

Examining Assumptions in Science-Based Policy: Critical Health Communication, Stasis Theory, and Public Health Nutrition Guidance

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Recent work in rhetoric of science, technology, health, and medicine argues for a shift away from critique, even as some health communication scholars call for critical engagement with the situated, ideological nature of scientific claims supporting public health messages. We suggest that critique of scientific claims remains important to rhetoricians of health and medicine, but that such critique must go further in examining interactions between science, values, and public health policy. We offer an adapted version of stasis theory as a framework for pursuing this end. Using the U.S. public health nutrition policy *Dietary Guidelines for Americans* as a case study, we engage this framework to explore how science-based nutrition policy provides a discursive lens that influences how subsequent scientific evidence is produced, interpreted, and employed.

KEYWORDS: dietary guidelines, rhetoric of science, public health, obesity, BMI

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Recent work in rhetoric of science, technology, health, and medicine calls for a shift away from critique, citing apprehension that scholarship on controversial issues can inadvertently support anti-science agendas, such as the persistent belief in links between vaccinations and autism, the call for equal treatment of creationism and evolutionary theory in school, and most prominently, the ongoing controversy surrounding climate change science and politics (Latour, 2004; Fuller, 2010; Mitcho, 2017). Simultaneously, some health communication scholars suggest just the opposite. As part of the “critical turn” in health communication, Mohan Dutta (2010) encourages health communication scholars to critically examine scientific facts behind health interventions, rather than endeavor simply to communicate them effectively. Dutta also suggests that scholars critically interrogate power structures built into the knowledge production of medicine and public health. For rhetoricians of health and medicine (RHM), however, this poses a dilemma. If investigating underlying knowledge-production practices of science invites a mistrust in science more generally, how do we meaningfully engage with the scientific bases of health and medical interventions so that public health issues may be redefined toward more effective, humane, and community-centered solutions (Dutta, 2010)? Dutta’s argument affirms that rhetorical critique remains important, but—as Bruno Latour (2004) has argued—critique itself is not enough. Critical analysis of scientific facts must address the policies and practices based on those factual assertions.

RHM scholars frequently engage with the sociopolitical, ideological, and rhetorical nature of scientific knowledge production but are less likely to analyze ways in which science-based policies reify tentative and refutable claims of science, positioning them to serve as the basis for further knowledge production. No clear demarcation exists between epistemic and policy issues when science-based policy is created (Miller, 2005); conversely, no clear demarcation exists between science-based policy and scientific knowledge production influenced by that policy (Saltelli & Giampietro, 2017). The temporary nature of scientific claims is in constant tension with the implications of stability inherent in policymaking. When policies are established in the context of scientific uncertainty—as they often are—this tension may be managed through assumptions that steer future scientific endeavors to reinforce the policy already in place, such as was the case with the first *Dietary Guidelines for Americans (DGA)*.

Formulated in 1980 by an *ad hoc* committee of U.S. Departments of Agriculture (USDA) and Health and Human Services (HHS) officials, the

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DGA was created in response to a number of statements about diet and disease from other sources. One official, Dr. Michael McGinnis, later explained:

With the fact that there had then been issued within a relatively short period of time a statement of Congress, a summary by the scientific community as represented by one scientific organization, and a general statement of one departmental agency, the Department of Health, Education and Welfare at that time, then arose naturally the question, “What about an administration-wide policy?” . . . [I]sn’t there an obligation, again, to provide a contribution that speaks as one voice? (Dietary Guidelines Advisory Committee, 1998)

With the establishment of the *DGA* motivated by a perceived obligation rather than conclusive scientific discoveries, the committee used conditional and qualified language to downplay scientific uncertainty about the relationships between diet and disease.¹ However, as Dr. McGinnis would later note, the committee also intended for the *DGA* to supply a road map for future nutrition research to move toward more quantified targets, implying that what was left was simply to iron out the details of relationships already assumed to exist.² As critics at the time pointed out, the committee acted as if definitive proof would be forthcoming and failed to account for the possibility that it would not; to change the *DGA* recommendations in any significant way would be to admit that previous recommendations had been incorrect, a dilemma that would undermine both the science of nutrition and efforts to educate the public about food and health (Harper, 1978).

