Improving Interventions on Cardiovascular Disease and Diet: A Policy Incentive Analysis

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Abstract

Various Cardiovascular Diseases (CVDs) can be catastrophic and can lead to irreversible outcomes. Despite improved interventions for CVD prevention awareness, there continues to be discussion and research on diet-related CVD and mortality without addressing the problem. Instead of prioritizing public guidelines and policies, policymakers should understand CVD and address population barriers to adhering to a healthy diet that decreases CVD risk. Therefore, this project aims to analyze federal healthy food incentive policies to promote healthy diet behaviors that reduce CVD risk. The method used was existing data for a comparative policy analysis that included a policy proposal process: phases of progression, measures, and a policy model with data collection and requirements. This analysis compared a current federal food incentive program versus the proposed program. Results of the final analysis derived from the literature review and collected data stated consuming foods from the Mediterranean and other low-fat and low-salt diets reduced CVD risks that also reduced other risks secondary to CVD, such as obesity, diabetes, and Cerebrovascular Accident (CVA). Comparatively, combined healthy food incentives and disincentives were more effective for improving healthy behaviors than, in some cases, even after incentives were removed. Therefore, this policy analysis supports the indication for incentive policy change. However, the lack of federal stakeholders' response to key policy changes upon proposal submission may require other methods of proposal dissemination. Nonetheless, focusing analysis on various Food Insecurity Nutrition Incentive (FINI) programs instead of one, multi-state program, which may have improved analysis outcomes, was the lesson learned.

Keywords

CVD Risk Prevention Diets, Dietary Guidelines, American Stroke/Heart Association (ASA/AHA), CVA, Federal Healthy Food Incentives

1. Introduction

Reference [1] stated that a stroke occurs < every 50 seconds and deaths occur < every five minutes. Primordial prevention combines information and policies for at-risk patient populations that incorporate initiatives to prevent health risks and eventually prevent chronic diseases. Programs that address low socioeconomic population barriers, such as inadequate housing and adopting healthy habits, also address the risk of chronic diseases. Primary prevention is concerned with current risk factors related to at-risk populations. Clinicians, programs, and agencies inexpressively addressed chronic disease risk factors by neither prescribing specific preventative care nor healthy diet behaviors [1]. Moreover, poor nutrition is significantly associated with increased CVD mortality; good nutrition can begin as early as embryotic life to sustain good health throughout; also, including a supportive environment to facilitate healthy eating reduces CVD risk [2].

The Food Insecurity Nutrition Incentive (FINI) federal program's purpose is to provide healthy food incentives for Supplemental Nutrition Assistance Program (SNAP) recipients to increase purchases of fruits/vegetables at times of purchase. The FINI program was established by the United States Department of Agriculture (USDA) in 2014 [3], referred to as the Gus Schumacher Nutrition Incentive Program (GusNIP). It is unclear why Reference [3], a FINI evaluation final report, continued to use FINI as its name and, therefore, will be referred to as such in this paper, due to much-cited literature that used the term FINI. Reference [4] stated, for policymakers, information that provides associations between nutrition policies and health, including healthcare financial burdens associated with unhealthy diets, is limited at the appropriate period when policymakers' willingness and policy initiatives are needed [4]. Therefore, theoretical models of behavior change programs and stakeholders' support are needed [5]. The purpose of this federal FINI program policy analysis is to evaluate food incentive/disincentive policy options that promote the prevention of CVD through diet for all populations. Hence, a state-level analysis guided the application of the current federal policy analysis. Although this paper will focus on federal-level policy, global aspects of food distribution and policy will also be discussed since much of America's food supply is through global trade.

2. Problem Description

The annual cerebrovascular disease or Cerebrovascular Accident (CVA) mortality rate in the U.S. is 1 in 19. This prospective cohort study showed that vegetarian diets reduced the risks of ischemic and hemorrhagic strokes [6]. The impact of poor eating habits and diet-related chronic illnesses due to limited health incentive policies is a significant problem. In [7], a mixed-methods, qualitative, evidence level-III study, stated, the most frequently mentioned barriers were costs and distance to obtain healthy food; even for nearby healthy food options, cost remained a reported barrier in this study. Furthermore, as significant factors

in reducing CVD, inaccessible healthier diets are significant barriers for at-risk populations challenged by limited supermarkets determined by the Self-Determination Theory (SDT) [7]. Therefore, less focus should be on consumer responsibility for unhealthy eating behaviors if no policies such as food distributor or direct consumer incentives are in place. Hence, governments can improve nutrition with behavioral and policy science ranging from in- or voluntary legislation or recommendations that institutions often follow [4]. According to Reference [8], about 11% of Americans are food insecure and over 10% are SNAP recipients. Disturbingly, SNAP provides partial food assistance supplemented by FINI that is limited to very low-income, SNAP recipients who receive limited assistance to improve food insecurity [8]. Moreover, the FINI federal program applies incentives only to SNAP recipients experiencing disparities and poor diet quality, just as non-SNAP recipients [9].

3. Significance of Problem

Reference [9] stated the prevalence of CVD is about 50% within the U.S., with much of it contributing to poor diets. Furthermore, disparities in healthy diets have contributed more to the problems in accessing healthier diets among minorities who experience disparities by direct and indirect influences of the federal government, such as income limit criteria and Social Determinants of Health (SDOH) that deter purchases and access to healthy foods. The SDOH, such as cultural, economic, environmental, and personal factors, can also impact good nutrition associated with healthy food disparities. Moreover, quality diet disparities are apparent among minorities whose SDOH is negatively affected by environmental and economic issues that are major barriers to healthy diets. This study stated unexpected changes in poor-quality diets among the low-income were very insignificant from 2003-2012, versus significant reductions in poor-quality diets among the high-income. Also, SNAP recipients supplemented by FINI had experienced disparities within the SNAP system that involved poor diet quality. Furthermore, SNAP participation is low at 30%, possibly due to stigma and costly SNAP certification. Disturbingly, SNAP allows recipients to purchase more unhealthy foods than other federal food programs, as much as non-SNAP recipients' increased purchase of unhealthy foods due to the expense of healthy foods [9]. However, FINI mainly supports farmers' markets [10], which unjustifiably impacts the low fruit/vegetable intake of low-income groups [9] impacted by inflation. Moreover, FINI has limited expansion to commercial markets such as grocers [11], a USDA evaluation report. Also, [12] stated disproportioned prices of more expensive healthier foods and less costly unhealthy foods need to be addressed in a federal policy to regulate food prices [12].

4. Method

4.1. Appraisal of Evidence

Google Scholar, Elsevier, Science Direct, the National Institute of Health, and

PubMed databases were used as search tools and delimiters. Exclusion criteria were blogs, vlogs, and limited accessed articles; inclusion criteria were open-accessed, peer-reviewed, scientific journals and USDA articles between 2017-2022. Keywords were used to refine searches of CVD healthy diet concepts, theories, and themes. The Johns Hopkins Nursing Evidence-Based Practice (JHNEBP) hierarchy of evidence model was used to appraise and synthesize the evidence [13]. Of the 96 articles searched, 34 were selected for appraisal and met criteria; levels of evidence I-V (level I as strongest), and evidence qualities A-C were used for evidence appraisal [13].

Within the selected articles, three concepts emerged. The primary concept is diet-related CVDs, the secondary concept is barriers to healthy eating, and the tertiary concept is healthy diet incentives. The clinical inquiry question that focused the search and appraisal of evidence was: For all socioeconomic level populations at risk for CVD, are healthy food incentives effective for improved healthy diet behaviors and purchases of healthy (as plant foods) foods? The following questions further directed the policy analysis relevant to the literature and data:

For federal policy implementation, are there possible political or stakeholder barriers?

What necessary resources are needed to support a determination of a policy-level focus?

How would food dis-/incentives financially impact the population/stakeholders?

Is the evidence consistent with supporting improved population behavior and disparity outcomes?

4.2. Synthesis of Evidence

In total, 34 articles were appraised and synthesized using the Johns Hopkins EBP tools and levels [13], which summarize the findings for each level and review of evidence:

- 13, level-I evidence as systematic reviews of RCTs or experimental [13]: Ebbeling *et al.*, 2020; French *et al.*, 2017; Gardiner & Bryan, 2017; Guasch-Ferré *et al.*, 2019; Hendriksen & Van Der Gaag, 2022; Hu *et al.*, 2019; Moran *et al.*, 2019; Nagatomo *et al.*, 2019; O'Connor *et al.*, 2018; Olstad *et al.*, 2017; Vadiveloo *et al.*, 2021; Valluri *et al.*, 2021; Wright *et al.*, 2017; the evidence classes A, B, and C rate qualities of evidence [13]; there was no evidence level-II studies;
- 8, level-III evidence were non-experimental or systematic reviews/meta-analysis [13]: Bechthold *et al.*, 2017; Chiu *et al.*, 2020; De Buisonjé *et al.*, 2021; Kern *et al.*, 2017; Kirzner *et al.*, 2021; Larsson, 2017; Saulle *et al.*, 2019; Shavit *et al.*, 2021;
- 5, level-IV evidence guidelines, statements [13]: Adeoye *et al.*, 2019; Kleindorfer *et al.*, 2021; Kris-Etherton *et al.*, 2020; Lichtenstein *et al.*, 2021; Vericker *et al.*, 2019/2021;

- 7, level-V evidence literature reviews, case studies [13]: El-Hajj *et al.*, 2021; Harris *et al.*, 2021; Lin, 2021; Mozaffarian *et al.*, 2018; Parks *et al.*, 2018/2020; Ritchey *et al.*, 2018.

Various CVD risks and diet incentives were evaluated for the most current, available evidence with 17 sources of evidence noting the importance of CVD risk-reducing foods (Adeoye *et al.*, 2019; Bechthold *et al.*, 2017; Chiu *et al.*, 2020; Ebbeling *et al.*, 2020; El-Hajj *et al.*, 2021; Guasch-Ferré *et al.*, 2019; Hendriksen & Van Der Gaag, 2022; Hu *et al.*, 2019; Kirzner *et al.*, 2021; Kleindorfer *et al.*, 2021; Larsson, 2017; Lichtenstein *et al.*, 2021; Lin, 2021; O'Connor *et al.*, 2018; Ritchey *et al.*, 2018; Saulle *et al.*, 2019; Wright *et al.*, 2017). Sixteen sources of evidence found that incentives increased the intake of healthy foods (De Buisonjé *et al.*, 2021; French *et al.*, 2017; Gardiner & Bryan, 2017; Harris *et al.*, 2021; Kern *et al.*, 2017; Kris-Etherton *et al.*, 2020; Moran *et al.*, 2019; Mozaffarian *et al.*, 2018; Nagatomo *et al.*, 2019; Olstad *et al.*, 2017; Parks *et al.*, 2018 & 2020; Shavit *et al.*, 2021; Vadiveloo *et al.*, 2021; Valluri *et al.*, 2021; Vericker *et al.*, 2021). The evidence summary discusses evidence of CVD-reduction diets and healthy food incentive outcomes.

4.3. Evidence Summary

The evidence summary for synthesized findings for CVD risk-inducing and risk-reducing foods was that consistent, robust evidence stated to include Mediterranean and DASH diets that are low in red, or processed meats, low in sodium, and high in poly- and monounsaturated fats such as olive and canola oils. However, [14] stated that research on the Mediterranean diet's adverse effects is lacking [14], which is a unique statement that may not be found in other Mediterranean diet peer-reviewed articles. Reference [15] assessed two diet crossover RCTs as DASH and Mediterranean Diet Studies on the significance of healthy eating behavior cycles. Reference [16] indicated that increased consumption of the Mediterranean diet significantly reduced CVA risk in Lebanon. Reference [17] stated evidence of Mediterranean and DASH trials significantly decrease hypertension. Outcome measures by [18], analyzed 265 children's reduced cholesterol levels after plant food intake. Reference [19] stated, high fruit/vegetable intake significantly reduced stroke risk. Reference [20], stated how plant foods showed significant results of intervention and control groups' cholesterol within six months. Reference [21] stated red and processed meats consumption of about 100 g/day increased the risk of CVD and heart failure. Reference [22], stated that intake of plant proteins such as soy, nuts, or legumes reduces cholesterol and CVD risk. Reference [23] stated that icosapent ethyl, an omega-3 by-product had significantly reduced all aspects of CVD. Reference [24], stated no findings that indicated that substituting sweetened drinks with artificial or unsweetened ones increased triglycerides or cholesterol [24].

Evidence summary for healthy food incentives varied in terms of incentive types. Reference [25] indicated fluctuations in food demand changes food prices.

Reference [26] stated that financial incentives can enhance psychological factors related to plant food intake. Reference [27] discussed how participants continued consuming new salads even after incentives were removed. Reference [28] stated significant results of increased purchase of plant foods, specifically fruits, after incentives and disincentives. Reference [29] stated a data system was used as a mechanism to customize incentives. Reference [30] stated impact of financial incentives that changed patterns of food purchases. Reference [31] indicated effectiveness of even a low-value incentive that increased intake of vegetable-rich meals. Reference [32] stated physician participants' robust acceptance of financial food incentives. Reference [33] suggested policies that allow benefits to be throughout the entire month would improve nutrition for SNAP recipients [33]. The synthesized, significant findings for healthy food incentives were robust evidence that exhibited a combination of disincentives and incentives improved health behavior and plant food intake outcomes for all population levels and therefore, healthy food incentives were not the only factor that impact affordability and instead, had more impact on health behavior outcomes as stated in [8] [27] and [28] within the literature review that focuses on nutrition and incentives.

5. Literature Review

5.1. Supportive Evidence of CVD Risk-Reduced Diets

Reference [1], an evidence level IV, peer-reviewed policy statement from the American Stroke Association, stated that a stroke occurs < every 50 seconds and deaths occur < every five minutes. Primordial prevention combines information and policies for at-risk patient populations that incorporate initiatives to prevent health risks and eventually prevent chronic diseases. Programs that address low socioeconomic population barriers such as inadequate housing and adopting healthy habits, also address the risk of chronic diseases [1]. This statement is rated as B quality due to limited inclusion of high-level studies [13].

Reference [2], an evidence level-IV A, nutrition guideline, stated that poor nutrition is related to an increased risk of CVD mortality and stressed the importance of good, quality nutrition in early life. Also, promoting a healthy environment facilitates healthy diet behaviors. Consuming a variety of healthy foods depending on the environment can determine the significance of decreased risk of CVD. Plant foods can be consumed in many forms such as fresh, canned, or frozen; however, frozen plant foods can be preserved longer and contain the same or greater amounts of nutrients than fresh plant foods and many times, are more economical. The nutrients/minerals that are in plant foods can decrease various risk factors for CVD. Potassium-rich foods reduce blood pressure, specifically in hypertensive clients, fish reduces CVA risks and heart failure; poly- and monounsaturated fat plant oils reduce cholesterol. Although these dietary measures may reduce CVD, compromised environments due to ineffective policies or food insecurity facilitate poor eating habits and barriers to promoting

cardiovascular health [2]. This guideline, written by an AHA peer-review panel, rated Quality A evidence due to its inclusion of recommendations and conclusions derived from diet RCTs and high-level evidence literature reviews [13].

