ORAU

Insights From Social Media Conversations on X About Ultra-Processed Foods and Recommendations for Health Communication

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INTRODUCTION

Public Health Problem and Need for Health Communication

Low diet quality is a significant public health problem in the U.S. and is associated with elevated risk of health conditions and mortality.[1–3] Addressing dietary behavior is critical for reducing disease burden and improving population health outcomes. Ultra-processed foods have been increasingly linked to heightened risks of chronic diseases, including heart disease and diabetes.[4,5] These foods often dominate diets due to their convenience, affordability, and aggressive marketing. Health, food science, food industry, and policy-making experts emphasize the importance of engaging the public in the development of health communication strategies about ultra-processed foods to ensure messages are relatable, actionable, and tailored to consumer needs.[6] However, experts don't necessarily agree on the definitions of processed foods. This lack of consensus complicates efforts to develop consistent and effective health communication messages for the public.[6] Recognizing the urgency of educating the public about these health risks, the U.S. Department of Health and Human Services (HHS) has announced plans for a public marketing campaign focused on ultra-processed foods and their link to diabetes.[7] Effective implementation of such campaigns requires insights into public discourse. Social media platforms provide a unique opportunity to analyze public discourse around health topics and better understand audiences' knowledge, attitudes, beliefs, and behaviors.[8,9]

ORAU's Contribution

ORAU has actively monitored and analyzed public messages on processed and ultra-processed foods and their implications for nutrition communication. Initial findings indicate a lack of clear definitions of "ultra-processed foods" in public discussions and a notable lack of agency/organization experts discussing ultra-processed foods.

Objective

This paper aims to provide insights from ORAU's social media analysis and actionable recommendations designed to enhance communication strategies related to ultra-processed foods. These insights are designed to inform federal health agencies, state health agencies, health professionals, and school health staff so they can more effectively educate the public and improve health outcomes.

METHODOLOGY OF SOCIAL MEDIA LISTENING

To identify relevant social media posts about ultra-processed foods, the Meltwater® media monitoring software tool was used. Posts were captured if they were reposted at least once between January 18 and April 17, 2025, ensuring that the dataset included content with a minimum level of engagement. The search query was designed to focus specifically on ultra-processed foods by capturing posts where the terms "processed" and "food/foods" appeared within four words of each other. (Note: This paper will use the terms "ultra-processed foods" and "processed foods" interchangeably.)

ORAU analysts selected a random sample of posts with high engagement and high reach, and then manually categorized the themes of 10% (n=134) of those posts. The full dataset of 3,647 posts was used to analyze keywords, hashtags, and authors. Detailed descriptions of the methodology, analysis approaches, and limitations are provided in the Appendix.

FINDINGS FROM SOCIAL MEDIA ANALYSIS

Focus Areas and Engagement Trends in Social Media Posts

ORAU analysts reviewed the select sample and identified eight categories that describe the focus of posts. The most prevalent categories were Dietary Advice (28%) and Policy and Legislation (25%), which collectively accounted for over half of all posts. Policy and Legislation posts, which frequently mentioned HHS Secretary Robert F. Kennedy (RFK), Jr.'s platform, had the highest engagement (47,538 likes, comments, and shares). Dietary Advice posts offered tips for healthier eating but often lacked evidence-based advice or references. Emerging Health Claims and Controversies, despite being speculative, received 14 times more engagement than posts referencing scientific studies within Potential Health Impacts. For detailed descriptions of all categories, see Table 1. The table categories are sorted from the most to the least engagement (total likes, comments, and shares).