Thirty-five years later, nutrition experts and policymakers continue to lack definitive proof for a number of *DGA* recommendations. In June 2015, in the face of ongoing controversy over the *DGA*, policymakers proposed a bill that would limit the scope of *DGA* guidance to only recommendations supported by the strongest possible evidence. Former members of the scientific advisory committee who oversaw the creation of the 2015 *DGA* fought this proposal, noting that few *DGA* recommendations would

¹Notably, there is no published review of nutrition science to accompany the 1980 *DGA* (Dietary Guidelines for Americans: Hearings before the Committee on Appropriations, 1980), as there would be for future editions. Those reviews were mandated in response to the controversy that arose in reaction to claims made in the 1980 *DGA*. That scientific claims found in the *DGA* remain contested is reflected in the controversy that continues to surround the *DGA* to this day.

²Interview with J. Michael McGinnis, September 9, 2015.

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actually meet that criteria (Achterberg, 2015; Lammi, 2015). Nutrition experts arguing for policy *not* based on the strongest possible evidence ironically illustrates how scientists rely on public health policy to promote their findings and how public health policy relies on scientists to reinforce recommendations, regardless of the quality of the evidence.

Ongoing debate about the *DGA* suggests scientific facts and science-based public health policy are mutually influential. To better illuminate the complicated nature of these relationships and to better position RHM scholars to participate in public health policy debates, we offer a version of stasis theory adapted for critical health communication. We then analyze the *DGA* using this revised framework to demonstrate its utility for RHM scholars engaging other public health policy debates.

Stasis Theory

Stasis theory refers to a way of analyzing arguments in a debate. The stases help rhetors “choose among all things sayable about a debatable topic” (Prelli, 1989, p. 45). In modern times, however, the framework has also been employed to categorize arguments, ultimately helping a reasoner arrive at *krisis* or judgment about a particular issue (Corbett & Eberly, 2000). Fundamentally, a stasis analysis indicates the place from which rhetorical engagement or persuasion can proceed; it helps uncover what the argument is actually about, including agreement and disagreement between parties.

Although there are many variations on the stases, four basic categories of questions are generally recognized:

- conjectural questions, or questions of fact (“What happened?”);
- definitional questions regarding the meaning or nature of the issue (“How should we define what happened?”);
- qualitative questions that address matters of value (“How important or significant is what happened?”); and
- translational questions about actions, practices, or policies (“What should be done about what happened?”).

As useful as the stases are for organizing arguments around a topic, they are not as distinct as the original theory suggests. Jeanne Fahnestock and Marie Secor (1988) note that “Arguments conducted in one stasis nudge audiences to either construct or assume arguments in other stases” (p. 431).

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This is true at both ends of the stases spectrum. Carolyn Miller (2005) identifies a “strategic instability [in] the distinction between epistemic and policy issues, between expert and public forums, between scientific and science-based controversy” (p. 36). Or as David Depew and John Lyne (2013) put it, the boundaries between discursive spheres—here the scientific and the political—are rhetorically constructed and “leak at the seams” (p. 3). This instability, or leakiness, works in both directions; not only does science influence policy, but policy influences science.

Arguments proposing action assume certain definitions and values established at lower level stases; however arguments at lower stases may also move an audience to make assumptions about values and actions (Fahnestock & Secor, 1988). This is particularly true with regard to arguments about causality. Lynda Walsh (2013) argues that the inevitability of taking action creates an “upward pull” on scientific claims that assert a public health problem has a specific cause (p. 89). Furthermore, following David Hume, Walsh also suggests that the application of *a priori* values spans the logical gap between the “is” of science and “ought” of action. A claim of fact does not inherently determine the seriousness of issues surrounding that claim, nor does it indicate what actions should be taken. Differing social or historical contexts, operating under distinct value systems, might suggest divergent ways to address questions at the upper levels of stases, even given the same resolution of questions at lower levels. For example, Western values of health and medicine are embedded within what appears to be neutral science-based policy in America (Miller, 2008). In contrast, New Zealand’s indigenous Polynesian people, the Māori, have ancestral understandings of “health” that center on a relationship to the environment specific to Māori tribal communities rather than individual behaviors (Heke, n.d.). Likewise, Traditional Chinese Medicine considers the human body holistically and attributes disease to an imbalance between mind, body, spirit, and environment (Dashtdar, Dashtdar, Dashtdar, Kardi, & khabaz Shirazi, 2016). All approaches may have similar goals, but public health interventions that focus on individual behavior change based on biomedical explanations are likely to ring hollow in another context. An empirical fact can be agreed upon at a lower level of stases and be characterized and interpreted differently at higher levels of stases because fundamental notions of “health” are culturally situated (Metzl, 2010).

