The Struggle to Reduce Cardiovascular Disease in the United States through Dietary Interventions

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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Heart disease has been the leading cause of death in the US since 1950, accounting for the equivalent of 1 in 5 deaths, and inflicting an economic burden of over $250 million annually from healthcare costs and productivity losses (CDC, 2023). Key risk factors for heart disease include high cholesterol and blood pressure, smoking, obesity, diabetes, physical inactivity, and excessive alcohol consumption. Most of these conditions are closely linked to or directly caused by poor dietary habits. While public health messages often frame diet as a matter of personal responsibility, the public understanding and adoption of heart-healthy dietary practices are shaped by a complex web of institutional and commercial influences. Americans' dietary interventions are shaped by government policies, corporate marketing, healthcare systems, and media narratives that often confuse the public understanding of its role in cardiovascular health.

Review of Research

Popular diets recognized for their cardiovascular benefits include the Mediterranean diet, DASH diet (Dietary Approaches to Stop Hypertension), plant-based diets, low-fat diets, and low-carb diets (Scheel et al., 2019), which lower cholesterol, blood pressure, and inflammation (Karam et al., 2023). Clinical evidence supports that the Mediterranean and low-fat diets are best for reducing both mortality and heart attack rates in high-risk cardiovascular patients.

In a population-based survey, Jarbøl et al. (2017) examined determinants of patient preferences for the prevention of CVD, finding "an overwhelming preference for lifestyle changes to medication." The study found that "the majority of people would choose lifestyle change if they were told it would have an equal effect to medication in preventing heart disease." Patients who prefer "natural" methods may see diet as a less invasive, safer alternative to long-term medication, without the side effects or the expense of prescriptions. However, health

authorities such as the FDA continue to issue disclaimers that many supplement claims lack clinical validation (2022).

In an attempt to understand what dictates people's dietary decisions, research found that emphasizing *healthy eating intentions* can be more effective when social norms are made visible and reinforced (Higgs & Thomas, 2015). This work contributes to understanding how communication strategies can either strengthen or undermine dietary behavior change, showing that individual choices are shaped by social messaging and perceived norms. Studies have also exposed the gap between nutritional knowledge and dietary behavior, particularly among younger populations, finding that 86% of university students in nutrition- and culinary-related programs reported inadequate eating habits, despite many having basic knowledge of healthy diets (Rivera Medina et al., 2020).

Recognizing that knowledge alone is insufficient, researchers have also explored how occupational health programs can improve employee health and reduce healthcare costs for those at risk of CVD. In a study evaluating the impact of the DASH diet on employees with cardiac risk factors, participants experienced an average reduction of $827 in healthcare costs during the study year (Sacks et al., 2009). Another study found that implementing a workplace wellness program significantly improved the health biometrics of participants (Einav et al., 2018).

Efforts to improve dietary behavior have also reached childhood settings, with schools as a key site for early intervention. Research indicates that a significant majority of food ads viewed by children promote unhealthy products. A 2013 study found that 84% of ads seen by children featured foods high in saturated fats, trans fats, sugars, or sodium (Healthy Food America, 2025). Similarly, the UConn Rudd Center for Food Policy and Health reports that over 80% of food

advertising targets fast food, sugary drinks, candy, and unhealthy snacks (2017), underscoring the prevalence of marketing for processed and unhealthy foods directed at young audiences.

A systematic review by Collado-Soler et al. (2023) found that nutrition education programs in kindergarten and primary schools were effective in improving children's eating behaviors and reducing BMI, particularly when family engagement and broader health education were included. These findings suggest that shaping dietary habits early within supportive institutional environments may be crucial for long-term cardiovascular health, reinforcing the idea that dietary decisions are influenced by structured, not solely individual, factors.

Dietary Influences of Institutions and Industries

The U.S. Department of Health and Human Services (HHS) and the U.S. Department of Agriculture (USDA) are the government organizations responsible for updating and releasing the dietary guidelines for Americans (USDA & HHS, 2020). A major contributor is the Dietary Guidelines Advisory Committee (DGAC), a panel of independent experts in nutrition, medicine, and public health who review current scientific evidence. Federal agencies, the public, the food and health industries, and Congress also comment to get the guidelines they favor. In this competitive effort, commenters invoke research findings in support of their regulatory agendas. Rather than serving as the foundation, science often functions as a contested and manipulable factor in the formation of dietary guidelines.