Table 1
Categories of X Posts, Their Focus, and Example Topics

Category (number of posts	% of Total Posts	Engagements	Focus	Example Topics
Policy and Legislation (n=33)	25%	47,538	Laws and regulations addressing ultra-processed foods, HHS Secretary Kennedy's platform	Advocacy efforts, legislative updates, policy proposals, stakeholder positions, calls to action
Dietary Advice (n=38)	28%	35,265	Tips for healthier choices	Whole foods vs. processed foods, gut health, weight management strategies, nutrient-dense foods, children's health, hormonal health, mental health support
Emerging Health Claims and Controversies (n=12)	9%	14,148	Speculative, debated, or novel claims about health impacts	Processed foods affecting testosterone or sexual health, ultra-processed foods are more harmful than smoking, dopamine "hijacking," IQ reduction in children
Personal Narratives (n=14)	10%	11,627	Firsthand accounts and reflections	Individual experiences, challenges, personal changes
Social and Economic Factors (n=6)	4%	1,429	Societal and economic challenges related to processed food consumption	Cost of healthy vs. processed foods, impact on children and families, grassroots advocacy movements, health taxes
Industry Practices (n=9)	7%	1,102	Critiques of food industry behaviors	Manipulative advertising, harmful additives, misleading health claims, political influence on health studies
Nutritional Content (n=8)	6%	998	Information on ingredients and nutrition	Additives, oils, sugars, synthetic components, food label education, health impacts of specific ingredients
Potential Health Impacts (n=14)	10%	954	Scientific research linking ultra-processed foods to health risks	Obesity, diabetes, insulin resistance, cancer risk, heart disease, chronic disease risk, brain health issues (e.g., ADHD)

Keyword Analysis

ORAU examined keywords within 10 words of the words “processed” and “food” for the total dataset (n=3,659 posts).

The top words related to health conditions were gut, obesity, and inflammation (Figure 1). Keywords like “gut” and “inflammation” reflect growing public concern about the health impacts of processed foods, particularly on digestive health and chronic inflammation. However, these messages often lack scientific references, which suggests the need for evidence-based health communication.

Aside from health-related keywords, messages also focused on specific foods and food components. Sugar and seed oils were frequently mentioned, reflecting debates around dietary choices and the promotion of whole foods as healthier alternatives to processed foods (Figure 2).

Figure 1
Word Cloud of Mentioned Health Conditions

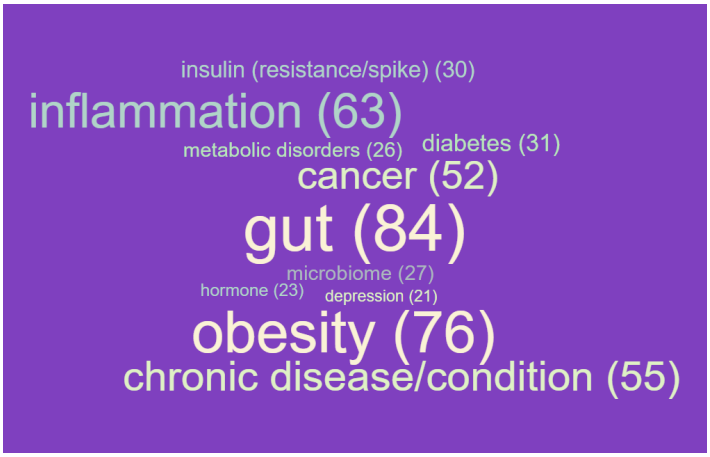
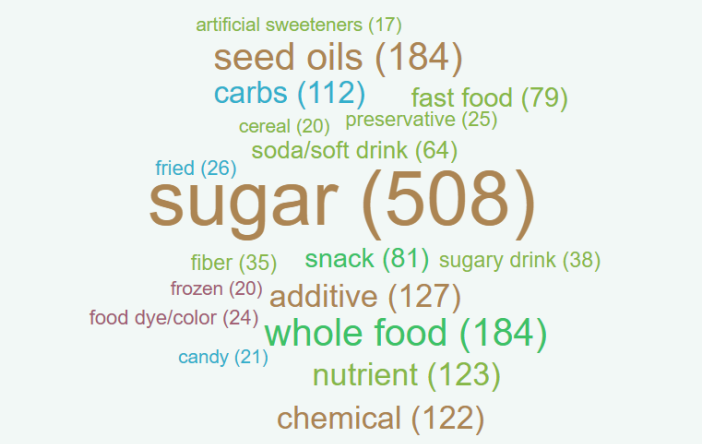


Figure 2
Word Cloud of Food and Food Components



Societal keywords, including RFK and school-related posts, further highlight how processed foods have emerged as a key issue in political and educational discussions (Figure 3).

