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Santa Clara County Senior Nutrition Program Evaluation Report

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Santa Clara County Senior Nutrition Program Evaluation Report

By Tae Hwan Ihm

A Thesis Quality Research Project
Submitted in Partial Fulfillment of the
Requirements for the
Master's Degree in
PUBLIC ADMINISTRATION

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The Graduate School
San Jose State University

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PROBLEM STATEMENT

Santa Clara County conducts a Senior Nutrition Program (SNP) in conjunction with the City of San Jose, the Outreach Paratransit Program and local community-based organizations (CBOs) like Sourcewise (Lam, 2015). These programs combined represent a significant investment of public funds, with more than 45% of the SNP program's funding coming from the county General Fund (Lam, 2015). Such a large financial commitment needs to demonstrate some benefit to the participants, and some positive outcomes from the current program design. This study evaluated the SNP's effectiveness in achieving its primary goals. Primary goals of the SNP are to promote senior citizens' health and delay adverse physical and mental conditions by providing healthy meals and socialization opportunities (Lam, 2015). The program aims to provide healthy nutrition and mental stimulation for elderly residents of Santa Clara County, with the desired program outcome of better physical and mental health, enabling the participants to live independently.

Research Question

The focus of this study was broken into two main parts: measuring program outputs and outcomes. The study's approach to the first part of the research questions consisted of using existing data, such as annual reports from the SNP and survey data provided by the county. The second part of the research questions used original data to analyze the program's outcomes and impact.

Question 1: Is the current nutrition program in Santa Clara County effective in serving senior citizens?

Research Question One (RQ1) asked whether the program is effective in terms of producing direct outputs. RQ1 may be subdivided into three sub-questions to investigate the outputs to the fullest extent with specific measures.

Question 1a: Is it effective in terms of quantitative achievements of the program output, such as number of meals served and number of clients served?

RQ1a examined whether the program is achieving two main objectives: improved nutrition intake and increased socializing opportunities for participants. To answer this question, various data were analyzed, such as number of participants, participants' opinion regarding their health and socialization, and existing survey results. Specific data was gathered through appropriate methods such as surveys, interviews, and reviewing existing data.

Question 1b: Is it effective in terms of serving the target group?

After the study established whether the program provided adequate services to participants, RQ1b investigated whether those services were delivered to the target population. The SNP intends to serve the most vulnerable groups of senior citizens. The purpose of this question was to discover whether the services were provided to those who are poor, malnourished, and isolated, using surveys, interviews, and existing data.

Question 1c: Is the program effective in serving clients in terms of quality of services such as meals, and transportation accessibility?

RQ1c determined the quality of the services provided to the target group. Main components of the services are meals, transportation, and educational and social activities linked to the SNP. This evaluated the quality of meals in terms of balanced nutrition facts and participant preferences. Transportation services are another important part of the program. This question sought to discover the effectiveness of the SNP's transportation service. Methods included surveys, interviews, and existing data provided by the county. Additionally, program brochures, site visits, and existing data provided further inputs regarding the quality of educational and socializing activities.

Question 2: Does the program promote the overall health of participants?

Intended outputs of the SNP were to promote the general health of elderly citizens by providing healthy meals and opportunities to socialize. The program staff believes such outputs may delay negative effects and deteriorations from aging (T. Lam, personal communication, November 7, 2016). RQ2 sought to evaluate the outcomes of the SNP and whether the program had positive effects on participants' general health.

Question 2a: Do participants improve their physical health?

The early part of this study found that the malnutrition was a known factor with strong negative correlations with elderly people's health. As the SNP aims "to promote the health and well-being of older individuals" by providing healthy meals, this study investigated the relationship between the program and participants' physical health.

Question 2b: Do participants improve their mental health?

The second part of RQ2 sought to analyze the relationship between the program and participants' mental health. The SNP was expected to promote participants' mental health by providing opportunities to engage in socialization.

Question 3: Do the program outcomes impact society in terms of reducing health care costs?

The ultimate and the most challenging purpose of the SNP is to reduce health care costs. However, it was even more challenging to scientifically prove that the SNP contributes to reducing health care cost. This study attempted to examine whether the program impacted health care costs through a qualitative survey of the elderly participants.

BACKGROUND

Most developed countries are facing dramatic demographic shifts towards older populations. The primary causes of these shifts are longer life-expectancy and lower fertility rates. These shifts began in developing countries as early as the 1950s, when the fertility rate of 80 years began to fall, and more rapidly since 1970 (Nomura et al., 2015). Among Organization for Economic Cooperation and Development (OECD) countries, Japan and Germany are the typical examples of the aging society. In 2015, the percentage of people over 65 years will double to 19%. According to a report from the Japanese Cabinet Office in 2014, the elderly population in Japan reached 25.1 % of the entire population in October 2013 (Nomura et al., 2015).

Demographic shifts in the population may cause economic and social problems. According to the Pettinger (2013), more elderly people combined with fewer young people can result in a smaller workforce. This means increases in the dependency ratio: that more people will live off what a reduced number of workers produce (e.g., income tax from a lower number of workers will have to support pension programs for a greater number of retirees). An aging society puts a strain on the government due to high health care cost for elderly, but less income generated through taxation by the shrinking young work force (Pettinger, 2013).

The United States is no exception to the trend of aging societies. The senior population has increased 29% compared to overall population growth of 12%. The percentage of senior Americans has risen from 12.4% to 14.1%, and its share is expected to increase to 19.3% by 2030 (Kotkin and Cox, 2014). In addition to the challenges that a decreasing fertility rate and a longer life expectancy pose, the United States must contend with the impending mass retirement of the baby boomer generation if the retirement age stays the same. Currently, almost one-third

of gross health care spending in the US is directed toward older adults (Pogge and Eddings, 2013). The amount of gross health spending will continue to grow, as massive numbers of retired baby boomers will contribute to the current trend with fewer working people to cover the costs.

America's aging trend is particularly pronounced in its large metropolitan areas such as San Jose; the top-ranked aging city among the largest metropolitan areas. Kotkin and Cox (2014) found that America's 52 largest metropolitan areas between the years of 2000 and 2015 were the fastest aging cities (Kotkin and Cox, 2014).

The County of Santa Clara is one of the fastest aging metropolitan areas mentioned above. By 2030, the proportion of the population of people who are 60 years or older will go up from 15.7% in 2010 to 27.6% (Santa Clara County, 2014). Moreover, the fastest growing group of elders are those who are 85 years or older (Santa Clara County, 2014). Such a dramatic change of the dynamics of the demographic will impact the demand for senior services in the county.

The complex problems of an aging society are not limited to economic impacts; they may also help cause various social problems, including the poverty rate among seniors. The numbers have continuously grown during the past 20 years, especially "between 2000 and 2010, the population of impoverished seniors grew by 55%, from 9,800 to 15,300" (Santa Clara County Department of Aging and Adult Services, 2014). In Santa Clara County, there are about 15,300 seniors who live beneath the federal poverty line, that is, earn less than \$907.50 monthly income for a single resident; or \$1,225 for a couple (Council of Aging, 2012). Due to the severely higher living cost in the county, the federal poverty line may not represent all seniors who suffer from the poverty. However, an estimated 15,300 seniors are in great need for senior services.

A Council on Ageing Silicon Valley's (COASV) survey identified that 12-15% of senior residents have transportation barriers. The number accounts for approximately 57,000 seniors

who are in need of transportation for urgent matters like grocery shopping and doctors' appointments (Council of Aging, 2012). In addition to urgent and essential needs, supplementary services such as "educational classes or recreational activities [...] are often the most requested by the older adult population at large, serve as a natural point of entry for seniors into the service system, and provide an important benefit for senior participants" (Council of Aging, 2012). Whether the needs of the senior citizens are urgent or less essential, society is already facing a great demand to provide welfare services to senior citizens.

There are various policies and programs in place that are intended to address problems among seniors. Maintaining current levels of services for the seniors will inevitably increase government spending and the burden on society. Limited government funds and other resources must be spent on selective, worthwhile programs. The Senior Nutrition Program (SNP) in Santa Clara County addresses various senior problems listed above.

Senior Nutrition Program

As society is expected to age, the severity of age-related health and social problems will increase. Santa Clara County has created the Department of Aging and Adult Services (DAAS) under the umbrella of the Social Services Agency. The mission of the DAAS is to

promote a safe and independent lifestyle for seniors, dependent adults and the disabled through the delivery of protective services, quality nutrition and supportive in-home services. In addition, DAAS evaluates community needs, develops programs and services, and advises on matters of policy that concern the welfare of seniors and persons with disabilities (Santa Clara County Social Services Agency, 2017).

One of the many programs offered by the department to combat the social isolation and malnutrition of senior citizens is the Senior Nutrition Program (SNP). The SNP works together with community-based organizations (CBO) to provide healthy, warm lunches to seniors at various locations, including community centers in Santa Clara County (Lam, 2015).

The primary purposes of the SNP are to:

1. “Reduce hunger and food insecurity in older adults by providing healthy meals.”
2. “Provide an environment that promotes socialization of older individuals.”
3. “Promote the health and well-being of older individuals.”
4. “Delay adverse health conditions through access to nutrition and disease prevention and health promotion” (Lam, 2015).

The SNP has been a well-known, successful, and stable program for seniors for decades.

Through the program, seniors have more access to healthy, warm meals and also have the chance to engage in socializing activities (Santa Clara County Department of Aging and Adult Services, 2015). “Nutrition improvement is a modifiable behavior that can allow people to age in their home, prolong independence, reduce medical care utilization, lessen premature institutionalization and increase the quality of life of this population that is growing every year” (Santa Clara County Department of Aging and Adult Services, 2015). The SNP is also significant because it may be a good example for future programs in easing the problems of an aging society.

Program Overview:

The Congregate Meals Program provides healthy, nutritious lunches to all senior citizens age 60 or older via 39 different nutrition sites in Santa Clara County. These lunches are regulated to provide one-third of the Recommended Dietary Allowance of calories and nutrients for a senior, and each meal is cooked on-site or provided by local partners, depending on the site. The program also provides opportunities for seniors to socialize through access to various activities and educational opportunities. The suggested contribution for each senior participant is \$3.00 per meal, but the program does not refuse to serve senior citizens with no contribution. Additionally, SNP also provides transportation services and meal delivery services to those with mobility barriers (Santa Clara County Department of Aging and Adult Services, 2015).

Program History:

The origin of the SNP can be traced back to 1965 when U.S. Congress passed the Older Americans Act (OAA) to provide community social services for senior citizens. The original OAA did not include nutrition services until 1972, when the OAA (Title III C) was passed (Lam, 2015). The OAA Nutrition Program has been the biggest and most noticeable community-based nutrition program funded by the federal government (Public Policy News, 2002). In 1974, Santa Clara County initiated the Senior Nutrition Program, funded by the OAA of 1965. In 1978, an Amendment to the OAA (Title III C-2) was passed to provide funding for nutrition services to senior citizens who were unable to attend the Congregate Meal Program (Lam, 2015).

