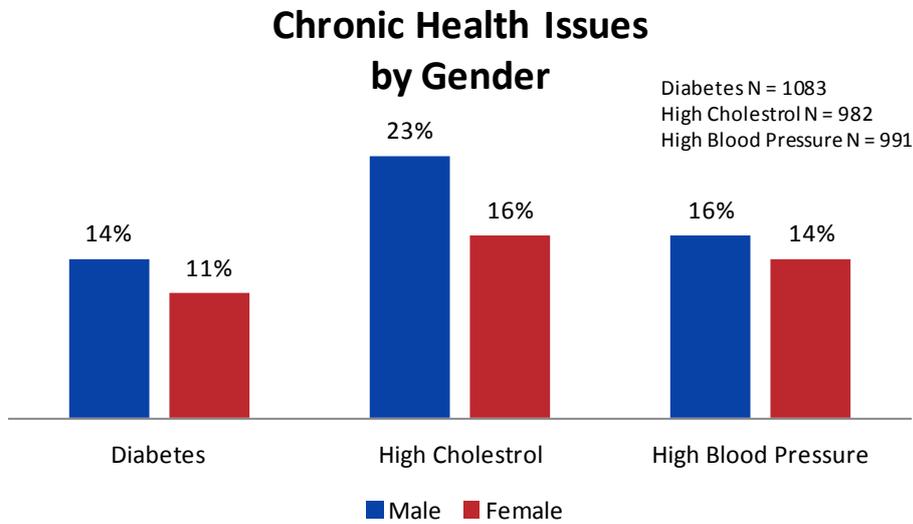
Chronic Health Issues of South Asians living in Minnesota (Figure 7):



This graph compares the chronic health issues reported by the MN South Asian respondents as compared to the general population in Minnesota (Centers for Disease Control and Prevention, 2011). Based on the SAHAT survey, diabetes, high cholesterol, and high blood pressure are the chronic health conditions prevalent in the SA community living in Minnesota.

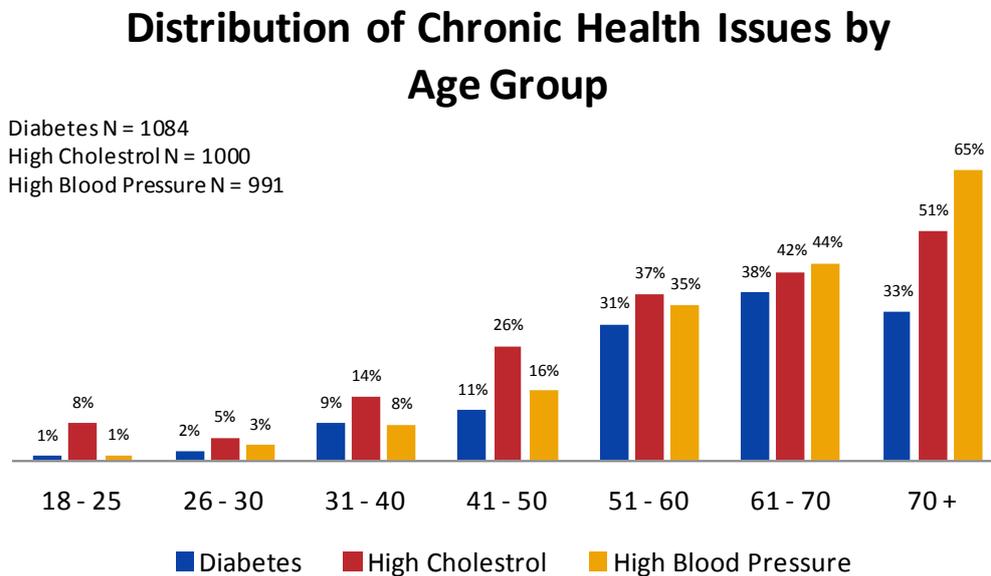
Heart Disease is widely thought to be on the rise in the South Asian population. Another important observation in this regard is that the prevalence seems to be shifting to a younger population and as per some estimates, it is now believed to strike almost a decade earlier in South Asians compared to the Caucasian population. It is also becoming more evident that the South Asian communities may have a worse lipid profile in general and may be genetically more predisposed to developing heart disease. - - Dr. Alok Maheshwari, MD, Interventional Cardiologist, North Memorial Health Care, MN.

Chronic Health Issues of South Asians living in Minnesota by Gender (Figure 8):



When comparing diabetes, high cholesterol, and high blood pressure rates by gender, men were less healthy than women. Almost 1/4th of the men who participated in the survey indicated that they have high cholesterol.

Chronic Health Issues by Age Group (Figure 9):

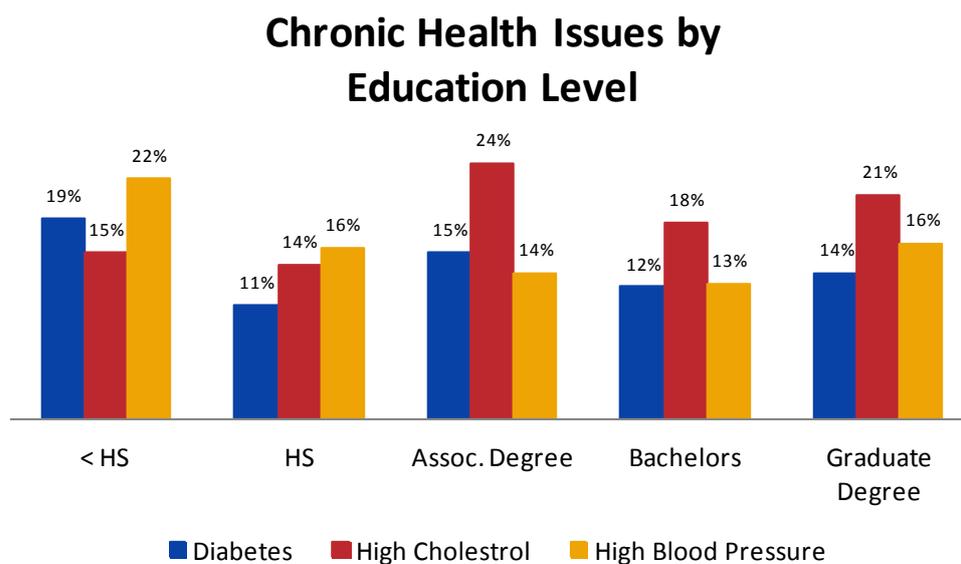


- Based on the survey results, health issues started at a fairly young age. Eight percent of the participants in the age group 18-25 indicated that they had high cholesterol.

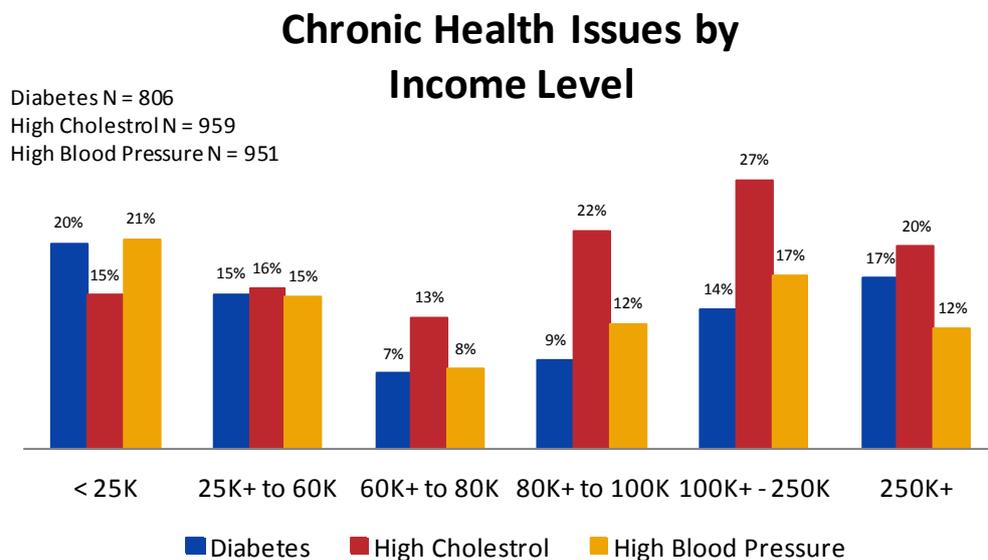
- The prevalence of health issues in the SA population increased with age. The survey results indicate that the health worsened starting at age 51 and by the time they reached 71 or older, 1 in 3 had diabetes, 1 in 2 had high cholesterol, and 3 in 5 had high blood pressure.

Most of the people need to be proactive in identifying the risk factors for heart disease (such as high blood pressure, high cholesterol and or triglycerides, and diabetes), at an early age , so that they can be controlled and thus prevent the development of heart disease at a later age. Most of these risk factors take many years to cause heart disease, so it gives you time to take care of oneself. Now we are seeing a lot of South Asians developing heart disease at their prime in life and thus shorten their life expectancy. Every South Asian should be screened for familial hyperlipidemia during their teen years and to have follow up lipid profile, fasting blood sugar and or Hgb A1C, and blood pressure check every 5 years and more often as they grow older. All persons who are over weight should undergo diet counseling also. This can prevent development of premature coronary artery disease, and ensure a long and healthy life. - - Dr. M. Satya Rao, M.D. Cardiologist , Porter Regional Hospital, Valparaiso, IN.

Chronic Health Issues of South Asians living in Minnesota by Education Level (Figure 10):



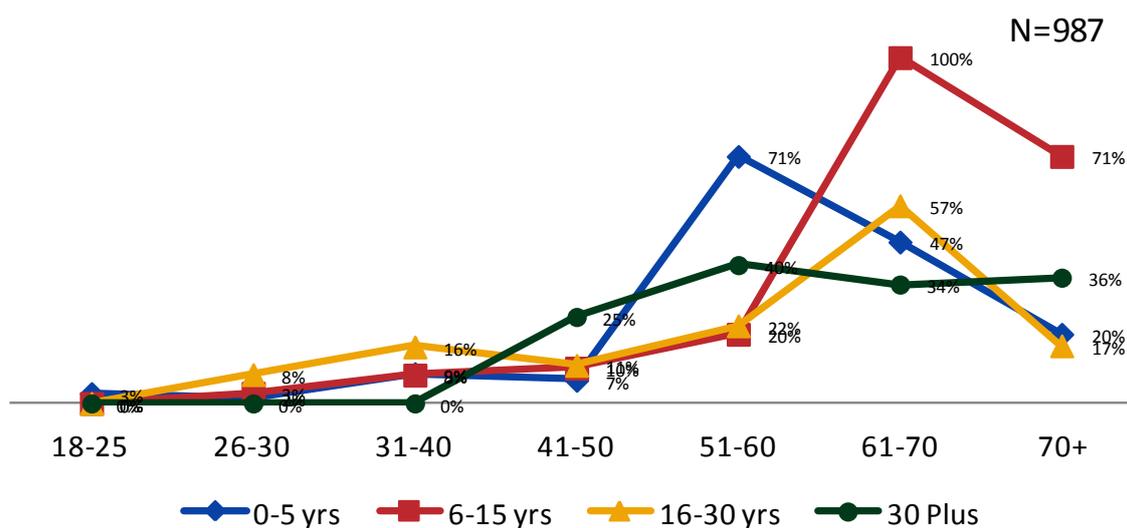
- The prevalence of diabetes and high blood pressure was high among participants with less than a high school education (1 in 5).
- There was no significant difference in the percentage of participants with diabetes and high blood pressure between participants with a high school education and participants with higher education.
- High cholesterol was more prevalent among participants with an education level of associate degree or higher.