Reference [5], an evidence level-IV A, AHA guideline, stated a Mediterranean diet, versus a low-fat diet, decreased the high risk of CVD. Meta-analysis of CVD patients with extended follow-ups in five random-controlled diet trials stated a decrease of 1 g sodium a day from 2.5 g a day (Figure A2) had a 20% decrease in CVD cases. However, the REGARDS cohort study (Reasons for Geographic and Racial Differences in Stroke Study) stated that increased intake of the Southern diet that is high in saturated fats, processed foods, and sweetened drinks had increased the risk of CVAs at > 35%. Epidemiological diet and nutrition research stated preventative measures for CVA by often eating fish, plant foods, fiber, low-fat, and DASH diets [5]. Though an evidence IV study, it is rated Quality A due to its inclusion of several diet RCTs and other high-level studies [13] that indicated consistent results of reduced CVD.

Reference [6], a level-III-A cohort study, stated vegetarians had decreased risks of strokes, whereas nonvegetarians had a 50% increased risk of strokes, hypertension, and high fasting glucose. In two large, randomized trials, the most vital modifiable risk indicator for CVA was hypertension, among 50% of at-risk participants for CVAs in the INTERSTROKE trial. Thus, herbivores had a decreased prevalence of hypertension than omnivores. Hence, improved health with vegetarian diets to maintain hypertension was so intensively reported, goals for the Dietary Approach to Stop Hypertension (DASH) diet, as the first line for CVD prevention, is to increase fruit/vegetables with less processed and red meat intake. Also, findings from the randomized PREDIMED (Prevención con Dieta Mediterránea) trial stated that the Mediterranean diet, versus control, had decreased CVA risk by 40%. Also, nonvegetarian diets with increased plant foods had decreased CVAs. Interestingly, former studies stated that sparingly intake of animal protein may prevent hemorrhagic stroke mortality [6]. This level III evidence study was rated as Quality A for its exceptionally large sample size [13] of >13,000 of its two cohort studies and clinical trials.

Reference [14], a systematic review of narrative and meta-analysis, level-III-A evidence article, stated significant evidence of long-term positive outcomes of Mediterranean diets on cardiovascular and neurological health. Numerous varieties of Mediterranean diet evaluations were related to decreased deaths, low risk of CVD, and neurodegenerative conditions. The positive aspect of the Mediterranean diet is not only that it improved health but also its satiety improved diet adherence. However, this diet's tradition has significantly decreased due to globalization of Western diets, culture, and structure that created barriers to maintain Mediterranean diets that are increasingly becoming more expensive and influencing purchases of unhealthy, cheaper foods. Nonetheless, there is a lack of research stating adverse effects of Mediterranean diets [14]. This study rated Quality A for its consistent evidence of reduced CVD with this diet and policy

recommendations [13] to reduce marketing of unhealthy foods, mostly purchased by the low-income.

Reference [15], an experimental, double-RCT evidence level I-A study, assessed two diet crossover RCTs as the DASH and Mediterranean Diet Studies on the significance of healthy eating behavior cycles for CVD risks. Both diets are rich in plant foods and proteins, with limited red meat, refined grains, and dairy. This study hypothesized that healthy eating behaviors may reduce CVD risks, and unhealthy eating behaviors may increase those risks. The 60 participants' increased baseline total cholesterol, triglycerides, weight, and blood pressure were decreased after six weeks' diet intervention intake. The outcome measure of LDL cholesterol was reduced to ~20, Body Mass Index (BMI) ~2, and blood pressure to 6 mmHg. Though these findings were positive indications to adopt a healthy diet, many barriers to adherence should be addressed [15]. Despite its smaller, 60-participant sample, consistent results of reduced biomarkers were evident in this experimental, double-RCT [13] and recommended policies to improve diets.

Reference [16], a case-control evidence-level V-A study, indicated that increased consumption of the Mediterranean diet had significantly reduced the risk of CVA in Lebanon. This study stated that the Lebanese diet had shifted more toward Western-based diets which increased stroke cases in Lebanon. The Mediterranean diet consists of canola and olive oils, legumes, whole grains, and plant foods, which also was the main diet in Lebanon until around the last 20 years. Adherence to the Mediterranean diet was considered the independent variable that decreased the risk of CVAs, and the dependent variable was CVA or non-CVA clients. The outcome of the variables was that, as adherence to the Mediterranean diet increased, the risk of CVA decreased [16]. Though, a 647-participant case study, it was rated Quality A, due to statistical data of large sample size [13] that exhibited a consistent, significant decrease in stroke cases.

Reference [17], evidence level III-A, literature review of Random Controlled Trials (RCTs), and meta-analysis of prospective studies, stated evidence of Mediterranean and DASH trials can significantly decrease hypertension. Additionally, the PREDIMED trial had supporting evidence that Mediterranean diets consisting of nuts or extra virgin olive oil, and other dietary items rich in phenolics such as coffee, teas, and chocolate, reduced the risk of strokes. Therefore, robust evidence stated best method to decrease CVA risk is maintaining DASH-Mediterranean diets [17]. This study rated Quality A for its inclusion of level I studies [13].

Outcome measures by [18], a mixed study of two RCTs and a retrospective cohort, level I-A evidence, analyzed 265 children's cholesterol levels in a control and an intervention group. The intervention group received limited processed and unprocessed foods with vegetables for six months, while the control group maintained an unchanged diet. Results for the intervention group's HDL cholesterol increased from 21 mg to 25 mg, which also decreased total cholesterol

from 66 mg to 58 mg, compared to the control group's HDL from 22 mg to 23 mg. Therefore, even children who consumed limited processed foods had positive cholesterol outcomes that increased HDL levels that reduced obesity and CVD risks [18]. This article was rated Quality A for its large sample size and generalized results [13].

Reference [19], an evidence level-III-A, literature review, that included 10 systematic/meta-analyses, two clinical trials, cohort, and case report studies, stated associations between various dietary behaviors and the risk of stroke of available data, using a healthy diet scoring system on the Food Frequency Questionnaire, the healthy dietary pattern involved high consumption of plant foods, fish, low-fat milk, and whole grains in a meta-analysis (Feng *et al.*, 2018, as cited in [19]). Low intake of dairy, sodium, meat, sweets, and alcohol, with high fruit/vegetable intake, significantly reduced the risk of stroke. Also, the DASH diet decreased blood pressure versus control. Perhaps, decreased blood pressure would also decrease stroke to >25%. Thus, dietary interventions should be considered a crucial strategy to reduce the risk of stroke. Gut microflora metabolism of L-carnitine and trimethylamine, rich in red meat, generates Trimethylamine nitric Oxide (TMAO) and induces atherosclerosis. Moreover, omnivorous participants produced much more TMAO than herbivorous participants after ingestion of L-carnitine, a microflora-dependent process. The gut microflora can shift from carnitine (from meat) and choline (from egg) mediums to expedite TMAO production, as atherosclerotic agents that induce platelet hypersensitivity that increases CVA risk. Interestingly, the essential amino acid methionine, a homocysteine substrate, has enzymic pathways to form the B vitamins. Total Homocysteine (tHcy) levels are induced by increased B vitamins: pyridoxine (B6), folic acid (B9), and cyanocobalamin (B12). Albeit high tHcy levels, isolated from other CVD risks, are associated with CVA risks. A diet fortified with B vitamins decreases tHcy levels by 25% and the risk of CVA by 10% [19]. This study was rated Quality A due to its inclusion of the high-evidence studies mentioned above and its aim to only review high-level evidence studies [13] that included consistent, improved CVD outcomes upon maintaining DASH and Mediterranean Diet intake.

Reference [20], a prospective RCT, evidence level I-A study, stated how plant-based foods had shown significant differences between the intervention and control groups' cholesterol within six months of the 65-participant study. The CVD risk factors for the intervention group were insignificantly reduced, whereas the control group's CVD risk factors had no change. Interestingly, however, the intervention group's medication intake decreased to 20 over six months, while the control group's medication intake increased to six, also over six months. Moreover, two participants in the intervention group no longer were diagnosed with diabetes after six months; also, in the intervention group, average HbA1c levels had decreased to five, with the highest baseline at 15, and no HbA1c changes occurred in the control group. The most influential factor of the plant-based diet

for the intervention group was the significant decrease in BMI not induced by exercise [20]. This was a Quality A study for its consistent results from plant food intake [13].

5.2. CVD Risk-Reducing Food/Nutrients

There are certain individual foods and nutrients that significantly and insignificantly reduce the risk of stroke. The specific foods/nutrients that decrease the risk of stroke and CVD to be discussed are plant foods, fish, and the nutrients that are within them such as folic acid, omega-3 fatty acids, minerals, and vitamins. Foods that increase the risk of CVD and stroke were addressed, such as red and processed meats, and sweetened beverages. Since various nutrients and foods have certain effects on CVD risk, each of these effects was discussed individually and included in- or sufficient evidence of how these foods reduce stroke/CVD and Coronary Artery Disease (CAD).

Reference [21], a systematic review and meta-analysis of prospective studies, level-III B, evidence level I article [13], stated red and processed meats consumption of about 100 g/day increased the risk of CVA, CAD, and heart failure by about 10% - 20%. No evidence indicated a non-linear red meat consumption amount increased the risk of CVA. However, daily consumption of 50 g of processed meats increased the risk of CVA by 15%. Moreover, no evidence indicated differences in geographic locations for CVA risk when processed meats were consumed [21]. This was a Quality A study due to its amount of systematically reviewed literature of >200, with 7 of them >11,000 CVD participants and definitive conclusions after each CVD-related result of certain food intake [13].

Increasing evidence of possible reduction of CVD risk was associated with healthy diet habits. However, there are limited studies on the number of nutrients needed to achieve the most benefit to reduce CVD. The food categories analyzed were fruits, vegetables, grains, fish, red and processed meats, eggs, dairy, legumes, and sweetened drinks that either decreased or increased CVD risk in three categories: heart failure, CAD, and stroke. Regarding fruit intake results, there was no evidence of linear association for reduced CVD risk; however, for reduced CVA risk, it was concluded that evidence indicated linear association. Nonetheless, for every 200 g/day of fruit consumed, the risk for CVD and CVA was reduced by about 20%; thus, fruit intake >200 mg/day showed no evidence of further CVD risk reduction. In reference to CVA, the risk was increased, pending on geographic locations, such as the U.S., versus decreased risk, as in Australia and Asia. Moreover, vegetable intake of up to 400 g/day decreased CVD risk by 12%. However, when vegetable intake was above this amount, the risk for CVD further decreased while the risk for stroke remained the same. Evidence concluded a linear relationship between vegetable intake amount and the decreased risk of CVD, whereas a non-linear association with increased vegetable intake was apparent in stroke [21].

For refined grains, intake between 15 - 540 g/day had no associations with reduced risk of CVA, but for CVD there were associations of increased risk. Therefore, there was evidence of a linear amount-response relation between refined grains and CVD. For whole grains, however, 30 g/day - 100 g/day consumption reduced CVD risk, but not CVA risk. Moreover, due to whole grains' fiber, phytonutrients, and polyphenols, evidence stated that whole grains reduced risks of CVD, and specifically, glucose, hypertension, and cholesterol. Reduced risk of CVA and CVD was apparent in women when fish was consumed. There was evidence of a linear association between fish consumption and CVA/CVD. However, there was evidence of dissimilarities of increased or decreased fish amounts for CVA versus CVD. The risk of CVD had decreased 15% with 250 g/day consumption and for CVA, the risk had decreased by about 20% with fish consumption of about 100 g/day. The long polyunsaturated fatty acid chain and its contra-effects on thrombosis and atherosclerosis in fatty fish reduce CVA risk. Contrarily, red meat increases cholesterol, but not as high as poultry does [21]. However, the exact additional amount of vegetable consumption that decreased the risk of CVD > 12% was not indicated that rated article as B [13].

Reference [22], a meta-analysis of RCTs, evidence level-I A [13], stated that consumption of plant-based proteins such as soy, nuts, or legumes is very beneficial to reducing cholesterol and CVD risk. Moreover, red meat had lesser significance in lowering cholesterol than high-protein, plant-based diets; however, fish and carbohydrates also had lesser significance in lowering cholesterol and triglycerides than red meat. Notably, fish was shown to improve good cholesterol, whereas lean, red meat had reduced bad cholesterol compared to other high-fat diets. Interestingly, poultry had lesser significance in reducing cholesterol than red, lean meat. Therefore, to determine CVD risk, high plant protein diets versus fish and poultry, have shown more significance for reducing CVD risk. Thus, refined carbohydrates and saturated fats were shown to significantly increase CVD risk compared to lean, red meat [22]. However, neither [21] nor [22], as evidence level-I studies, did not indicate that red meat has carnitine, which increases tHcy that promotes atherosclerosis and increases CVD risk [19].

Reference [23], a systematic review of RCTs, evidence level-I A [13], stated that omega-3 acid supplements reduced CVD risk without reducing CVA risk. Contrarily, icosapent ethyl, an omega-3 by-product had significantly reduced all aspects of CVD [23]. This is a Quality A study due to the design and a large, 1800-sample [13].

5.3. CVD Risk-Increasing Drinks

Reference [24], an evidence level I-A, RCT study, hypothesized that substituting sweetened drinks for unsweetened drinks, versus artificially sweetened drinks significantly decrease triglycerides, cholesterol, and obesity. No findings in the hypothesis indicated that substituting sweetened drinks with artificial or unswee-

tened ones increased triglycerides or cholesterol, and instead, increased central obesity [24]. Moreover, consuming sweetened beverages of ~500 ml daily increased CVA risk by 16%, whereas CAD increased by 35% [21]. There are strong associations between sweetened drink consumption and obesity, which increase CVD risk [24]. Though more emphasis was on CVD than on obesity, [24], did not indicate that obesity increases CVD risk as stated in [2] [19], but still rated Quality A due to consistent evidence [13].

6. Incentive-Induced Healthy Diets and Barriers

As mentioned, Reference [9], a descriptive AHA Journal article, level IV-A [13], stated the SDOH, such as cultural, economic, environmental, and personal factors, can also impact good nutrition associated with healthy food disparities. Moreover, quality diet disparities are apparent among minorities whose SDOH is negatively affected by environmental and economic issues that are major barriers to healthy diets. Unexpected changes in poor-quality diets among the low-income were very insignificant from 2003-2012, versus significant reductions in poor-quality diets among the high-income [9].

Reference [12], an evidence level-III cohort study of over 3000 study participants, compared healthy and unhealthy food prices that depended upon supermarkets and participants' geographic locations in a three-mile radius. It stated how healthy foods versus unhealthy ones are more expensive and yet have a shorter shelf life. This study hypothesized the relationship between diet and cost would be significant for low socioeconomic status populations due to the lack of healthy food affordability. Results indicated that though healthier foods are more expensive, there was a positive relationship between the price of unhealthy foods and diet. Consumers regarded the price of food as the main facilitator that impacted their choice of diet. A synergetic effect to modify food costs, instead of using one approach of only offering incentives for consumers who buy healthy foods, would be to also tax unhealthy foods as a tradeoff to manage the high cost of healthy foods [12]. This was a rated-A quality study due to its large sample and consistent results [13].