The American Heart Association (AHA) cannot make direct decisions about these Dietary Guidelines, but they act as a source of expert comment. The AHA also advocates for policies that promote healthier food environments, funds research, publishes evidence-based dietary guidelines to help professionals and the public, and focuses on addressing health

disparities in populations disproportionately affected by poor diet (AHA, 2023). The AHA recognizes challenges being faced in the realm of CVD prevention, stating "Assessing the value of prevention in apparently healthy patients is generally more difficult than evaluating therapy for established disease because the time horizon to the clinical manifestation of disease is generally long—many decades in the young" (Arnett et al., 2019). Accordingly, the AHA provides guidelines that highlight strategies for reducing CVD through evidence-based lifestyle interventions, risk assessments, and pharmacological treatments.

The National Institutes of Health (NIH) also cannot directly decide what goes in the Dietary Guidelines. Still, it plays a crucial upstream role by generating and funding much of the scientific research that supports evidence-based recommendations. Specifically, the National Heart, Lung, and Blood Institute (NHLBI) of the NIH, is involved in shaping the research, prevention strategies, and treatment guidelines for cardiovascular and pulmonary health (NHLBI, 2012). The DASH diet, one of NHLBI's most famous contributions, was funded entirely by NHLBI grants to academic research centers, like Johns Hopkins and Duke.

While dietary guidelines emphasize whole foods and balanced nutrition, many consumers turn to supplements as an alternative or complement. The supplement industry markets dietary products like omega-3 fish oil and CoQ10 as adjuncts to cardiovascular medications, often presenting these products as "natural options" to heart health. Nature Made, one of the most popular and well-regarded supplement brands, is a subsidiary of Otsuka Pharmaceutical (Otsuka Pharmaceutical Co., Ltd., 2025). The aforementioned supplements are marketed with "Helps support heart health" labels on their bottles. The bold claim implies a cardiovascular benefit that could lead consumers to believe the product has clinically proven effects (Nature Made, 2025). However, the fine-print disclaimer stating, "This statement has not been evaluated by the Food

and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease" immediately undercuts that assumption.

Although most heart-health claims on supplements or food products come with disclaimers, there are some products that are supported by government or authoritative health organizations. Products like Cheerios and Quaker Oats present a heart-healthy label based on the 1997 FDA claim that "soluble fiber from foods such as whole oats, as part of a diet low in saturated fat and cholesterol, may reduce the risk of heart disease." In a recent update from the FDA, they mention they are "developing a standardized front-of-package labeling system and finalizing Dietary Guidance Statements on food packages to empower consumers, including those with lower nutrition knowledge, to quickly and easily identify foods that contribute to healthy eating patterns" (FDA, 2025). Despite these efforts to guide healthier choices, much of the food industry has historically worked in the opposite direction.

Food companies and trade groups influence dietary habits through product offerings, marketing, and funding nutrition research. Looking back to the 1980s, tobacco giants Philip Morris and R.J. Reynolds acquired major food companies like Kraft and Nabisco, selling "hyper-palatable" products with addictive combinations of fat, sugar, and sodium, leaving a lasting impact on consumer eating habits even after they exited the food industry in the 2000s (University of Michigan, 2023). These entities often prioritize profits, promoting foods that drive consumption, but contribute to poor health outcomes.

Thus, Industry-funded health research introduces conflicts of interests. A 2018 analysis of peer-reviewed nutrition articles found that 13.4% disclosed food industry funding, with 55.6% of those studies reporting favorable outcomes for industry interests compared to just 9.7% of non-industry-funded research, highlighting concerns about potential bias (Sacks et al.). A

ProPublica investigation found over 8,000 significant financial conflicts of interest reported by federally funded health researchers since 2012, amounting to at least $188 million in payments from entities including pharmaceutical and food companies, raising concerns about transparency and the integrity of NIH-backed research (Armstrong & Waldman, 2019). Nonetheless, companies like Kraft Heinz have established Global Nutrition Guidelines to enhance the nutritional quality of their products, stating “Our nutrition priorities in the coming years are to continue reducing nutrients of public health concern and gradually increase positive nutrients (fiber, minerals and vitamins) while addressing consumer preferences related to taste and texture” (Kraft Heinz, 2023). However, the food industry's influence extends far beyond research labs and nutrition policy documents.