- **RFK or Kennedy (Robert F. Kennedy, Jr., HHS Secretary):** Posts with high traction asked, “Do you support Robert F. Kennedy Jr. getting rid of all Ultra Processed food in America? YES or NO.” This indicates public interest in the political aspects of processed food discussions.
- **School:** Posts largely referred to the signing of HB 2164 in Arizona, which bans ultra-processed foods in public schools. Many posts framed this as a victory for the Make America Healthy Again (MAHA) movement, highlighting processed foods as a policy priority.
- **Industry or Industrial:** Posts expressed concerns about the food industry prioritizing profit over public health, which reflects skepticism toward corporate practices.

Figure 3
Word Cloud of Societal Keywords

Stance Toward Processed Foods

ORAU analysts reviewed the small sample of posts for their stance toward processed foods. The categorized posts overwhelmingly opposed processed foods (80%), while 20% were neutral. Neutral posts primarily quoted media articles or studies, presenting information without commentary. Notably, no posts defended or suggested any benefits of processed foods, reflecting strong public concern and limited advocacy for these products among X users.

Common themes among posts opposing processed foods included:

- **Health Impacts:** "New research links ultra-processed foods to increased colorectal cancer risk."
- **Policy Positions:** "RFK Jr. wants to get ultra-processed foods out of school lunch."
- **Industry Critiques:** "The processed food industry is poisoning America, and it's time we call it out!"
- **Personal Narratives:** "I've been 17 days without any processed foods or sugar…That stuff is literal poison. I am proof of this."

These findings highlight X users' strong opposition to processed foods, which could inform health communication strategies aimed at addressing these concerns and promoting healthier dietary behaviors. The lack of posts supporting processed foods highlights the need for balanced messaging that addresses both the challenges and benefits (e.g., affordability) of processed food consumption in ways that resonate with X users as well as broader audiences.

Clarity in Communication

ORAU's analysis highlights a key issue in X discussions about processed foods—the lack of clarity in terminology. While most foods undergo some form of processing, it is crucial to distinguish between minimally processed foods, processed foods with added ingredients, and ultra-processed foods that contain additives for taste or convenience (Nova food classification system).10 In our sample, only 38% of posts explicitly used the term

"ultra-processed," while the majority used the term "processed foods," often without a definition. This ambiguity could confuse the public and make it harder to differentiate between healthier and less healthy options, as food science researcher Charlotte Biltekoff has noted.11 Health communication professionals and healthcare providers could use the Nova classification system to educate audiences and promote clearer messaging. Additionally, most posts in our sample simply stated that processed foods are harmful without offering practical dietary tips or alternatives, leaving audiences without actionable guidance. Future efforts should prioritize both clarity in terminology and the inclusion of attainable recommendations to support healthier dietary choices.

Key Contributors to Social Media Discussions on Processed Foods

ORAU analyzed the leading authors contributing to X discussions about processed foods, focusing on their activity, engagement, and reach.

Top Authors by Activity

The authors with the highest number of posts (ranging from 19 to 118) included a diverse group: a company promoting organic foods and nutrition, a human biologist and researcher, a chiropractor advocating ketogenic diets and intermittent fasting, an individual critical of "Big Food and Big Pharma," a bot sharing health-related content, a best-selling author and medical school professor, a personal coach discussing nutrition without formal health credentials, and an advocate for holistic nutrition.

Engagement Trends

The most active authors in terms of engagement (ranging from 38,000 to 305,000 interactions) included a patient reporting mental health improvements on a carnivore and low-oxalate diet, accounts posting polls about replacing processed foods with "real food," an individual sharing MAHA news, a former Republican U.S. representative, an unofficial news account, and a current Republican U.S. representative.

Authors with Greatest Reach

Accounts with the largest reach (spanning 4.7 to 28.9 million users) were predominantly news organizations, along with a leader of a non-profit organization advocating conservative political views.