Target Population:

The OAA defines the population that the SNP should target services to as “those with the greatest economic or social need, particularly low-income and minority persons, older individuals with limited English proficiency” (Kirsten, 2016). The OAA mandates that the SNP provides its services to all citizens 60 and older, with particular attention to elderly people 75 and older, low-income, isolated, and/or minorities (Santa Clara County Department of Aging and Adult Services, 2015). The “minimum targets are established by the OAA to provide services to those in greatest need” as follows: 32% of age 75+, 7% of low-income, 7% of living alone, 40% of minority (Santa Clara County Department of Aging and Adult Services, 2015)

Expenditure Funding Sources:

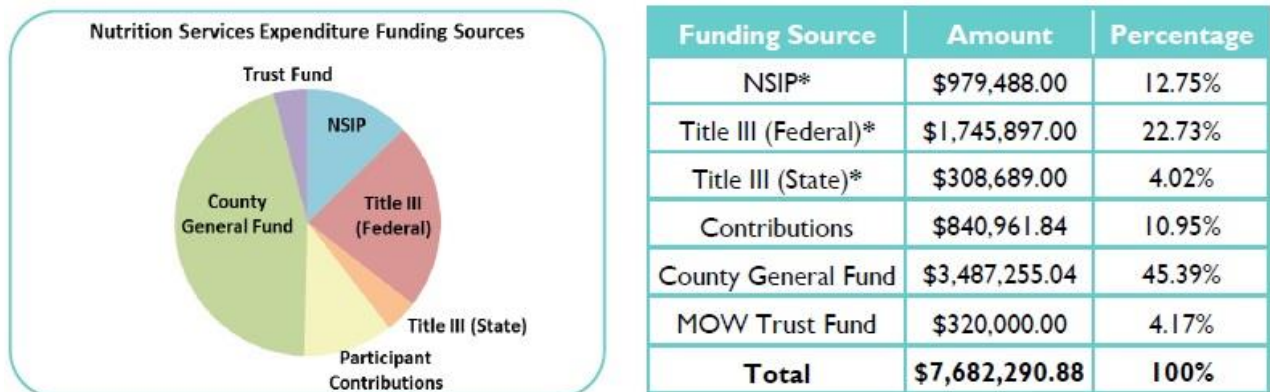
Funding from the federal government and state government comes in two forms: the OAA of 1965 Title III Funds and Nutrition Services Incentive Program (NSIP) Funds. The California Department of Aging distributes those two types of funds annually to the 33 Area Agencies on Aging (AAA) in California. Sourcewise, a nonprofit organization that provides

services to seniors in Santa Clara County, is the designated agency for Santa Clara County. Sourcewise is in charge of allocating the funds toward a variety of senior services and the SNP in Santa Clara County (SNP Annual R2015).

As shown in Figure A, 39.5% of the funds for the SNP in Santa Clara County came from the federal government. Some counties in California rely only on OAA and NSIP Funds. However, Santa Clara County provides nearly half of the program’s funds from the County General Fund to the SNP to serve a greater number of seniors. The County also provides transportation to nutrition sites and delivery meals services known as Meals on Wheels (MoW). Also, the MoW Trust Fund was created with contributions and donations from community members to ensure that the budget for the program could serve all participants in need.

Participant contributions are an important portion of the funding, which made up 10.95% of the expenditure funding sources in the FY2014-15 year. Senior participants of the SNP (Congregate Meals Program and Meals on Wheels) are suggested to make contributions to cover the program costs (Santa Clara County Department of Aging and Adult Services, 2015).

Figure A: SNP Funding Sources in 2014-15



*These funds are distributed by Sourcewise

Source: Santa Clara County Department of Aging and Adult Services, 2015.

Stakeholders:

There is a wide range of stakeholders involved with the SNP. The primary stakeholders

are senior citizen participants who will benefit from the program. Families of the participants who may receive secondary benefits from the program through loved ones' improved health can also be involved. They may also help by being responsible for transporting participants to the nutrition sites. Public administrators in the Department of Aging and Adult Services in the County of Santa Clara and the City of San Jose's Parks, Recreation and Neighborhood Services (PRNS) are also stakeholders because they are responsible for planning and running the program. Other stakeholders may include community-based organizations, faith-based organizations, and municipalities that provide nutrition sites, volunteers, and San Jose State University Work Study Program students.

According to Edmonds-Mares (2013), PRNS has experienced major difficulties as a result of severe staffing reduction. The PRNS delivers various senior services, including the SNP, "to provide health and wellness opportunities, promote independence, and encourage community engagement" among the city's elderly population (Edmonds-Mares, 2013). Since FY 2002-3, the City of San Jose has suffered the Full-Time Equivalent (FTE) personnel reduction from about 7,500 to 5,400 over a period of 10 years. Since 2001, PRNS staff has been decreased by 47% as of 2013.

During the FY 2010-11 budget proposal process, the Senior Nutrition Task Force (SNTF) was created to develop alternative ways to sustain the SNP and related senior transportation services. One of the solutions the SNTF came up with was getting rid of city cook sites and transitioning to a regional, vendor-operated model, which could securely provide congregate meals for seniors. The SNTF outsourced to the private sector to bring costs down. However, due to the reduction in staffing and other resources such as community-based organization operations, it became extremely difficult for the department to maintain previous service levels

for seniors.

The SNP's transportation program was also impacted. At the beginning of 2012, the PRNS terminated door-to-door transportation service at seven congregate meal sites, which affected 131 participants. In FY 2012-13, PRNS's transportation options were expanded to all SNP sites by contracting a partnership with Outreach, Inc. Services which included, "County-funded Outreach Paratransit Services, door-to-door van service, bus passes, and the Friendly Rides Gas Card Program" (Edmonds-Mares, 2013). By FY 2013-2014, the City was expected to partner with Santa Clara County to develop their Santa Clara County Social Services Agency Transportation Plan, because the county decided to stop the direct transportation funding to nutrition sites. Just as other articles have shown historical changes, this report shows the current transitions the program is making to become more cost-effective. (Edmonds-Mares, 2013).

According to the SNP Annual Report, in FY 2014-2015 the Board of Supervisors approved the Measure A – Senior Transportation Program (Measure A Program), a collaboration between the county and Outreach & Escort, Inc. (OUTREACH) to provide transportation services for seniors with mobility barriers. Mobility options extend to "bus passes, gas cards, volunteer driver transportation, mileage reimbursement, door-to-door transportation, ADA rides, safe walking groups, older adult bicycles/tricycles and older driver safety classes" (Santa Clara County Department of Aging and Adult Services. 2015). The program started in October 2014 through June 2017 with \$750,000 annual budget per year.

The Measure A Program was initiated in response to the long waitlist for transportation to congregate meal sites. In FY 2014-15, the program settled the waitlist problems and served 3,231 clients, exceeding the goal by 121 percent. The program served a total of 195,918 one-way rides for seniors through the Measure A Program in FY 2014-15. OUTREACH spent \$555,296.45 for

the year, and the remaining \$194,703.55 is rolled-over to the next fiscal year. The annual report evaluated that the FY 2014-15 program was a success. Even with cost-cutting measures, this report shows how the program has continued to provide a high level of care and success in providing for its elderly participants.

With the help of the stakeholders, the Senior Nutrition Program in Santa Clara County aims to resolve many senior problems as stated earlier. The SNP has been shown to be effective in resolving senior malnutrition, social isolation, and various related health issues. However, the program manager at the Social Services Agency in Santa Clara County has revealed that securing enough funding for the SNP is challenging. Especially during the economic downturn, budget cuts endanger the program and the senior participants who can no longer benefit from the program (T. Lam, personal communication, November 7, 2016). In order to maintain and possibly expand funding, the SNP needs to be critically examined to determine whether the program is fulfilling its primary goals and having positive impacts on the aging society.

LITERATURE REVIEW

Holt (1994) provides a background history of the Older Americans Act (OAA) and its evolution, which over time began to specifically target severely low-income senior citizens. Its transformation also laid the foundation for the creation of the SNP. The author demonstrates how a categorically based program, serving the middle-class population, evolved to be a target-based program offering preference to a low-income and minority groups.

In 1965 the OAA granted eligibility to all citizens, without income testing, under the assumption that the majority of poor people who would need such services would be the elderly population. Title III of the OAA granted authority to fund states “for community planning and social services, research and development projects, and personnel training in the field of aging” (Holt, 1994). Then the Administration on Aging (AoA) was established as the primary organization for all programs for older people. Despite critics arguing that the Office of Economic Opportunity is mandated to serve all poverty populations, the House Subcommittee on Human Service Staff report emphasized that the Title II program is intended specifically for older persons (Holt, 1994).

The House and Senate added a nutrition program through the 1972 amendment to the OAA. The amendment stated that due to dire needs for services among citizens with low-income or ethnic backgrounds, basically who are not Caucasian, preference should be given to those in the low-income group. Congress then began to refine the targeted group to be those older people with the “greatest economic or social needs” (Holt, 1994). Defining and measuring the “greatest social or economic need” has been a controversial issue due to its vague wording, and this is important because it was directly related to the federal funds allocated to each state (Holt, 1994).

Wellman (2002) provides more information on the OAA Nutrition Program. It began in

1968 as a three-year demonstration project. In 1972, the National Nutrition Program for the Elderly was established through Title VII in the OAA, and the Congregate Meal Service was created. Then, in 1978, a home-delivered nutrition service, also known as Meals on Wheels (MOW), was added with Title IIIC-2.

Wellman shows how the OAA has extended their services to include meal services. Both the Congregate Meal Service and the MOW are now available to all citizens age 60 and over, with priority given to those in greatest economic or social need, especially for low-income minorities who are below the Federal Poverty Line (FPL) and rural citizens. Because the OAA services are not means-tested, the Nutrition Program is often a primary source of benefits for many older Americans of any income. With the addition of nutrition programs to the OAA, the federal government acknowledged the importance of nutrition for its elderly citizens.

Pirlich (2001) analyzes the causes and effects of malnutrition in elderly people. The author states that malnutrition is more common for elderly people than younger people. Moreover, malnutrition in elderly people is notably more damaging to their health, functional ability, and physical and psychological well-being. Pirlich identifies common causes of malnutrition in the elderly to be “chewing or swallowing disorders, cardiac insufficiency, depression, social deprivation and loneliness” (Pirlich, 2001). This research is significant to the SNP because of the important association between malnutrition and the social well-being of older people. It helps validate the importance of the SNP’s meal services in benefitting the elderly population.

The primary cause of malnutrition for older people is reduced food intake due to loss of appetite. Low physical activities, pain, diseases, and social isolation are associated with loss of appetite. Also, deterioration of an individual’s physical status in areas such as mobility and

vision can lessen their capability to cook meals. Although the cause and effect relationship between malnutrition and diseases may be difficult to distinguish, there are several studies such as Sullivan D. and Walks, R, 1994, Cederholm, T., Hellstrom, K., 1995, and Davalos, A. et al., 1996 to prove the strong association. All these studies concluded that undernutrition seems to be a significant factor in disease, its complications or mortality (Pirlich, 2001). Because there are many other medical, social, and psychological reasons for poor food intake, providing proper advising about nutrition and motivation for improving food intake can frequently improve health. The SNP understands this relationship and has incorporated educational activities into its services.

Ellis (2008) examines how a nutrition education intervention may improve elderly people's attitudes towards whole grain food at congregate meal sites in Georgia. The sample included 84 elderly people with a mean age of 77 years. Participants took a pre-test of their knowledge about whole grain food and its relation to diseases. The educational program was developed by professionals and was composed of five lessons, each designed to enhance the participants' knowledge. The post-test results indicated that the intervention enhanced their knowledge and awareness of the health benefits of whole grain foods, however, it did not change their behavior (intake). Further studies should focus more on how to improve participants' intake behaviors toward healthy foods and how to make them last (Ellis et al., 2008).

Herndon (2010) also highlighted the significance of nutrition on older people's health. A large portion of elders in the U.S. is at risk for malnutrition and are, therefore, at risk for premature institutionalization. The study surveyed older Americans receiving MOW services in Lake County, Indiana to determine the impact of the program.

The study found that many elderly people live alone, and are more likely to be at risk of

loneliness and mental health problems. Also, they are at higher risk for inadequate food intake because they often eat alone instead of socially engaging as is typical at mealtimes. The study concludes that nutrition screening and early intervention for older people can improve their quality of life and prevent premature institutionalization. For many older people, benefiting from home delivered meals can make the difference between remaining at home or being prematurely institutionalized.

Millen (2002) provides solid evidence of the strong association between the Elderly Nutrition Program (ENP), the oldest framework of community and home-based preventive nutrition and health-related services to elders, and its influence on elderly people's nutritional health. The study also examines the targeting and costs of its services. The study compared two sample groups, one of the program participants and one of the nonparticipants who had similar demographic and health characteristics. Nonparticipants were drawn from the US Health Care Financing Administration's Medicare beneficiary listings. Millen conducted interviews with respondents. The study analyzed "anthropometry and physical functioning, nutrient intake and socialization patterns, and utilization of ENP program services" (Millen et al., 2002).

The study found that the ENP provides services to approximately 7 percent of the elderly population, including about 20 percent of the nation's poor, elderly citizens. The participant group is, on average, 4 percent to 31 percent better nourished, and they engage in more social interaction than their control counterparts. The author concluded that the ENP is a well-targeted and cost-effective program that provides community and home-based nutrition and health-related services to elderly people who are in the greatest need. The author further suggests that the ENP is a potential model for future preventive nutrition intervention programs.

