Contested Oils: Social Divisions over Seed Oil Guidelines

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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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Introduction

Seed oils, such as canola, cotton, soybean, corn, and sunflower, have become ever-present in modern food production and are central to ongoing debates about health and nutrition. Supporters argue that these oils, rich in unsaturated fats, can promote heart health by improving cholesterol levels and reducing the risk of coronary heart disease (CHD) (Harris et al., 2009). Public health organizations, including the American Heart Association (AHA), have endorsed the inclusion of seed oils as a balanced diet, recognizing their potential to replace saturated fats found in animal products like butter and meat (Harris et al., 2009). However, not all research supports this view. Critics point to studies suggesting that excessive consumption of seed oils, particularly those high in linoleic acid, can lead to atherosclerosis and other cardiovascular issues, like CHD (Abraham & Hillyard, 2024). This divergence in scientific findings has led to a divide among experts, consumers, and advocacy groups.

The controversy over seed oils is not just a scientific dispute; it has significant social implications. Public health guidelines, food labeling, and consumer behavior are all influenced by these conflicting perspectives. While some emphasize the benefits of seed oils, others push for natural alternatives like olive oil or coconut oil. As policymakers seek to develop clearer guidelines, they must navigate both the scientific evidence and the social tensions that surround seed oils. This paper seeks to explore how different social groups in the U.S. have divided over seed oils, using the Social Construction of Technology (SCOT) framework to analyze the interplay between scientific research, corporate influence, and public perception.

Theoretical Framework

SCOT is a theoretical framework that examines how technology is shaped by social forces rather than being driven solely by scientific or technical progress (Bijker, 2001). It emphasizes that technologies are not neutral, as they are influenced by the values, interests, and power dynamics of the social groups that create, promote, and use them. Relevant social groups are stakeholders who shape a technology's development, meaning, and interpretive flexibility. Interpretive flexibility refers to how different groups can interpret the same technology in conflicting ways, making these concepts key to SCOT. This framework is particularly useful for analyzing controversies like the debate over seed oils, as it highlights how competing interests and values shape technological development and public perception.

This paper uses SCOT to analyze how U.S. social groups have divided over public guidelines governing seed oils. The debate is not just about the scientific merits of seed oils, it is deeply embedded in social and economic contexts. For instance, the AHA and American Society for Nutrition (ASN) represent relevant social groups that advocate for seed oils while groups like the Seed Oil Free Alliance (SOFA) and companies like Sweetgreen oppose seed oils and instead promote natural alternatives. The interpretive flexibility of seed oils is evident in the contrasting scientific studies and public health recommendations. This flexibility allows different social groups to construct their own narratives around seed oils, leading to a lack of closure and ongoing debate. Utilizing SCOT, this paper will explore how these competing interpretations and interests shape the social construction of seed oils in the U.S.

Historical Context

Seed oils became prominent in the American food industry in the late 19th and early 20th centuries (Maclay et al., 1963). Cottonseed oil was one of the first seed oils to be used in

processed foods. Procter & Gamble (P&G) played a significant role in popularizing cottonseed oil for culinary use by launching the first all-vegetable shortening made from hydrogenated cottonseed oil, Crisco, in 1911 (Pendleton, 1999). At a time when consumer distrust of cottonseed oil was high, P&G rebranded the oil, framing it as a “pure” and modern alternative to animal fats. Prior to the introduction of Crisco, seed oil's major use was in the production of lubricants, hydraulic fluids, cosmetic products, and drying oils, used in paints, varnishes, and lacquers (Pendleton, 1999). This campaign marked a turning point, as it introduced industrially processed seed oils into American diets.