The “is-ought” gap between the lower and upper levels of stases continues to pose challenges for how policy is crafted and mobilized. From

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Thomas Kuhn (1962) onward, rhetoricians of science have examined the ways in which paradigmatic thinking, historical events, social norms, and policymaking influence the scientific enterprise (Depew & Lyne, 2013); government, in particular, may influence scientific knowledge production through the provision of various forms of support, from funding to public platforms for dissemination of information (Goodnight, 2012; Taylor, 1991). Just as claims of fact at lower levels of stases suggest policy actions without indicating what actions are appropriate, policy creation ontologizes scientific claims without settling scientific debates. The particular rhetorical presentation of a problem constructed by science-based public health policy includes assumptions about the targeted population, social norms, dominant values, causes of disease, and effects of interventions, generating subsequent scientific knowledge as if those assumptions are agreed-upon certainties.

Science-based policy provides messages that operate, in practice, as if ongoing scientific debates are resolved. These messages are meant to produce changes in health behavior and health outcomes. Measuring compliance and evaluating the outcomes of these policies then become part of the science of public health, science which, in turn, affects policy. This “policy cycle” is typically described as having four stages: 1) agenda setting; 2) policy formulation; 3) policy implementation, and; 4) monitoring/policy evaluation (Pollard & Court, 2005; Sutcliffe & Court, 2005). Clearly, evidentiary concerns are germane to each stage of the process, but it is less obvious how the complexities and uncertainties embedded in what “counts” as evidence in the “agenda setting stage” become obscured—if not forgotten altogether—at the “monitoring/evaluation stage,” even as knowledge generated from this last stage provides scientific evidence for future agenda setting.

These elisions may be particularly problematic when populations who are targets of public health interventions are not represented in either knowledge-making or policy-making processes, compounding what Deborah Lupton (1994) identifies as a “somewhat paternalistic exercise in which those with medical or public health knowledge . . . perceive their role as disseminating the ‘right’ message to the masses for their own good” (p. 56). Lupton calls for “critical health communication praxis,” (p. 55) an approach that treats science-based discourses of public health messages as socially and culturally constructed. In response to her call, Dutta (2010) outlines four key assumptions, which explain how public health communication interventions obscure scientific uncertainties and social norms and values that underlie policy creation: assumptions of criteria, effectiveness, universality,

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and innovation. These assumptions correspond roughly to determinations that must be made at each level of stases, a connection that will be explored after an in-depth discussion of each of Dutta's assumptions. Following the lead of Fahnestock and Secor (1988), in adapting the stases to a critical health communication framework, we emphasize questions of cause and effect, which are central to scientific arguments, and note that questions at the translational level are specifically related to issues of public health policy.

A Critical Approach to Health Communication

Dutta's (2010) four assumptions that frame public health messages are as follows:

ASSUMPTIONS OF CRITERIA

The first level of stases (questions of fact) corresponds in public health messaging to the assumption that criteria used by researchers to evaluate public health interventions are meaningful measures of the empirical reality of the group targeted by the intervention (Dutta, 2010). However, these criteria may be more likely to reflect institutional imperatives of policy rather concerns or lived experiences of the targeted community. For example, measures of body mass index (BMI) may be used as a criterion to evaluate compliance with dietary guidelines or to track prevalence of obesity, but BMI may not be meaningful or helpful to the individuals being measured nor does it indicate what factors impact the health of those individuals.