Chronic Health Issues of South Asians living in Minnesota by Income Level (Figure 11):

- Participants who reported an income of \$80,001 or greater had a higher percentage of high cholesterol (1 in 5) compared to those with an income less than \$80,000. There is a correlation between high income and high cholesterol.
- Participants with incomes less than \$25,000 had the highest incidence of diabetes (20%) and high blood pressure (21%) amongst all income levels.
- Seventeen percent of the participants with incomes greater than \$250,000 had diabetes, the second highest amongst all income levels.
- High blood pressure was the lowest (9%) among those earning \$60,001 to \$80,000. However, high blood pressure incidence begins to increase among participants with income ranging from \$80,001 to \$250,000.

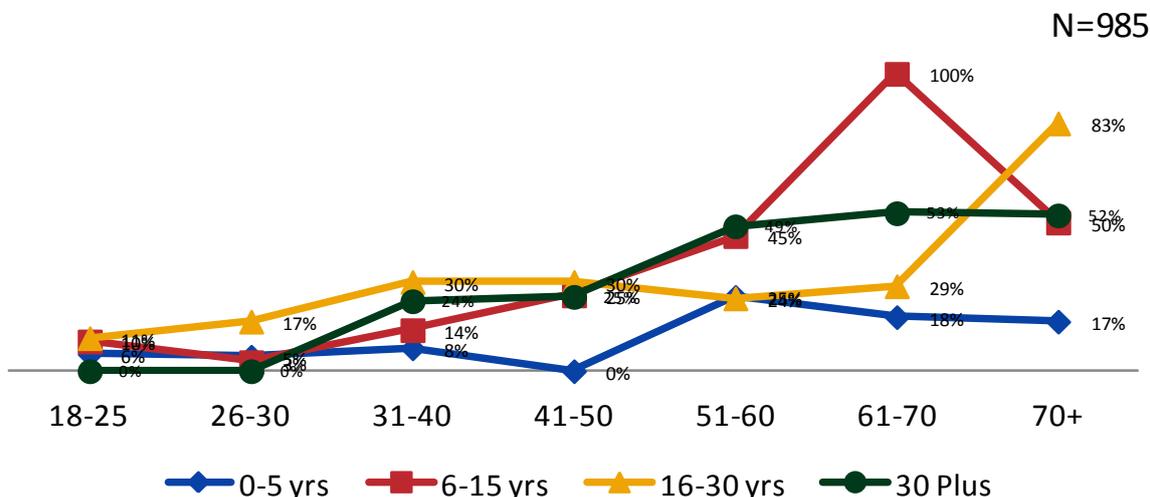
Chronic Health Issues of South Asians living in Minnesota by # of Years in the USA and by age group (Figure 12, 13, 14):

Participants with Diabetes by # of years in the USA & by Age Group



- 0-5 years in the U.S.: 71% of participants aged 51-60 who arrived in the U.S. within 0-5 years had diabetes, compared to 47% of participants aged 61-70. Only 20% of the participants in age group 71 or older had diabetes. The recent arrivals had the highest incidence of diabetes (71%) in the 51-60 age group compared to those participants who had lived in the U.S. longer than 5 years.
- 6-15 years in the U.S.: 100% of the participants who arrived in the U.S. within 6-15 years had diabetes in age group 61-70 compared to 71% in the age group 71 or older. Only 20% of the participant group had diabetes in age group 51-60.
- 16-30 years in the U.S.: 57% of the participants who arrived in the U.S. within 16-30 years had diabetes in age group 61-70, the highest in that group. Eight percent of the participants in age group 18-25 had diabetes.
- 31 years or more in the U.S.: 40% of the participants who have been in the U.S. for 31 years or more had diabetes in age group 51-60, the highest in that group, and 36% in age group 71 or older. Participants who had lived longer than 30 years in the U.S. had the lowest percentage (25%) of diabetes in the age group 41-50.

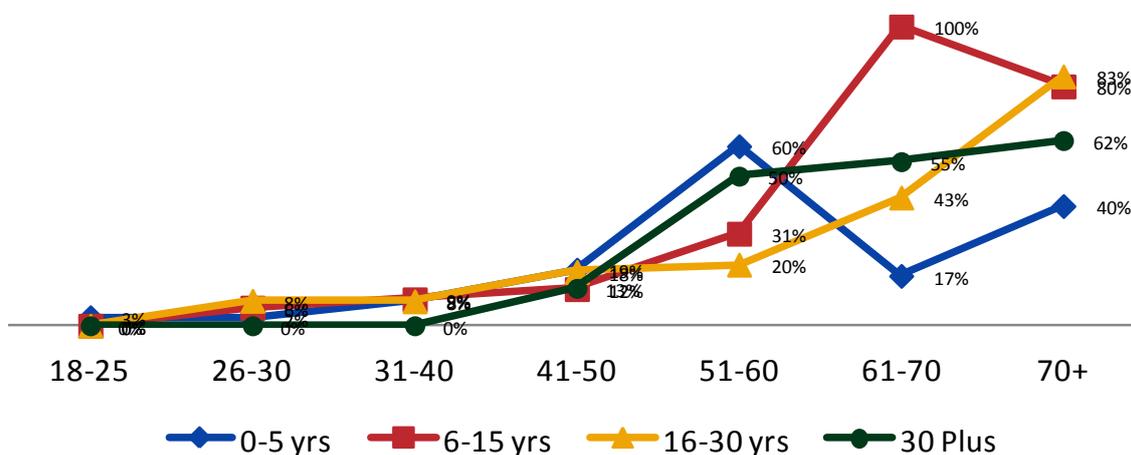
Participants with High Cholesterol by # of years in the USA & by Age Group



- 0-5 years in the U.S.: 24% of participants who arrived in the U.S. within 0-5 years had high cholesterol in age group 51-60 and 18% in the age group 61-70. This group of participants had the lowest level of high cholesterol across all age groups.
- 6-15 years in the U.S.: 100% of the participants who arrived in the U.S. within 6-15 years had high cholesterol in age group 61-70 and 50% in the age group 71 or older. Forty-five percent of the participant group had high cholesterol in age group 51-60.
- 16-30 years in the U.S.: 83% of the participants who arrived in the U.S. within 16-30 years had high cholesterol in age group 71 or older the highest in that group. High cholesterol was prevalent at younger age groups 18-25 (10%) and 26-30 (17%).
- 31 years or more in the U.S.: 53% of the participants who lived in the U.S. for 31 or more years had high cholesterol in the age group 61-70 the highest in that group and 52% in age group 71 or older.

Participants with High Blood Pressure by # of years in the USA & by Age Group

N=979

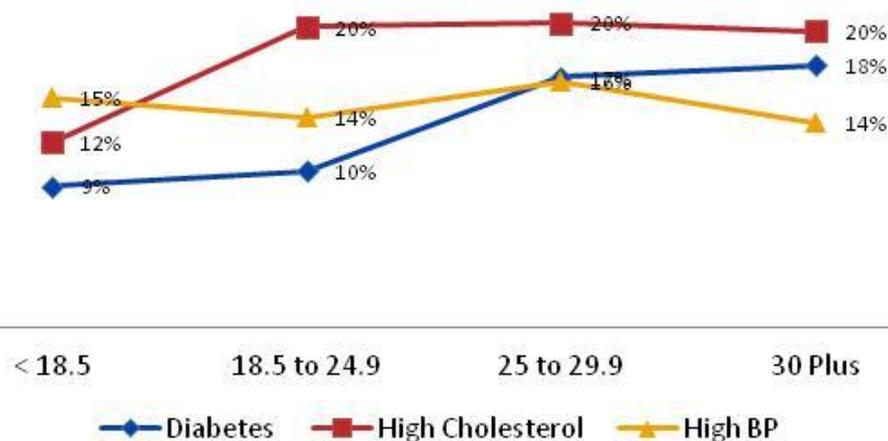


- 0-5 years in the U.S.: 60% of participants who arrived in the U.S. within 0-5 years had high blood pressure in age group 51-60 and 40% in the age group 61-70. This group of participants had the lowest level of high blood pressure in age groups 61-70 and 71 years or older.
- 6-15 years in the U.S.: 100% of the participants who arrived in the U.S. within 6-15 years had high blood pressure in age group 61-70 and 80% in the age group 71 or older. Thirty-one percent of the participant group had high blood pressure in age group 51-60.
- 16-30 years in the U.S.: 83% of the participants who arrived in the U.S. within 16-30 years had high blood pressure in age group 71 or older the highest in that group. High blood pressure was prevalent at younger age groups 26-30 (8%) and 31-40 (8%).
- 31 years or more in the U.S.: 62% of the participants who lived in the U.S. for 31 years or more had high blood pressure in the age group 71 or older the highest in that group and 55% in age group 61-70.

Chronic Health Issues of South Asians living in Minnesota by BMI (Figure 15):

Chronic Health Issues by BMI

Diabetes N=1053, High Cholesterol N = 1047, High Blood Pressure N=1039

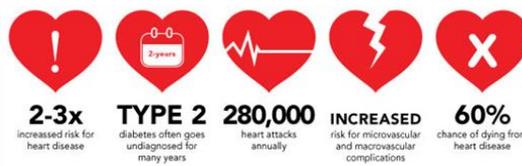


Note: BMI of 25 thru 29.9 is considered overweight and BMI > 30 is considered obese.

- High cholesterol/high blood pressure did not vary with higher BMI.
- There is higher prevalence of diabetes (18% at BMI of 30 plus) with higher BMI.
- Chronic health issues were found to be prevalent across all BMI levels.