Reference [26], an interventional, RCT, evidence level I-A study, stated that due to America's significantly low intake of fruits and vegetables, new interventions are necessary to increase intake. Incentives have become very common for facilitating improved health habits; however, many behavioral theorists are concerned about the detrimental impacts of incentives on sustaining good behavior. The end of this study's hypotheses stated that intake of fruits and vegetables would decrease after incentives were removed, and instead, intake had increased from baseline even after discontinuation of incentives. Within the study, mid-level income, college-educated participants who reported inadequate fruit/vegetable intake, were randomly assigned to either receive financial incentives at different timeframes or no incentives for fruit/vegetable intake for three weeks. Despite theorists' negative perceptions of incentives, no evidence has shown incentives

caused negative remanent effects on present and future health behavior changes [26].

The studied behavior was evaluated at baseline, at the final part of the study, and two weeks afterward. Participants in the everyday-incentive arm exhibited the highest increase in fruit/vegetable intake during the entire study and at follow-up, whereas the delayed-incentive arm exhibited low intake and the no-incentive arm exhibited very low intake. Also, incentivization increased plant food intake, improved mood, and autonomy, which anticipated sustained behavior in the future. Therefore, financial incentives can influence healthy behaviors without reducing internal motivation even after the discontinuation of incentives [26]. Though a 62-sample size, consistent follow-up results yielded a Quality A rating [13].

Reference [27], an explorative evidence level-III A study, stated 48 participants, which of who, 28, were in a randomly assigned controlled group, and 25 in the incentive exploratory group to try different salads for three weeks for a two-month, and then a one-year follow-up. During the intervention, the control group received a set incentive, while the experimental group received a certain amount pending on the number of salads eaten throughout the study. After the intervention period, the participants completed a questionnaire regarding their experience of eating salads. The incentivized, explorative group increased new salad consumption even after one year of the study, while the control group (fixed incentive) did not. Therefore, this study suggests that incentives that facilitate new healthy food exploration, instead of ones that incentivize the same foods continuously, may improve healthy eating behaviors even after the incentive is removed. Potential benefits of policy analysis of targeted, at-risk populations on a national level would be to distinguish the types of healthy food incentives that will benefit the most regardless of populations' social determinants of health or socioeconomic status. However, many healthy behavior incentives are short-lived, which influences the affected population to revert to unhealthy diet behaviors. To remedy limited explorations of long-term enhanced nutrition modifications, an intervention within a study allowed participants to explore as many helpful selections as possible. Improved exploration of new helpful activities increased opportunities for discovering subjective individual values, which increased a participant's knowledge of more interesting food alternatives to prepared, rewarded unhealthy foods [27]. A rate quality was due to scientific recommendations and consistency of results and improved salad intake even after incentives were discontinued [13].

Reference [29], a clinical randomized trial pilot study, evidence level I-A, stated substantial, robust evidence in advanced, smart technological designs as electronic incentive coupons to dissipate customized, healthy diet incentives to enhance nutrition in diverse communities. The 209 participants were provided a 5% incentive and nutrition education with incomes ≥$100,000. An automated consumer data system was used as a mechanism to customize incentives. Evi-

dence revealed that customized healthy food incentives enhanced grocery shopping even for high-income participants with high-level nutrition increased the possibility to impact the use of this smart technology for the disadvantaged to improve dietary habits [29]. This study was rated as Quality A evidence; even small incentives for the high income can significantly improve healthy food intake outcomes [13].

Reference [30], an evidence level I-A, RCT study, evaluated the effect of 1/5 cost reductions on healthy foods at a single grocery store chain. A random selection of 3000 female participants was provided a non-government incentive shopping card that provided a 1/5 discount on healthy foods. The control group performed routine shopping with no intervention; the incentive group received the discount and shopped at a single grocer. Soon after completion of the interventions, the incentive group improved purchases of healthy foods following the 20% incentive discount. Moreover, results stated some of the participants who shopped at the single grocer continued buying healthy foods at other grocers in the study to receive more healthy food incentives [30]. This study rated Quality A for its consistent evidence and results of improved grocer patronage after the incentives [13].

Reference [31], an evidence level I-A, cluster crossover-randomized interventional trial, involved 26 Japanese cuisines and their customers as participants in the study. These cuisines offered small incentives for consumers who bought fruits and vegetables that resulted in increased patronage and sales in lieu of these small incentives that were displayed outside of the cuisines to attract customers. The incentives were in the form of a cash-back reward system if customers bought healthy foods. The results were increased restaurant revenues and vegetable dish sales after the cash-back incentives were applied. However, this study involved participants of various income levels and stated concerns of low-income individuals with chronic socioeconomic stresses due to very limited finances or time could limit thought processes that discredit the benefits of incentives [31]. This article was rated Quality A for its consistent evidence and results of improved restaurant patronage after offered incentives [13].

Reference [32], a level V evidence, qualitative study, stated a total of 16 semi-structured, in-depth, non-virtual interviews were performed by Dutch physicians involved in supporting CVD patients' lifestyle changes. The topics addressed were attitudes toward an incentive system, barriers, and solutions to facilitate use. Primary care physician participants showed robust acceptance of financial food incentives. Moreover, their perceptions of financial incentives were associated with patients' improved outcomes, thus emphasizing indications for continued, future studies of physicians' adherence to offering incentives [32]. According to [13], principles for rating qualitative studies are not yet available [13].

This section discusses FINI (GusNIP). Reference [25], a 2019 FINI interim evaluation, level V [13] report, stated empirical research had continued to au-

thenticate that varied food prices varied demand for that food. A plethora of research had approximated price elasticity of demand for many foods. Price elasticity of demand evaluates percentage changes in demand as 1%. When demand is not impacted by price change, the item is deemed inelastic; when the demand for an item is reduced with a price increase, it is deemed as an elastic item. Thus, an association between changes in prices and the effect on demand influences diet behavior due to price changes of unhealthy and healthy foods [25].

Reference [8], a qualitative, level-V evidence study, stated healthy food incentives improved purchase power for low-income FINI recipients. Each of the 38 participants was interviewed to evaluate their incentive experience, which some were immediate and others upon the selected food purchases such as limited to fruits/vegetables only. Food wholesalers, retailers, and consumers reported significant benefits of the incentive program that increased participants' selling and purchasing power. Consumer participants also reported reduced chronic cardiovascular ailments while using FINI benefits. Moreover, both incentives and disincentives improved healthy behaviors. However, the challenges of FINI are the stigma of low-income recipients and the payment system needing continuous updates to process new incentives. Moreover, fruit/vegetable intake still has unjustifiably impacted other low-income populations' health behavior outcomes, and FINI is limited to very low-income, SNAP recipients [8]. Rating qualitative studies are still under debate [13].

Reference [10], a pilot, RCT study, evidence level I-B, stated significantly increased purchases of fruits and vegetables after SNAP recipients and non-SNAP recipients in the intervention group received a 50% incentive. There was a total of 150 SNAP recipients and a total of 306 non-SNAP recipients from both groups. This study hypothesized that when incentives were provided to SNAP recipients, the purchase of plant foods would increase. However, purchases of plant foods increased from SNAP and non-SNAP intervention groups' incentives. In the intervention group, SNAP recipients had increased fruit and vegetable purchases by 45%, while non-SNAP recipients' purchases increased to 27%. Studies on policy implications should focus on interventions that address the expense of offering incentives and consider incentive alternatives such as prescribed diets for all low-income clients; consider point-of-purchase incentives versus delayed ones; consider combinations of incentives and disincentives, which could have a greater impact on diet choices than just incentives; and finally, the federal government should offer financial incentives to low-income clients with diet-associated illnesses within healthcare institutions by value-based payment systems. Moreover, when incentives and nutrition education were provided to both control and intervention groups, significant improvement in fruit and vegetable purchase was apparent for the small sample of subjects who attended the education. However, more disincentive policies are needed to reduce SNAP recipients' purchases of unhealthy foods to improve the purchasing power of healthy foods [10].

The significance of this study was that no evidence of participants' increased purchase of unhealthy foods was observed once the incentives were applied. Though this level-I study had 456 samples divided into control (no incentive) and intervention (incentives) groups, evidence indicated that both groups had improved plant food purchase outcomes with limited evidence of plant food intake due to a lack of a dietary measuring tool [10] that yielded this evidence quality rating as B [13].

Reference [11], a peer-reviewed, USDA FINI qualitative evaluation report, level V [13], stated that poor diets exceeded tobacco use as the number one cause of preventable death in the U.S. This report evaluated findings of FINI's effectiveness in offering healthy food incentives by conducted interviews to identify barriers, facilitators, and address future food policy. Many FINI grantees reported that for every SNAP dollar, about $2 yielded increased revenue that supported FINI projects and SNAP spending. Grantees also reported that their sales had increased to the point that more resources were needed to accommodate demands for increased SNAP expenditures. Moreover, FINI improved plant food consumption, behaviors to try new plant foods, health, and chronic illness treatment. However, findings within farmers' markets revealed more incentive payouts compared to other markets due to the higher quantity of FINI farmers' markets which typically offer more food varieties. Grantees also stated, farmers' markets and corner retailers often provided consumers incentives at the point of purchase, whereas grocer consumers often had delayed incentives until the next purchase [11]. This report rated Quality B evidence rating due to limited results [13].

Reference [28], an RCT experimental, level I-A study, stated significant results of increased purchase of fruits and vegetables, specifically fruits after incentives and disincentives were provided. The inclusion criteria for subjects were low-income, non-SNAP recipients who were offered food incentives and disincentives. Disincentives are restricted purchases of unhealthy foods. Results were insignificant for increased healthy food purchases with incentives alone. Therefore, federal policies should include incentives and disincentives to improve non-/or SNAP recipient nutrition [28]. This is Quality A due to consistent evidence [13].

Reference [33], an RCT evidence level I-A study, indicated that SNAP recipients' benefits to receiving incentives are limited due to the end of benefits by the latter half of the month, which by then, the benefit period ends for the month that increases the risk of poor nutrition until it restarts in the following month. Therefore, a study was conducted to evaluate the effectiveness of an incentive card provided by the study, which provided a 30% incentive to non-SNAP recipients, versus SNAP's card for participants purchasing healthy foods. This study suggested that policies that allow benefits to be throughout the entire month would improve nutrition outcomes [33]. This article was rated Quality A evidence due to its scientific recommendations that stated a policy should

extend incentives for SNAP populations to improve plant food intake [13].

Reference [3], a FINI summary evidence level IV-B final report, stated, most FINI merchants stated that FINI increased plant food purchases with interest in participating in future FINI programs. As mentioned, the FINI program was established by the USDA in 2014, referred to as the Gus Schumacher Nutrition Incentive Program (GusNIP) [3]. Due to a lack of dietary measures upon plant food intake and improved FINI purchase outcomes, it was rated B-quality evidence [13]. FINI's profile and analysis will be discussed later in this paper.

7. Opposing or Insufficient Evidence

According to [2], the recent surge of meat alternatives calls for cautionary measures, for many are ultra-processed with fortified sucrose, fat, sodium, and synthetic ingredients that are continuously changing. Currently, there is limited evidence on short/long-term health impacts of meat alternatives. For dietary supplements, there is unsubstantial evidence to promote uses of increased vitamin/mineral supplements to reduce CVD. Two randomized trials associated with dietary supplements and CVD had negative results [2]. In addition, whether vegetarians should have vitamin B12 supplements is continuously debated [19]. There is also insufficient evidence in peer-reviewed, medical journals or literature with strong evidence levels evaluating fresh versus frozen plant foods' nutritional values, or that fruits high in sugar impact cholesterol. Also, there is unsubstantial evidence that physical exercise alone reduces CVD risk [27]. Reference [20] stated that financial incentives had an insignificant effect on weight loss and exercise after these incentives were removed and did not facilitate life-long changes but had improved autonomy behaviors [20]. Moreover, certain disincentives are in continuous debate such as unhealthy food and cigarette taxes. The debate on increasing cigarette taxes would be a disadvantage for the low-income who has a higher prevalence of smoking compared to the high-income who are less sensitive to cigarette price/tax increases. However, evidence of the ineffectiveness of cigarette taxes is due to tax variations across state lines and Internet savvy on tax avoidance [34]. Therefore, there is scarce evidence stating that increased cigarette taxes or prices had no effect on smoking cessation. Likewise, there is scarce evidence that food incentives and disincentives in any form worsened health and/or behavior outcomes.

The last references are from 35 - 49 and are related to recommendations, policy implementation, theoretical concepts, and ethics.

8. Recommendations Derived from Evidence Synthesis

Reference [4], a descriptive, level V-A, evidence integrative review, stated that incentive policies should be more direct than indirect for consumers. Direct incentives are more effective for healthy behavior changes. However, other nutrition policy incentives such as prescribed diets, nutrition education, and counseling should be integrated into healthy food financial incentive policies for health promotion and chronic illness prevention that the federal government

can implement. Moreover, clinicians should also be educated and rewarded with nutrition education credit hours as part of maintaining credentials to improve patient knowledge of the importance of good nutrition. However, just as clinicians should be competent in nutrition to provide quality patient education on resources and nutrition intake, governments should also be competent in nutrition and population behavior and affordability to maintain good nutrition. Hence, healthy food policies should be geared to benefit all [4], not only low-income individuals. This article was rated Quality A, due to its expertise and scientific evidence recommendations [13].

Of all the literature appraised and reviewed, recommendations by [4] were more consistent and fit for policy action due to this article's numerous listed recommendations that can be used as part of the policy implementation process. Not only policy implementation recommendations were included but also recommendations to improve population adherence to a healthier diet and political acceptance of a new policy. Therefore, the primary focus should be on addressing political issues before stratifying subsequent policy implementations, and less focus should be on determining population responsibilities for adopting healthier behaviors with more emphasis on providing population resources other than education alone. However, the political arena could be one of the greatest barriers to policy implementation, specifically in more sensitive areas such as food policies. Therefore, it is essential for the government from all levels to have knowledge of nutrition and assess the needs of population health [4]. Reference [35] recommendations are included for its focus on providing exceptional evidence for the need for a food policy change.

Reference [35], a level V evidence food policy database and case study, is a multi-year collaboration of the Center for Agriculture and Food Systems at Vermont Law School, the Public Health Law Center, and the Rudd Center for Food Policy and Obesity at the University of Connecticut, funded by the National Agricultural Library, Agricultural Research Service, and the USDA, has a state and local-level policy database. An evidence-based, feasible policy would include providing consumer-healthy food incentives to promote healthy diet behaviors. Also, price disproportion of unhealthy and healthy foods should be addressed. Addressing these policy issues may facilitate acceptance outcomes [35].

Recommendation #1—Engage multiple, non-political stakeholders who may connect political actors, which may improve the odds of policy implementation; create as many stakeholder alliances as possible such as health departments, government food agencies, and/or associations that may also assist in creating political alliances to implement policy; thus, reaching out to politicians alone may hinder or delay policy acceptance and implementation [4].

Recommendation #2—Since many existing healthy food policies are new, providing as much body of evidence, which is also novel research, as possible is key to facilitating political acceptance; along with providing evidence of healthy diet outcomes and healthy food disparities should also be addressed in a brief,

significant policy draft [35].

Recommendation #3—Perform a population needs assessment, specifically, at-risk populations with an emphasis on nutrition quality and accessibility [4].