ASSUMPTIONS OF EFFECTIVENESS

Dutta (2010) argues that most health communication research operates "on the basis of the assumption of effectiveness of the health interventions being proposed" (p. 536). Assumptions of effectiveness take for granted the accuracy of cause-effect rationales for health interventions, the absence of other significant causes, and the agency of individuals to act upon identified causes in a meaningful way.

However, in the case of dietary approaches to the prevention of chronic disease, cause-effect relationships are established rhetorically, rather than empirically (Hite, 2018). Causal models used to explain development of chronic disease typically target health behaviors under control of the individual rather than structural constraints or biopsychosocial imperatives

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outside of the realm of personal choice (Krieger, 1994). For example, interventions that target obesity to prevent chronic disease assume cause-effect relationships between these interventions (such as dietary changes or exercise programs), obesity, and chronic disease outcomes that are highly contested; some of these interventions may even be considered harmful (Kuczmarski, Flegal, Campbell & Johnson, 1994; Medvedyuk, Ali & Raphael, 2017; Sturgiss, Jay, Campbell-Scherer & van Weel, 2017).

ASSUMPTIONS OF UNIVERSALITY

As noted, the values of those in positions of expert authority bridge the logical gap between the “is” of scientific claims of fact and cause-and-effect and the “ought” of public health policy. In Western-centric theoretical models used in public health and health communication, values that shape policies and practices are often based on a sense of “biomedical individualism,” which treats individuals in the abstract, divorced from context and environment, free to “choose” the health they want; subpopulations, particularly groups considered to be at higher risk for chronic disease than other groups, “consist merely of summed individuals who exist without culture or history” (Fee & Krieger, 1993, p. 1481). In this case, holding individuals responsible for making prudent lifestyle choices—such as maintaining a “healthy” BMI—is prioritized over making changes to social, economic, and political factors that may influence health. Furthermore, Western-centric values that venerate knowledge generated from science as the ultimate authority in determining right action also indicate who produces and disseminates knowledge and who receives it. However, the assumption that “appeal to universalist science” (Dutta, 2010, p. 535) is shared by all communities and individuals targeted by health communication messaging not only disregards cultural differences, but also obscures the evaluative, community-based nature of questions located at this stasis and the socially constructed nature of scientific claims more generally (Miller, 2003).

ASSUMPTIONS OF INNOVATION

The primary assumption of public health messaging is that the targeted community needs the intervention being communicated to improve its health status. This value-laden assumption highlights how policies may be directed at what are seen as “passive target audiences” (Dutta, 2010, p. 537), who are assumed to lack agency or self-efficacy. Asking “Who or what else does this

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policy serve besides its nominal target population?” “draw[s] attention to the political and economic agendas underlying interventions that are situated amid the capitalist logics of biomedicine, serving the political and economic agendas of the status quo and the knowledge-producing institutions embedded within the status quo” (Dutta, 2010, p. 537). Questioning the taken-for-granted altruism of health interventions and the assumptions of policy as an innovation highlights how a public health intervention may obscure the targeted community’s agency, values, and concerns, even as it serves the purposes of those in charge of the policymaking process.

Stasis Theory Adapted for Critical Public Health Studies

Bridging a critical approach to health communication with a familiar, theoretical tool offers RHM scholars a way to engage in public health debates more fully. Specifically, linking the stases to a critical analysis of public health communication identifies how questions at each level of stases are “disposed of” through a series of self-reinforcing assumptions: How questions are answered and assumptions reinforced at particular stases levels influences the questions raised and assumptions made at other levels. Furthermore, we contend that the influence of questions asked and assumptions made at each level are multidirectional, non-linear, and shaped by contexts outside the science-policy debate, such as social, cultural, political, and economic factors (see Figure 1). These complexities have yet to be explored and modeled in stasis theorizing.