Even though the majority of the population affected by CVD is over the age of 45, dietary habits surrounding CVD don’t just concern adults. Nutritional practices developed during childhood have been found to persist into adulthood (AHA, 2020). The AHA found that eating environments shaped by parents and caregivers can significantly influence a child's long-term risk of obesity and CVD. In the early 2000s, growing concerns over childhood obesity pushed for healthier school meals. The USDA regulates school meal programs and was responsible for implementing the Healthy, Hunger-Free Kids Act (HHFKA) of 2010, which implemented more rigorous nutrition standards, including limits on calories, sodium, and unhealthy fats, while increasing whole grains, fruits, and vegetables (Kenney & Gortmaker, 2017). Recently, some of these HHFKA standards have been relaxed due to feedback from school meal providers about cost and practicality. Today, 67% of the calories consumed by kids consist of ultra processed foods, compared to 61% in 1999 (Reynolds, 2021).

Non-institutional Influences on Public Beliefs

Aside from government guidelines, many American adults affected by CVD are influenced by content creators on social media, websites, blogs, books, TV shows and documentaries about a heart healthy diet. Kelly LeVeque, founder of Be Well by Kelly, is a clinical nutritionist and wellness expert with over half a million followers on instagram, two best-selling health and wellness books, a youtube channel, a podcast, and various other platforms where she offers tools and tips to her community of followers (LeVeque, 2025). LeVeque's content relates to heart-healthy diets primarily through her focus on blood sugar balance, whole foods, and reducing inflammation (LeVeque, 2014). She also criticizes certain medical practices, stating "75% of heart attacks that are admitted to the hospital have normal cholesterol numbers," and doctors commonly prescribe a statin after using high cholesterol levels as a sign of major heart disease, which she claims may increase the risk of Alzheimer's and other brain-related issues (Estima, 2023). She highlights a case where "with a specific probiotic that…increased transit time and decreased the chances of leaky gut,… psyllium husk, which is a type of fiber known to improve a cholesterol ratio,...had a major impact on his blood tests."

Another prominent figure is Vani Hari, known as the "Food Babe," a food activist and author who critiques the food industry and promotes the avoidance of processed foods and additives (Hari, 2025). She has been recognized for influencing companies like Kraft and Subway to reconsider their ingredients. Another influential expert is Mia Syn, a registered dietitian and national on-air nutrition expert (Syn, 2025). She hosts Good Food Friday on ABC News 4 and has been named a top nutritionist to follow on Instagram by *Women's Health Magazine*. Mia emphasizes sustainable, healthy eating habits and has authored the book *Mostly Plant-Based*, which encourages incorporating more plant-based foods into one's diet. These

individuals, among others, play a significant role in shaping public perceptions of heart-healthy diets through their extensive online and media presence.

Wellness media also shapes the belief that certain diets and supplements can match the efficacy of medications in managing cardiovascular health. For instance, the DASH diet has been highlighted for its effectiveness in reducing blood pressure. A Harvard article notes that the DASH diet "proved effective, lowering blood pressure at a rate equivalent to that of some medications" (Powell, 2017). This comparison may lead some individuals to consider dietary changes as standalone treatments.

The book *How Not to Die*, which advocates for a whole-food, plant-based diet to prevent and reverse chronic diseases, became an instant New York Times best seller in 2015. The author argues, “Take cholesterol-lowering statin drugs, for example. The best they may be able to offer in terms of absolute risk reduction for a subsequent heart attack or death is about 3 percent over six years. Meanwhile, a whole-food, plant-based diet may work twenty times better, potentially offering an absolute risk reduction of 60 percent after fewer than four years" (Greger, 2015). An earlier book that was also a best-seller, *Eat, Drink, and Be Healthy*, promoted a similar philosophy, claiming that "The current medical system focuses on treating disease with medication and surgery, often neglecting the potential of diet and lifestyle changes to prevent and reverse illness” (Willet, 2001). Many patients lack clear guidance on how diet and medication work together, leading some to believe that healthy eating alone can replace medication, neglecting the roles of genetics, disease severity, or other risk factors. While diet is crucial in preventing and managing CVD, for most with moderate to severe disease, it serves as a complement rather than a substitute, as in cases like familial hypercholesterolemia or post-heart attack treatment where medication remains essential.