Diabetes & Heart Disease By The #s

U.S. DIABETES PATIENTS HAVE:



Other Observations:

- Over 93% of the participants who had these chronic issues indicated that they had health insurance. There is no correlation between access to health insurance and chronic health issues. When participants with chronic health issues were compared to participants without chronic health issues, there was no difference in the percentage of participants who had health insurance in each group.
- When the participant's lifestyle data (i.e., drinking alcohol, vegetarian, meditation, and exercise) was compared between those who had chronic health issues to those who did not have any chronic health issues, there was correlation between high cholesterol and drinking alcohol. Twenty-four percent of the participants who drink alcohol had high cholesterol compared to 18% of the participants that did not drink alcohol but did have high cholesterol. No correlation was found with other lifestyle behaviors.

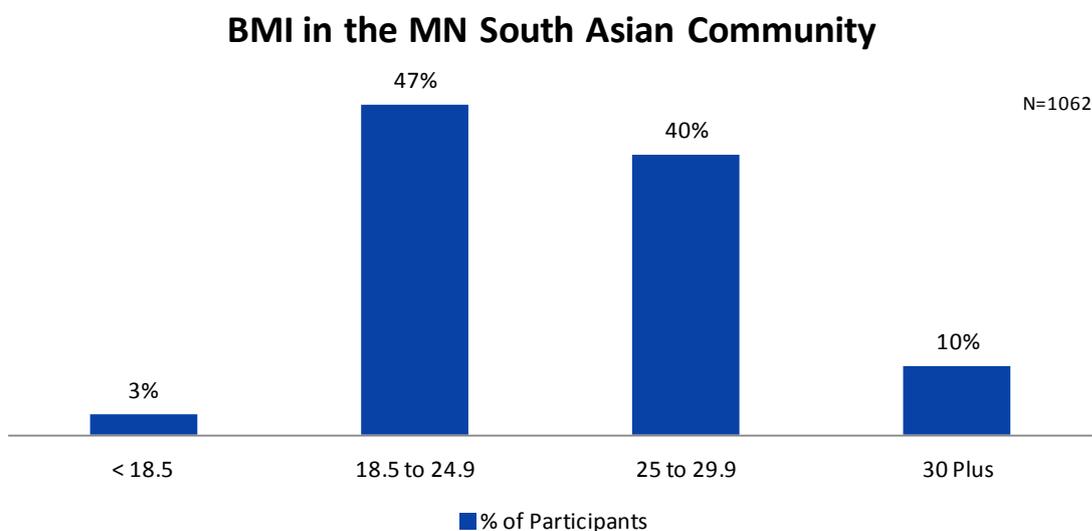
4.1.3 What is the status on BMI (obesity levels) in the SA community living in MN? Does it differ by age, income, education, and lifestyle?

Body Mass Index (BMI) was calculated by taking the participants weight in pounds and dividing it by their height in inches squared and then multiplied by 703.

BMI Categories (based on Western standards) (National Institute of Health, 1998):

Underweight:	<18.5
Normal weight:	18.5–24.9
Overweight:	25–29.9
Obesity:	BMI of 30 or greater

BMI based on Western Standards (Figure 16):



- Over 40% of the survey participants were overweight and 10% were obese.

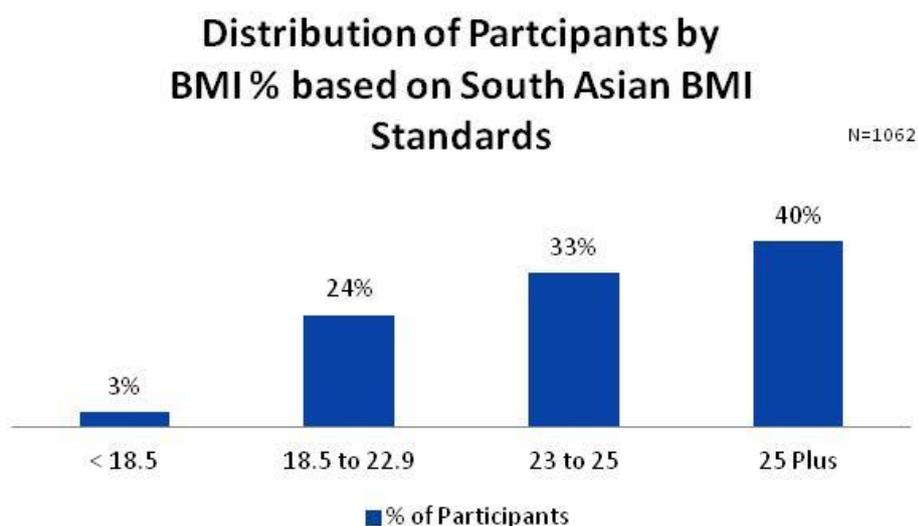
Obesity in Minnesota: 37% of people in Minnesota were overweight (BMI = 25.0-29.9) and 26% were obese (BMI > 30.0) (Centers for Disease Control and Prevention, 2011).

Obesity in U.S.: 38% of people in the U.S. were overweight (BMI = 25.0-29.9) and 28% were obese (BMI > 30.0) (Centers for Disease Control and Prevention, 2011).

World Health Organization (WHO) standards South Asian ranges:

Underweight: <18.5
 Healthy: 18.5 to 23
 Overweight: 23.1 to 25
 Obese: > 25

Since even a little excess body fat can significantly increase one's risk of developing diabetes and heart disease, in 2004 the World Health Organization (WHO) lowered the BMI limits for South Asians to more accurately reflect risk for this population. According to WHO, Asian Indians with a BMI of greater than 23 are considered overweight and a BMI of greater than 25 are considered obese (Palo Alto Medical Foundation, 2013).

BMI based on South Asian Standards: BMI in the MN South Asian community (Figure 17):

- Over 73% of the SAHAT survey participants were considered overweight or obese based on the South Asian BMI standards.

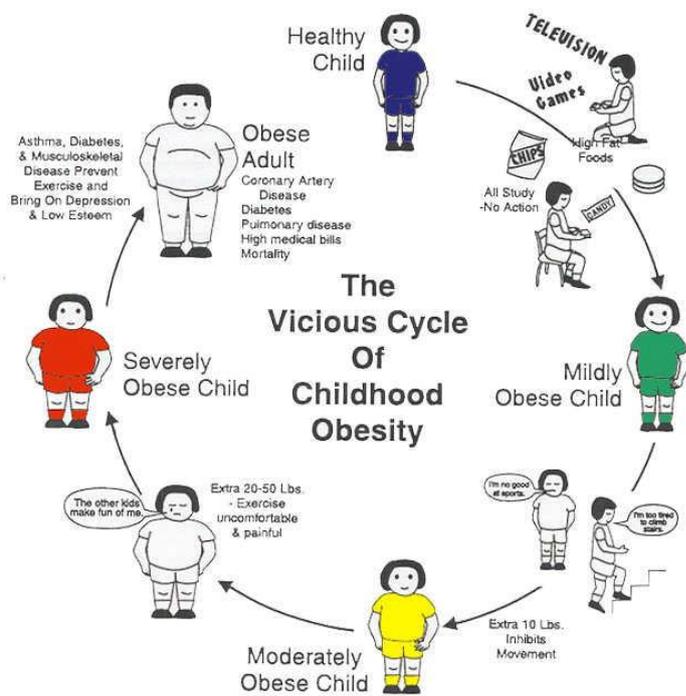
South Asians **may not appear** to be as overweight as other ethnic groups. However, they may have inherited a **gene that makes their bodies store more fat** around their stomach, a factor referred to as central obesity. This type of body fat is linked to a higher rate of diabetes and heart attack. The typical body shape of a South Asian (SA) who is at a high risk for these conditions involves a large stomach with relatively slender arms and legs. SAs were more likely to develop insulin resistance (thus Type 2 Diabetes (T2D) and Cardio Vascular Diseases (CVD)) at a lower BMI than the overall U.S. population. (Tang, Mason, Kushner, Tirodkar, Khurana, & Kandula, 2012).

What other measures exist for body size?

Studies have shown that measurements that involve abdominal fat are more accurate than BMI in assessing heart attack risk in South Asians. One example is the Waist-to-Hip Ratio (WHR), which is calculated by taking the waist circumference (measure around the smallest part of your waist, just above the belly button) and dividing it by hip circumference (the widest part

of the buttocks). A WHR of greater than 0.90 in males and 0.85 in females puts one at a higher risk for diabetes and heart disease (Palo Alto Medical Foundation, 2013).

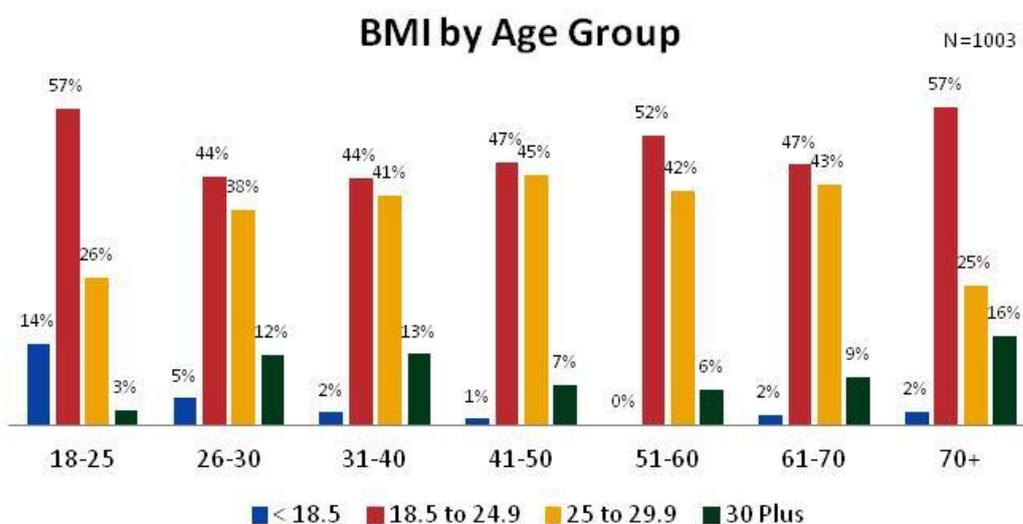
In the United States 11.9 percent of the population has diabetes according to the American diabetes association. However estimated prevalence of adult onset diabetes in Asian Indians is higher at 17-29 percent depending on which age group is studied and the prevalence increases with age. This trend is noted in spite of the fact that Asian Indians have lower body mass index and generalized obesity. Combination of genetics and environment are felt to play a role. Within the Asian Indian community, South Asians are more likely to have truncal obesity, increased waist hip circumference, fatty deposition in liver, making them more resistant to the hormone insulin resulting in increased risk of developing diabetes. - - Dr. Chhavi Chadha MBBS, Primary investigator, Riverside Clinical Research Center, Clinical Endocrinologist, Health Partners Medical Group



The survey only included age group 18 and above, therefore we do not know the magnitude of overweight in South Asians younger than 18 years of age.