On the other hand, Yeyman (1996) found insignificant effects of the program on the

healthy elderly. Unlike those with health issues, healthy older people experience little change by participating in the program. Yeyman selected 70 participants of the congregate meal program and 65 nonparticipants to assess their average nutrition intakes for three days. The study attempted to “determine differences in nutrient intake data and biochemical indexes between the groups” (Yeyman, 1996). The scope of the examination focused solely on healthy, elderly people and only on the benefits of the nutrition aspect. Although the scope is very limited, this study can be a useful addition to further studies that evaluate the cost-effectiveness of the congregate site meal programs because it provides a specific evaluation on how healthy participants should not be prioritized.

Yeyman (1996) selected 70 elderly participants and 65 elderly non-participants who are aged 60 to 89 as two sample groups, and assessed their nutritional status by calculating three-day mean intakes. As a result, there was no significant difference in overall intake between the control and experimental group. In conclusion, the congregate-site meal program had no significant effect on the nutritional status of the healthy elderly participant population. The study suggests additional research should focus on the populations who are at higher risk, such as low-income, ethnic minority, and socially isolated groups. In addition to the effect on nutritional status, more potential benefits, such as increased socializing, mobility, and education activities, need to be assessed as well.

This literature review reveals the importance of the nutrition to senior citizens’ health, and how community-based nutrition programs can improve their health. The literature review further provides additional information about the OAA, and how the OAA has evolved to today’s SNP. However, the literature review section also finds that there has been little academic research done concerning the SNP program regarding its effectiveness and impact on localities

like Santa Clara County. Therefore, this study will focus its lens on evaluating the effectiveness of the SNP in terms of meeting its objectives of promoting senior citizens' health by providing health meals and socialization opportunities.

Findlay (2003) reviewed "the empirical literatures published over the last 20 years on the effectiveness of interventions that target social isolation amongst older people." Findlay (2003) pointed out that as the proportion of senior people in the population grows, and more seniors live alone, that seniors are vulnerable to social isolation. Findlay's (2003) study finds that social isolation is correlated to "poor physical health, mental illness, low morale, being a carer, geographic location, communication and transport difficulties." His study revealed that despite intervention efforts all over the globe, the evidence of the intervention programs' effectiveness was minimal. Therefore, he argues that the society needs to come up with more efficient and effective ways to evaluate such intervention programs.

METHODOLOGY/ RESEARCH DESIGN

Design Overview

In order to evaluate the SNP's effectiveness, this study investigated whether and how well the program accomplished its primary objectives. As mentioned earlier in this paper, the program has two main objectives: (1) to promote older adults' nutrition improvement by providing them with healthy meals, and (2) to provide participants with opportunities that promote socialization at the congregate meal sites. These socialization activities are intended to benefit the health and well-being of elderly people, and thus, to increase their quality of life. This study sought to prove a positive relationship between SNP and the reduced health care cost for individuals in the program.

Given the program's goals and objectives, the following general research questions arise: (1) Is the current nutrition program at Santa Clara County effective in serving senior citizens? (2) Do participants benefit from outputs of the SNP – a nutritious meal and mental stimulation- in terms of their health? (3) Do the program outcomes have an impact on the county in terms of reducing healthcare cost? Each general research question will lead to a set of several sub-questions.

To answer the above questions, a logic model was used to guide the research process. "The purpose of a logic model was to provide stakeholders with a road map describing the sequence of related events connecting the need for the planned program with the program's desired results" (W.K. Kellogg Foundation, 2004). As illustrated in Table 1, a logic model took many inputs, such as staffing costs, various governments and programs; funds, nutrition sites, and other attributes. Using financial inputs, the SNP is designed to benefit the physical and psychological health of the target population. Participants ought to benefit from congregate meals and associated social activities at the meal sites. This study attempted to examine the

effectiveness of the SNP in terms of achieving its outputs, outcomes, and impact through a logic model.

Table 1: Logic Model for the Senior Nutrition Program

Inputs		Outputs		Outcomes	Impact
<u>Resources</u>	<u>Activities</u>	<u>Participation</u>	<u>Quality</u>	<u>Short term</u>	<u>Long-term</u>
Human	Congregate Meal	# of Participants	Food	Nutrition Improvement	Reduced Health Care Cost
Financial	Socializing Activities	# of Target Group Served	Transportation	Social Engagement	
Organizational	Transportation Support	# of Trips Provided	Overall Satisfaction with the Program	Physical Health	
Community Resources	Sourcewise			Mental Health	
				Knowledge on Nutrition	

As shown in Table 2 and Table 3 below, this research is comprised of five major methods: an original survey, ethnographic observation, SNP annual report, risk assessment data, and medical records of participants. The original survey was conducted by the research under the auspices of the County of Santa Clara as part of an internship in the spring of 2017. The county authorized the research design and administered the survey, and the researcher in his capacity as a county employee calculated outcomes and analyzed the data generated by the survey. The survey attempted to address the correlation between the program and the overall health of participants. Ethnographic observation consisted of visits to designated congregate meal sites to observe, investigate, and interview staff members and participants. This method was used to evaluate whether the program is serving the target population, and the quality of services such as food, activities, and overall satisfaction of participants. Finally, the researcher attempted to find relationships between the SNP and the health care cost using the original survey.

Table 2: Research Questions and Methods

Research Questions	Original Survey	Annual Report
1a		o
1b		o
1c		o
2a	o	
2b	o	
3	o	

Table 3: Primary Sources for the Methods

Method	Source
Annual Report	Department of Aging and Adult Services- County of Santa Clara
Ethnographic Observation	Conducted by the Researcher
Original Survey	Conducted by the Researcher

Research Methods

This study used quantitative and qualitative assessments to answer the following research questions regarding outputs and outcomes of the program: (1) Is the SNP in Santa Clara effective? This answer is developed by measuring quantitative achievements of the SNP in serving senior citizens. (2) Does the SNP promote the overall health of the participants? (3) Does the SNP positively impact county government by reducing health care costs? Two hundred participants were selected from the designated congregate meal sites, and they were surveyed twice with the identical surveys in five months' time. The measures of this survey are perceived nutrition improvement, socialization improvement, health improvement, and reduction of medical spending.

Existing Data: Risk Assessment Data

All SNP participants were required to fill out a registration packet, part of which is the

Risk Assessment form. The accumulated results of the Risk Assessment are a valuable source in determining whether the program is serving the target population (RQ1b). There are ten questions on the form, including “I eat less than 2 meals per day[,] I do not always have enough money to buy the food I need[,] [and] I am not always physically able to shop, cook and/or feed myself” (Lam, 2016). These questions were incorporated into the survey.

Existing Data: SNP Annual Reports since 2011

Three years’ worth of SNP Annual reports contained quantitative data, which provided answers to RQ1a, RQ1b, and RQ1c. The quantitative data consists of numbers of target participants served, number of transportation services provided by type, and quality of meals served. Additionally, every annual report contains a section to report the program’s accomplishments in serving the target population. Data collected from each annual report provided annual trends of the program’s accomplishment in charts. Charts created from the annual data revealed the program’s accomplishment trends.

Existing Data: Management Audit of the County of Santa Clara Senior Nutrition Program

As the literature review indicates, transportation barriers can expose seniors to a greater risk of mal/under-nutrition. This report provides the number of transportation services provided to senior citizens by type, and number of senior citizens on the waitlist. This data provided an answer to RQ1c regarding the quality of transportation services by comparing and analyzing quantitative data with annual reports.

Ethnographic Observation

Selected congregate meal sites were visited by the researcher. The meal sites are selected based on the minimum target population defined by the OAA (refer to page 6 of this paper). With the help of the SNP, the researcher selected three congregate meals sites with the most

seniors who are 75 years of age or older, low income, living alone, and/or minority. The definition of the minority on OAA is vague, but the SNP defines minority as people with the ethnic background that are not Caucasian (T. Lam, personal communication, November 7, 2016). The selected congregate meals sites are Eastside Neighborhood Center, Northside Community Center, and John 23rd Center. The researcher observed meals, activities, staff, and participants to check perceptions of the participants. The researcher interviewed several staff members and participants from each site to collect information regarding overall satisfaction with major components of the program: meals, activities, and transportation. The SNP department sent letters to managers at the selected meal sites which granted permission for the researcher as a county intern to visit and observe the sites.

Direct Survey

A direct survey method was used to evaluate program outcomes and impact. The first objective of this survey was to examine whether there were significant relationships between the SNP and participants' physical and mental health. The researcher aimed to collect 20-30 valid matching samples from pre-survey and post-survey. Survey participants were selected by the SNP and the meal sites based on the OAA's minimum target population of the program. The SNP used their best judgment to select clients who would most likely to use the SNP for another three months for the follow-up survey. This study's survey questionnaires contained some of the risk assessment form questions, SNP department survey questions, and supplementary questions created by the researcher. Such questions include self-reporting evaluations of participants' physical health, mental health, and overall happiness. The second part of the survey contained questions regarding participants' medical condition, current medications, independence, and approximate monthly medical spending amount.

Written survey copies with three different language choices (English, Spanish, and, Chinese) were distributed to the selected participants throughout the selected congregate meal sites by the researcher. Participants were asked to record their unique codes (first two digits of their home address and date of the day of their birthday) for the tracking purpose. Survey participants were encouraged with small gifts such as Safeway shopping gift cards once they completed and submitted the survey. The identical survey was given to the same participants within three months' time. By comparing results from the above two sets of surveys, this study attempted to determine whether an association exists between participation in the SNP and participants' overall health improvement.

The researcher created a conditional program evaluation model on MS Excel. The conditional program evaluation compared each matching sample participant by survey questions. Survey responses were coded into numeric values and subtracted each question response of the pre-survey from same question response of the post-survey. If a difference from post-survey response to a pre-survey result indicated positive outcome (e.g. a participant felt healthier than when they participated in the pre-survey), the difference column was coded to turn green, and if the difference indicated negative effect, the difference column turned red. Additionally, if the difference was 0, the difference column was coded blue color, which meant that the matching participant responded with an identical response for pre-survey and post-survey. Green colors were named 'Improved group,' reds were named 'Deteriorated group,' and blues were named 'Maintained group.' Each survey question was evaluated based on number of responses in each of the colored groups. As primary goals of the SNP are to 'promote health and delay adverse health condition,' improved group and maintained group represented positive outcome, and deteriorated group represented negative outcome.

Each survey question was distributed to appropriate research questions to compare participants' self-reporting evaluations on their mental and physical health, happiness, and program satisfaction rate. Based on the evaluated research questions assigned, each research question was analyzed to determine whether the participation in the SNP Congregate meal program for about three months was effective and in what aspect. The results provided enough information to conclude whether the program promoted participant general health and whether there was a positive effect on medical spending. Below is the original survey distributed to participants in the three designated meal sites.

Figure B: Santa Clara County Senior Nutrition Program - Survey

My Code: _____

Use the first 2 digits of your home address number and 2 digits of your day of birth – 01 to 09, then 10 through 31. Please be sure to use this same code on follow-up questionnaires.

Part 1: Please circle or write one answer in the shaded area that best describes your status to the following questions.

1. **How many Senior Nutrition Lunches did you eat last week?**

1 day or less	2 days	3 days	4 days	5 days or more
---------------	--------	--------	--------	----------------

2. **How many days did you participate in the activities (i.e. classes, exercise, bingo) at the meal site last week?**

1 day or less	2 days	3 days	4 days	5 days or more
---------------	--------	--------	--------	----------------

3. **Over the past 7 days, how many meals per day did you eat?**

1 meal or less	2 meals	3 meals or more
----------------	---------	-----------------

4. **Over the past 7 days, how many servings of fruits or vegetables, on average, did you eat per day?**

0	1	2	3	4 or more
---	---	---	---	-----------

5. **Over the past 7 days, how many times did you eat fast food, processed food, or unhealthy snacks?**

0	1	2	3	4 or more
---	---	---	---	-----------

6. **How often do you get the social and emotional support you need?**

Never	Rarely	Sometimes	Often	Always
-------	--------	-----------	-------	--------

7. **Over the past week, how many days did you exercise? (i.e. walking, dancing, exercising, etc.)**

0 1 2 3 4 5 6 7 days

8. On those days that you engage in exercise, how many minutes, on average, do you spend on those activities? Approximately _____ minutes
9. How many times did you use the transportation offered by Senior Nutrition last month?
None Once Twice Three times Four times or more
10. I am satisfied with the overall services of the Senior Nutrition Program.
Strongly Disagree Disagree Neutral Agree Strongly Agree
11. In general, would you say your health is:
Poor Fair Good Very Good Excellent
12. In the past 7 days, did you need help from others to perform everyday activities such as eating, getting dressed, grooming, bathing, walking, or using the toilet? Yes No
13. In the past 7 days, did you need help from others to take care of things such as laundry and housekeeping, banking, shopping, using the telephone, food preparation, transportation, or taking your medications? Yes No
14. Over the past 7 days, how would you rate your fatigue or sleeplessness?
Not at all 0 1 2 3 4 5 6 7 8 9 10 Extremely

Please circle one answer that best describes your feelings to the statements about your health status.