Recommendation #4—Applying direct incentives and disincentives to food distributors and consumers should be a priority in providing information or education [4].

Recommendation #5—As mentioned, provide healthcare professionals with nutrition education that can be shared with their clients and institution stakeholders [4].

9. Fit, Feasibility, and Appropriateness of Recommendations

A policy proposal should fit and be feasible for both the advocate and the stakeholder to accomplish a successful proposal implementation. A governmental policy intended to address the issues of at-risk populations should also be feasible for the government to sustain the constituents of a policy. Despite the U.S. capitalist government, excise taxes were imposed on many items such as cigarettes, road construction, and alcoholic beverages to increase revenue for needed services. Reference [36] stated over $32 billion in healthcare costs were related to >2,000,000 CVD admits [36], and >$180 billion was spent on CVD by public insurers since 2016 [37] that can be reduced by policymakers. As stated, [4] included policy implications and strategies for possible policy acceptance.

10. Rationale-Conceptual Theories and Improvement Science

10.1. Roger's Diffusion of Innovation Model

Thus, the application of Rogers' Diffusion of Innovation Model (Figure A1) would be to implement new tangible/intangible assets that require dissemination. Diffusion (dissemination) is the process by which a new initiative is communicated through certain pathways over certain periods. Rogers' Diffusion of Innovation Model involves innovation with a time frame from the point of innovation, decision, and implementation determined by stakeholders' attributes to their organization for a time of adoption. This Model would be suitable for policy implementation for its five-step-innovation process that involves the necessary criteria for policy implementation: introducing the innovation (by communication method to share beneficial knowledge), persuasion (discussing indications for innovation and overall benefits), decision (giving an individual time to make decisions), implementation (allow time for innovation completion upon application or reinvention), and confirmation (determine effectiveness and outcome measures) [38].

10.2. Self-Determination Theory

There are social theories that apply to social behaviors impacted by individuals' environments that can facilitate or hinder positive behaviors, specifically related

to diet and health. Reference [7], included quantitative data as descriptive statistics and analyzed SDT, and its constructs of relatedness, competence, and autonomy associated with health maintenance behaviors and low-income participants' views on CVD risk. Competence is the ability to obtain resources and knowledge to maintain health; autonomy is the ability to choose versus being influenced by a proxy; relatedness is feeling supported by stakeholders. Results of participants' perspectives on health were related to health disparities, limited access to healthy foods, or resources to support the SDT constructs for low-income participants to adopt healthy diet behaviors. Moreover, >40% of participants' surveys reported being in poor health related to their socioeconomic status. Nonetheless, health promotion disparities have been consistent in the minority community, along with an inability to access healthy foods and safe exercise as the two most influential factors for CVD prevention. The SDT theoretical framework constructs are determined by low-income individuals' motivation impacted by past and present environments that impact diet behaviors [7].

10.3. Theoretical Domains Framework

The Theoretical Domains Framework (TDF), Figure A4, is comprised of 33 theories that were grouped into 14 domains of behavioral changes that view social, psychological, and environmental influences on behavior changes. The TDF was established for implementation studies that focused on clinicians' behavioral change for a policy that included behavioral science studies on patient attitudes. Adopting new habits necessitates changes in behaviors influenced by conditions of present and preferred behaviors. Five of the 14 relevant domains are environmental context and resources, social and professional role identity, beliefs about capabilities, knowledge, and beliefs about consequences. The TDF constructs are a framework of combined theories, not consisting of one theory; it does not test relationships between components and instead, presents a theoretical view through knowledge, attitudes, environmental, and social influences related to behaviors [39].

10.4. Pender's Health Promotion Model

Pender's Health Promotion Model (HPM) (Figure A5) was founded by Dr. Nola Pender in 1982 [40]. Thus, [41], a cross-sectional study, with no evidence level available, stated perceptions of fruit/vegetable consumption impacted by Pender's HPM with the following constructs: "previous relevant behavior, perceived barriers, perceived self-efficacy, behavior-related emotions, perceived benefits, interpersonal influences, situational influences, commitment to an action plan, immediate preferences and demand, motivational factors, and behavioral outcome" [41]. It was concluded that this model was effective to evaluate behavioral outcomes of health promotion [41].

10.5. Eight-Fold Path Model

Reference [42]'s Eight-Fold Path analysis model for addressing an issue has a

specific process, from primarily identifying the issue to finally planning to resolve it, is in more detail within the analysis plan. However, the advocate for the issue had considered debriefing, evaluating, and reviewing the entire process before moving forward. The eight-step process for completing a policy analysis involved: 1) identifying the issue, 2) collecting data of evidence, 3) considering alternatives 4) selecting criteria, 5) anticipating outcomes, 6) determining trade-offs, 7) pausing, debriefing, focusing, and 8) narrating a scenario related to the issue [42]. Hence, there is increasing evidence demonstrating how political competence may contribute to the application of health delivery change; however, evidence on explanatory processes is limited.

11. Specific Aims

This policy analysis first aims to review existing, federal FINI policy outcomes data of SNAP recipients to evaluate improved health, diet behaviors, and compare outcomes of non-SNAP populations that were offered non-FINI incentives (Specific Aim #1); Specific Aim #2 is to compare both incentives' effectiveness with existing qualitative/quantitative data; Specific Aim #3 is to advocate for expansion of incentives for income levels above the federal poverty level; and Specific Aim #4 is to evaluate various state-level FINI rules that risk bias and inequity in the application of the federal FINI policy. As mentioned, the term FINI was used since much of the analyzed literature used FINI as the dominant term. This approach decreases confusion between FINI and GusNIP, FINI's new name. Hence, a key deliverable includes a white paper on the key findings of the policy analysis with proposed recommendations for advocacy and policy revision. A revised version of the policy draft was proposed based on the analysis findings. A one-page talking points document that legislators and key stakeholders may use when sharing the merits of the legislation, as in a 30-second elevator pitch was developed. Finally, an advocacy plan guided by specific evidence-based actions is to be considered in the legislation to yield optimal dietary health.

12. Context

This policy analysis is addressed on a federal level affected by the global impact on food trade practices as discussed earlier. The FINI federal program provides healthy food incentives for SNAP recipients to increase purchases of fruits/vegetables at the end of the SNAP benefits period [3]. Reference [8] stated, 11% of the U.S. population is food insecure, and 12% are SNAP recipients [8], with 25% Black, 36% Caucasian, and 17% Hispanic, receiving substandard nutrition [9]. From a health standpoint, [9] stated, African Americans compared to Caucasian Americans, have a 50% prevalence of CVD, along with disparities in accessing healthy foods and receiving government assistance that negatively impacted this population. However, the total U.S. population may be positively impacted by a policy that would reduce healthy food prices by 10%, which may reduce CVD mortality

by 2% and 4% for SNAP recipients. Moreover, if healthy food incentives were 30% with a 10% tax disincentive for unhealthy items, CVD mortality would be reduced to 8% for SNAP recipients and 3.5% for the remaining population and may reduce disparities. Thus, the AHA has supported policy changes to improve the purchase and diet quality of healthy foods by offering incentives or unhealthy food disincentives for low-income and SNAP populations [9]. As mentioned, combining incentives and disincentives was more effective for improving healthy behaviors [28], not just for SNAP recipients [7]. Reference [43] has supported improved access to healthy foods by collaborating with the federal government. The Dietary Guidelines for Americans also support the importance of healthy diets. Additional project support was in the form of an online video presentation and learning management systems.

13. Intervention Description: Policy Analysis Methodology

The policy analysis design was a comparative analysis of qualitative and quantitative FINI data and literature using [42] eight-step analysis method. The method involved collecting data to narrate a scenario. These data determined a need to review more data to support and gather FINI evidence of improved healthy eating behaviors. Also, an evaluation of the current FINI policy guided a proposed policy that included healthy food incentives to be expanded to non-SNAP populations. Reference [3] stated collecting more quantitative data is the best approach for measurable data. The timeline for policy analysis completion was about 15 months.

13.1. Study of Intervention: SWOT Analysis

Reference [44] emphasized the importance of increased global trade of fruits and vegetables versus more production of non-perishable, processed foods. However, issues with global trade policies had led to the production of unhealthy, processed foods. Approximately, together with North America and other countries, 2,000,000 people die because of limited access to fruits and vegetables that specifically affect impoverished populations. The 8% of fruits and vegetables that are globally traded have a value of $1.3 billion. However, due to the rapid perishability of fruits and vegetables, much of them are wasted and policies are limited to control the waste. Other strategies such as home gardening, provided no other barriers are present, are ways to reduce waste due to trade policies. However, even with options of home-grown foods, many people may have challenges consuming fruits and vegetables due to cultural differences and other barriers and therefore, may require an alternative incentive to facilitate fruit and vegetable consumption such as free nutrition education for all socioeconomic levels that should include the importance of nutrition [44]. As a Quality A literature review, it had definitive conclusions and consistent recommendations via scientific evidence [13].

The study intervention method was the SWOT (strengths, weaknesses, op-

portunities, and threats) analysis. Reference [44], an evidence-level V-A [13], literature review, stated necessary food industry changes to promote fruit and vegetable intake. However, barriers to plant food intake should be considered, including stakeholder competence in food industry issues that limit healthy diets in various populated areas. In addition, improving population nutrition knowledge is also imperative. Hence, besides just advocating for improved population health, competency in consumers' diet preferences, behaviors, and applying suitable incentives may facilitate increased intake of unique, nutritious foods (strengths)—that are culturally acceptable and motivated-driven (internal factors). However, even with the availability of plant foods, most people do not consume acceptable amounts; and there is a lack of databases on food incentive policies for consumers (weaknesses). Financial incentives for plant food consumption are federal policy implications that are common to the target population (external factors) that can improve cost and consumption of fruits/vegetables. These incentive interventions can include proposing an incentive policy change or improve commercialization of fruits/vegetables (opportunities). However, food safety concerns, food choices, cultural preferences, or political issues (threats) are barriers [44].

13.2. Measures: Policy Analysis Process and Data Requirements

Existing USDA data were used for gaining knowledge of FINI to support a federal analysis. Existing state-level data were used to examine the application of federal policy at the state level. FINI supplemental data (infographics, population health outcomes, and FINI effectiveness) and peer-reviewed journals were collective evidence to support the white paper.

13.3. Data Collection Process and Tools

The data collection process involved researching specific websites such as .gov or .org domains to collect authentic FINI data. The tool was the GusNIP Gretchen Swanson Center for Nutrition (GSCN) interactive map that prompts individual selection of each state's program award information. This tool had determined a need for a state-level analysis, before a federal-level analysis, due to a myriad of state-level programs that are not incentive-related and instead, are farmer- or public assistance-related. As indicated in the interactive U.S. GusNIP-GusCRR map, some states were awarded either GusNIP or GusCRR in their grant award year. Outcomes of improved purchase of plant foods and changed healthy behaviors by non-SNAP-in/eligible recipients will determine a need for policy change.

14. CHEERS

The Consolidated Health Economic Evaluation Reporting Standards (CHEERS) involve participants and organizations, such as governmental and non-governmental entities influenced by biological problems and community attributes [45]. It has

a checklist as an economic report guide. Reference [36], a CDC level V-A evidence [13], Million Hearts project report, discussed state-level data on heart disease mortality and morbidity. In 2016, there were 2.2 million CVD admissions (850.9 per 100,000 population) resulting in $32.7 billion in costs, and 415,480 deaths (157.4 per 100,000). Admission and death rates were highest among males (989.6 and 172.3 per 100,000), and non-Hispanic blacks (211.6 per 100,000 deaths) with increased age. However, 805,000 admissions and 75,245 deaths were between the ages of 18 - 64 years [36]. Internationally, diet-related deaths due to low intake of plant foods are more common among the low-income [31]. The value of plant foods is influenced by the yearly farmgate value of international plant food harvest is almost $1 trillion, which is >grains at $837 billion. In 2018, around 8% of globally traded plant foods were valued at $138 billion. Food costs are related to incomes influenced by households' affordability of plant and animal foods (about 40% of nutritious diets) [44]. The USDA spent >$47 million in 2015-2016 on FINI Grant Programs (USDA, 2017, as cited in [8]). Reference [37], an AHA level IV-A evidence [13] article, stated an increased CVD treatment spending has significantly increased; therefore, a more detailed account of this spending may influence policy and expenditure control for a multi-payer system [37]. Reference [44], emphasized the importance of increased global trade of plant foods versus more production of non-perishable, and processed foods that are more favored compared to plant foods [44].

15. Ethical Considerations

According to [46], three levels of IRB evaluations are under IRB federal guidelines, which are: exempt from IRB review, expedited IRB review, and full IRB review. No research/investigation proceedings should be implemented before IRB review and approval are determined [46]. Of the three IRB evaluations, the investigator of this policy analysis applied for an exempt from IRB review due to minimal risk of harm to participants or the lack of them thereof. This policy analysis involved analyzing and evaluating current policy without the need for study subjects' participation. As implied, the investigator analyzed, evaluated, collected, and presented evidence data and addressed the need for policy change to federal stakeholders via policy brief or white paper without collecting personal identification data or evaluation surveys regarding proposed policy changes. The only identifiable information included in the white paper/brief was from a federal department relevant to the policy change. Deidentified information was the name and exact title of a federal department head or secretary since names can easily be obtained concurrently with a job title in public service. According to [46], six classifications of minimal risk studies are considered exempt from IRB review within the federal IRB policy [46].

15.1. Ethical Considerations for JU IRB Review

The investigator requested a Determination of Human Subjects Research Waiver

for secondary database research. Two of the six categories for exempt for review [46] are:

   1) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens if these sources are publicly available, or if the information is recorded by the investigator in a manner that subjects cannot be identified directly or through identifiers linked to the subject.

   2) Research and demonstration projects related to public benefit or service programs that are conducted by or subject to the approval of federal department or agency heads or any other officer or employee of any department or agency to whom authority has been delegated [46] (p. 15).

15.2. Ethical Considerations for Disincentive Policy

This policy analysis reviewed a federal policy that provides incentives for SNAP recipients to improve their purchasing power for plant foods. As stated, FINI provides healthy food incentives to grantees that are passed on to SNAP consumers due to SNAP's limited monthly assistance that FINI supplements for the remaining month. However, the cited literature suggests that incentives should be applied to both SNAP and low-income, non-SNAP recipients to improve purchase of healthy foods [9] [10] [28] [33]. On the other hand, to improve purchase of healthy foods, the cited literature also suggested including both incentives and disincentives (taxes) for unhealthy foods to improve health behaviors [8] [10] [12] [28]. Moreover, non-tax disincentives could be applied to offset the expense of an incentive either by limiting incentive redemptions or increasing prices of incentive-ineligible foods [3]. However, there are ethical concerns to tax unhealthy foods, specifically, in low-income areas, including a threatened autonomy among all populations. Moreover, there are other ethical concerns of continued disparities, SDOH barriers, and poor nutrition in low-income populations due to continued inaccessibility to healthy foods. Importantly, [47] a quantitative descriptive level V evidence, Quality A [13] study, stated, that the fact is, whether excise tax advocates are prepared for an effective debate against tax opposers. An effective tactic for tax supporters is to address trade-offs for populations' access to healthy foods and maintain health to control healthcare costs. Ethically, tax advocates can also address how cigarette taxes altered population choices that were justifiable when they advocated for good health. Therefore, legislators should distribute tax revenue from unhealthy foods to benefit the low-income [47].