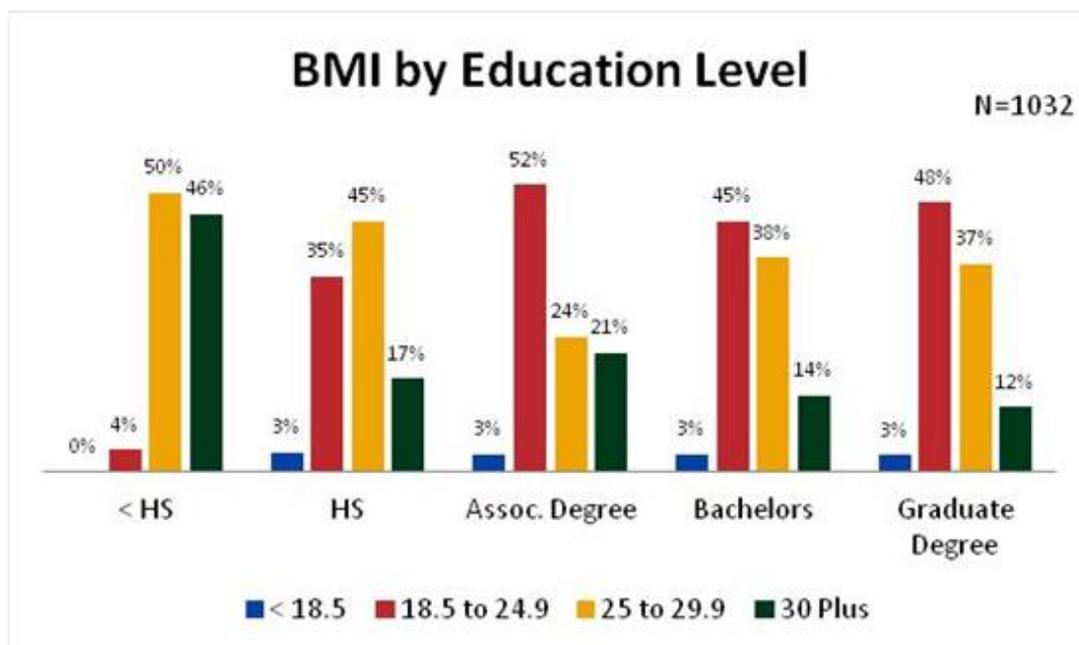
"Some of the common health issues that we encounter in children are obesity, early onset of diabetes and asthma. Ensuring an active lifestyle, limiting screen time for children and teaching them to make healthy choices with foods and beverages are all steps that can be taken to reduce the problem of obesity in our youth. Encourage children to get out and play-even in the winter!" - - Dr. Sandhya Joshi MD, Pediatrician, Allina Clinics, Bloomington MN

BMI of MN South Asians by Age Group based on Western Standards: (Figure 18):



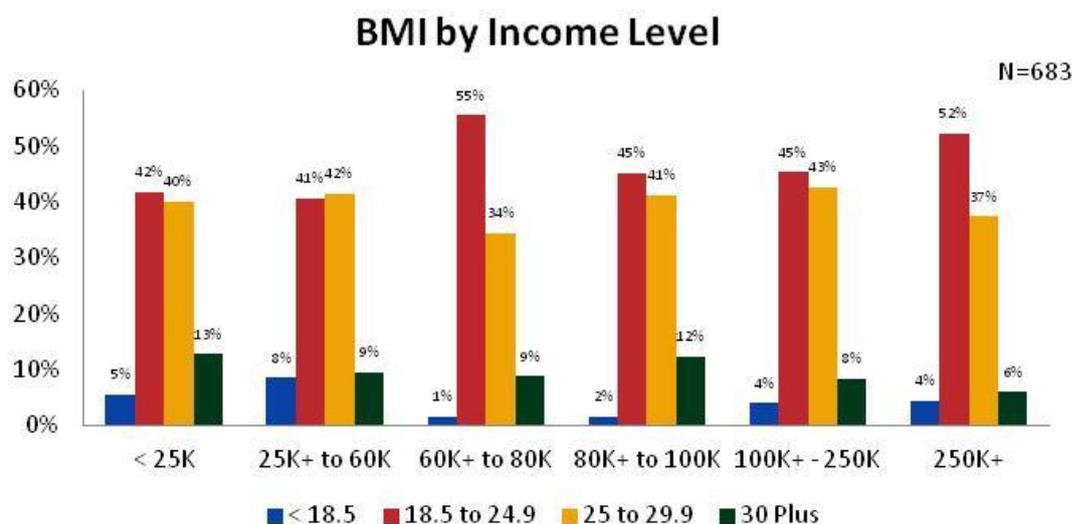
- Except for the age group 18-25, obesity (BMI >30) was a concern for all other age groups. Sixteen percent of the participants in age group 71 and older were obese.
- Two in five of the participants were overweight (BMI 25 to 29.9) in the age groups 26-30, 31-40, 41-50, 51-60, and 61-70 and 1 in 4 were overweight in the age group 18-25.
- Percentage of participants who were obese or overweight (BMI > 25) by age group: 26-30 (50%), 31-40 (54%), 41-50(52%), 51-60(48%), 61-70 (49%), and 71 or older (41%).

BMI of MN South Asians by Education Level based on Western Standards (Figure 19):



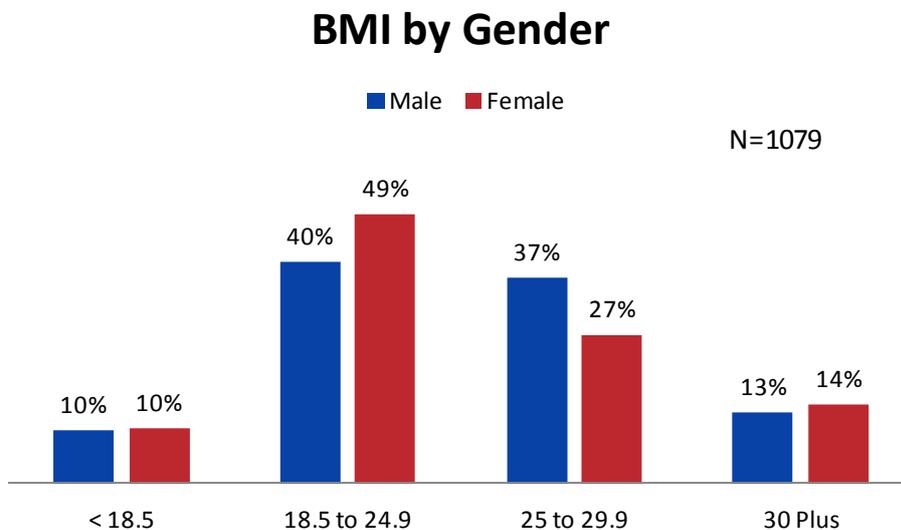
- Ninety-six percent of the participants with less than a high school education were either overweight (BMI = 25 to 29.9) or obese (BMI >30).
- The percentage of obese (BMI >30) participants decreased as level of education increased. The percentage of overweight (BMI = 25 to 29.9) participants decreased initially with higher education but increased at the education levels of bachelors and graduate degrees.

BMI of MN South Asian by Income Level based on Western Standards (Figure 20):



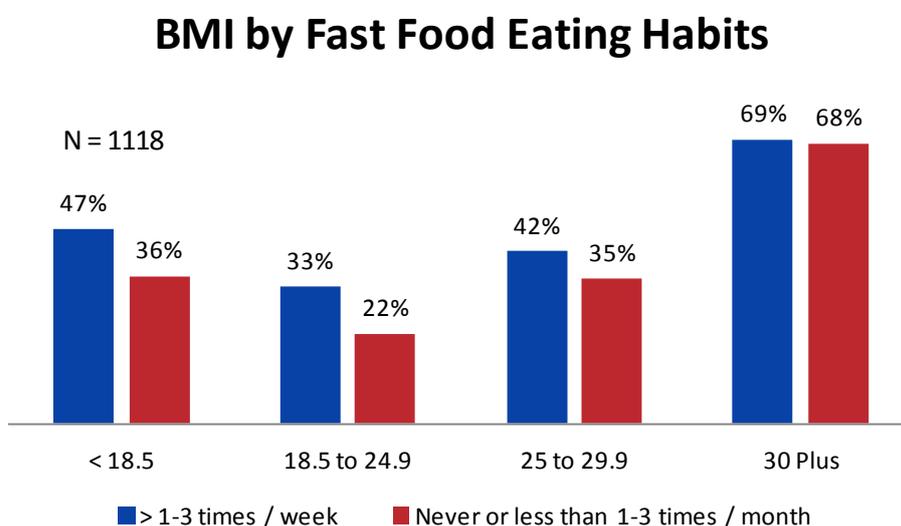
- The percentage of healthy (BMI = 18.5 to 24.9) participants was the highest (55%) at income levels of \$60,001 to \$80,000 and 52% at income levels of \$250,000 or more.
- The percentage of overweight (BMI = 25 to 29.9) participants was the lowest (34%) at income levels of \$60,001 to \$80,000, 40% at income levels less than \$25,000, 42% at income levels \$25,001 to \$60,000, 41% at income levels \$80,001 to \$100,000, 43% at income levels \$100,001 to \$250,000, and 37% at income levels of \$250,000 or more.
- The percentage of participants who were overweight or obese (BMI > 25) was the lowest at 43% at income levels \$60,001 to \$80,000 and income levels of \$250,000 or more. Greater than 50% of the participants were overweight or obese (BMI > 25) at all other income levels.

BMI of MN South Asians by Gender based on Western Standards (Figure 21):

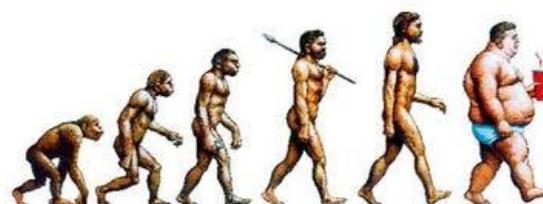


- Thirty-seven percent of men were overweight (BMI = 25 to 29.9) compared to 27% of women. The obesity (BMI > 30) levels were about the same between men and women.
- Forty-nine percent of women had healthy weight (BMI = 18.5 to 24.9) compared to 40% of men.

BMI of MN South Asians by Fast Food habits based on Western Standards (Figure 22):



- The percentage of participants who were obese (BMI > 30) did not vary by their fast food eating habits. However the percentage of people who were overweight (BMI = 25 to 29.9) was higher (42%) with those



participants who eat at fast food restaurants regularly (e.g., everyday, 4-6 times a week, or 1-3 times a week) compared to those participants (35%) who eat at fast food restaurants less frequently (e.g., never or less than 1-3 times per month).

Other Observations:

- Fifty percent of the participants were either obese or over weight (BMI > 25) irrespective of the number of years in the U.S. However, for participants who have lived in the U.S. for over 30 years, this percentage goes down to 38% (N=997).
- The obesity levels were 5% higher for those participants who did not exercise versus those who did exercise (N=1134).