This adapted version offers a framework for analyzing how science-based policy and public health messages influence subsequent production of scientific claims. It traces how science-based policy statements, developed at the “ought” levels of stases impact the creation of scientific claims at the “is” levels of stases. For example, assumptions of “innovation” built into policies presuppose facts that inevitably correspond to assumptions of “criteria”; a policy that serves to “fix” an identified problem in a target population will use means of evaluation that may establish—not just measure—a particular “reality” about that population. More subtly though, when science-based policy is created under situations of scientific uncertainty, the scientific perspective that prevails will provide a “historicized, collective” perspective that is deeper than specific pieces of evidence (Daston & Galison, 2010). Consequently, these perspectives will define what evidence “is,” creating a

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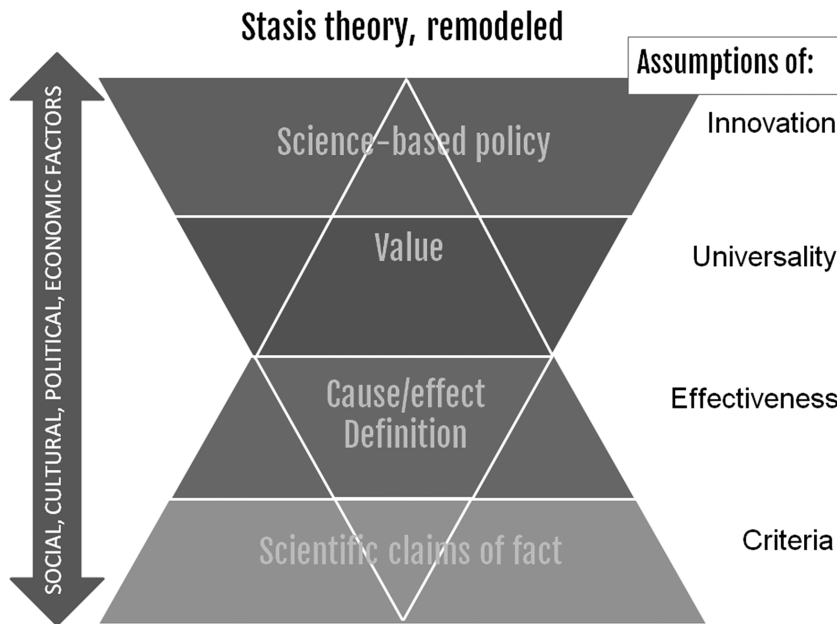


Figure 1. A conceptual model that describes the theoretical relationships within our version of stasis theory adapted for critical public health studies.

normative understanding of issues under consideration. In public health, this influences every facet of how policies are created and evaluated, as we illustrate next via case study.

Dietary Guidelines for Americans (DGA)

The first *DGA* was created in 1980 under the aegis of the USDA and HHS, and new editions have been issued jointly by these two agencies every five years since. It has grown from a 19-page pamphlet into the foundation of U.S. federal public health nutrition policy. The *DGA* provides the scientific rationale and policy basis for all government programs and practices related to nutrition, including research, public health nutrition services, promotion, and federally mandated food labels; it also serves as the basis for all public health nutrition messages developed by the federal government. Unlike previous guidance that addressed adequate essential nutrition, the *DGA* encourages and discourages foods or food components thought to affect

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biomarkers associated with predicting long-term health outcomes. In short, the *DGA* was created to help Americans choose and avoid foods to reduce their risk of chronic disease.

When the first edition of the *DGA* was created in 1980, it was supposed to help Americans change their eating habits and prevent what was perceived as a looming epidemic of obesity and chronic disease (*Dietary Guidelines*, 1980). The diet prescribed by the *DGA* was one lower in fat, saturated fat, and cholesterol (particularly from animal products); lower in sugar; and higher in fiber (from grains, cereals, fruits, and vegetables) and polyunsaturated fats (from vegetable oils). Consumers were also advised to manage their weight by balancing “calories in” with “calories out.” Although some nutrition experts characterize these recommendations as the outcome of “settled science” (Nestle, 1994), when the 1980 *DGA* was created, it met a great deal of resistance. Many experts protested the notion that a single dietary approach could be applied to all individuals in order to prevent a wide array of diseases that had not been established as nutritional in nature (Eskridge, 1978; Harper, 1978; McNutt, 1980).

