

Expert Opinions: Reform to the National School Meal Programs Regarding Dietary Saturated Fats

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ABSTRACT

The purpose of this study is to determine whether the National School Lunch and Breakfast Programs in the US should be revised to have more relaxed regulations on saturated dietary fat consumption. Controversy over the validity of the diet-heart hypothesis—examined in a review of literature—prompted this inquiry. Qualitative data was collected through eighteen expert interviews. Trends in expert responses were identified using qualitative data coding. Participating experts were of diverse perspectives and came from across the United States. Experts answered in ways that were mostly consistent with the current Dietary Guidelines for Americans. However, most seemed to agree that it would be beneficial to relax regulations on saturated fat in order to allow for some flexibility. There was a widespread and overwhelming concern about ultra processed foods among experts.

Introduction

According to Uffe Ravnskov, MD, Ph.D. — winner of the Skrabanek Award in 1999 and the [Leo-Huss-Walin Prize](#) in 2007— “not a single life has been saved by experimental manipulation with dietary fat.” This statement, doubtful of the validity of the diet-heart hypothesis, is certainly contradictory to most modern dietary advice. The diet-heart hypothesis postulates that reducing consumption of dietary saturated fat will result in decreased levels of serum cholesterol, and in turn a lessened risk of CVD, or cardiovascular disease (DuBroff R, de Lorgeril M). This idea “has dominated our thinking for many decades” (Ravnskov). For example, current Dietary Guidelines for Americans encourage strictly limited consumption of saturated fat. In fact, it is recommended that “intake of saturated fat... be limited to less than 10 percent of calories per day.” This affects school meal programs because, as a requirement of the Richard B. Russell National School Lunch Act, the meals served by The National School Lunch and School Breakfast Programs should be based on the Dietary Guidelines for Americans (USDA & HHS). However, prominent researchers discrediting the diet heart hypothesis have launched a large-scale debate in the dietary community regarding the proper role of dietary fats in a healthy diet (“Is Butter Really Back?”).

Literature Review

Though organizations such as the CDC, FDA, and AHA all endorse nutrition advice advocating for diets low in saturated fats, the diet-heart hypothesis has been the subject of considerable controversy. *This literature review will present the relevant perspectives of those in opposition to the diet-heart hypothesis, some of which prompted this study.*

Uffe Ravnskov, who has formerly worked as a medical practitioner and assistant professor, has been an independent researcher since 1979. In his journal article, “A hypothesis out-of-date: The diet–heart idea,” Ravnskov conducts a review of experimental and epidemiologic studies regarding CVD and dietary fats and the direct link between them, in order to determine the validity of the diet-heart hypothesis. Ravnskov found that the studies were mostly inconclusive or plainly contradictory: a correlation coefficient exceeding 0.36 between “the degree of coronary

atherosclerosis” and serum cholesterol was not found in any angiographic study. Ravnskov concedes that, at least in laboratory experiments, excessive consumption of saturated fat may elevate cholesterol levels and that excessive consumption of polyunsaturated fat may effectively reduce cholesterol levels. However, he continues, claiming that CVD cannot be prevented with dietary changes such as these because high cholesterol may be a risk indicator of coronary heart disease (CHD) rather than a cause. Ravnskov notes that the actual causes of CHD may also heighten cholesterol.

Medical investigator, Christopher E. Ramsden, and his colleagues conducted an analysis on recovered data from the Minnesota Coronary Experiment that was previously unpublished in order to investigate the diet-heart hypothesis (Ramsden et al.) They conclude that there have been no randomized controlled trials indicating that replacing saturated fat with linoleic acid (a polyunsaturated fatty acid) decreases the occurrence of CHD deaths or mortality from all causes.

According to Ann F. La Berge, an Associate Professor Emerita for Science and Technology at Virginia Tech, the diet-heart hypothesis is *precisely* what its name suggests: a hypothesis. In her article, "How the Ideology of Low Fat Conquered America," La Berge discusses the rise of the low-fat diet in America despite the diet-heart hypothesis's questionable validity. In the 1940s, coronary heart disease was the primary cause of death in the United States; so there was an attempt to analyze the cause of the alarming increase (La Berge).