The rise of seed oils in the food supply coincided with emerging dietary recommendations that promoted these oils over animal fats. This shift was partly driven by the “diet-heart hypothesis,” introduced by researcher Ancel Keys in the 1950’s. Keys’ hypothesis linked saturated fats, found in animal products, with increased heart disease risk, recommending instead polyunsaturated vegetable oils (Teicholz, 2022). When Keys joined the AHA nutrition committee in 1960, he influenced the organization to endorse his view despite limited supporting evidence at the time. This recommendation became highly influential, leading to its adoption in U.S. dietary guidelines by 1980 and later the World Health Organization (Teicholz, 2022). Significantly, P&G provided the AHA with a substantial donation in 1948, equivalent to around $20 million today. According to the association’s own official history, “The P&G funds were the ‘bang of big bucks’ that ‘launched’ the group” (Teicholz, 2022).

Research Review

Research on seed oils presents a range of findings, with studies both supporting and questioning their health effects. Animal studies have raised concerns, showing potential risks

associated with high intake of seed oils. For example, mice fed a high-corn-oil diet exhibited increased mammary tumorigenesis, the process of tumor formation in the mammary glands which can lead to breast cancer, while a high-extra-virgin olive oil (EVOO) diet did not stimulate tumor growth (Moral et al., 2016). In other studies, similar diets with corn and safflower oil were also found to stimulate tumor growth in rats, potentially due to the omega-6 fatty acid, linoleic acid (Abraham & Hillyard, 1983; Reddy & Maeura, 1984). In the study by Reddy and Maeura (1984), high-fat diets containing corn oil (CO) and safflower oil (SO) increased colon tumor incidence in female rats compared to low-fat diets, while high-fat diets with olive oil or coconut oil did not. The increased tumor incidence in high-CO and high-SO groups suggests that both fat quantity and fatty acid composition influence colon carcinogenesis. Both CO and SO do not have the exact same fatty acid composition, but they are similar in that they are both high in polyunsaturated fatty acids (PUFAs), particularly linoleic acid. Similarly, Abraham and Hillyard (1983) found that diets high in linoleic acid promoted mammary tumor growth while diets containing oleic acid (a monounsaturated fat) or linoleic acid (an omega-3 fatty acid) did not significantly enhance tumor size. Finally, DiNicolantonio and O'Keefe (2018) argue that omega-6 vegetable oils, through their oxidative effects, contribute significantly to the risk of CHD. According to their study, by promoting the oxidation of low-density lipoprotein (LDL) particles, omega-6 vegetable oils trigger inflammation and atherosclerosis (the buildup of fats, cholesterol, and other substances in and on artery walls). Their findings suggest that reducing dietary omega-6 intake, particularly from industrial seed oils, may lower the risk of CHD. It should be noted that while rat/mice studies cannot fully replicate human physiology, they are often used as a proxy to explore biochemical effects that may also apply to humans, especially in early-stage nutritional science.

On the other hand, Harris et al. (2009) found that consuming omega-6 PUFAs, particularly linoleic acid, at 5-10% of total energy intake may reduce CHD risk. It was shown that linoleic acid significantly lowers LDL cholesterol and improves the total-to-HDL cholesterol ratio, which is a strong predictor of CHD risk. Therefore, reducing intake may increase CHD risk rather than decrease it. Another study, by Bosetti et al. (2002), found that high consumption of olive oil and specific seed oils (sunflower, maize, peanut, and soya) was associated with a reduced risk of ovarian cancer, whereas mixed seed oils, butter, and margarine showed no significant effects. Women in the highest quintile of olive oil consumption had a 32% lower risk of ovarian cancer, while those consuming specific seed oils had a 41% lower risk. This suggests that unsaturated fatty acids may have protective effects against ovarian cancer. Lastly, Prater et al. (2022), found that an 8-week diet enriched with cottonseed oil led to significant reductions in fasting cholesterol levels– including total, LDL, and non-high-density lipoprotein (non-HDL) cholesterol– compared to olive oil in adults with high cholesterol. Note that LDL is known as the "bad" cholesterol because elevated levels can cause cholesterol to accumulate in the arteries and HDL is known as the "good" cholesterol because it helps transport cholesterol to be processed and eliminated (MedlinePlus, 2024).

SCOT Analysis

This analysis will explore how four key social groups, the American Heart Association (AHA), the American Society for Nutrition (ASN), the Seed Oil Free Alliance (SOFA), and Sweetgreen, construct competing narratives around seed oils, reflecting their values, interests, and power dynamics. These groups exemplify the concept of interpretive flexibility, where seed oils are interpreted in conflicting ways, leading to a lack of closure in the ongoing debate.