15.3. Ethical Considerations on Excised Taxes

This policy analysis emphasized healthy food incentives should also be applied to non-SNAP recipient populations and how FINI and SNAP should improve policies on increasing plant food intake for SNAP recipients who experienced substandard nutrition compared to the general population. The cited literature

stated supported evidence of incentives that improved healthy diet behaviors. Reference [34] stated, lower-level educated populations versus higher-educated ones, had homogeneous behaviors toward cigarette state taxes or prices but heterogeneous behaviors when prices were self-reported. Therefore, heterogeneous behaviors toward cigarette prices among both populations were more apparent than taxes, possibly due to supply or demand. In addition, taxes vary among smokers' geographics that include retail discounts that negatively impact taxes [34].

Reference [34], a literature review, level V evidence, evaluated relationships between cigarette tax and price measures with current smoking by socioeconomic status and stated an inverse perspective on cigarette excise taxes that negatively impact the low-income. It was hypothesized that low-income, less-educated smokers will be more sensitive to changes in cigarette tax and price [34]. This null hypothesis was rejected, and this article was rated as Quality B [13]. Cigarette taxes are now more ineffective in reducing tobacco use in America, due to a more sophisticated, Internet-driven population that can avoid taxes with the purchase of discounted tobacco products. Moreover, another indication of perceived ineffectiveness of cigarette tax to reduce smoking is that many smokers travel to American Indian reservations where all taxes are void. Nonetheless, the ethical concern of taxed cigarettes is the limited affordability of cigarettes among low-income populations, despite their increased cigarette use compared to higher-income populations. More ethical considerations arise for the low-income who have financial burdens of taxes with unsuccessful smoking cessation [34] that do not include more burdens of healthcare costs associated with smoking [47]. To mitigate taxing/pricing issues, [34] suggested price control policies that prevent retailers from discounting cigarettes and increasing the cigarette tax [34].

16. Analysis: Policy Profile, Criteria, Population Demographics, and Analysis Plan

16.1. Policy Profile

The FINI policy profile includes population health indicators, analysis plan, need for data, past and current initiatives, and internal and external document policy evaluation. The current federal food assistance/incentives are through federal food assistance programs such as SNAP and FINI, which are only for very low-income populations. Reference [3] stated that FINI was established in 2014, a subsidiary of the USDA Food and Nutrition Service, provides incentives at the end of the month to SNAP recipients who purchase plant foods due to SNAP's limited monthly assistance. The purpose of FINI is to improve fruit/vegetable purchases for SNAP recipients. The FINI Program's fruit/vegetable criteria are a variety of preparations. Compared to SNAP-eligible foods, FINI-eligible foods mainly consist of unprocessed plant foods. Hence, the USDA evaluates FINI's effectiveness in the increased purchase of fruits/vegetables and recipients' health

outcomes; FINI retailers are comprised of farmers' markets, grocery stores, mobile markets, direct market farmers, and community agriculture programs. The SNAP recipients are incentivized by rebates, electronic cards, and/or discounts by FINI grantees. Contrarily, they could be disincentivized for purchasing non-organic plant foods. Disturbingly, over 350 FINI retailers discontinued participation due to staffing issues, low SNAP recipient participation, or retailers' noncompliance with FINI's policies [3].

16.2. Program Profile Criteria

Reference [3] stated SNAP's non-eligible food items for incentives were tobacco, alcohol, hot and restaurant foods. Though FINI is a subsidy program of the 2014 Farm Bill, it still has its policies for FINI participation. Most FINI grocers provided incentives to recipients every day, while others provided weekly, monthly, or seasonal incentives. Most grocers offered a 50% incentive match, few with greater ones or used prescribed healthy food programs requiring proof of SNAP enrollment without a purchase requirement for incentives, whereas 14% of grocers offered <50% incentive match, others at 30% or ~15%. Moreover, >75% of FINI grocers have maximum limits on incentives and applied them to purchases, while others allow SNAP recipients to earn a $20 maximum incentive. Grocers that implemented FINI-prescribed programs also have limits on incentives for SNAP recipients. The purpose of maximums is to extend the incentive period. However, FINI grocers' main barrier to providing incentives was less than expected SNAP recipient FINI participation due to limited FINI marketing, before grocers were granted permission to improve marketing by postal mail or verbal communication that were more effective than other marketing strategies, such as media or billboards [3].

16.3. Population Demographics

FINI's recipient population demographics consist of grocers and SNAP adult/child recipients established in low-income areas with a high unemployment rate of 6% and ~32% ≤ 200% below the federal poverty line. About 3 million SNAP recipients live close to FINI grocers which are mainly located in municipality areas. There were ~60 FINI payees that provided incentives to about 3050 grocers for SNAP recipients [3], who are 12% of North America's population [8], with 25% Black, 36% Caucasian, and 17% Hispanic, received substandard nutrition [9]. The most disturbing trend for the SNAP population is lower nutrition quality, lower plant food intake, and increased purchase of high-calorie items associated with poorer health outcomes than non-SNAP recipients [33].

16.4. Analysis Plan

The analysis plan involved the Eight-Fold Path [42] comparative analysis of [3], and state-level data map tool, which determined the appropriate analysis focus. The [3] summary was used for its state-level data to consider appropriateness for

federal-level analysis, which also assisted in determining FINI outcomes analysis on the state or federal levels. However, more outcomes data were needed due to limited information within FINI data; therefore, both FINI's 2021 Brief Summary Report (website in Table 1) and the Center for Science in the Public Interest were additional data used for their more explicit, comprehensive information that guided analysis focus on the federal level. The analysis process for addressing

Table 1. Federal FINI data sources matrix.

Data Collected for FINI Evaluation	FINI Supplemental Data
FINI 2019 Summary Report: https://fns-prod.azureedge.us/sites/default/files/resource-files/fini-interimreport-summary.pdf	**History of the Farm Bill:** https://www.loc.gov/ghe/cascade/index.html?appid=1821e70c01de48ae899a7ff708d6ad8b
FINI 2019 Interim Report: https://fns-prod.azureedge.us/sites/default/files/resource-files/FINI-InterimReport_1.pdf **FINI 2019 313-page Statistical Result Report:** https://fns-prod.azureedge.us/sites/default/files/resource-files/FINI-AppendixI-L_1.pdf	**Agricultural Act of 2008 (Farm Bill 2008):** https://www.everycrsreport.com/files/20080619_RL33934_614d6a0faf11fe1b17757b3ceff90babdaa67bde.pdf **Agricultural Act of 2014 (Farm Bill 2014):** https://www.congress.gov/113/plaws/publ79/PLAW-113publ79.pdf **Agricultural Act of 2018 (Farm Bill 2018):** https://www.congress.gov/115/plaws/publ334/PLAW-115publ334.pdf
FINI 2021 Summary Report: https://fns-prod.azureedge.us/sites/default/files/resource-files/FINIReport-Sumary.pdf	**GusNIP COVID Relief and Response (GusCRR):** https://sam.gov/fal/0cc5c361ec914021a3be83c2d0dd8a0d/view
FINI 2021 Final Report: https://fns-prod.azureedge.us/sites/default/files/resource-files/FINIReport.pdf **GusNIP NTAE Executive Summary:** https://www.nutritionincentivehub.org/media/fjohmr2n/gusnip-ntae-impact-findings-year-2.pdf	**Center for Science in the Public Interest:** https://www.cspinet.org/sites/default/files/2022-03/SNAP_Purchasing_Power_2.pdf; has more explicit, comprehensive results than FINI interim & final reports **Farmers Market Coalition:** https://farmersmarketlegaltoolkit.org/snap/legal-topics/incentives/ **Wholesome Wave:** https://www.wholesomewave.org/ **Dietary Guidelines for Americans:** https://www.dietaryguidelines.gov/sites/default/files/2020-12/Dietary_Guidelines_for_Americans_2020-2025.pdf
FINI Infographic Data (Figure A6): https://www.westat.com/sites/default/files/FINI-Infgrphc-Overview-508.pdf	**Gretchen Swanson Center for Nutrition (GSCN):** https://www.centerfornutrition.org/gusnip
State-Level Data	
Tax Credit for State Food Deserts: https://mostpolicyinitiative.org/wp-content/uploads/2021/06/Tax_Credit_FoodDeserts2021.pdf	
GusNIP Interactive State-Level U.S. Map: https://www.nutritionincentivehub.org/grantee-projects	

Note: This matrix includes federal and state-level data. The interactive data map is clickable, 50-state-level information that provides each state's food program, which is multiple, and either GusNIP or GusCRR-federally funded. This matrix also included other healthy food-related data.

an issue typically progresses within a specific model, from primarily identifying the issue to finally planning to resolve it. However, the advocate for the issue should consider debriefing, evaluating, and reviewing the entire process before continuing to move forward. In addition, institutional and political stakeholders should create a situation that will not limit the analysis process and focus on the relationship that will complete the task. The process for completing a policy analysis involved: 1) identifying the issue, 2) collecting data of evidence, 3) considering alternatives and criteria needed, 4) anticipating outcomes, 5) determining trade-offs, 6) pausing, debriefing, focusing, and 7) narrating a scenario of the issue [42].

16.4.1. Identify the Issue
As the first vital step, identifying the extreme issues within the problem will provide an opportunity to prioritize each component within it [42]. To reiterate the problem, there are too few food policy incentives for overly expensive healthy foods and limited disincentives for less expensive, unhealthy foods. The other concern is that recipients who receive federal food assistance have significantly low incomes that determined their eligibility to receive food incentives to promote healthy eating behaviors, whereas non-SNAP recipients' incomes just above the federal poverty line have no incentives or other methods to improve healthy eating that were identified from collected data.

16.4.2. Collecting Data of Evidence
Drafting data to support evidence of the problem, as the most intense task of the policy analysis process, could impact the timeline for completion of the analysis and the amount of information needed to support the evidence [42]. Publicized, existing data, as supporting evidence, was a part of the policy analysis process that involved a literature review for evidence of CVD-risk-reducing diets and healthy food incentives that promote healthy diet behaviors. To collect as much authentic FINI information as possible, the USDA website was used to collect FINI data. As mentioned, the aim was to analyze FINI on a federal level; however, an individual state-level analysis determined a federal-level analysis focus due to a myriad of state-level programs shown in the 175-page FINI executive summary, which stated various FINI awards in many States. More state-level data referred to as Tax Credit for State Food Deserts (USDA executive summary) discussed the food desert crisis in certain states; the link to this data is in Table 1. Additional FINI data has qualitative results of FINI's effectiveness. The FINI infographic data described FINI's function (Figure A6) and the Center for Science in the Public Interest (SNAP document), discussed how FINI improved SNAP purchasing power that included an income limit table as very essential information for the advocate and stakeholder that other FINI data lacked. The Nutrition Recommendation Data (Figure A2) from [5] included recommendations for consuming Mediterranean foods that reduce CVA/CVD risks. The CDC's work on improving access to healthy foods is stated in its infographic data (Figure

A3). The data for healthy food incentives that improved purchases of plant foods were cited in: [30] [31] [33] as RCTs, and one cohort study data that associated poor diet quality and disparities: [9] [12].

16.4.3. Criteria Needed

The most significant evaluative criteria are whether the projected outcome can solve the policy issue to an acceptable standard. Evaluative criteria are not used to judge alternatives but to introduce policy qualities and fundamentals. Evaluative criteria such as targeted populations, policy efficiency, political process, legal implications of the policy, and solutions that would sustain the new policy [42], all were considered during the analysis plan.

16.4.4. Consider Alternatives

Planning for an alternative does not necessarily mean completely changing a proposed policy. Other alternative methods such as adding, removing, or modifying a proposed policy component are accomplished by performing a re-analysis or re-evaluation. Moreover, submitting a policy proposal to various areas may improve feasibility accomplishment [42]. This policy proposal would first be considered for submission to a U.S. department or agency such as the Department of Health and Human Services (DHHS), USDA, or CDC to be champions who can submit it to a U.S. legislator to improve proposal support. However, even with supported proposal criteria, delayed policy processes and political barriers are still anticipated.

16.4.5. Anticipate Outcomes

Reference [42] stated current trend outcomes, as the ones that are not anticipated to be modified, are outcomes that should include explicit information that may exist in the present and the future. Anticipating an outcome typically involves considering the path of the outcome and its significance. Policymakers who read a policy proposal that lacks a significance of an outcome may perceive it as null, which jeopardizes policy acceptance [42]. The primary, anticipated outcome of this proposal is stakeholder acceptance. However, the most concerning outcomes are proposal rejection and preparing for alternative measures for acceptance. The next concerns are communication barriers amongst political and institutional stakeholders for proposal acceptance. The secondary outcome would be to improve the high cost of healthy foods that may consequently decrease healthcare costs and CVDs for at-risk populations.

16.4.6. Determine Trade-Offs

The most known trade-off is an exchange for monetary benefits and the services provided to the population that needs them [42]. Provided that the new policy prevails against negative outcomes, the trade-off would be to propose an incentive policy to encourage healthy food options that may decrease the risk of CVDs, which may decrease government-payer healthcare costs and increase financial gains within the private sector (food service industry).

16.4.7. Pause, Debrief, and Decide

The objective of the completed analysis should not be only to demonstrate a list of thought-out solutions but to assure that these solutions are the most appropriate selections to resolve the issue based on the final analysis. The decision to move forward and consider possible rejections by political or institutional stakeholders could be based on the credible information provided to them. Also, presenting more trade-off information to stakeholders should be based on their decision to move forward and not the decision of the proposal writer/advocate [42]. Therefore, continued research and debriefings may be necessary to improve the odds of proposal acceptance, by presenting more robust federal food incentive trade-offs.

16.4.8. Narrate a Scenario Related to the Issue

The final, important part of the analysis will be narrating a story or scenario related to the issue, fully understanding the conclusions, and conveying them to the stakeholders' level of understanding. In addition, reiterating the issue and its trade-offs would also be needed. Also, the proposal writer should consider relating and connecting the issue with the targeted audience as the stakeholders and engage them to understand the need to resolve the issue [42]. Moreover, forming relationships with stakeholders who may be willing to advocate for improved healthy food incentive options could strengthen proposal acceptance. Table 1 has FINI federal and state-level data to conduct the analyses that determined the narrative focus.

17. Outline of Analysis Plan

17.1. Need of Data

1) Plan

a) Population health indicator data to U.S. policymakers to support need for policy.

b) Federal incentive program effectiveness and health outcome data (Figure A5).

c) Peer-reviewed journals discussing positive outcomes of healthy food incentives.

17.2. Past and Current Initiatives

2) Plan

a) Present past policy incentive initiatives to stakeholders—ineffective current incentives.

b) Present current policy incentive initiatives to stakeholders—allow people to make healthy food options through long-term incentives instead [27].

17.3. Internal and External Document Policy Evaluation

3) Plan

a) Governmental (external) document(s)—past versus present government

policies.

 b) Institutional (internal) document(s)—food retailers, population health behaviors.

 c) Submit a policy brief or white paper as a deliverable.