In the face of an ongoing scientific debate, the foundational assumption of the *DGA*—that individuals can control their health outcomes by making the right dietary choices—exerted its own rhetorical force on the discourses surrounding obesity and subsequent scientific knowledge production. In a different case study, Scott Graham (2015) argues that the Federal Drug Administration’s approval of a drug for the treatment of Fibromyalgia Syndrome (FMS), previously not considered a “real” disease, “functioned not only as a policy statement but as an ontological pronouncement—that is, it codified the reality of FMS” (p. 146). The 1980 *DGA* functioned in a similar way in linking diet, body size, and chronic disease. Dietary guidelines to prevent chronic disease “codified the reality” that dietary fat (particularly animal fat) leads to excess body fat, which leads to chronic illness. In this regard, despite popular conceptions suggesting that nutrition messages are frequently changing (Nagler, 2010) and despite continuing uncertainty in nutrition science regarding the ways in which diet, body size, and chronic disease are related, the pattern for dietary health prescribed by the *DGA* in 1980 has remained remarkably stable for over 35 years (Slavin, 2011). However, some things have changed about the *DGA* and the contexts in which it has functioned.

In the early 1990s, reports issued by public health officials indicated that obesity rates in the U.S. had not gone down, but had risen sharply since

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1980 (Kuczmarski et al., 1994).³ This association is not a cause-effect relationship, but if the 1980 *DGA* was meant to prevent an increase in rates of obesity in the U.S., by 1994 it was clear that just the opposite had happened. Accompanying this change in public health discourse—from projections of future lower rates of obesity to indications that these projections would not materialize—was a change in language in the *DGA*. The first three editions of the *DGA* used conditional language that reflected the uncertainty of the science, noting that “There is controversy about what recommendations are appropriate for healthy Americans” (USDA & HHS, 1980, pp. 11–12). In contrast, the 1995 edition of the *DGA*, the one that followed the identification of a rise in obesity rates in the U.S., abandoned hedges and qualifications for assertions of certainty. Despite there being no new evidence to support the change in tone, the same, previously controversial *DGA* recommendations were described as “scientifically sound as well as prudent and practical” (Marantz, Bird & Alderman, 2008, p. 2). This rhetorical move not only directed narratives explaining the rise in obesity away from the scientific uncertainty behind *DGA*, but reasserted the centrality of personal responsibility and “prudent” dietary choices in preventing obesity and chronic disease. This discursive framework, instantiated in the *DGA*, meant that other explanations for changes in the health of Americans over the next few decades would be sidelined or ignored.

Importantly, the *DGA* was not the only thing of note that occurred in 1980: This was the same year Ronald Reagan was elected president, marking the beginning of “Reaganomics” and a rapidly widening gap between the incomes of the wealthiest and the most disadvantaged Americans. However, an increase in income inequality, a weakening of the social safety net, and changes in the labor market that spelled job losses for many working-class Americans are seldom raised as contributing factors to any real or artificial decline in the nation’s health, despite evidence that these social and economic changes had a disproportionately negative impact on minority and low-income groups who typically experience worse health outcomes than wealthier and whiter populations (Adler & Rehkopf, 2008). These economic

³Our discussion about obesity here is not meant to take a position with regard to whether obesity is a public health crisis; rather, we take up obesity as central to the discourses of current public health nutrition policy. Whether obesity itself is serious health epidemic is a highly contested notion (Gard, 2011; LeBesco, 2011; Warin, 2015); however, without a doubt, discourse about obesity has reached epidemic proportions, both in popular and academic settings.

factors are obscured by public health messages that focus on good health as an outcome of “eating right,” which ostensibly could be evaluated by an assessment of body size, and this norm continues today.