15. I feel isolated from the society.
Strongly Disagree Disagree Neutral Agree Strongly Agree
16. Over the past 2 weeks, how often have you been depressed or felt hopeless?
Never Rarely Sometimes Often Always
17. Over the past 2 weeks, how often have you felt little interest or pleasure in doing things?
Never Rarely Sometimes Often Always
18. Please circle the number (0-10) that best describes how much distress you have been experiencing in the past week including today.
No distress 0 1 2 3 4 5 6 7 8 9 10 Extremely distress

Please circle/write your answer(s) that best describes your medical condition to your best recollection.

19. Do you have any of the following chronic conditions that require you to see your doctor regularly? Yes No

If yes, please specify (Please circle all that apply):

Diabetes / Hypertension / Arthritis / Heart Disease / Cancer / Respiratory Diseases /

Alzheimer's Disease / Osteoporosis / Obesity / Depression / Oral Health /

Anxiety / Dementia / Substance Abuse

Others: _____

20. In the past 3 months, how many times did you visit the doctors?

For chronic conditions stated above: times

For any other reasons: times

21. In the past 3 months, how many prescribed or over-the-counter medications have you taken daily for any medical condition?

For chronic conditions stated above: 0 1 2 3 4 5 or more

Vitamins: 0 1 2 3 4 5 or more

Baby aspirin 0 1 2 3 4 5 or more

For other reasons: 0 1 2 3 4 5 or more

22. In the past 3 months, have you been hospitalized?

If yes, why?

For how long? days

Part 2: Please take a moment to fill out your information below.

Age:

Sex: Male / Female

Marital Status: Single / Married / Divorced / Widowed

Ethnicity: (circle one)

African American American Indian/Alaskan Native Hispanic

Caucasian Portuguese Cambodian Chinese

Japanese Korean Laotian Filipino

Guamanian Hawaiian Samoan Vietnamese

Other

Do you receive SSI or SSP? Yes / No

Are you a low-income household? Yes / No

Do you live alone? Yes / No

I do not always have enough money to buy the food I need. Yes / No

Potential Threats to Validity

Due to the limitations on medical information data collection imposed by the Healthcare Insurance Portability and Accountability Act of 1996, as amended (HIPAA) Privacy Rule (2013), the impact of the SNP on patient health could only be gauged through voluntary, unconfirmed data reporting by the individual participant about herself or himself. Thus, the reluctance to reveal some information by the participant due to a sense of personal privacy may result in under reporting or over reporting of health impacts of the program. The Privacy Rule (2013) also impacted obtaining permission from the SNP to collect the medically-related data, and resulted in collection using an anonymous, coded-identification survey. Therefore, collected survey data may be factually inaccurate because the survey heavily relied on participants' self-reporting data, but it was important to the research because it reflected the participants' perceptions.

The research was designed to try to gauge the impact of SNP by asking a series of questions at the start of the SNP cycle, and then again after three months of participation in SNP, a pre-test/post-test model. Since it was undesirable to collect data using names, a code system was developed to be able to match the respondent for the pre-test to the post-test. Keeping track of the selected participants to re-distribute the post-test survey in three months was difficult, because participants may not be attending the lunches anymore by that time.

Timeline

Survey questions were created and reviewed by the end of March 2017. The original surveys were distributed to a selected three meal sites in San Jose downtown in June 2017. All the other existing data, such as the risk assessment data, were collected and analyzed by August 2017. Finally, the second set of surveys was distributed at the end of August to the three designated sites. Findings and Analysis sections were completed by October 2017.

FINDINGS

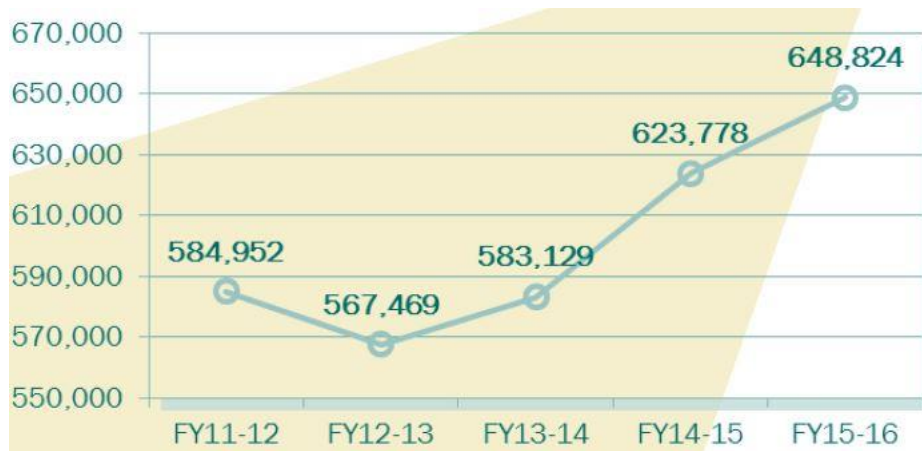
The goal of this research was to determine whether the SNP was meeting its objectives by analyzing SNP Annual Reports and data from an original survey. In this section, relevant data from the SNP Annual report will be presented, followed by graphs and charts presenting the quantitative results from the pre- and post-surveys.

Implementation

Pre-survey responses contained a large volume of unanswered questions and invalid answers. The researcher reinforced participants more strictly to fill out all questions for prepared rewards. As a result, post-survey responses were significantly more complete than that of pre-survey. The researcher anticipated to collect medical information from participants, but it was not possible due to HIPAA (Health Insurance Portability and Accountability Act of 1996). However, the researcher designed a comparison model to directly compare pre- and post-survey results at the level of the individual respondent.

Existing Data from SNP Annual Report FY 15-16

Figure C: Congregate Meals Served Five Years Trend



Source: Santa Clara County Department of Aging and Adult Services, 2016

Figure D: Unduplicated Seniors Served



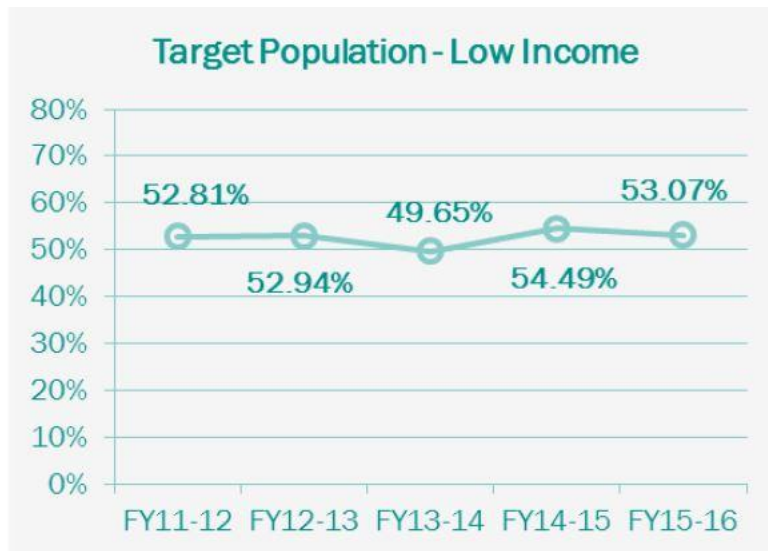
Source: Santa Clara County Department of Aging and Adult Services, 2016.

Figure E: Target Population by Age



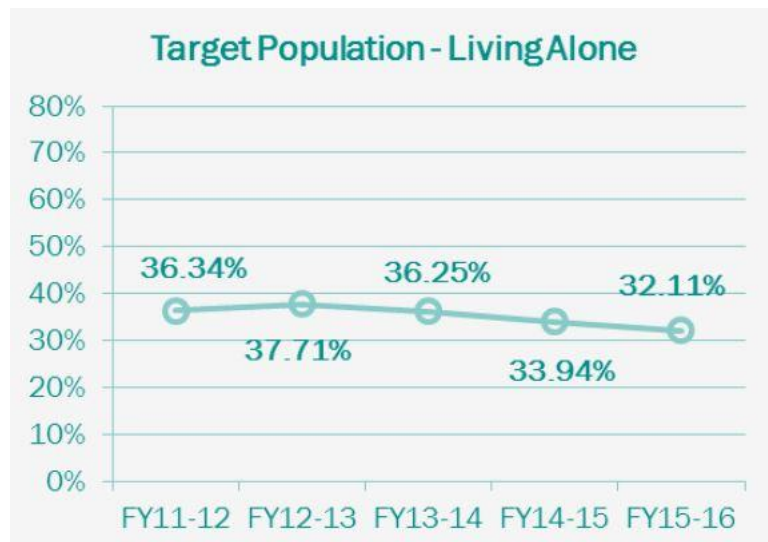
Source: Santa Clara County Department of Aging and Adult Services, 2016.

Figure F: Target Population by FPL



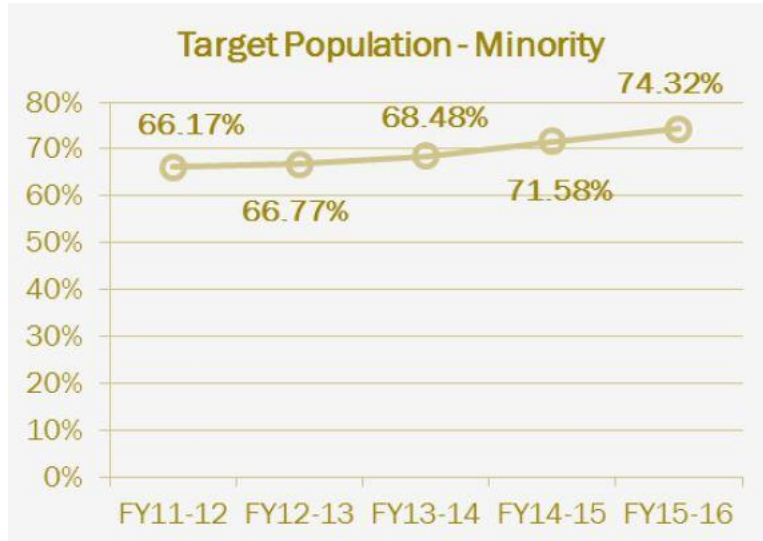
Source: Santa Clara County Department of Aging and Adult Services, 2016.

Figure G: Target Population by Living Status



Source: Santa Clara County Department of Aging and Adult Services, 2016.

Figure H: Target Population by Minority Status



Source: Santa Clara County Department of Aging and Adult Services, 2016.