Ancel Keys, an American physiologist, postulated that different CVD rates were the result of different dietary fat consumption rates (Ritterman). Convinced that elevated cholesterol levels, which he believed caused CVD, were the result of dietary fat consumption, Keys went on to present his diet-heart hypothesis in 1955 to the World Health Organization (Ritterman). Though, Keys' "research was epidemiologic and could only prove an association, not causality...the diet-heart hypothesis was accepted" (Ritterman). In his commentary, "To Err is Human: Can American Medicine Learn from Past Mistakes?" Jeffrey B Ritterman, MD discusses examples of medical mistakes that have resulted in great harm as a case for greater "questioning of medical dogma" and humility in the professional field. However, Ravnskov notes that it could be "difficult" to move away from the diet-heart hypothesis reasoning "because much prestige and money has been invested."

In 1978, Keys published his data in support of dietary fat as the cause of CVD, in the Seven Countries Study (Ritterman). Laura Cassiday, Ph.D., in her article, "Big fat controversy: changing opinions about saturated fats," provides reasons for why the diet-heart hypothesis is not valid, describing how methodological problems have caused the Seven Countries study to face discreditation and criticism "in recent years." Because they did not confirm his hypothesis, Keys excluded data from four indigenous tribes and fifteen countries (Ritterman). For example, Switzerland and France were excluded; they do not have high rates of death from heart disease, despite their relatively large consumption of saturated fat (Cassiday). In Ritterman's words, "Now the so-called 'French paradox' makes sense." Cassiday provides other reasons for the weakness of the Seven countries study. She notes that only five hundred of the twelve-thousand and seven-hundred-seventy men that were followed over ten years (to record whether they passed away of heart disease) had their diets sampled. "There simply is no connection between CVD and dietary fat" (Ritterman).

Another article in opposition to the diet-heart hypothesis is the article, "Saturated fat and heart disease: The latest evidence," Adela Hruby and Frank B. Hu review the controversy surrounding saturated fats and their link to heart disease. Their article describes how differing methodological approaches and subsequent interpretations have led to the controversy. Hruby and Hu also examine evidence that supports the replacement of saturated fats with healthful carbohydrates and unsaturated fats. The article maintains that saturated fats should be replaced with whole grains and other healthful carbohydrates, along with foods rich in monounsaturated and polyunsaturated fats.

Frank Hu, the Chair of the Department of Nutrition and the Fredrick J. Stare Professor of Nutrition and Epidemiology at the Harvard T.H. Chan School of Public Health, found that replacing saturated fats with refined carbohydrates in diets does not reduce heart disease risk ("Butter is not back..."). This suggests that if saturated fat is reduced in the diet, it must not be replaced by something worse, like refined carbohydrates.

This became a problem when companies very quickly took advantage of the low-fat ideology that became more popular, especially after the release of the USDA food pyramid that strongly antagonized fats (La Berge). Low-fat guidelines led companies to pursue high fructose corn syrup to compensate for the lower fat content of products

(the taste suffered from removing fat). This caused Americans to consume more simple starches, of which a high consumption can be associated with elevated risk of type 2 diabetes, obesity and CVD (Ritterman). The American Heart Association (AHA) introduced a labeling program to mark foods that were considered “heart healthy,” because of their low-fat content. Companies paid to have their products deemed “heart healthy” by the AHA (La Berge). The result was over six hundred “heart healthy” products by 1997, including Kellogg’s Frosted Flakes and Low-Fat Pop-Tarts (La Berge). Despite all this, evidence proving the causation of heart disease from saturated fats and cholesterol was still inconclusive (La Berge). “When the first *Dietary Guidelines for Americans* was released in 1980, few clinical trials had been conducted on saturated fat and heart disease risk, and those that had been conducted were inconclusive. As a result, the first Dietary Guidelines Advisory Committee relied almost exclusively on epidemiological data to formulate their recommendations for saturated fat” (Cassiday).

This literature review represents the perspectives of those who have examined the evidence, or lack thereof, linking heart disease to saturated fat consumption.