New study strengthens links between everyday stress and obesity. Study using animal model shows stress has impact in the short- term causing metabolic changes in the longer- term that contribute to obesity. Stress can take a daily toll on us that has broad physical and psychological implications. Science has long documented the effect of extreme stress, such as war, injury, or traumatic grief on humans. Typically, such situations cause victims to decrease their food intake and body weight.

Recent studies, however, tend to suggest that social stress--public speaking, tests, job and relationship pressures--may have the opposite effect--over-eating and weight gain. The results suggest that, not only does stress have an impact on us in the short term, it can cause metabolic changes in the longer term that contribute to obesity (Melhorn et al., 2009).

4.1.4 What is the prevalence of thyroid and Vitamin D deficiency in the South Asian community in Minnesota?

Vitamin D N=604	Age Group						
Thyroid N=572	18-25	26-30	31-40	41-50	51-60	61-70	70+
% Taking Vitamin D	17%	12%	15%	26%	38%	35%	72%
% Taking Thyroid	5%	11%	8%	18%	18%	25%	43%

Vitamin D N=539	Income					
Thyroid N=530	< 25K	25K+ to 60K	60K+ to 80K	80K+ to 100K	100K+ - 250K	250K+
% Taking Vitamin D	32%	18%	12%	11%	24%	26%
% Taking Thyroid	8%	10%	11%	15%	12%	14%

Vitamin D N=597	Education				
Thyroid N=568	< HS	HS	Assoc. Degree	Bachelors	Graduate Degree
% Taking Vitamin D	38%	29%	4%	21%	23%
% Taking Thyroid	17%	10%	9%	14%	13%

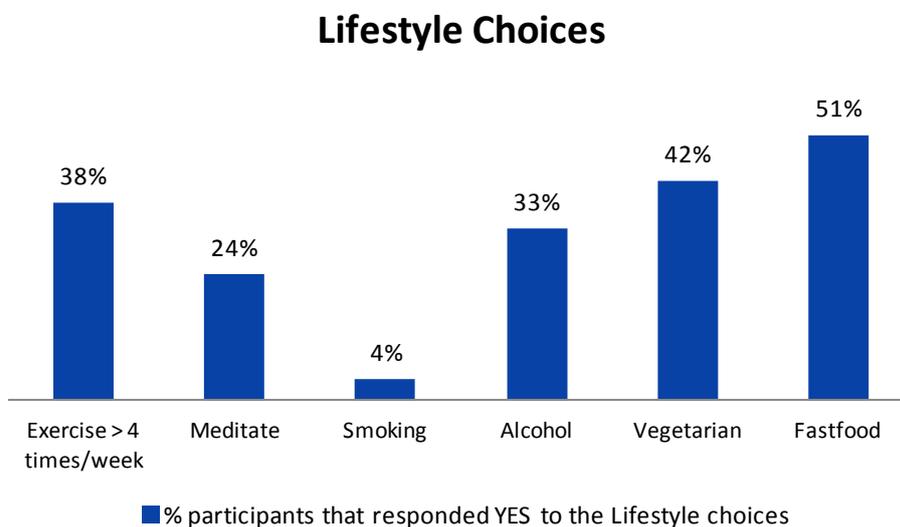
Vitamin D N=601	No of Years in the USA			
Thyroid N=575	0-5 yrs	6-15 yrs	15-30 yrs	30+ yrs
% Taking Vitamin D	10%	19%	33%	43%
% Taking Thyroid	6%	15%	15%	24%

- Twenty-two percent of total participants indicated that they took vitamin D supplements and 13% of the total participants took medication to correct thyroid levels (Vitamin D N=604, Thyroid N=572).
- The percentage of participants taking vitamin D supplement and thyroid medication increased as age increased (Vitamin D N=604, Thyroid N=572).
- The percentage of participants taking a vitamin D supplement is the highest (38%) among participants with less than a high school education and is the lowest among participants (4%) with an associate degree (Vitamin D N=597).
- The percentage of participants taking thyroid medication is the highest (17%) among participants with less than a high school education and is the lowest among participants (9%) with an associate degree (Thyroid N=568).
- The percentage of participants taking vitamin D supplement and thyroid medication increases as the number of years in the U.S. increases (Vitamin D N=601, Thyroid N=575).

Based on my personal observation, most of South Asians living in MN have low vitamin D levels along with high cholesterol and diabetes. South Asian community living in MN is well educated and is interested in managing the health issues with life style modification. Keeping yearly physical appointments and taking medication regularly while working on life style modification will improve life expectancy better than what we see in the third world countries. - - Dr. Ganga Reddy, MBBS (MS), Internal Medicine, Chief of Professional services, Health Partners West clinic, Park Nicollet Health Partners Medical group

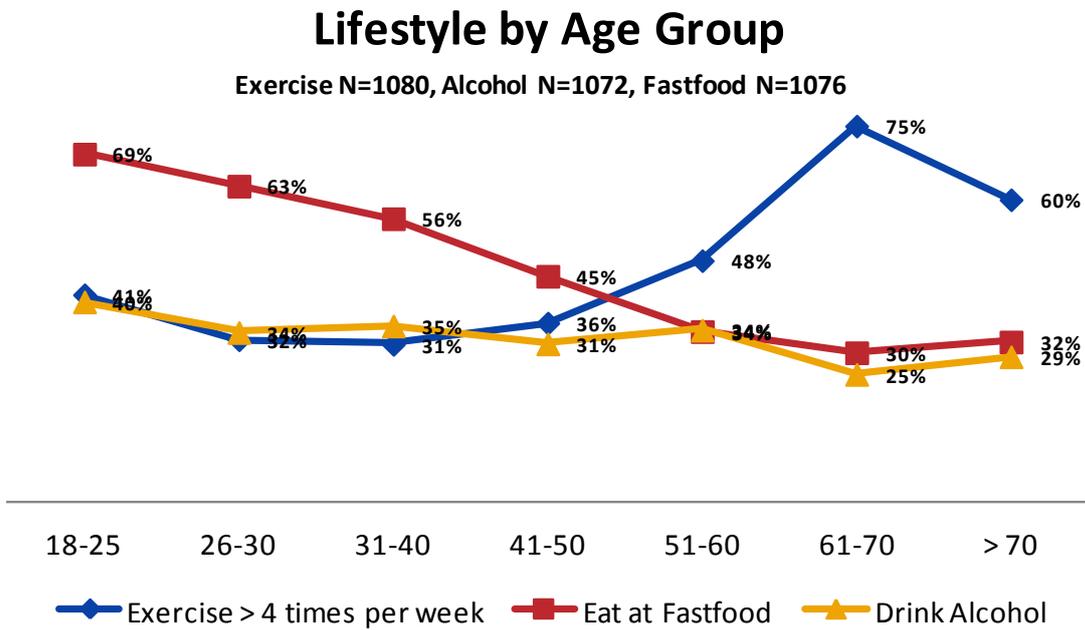
4.1.5 What are the lifestyle choices (i.e., smoking, drinking, exercise, meditation, and fast food intake) in the community? Is there a difference in these lifestyle choices by gender, age, education, and income?

Lifestyle Choices of South Asian community living in MN (Figure 23):



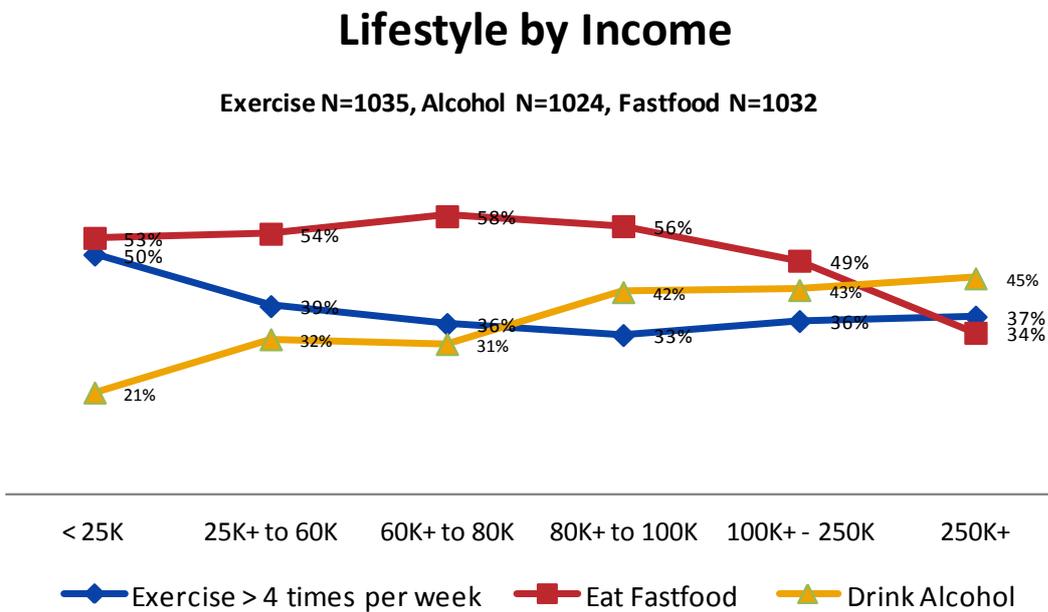
- Ninety-six percent of the South Asians living in MN who participated in the survey indicated that they did not smoke. However, 13% said “yes” when asked “Were you a smoker in the past?” In 2012, according to the Minnesota Department of Health, 19% of all Minnesota adults surveyed indicated that they smoke and 46% indicated that they smoked in the past.
- Thirty-three percent of participants said that they drink alcohol. Of those, 25% indicated that they consume alcoholic beverages four or more times per week. Forty-five percent of men in this group indicated that they consume alcohol compared to 20% of women.
- Twenty-four percent of participants indicated that they meditate. About half of this group (47%) indicated that they meditate 4 or more times per week. Most common forms of meditation were yoga and daily prayers.
- Thirty-eight percent of survey participants indicated that they exercise daily or 4 to 6 times per week. Walking was the most common form of exercise (76%); other popular forms of exercise include yoga (22%), stair climber (18%), weight training (16%), biking (16%), elliptical machines (16%), and gardening (15%). According to the BRFSS survey conducted by the CDC in 2011, 30% of Minnesotans indicated that they participate in muscle strengthening twice per week, 54% of Minnesotans indicated that they participated in aerobic or physical activity for 150 minutes or more per week, and 21% of Minnesotans indicated that they meet the aerobic and muscle strengthening exercise guidelines.
- Fifty-eight percent of participants were non-vegetarians.
- Fifty-one percent of participants indicated that they eat at fast food restaurants. Of those, 17% indicated that they ate at fast food restaurants at least 1-3 times a week or more. Sixty percent of men in this group reported that they ate at fast food restaurants regularly (> 1-3 times per week) compared to 50% of women.