Original Survey

Demographic Info: aggregate group

Table 4: Age Distribution of Survey Participants

Age—Pre	Count	Age—Post	Count
Under 60	1	Under 60	6
60-64	6	60-64	10
65-69	41	65-69	43
70-74	45	70-74	45
75-79	53	75-79	56
80-84	27	80-84	33
85-89	26	85-89	27
90 and over	7	90 and over	5
Total	206	Total	225

Figure I: Age Distribution: Pre

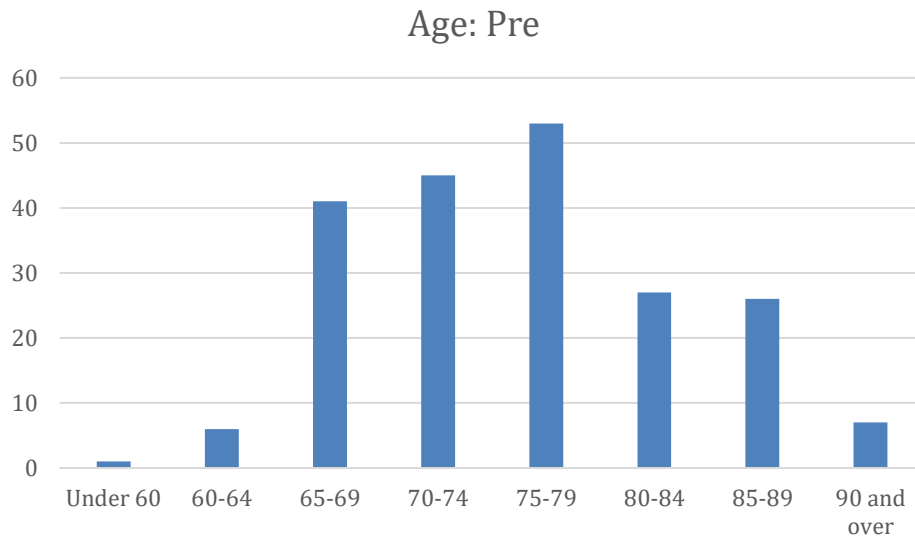


Figure J: Age Distribution Post

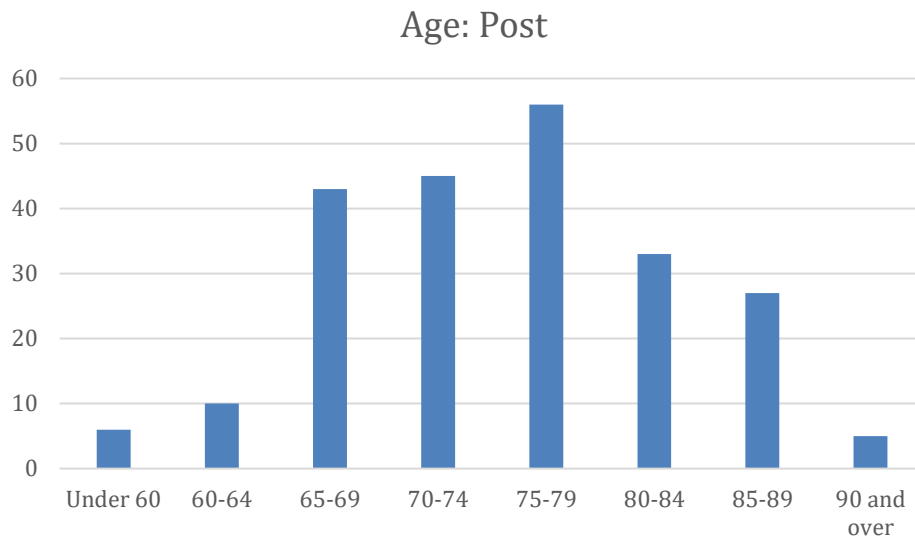


Table 5: Marital Status

Marital Status—Pre	Count	Marital Status—Post	Count
Married	85	Married	92
Divorced	18	Divorced	22
Single	30	Single	36
Widowed	47	Widowed	48
Total	180	Total	198

Figure K: Marital Status Pre

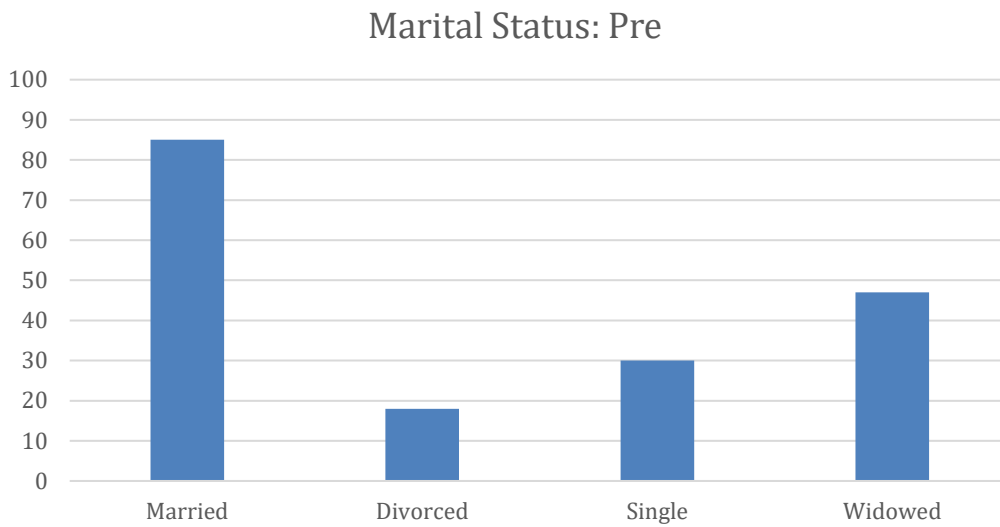


Figure L: Marital Status Post

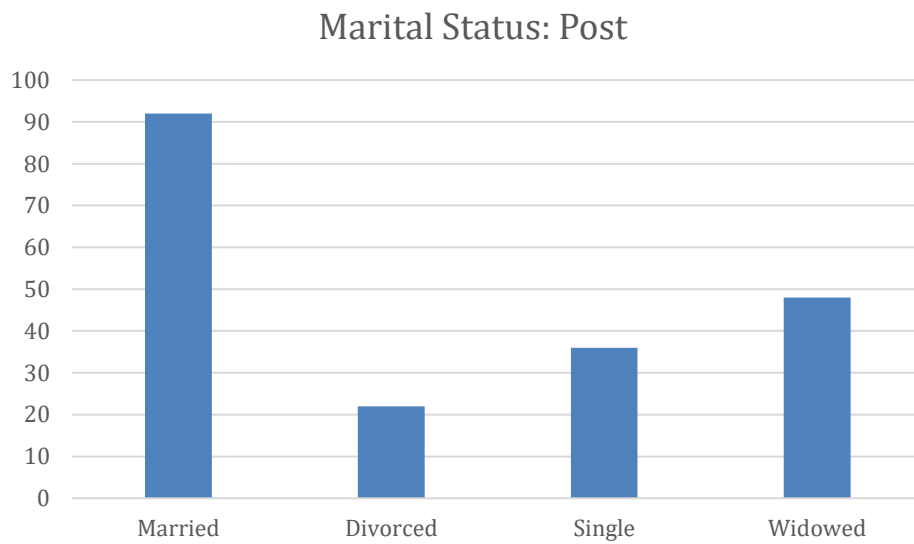


Table 6: Ethnicity

Ethnicity—Pre	Count	Ethnicity—Post	Count
Caucasian	4	Caucasian	7
African American	1	Other Asian	2
American Indian	1	American Indian	2
Cambodian	1	Laotian	1
Chinese	68	Chinese	67
Filipino	14	Filipino	6
Hispanic	34	Hispanic	53
Indian	3	Indian	3
Portuguese	1	Portuguese	1
Vietnamese	88	Vietnamese	91
Total	215	Total	233

Figure M: Ethnicity: Pre

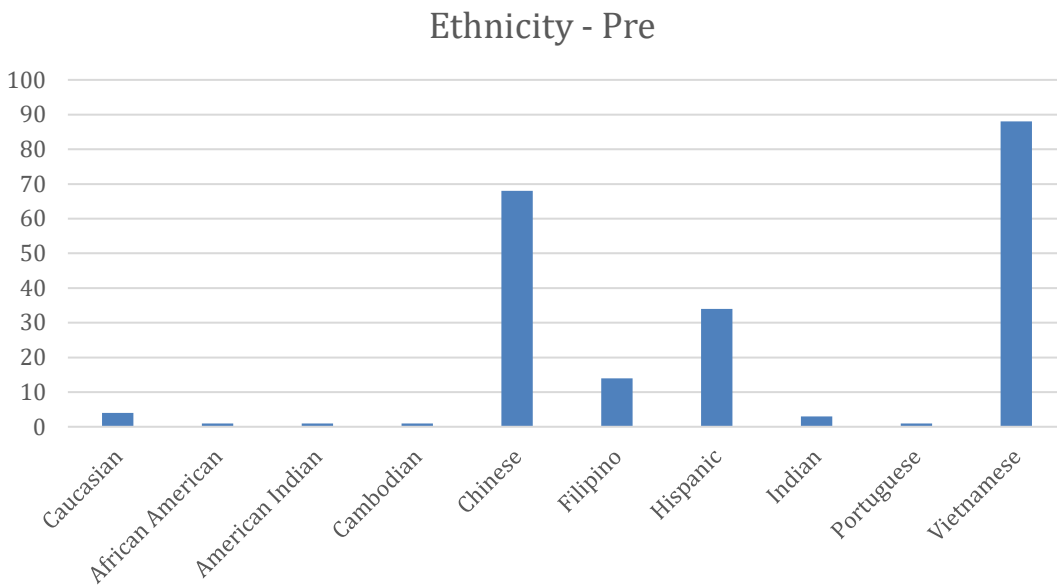


Figure N: Ethnicity: Post

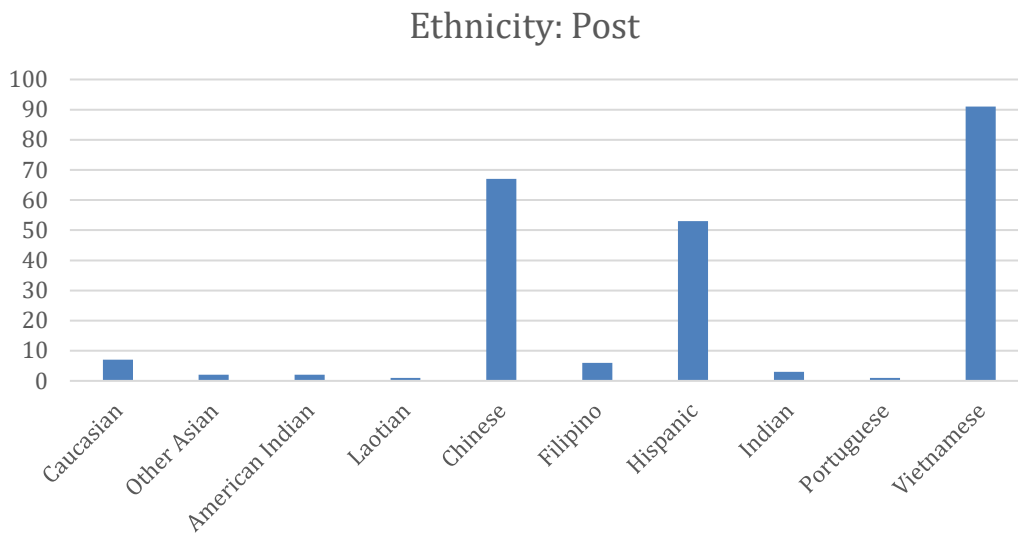


Table 7: Living Status

Living Alone—Pre	Count	Living alone—Post	Count
N	106	N	127
Y	88	Y	84
Total	194	Total	211

Table 8: Low Income

Below FPL—Pre	Count	Below FPL—Post	Count
N	25	N	38
Y	160	Y	166
Total	185	Total	204

Matching Samples

There were 33 matching samples with identical ‘My Code’ numbers from pre-surveys and post-surveys. All matching samples were cross-checked with their demographic information, such as age, gender, ethnicity, and marital status, to make sure they were the identical clients. Matching samples are respectively 14.5% of 226 total responders of the pre-survey and 13.4% of the 247 total responders of the post-survey. The matching sample size is slightly less than the original estimation of 15%. The proportion of matching samples might have increased if the pre-surveys and post-surveys had been conducted on the same day of the week. Survey questions, response choices/scales, and responses are summarized in Table 9 below.