There are prior instances in which the meat industry has lobbied in order to protect their profits. According to “Ignorance is bliss: self-regulation and Ag-Gag laws in the American meat industry,” since utilizing unethical, abusive practices to produce animal products helps the industry to maximize profits (adopting more humane practices will be more expensive), they lobby for 'Ag-Gag' laws to keep the public ignorant of the poor conditions of animals (Wrock). An article by Gerald M. Oppenheimer of CUNY School of Public Health and Daniel I. Benrubi, an Assistant Professor at UF College of Medicine, suggests that this behavior may not be exclusive to this situation. Oppenheimer and Benrubi describe how the president of the National Livestock and Meat Board, David Stroud, realized that the industry needed to defend itself in the case of new select committee hearings succeeding the National Nutrition Policy Conference (62). As a consensus on disease and meat won traction with scientists, Stroud anticipated the need for scientific evidence to support the response of the industry at congressional hearings in the future if it was going to appear credible to the national press and Congress (Oppenheimer & Benrubi 62). Because meat and other animal products are a primary source of saturated fat, guidelines encouraging Americans to reduce saturated fat in their diets would have the potential to hurt the profits of the meat industry. This is sufficient motivation for those of the meat industry to fund studies, deny the validity of the diet-heart hypothesis, or declare the results of such studies that prove the association between saturated fat and heart disease as “inconclusive,” etc. Some of the studies that are skeptical of the diet-heart hypothesis would have reason to have been funded by the meat industry. After all, these studies are contradictory to most modern health advice.

In their article, “Taking Financial Relationships into Account When Assessing Research,” David B. Resnik, J.D., Ph.D.¹ and Kevin C. Elliott, Ph.D. provide five factors that can help to determine whether financial motives significantly undermine, enhance, or do not affect the credibility of a study. Resnik and Elliott note that financial interests could potentially impact data analysis and the interpretation of data. However, they also acknowledge that a relationship between research outcomes and financial relationships could also be due to causes independent of dishonesty to investigators or private sponsors.

Research Gap

This study presents new data about the appropriate role of saturated fat in school meals because it uses expert interviews, which make it a unique project by nature. It is not the first to discuss saturated fat in school meal programs, but it addresses a current gap in research because, through the use of interviews of nutritional and dietary experts from across the US, it questions whether guidelines for saturated fat should still be upheld despite controversy over the diet-heart hypothesis. An example of a study that does not address this gap is, “Successes and Challenges in School Meal Reform: Qualitative Insights From Food Service Directors” by Yuka Asada Ph.D. et al, which seeks to generate insight into effective implementation strategies by examining the perspectives of food service directors on revised standards for school meals. While their study considers the impact of school meal standards, it does not focus on saturated fats. Another example is the study, “Reformulation as an Integrated Approach of Four Disciplines: A Qualitative Study

with Food Companies” by Annelies Van Gunst, et al, addresses the implications of healthful food reforms. Their study interviewed company experts in order to determine whether the framework—to reduce sugar, salt, energy, and saturated fat in foods in the Netherlands—was an accurate reflection of food companies’ reformulation processes.

While both studies consider the implications of efforts to make food or meals healthier, neither have a direct focus on saturated fat. This study is unique in that it has a specific focus on saturated fat regulations while still considering the effectiveness of the school meal programs as a whole. It evaluates the perspectives of those who question the validity of the diet-heart hypothesis and those who do not.

Research Question

Should the National School Lunch and Breakfast Programs in the US be reformed to have looser restrictions on dietary saturated fats?

Methods

To answer the research question, this non-experimental, qualitative study collected and analyzed data from expert interviews. The research question asked whether reform to the meal programs would be beneficial. The guidelines for the programs themselves had many contributors, therefore, it would be fitting to consult many individuals to determine whether a reform would be beneficial. It was important that experts, not just the general public, were interviewed. The interview questions in this study would likely be difficult for an individual without a nutritional/dietary background to answer appropriately. Additionally, expert interviews are a relatively “efficient and concentrated method of gathering data” (Bogner et al 2). Therefore, expert interviews were the best method of gathering data to answer research questions.

Each expert was asked to answer an eight-question interview¹. Experts could choose to answer questions through either a text format (questions and responses were exchanged over email), or through a thirty-minute recorded phone call, from which responses were transcribed. All notes, recordings, and text interview responses were kept confidential. Respondents were not directly quoted during any part of the study.

For expert interviews, a “broad range of between a dozen and 60, with 30 being the mean” is most feasible, especially while working with time constraints (Baker and Edwards). The targeted number of interviews was twenty or more. Over one hundred nineteen potential participants from across the US were contacted by email. In the end, the pool of participants consisted of eighteen experts.

Assumptions

It is crucial that the participants of this study were, in fact, experts in the nutritional and/or dietary fields.