Our rhetorical analysis of the *DGA* from 1980 to the present demonstrates how social, cultural, political, and economic power structures influence key assumptions undergirding health policy, including the presentation of science-based values and claims as universal. Rather than going through a traditional stasis analysis, which would begin with facts and proceed “upward” to policy, we begin with policy and proceed “downward” to claims of fact. Although we proceed through the stases in a linear fashion, we call attention to the complex interrelationships among questions posed at all levels and move forward in time to consider how public health nutrition policy created in 1980 has influenced subsequent scientific knowledge and policy. The *DGA* makes a number of claims about relationships between food and health; for our analysis we focus on the recommendation that, in order to prevent chronic disease, Americans should strive to “maintain an ideal weight” by balancing “calories in” and “calories out” (USDA & HHS, 1980, p. 7), as this has become a primary focus of public health nutrition interventions and nutrition research.

ASSUMPTIONS OF INNOVATION: POLICY AND ITS TARGET POPULATION

Historians concur that moral and aesthetic concerns about fatness preceded medical ones early in the 20th century, but medical concerns about obesity were reinforced by persistent associations between increased body weight and shortened lifespan found by life insurance actuaries (Farrell, 2011; Stearns, 2002). Despite popular concern with body size, nutrition experts recognized that such associations could simply be “predictive” rather than “causal” (Stampfer, Ridker, & Dzau, 2004); in other words, just as “skirt wearing” can predict who might be more likely to get breast cancer, “obesity” might help predict who may be more likely to develop a chronic disease, without obesity being itself a cause. The first long-term observational study to follow a selected population while collecting information on diet and the development of heart disease, the Framingham Heart Study, found that effects of obesity are mediated through other risk factors, suggesting that some forms of obesity may be a symptom of the metabolic dysregulation that leads to chronic disease, not an independent factor in its

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development (Van Itallie, 1979). Some nutrition experts remained unconcerned about obesity as a risk factor in the development of heart disease (Keys, 1981), and others argued that obesity was not, in and of itself, a health problem (Friedman, 1974). Even those convinced of links between obesity and chronic disease did not agree that managing caloric balance was the most salient factor in weight gain or loss (Bauer, 1941; Mackarness 1975; Yudkin, 1963). Despite these disagreements, the 1980 *DGA* asserts that associations between obesity and chronic disease are causal in nature, advising Americans to keep their weight within an “acceptable range” in order to reduce “chances of developing some chronic disorders” (USDA & HHS, 1980, p. 7). Further, the 1980 *DGA* emphasizes that managing body weight is a straightforward undertaking: “one thing is definite: to lose weight . . . you must either select foods containing few calories or you must increase your activity—or both” (USDA & HHS, 1980, p. 7). Within the context of this public health message, uncertainties from nutrition science disappear.

For Dutta (2010), examining the assumptions about obesity presented in the 1980 *DGA* might begin with the assumption of “innovation.” This is the assumption that the intervention is relevant to the community at which it is directed, and individuals and communities who are targets of the intervention would frame the problem and its solutions as outside experts have. Dutta argues that this assumption may undergird the agendas of policymakers but disregard the concerns and circumstances of targeted individuals and communities. Thus, it is important to understand the context surrounding the development of the *DGA* and the “publics” being targeted.

In the late 1970s and early 1980s, inflation and a stagnant economy, among other reasons, derailed efforts to create a national health insurance, leading to efforts to control healthcare costs rather than expand coverage. In public health discourses, prevention of chronic disease began to be reconceptualized as an issue of individual responsibility. The rise of “privatized, market solutions to public problems” that would be advanced with the growth of “Reaganomics” manifested concomitantly in public health nutrition (Crawford, 2006, p. 409). When recommendations to “maintain an ideal weight” were given to Americans, “the public” evoked was treated as homogenous, with the *DGA* providing a “one size fits all” answer to the problem of chronic disease. But populations identified as the bearers of the threat to the nation’s health did not necessarily have the resources to “choose” the path to health through “privatized market solutions.”