Notable Trends in Posts

Recurring themes included mentions of "Make America Healthy Again" (MAHA) in 5% (n=195) of posts and

references to “RFK” or “Kennedy” in 10% (n=380). Additionally, four Republican politicians—one state governor, two U.S. senators, and one U.S. representative—addressed the topic in their posts by advocating for Secretary Kennedy’s stance against ultra-processed foods.

Public Health Agency Engagement

Public health agencies showed limited engagement on the topic, with only one state health agency and the National Institutes of Health Clinical Center contributing posts. This raises questions about the role of public health institutions in shaping the conversation around processed foods.

Hashtags

The most popular hashtags used in the full dataset were #nutrient and #diet followed by #maha, #health, #organic, #nutrition, #healthyeating, and #superfoods (Figure 4). The hashtag #nutrient was predominantly used by an organic foods company, which aligns with its focus to promote minimally processed and organic options. These hashtags reflect key themes identified in earlier sections, such as nutrition, health, and advocacy for dietary change.

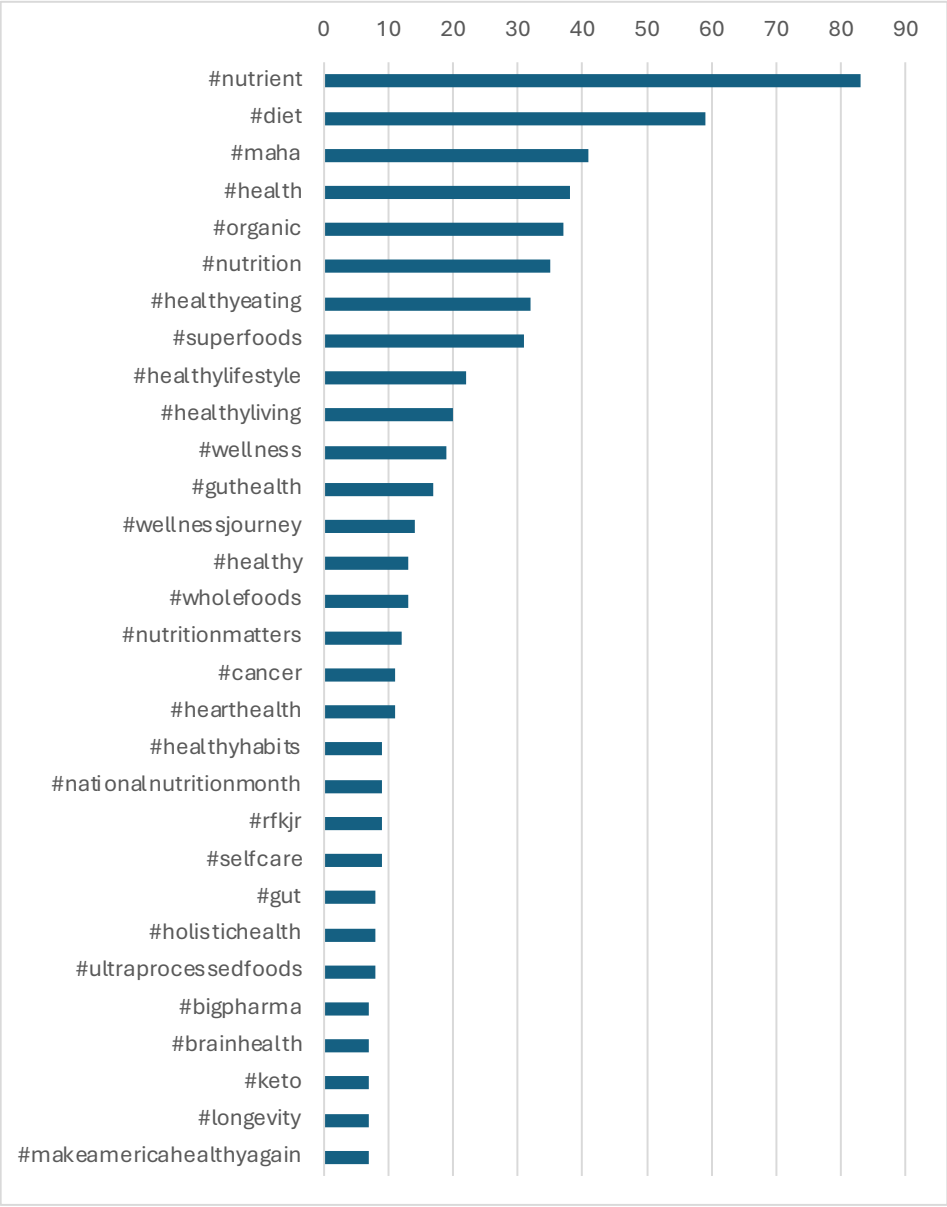


Figure 4
Most Used Hashtags

Recommendations for Enhancing Health Communication

Based on the findings from this analysis, ORAU proposes the following strategies to improve public understanding and communication about processed foods. These recommendations address key gaps identified in the report, such as limited public health agency engagement, inconsistent terminology, and the need for actionable dietary advice.

FOCUS ON PRACTICAL TIPS:

1. Based on the report's finding that Dietary Advice posts were the most prominent type of social media content, practical tips are essential for helping the public understand steps to making dietary changes. **Provide actionable advice tailored to specific audiences to help reduce ultra-processed food consumption and incorporate whole foods into daily routines.** Examples include identifying ultra-processed foods in grocery stores, choosing healthier snacks, preparing quick and nutritious meals, cooking at home, meal planning, and reading food labels. Address barriers, such as busy schedules, budget constraints, and accessibility, to ensure these tips are practical for various populations.

EDUCATIONAL STRATEGIES:

2. The report highlighted confusion surrounding the term "processed foods" and found that public discussions often failed to distinguish between minimally processed, processed, and ultra-processed foods. To address this, **define terms like "ultra-processed food," "real food," and "whole food" in health messaging to reduce confusion and help the public make informed dietary choices that do not vilify all processed foods.** For example, National Geographic described ultra-processed foods as using ingredients "not found in a home kitchen." Additionally, use frameworks like the Nova Classification System to educate health communication professionals, healthcare providers, and school leaders about the range of food processing. This knowledge will enable these professionals to share accurate information with their audiences.