Table 9: Survey Questions and Answers

Q#	Questions	Scale	Pre/Post	Answers (Means)	# of Valid Answers
1	How many Senior Nutrition Lunches did you eat <u>last week</u> ?	1=1 day or less, 2= 2 days, 3=3 days, 4=4 days, 5=5 or more	Pre	4.16	32
			Post	4.21	33
2	How many days did you participate in the activities (i.e. classes, exercise, bingo) at the meal site <u>last week</u> ?	1=1 day or less, 2= 2 days, 3=3 days, 4=4 days, 5=5 or more	Pre	2.44	27
			Post	3.04	28
3	Over the past 7 days, how many meals <u>per day</u> did you eat?	1= 1 meal or less, 2=2 meals, 3 = 3 meals or more	Pre	2.68	25
			Post	2.32	31
4	Over the past 7 days, how many servings of fruits or vegetables, on average, did you eat <u>per day</u> ?	1= 0, 2=1, 3=2, 4=3, 5=4 or more	Pre	3.91	32
			Post	4.00	32
5	Over the past 7 days, how many times did you eat fast food, processed food, or unhealthy snacks?	1= 0, 2=1, 3=2, 4=3, 5=4 or more	Pre	2.34	29
			Post	2.79	33
6	How often do you get the social and emotional support you need?	1=Never, 2=Rarely, 3=Sometimes, 4=Often, 5= Always	Pre	3.45	31
			Post	2.96	28

7	Over the past week, how many days did you exercise? (i.e. walking, dancing, exercising, etc.)	1= 0, 2=1, 3=2, 4=3, 5=4, 6=5, 7=6, 8=7 days	Pre	5.41	32
			Post	5.73	33
8	On those days that you engage in exercise, how many minutes, on average, do you spend on those activities?	Minutes	Pre	39.81	32
			Post	49.38	32
9	How many times did you use the transportation offered by Senior Nutrition <u>last month</u> ?	1=None, 2=Once, 3=Twice, 4=Three times, 5= Four times or more	Pre	3.81	32
			Post	3.75	32
10	I am satisfied with the overall services of the Senior Nutrition Program.	1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree	Pre	4.74	31
			Post	4.58	31
11	In general, would you say your health is:	1=Poor, 2=Fair, 3=Good, 4=Very Good, 5=Excellent	Pre	2.90	30
			Post	3.03	31
12	In the past 7 days, did you need help from others to perform everyday activities such as eating, getting dressed, grooming, bathing, walking, or using the toilet?	1=Yes, 2=No	Pre/Yes rate	0.10	31
			Post/Yes rate	0.22	32
13	In the past 7 days, did you need help from others to take care of things such as laundry and housekeeping, banking, shopping, using the telephone, food preparation, transportation, or taking your medications?	1=Yes, 2=No	Pre/Yes rate	0.39	31
			Post/Yes rate	0.33	30
14	Over the past 7 days, how would you rate your fatigue or sleeplessness?	Not at all 1= 0, 2=1, 3=2, 4=3, 5=4, 6=5, 7=6, 8=7, 9=8, 10=9, 11=10 Extremely	Pre	4.37	30
			Post	3.77	31
15	I feel isolated from the society.	1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree	Pre	2.34	32
			Post	2.31	29
16	Over the past 2 weeks, how often have you been depressed or felt hopeless?	1=Never, 2=Rarely, 3=Sometimes, 4=Often, 5= Always	Pre	1.61	31
			Post	1.74	31
17	Over the past 2 weeks, how often have you felt little		Pre	2.55	31

	interest or pleasure in doing things?	1=Never, 2=Rarely, 3=Sometimes, 4=Often, 5= Always	Post	2.63	32
18	Please circle the number (0-10) that best describes how much distress you have been experiencing in the past week including today.	Not at all 1= 0, 2=1, 3=2, 4=3, 5=4, 6=5, 7=6, 8=7, 9=8, 10=9, 11=10 Extremely	Pre	2.87	31
			Post	3.03	32
19	Do you have any of the following chronic conditions that require you to see your doctor regularly? Diabetes / Hypertension / Arthritis / Heart Disease /Cancer / Respiratory Diseases / Alzheimer's Disease / Osteoporosis / Obesity / Depression / Oral Health /Anxiety / Dementia / Substance Abuse	Yes/No Diabetes / Hypertension / Arthritis / Heart Disease /Cancer / Respiratory Diseases / Alzheimer's Disease / Osteoporosis / Obesity / Depression / Oral Health /Anxiety / Dementia / Substance Abuse	Pre/Yes rate	0.42	26
			Post/Yes rate	0.64	28
			Pre		
		Diabetes / Hypertension / Arthritis / Heart Disease /Cancer / Respiratory Diseases / Alzheimer's Disease / Osteoporosis / Obesity / Depression / Oral Health /Anxiety / Dementia / Substance Abuse	Post		
20-1	In the past <u>3 months</u> , how many times did you visit the doctors? (Chronic condition)	Times	Pre	1.74	27
			Post	1.00	28
20-2	In the past 3 months, how many times did you visit the doctors? (Other reasons)	Times	Pre	1.00	8
			Post	1.00	7
21-1	In the past <u>3 months</u> , how many prescribed or over-the-counter medications have you taken <u>daily</u> for any medical condition? (Chronic condition)	Pill(s)	Pre	3.50	24
			Post	3.53	19
21-2	In the past <u>3 months</u> , how many prescribed or over-the-	Pill(s)	Pre	2.76	21

	counter medications have you taken <u>daily</u> for any medical condition? (Other use)		Post	3.00	17
21-3	In the past <u>3 months</u> , how many prescribed or over-the-counter medications have you taken <u>daily</u> for any medical condition? (Baby Aspirin)	Pill(s)	Pre	2.56	16
			Post	2.13	16
21-4	In the past <u>3 months</u> , how many prescribed or over-the-counter medications have you taken <u>daily</u> for any medical condition? (Other reasons)	Pill(s)	Pre	2.86	14
			Post	2.83	12
22-1	In the past <u>3 months</u> , have you been hospitalized? (Y/N)	1=Yes, 2=No	Pre/Yes rate	0.09	22
		1=Yes, 2=No	Post/Yes rate	0.07	27
22-2	In the past <u>3 months</u> , have you been hospitalized? (For how long?)	Days	Pre		2
			Post		2

ANALYSIS

The analysis section is organized by research questions. Each question was evaluated according to data collected from existing sources and from responses to the survey. FY15-16 Santa Clara County Senior Nutrition Program Annual Report was used to answer research questions 1a, 1b, and 1c. The extracted information includes the number of meals served, the number of unduplicated clients served, and demographic information. The original survey conducted by the researcher was used to answer research questions 1a, 1c, 2a, 2b, and 3.

Question 1a: Is the current nutrition program in Santa Clara County effective in terms of quantitative achievements of the program output such as number of meals served and number of clients served?

Existing Data

As Figure C shows, a total of 648,824 SNP Congregate Meals were served in Santa Clara County in FY 2015-2016. This was an increase of about 4.02% compared to the previous year's total of 623,779 meals served. The number of SNP Congregate meals served has grown continuously since FY2011-2012, with a cumulative change of 10.92%.

The total number of unduplicated clients served in the county has also increased, as Figure D shows. In FY 2015-2016, there was an increase of 12.12% compared to the previous year, and there was a total of 25.08% increase in the number of unduplicated Congregate Meal clients served over the same period.

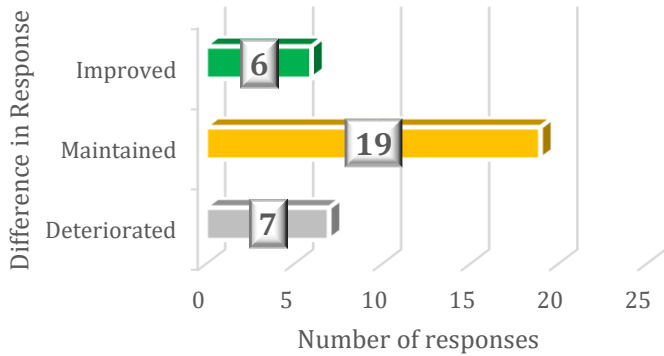
Survey Data

Q1 How many Senior Nutrition Lunches did you eat last week?

According to Table 9, of those 33 matching samples, 32 people from the pre-survey had valid responses and answered, resulting in an average of 4.16 days out of 5 days. All 33 participants from the post-survey responded that they had eaten Congregate Meals an average of 4.21 times the previous week. According to Figure O, six participants participated in the

Congregate Meal service more than three months ago, 19 clients participated to the same degree, and seven clients participated less. The total number of improved or maintained group (25 responded improved or maintained out of 32 total responders: 78.13%) outweigh the deteriorated group (7 out of 32 responders: 21.88%) by 56.25%.

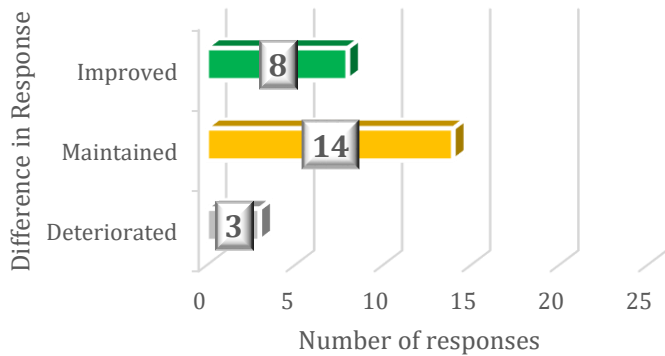
Figure O: Question 1



Q2 How many days did you participate in the activities (i.e. classes, exercise, bingo) at the meal site last week?

According to Table 9, 27 participants from the pre-survey provided valid responses. They answered that they had participated in the SNP activities an average of 2.44 days the previous week. Twenty-eight people from the post-survey provided valid responses. These respondents had eaten lunch an average of 3.04 days out of five days the previous week. Figure P indicates that eight people participated in the SNP Congregate Meal site activities more often than three months ago, 14 people participated to the same degree, and three people participated less. The improved and maintained group (22) outweighs the deteriorated group (3) by 76%.

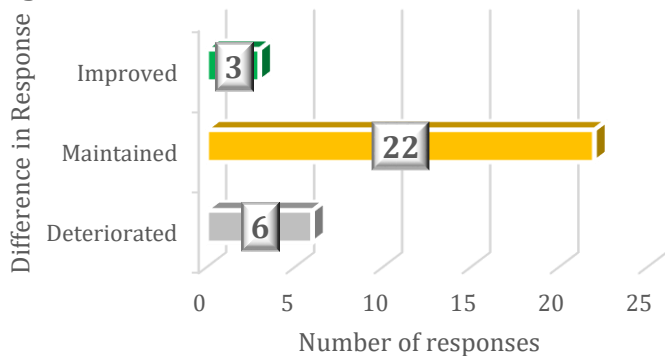
Figure P: Question 2



Q9 How many times did you use the transportation offered by Senior Nutrition last month?

According to Table 9, 32 participants responded from both the pre- and post-surveys. Pre-survey respondents answered average 3.81 (meaning slightly less than three times/a month according to the pre-defined scale), and post-survey respondents answered average 3.75 (meaning slightly less than three time/a month). Figure Q indicates that three people used the transportation service more often, 22 people used it to a similar degree, and six people used the transportation service less often than three months ago. Overall, the improved and maintained group (25: 80.64%) outweighs the deteriorated group (6: 19.35%) by 61.29%.

Figure Q: Question 9



Question 1b: Is it effective in terms of serving the target group?

According to Table 10, 53.72% of the Congregate Meal service clients in FY15-16 are 75 years and older. Table 10 shows that 53.07% of the Congregate Meal service clients were below the FPL in FY 15-16. Table 10 indicates that 32.11% of the total clients lived alone in FY15-16, and 74.32% of the total clients are minorities according to Table 10. Table 10 below summarizes the achievements of the SNP in FY15-16 in terms of serving the target population. The SNP exceeded minimum requirements mandated by the OAA in all four criteria: age, low-income, living alone, and minority. The SNP exceeded minimum requirements respectively by 21.72%, 46.07%, 25.11%, and 34.32%.

Table 10: Participant Population Analysis

Target Population	Funding-Required Minimum	SCC SNP FY15-16 Actual	Difference
Aged 75+	32%	53.72%	+ 21.72%
Low Income	7%	53.07%	+ 46.07%
Living Alone	7%	32.11%	+ 25.11%
Minority	40%	74.32%	+ 34.32%

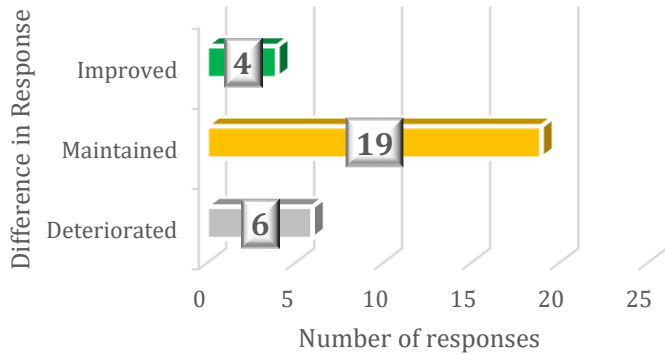
Sources: Santa Clara County Department of Aging and Adult Services, 2016; research calculations.