Lifestyle Choices of South Asian community living in MN by Age Group (Figure 24):



- The percent of participants who indicated that they exercise greater than 4 times per week increased in the 61-70 and the 71 or older age group.

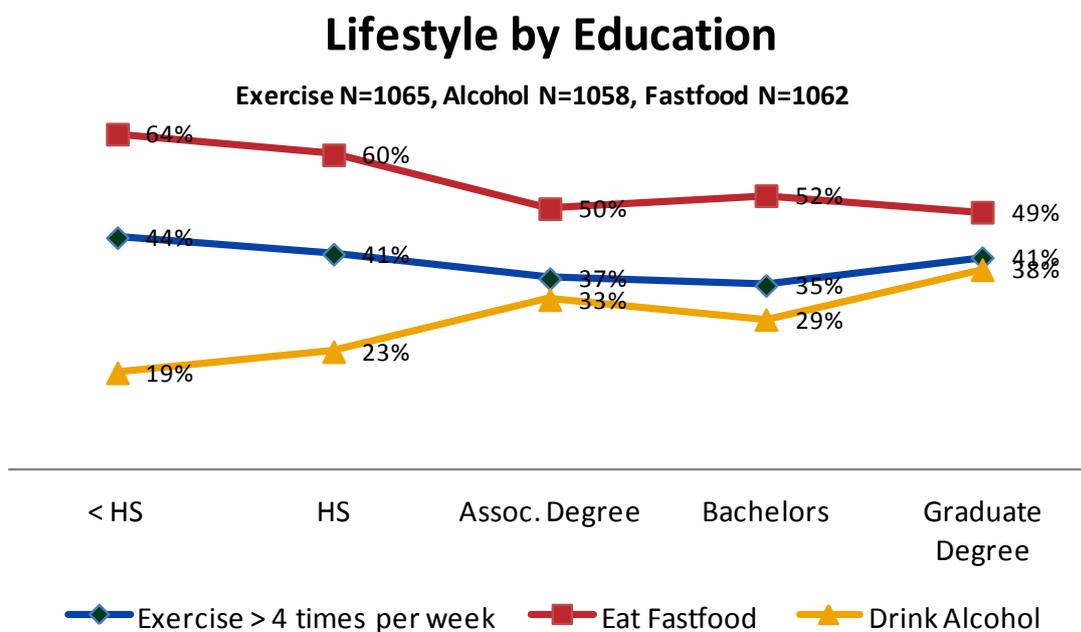
Lifestyle Choices of South Asian community living in MN by Income (Figure 25):



- The percentage of participants who indicated that they drink alcohol increased as income increased.

- Participants with income over \$250,000 had the lowest percentage of participants who ate fast food.
- 50% of the participants in income levels less than \$25,000 indicated that they exercised at least 4 times per week compared to 37% with income \$25,001 or higher.

Lifestyle Choices of South Asian community living in MN by Education (Figure 26):



- Alcohol consumption increased as education level increased.
- Fast food consumption was higher in participants who had a high school education or less.
- Percentage of participants who exercised at least 4 times per week did not vary much by education. 44% of the participants with less than high school education indicated that they exercised at least 4 times per week, highest amongst all education levels.

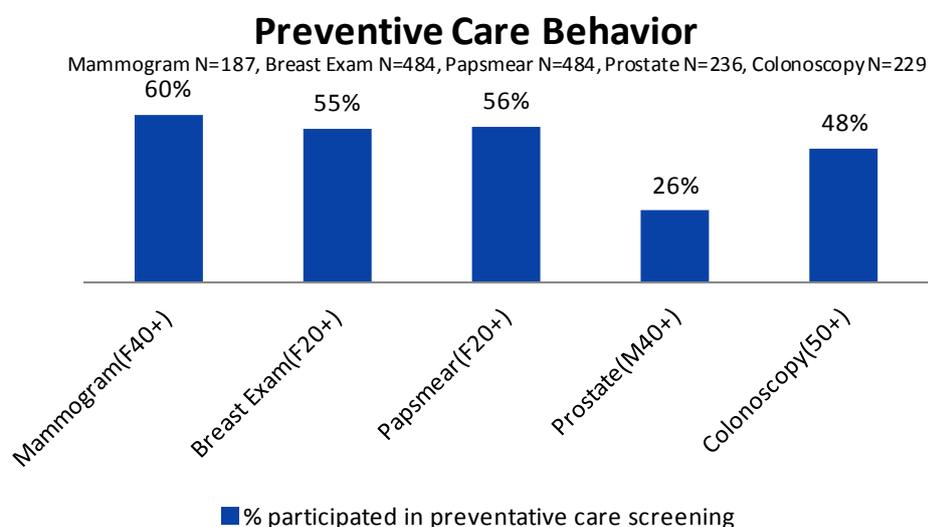
In general the first generation immigrants are moving towards consumption of more processed and convenience foods sacrificing quality and freshness. Lack of physical activity and increase portion sizes; these are two big contributors to the increase in levels of diseases like diabetes, cardio vascular diseases among our population. - - Ms. Shyamala Ganesh, MSRD, LD; Dietetic Internship Program University of Minnesota Medical Center, Fairview.

4.1.6 What is the status of preventive health care and health screening behaviour in the South Asian community living in Minnesota?

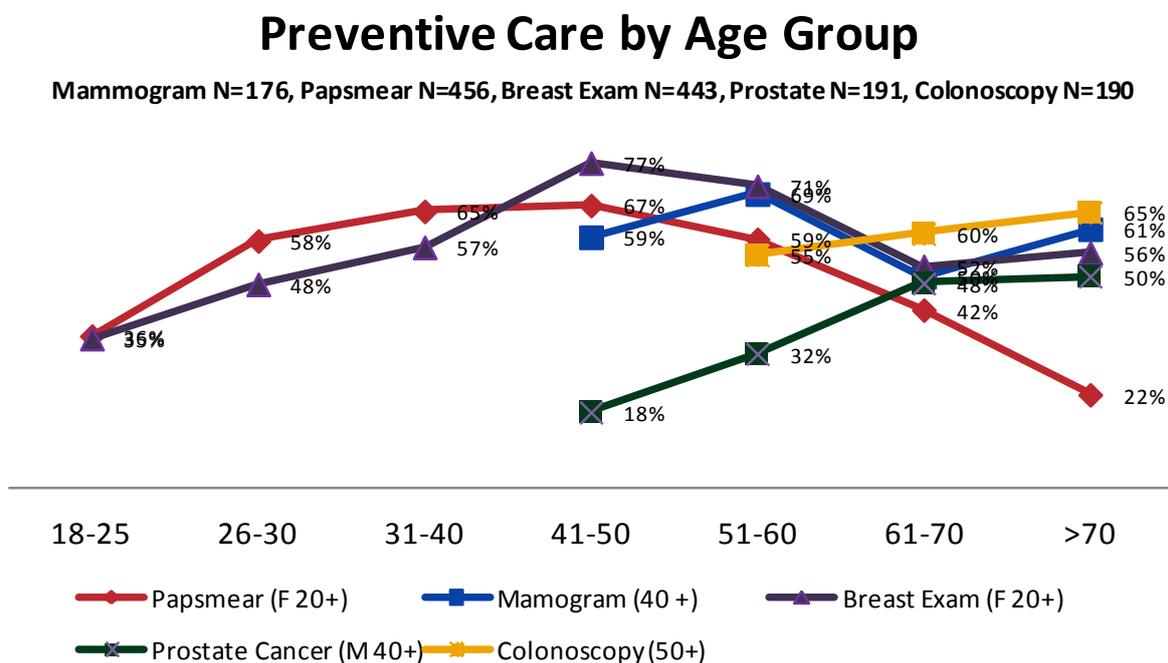
Preventive care guidelines:

1. Mammogram recommended for women age 40 or older
2. Breast exam recommended for women age 20 or older
3. Pap smear recommended for women age 20 or older
4. Prostate Cancer screening recommended for men age 40 or older
5. Colonoscopy recommended for both men and women age 50 or older

Preventive Care Behavior of South Asians living in MN (Figure 27):



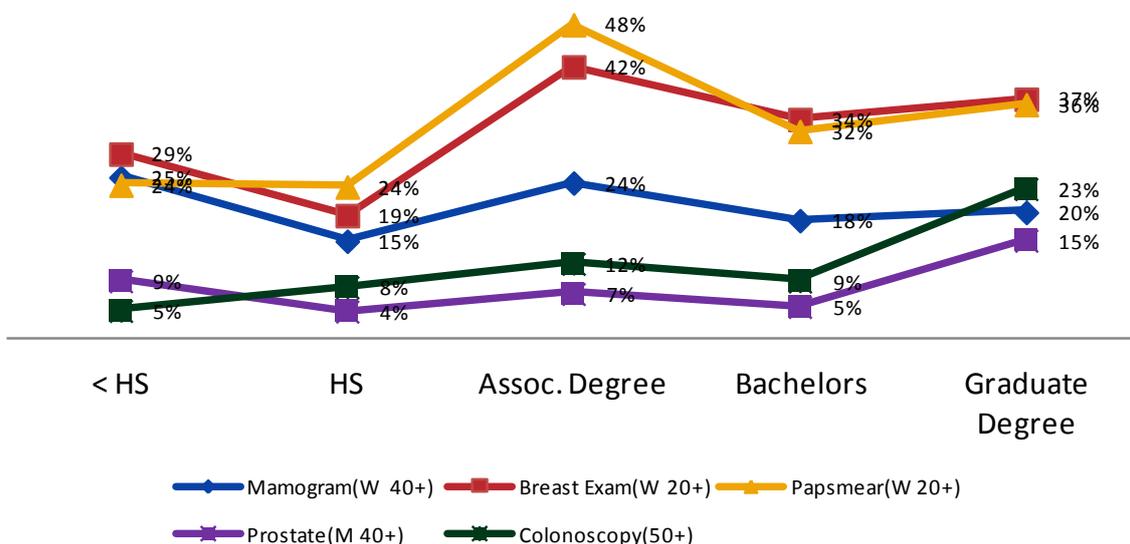
- Mammogram: 60% (women age 41 or older) of survey participants in the South Asian community living in Minnesota got regular mammograms, compared to 78% of all Minnesotans (women age 40 or older) (CDC, 2011).
- Self Breast Exam: 55% (women 18 or older) of survey participants in the South Asian community living in MN indicated that they perform regular self breast exams.
- Pap smear: 56% (women 18 or older) of survey participants in the South Asian community living in MN indicated that they got their pap test done regularly, compared to 81% of all Minnesotans (women 18 or older) (CDC, 2011).
- Prostate: 26% of South Asian men living in Minnesota (age 41 or older) who responded to the survey indicated that they got their prostate cancer screening regularly, compared to 40% of all Minnesotans (men age 40 or older) (CDC, 2011).
- Colonoscopy: 48% of South Asian men and women living in Minnesota (age 51 or older) who responded to the survey indicated that they recently underwent a colonoscopy, compared to 74% of all Minnesotans (age 50 or older) who underwent a sigmoidoscopy or colonoscopy (CDC, 2011).