MESSAGE TESTING AND CONTENT DEVELOPMENT:

3. **Test the public's understanding of terms like "processed foods" and "real food" through formative research**, such as focus groups, surveys, and interviews. The report highlighted confusion around these terms, so findings from message testing can help refine content for clarity and effectiveness.
4. **Explore creating infographics, posting simple recipes, and linking to interactive tools** (e.g., GroceryDB, TrueFood) to help the public identify minimally processed foods and make smarter purchasing decisions.

ADDRESS GAPS IN PUBLIC HEALTH MESSAGING:

5. The report revealed that public health agencies rarely engaged with the topic, with only one

state health agency and the NIH Clinical Center contributing posts. To address this gap, **public health agencies can actively participate in social media discussions about ultra-processed foods and develop targeted campaigns to raise awareness.** These campaigns could include practical dietary advice, strategies for reducing ultra-processed food consumption, including a focus on simple swaps, and educational content tailored to various audiences.

6. **Collaborate with news media** to improve reporting on ultra-processed foods, offering resources to ensure accurate, impactful coverage. For example, host workshops that educate on specific terminology and recommendations for framing to reduce stigma around food choices.
7. **Educate school leaders, teachers, and staff on the impact of ultra-processed foods, offering practical guidance** on incorporating minimally processed and whole foods into school meals, snacks, and nutrition programs, and implementing this information in nutrition curricula. This aligns with the report's finding that "schools" frequently appeared as a keyword in social media posts.

ORAU CAPABILITIES AND OPPORTUNITIES FOR COLLABORATION

Expertise in Health Communication Formative Research

Formative research is an indispensable tool for gathering insights and data, providing foundational knowledge that is crucial for creating tailored strategies that are both effective and responsive to the specific needs and preferences of the intended audience. While social media listening provides valuable insights into emerging trends, it is inherently limited in its ability to capture deeper perspectives directly from individuals we want to reach. To truly understand audiences and develop messages and campaigns that result in behavior change, we must also incorporate active participatory research methods such as focus groups and in-depth interviews.