The AHA: Corporate-Funded Proponents of Seed Oils

The AHA, "the nation's oldest and largest voluntary organization dedicated to fighting heart disease and stroke," wields significant influence over public health guidelines and dietary recommendations (AHA, n.d.). Their interpretation of seed oils is rooted in the diet-heart hypothesis, which posits that replacing saturated fats with unsaturated fats, such as those found in seed oils, reduces the risk of CHD (Teicholz, 2022). The AHA actively promotes the consumption of seed oils like canola, corn, peanut, safflower, soybean, sunflower, and vegetable, labeling them as "healthy oils" with more "'better-for-you' fats and less saturated fats" (American Heart Association, 2023). This interpretation is reinforced by their funding of research, such as the Harris et al. (2009) study, which recommends the inclusion of omega-6 PUFAs in a heart-healthy diet. However, the AHA's stance is not without controversy. As mentioned earlier, the organization received substantial funding from Procter & Gamble. This financial relationship raises questions about potential conflicts of interest, as the AHA's early endorsement of polyunsaturated fats aligns with the interests of companies like P&G. Despite these concerns, the AHA's recommendations have shaped public policy for decades, influencing the first U.S. Dietary Guidelines in 1980, which became a global standard, adopted by many governments and international health organizations, including the World Health Organization (WHO) (Teicholz, 2022). Their power lies in their ability to fund scientific studies, but their interpretive flexibility is constrained by their original reliance on industry funding and historical commitments to the diet-heart hypothesis.

The ASN: Industry-Aligned Nutrition Science

The ASN, a leading organization in nutrition science, also advocates for the inclusion of seed oils in a healthy diet. Their mission is to "advance the science, education, and practice of nutrition" and envision "a healthier world through evidence-based nutrition" (ASN, n.d). This is reflected in their support for oils like cottonseed, which they claim have superior lipid-lowering effects compared to alternatives like olive oil (Beerman, 2022). Their agenda is advanced through partnerships with major food companies, including Cargill, one of the largest producers of seed oils (Simon, 2015). These partnerships provide substantial funding for research and public health messaging, but also introduce potential conflicts of interest. It may be argued that ASN's financial ties to the food industry compromise its scientific integrity, as industry-funded studies often align with corporate interests. For example, research sponsored by Cargill has highlighted the benefits of cottonseed oil, which aligns with the company's business objectives. Despite these concerns, the ASN's influence is significant, as their publications and recommendations shape nutrition science and public health policies. Their interpretive flexibility is limited by their reliance on industry funding, which reinforces their pro-seed oil stance and aligns their agenda with the interests of major food corporations.

SOFA: Anti-Seed Oil Certification and Advocacy

In contrast to the AHA and ASN, SOFA advocates for reducing or eliminating seed oils from diets. Their mission is "advocating and advancing the availability of seed oil-free food options through trust, transparency, and education" (SOFA, n.d.a). They promote alternatives– including butter and ghee; tallow and other animal fats; and oils from avocado, coconut, olive, algae, or fermentation– by providing certifications for products free from seed oils (SOFA, n.d.b). Unlike the AHA and ASN, which rely heavily on corporate partnerships with seed oil

producers, SOFA's funding derives primarily from certification fees paid by brands seeking endorsement, as well as private investments from stakeholders aligned with its anti-seed oil mission (SOFA, n.d.). While this model avoids direct conflicts of interest with industrial seed oil manufacturers, it ties SOFA's financial sustainability to the growth of the seed-oil-free movement, incentivizing advocacy that benefits its partner brands. The certification process is designed to support companies that choose to replace highly refined seed oils with what the alliance deems healthier options. The Seed Oil Free Certified seal is then used to assist "consumers in choosing seed oil-free foods by eliminating the guesswork" (SOFA, n.d.c). SOFA's narrative challenges the dominance of seed oils in processed foods, arguing that their pervasive use contributes to a significant proportion of daily caloric intake and raises concerns about potential health risks. While their agenda aligns with the interests of companies producing seed oil alternatives, the alliance's focus on transparency and consumer education distinguishes them from corporate-driven agendas. Their power lies in their ability to shift public perception and industry practices, but their influence is limited by the ingrained dominance of seed oils in the food supply and the economic interests of major producers like Cargill. SOFA's interpretive flexibility reflects their commitment to challenging the status quo and promoting alternatives to seed oils, but their ability to achieve closure in the debate is constrained by the power and influence of pro-seed oil groups.