18. Thematic Analysis

The thematic analysis plan involved a comparative analysis of existing FINI data and reports, forming analysis questions that guided the incentive policy analysis, and analyzing themes in literature such as comparing federal and state FINIs versus non-governmental healthy food incentives and their outcomes, SDOH, disparities, and healthy behavior changes. As mentioned, [3] reported evaluations of FINI grantees' surveys, FINI's effectiveness on health behavioral outcomes, and results of increased purchase of plant foods by SNAP recipients; however, results and evaluations were more implicit than explicit, which lacked actual survey or FINI's effectiveness results that required more data. Nonetheless, this summary guided further discovery and analysis of numerous state-level data that determined a need for an individual state-level analysis. The challenges were due to individual states with varieties of programs and incentive criteria that was a challenge to address barriers, facilitators, effectiveness, and recommendations for food incentives for all socioeconomic levels. Therefore, a federal-level analysis was more feasible to evaluate FINI-populated states. However, many states have multiple programs that are federally or only state-funded with different policies, which created an even greater challenge to analyze a state as either GusNIP or GusCRR-funded, as demonstrated within the GusNIP state-level interactive map.

18.1. FINI Program Federal-Level Analysis

Though FINI is a federal subsidy of the USDA, it still has its policy as stated on pages 151-155 of a 530-page, Agricultural Improvement 2018 Act document, under Title IV of the Farm Bill as "Retail Incentives"
(https://www.congress.gov/115/plaws/publ334/PLAW-115publ334.pdf)
referenced from the Library of Congress' "History of the U.S. Farm Bill" website: https://www.loc.gov/ghe/cascade/index.html?appid=1821e70c01de48ae899a7ff70 8d6ad8b&bookmark=Timeline. Reference [3]'s FINI executive summary was inadvertently discovered and has since been reviewed several times due to its very large content which led to more discovery of FINI data. Surprisingly, however, upon a recent, further review of FINI summary, another federal program was discovered within its data as the Wholesome Wave Foundation, established in 21 states (https://www.wholesomewave.org/) and its aim and purpose are similar to FINI (GusNIP). Hence, the benefit of a federal-level analysis was collecting similar data from all recipient states of a certain federal program. However, it was a challenge to determine which federal programs such as Wholesome Wave, Farmers Market Coalition, and FINI, produced the best outcomes for each state that still required a state-by-state analysis to saturate reliable data.

Therefore, existing FINI data that demonstrated positive and challenging FINI outcomes determined the level of analysis to conduct on a federal level.

18.2. FINI Program State-Level Analysis

This analysis included state-level analyses to compare state-level data that determined the target analysis level focus. Reference [3] included mapped data of the U.S. with FINI-participating states. States with the highest levels of participation were Michigan, California, and Massachusetts [3]. However, the rationale for this occurrence was not indicated, nor indications for the lack of or limited FINI programs in other states that have low socioeconomic populations in certain areas as in the three major populated FINI states. Though these three highly populated FINI states could be sufficient to perform a state-level FINI analysis, more challenges were faced after reviewing each of the state's FINI programs on the GSCN U.S. data map. For instance, Michigan has a food program called, "Fair Food Network", which is neither in California nor in Massachusetts, and instead, both states have other programs. Moreover, each state has its various FINI criteria. Moreover, some FINI state-level grantees lacked or offered limited incentives by various methods.

More concerning challenges for state-level analyses are various state-operated programs in many states that include unique food incentive criteria. For example, State food incentive/assistance programs such as Florida Certified Organic Growers and Consumers, Inc., and Feeding Florida (Florida-based food programs), Ecology Center, and Mandela Marketplace, Inc. (California-based food programs), and Wholesome Wave Georgia, listed as FINI grantees in [3] State data, have variations of FINI awards and durations granted by federal-level FINI funds. In addition, upon further discovery of data that demonstrated GusNIP (FINI)-granted regions of the U.S., the states in gray not funded by GusNIP, such as Florida, Arizona, Ohio, and many others, further impacted a valid state-level analysis. Information on FINI-occupied, state-mapped data is the GSCN: https://www.centerfornutrition.org/gusnip, which indicated States either as GusNIP- or GusCCR-granted; for example, Florida, a non-GusNIP state, has a program called Feeding Florida, a statewide foodbank organization that is not an incentive program and instead, a network of 12 Florida foodbanks: https://www.feedingflorida.org/, found after an overview of the Nutrition Incentive Hub, https://www.nutritionincentivehub.org/grantee-projects, an interactive U.S. map database located in GSCN's homepage below its non-interactive map. The interactive map prompted more discovery of Florida's FINI program called, GusCRR Grant, opposite of Arizona's grant status (has GusNIP, but not GusCRR), which was another challenge for state analyses and to focus on a federal analysis.

19. Results: Healthcare Policy Profile and Analysis

19.1. Problem Review and Need

As mentioned, inaccessible healthier diets are significant barriers for at-risk

populations challenged by limited supermarkets [7]. The prevalence of CVD is about 50% within the U.S., with much of it contributing to poor diets [9]. Disturbingly, about 11% of Americans are food insecure, including >10% being SNAP recipients [8], and FINI only applies incentives to SNAP recipients who experienced disparities and poor diet quality just as non-SNAP recipients, and are allowed to purchase more unhealthy foods than other federal food programs [9]. Moreover, FINI mainly supports farmers' markets [10], which unjustifiably impacts the low fruit/vegetable intake of low-income groups [8] and has limited expansion to commercial markets such as grocers [11]. Therefore, less focus on consumer responsibility for unhealthy eating behaviors should direct more focus on implementing food distributor and direct consumer incentive policies [4], which should also address disproportioned prices of costly healthier foods versus less costly unhealthy foods and disparities among at-risk populations [7]. Results of policy comparative and outcomes analyses of state and federal data were interpreted from existing data using lament statistical terms to the level of policy proposal stakeholders' comprehension.

19.2. Quantitative Analysis Results: Statistical Analysis for Quality, Demographics, and Population Health Status Indicators

Quantitative analysis was conducted by use of existing data and reviewed literature. Hence, the focus of the analysis was on FINI data due to more need for critiquing compared to non-FINI, cited literature that included more explicit, comprehensive information than FINI's literature. The targeted population was CVD risk groups of SNAP and non-SNAP adults and children; however, this paper focused more on the adult population due to increase CVD risk with age. Though this proposal addressed all socioeconomic populations, less significance was on the higher-income population than on the lower-income population which experienced more barriers and disparities.

19.2.1. Quality
It was noted in the cited literature that minorities had a higher percentage of disparities in healthy food access and incentives and were more prone to higher morbidity, mortality, poorer diet quality, and poorer health outcomes for CVD than Caucasians. More disturbingly, minorities, specifically of African descent, have higher percentages of SNAP and FINI disparities, which were not explicitly described in the literature as the type of disparity such as income criteria variability, geographic locations, or variation amounts in federal assistance or incentives received in certain communities.

19.2.2. Demographics
Demographics for most FINI retailers were businesses in low-income, urban communities.

Significantly, both SNAP and non-SNAP minority and majority populations increased purchases of plant foods after governmental or non-governmental in-

centives were applied. More significant purchase outcomes improved when both incentives and disincentives were applied simultaneously by non-government incentives. Governmental disincentives are simply disqualifying food incentives. Supplemental data of Reference [25], a 313-page FINI evaluation, demonstrated positive skewness for improved purchase and intake of plant foods by SNAP participants classified in subcategories such as ones living near or far from a FINI farmers' market, ones living near or far from a FINI grocer, and a non-FINI grocery shopper group. Disturbingly, however, over 50 grocers had plans to offer incentives but failed to carry out the plan [25] that lacked indications for it.

19.2.3. Population Health Status Indicators

Statistical analysis of additional data measure indicators included existing FINI and non-FINI data. Due to several issues with FINI, such as low program public awareness, geographic and income disparities, and incentive limits, [25] stated, additional sectors for more research are needed, that include creating strategies to improve program awareness, marketing, incentive rates for various retailers, and understanding FINI plant food dose-responses [25]. However, during FINI's 2019 and 2021 data analyses, there were omitted opportunities to include more explicit information that could have been more public-reader friendly such as more lament terms and including diet biomarkers to indicate improved health outcomes for SNAP recipients that easily could have been compared with non-SNAP low- and higher-income groups. Though health outcomes were indicated in FINI data, they were implicit statistical terms. However, FINI's infographic data reported $p < 0.05$ of increased plant food purchases by SNAP recipients.

19.3. Qualitative Analysis Results

Qualitative analysis was conducted also using existing data and reviewed literature. As mentioned, the focus of the analysis was on FINI data due to more need for critiquing, compared to non-FINI, cited literature that included more explicit, comprehensive information. The [25] report analyzed incentivized SNAP and disincentivized SNAP recipients as in the quantitative analysis. However, within the health status indicator outcomes, there were no explicit, verbal survey results or the number of participants who responded to each question in the survey, and instead, survey data were explained in terms of how they were given and outcomes of participation.

19.3.1. Themes within Policy Initiatives

Identified themes within past and current policy initiatives were apparent in the 2008 Farm Bill that addressed the need for increased spending that continued in the 2014 and 2018 Farm Bills, FINI's most active periods in legislation. The 2008 Farm Bill addressed the need to increase SNAP benefit spending, whereas the 2014 Farm Bill, as the Agricultural Act of 2014, Title IV-Nutrition, which when

FINI was established, stipulated benefits needed to be expanded beyond the SNAP benefit period, which expires by the second half of the month. When FINI was established, the remaining benefits were as incentives that covered the latter half of the monthly benefit. Then the most recent initiative occurred during the 2018 Farm Bill which increased FINI spending to make it permanent. Therefore, the main theme within all three Bills was increased benefit spending.

19.3.2. Themes from Policy Regulation Analysis

Themes from the analysis of Title IV regulation of the Farm Bills mainly pertained to federal FINI. Despite the increased benefit spending that occurred with all three Bills, the following initiative theme within these Farm Bills was continued income limitations among SNAP recipients and FINI limitations within the 2014-2018 Farm Bills. It was a bit disturbing that [3] stated that SNAP recipients are required to return their earned incentives for a future purchase [3], without stating how often this must occur, further limiting the use of FINI. Furthermore, themes in FINI limitations occur in two ways. First, FINI recipients must be enrolled in SNAP and provide this evidence to FINI grantees who must have a FINI-registered account. The second theme of FINI, as Title IV of 2014-2018 Farm Bills, is that more limitations occurred depending on where the SNAP recipient shops, rather it is a farmers' market or a grocer where incentives vary.

19.3.3. Themes from Public Data

The two main themes within many USDA websites were the definition of fruits and vegetables and the purpose of the FINI (GusNIP) program, mentioned earlier. The themes from public FINI data were the requirements for FINI grantees to offer incentives at the point of purchase to SNAP recipients only, plant foods must be FINI-eligible (criteria mentioned earlier), the definition of incentive, submit annual FINI reports to legislation, and being able to offer incentives online. The main, complex themes within the 2014 and 2018 Farm Bills are the numerous acts, titles, and subtitles within them such as: the Food and Nutrition Act of 2008, under Subtitle A within the Title IV-Nutrition of the 2014 and 2018 Farm Bills, and food trade Acts that spans to the international level. The most essential theme not seen within the Farm Bills or in other publicized legislative data was income limits per individual and families per household that can receive SNAP. However, after searching for more information on FINI, more data were inadvertently discovered on FINI that included SNAP income limits and more indications for not performing a state-by-state FINI analysis due to a myriad of individual state-level incentives, including more supportive evidence for the benefits of incentives, and a positive economic impact. This most essential discovered literature was perceived as the most crucial data for this policy proposal, its website is in Table 1.

19.3.4. Results of Bracketing with Reflection

Though SNAP and FINI are federal programs for the low-income to have improved access to and affordability of healthy foods, studies within the literature

review had stated improved health behaviors and increased purchase of plant foods among both incentivized low- and high-income study participants. As stated in [4] [27] and [44], healthy foods should be available to all socioeconomic backgrounds, and incentives are intended to improve healthy diet behaviors and encourage the introduction of new, unique, healthy foods that are not just limited to low-income populations. As [44] stated, the affordability of healthy foods is not the catalyst for increased consumption, especially among the higher income that tends to have more intake of fruits than vegetables [44]. Therefore, as reflected in the literature review, healthy food incentives improved outcomes for all socioeconomic levels. For instance, as a middle-income proposal advocate, an avocado, a food never consumed, was introduced, and offered free by a colleague (an incentive to try new, unique food), and was later purchased and consumed continuously; this was compared to a similar experience of the [27] study when increased intake of salads continued even after incentive cessation [27]. Therefore, it seems that incentive policies should address all populations, specifically at risk for CVD. Table 2 included identified themes such as improved purchase of incentivized healthy foods, improved healthy diet behaviors, and addressed challenges of the FINI program with analysis.

20. Summary

The expense of healthy foods compared to cheaper, unhealthy ones had negatively impacted populations on all levels, more so within low-income populations who experienced inaccessibility and unaffordability of healthy foods (plant foods) that continued to create barriers with a lack of solutions to the problems [4] [7] [10] [12] [44]. Poor nutrition is more prevalent in the low-income associated with the intake of low-nutritious foods that increase CVD risk and other

Table 2. Evaluation of federal FINI and recommendations.

Grantees'/Recipients' Evaluation of FINI
Improved Purchase/Access of Plant Foods: Most grantees reported their consumers as happier [3]; SNAP/FINI recipients' perceived improved benefits of accessed foods [3] [11] [33]
Changed Healthy Behaviors: Increased desire for plant food purchases and willingness to try new plant foods [3] [8] [27] [30]
Challenges of FINI: Limited commercial expansion and marketing beyond farmers' markets to reduce disparities [8] [10] [11]; inadequate FINI staff and application process; meeting FINI funding-match requirements; customers needed to return an earned incentive for a future purchase; and grantees lacked the performance of FINI consumer needs assessments to improve outcomes [3], and various State-level policies, creating challenging FINI outcomes analysis

FINI Analysis
Benefits: Compared to non-government incentives, FINI improved health behaviors only for the low-income **Barriers:** Requires very low-income, recipient disparities, various state-level policies, limited public exposure **Recommendations:** Increase public exposure, conduct population needs assessments, apply incentives to all income levels, form more partnerships with private sector businesses, and create live seminars to improve FINI exposure and education

Note: Federal FINI qualitative analysis.

chronic diseases [28]. Healthy food disparities and SDOH are key indicators of inaccessibility and unaffordability for impoverished populations to improve health behaviors [8]. Significant findings were improved outcomes of behavior change with a combination of incentives and disincentives from SNAP and non-SNAP populations versus incentives alone [8] [10] [33] [44]. The FINI federal program was analyzed on the federal level due to various state-level programs as recipients of multi-federal programs that challenged an analysis for each of the 42 FINI-occupied states' homogeneous outcomes of FINI's effectiveness.