ORAU's formative research experts bring unparalleled experience to this realm, having conducted more than 2,100 focus groups and over 800 in-depth interviews in the past decade with a wide variety of audiences, including those traditionally labeled as "hard-to-reach." These methods allow us to directly engage with participants, fostering meaningful bidirectional feedback that reveals insights not accessible through social listening alone.

At ORAU, we have established processes for engaging individuals in our research in ethical, affirming, and

respectful ways that often employ integrated knowledge translation, co-creation, and community-based participatory research approaches. Moreover, we believe that engagement should extend beyond the data collection; we must also engage affected individuals in interpreting data from previous collections and brainstorming real-world strategies to improve health and well-being.

By combining the broader insights of social listening with the depth and richness of community-based participatory research, ORAU develops a comprehensive understanding of audience needs that drives the development of effective, tailored strategies and campaigns. With a commitment to creating impactful behavior change interventions, ORAU is well-positioned to gather and translate research into actionable strategies that improve health for all Americans.

Recommendations for Additional Research

In response to the findings from this report, ORAU recommends the following additional formative research efforts to understand how to better communicate with the public about promoting healthier eating habits.

Meltwater® is an advanced media intelligence platform that excels in social media listening, online news monitoring, and audience analysis. It delivers real-time insights into public discourse and media coverage related to health topics, enabling professionals to track conversations and trends across social media platforms and online news outlets. With the integration of Audiense, Meltwater has audience analysis capabilities that help to segment audiences and tailor communication strategies based on insights into audience behaviors and preferences. ORAU analysts are certified in using Meltwater software to monitor and analyze social media activity by government agencies, organizations, and members of the general public.

Crafting Public Health Campaigns and Nutrition Messaging

To understand audience knowledge, attitudes, beliefs, and behaviors to effectively craft campaigns and nutrition messaging, researchers should:

1. **Expand analysis to other nutrition topics and audiences (e.g., sugar consumption, school nutrition programs and policies):** By monitoring social media conversations on other topics, we can create a more holistic approach to nutrition education.
2. **Conduct comparative analyses:** Researchers should repeat the processed foods social listening query to examine the differences in results from both rural and urban areas across the United States. People residing in rural agricultural areas may have very different viewpoints from people in urban city centers.
3. **Develop tailored communication strategies:** Researchers can use focus groups and

interviews to verify information gleaned from initial social media listening, identify preferred communication formats, visuals, and terminology that best resonate with specific demographics to create impactful campaigns and messaging that inspire action. Focus groups and interviews also allow researchers to explore the "why" behind barriers and facilitators to action. Consider opportunities to craft education for both professional and lay audiences.

Evaluating Public Health Campaigns and Nutrition Messaging

To understand how nutrition education campaigns and messaging are performing, researchers should:

1. **Assess Campaign Reach and Engagement**: Social media listening can measure the reach, engagement, and overall effectiveness of public health campaigns and messages related to ultra-processed foods. Hashtags and metrics, such as likes, shares, and comments, can reveal how widely the campaign or messages are being discussed and whether they resonate with the target audience.
2. **Identify Gaps in Messaging:** By analyzing public reactions to campaigns and nutrition messages on social media, ORAU analysts can identify gaps or areas where messaging is unclear, inconsistent, or misunderstood. For example, if a campaign emphasizes reducing ultra-processed food consumption but fails to address affordability or convenience, social media may highlight these concerns.
3. **Highlight Effective Communication Strategies:** By analyzing social media posts from health professionals that gain traction, ORAU researchers can identify effective ways of framin messages (e.g., using relatable language, visuals, or storytelling) and apply these strategies in broader campaigns.
4. **Explore Audience Perceptions of Campaigns:** Focus groups can be used to directly ask participants how they perceive nutrition messages and campaigns. This allows researchers to identify emotional responses, cultural relevance, and potential barriers to engagement.
5. **Testing Messaging Clarity and Impact:** Interviews can help assess whether messages and materials are clear, relevant, and inspire action. Researchers can fully examine audience understanding of specific terms and concepts and identify messaging and/or images that need to change.