The Role of Medical Professionals

Health professionals advise patients on lifestyle choices that promote their heart health maintenance and recovery (Cohn, 2013). Clinicians generally comply with guidelines suggesting the best diet for their patient is one they can sustain, with a focus on quality food choices tailored to individual health goals and socioeconomic realities (Karam et al., 2023). As one cardiologist states, “In addition to the nutrition-related tips like adding more good fats and fiber to your diet, taking a simple walk, immersing yourself in nature and spending time relaxing with friends can make a big difference in your heart health,” encouraging patients to adopt sustainable, heart-healthy diets and lifestyle changes (DeAngelis, 2024). However, professionals often face barriers, such as limited nutrition education in medical schools, highlighting a need for broader training and collaboration with dietitians.

Interestingly, many U.S. medical schools have historically provided limited coursework in nutrition. A national survey found that U.S. medical students receive an average of only 19.6 hours of nutrition education, falling short of the 25-hour minimum recommended by the National Academy of Sciences (AAMC, 2015). Even with that 25-hour requirement, studies found that over half of graduating medical students rated their nutrition knowledge as inadequate, and a survey of medical school instructors revealed that 79% believed their students needed more nutrition instruction.

From 2011 to 2020, NIH funding to U.S. medical schools increased by 26.3%, reaching $17.3 billion, with clinical sciences receiving a 35.3% rise compared to 10.9% for basic sciences, and over 66% of funding being concentrated in tier 1 and tier 2 institutions (Roskoski, 2023). To offset stagnant federal grants, Harvard Medical School relies on corporate biopharmaceutical

funding for a growing share of its research budget. Because biopharma contributes 20 percent of its research funding, critics warn of conflicts of interest (Paulus & Ravi, 2024).

The Involvement of Insurers and Employers

While healthcare professionals play a key role in patient guidance, efforts to promote heart-healthy behaviors often fall to other stakeholders, such as health insurers and corporations, who tie wellness to economic outcomes. The agenda of insurance companies is driven by a balance of improving patient health outcomes and controlling healthcare costs. For example, United HealthCare incentivises healthy behaviors and promotes preventive care (2024). Anthem also emphasizes preventative care, stating, "Avoiding illness or catching problems early are key to staying healthy. Your plan covers preventive care at no cost to you when you see a doctor in your plan's network" (Anthem BCBS, 2024). Aetna addresses women's heart health, highlighting that "Heart disease is the leading cause of death among women in the U.S., and we need to change that," offering resources and coverage for heart disease screenings to promote early detection and prevention (Aetna, 2024).

Many companies have implemented initiatives to promote employee health. For instance, Google offers comprehensive wellness programs, including on-site fitness centers and healthy dining options. They note that their wellness programs are designed to "make it easy for you to take good care of yourself," so that the company can thrive as well (Google, 2024). Johnson & Johnson has been a pioneer in promoting employee health and wellness since the 1970s when its CEO launched the Live for Life program, offering behavior modification tools and education on nutrition and stress management (Bartz, 2018). A J&J executive stated that " our healthcare costs in the U.S. are, on average, two to three percentage points lower than the costs most major

corporations deal with on an annual basis." Many employers strive to improve employee health and reduce costs associated with chronic disease, factors that are crucial for the productivity and profitability of their companies.

Conclusion

The American public's dietary choices are not just personal decisions, but outcomes shaped by competing narratives from government, corporations, healthcare systems, and media. Reducing the incidence of CVD is essential for improving overall population health, alleviating healthcare burdens, and promoting longer, healthier lives for individuals across diverse communities. Together, these various groups participants reveal how economic interests, cultural narratives, and power structures complicate efforts to reduce the national burden of cardiovascular disease. Addressing the nation's cardiovascular health crisis will require not just better science, but clearer communication and a shift in how institutions prioritize public well-being over conflicting interests. Even apart from those with CVD, the world of nutrition is a more difficult place to navigate the more one realizes how much remains unknown, and how much is influenced by forces beyond their control.

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