Preventive Care Behavior of MN South Asians by Age Group (Figure 28):

- Mammogram: 59% of women in age group 41-50, 69% of women in age group 51-60, 48% in women age group 61-70, 61% of women in age group 71 or older indicated that they got regular mammograms.
- Breast Exam: The percentage of participants who participate in self breast exam increased as age increased until age 50 and decreased after age 50. The level of participation was the highest (77%) at age group 41-50.
- Pap smear: The percentage of participants who get their pap test done regularly increased as age increased until age 50 and decreased after age 50. The level of participation was the lowest (22%) at age 71 or older.
- Prostate: The percentage of participants who indicated that they get their prostate screening done regularly increased as age increased. The level of participation was the highest (50%) at age group 71 or older.
- Colonoscopy: The percentage of participants who indicated that they got their colonoscopy screening done increased as age increased. The level of participation was the highest (65%) at age group 71 or older.

Preventive Care Behavior of MN South Asians by Education (Figure 29):**Preventive Care Behavior by Education**

Mammogram N=711, Breast Exam N=750, Papsmear N=777, Prostate N=733, Colonoscopy N=844

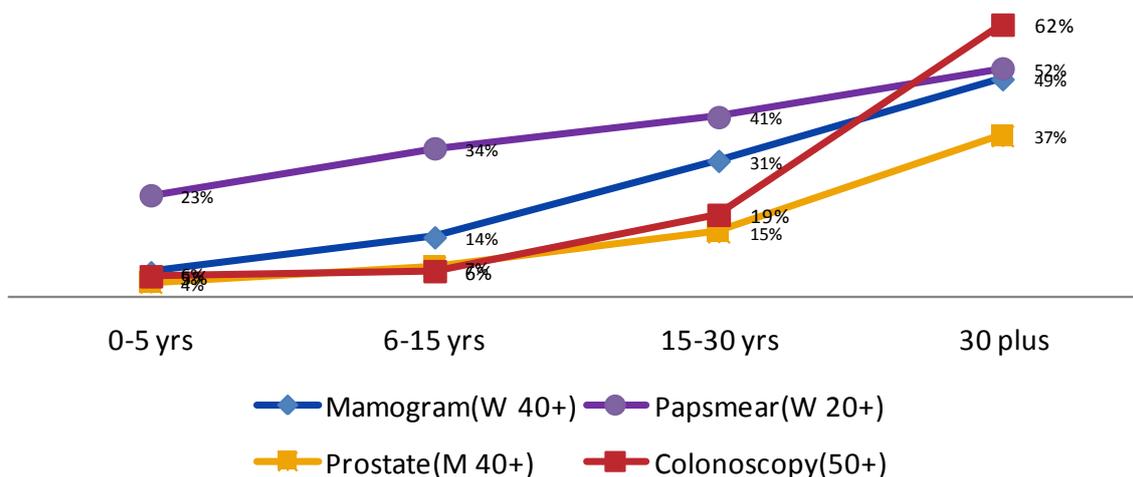


- Colonoscopy: The number of participants who indicated that they got their colonoscopy done was the highest (23%) for participants with a graduate degree. There was a higher participation amongst participants with a graduate degree (23%) compared to those with less than a high school degree (5%).
- Prostate Cancer Screening: The number of participants who indicated that they got their prostate cancer screening done was the highest (15%) for participants with a graduate degree. There was a higher participation amongst participants with a graduate degree (15%) compared to those with bachelors degree, associate degree, high school and less than high school education (4% to 9%).
- Pap smear: The number of participants who indicated that they got their pap smear test done was the highest (48%) for participants with an associate degree. Thirty-six percent of the participants with a graduate degree and 32% of the participants with a bachelor's degree said that they got their pap smear test done regularly.
- Breast Exam: The number of participants who indicated that they participated in self breast exam was the highest (42%) for participants with an associate degree. Thirty-seven percent of the participants with a graduate degree and 34% of the participants with a bachelor's degree said that participate in self breast exam.

Preventive Care Behavior of MN South Asians by number of years in the U.S. (Figure 30):

Preventive Care Behavior Based on # of years in the USA

Mammogram N=714, Papsmear N=780, Prostate N=736, Colonoscopy N=847

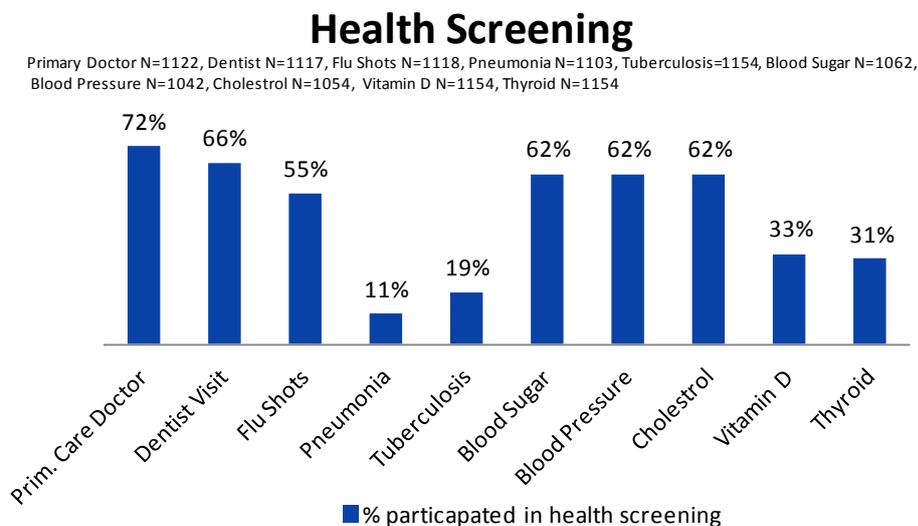


- There was correlation between the number of years in the U.S. and the participation in preventive care behavior. As the number of years in the U.S. increased the percentage of participants who got their mammogram, pap test, prostate cancer screening, and colonoscopy screening also increased.

A majority of the respondents (89%) have indicated that they have health insurance. Therefore, lack of health insurance does not appear to be a determining factor in why South Asians living in MN are not getting preventive health screenings.

Dr Balkrishna Jahagirdar, an Oncologist, a faculty at the University of Minnesota and HealthPartners and President-Elect, Minnesota Society of Clinical Oncology says: "Everyday scores of South Asians die from completely curable cancers in the US, just because they did not take a few minutes to get screening mammogram, PAP smear, and colonoscopy. Cancers of cervix (mouth of the womb/uterus), breast, and colon are as common in the South Asian community as the Caucasians."

According to Dr. Irshad Jafri, MD, Head of the department of Gastroenterology at Health Partners, faculty at University of Minnesota, member of the Minnesota Board of Medical Practice Committee, "Colon cancer is one of the most preventable cancers, thanks to screening procedures like stool tests and endoscopic procedures. It used to be thought that colon cancer is not common in people of South Asian descent. This belief is erroneous, because colon cancer is quite common in the Asian populations as well. Colon cancer screening should start at age 50. "

Health Screening Behaviour in the South Asian Community living in Minnesota (Figure 31):

- Seventy-two percent of the participants (MN South Asians) indicated that they had a primary care doctor compared to 76% of the overall population in Minnesota (CDC, 2011).
- Sixty-six percent of the participants (MN South Asians) indicated that they visited a dentist within last 12 months compared to 75% of the overall population in Minnesota (CDC, 2011).
- Eleven percent of the participants (MN South Asians) indicated that they had a pneumonia shot compared to 30% of overall population in Minnesota (CDC, 2011).
- Sixty-two percent of the participants (MN South Asians) had cholesterol screening compared to 77% of overall population in Minnesota (CDC, 2011).

South Asians come from countries where there is no concept of preventive healthcare and are used seeking care only when they get sick. Most of the patients are also not aware of the family medical history that can help determine their risks. Some avoid getting screened for diabetes, cholesterol, blood pressure, etc due to the fear of getting the bad news. South Asians in Minnesota, who are in the 30's have hypertension, high cholesterol and diabetes due to their eating habits, sedentary life style, and family history. Most of them believe that they should get their physical once a year, review all medical problems that they have in that one visit and come back only next year with no follow up in between. - - Dr. Kuppa, MD, Family Medicine Fairview Maple Grove Medical Center

In my personal observation, there is also a cultural tendency to avoid regular physician visits, resulting in a delayed diagnosis and treatment of important risk factors, including Diabetes, Hypertension and Hypercholesterolemia. Fortunately, there is plenty that can be done to reduce your risk. Besides lifestyle changes (exercise, healthy eating, smoking cessation), it is crucial to know your numbers (BP, Blood sugar, Cholesterol) and manage those aggressively. - - Dr. Alok Maheshwari, MD, Interventional Cardiologist, North Memorial Health Care, MN

4.1.6 What is the status of mental health issues for the South Asian community in MN?

As part of the mental health section of the SAHAT survey, the participants were asked the following questions:

Overall, in the last 30 days, how much:

1. Of a problem did you have due to not feeling rested and refreshed during the day (e.g. feeling tired, not having energy)?
 None Mild Moderate Severe Extreme
2. Of a problem did you have with worry or anxiety?
 None Mild Moderate Severe Extreme.
3. Difficulty did you have with concentrating or remembering things?
 None Mild Moderate Severe Extreme.
4. Difficulty did you have with personal relationship or participation in the community?
 None Mild Moderate Severe Extreme.

Participant's Responses (N=1154):

- When participants were asked in the last 30 days, how much of a problem did you have not feeling rested or refreshed during the day, 4.3% of the participants responded “severe” or “extreme”.
- When participants were asked in the last 30 days, how much of a problem did you have with worry or anxiety, 3.4% of the participants responded “severe” or “extreme”.
- When participants were asked in the last 30 days, how much difficulty did you have with concentrating or remembering things, 4.3% of the participants responded “severe” or “extreme”.
- When participants were asked in the last 30 days, how much difficulty did you have with personal relationship or participation in the community, 2.1% of the participants responded “severe” or “extreme”.
- Age group of 71 years of age or older had the highest percentage of responses with “severe” or “extreme”.

Some women, go through intense mood issues including post partum depression, given that they are living away from home country and family and lack of adequate social support system including husband and friends, especially if they recently move to US. Due to social stigma these issues are not openly discussed - - Dr. Kuppa, MD, Family Medicine, at Fairview Maple Grove Medical Center

4.1.7 What are the health care barriers impacting the South Asian community in MN (diet, culture, family support, interpretation service, health information, etc.)?