Question 1c: Is the program effective in serving the clients in terms of quality of services, such as satisfaction rate?

Q10 I am satisfied with the overall services of the Senior Nutrition Program.

According to Table 9, out of 33 total participants in the matching sample group, 31 participants responding to the pre-survey gave an average score of 4.74 (Scale from 1-5, one being Strongly Disagreed and five being Strongly Agreed), and 31 participants from the post-survey answered, giving an average score of 4.58. The averages of 4.74 and 4.58 indicate that most of the 31 participants responded between Satisfied and Strongly Satisfied. Figure R shows that the improved and maintained group (23) outweighs the deteriorated group (6) by 58.62%.

Figure R: Question 10

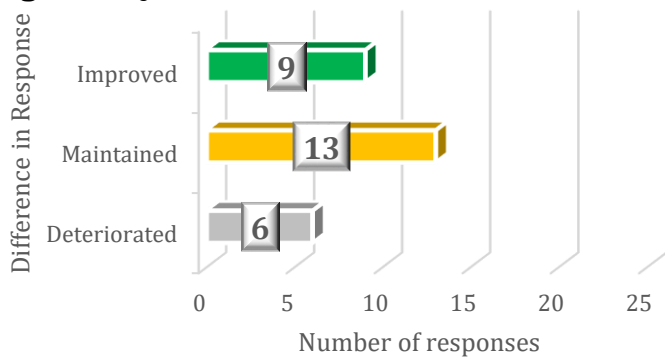


Question 2: Does the program promote the overall health of participants?

Q11 In general, would you say your health is:

Survey question 11 was designed to measure the overall status of participants' health. Thirty pre-survey participants reported an average score of 2.9 on a scale from 1 (poor) to 5(excellent). Thirty-one post-survey participants reported an average score of 3.03. Figure S shows that nine matching participants felt healthier, thirteen participants felt the same, and six participants felt less healthy. The improved and maintained group outweighs the deteriorated group by 54.43%.

Figure S: Question 11



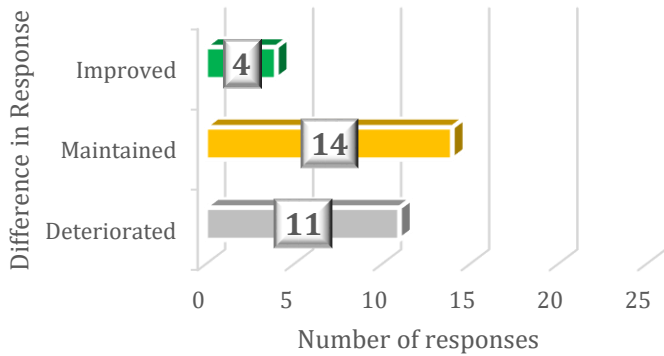
Question 2a: Do participants improve their physical health?

Survey questions 3, 4, 5, 7, 8, 12, 13, and 14 were assigned for research question 2a in an effort to evaluate the relationship between program participation and benefits to physical health. These survey questions attempted to collect information from clients regarding their physical health conditions and changes in general habits that could potentially affect their physical health.

Q3 Over the past 7 days, how many meals per day did you eat?

According to Figure T, the majority of the 25 matching pairs who answered the survey question 3 either increased or maintained the number of total meals they ate per day. During roughly three months of SNP participation, four people developed a habit of eating more meals per day, 14 people maintained their eating habits, and 11 people decreased their eating habits. The improved and maintained group outweighs the deteriorated group by 28%.

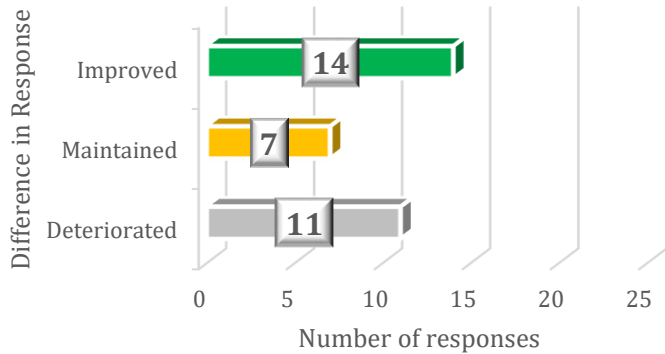
Figure T: Question 3



Q4 Over the past 7 days, how many servings of fruits or vegetables, on average, did you eat per day?

As shown in Figure U, out of 32 matching pairs, 14 people ate more fruits and vegetables than three months ago, seven participants maintained the number of servings of fruits and vegetables, and 11 people decreased their consumption of fruits and vegetables. The improved and maintained group outweighs the deteriorated group by 31.13%.

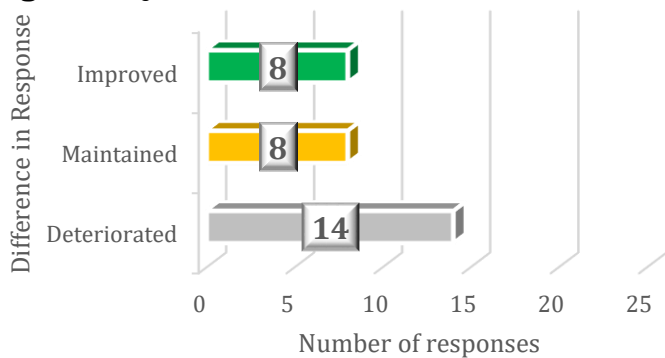
Figure U: Question 4



Q5 Over the past 7 days, how many times did you eat fast food, processed food, or unhealthy snacks?

Figure V indicates that eight matching participants responded that they ate less fast food, processed food, and unhealthy snacks, eight people maintained, and 14 people ate more of those unhealthy foods. The improved and maintained group still outweighs the deteriorated group by 6.25% for this factor, but that margin is considerably slimmer than the average difference among other survey responses.

Figure V: Question 5

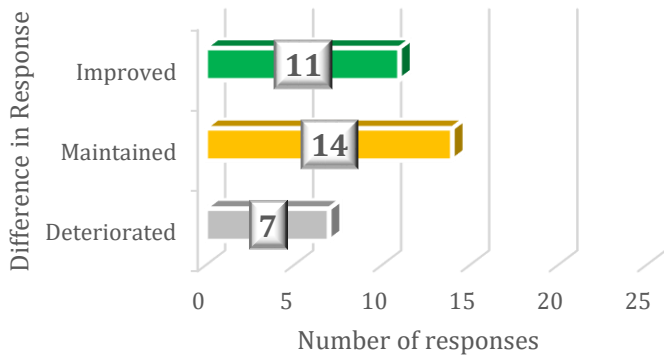


Q7 Over the past week, how many days did you exercise? (i.e., walking, dancing, exercising, etc.)

Figure W shows the changes in responses rate between pre- and post-surveys for

matching samples. Eleven participants exercised more frequently, 14 participants maintained their exercise habits, and seven participants exercised less frequently. The improved and maintained group outweighs the deteriorated group by 56.25%.

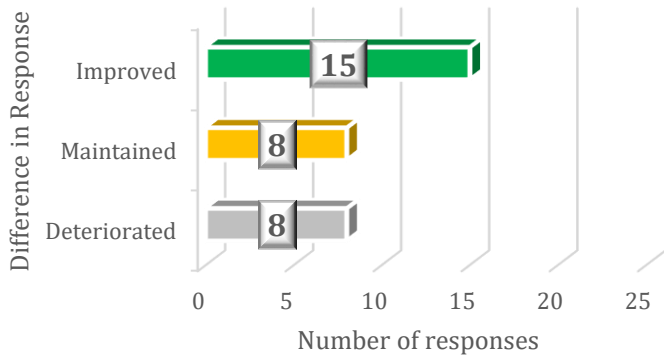
Figure W: Question 7



Q8 On those days that you engage in exercise, how many minutes, on average, do you spend on those activities?

Figure X shows the changes in responses rate between pre-survey and post-surveys for matching samples. Fifteen participants increased the duration of their exercise, eight participants maintained the duration of their exercise, and eight participants exercised less. The improved and maintained group outweighs the deteriorated group by 48.38%.

Figure X: Question 8

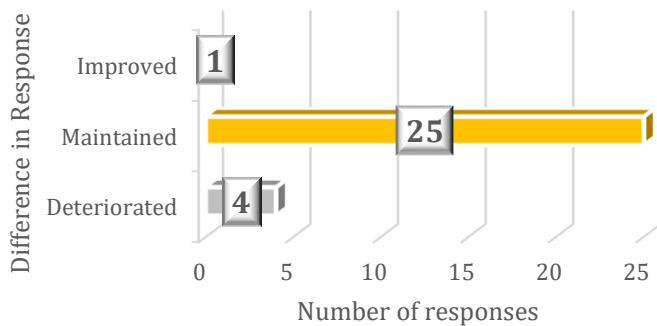


Questions 12 and 13 were designed to collect information regarding whether participants are in good enough health to do their everyday basic activities and chores.

Q12 In the past 7 days, did you need help from others to perform everyday activities, such as eating, getting dressed, grooming, bathing, walking, or using the toilet?

Out of 30 matching pairs, one participant responded that he/she does not need help doing everyday activities that he/she needed three months ago. Twenty-five participants still did not need any help doing their everyday activities, and four participants responded that they needed others to help them perform everyday activities, which they did not need three months ago. The improved and maintained group outweighs the deteriorated group by 73.33%.

Figure Y: Question 12

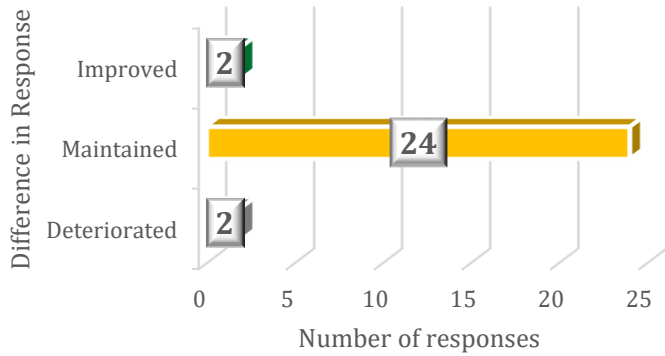


Q13 In the past 7 days, did you need help from others to take care of things such as laundry and housekeeping, banking, shopping, using the telephone, food preparation, transportation, or taking your medications?

Out of 26 matching pairs, two participants (who needed help three months ago) responded that they did not need help taking care of chores like laundry, housekeeping, banking, shopping, using the telephone, food preparation, transportation, or taking their medications. Twenty-four participants still did not need any help doing their everyday chores, and two participants responded that they needed others to help them take care of everyday chores, which they did not need three months ago. The improved and maintained group outweighs the

deteriorated group by 85.71%.

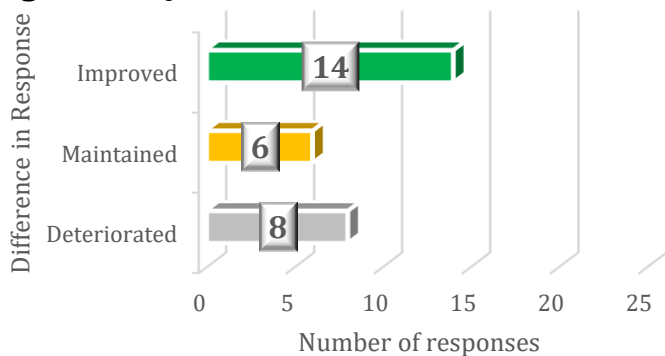
Figure Z: Question 13



Q14 Over the past 7 days, how would you rate your fatigue or sleeplessness?

Survey question 14 collected clients' fatigue or sleeplessness on a scale from 1 (not at all fatigued) to 11 (extremely fatigued). According to Table 9, 30 people from the pre-survey responded, rating their fatigue or sleeplessness at an average of 4.37, whereas 31 participants from the post-survey answered 3.77. Figure AA indicates that 14 participants felt less tired than three months ago, six people felt the same, and eight people felt more tired. The improved and maintained group outweighs the deteriorated group by 42.86%.