21. Interpretation: Policy Analysis and Advocacy Deliverable for Identified Stakeholders

The gathered data that presented sufficient evidence of improved health and behavior outcomes when healthy food incentives were applied to all population levels facilitated a comparative, current policy analysis of a new proposed healthy food incentive policy. The current policy analysis involved evaluation of FINI outcomes of SNAP recipients' increased purchase and intake of plant foods and perceived improved health status. The policy analysis results included FINI strengths, limitations, facilitators, and barriers such as improved SNAP population outcomes and disparity issues. The policy analysis process model and SWOT analysis guided the policy analysis process and outcomes. The deliverables involved the use of media such as webinars, electronic invitations, social media, online education systems, submission to health journals, white papers, presentations, and organizations.

21.1. Current Policy Issue

The current issue with FINI policy is income limitation that challenges other low-income populations, and non-SNAP recipients to maintain affordability and access to healthy foods. As mentioned by [9], FINI federal program only applies incentives to SNAP recipients who experienced disparities and poor diet quality, just as non-SNAP recipients [9]. Also, as mentioned, [36] stated, over $32 billion in healthcare costs were related to >2,000,000 CVD admits [36], and >$180 billion were spent on CVD by public insurers since 2016 [37], which continues.

21.2. Current Policy Comparative Analysis

Comparative analysis of current and proposed policies addresses what constituent(s) should be included in the proposed policy or the current one. As mentioned, FINI applies incentives only to low-income, SNAP recipients who continue to experience low-quality diet and disparities. This program contributes its fund grants to farmers' markets and less to other food markets where people shop the most. However, many SNAP recipients are unaware of FINI due to its lack of program awareness promotion. Unlike non-government incentives that promote awareness, such as media and newspaper advertisements, and offering incen-

tives in various methods to all socioeconomic levels, FINI does not promote its awareness to at-risk populations for diet-related diseases, including SNAP populations, despite FINI's improved plant food intake outcomes as in non-FINI outcomes.

21.3. New Policy Strategies

Strategies for the new policy are similar to the policy analysis plan, which is to first present evidence and supportive data for policy change for the existing problem to policy stakeholders. Obtaining reputable, authentic information such as from government websites, peer-reviewed journal literature, or from a primary source such as a policy informant who can offer guidance to move the policy forward [42]. Primary strategies are: 1) proposing consumer and food industry incentives or disincentives policies, 2) focusing on methods with the greatest impact (such as combining incentives and disincentives, and/or providing nutrition education) that reduces disparities of substandard healthy diet behaviors, environments, and health promotion, and 3) referring to past public health policy successes to be used as effective models for complicated issues such as tobacco abuse and public safety to benefit all populations [4].

Secondary strategies for the new policy are to follow [43] recommendations by use of an established policy language or model to prepare for policy development [43] and 1) build stakeholder and community relationships that facilitate trust, honesty, and respect, 2) improve SNAP recipients' diet quality, 3) expand healthy food incentives to non-SNAP populations of all socioeconomic levels, and 4) improve food incentives equality for SNAP recipients.

21.4. Advocacy Plan

The policy proposal advocate had considered preparing a proposal for stakeholders who may be less knowledgeable in research and statistical terms to address healthy diet issues. Upon identifying the problem and creating a statement of it, the advocate created a plan to address the problem. This plan includes: 1) assessing the needs of communities at risk for diet-related chronic diseases, 2) addressing these needs and presenting evidence of the problems to stakeholders, 3) disseminating evidence of improved post-food incentive health behavior outcomes through various methods, 4) preparing educational materials and/or courses to further disseminate evidence of incentive benefits that improved health behaviors and intake of fruits and vegetables via online learning management systems that would increase proposed policy stakeholder exposure, 5) establishing community outreach methods such as social media, webinars, online group invitations, and/or electronic petitions, and 6) submiting policy white paper to federal stakeholders such as U.S. department secretaries and/or CDC agent. Rogers' Model of dissemination and evidence-based literature guided the advocacy plan.

21.5. Algorithmic Advocacy Plan

Implementation (1) The first part of Rogers' Model for policy advocacy and

dissemination is to implement new tangible/intangible assets that require dissemination to introduce new policy [48] and educate the target population [4] of the new, beneficial food incentive policy that can be conducted via webinars, group sessions, and/or a learning management system that stipulate as less negative and more positive constituents as possible to decrease population anxiety and apprehension of the new policy; positive constituents such as incentives, rewards, free education, and/or trade-offs may induce policy compliance and acceptance by at-risk populations which may also become advocates for the new policy.

Implementation (2) After the policy has been disseminated, persuasions, such as discussing indications for innovation and benefits, would be conveyed to policy stakeholders [48]. Upon population education of policy, engage this population in the decision-making process by establishing a signed petition to be introduced to policy stakeholders and the population. Include brief policy information within the petition form for stakeholders and the target population to review for decisions to support a petition to move the policy forward.

Implementation (3) Once the persuasion is successful, a supportive decision can be made [48]. Upon stakeholders' acceptance and support of the population petition for the implementation of enhanced FINI healthy food incentives, the new policy regulations can be set and enacted, which would be disseminated to population incentive supporters.

Implementation (4) Actual implementation allows time for innovation completion upon application [48]. Upon U.S. stakeholders' policy authorization and enactment [43], the new food incentive policy should be implemented to incentivize all populations at risk for diet-related CVD. Other stipulations within the policy should include income-based incentives not limited to SNAP recipients; low-income and high-income individuals will have the opportunity to be offered healthy food incentives through an enhanced FINI federal program funded by unhealthy food tax disincentives (for example, low-income receive 30%, high-income receives 5% - 10% healthy food incentives) to improve plant food intake.

Implementation (5) The confirmation that determines effectiveness and outcome measures [48], can impact the new policy incentive regulation, which can be evaluated and surveyed by policy stakeholders [4] who distribute population surveys that can be reported to the USDA and/or other governmental agencies. These surveys would determine the future of the new policy and financial sustainability. Federal stakeholders like the USDA and DHHS would require a new, revised FINI to report incentive outcomes as in the previous policy.

22. Analyses Strengths and Limitations

22.1. Analyses Strengths

Consistent evidence stated healthy diets such as Mediterranean, DASH, and other diets rich in plant foods decreased CVD risks and CVD-associated chronic diseases. Also, consistent evidence stated that increased, post-incentive healthy

food intake led to improved healthy diet behaviors. The strengths of incentives were abroad in concepts noted, one throughout was the universal FINI programs had regarding various affiliations, extent, promotion standards, and measures. Moreover, the positive outcomes of FINI maintained exceptional integrity within three main areas: 1) farmers reported improved sales, 2) grocers reported increased fruit/vegetable sales and demand, and 3) FINI recipients reported improved food security, diet, and health [8]. Other strengths were this paper's high number of random controlled trials and evidence qualities, the policy analysis and theory model frameworks, and policy implementation framework that were used as guides to gather data and context that presented strong evidence of diets that decreased CVD risk and healthy food incentives that improved behavior outcomes for all socioeconomic statuses. The major strength of the analysis was finding new data that enhanced the policy analysis focus on the federal level.

22.2. Analyses Limitations

The reviewed FINI executive summary policy exhibited implicit health outcomes of SNAP recipients who received the FINI federal incentives. Also, FINI's executive summary failed to include survey results of its grantees and recipients' evaluation of FINI's effectiveness on its SNAP recipients, such as outcome measures related to serum biomarkers for health and/or nutrition outcomes. Also, [25] did not emphasize FINI's name change to GusNIP in 2018, which was the reason for maintaining the name FINI within this paper. Also, within some of the research literature, were small sample sizes influenced by challenging recruitment processes within various study designs. However, the largest samples in other literature were well over 200, many in random controlled studies. Other limitations during the analysis were the lack of a SNAP policy profile/executive summary, Medicare's expenditures on CVD within any given year, and other governmental organizations, such as Healthy People, which lacked objectives to improve healthy food affordability, accessibility, and incentives for challenged populations. Reference [44] lacked strategic methods to increase plant food intake among youth, and instead, only addressed adults' preferences for healthy foods.

The most challenging limitation of this policy analysis was the heterogeneous state-level incentive data that included various food incentive criteria within all FINI-occupied states that created a barrier to an unbiased state or federal-level analysis. Future limitations for this proposal may be due to delayed or lack of stakeholder communication or interest in policy change. Thus, the American Nurses Association (ANA) is a great advocate for policy change, only if the proposal advocate is a paid member; this was discovered after reviewing ANA's membership criteria. The final limitation was the inability to discern criteria for the number of study participants that would be considered a strong or weak study mentioned in [49], which stated, that a quantitative study is rated as "A" quality if a sufficient sample of participants were used in a study [49] that may be as a biased, unjustified rating without stating an exact number of subjects to be considered as

an A-rated quality study. Moreover, Johns Hopkins' evidence-level rating does not include cross-sectional or cohort studies, which led to omitted ratings of these studies in this paper.

23. Conclusions

The significance of diet-related CVD with results of supportive evidence was included to demonstrate to policy and other stakeholders the importance of understanding CVD symptoms, pathophysiology, and treatment before implementing a policy; and the significance of presenting evidence of successful outcomes upon initiating healthy food incentives was to increase policy stakeholders' interest and knowledge of the benefits of healthy food behavior incentives. Together with evidence of diet-related CVDs and reducing risks when healthy diet behavior incentives are included, these may indicate a rationale for policy feasibility and implementation. However, plans for project sustainability are to create Continuing Education Credit (CEU) courses for healthcare professionals' benefit by spreading this project via learning management systems. Other methods of sustainability would be to continue the expansion of stakeholder and public outreach and project revisions depending on stakeholders' feedback. Other dissemination plans are online presentations and a journal.

The lessons learned were the unawareness of limited research on large study samples to strengthen the evidence base and provide more robust data that would have demonstrated the importance of healthy diet incentives. A future approach would be to conduct further analyses to maintain focus on healthy diet behavior outcomes on the federal level that requires data collection from federal food incentive programs. Nonetheless, it was noteworthy to state the most significant lesson learned was determining structures of federal FINI programs that are an umbrella of other federal food incentive programs, such as Fair Food Network, Wholesome Wave, and Farmers Market Coalition, adopted by states. These federal programs have different objectives for their target groups that were challenging for single outcome analyses. Implications for practice will be to continue research on policy drafting regarding food incentives that include evidence-based practices to improve population adherence to healthy diet behaviors and address barriers to healthy foods. Due to the proposal's study method, it required no funding.

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Conflicts of Interest

The author had no conflicts of interest in conducting this study.

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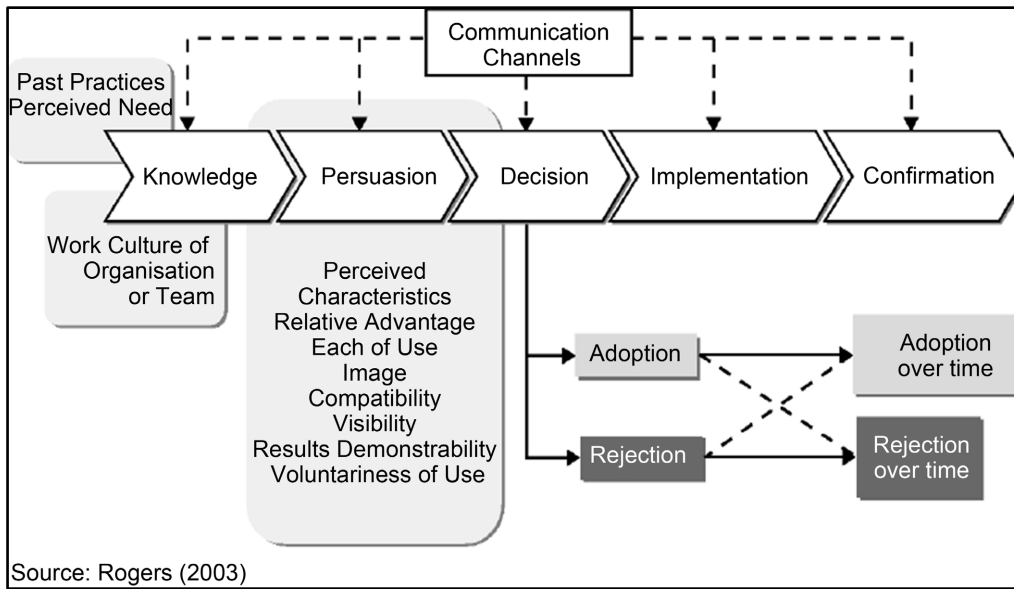
Appendix

Figure A1. Rogers' diffusion of innovation model.
https://www.researchgate.net/figure/Rogers-diffusion-of-innovation-model_fig1_263198037. Rogers' Model for policy implementation: Past Practices/Perceived Need; Work Culture of Organization or Team is behind communication channel "Knowledge"; Perceived Characteristics… is behind "Persuasion", the characteristics needed for persuasion, then the communication channels continue the process until confirmation of adoption or rejection; the Model is expressed in more detail under the "Rationale-Conceptual Theories and Improvement Science" header.

Recommendations for Nutrition Referenced studies that support recommendations are summarized in Online Data Supplements 3 and 4.		
COR	LOE	Recommendations
2a	B-R	1. In patients with stroke and TIA, it is reasonable to counsel individuals to follow a Mediterranean-type diet, typically with emphasis on monounsaturated fat, plant-based foods, and fish consumption, with either highextra virgin olive oil or nut supplementation, in preference to a low-fat diet, to reduce risk of recurrent stroke.[95,96]
2a	B-R	2. In patients with stroke or TIA and hypertensionwho are not currently restricting their dietary sodium intake. it is reasonable to recommendthat individuals reduce their sodium intake bat least 1g/d sodium (2.5 g/d salt) to reducethe risk of cardiovascular disease (CVD) events (including stroke).[97,98]

Figure A2. Nutrition recommendation data. Note: Data supplement with evidence and recommendation levels; Source: Kleindorfer *et al.* (2021), https://www.ahajournals.org/doi/10.1161/STR.0000000000000375?cookieSet=1. COR (class of recommendation); Classes 1, 2a, 2b, 3 (strongest: safe → weak: harmful). Blue: LOE (level of evidence: strongest → weakest): A, B-R, B-NR, C-LD, C-EO. Level legend: Levels B-R (B-randomized), B-NR (non-randomized).

CDC HELPS IMPROVE HEALTHY FOOD ACCESS IN MULTIPLE WAYS

CDC works to improve healthy food access in food service and food retail environments by:

Advancing Implementation of Food Service Guidelines – CDC helps states and communities use food service and nutrition guidelines in settings such as worksites, hospitals, colleges, food banks and pantries, parks, and recreation centers.

Improving the Supply of Healthy Foods – CDC works with states and communities to leverage efforts with partners and industry to increase access to healthy foods.

Driving Consumer Demand for Healthy Foods – CDC encourages the use of behavioral design practices (strategies that influence choice or action) to help consumers select healthier foods and beverages. Practices can include preparation, presentation, placement, pricing, and promotion.

Food service environments are where people eat prepared or packaged food away from home. Examples: cafeterias and cafes, snack bars and grills, concession stands, micro markets, and vending machines.

Food retail environments are where people buy foods to prepare and eat at home. Examples: supermarkets, corner stores, and farmers' markets.

Healthy Food Environments

IMPROVING ACCESS TO HEALTHIER FOOD

EATING A HEALTHY DIET IS DIFFICULT WITHOUT ACCESS TO NUTRITIOUS FOOD

70% Each year, chronic diseases account for 70% of all deaths in the United States. Poor diets lead to chronic illnesses such as heart disease, type 2 diabetes, and obesity.