Key Information based on survey results include:

- 89% had health insurance (N=1154)
- 72% had a primary care doctor (N=1122)
- 66% had seen a dentist in the last year (N=1117)

Majority of the survey participants indicated that they either went to the doctor's office (46%) or clinic (30%) to seek medical care (N=1154).

- 13% used home remedies
- 9% did not seek medical attention (majority of which said that they did not have health insurance)
- 5% used emergency room
- 5% used alternate medicines

Listed below are the primary ways the participants got their medical information (N=1154).

- 66% from their friends
- 62% from their doctor
- 58% from internet searches
- 36% from their family

Listed below are primary barriers to seeking medical care (N=1154):

- 18% inability to navigate the system or don't understand what services are covered
- 8% health care providers do not understand the South Asian culture
- 6% lack health insurance
- 5% lack transportation
- 5% need interpretation services

When survey respondents were asked: "How well do your health care providers understand the impact of South Asian culture on your health in the following areas?"

- 19% indicated that they were dissatisfied or very dissatisfied that health care providers did not understand the SA Culture
- 18% indicated that they were dissatisfied or very dissatisfied that diet recommendations were not culturally specific
- 16% indicated that they were dissatisfied or very dissatisfied that health care providers did not understand the SA genetic disposition
- 16% indicated that they were dissatisfied or very dissatisfied that health care providers did not understand the SA family support structure
- 16% indicated that they were dissatisfied or very dissatisfied that the health care providers did not understand the SA religious beliefs

The south Asian community faces limitations to good health care as other minorities in the United State. Language barriers, decreased understanding of the risk factors and role of preventive care, cultural beliefs about health and wellness often interfere with receiving quality health care and keep Asian Indians from seeking help for their symptoms. - - Dr. Chhavi Chadha MBBS, Primary investigator, Riverside Clinical Research Center, Clinical Endocrinologist, Health Partners Medical Group

5. Discussion

The SAHAT survey is the first step in understanding the health issues prevalent in the South Asian community living in Minnesota. The term South Asian covers the wide diversity of people who vary in their culture, language, food, immigration statuses, socio-economic status, and health histories. However, this diverse group of people often get clumped together as a 'Model Minority'. The economic status of the South Asian immigrants varies widely due to the circumstances under which they migrated to Minnesota. It ranges from highly educated entrepreneurs, medical doctors to graduate students and refugees. Pockets of South Asians who need help with healthcare services, for example, the recent refugees from Bhutan and Nepal or older South Asians who came as dependents on their families under the family reunification act, might find themselves left behind because of the 'Model Minority Myth'.

South Asians also get aggregated together with other Asians like Chinese and Japanese or South East Asians like Burmese, Vietnamese, Cambodians, and Hmong. Each of these Asians has their own unique health issues and lack of disaggregated data provides a limited understanding of the health issues faced by the South Asian community.

According to the U.S. 2010 Census, about 75% of the South Asians living in Minnesota are first generation immigrants. Just like any other immigrant community, these first generation immigrants bring their own cultural baggage along with them which influences their lifestyle, health habits, food preferences, and social attitudes. For example, South Asians might consider it to be a 'status symbol' that they can afford to buy chips, eat out at restaurants, and consume alcohol, etc. This study found out that irrespective of the level of income or level of education, younger South Asians in Minnesota tend to indulge in fast food and alcohol more so than the older South Asians.

Another cultural characteristic of South Asians is the stigma associated with depression and mental illness. It is still considered taboo to discuss these issues in the open, which makes it difficult to assess the prevalence of mental health issues in the South Asian community. Less than 5% of the sample reported to have suffered depression in this study. Based on SEWA-AIFW experience in the community, majority of the seniors express depression due to isolation and loneliness.

Eighty-nine percent of the sample in this study reported to have some form of health insurance, 72% had a primary care doctor, and 66% had seen a dentist in the last year. The majority of respondents went to the clinic or their doctor's office when they needed medical attention. However, 18% reported to have used home remedies or alternative medicines like Ayurveda or homeopathic medicines as well. Community support and peer pressure play a major role in the healthcare use by South Asians living in MN. In this study, other than the doctors, most people got their medical information from friends, family members, and internet searches. Certain factors that served as barriers to seeking healthcare were identified as an inability to navigate the healthcare system or being unsure about what services are covered by health insurance. A few mentioned the ignorance about South Asian culture on the part of healthcare providers.

When asked about the extent to which health care providers understand the impact of South Asian culture on health, about one-fifth of the sample was dissatisfied with culturally irrelevant

diet recommendations, insensitivity to the South Asian genetic disposition, religious beliefs, or lack of understanding about the South Asian family relationships.

Overall, the study participants expressed a need for healthcare providers like doctors, nurses, dieticians, and therapists to make a paradigm shift when they see South Asian patients by having a more detailed understanding of the health needs and culture of South Asians living in Minnesota.

6. Recommendations and Next Steps

Key Recommendations:

The following section includes some key recommendations based on the results of the SAHAT survey.

- **Community Organizations:**
 - **Create programming that is focused on increasing:**
 - awareness about chronic health issues, mental issues, and long term impact (including genetic disposition);
 - participation in preventive care and health screening; and
 - participation in outdoor activities including exercise (especially with those who are pre-diabetic or have a family history of health issues).
- **Health Care Providers:**
 - **In working with South Asian clients:**
 - increase awareness of South Asian culture and develop culturally specific training materials;
 - provide diet guidelines suitable for South Asian clients by developing the United States Department of Agriculture’s “My Plate” based on South Asian diet; and
 - develop effective methods for educating the Minnesota South Asian community on how to effectively navigate the American health care system.
- **Legislators:**
 - **While prioritizing projects, resources, and funds**
 - commit research dollars with a focus specific to the South Asian community living in MN;
 - disaggregate data, to understand issues specific to the South Asian community living in MN; and
 - commit funds and resources related health equity initiative to meet the needs of the underserved and vulnerable South Asians living in Minnesota.
- **Mental Health Professionals:**
 - **Work with community organizations to:**
 - engage MN South Asian community members to come up with new ideas and approaches to remove stigma and denial around mental health;
 - educate the MN South Asian community on signs and behaviors related to mental illness and depression;
 - provide information on available resources; and
 - create a support structure for people in need.

Next Steps:

- Disseminate information among key stakeholders such as health care providers, community members, health advocates, policy makers, social workers, etc.

- Develop best practices to foster effective partnerships between key stakeholders who are working on eliminating health disparities. This includes developing a health tool kit that can facilitate awareness building and education on South Asian health issues.
- Community based health and wellness programs have been proven to be highly effective in combating health disparities; part of this includes identifying and leveraging existing programs around community health.
- Develop culturally competent training materials for health care providers that includes content specific to working with the South Asian population.
- Identify the role of faith-based organizations in creating health initiatives in the community. In many cultural communities, faith-based organizations function as catalysts in both initiating and sustaining long-term changes in the community. In the case of South Asian health, implementing both awareness and education programs through these organizations can be highly effective as well.
- Work with peer support groups such as cultural clubs and social organizations to create health initiatives as part of their annual programming, which is an effective way to address some of the health discrepancies within the South Asian community.
- Partner with public health organizations and policy organizations to establish resources for research, education, and interventions on eliminating South Asian health disparities that are crucial to bring about the desired changes.

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8. Appendices

Appendix A: SAHAT Survey Instrument

Sample questions from the SAHAT questionnaire. The survey included total of 58 questions. The participants responded in the area of general health status, lifestyle, health care access and attitude, and demographics.

SECTION 1: General Health Status

- How would you describe your health status?
 - Excellent
 - Very Good
 - Good
 - Fair
 - Poor
- Overall, in the **last 30 days**, how much:
 1. Of a problem did you have due to not feeling rested and refreshed during the day (e.g. feeling tired, not having energy)?
 - None Mild Moderate Severe Extreme
 2. Of a problem did you have with worry or anxiety?
 - None Mild Moderate Severe Extreme
 3. Difficulty did you have with concentrating or remembering things?
 - None Mild Moderate Severe Extreme
 4. Difficulty did you have with personal relationship or participation in the community?
 - None Mild Moderate Severe Extreme

SECTION 2: Lifestyle

- How often do you exercise (i.e. walking, running, gardening, etc.) for at least 30 minutes?
 - Every day
 - 4-6 times a week
 - 1-3 times a week
 - Rarely
 - Never
- Do you currently smoke or use tobacco products?
 - Yes No

SECTION 3: Health Care Access & Attitudes

- What kind of health care coverage do you have? (Check all that apply)

- HMO
 - Private Insurance
 - Medicare
 - Medicaid
 - Health Savings Account
 - Other: _____
 - I do not have health insurance
 - Don't Know
- Which of the following do you consider as barrier(s) to seeking health care services? (Check all that apply)
 - Lack of transportation
 - Lack of Interpretation services
 - Lack of access to health insurance
 - Not-understanding services covered by the health insurance
 - Health care providers not knowledgeable about South Asian culture
 - Health information not available in South Asian languages
 - Inability to navigate the health care system
 - Other (please specify): _____
 - None of the above

Section 4. Demographics

- What country is your family from?
 - India State: _____
 - Pakistan
 - Bangladesh
 - Bhutan
 - Nepal
 - Sri Lanka
 - Maldives Island
 - Trinidad Indians
 - Guyana Indians
 - Other _____
- How many years have you have lived in the United States?
 - 0 – 5 years
 - 6 - 15 years
 - 15 – 30 years
 - 30+ years

Appendix B: List of U.S. Non-immigrant Visa Descriptions

Purpose of Travel to U.S. and Nonimmigrant Visas	Visa Type
Business visitors	B-1
Crewmembers	D
Diplomats and foreign government officials	A
Exchange visitors	J
Foreign nationals with extraordinary ability in Sciences, Arts, Education, Business or Athletics	O
International cultural exchange visitors	Q
Intra-company transferees	L
Medical treatment, visitors for	B-2
Religious workers	R
Specialty occupations in fields requiring highly specialized knowledge	H-1B
Students: academic, vocational	F, M
Tourism, vacation, pleasure visitors	B-2
Training in a program not primarily for employment	H-3
Treaty traders/treaty investors	E
Transiting the United States	C
Victims of Criminal Activity	U
Victims of Human Trafficking	T

Source: http://travel.state.gov/visa/temp/types/types_1286.html



www.sewa-aifw.org

Thank you for taking the time to read the report. If you have any questions, please contact us at: info@sewa-aifw.org

SEWA-AIFW (Asian Indian Family Wellness) is a non-profit organization focused on providing culturally specific services to the vulnerable and underserved South Asians living in Minnesota.