Sweetgreen: Branding Health or Capitalizing on Trends?

Lastly, Sweetgreen, a national restaurant brand committed to "building healthier communities by connecting people to real food", has taken a step in this debate (Sweetgreen, n.d.). The company announced a switch from sesame and sunflower oils to using only EVOO for

cooking all proteins, vegetables, and grains across its menu (Business Wire, 2023). In the same article, Co-founder Nicolas Jammet stated that they "take into account how every ingredient is prepared, down to the oil it's cooked in," reflecting Sweetgreen's commitment to high-quality ingredients. While this move aligns with anti-seed oil advocacy, it also serves Sweetgreen's financial and branding strategy. EVOO caters to health-conscious consumers willing to pay a premium, while distancing the chain from criticism of industrial seed oils prevalent in fast-casual dining. The shift may improve margins, as Sweetgreen's upscale positioning (with $15+ salads) justifies higher costs, whereas competitors reliant on cheaper seed oils face greater economic barriers to similar changes.

By moving away from seed oils, Sweetgreen advances the anti-seed oil agenda while capitalizing on growing consumer skepticism of processed ingredients. This duality, public health rhetoric paired with profit-driven differentiation, raises questions about whether their stance is principled or performative. Unlike SOFA, which certifies brands for fees, or the ASN/AHA, which rely on industry funding, Sweetgreen's model depends on perceived integrity; its commitment to "real food" must appear genuine to retain customer trust. Their influence extends beyond their own operations, as their decision sets a precedent for other restaurants and food companies to reconsider their use of seed oils. Nevertheless, their ability to drive systemic change is limited by the affordability and scalability of EVOO for mass-market chains. Sweetgreen's actions reflect the interplay of consumer trends and corporate strategy, illustrating how anti-seed oil narratives can be leveraged for both advocacy and competitive advantage.

Problems and Conflicts

The lack of consensus on seed oils stems from conflicting interpretations of scientific data, exacerbated by funding biases (AHA/ASN vs. SOFA) and consumer distrust. Industry-backed research prioritizes cholesterol metrics, while anti-seed oil groups highlight inflammation and carcinogenesis. This conflict reflects SCOT's emphasis on how technological artifacts become sites of social struggles.

Closure and Stabilization

Closure remains elusive due to rooted economic interests (e.g., Cargill's dominance) and the food industry's reliance on cheap seed oils. Stabilization around alternatives (e.g., EVOO) is limited by cost and scalability, privileging narratives backed by institutional power (AHA/ASN) over grassroots movements (SOFA).

Discussion

The debate over seed oils is a reflection of broader societal tensions surrounding food production, public health, and consumer trust. The previous section reveals how competing interpretations of seed oils are shaped by the values, interests, and power dynamics of relevant social groups, specifically the AHA, ASN, SOFA, and Sweetgreen. These groups construct conflicting narratives around seed oils, reflecting their agendas and social contexts in which they operate. However, I believe that the following factors also contribute to the complexity of this debate: diet culture, social media and influencers, and the ethical implications of industry-funded research.