Hypothesis

Relaxing the regulations for saturated fat in school meal programs would help to improve the nutritional quality of meals.

¹ The full questionnaire is listed in the appendix.

Studies Using Similar Methods

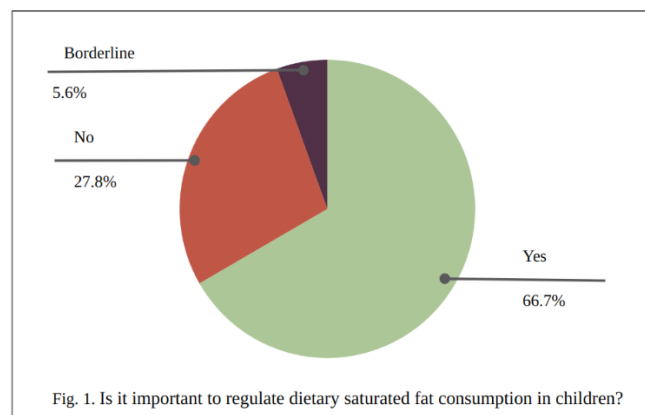
Rachel G. Tabak, Ph.D., RD and Sarah Moreland-Russell, Ph.D., MPH generate insight about the barriers and supports for successful application of the new National School Lunch Program Guidelines in their 2015 study, “Food Service Perspectives on National School Lunch Program Implementation,” by interviewing food service personnel. They summarized what participants said about each topic in their results section. Tabak and Moreland-Russell’s qualitative approach inspired the methods of this study in that experts were contacted through email and transcription and coding were utilized. Meanwhile, Tabak and Moreland-Russell’s study differs from this study in that a combination of phone and in-person interviews were used, direct quotes from respondents were used to support the themes and subthemes identified, and respondents came exclusively from a specific region (although respondents were of differing perspectives).

In the article, “Addressing Burnout among the Frontline Healthcare Workforce during COVID-19: A Scoping Review & Expert Interviews,” Lisa de Saxe Zerden of University of North Carolina at Chapel Hill School of Social Work and her colleagues use a scoping review of literature concerning “burnout interventions implemented for healthcare workers during COVID-19” and expert interviews of healthcare administrators. They aim to identify how U.S. health systems combatted burnout and worked to increase the well-being of employees during the COVID-19 pandemic’s first year. Unlike “Addressing Burnout...,” this study only utilizes data generated from expert interviews.

In their article, “ExerG: adapting an exergame training solution to the needs of older adults using focus group and expert interviews,” Nathalie Ringgenberg and her colleagues collaborate to gather understanding and knowledge from three user groups (primary, secondary, and tertiary) regarding their needs, experiences, worries, expectations, etc. regarding technology- based training. With that understanding, they recommend how best to address the needs of older adults with an exergame training device. Interviewing three groups of individuals (each group was able to be classified as “experts” on the topic in different ways) allowed the researchers to examine many perspectives, in true qualitative-research fashion. Similarly, this study conducts individual expert interviews with experts from a variety of perspectives, each possessing their own levels of familiarity and expertise with the topic.

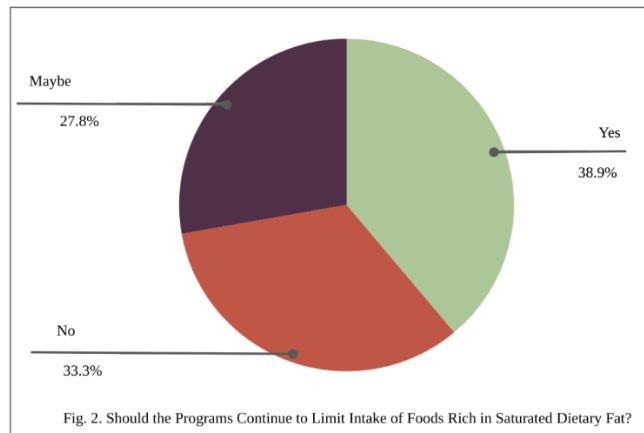
Findings

Question 1. “Is it important to regulate dietary saturated fat consumption in children? If yes, why and to what extent?”