This white paper highlights the significant public health challenges posed by ultra-processed foods and provides actionable insights to improve health communication strategies around nutrition education. Through our social listening analysis, we uncovered the following key findings:

CONCLUSION

- **Opposition to Ultra-Processed Foods:** The categorized posts overwhelmingly opposed processe foods (80%), reflecting public interest in reducing consumption.
- **Confusion in Terminology:** The lack of clarity of definitions and differentiations between terms, such as processed foods and ultra-processed foods, will need to be addressed to create effective messages about processed foods.
- **Limited Practical Evidence-Based Dietary Advice:** posts encouraging healthier eating were prevalent and often received much engagement, yet sometimes didn't provide specific practical tips (i.e., "eat healthy" vs. "choose items with 5 ingredients or less") and most lacked evidence-based information.
- **Minimal Public Health Agency Engagement:** Federal, state, and local health agencies had almost no presence in social media discussions about processed foods. There remain huge opportunities to provide scientifically accurate, audience-tailored messaging in this space.

Our findings emphasize a need for additional research to craft clear, compelling health communication strategies to address gaps in public knowledge, attitudes, beliefs, and behaviors. ORAU's expertise in formative research and creating high-impact campaigns provides a comprehensive approach to improving nutrition behaviors and reducing health disparities.

Call to Action for Health Agencies and Practitioners

We encourage federal and state agencies, nonprofits, and philanthropic foundations to fund additional research and communication campaigns in this area as recommended by this paper. All health practitioners, including healthcare providers, nutrition professionals, school leaders, and health communication specialists, are encouraged to use insights from this report to help individuals make informed nutrition choices and ultimately improve health and well-being.

APPENDIX: METHODOLOGY OF SOCIAL MEDIA LISTENING

Search Query

To identify relevant social media posts about processed foods, the Meltwater media monitoring software tool was used. Posts were captured if they were reposted at least once between January 18 and April 17, 2025, ensuring that the dataset included content with a minimum level of engagement. The search query was designed to focus specifically on processed foods by capturing posts where the terms "processed" and "food/foods" appeared within four words of each other.

Sampling Methodology

The dataset of 3,647 posts was segmented into four quartiles based on median engagement and reach metrics: high engagement/high reach, high engagement/low reach, low engagement/high reach, and low engagement/low reach. A random sample of 10% of posts from the "high engagement/high reach" quartile was selected for coding and analysis. This quartile was chosen because it represents posts with the greatest potential to influence public discourse, given their high visibility and audience interaction.

Analysis

Manual Analysis of the Select Sample

Two ORAU analysts performed a manual thematic analysis of the select sample of 134 posts, which was supplemented with an AI tool. Generative AI was used to review social media posts, identify preliminary patterns and themes, and assist in the development of a codebook by suggesting potential categories and definitions for themes. The codebook provided clear definitions and examples for each code to ensure consistency

The two analysts independently reviewed social media posts to identify themes based on predefined codes. Analysts compared their coding results and resolved discrepancies. Inter-rater reliability was measured using percentage agreement, with the two analysts achieving an 83% agreement in their coding of the posts.

Keyword, Hashtag, and Author Analysis from the Full Dataset

A **keyword analysis** was conducted across the entire dataset of 3,647 posts to identify recurring themes. Keywords were counted if they appeared within 10 words of "processed" or "food/foods," improving the likelihood that the keywords related to processed foods and not a peripheral topic. This method accounted for longer posts, which have become increasingly common due to relaxed character limits on the X platform.

A **hashtag analysis** was conducted using Meltwater to count the frequency of each hashtag mentioned in the full dataset.

An **author analysis** involved identifying the number of posts per author in the sample, calculating the total engagements (likes, comments, and shares) for each author, and ranking authors based on their average reach.

Limitations

The methodology has several limitations. First, the manual coding was applied to a limited sample of posts, which may have limited the range and scope of identified themes. Although the sample was randomly selected, it prioritized posts with higher reach and engagement, which potentially excludes thematic variations present in posts with lower reach or engagement. Additionally, the analysis was based solely on data from X (formerly Twitter), which limits the representativeness of findings across other social media platforms.

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