Diet Culture and Social Media Amplification

The trend to move away from seed oils can be traced back to the early 2000's, with the rise of the paleo diet and its emphasis on "natural" and "ancestral" eating. Influential figures like Mark Sisson, author of *The Primal Blueprint*, framed seed oils as "poisonous" and incompatible with a healthy, primal lifestyle (Todd, 2025). This narrative gained traction in the following years, fueled by celebrity endorsements and the growing popularity of fitness influencers through social media platforms like Instagram, Youtube, Facebook, and TikTok. Influencers like Vani Hari (the "Food Babe") and Brian Johnson (the "Liver King) have leveraged their platforms to promote anti-seed oil messages, appealing to audiences seeking straightforward answers to complex health questions. While these influencers have raised awareness about the potential risks of seed oils, their messages are often characterized by oversimplification and absolutism. This can lead to confusion and misinformation, undermining efforts to promote evidence-based nutrition. At the same time, the popularity of these messages reflect a growing demand for transparency and accountability in the food industry, as consumers increasingly question the motives of corporations and regulatory agencies. Therefore, I would argue further that the seed oil debate emerged as part of a broader cultural shift toward distrust of industrialized food systems and a desire for transparency in food production. This distrust is not unjustified; historical examples such as the delayed FDA ban on synthetic red dye linked to cancer in rats, highlight legitimate concerns about the safety and oversight of processed foods (HFP, 2025).

Ethical Concerns in Industry-Funded Research

The financial ties between public health organizations like the AHA and ASN and major food corporations raise ethical concerns. The AHA's historical reliance on funding from P&G and ASN's partnerships with Cargill create potential conflicts of interest that may compromise

the integrity of their research and recommendations. While these organizations argue that their funding does not influence their scientific conclusions, the alignment of their agendas with corporate interests undermines public trust and raises questions about the independence of their research. These conflicts highlight the need for greater transparency and accountability in the funding of nutrition science, as well as policies to mitigate the influence of corporate interests on public health guidelines.

Policy Recommendations for Transparency

To address the complexities of the seed oil debate, policymakers must prioritize transparency, consumer education, and independent research. First, public health organizations should disclose their funding sources and potential conflicts of interest, allowing consumers to evaluate the credibility of their recommendations. Second, efforts to improve nutrition literacy should emphasize critical thinking and skepticism, equipping consumers to navigate conflicting messages on social media and online. Third, funding for nutrition research should be diversified to reduce reliance on industry sponsors, ensuring that studies are conducted in the public interest rather than for corporate profit. I believe these measures may help restore trust in public health institutions and provide a more balanced and evidence-based approach to nutrition, thus helping consumers navigate the seed oil debate.

Benefits vs. Risks of Seed Oils

The debate's persistence reflects SCOT's interpretive flexibility, with studies simultaneously supporting and condemning seed oils. These contradictory findings highlight the complexity of nutrition science, where outcomes depend on factors like dosage, individual health

conditions, and overall dietary context. The strongest counterargument to the anti-seed oil narrative lies in the reliance on animal studies, which may not fully translate to human health outcomes. On the other hand, the strongest counterargument to the pro-seed oil narrative is that while seed oils may improve cholesterol levels in the short term, their high omega-6 content and potential to promote inflammation, oxidative stress, and carcinogenesis pose significant long-term health risks. This duality underscores why closure remains unattainable without disentangling corporate influence from science and the need for nuanced dietary guidelines that consider both the benefits and potential harms of seed oils, rather than framing them as universally good or bad.

Conclusion

The debate over seed oils, analyzed through the SCOT framework, reveals how opposing social groups, such as the AHA, ASN, SOFA, and Sweetgreen, construct polar narratives shaped by their values and agendas. The AHA and ASN, backed by corporate funding and sponsorships, promote seed oils as heart-healthy alternatives, while SOFA and Sweetgreen challenge this by advocating for natural alternatives and emphasizing transparency. The debate is further complicated by the influence of diet culture, social media, and influencers, who amplify absolutist claims and fuel public distrust of industrialized food systems. Ethical concerns surrounding industry-funded research add another layer of complexity, as financial ties between public health organizations and corporations raise doubts about the integrity of dietary recommendations. Meanwhile, contradictory scientific findings make it difficult to fully align with either side. Ultimately, this underscores the need for refined, context-specific dietary

guidelines and greater transparency in nutrition science to ensure public health recommendations prioritize consumer well-being over corporate interests.

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