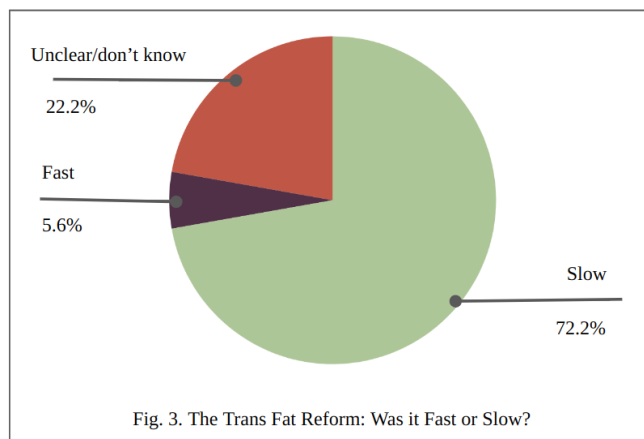
Those who did not think that saturated fat consumption by children should be limited did not necessarily doubt the link between saturated fat and CHD. From both “Yes” and “No” groups, respondents recognized the essential role of healthy fats in the diet. Half of the experts who replied “No” cited the health benefits of fat. For example, two respondents cited its benefits in child development. One expert responded “No,” on the basis that children, because of their young age, were not at risk of developing heart disease from consuming too much saturated fat. However, other experts, who replied “Yes,” supported their answers by discussing child obesity, high cholesterol in children, and the importance of developing healthy eating habits early on.

Question 2. “Should the National School Lunch and Breakfast Programs continue to limit intake of foods rich in saturated dietary fat (ex. meat, full fat dairy, coconut oil)?”

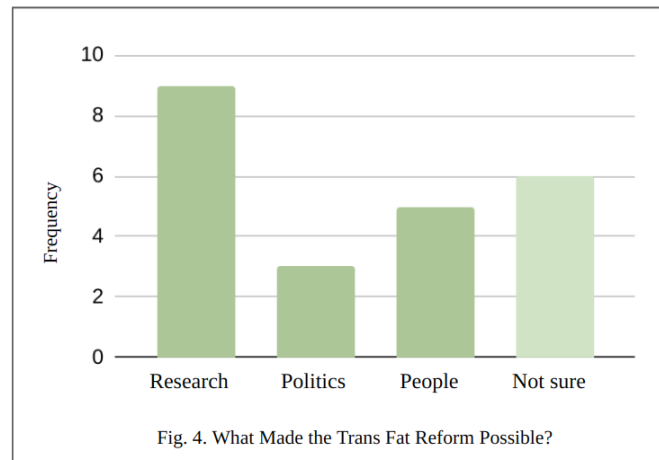


Within the “Maybe” category, three respondents specifically described the necessity of consuming a balanced diet, while the other two respondents promoted plant-based diets.

Question 3. “Trans fats: it took roughly a century for them to be banned. In your opinion, was this a fast or slow dietary reform?”



Question 4. “What made this [the trans fat] reform possible?”



I inquired about how changes in regulation could come about through questions 3 and 4, which asked about the trans-fat reform.

Question 5. “Low fat diets are often promoted on the basis that they reduce the risk of coronary heart disease. However, low fat products can also be higher in sodium and sugar content. If any, what health implications might the promotion of low fat diets (favor low-fat dairy products) had and continue to have for school children? What does the research evidence say?”

Respondents tended to agree that the substitution of fat for sugar and sodium was an unintended consequence of the effort to achieve “low fat.” However, the question preamble may have unexpectedly biased the responses, causing experts to consider predominantly the negative impacts of the low fat diet. Therefore, responses to this question must be interpreted in this context.

Most responses contained one or both of the following arguments:

1. There are healthy fats. They should be consumed as part of a balanced diet. While most respondents agreed that these healthy fats came in the form of unsaturated fats, a couple of respondents also expressed the essentiality of animal fats for bodily functions and to keep people full.
2. Respondents emphasized the need to consume whole foods, specifically fruits and vegetables and perhaps even following a plant based diet.

Question 6. “Based on the research evidence available, what are some things that should be prioritized when designing regulations on school meal programs to improve child health?”

Many respondents discussed the importance of incorporating plant based, unprocessed foods. Seventeen out of eighteen responses included the “unprocessed” theme explicitly or implicitly. There was a focus on nutrient content and the reduction of sugar. There was also an emphasis on the consumption of fruits and vegetables. Three out of eighteen experts emphasized the importance of fiber consumption. Additionally, some experts discussed the value of local and high quality food sourcing. A few respondents also mentioned non-nutritional related actions such as employing knowledgeable/well trained people to prepare the food in the cafeteria and providing longer lunch periods.