Figure AA: Question 14



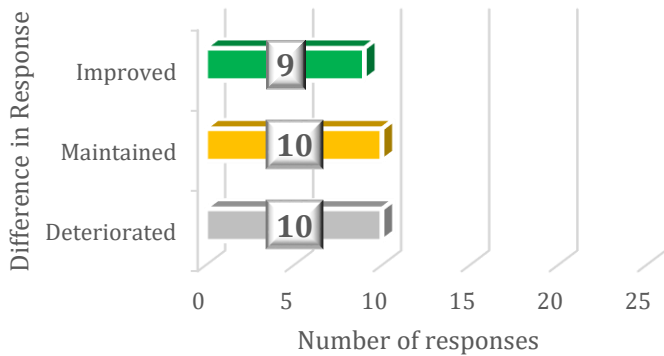
Question 2b: Do participants improve their mental health?

Questions 6, 15, 16, 17, and 18 were assigned to research question 2b in an effort to evaluate the relationship between program participation and mental health benefits. These questions attempted to collect information from the clients regarding the condition of their mental health.

Q6 How often do you get the social and emotional support you need?

Survey question 6 was designed to find out whether there is a relationship between program participation and participants’ responses regarding social and emotional support. According to Figure AB, nine participants from the post-survey reported that they felt more emotional support than when they had participated in the pre-survey. Ten participants felt the same amount of support, and ten people thought they were receiving less of the social and emotional support they needed. The improved and maintained group outweighs the deteriorated by 31.03%.

Figure AB: Question 6

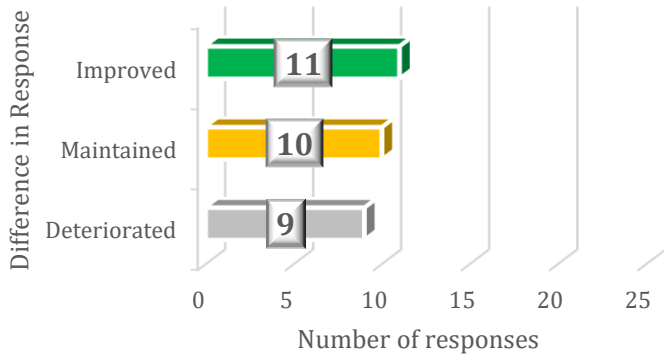


Q15 I feel isolated from the society.

Survey Question 15 attempted to measure how much the participants feel isolated from society. By comparing pre-survey and the post-survey results, it is possible to form an idea of

whether participants felt more connected to society after participating in the Congregate Meals program. Eleven out of 30 participants felt more connected to society than when they participated in the pre-survey, ten people remained the same, and nine people felt more isolated. The improved and maintained group outweighs the deteriorated group by 40%.

Figure AC: Question 15



Q16 Over the past 2 weeks, how often have you been depressed or felt hopeless?

Survey question 16 was designed to measure the participants' depression and hopelessness. Five out of the total of 30 matching participants answered that they felt less depressed, 17 participants had no difference, and seven participants felt more depressed and hopeless in the post-survey. The improved and maintained group outweighs the deteriorated group by 51.72%.

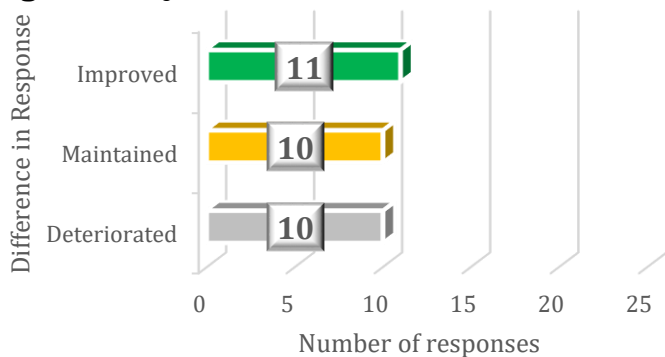
Figure AD: Question 16



Q17 Over the past two weeks, how often have you felt little interest or pleasure in doing things?

According to Table 9, 31 matching participants from the pre-survey responded with an average score of 2.55 on a scale from 1 (never) to 5 (always). Thirty matching participants responded to the post-survey with an average score of 2.63. Most participants feel little interest or pleasure in doing something “rarely” or “sometimes.” Figure AE shows that 11 people felt more often interested or pleasure in doing something than when they participated in the pre-survey, ten participants remained, and ten people felt less interest or pleasure in doing things. Improved and maintained group outweigh the deteriorated group by 38.71%.

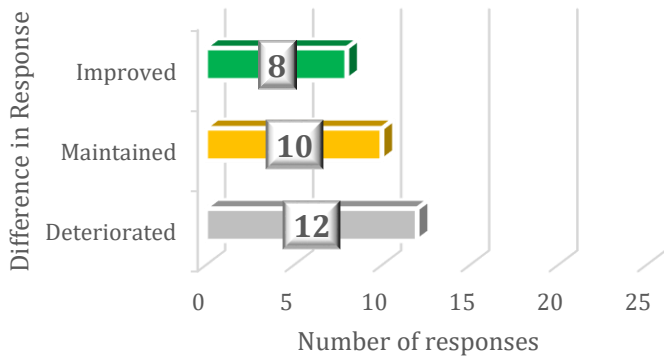
Figure AE: Question 17



Q18 Please circle the number (0-10) that best describes how much distress you have been experiencing in the past week including today.

Survey question 18 was designed to measure participants' stress level and compare the responses from the pre-survey and post-survey. On a scale from 1 (no stress) to 11 (extremely stressed), 31 participants from the pre-survey responded with an average score of 2.87. Thirty-two participants from post-survey responded with an average score of 3.03. Respondents to both surveys had overall low stress levels. Figure AF shows that eight people reported on the post-survey that their stress level had decreased from when they participated in the pre-survey, ten people remained the same, and 12 people reported being more stressed. The improved and maintained group outweigh the deteriorated group by 20%.

Figure AF: Question 18



Question 3: Do the program outcomes impact society in terms of reducing health care costs?

Questions 19, 20, 21, and 22 were assigned to research question 3 in an attempt to find out whether program participation had an overall effect on health care spending. The questions attempted to collect data on clients' recent prescribed and over-the-counter drug use and doctor visits. Research question 3 attempts to find whether there is a relationship between program participation and trends in clients' medical activities that are related to medical spending.

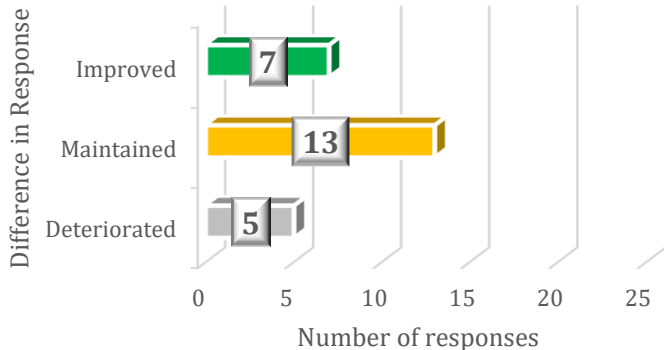
Q19-1 Do you have any of the following chronic conditions that require you to see your doctor regularly?

According to Table 9, 42% of the 27 pre-survey participants reported that they have chronic conditions regarding which they have to see doctors regularly, and 64% of the 28 post-survey participants reported that they have chronic conditions. There was a 22% increase in number of participants reporting chronic conditions from the pre-survey to the post-survey.

Q20-1 In the past 3 months, how many times did you visit the doctors (Chronic)?

Figure AG shows that there were seven participants who visited the doctor less frequently than when they participated in the pre-survey, 13 people who maintained their number of visits, and five people visited the doctor more often. The improved and maintained group outweighs the deteriorated group by 60%.

Figure AG: Question 19

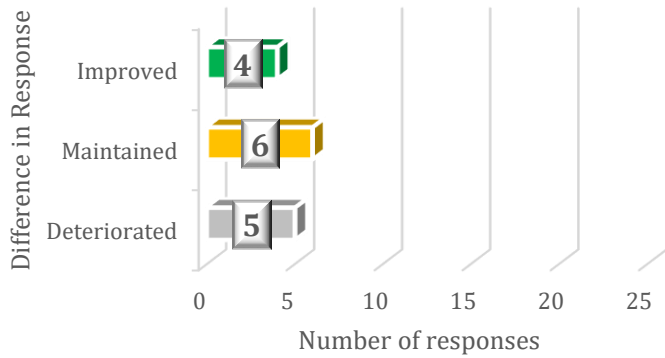


Q21-1 In the past 3 months, how many prescribed or over-the-counter medications have you taken daily for any medical condition (Chronic)?

Survey question 21-1 was designed to measure a trend in participants' medication intakes over a period of time. Only 15 participants responded. According to Figure AH, four people took less prescribed or over-the-counter medications than when they participated in the pre-survey about three months ago, six people maintained their intake amount, and five participants took

more medications. The improved and maintained group outweighs the deteriorated group by 33%.

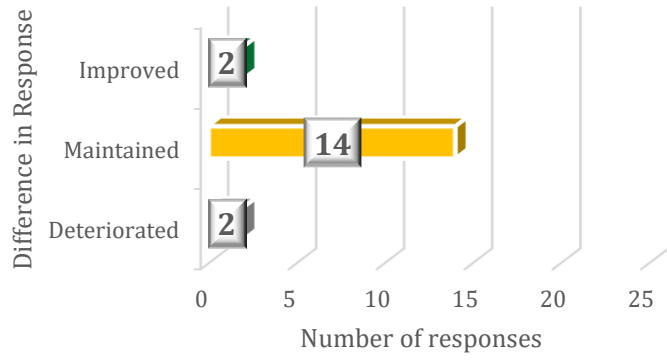
Figure AH: Question 21-1



Q22 In the past 3 months, have you been hospitalized?

Survey question 22 was designed to measure a trend in participants' hospitalization rate over roughly three months. According to Figure AI, two participants who had been hospitalized during the three months period prior to the pre-survey had not been hospitalized during the three-month period prior to the post-survey. Fourteen participants were not hospitalized during either of the time periods, and two people had been hospitalized during the three months period prior to the post-survey, but not before the pre-survey. Therefore, the improved group and maintained group outweighs the deteriorated group by 77.78%.

Figure A1: Question 22



CONCLUSIONS

This research focused on evaluating the SNP by measuring whether the program met its objectives. The researcher created three research questions to be answered in order to develop the conclusion. Collected data from the FY15-16 the SNP Annual Report and original survey responses were sufficient to answer all three research questions.

The SNP has successfully expanded their government funding and managed their program (such as transportation system) more efficiently. As a result, the SNP has continuously expanded its program by increasing the number of congregate meals served and the number of unduplicated clients for past five fiscal years. The SNP also met and exceeded minimum requirements, with 21.72% more people over 75 years of age participating in the SNP, 46.07% more people below FPL participating in the SNP, 25.11% more people living alone participating in the SNP, and 34.32% more people who are minorities participating in the SNP.

The survey results also clearly indicated (as shown in Survey questions_15, 16, 17, and 18) that there were associated relationships of the program participation and its benefit to their mental and physical health. More importantly, the study was able to find trends in people's medical spending by analyzing their medical activities, such as counting the number of medications that were taken, and the change in doctors' visits. There was a 22% increase in the number of participants who were diagnosed with a chronic condition which they did not have when they participated in the pre-survey. Despite the increase in number of participants with chronic disease, the survey results (Survey question 19) indicate clear trends showing that participants took less prescribed, or over-the-counter medications, and they visited the doctors less as they participated in the SNP Congregate Meals program.

These proxy measures had to be used to understand the medical impact because of limitations imposed by HIPAA (US Department of Health and Human Services, 2013). The

researcher was not able to conduct further inquiries on participants' health condition and actual medical spending due to limited data access. However, the medical activity trends found from the self-reported survey results can be an implication that the SNP should expand its evaluation methods to further evaluate its effect on participants' medical spending.

The strength of the overall measures demonstrates that the SCC SNP meets and exceeds the requirements of the grant funders supporting its activities.

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