American diets are generally poor in nutritional quality and do not align with the *Dietary Guidelines for Americans*.

Foods obtained at work are generally high in calories, sodium, solid fat, added sugars and refined grains.

Low-income and minority communities often lack convenient places that offer affordable healthier foods.

When healthy foods are not available, people may settle for foods that are higher in calories and lower in nutritional value.

Figure A3. CDC infographic data. Note: Source: CDC (2020), https://www.cdc.gov/obesity/downloads/strategies/healthy-food-environment-infographic-508.pdf.
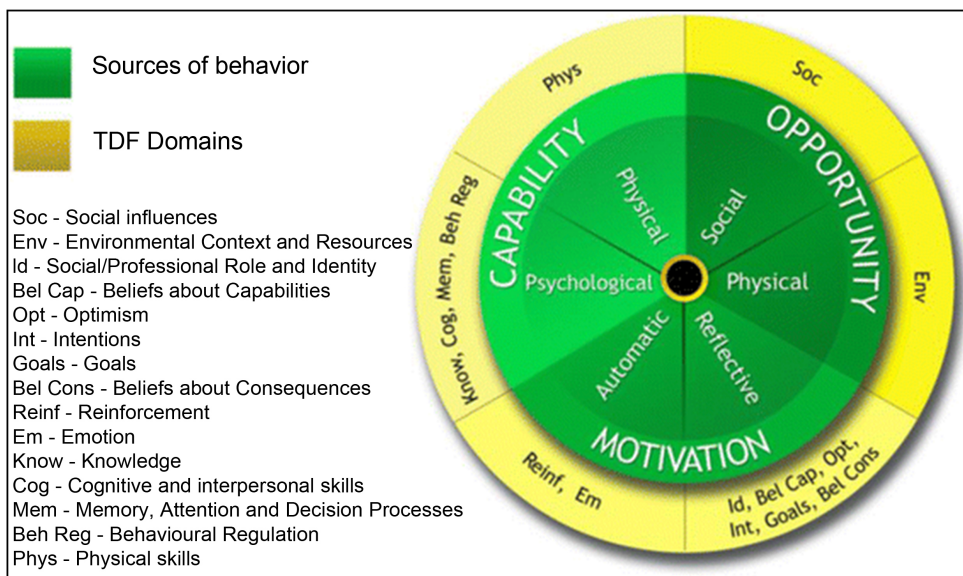
Figure A4. Theoretical Domains Framework (TDF). Note: Source: TDF: Atkins *et al.* (2017), https://implementationscience.biomedcentral.com/articles/10.1186/s13012-017-0605-9. Characteristics that influence change behaviors: **green** = behaviors; 1) (**Capability**: *physical/psychological*) > **yellow** = constructs (knowledge, cognitive/interpersonal skills, memory, behavior regulation, and physical skills); 2) (**Opportunity**: *social, physical*) > environment, social influences); 3) (**Motivation**: *automatic, reflective*) > *automatic*: reinforcement, emotion; *reflective*: social/professional role identity, beliefs about capabilities, optimism, intentions, goals, beliefs about consequences). This chart is explained in more detail under the "Rationale-Conceptual Theories and Improvement Science" header.
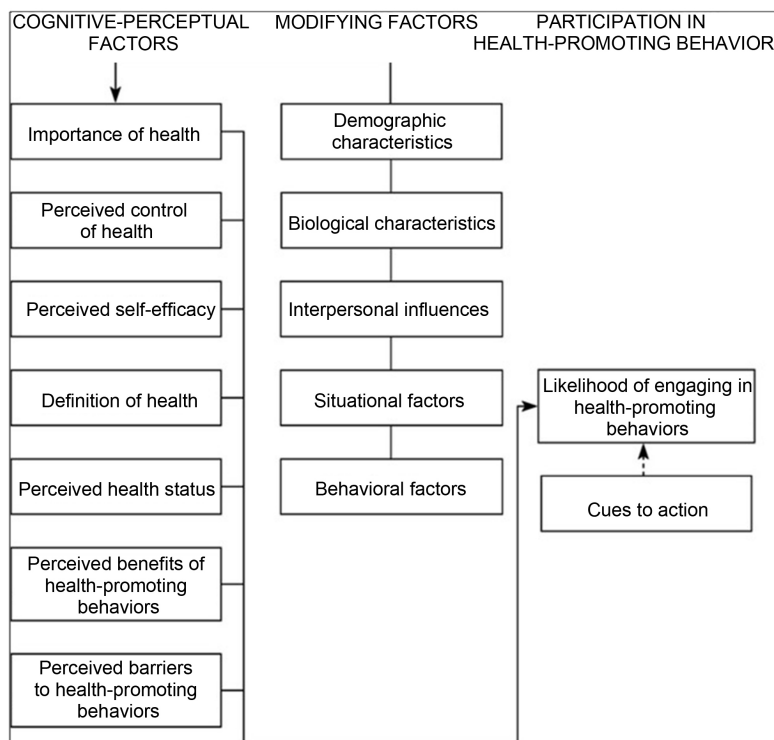

Figure A5. Pender's health promotion model. Note: Source: Pender *et al.* (2011), https://nursekey.com/health-promotion-model/. Columns left to right: cognitive-perceptual factors (cognitive state) >> modifying factors (influential circumstances) >> participation in health-promoting behaviors (motivation), that impact behavioral change (Pender *et al.*, 2011). This chart is explained in more detail under the "Rationale-Conceptual Theories and Improvement Science" header.
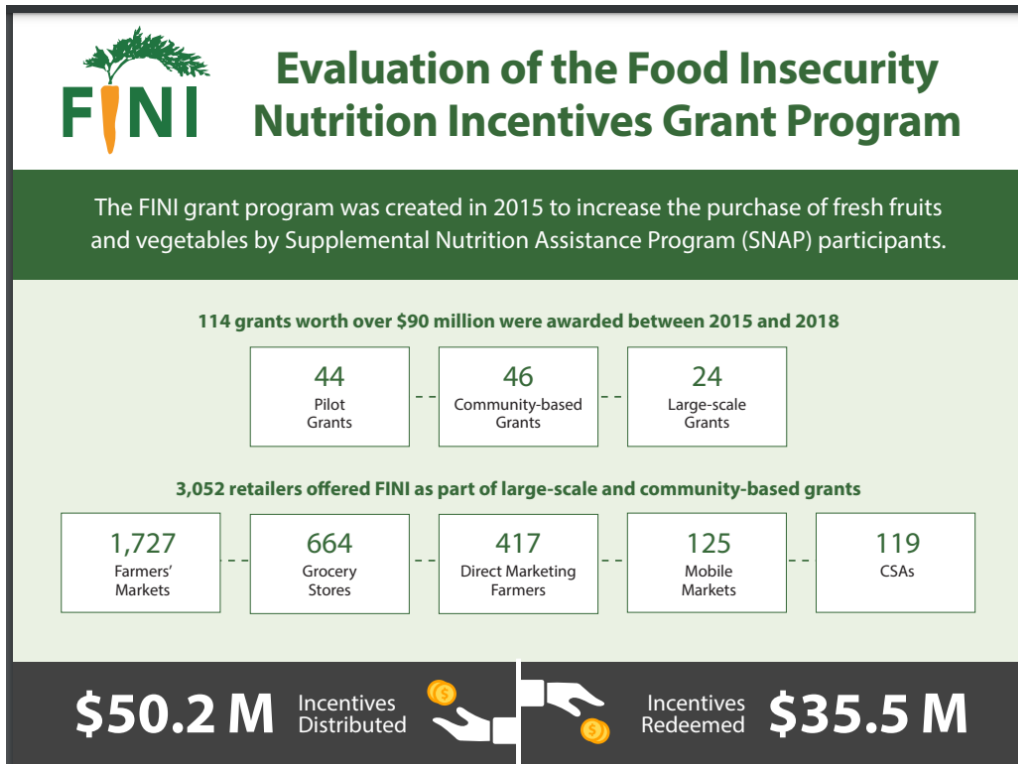
(a)
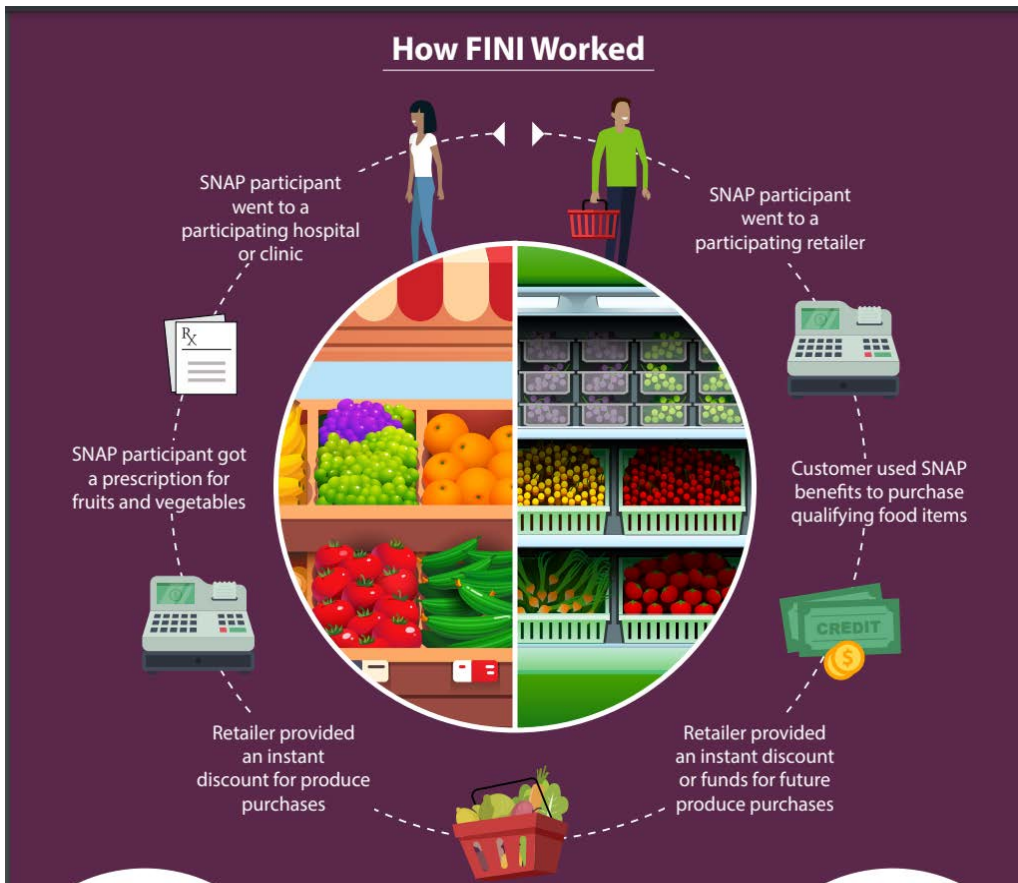
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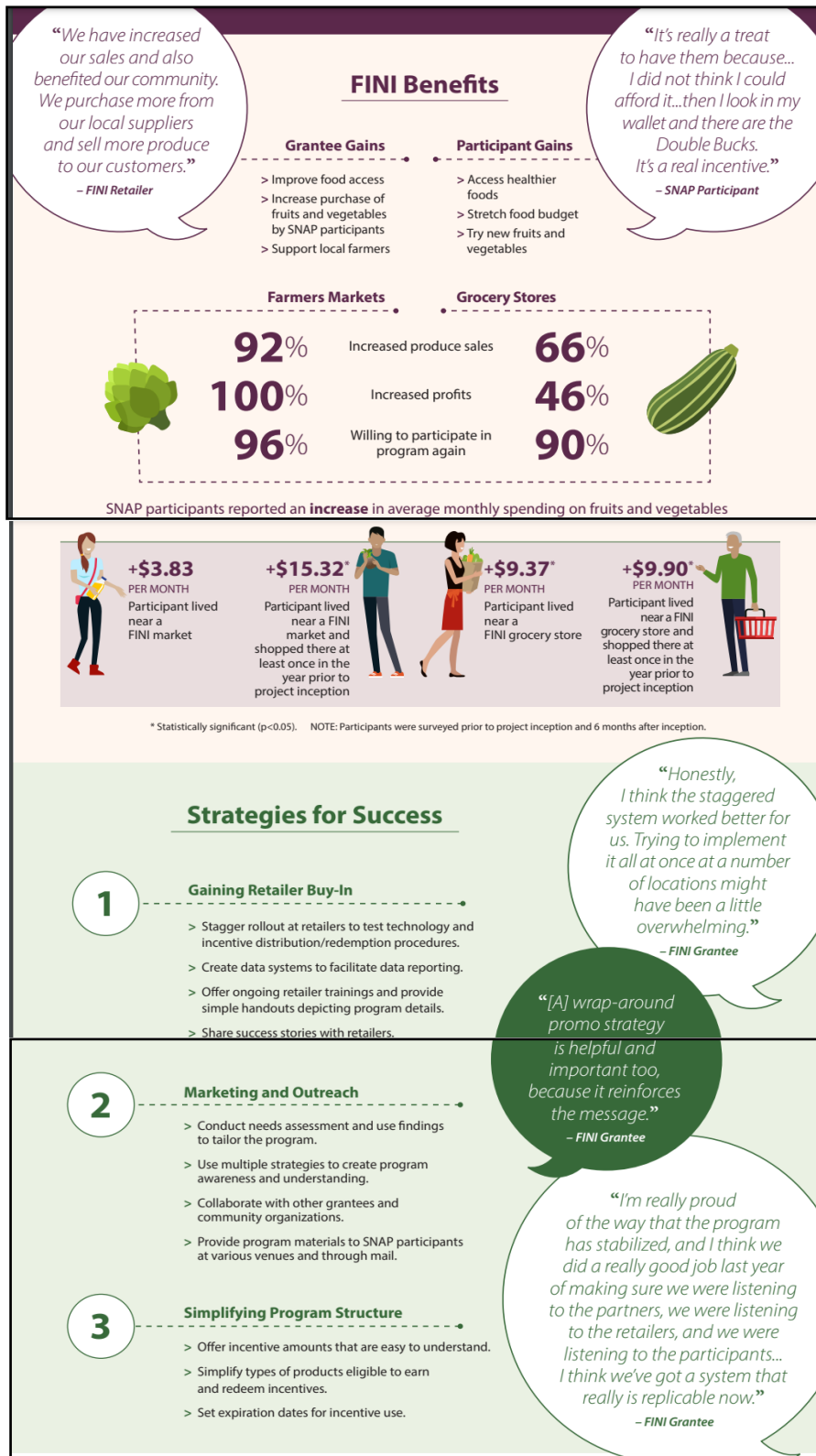
(c)

Figure A6. FINI infographic data. Note: Source: (a) Vericker *et al.* (2019/2021); (b) Vericker *et al.* (2019/2021); (c) Vericker *et al.* (2019/2021), https://www.fns.usda.gov/snap/evaluation-food-insecurity-nutrition-incentives-interim-report and https://www.fns.usda.gov/snap/evaluation-implementation-food-insecurity-nutrition-incentives-fini-final-report.