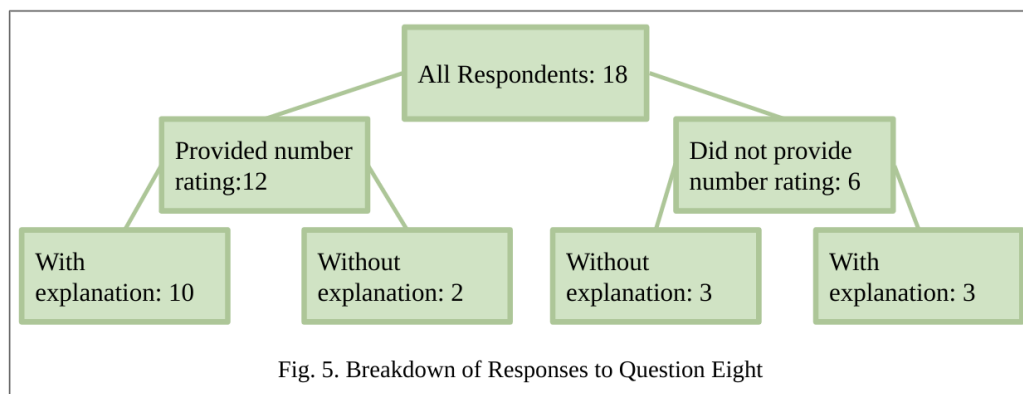
Question 7. “If anything, what are some specific things that current dietary advice overlooks?”

Responses varied widely and many seemed to be more concerned with “social issues” rather than nutrition. For example:

3. Whole grain, though heavily promoted by the dietitian community, may not be ideal for all individuals. Whether whole grain is a good option can depend on the individual.
4. Culture —food is everywhere— kids today may be consuming too much.
5. The people who need them the most are not going to read the one-hundred-forty- four pages of dietary guidelines on the internet.
6. Too many no’s and not enough yes’s
7. Low income communities and food deserts. Not everyone has access to/ can afford healthy, unprocessed food.
8. Do individuals enjoy family meals together? How often?
9. Understanding of agriculture- it’s necessary
10. Presentation: make healthy foods delicious. How food is prepared, especially grains, is important.
11. Food allergies
12. Sustainability

The majority of responses, sixty-one percent (or 11 out of 18), included at least one of these points. The remaining responses discussed the need for more protein, fruits, and vegetables and fewer processed foods.

Question 8. “On a scale of 1 to 10 (10 being the best) how effective are the National School Lunch and Breakfast Programs in providing healthful meals to students? To the extent possible, please base your answer on available research evidence.”



As shown by Fig. 5, not all respondents were able to provide an explicit number rating and explanation in response to Question 8. It was assumed that each respondent’s rating was referring to the meal programs as a whole (both breakfast and lunch). Only one respondent actually provided a separate rating for the lunch programs and breakfast programs. These ratings, of eight and six respectively, were averaged together. The average rating (of twelve ratings) for the National School Lunch and Breakfast Programs was 5.1.

At the least, the programs were praised for supplying food insecure children and for feeding a very large number of children. Additionally, many of the responses suggest that there may be larger underlying problems with the school meal programs (and food supply) such as funding and how the food is processed and prepared in the school

cafeteria. Some experts pointed to the high rates of disease among the young population of the United States as evidence that the programs were not very conducive to good health.

Discussion

Expert responses remained mostly consistent with the current Dietary Guidelines for Americans, which recommend limiting intake of saturated fats to reduce risk of heart disease, despite research denying the validity of the diet-heart hypothesis.

Questions 1, 2, and 5 asked the participant about their attitude or approach toward saturated fat. For Question 1, the majority of experts agreed that consumption of dietary saturated fat should be regulated, indicating their beliefs that limiting its consumption may be beneficial in preventing heart disease, etc. The percentage of experts interviewed that shared this belief was not limited to the “Yes” group (see Fig. 1), because not all experts in the “No” group were against regulation entirely. Question 1 asked about *childrens’* meal programs specifically. Question 2 asked experts to elaborate on their response to Question 1; it asked how severe the experts believed that regulations for saturated fats should be, as limiting consumption of specific foods could possibly make it more challenging to create meals. This would indicate a firmer commitment on the behalf of the expert to limit intake of saturated fat. Experts seemed to agree that there should be regulations, though they should allow for some flexibility. Concerning reform to school meal programs, results from Question 5. indicated that more whole foods, specifically fruits and vegetables should be incorporated.

Using information about the trans fat reform, Questions 3 and 4 were concerned with how other similar dietary reforms could come about in the future. Future reforms could perhaps come about through consumers and research, the means arguably most responsible for the trans fat reform. Since the trans fat reform took a long time to occur, it may be some time before the problem of ultra processed foods improves dramatically, especially because there is profit involved.

Experts could more freely express their dietary beliefs/philosophies in their responses to Questions 6, 7, 8. While the social issues described in Question 7 should not be overlooked, one could argue that some of these complex problems are beyond the responsibility of general dietary advice/guidelines. For example, food culture, family meal dynamics, and food allergies vary among individuals and may not be able to be addressed adequately through dietary advice aimed toward the general public. However, other “social issues,” like sustainability, should perhaps be addressed more heavily in widespread dietary advice. After all, the processing and sourcing of food can affect its nutrient quality and flavor as well as the environment. Eating a plant-based diet may be healthier for both the planet and individuals; the meat industry is known to contribute significantly to environmental degradation. Reducing consumption of processed snack foods could be beneficial as their excessive sugar and sodium content as well as their plastic packaging can be harmful. Data from Question 6 suggests that a plant-based diet or a diet that incorporates more unprocessed foods is quite popular. This is because the type of foods that would comprise these types of diets, like fruits and veggies, would tend to have more fiber and nutrients than processed foods.

In Question 8, many experts did not feel comfortable with providing a specific numerical rating for the programs, indicating that, though they were experts in the nutritional/dietary fields, not all of them had specialized knowledge of school meal programs. The average rating signifies the need for reform, whether it has to do with sugar, sodium, fats, or the prevalence of processed items available to students at school.

Limitations

Over 119 potential participants were contacted by email. In the end, the pool of participants was eighteen. Not all respondents were asked to provide research evidence to support their answers because since the experts were not all specialized specifically in school meal programs, some of the experts were unable to provide research evidence or

were reluctant to answer the question at being asked to do this. This study does not attempt to review the academic literature concerning this topic. Future studies on this topic should attempt to address such limitations.

Conclusion

Expert responses did not give advice contrary to that of the Dietary Guidelines for Americans. Most experts agreed that it would be constructive to relax regulations on saturated fat in school meal programs. Notably, there was unanimous concern about ultra processed foods. This may indicate that experts were okay with relaxing regulations on saturated fat but not at the expense of incorporating more processed foods.

The most prominent recommendations were to consume more natural, unprocessed foods, limit sugar, and enjoy a balanced diet. Efforts to improve school meal programs should be directed with these themes in mind.

It is important that school meals programs be of the highest nutritional quality possible. Providing children with nutritious, healthy meals could play a role in helping them to form healthy eating habits and enjoy a reduced risk of diseases in the future.

Works Cited

- Asada, Yuka et al. "Successes and Challenges in School Meal Reform: Qualitative Insights From Food Service Directors." *The Journal of school health* vol. 87,8 (2017): 608-615. doi:10.1111/josh.12534
- Baker, Sarah Elsie, and Rosalind Edwards. "How Many Qualitative Interviews Is Enough?" National Centre for Research Methods Review Paper, National Centre for Research Methods, eprints.ncrm.ac.uk/id/eprint/2273/4/how_many_interviews.pdf. Accessed 15 Dec. 2022.
- Bogner, A., Littig, B., & Menz, W. (2009). *Interviewing Experts (ECPR Research Methods)* (2009th ed.). Palgrave Macmillan.
- "Butter Is Not Back: Limiting Saturated Fat Still Best For Heart Health". News, 2015, <https://www.hsph.harvard.edu/news/press-releases/butter-is-not-back-limiting-saturated-fat-still-best-for-heart-health/>. Accessed 4 Mar 2023.
- Cassiday, L. (2021). Big fat controversy: changing opinions about saturated fats. American Oil Chemists' Society. Retrieved December 29, 2022, from <https://www.aocs.org/stay-informed/inform-magazine/featured-articles/big-fat-controversy-changing-opinions-about-saturated-fats-june-2015?SSO=True>
- DuBroff R, de Lorgeril M Fat or fiction: the diet-heart hypothesis *Evidence-Based Medicine* 2021;26:3-7.
- Hruby, Adela, and Frank B. Hu. "Saturated Fat and Heart Disease: The Latest Evidence." *Lipid Technology*, vol. 28, no. 1, Jan. 2016, pp. 7–12. EBSCOhost, <https://doi.org/10.1002/lite.201600001>.
- "Is Butter Really Back?". Harvard Public Health Magazine, 2016, https://www.hsph.harvard.edu/magazine/magazine_article/is-butter-really-back/. Accessed 4 Mar 2023.
- La Berge, A. F. "How The Ideology Of Low Fat Conquered America". *Journal Of The History Of Medicine And Allied Sciences*, vol 63, no. 2, 2007, pp. 139-177. Oxford University Press (OUP), doi:10.1093/jhmas/jrn001. Accessed 14 Feb 2023.
- Oppenheimer, Gerald M., and I.Daniel Benrubi. "McGovern's Senate Select Committee on Nutrition and Human Needs Versus the Meat Industry on the Diet-Heart Question (1976-1977)." *American Journal of Public Health*, vol. 104, no. 1, Jan. 2014, pp. 59–69. EBSCOhost, <https://doi.org/10.2105/AJPH.2013.301464>.
- Ramsden, Christopher E et al. "Re-evaluation of the traditional diet-heart hypothesis: analysis of recovered data from Minnesota Coronary Experiment (1968-73)." *BMJ (Clinical research ed.)* vol. 353 i1246. 12 Apr. 2016, doi:10.1136/bmj.i1246
- Ravnskov, Uffe. "A hypothesis out-of-date. the diet-heart idea." *Journal of clinical epidemiology* vol. 55,11 (2002): 1057-63. doi:10.1016/s0895-4356(02)00504-8

- Resnik, David B, and Kevin C Elliott. "Taking financial relationships into account when assessing research." *Accountability in research* vol. 20,3 (2013): 184-205. doi:10.1080/08989621.2013.788383
- Ringgenberg, Nathalie, et al. "ExerG: Adapting an Exergame Training Solution to the Needs of Older Adults Using Focus Group and Expert Interviews." *Journal of NeuroEngineering & Rehabilitation (JNER)*, vol. 19, no. 1, Aug. 2022, pp. 1–17. EBSCOhost, <https://doi.org/10.1186/s12984-022-01063-x>.
- Ritterman, Jeffrey B. "To Err is Human: Can American Medicine Learn from Past Mistakes?." *The Permanente journal* vol. 21 (2017): 16-181. doi:10.7812/TPP/16-181
- United States Department of Agriculture. "Meal Requirements Under the National School Lunch Program and School Breakfast Program: Questions and Answers for Program Operators Updated to Reflect the Transitional Standards for Milk, Whole Grains, and Sodium Effective July 1, 2022." United States Department of Agriculture, directed by Tina Namian, 2 Mar. 2022, fns-prod.azureedge.us/sites/default/files/resource-files/SP05-2022os.pdf#page=5.
- U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Dietary Guidelines for Americans, 2020-2025*. 9th Edition. December 2020. Available at [DietaryGuidelines.gov](https://www.dietaryguidelines.gov).
- Van Gunst, Annelies et al. "Reformulation As An Integrated Approach Of Four Disciplines: A Qualitative Study With Food Companies". *Foods*, vol 7, no. 4, 2018, p. 64. MDPI AG, doi:10.3390/foods7040064. Accessed 9 Apr 2023.
- Wrock, Rebecca Kristen. "Ignorance Is Bliss: Self-Regulation and Ag-Gag Laws in the American Meat Industry." *Contemporary Justice Review*, vol. 19, no. 2, June 2016, pp. 267–79. EBSCOhost, <https://doi.org/10.1080/10282580.2016.1168256>.
- Zerden, Lisa de Saxe, et al. "Addressing Burnout among the Frontline Healthcare Workforce during COVID-19: A Scoping Review & Expert Interviews." *Journal of Health & Human Services Administration*, vol. 44, no. 4, Oct. 2021, pp. 302–33. EBSCOhost, <https://doi.org/10.37808/jhhsa.44.4.3>.