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In 1978, women were far more likely to be categorized as obese than men, and black women were more likely to be categorized as obese than white women; the highest rates of obesity were among older black women whose incomes were below the poverty level (Bray, 1979). The epicenter of the “obesity epidemic” that policymakers sought to forestall via the *DGA* was located within a population that was female, minority, and poor. At the same time, even before the 1980 *DGA* was created, many middle-class American professionals had begun to take up low-fat diets and exercise routines (Crawford, 2006). To the extent that cultural values are expressed in policymaking, the *DGA* was a response to these middle-class secular trends (Woolf & Nestle, 2008), creating a sort of “trickle-down” approach to dietary health that paralleled that of “Reaganomics”: Low-income minority women need only take up the lifestyles and eating habits of white, middle-class professionals, and they, too, could reduce their rates of obesity (and thus chronic disease) and prevent a looming public health crisis. The *DGA*’s straightforward path to weight loss is constructed as simply a matter of making the “right” choices. This message implies that the population seen as most in need of a health intervention was not already making appropriate choices about food and activity (ostensibly as evidenced by higher rates of obesity). Further, it implies that chronic disease prevention can be best assisted by the adoption of wealthier, white lifestyles and diets, rather than, for example, increased access to affordable healthcare or a living wage.

ASSUMPTIONS OF UNIVERSALITY: EMBEDDED VALUES

Just as values may be carried “upward” when an array of scientific claims must be translated into actionable policy, policy can embody values that are perpetuated in ongoing scientific agendas. *DGA* recommendations institutionalized values of middle-class professionals that placed body weight and health outcomes fully under the control of an “autonomous, prudent and self-responsible individual” (Crawford, 2006, p. 410), despite ongoing scientific debate about how to manage body weight and its role in the development of chronic disease. As a number of critics at the time pointed out, focus on individual responsibility for making the “right” food and activity choices was likely to yield “trivial and superficial approaches to health promotion” and shift attention away from the government’s responsibility to address structural inequalities in economic, environmental, and social

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conditions that contribute to poor health (see, for example, Eisenberg, 1977). Indeed, this shift took place not only in nutrition policy, but in the science that supports it.

With public health nutrition policy prioritizing individual behavior change as a means of preventing chronic disease, most observational studies published after the 1980 *DGA* have focused on “risk factors” (e.g., diet) related to chronic disease deemed to be under the control of the individual rather than the contribution of social inequalities and structural discrimination to health differences (Krieger, 2011). Under the framework of “bio-medical individualism” (Fee & Krieger, 1993), what variables are included or excluded from a model may be treated by the researchers as “self-evident, requiring no analysis, or else simply a matter of idiosyncratic inspiration (or ideological proclivities)” (Krieger, 2011, p. 273). And, as epidemiologist Neal Pearce (1996) explains, researchers are more likely to be interested in risk factors they can relate to; nutrition science researchers must make daily decisions about their diets but are unlikely to be at risk of being poor. Because epidemiology operates in a largely atheoretical fashion (Krieger, 2011), the *DGA*'s emphasis on personal responsibility and individual choice continues to provide a unifying conceptual lens for observational studies and other studies linking diet to chronic disease.

This was not an inevitable development. Studies dating back to the mid-1960s indicate that obesity is strongly related to socioeconomic and social status (Goldblatt, Moore & Stunkard, 1965), factors largely beyond the control of the individual. Certainly, the data from the U.S. government's own surveys, noted earlier, indicate distinct differences in obesity prevalence based on race, gender, and income. However, the value of individual responsibility embedded in the *DGA* ensures that even the most complex account of the factors that contribute to obesity has at its center an individual who is responsible for managing the balance of “calories in and calories out” (HHS & USDA, 2015; Vandebroek, Goossens & Clemens, 2007). Scientific findings from this approach not only support the logics of neoliberal “privatized, market solutions to public problems,” but provide the links between middle-class attention to “healthy” behaviors and an already-healthy middle class. These links could then be used to assert that relationships between healthy behaviors and better health are causal. The assumption—formalized into policy as the *DGA*—that individual behavior change would have a stronger influence on health outcomes than improving

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economic, environmental, and social conditions influenced what factors were claimed to determine the causes of chronic disease.

ASSUMPTIONS OF EFFECTIVENESS: ASSIGNING CAUSE

When the *DGA* was created in 1980, evidence linking obesity to increased risk of chronic disease was limited; evidence that showed a causal connection was non-existent (Willett, 2018). Because findings from observational studies of diet and chronic disease are only associations, early researchers in this area were hesitant to claim causal relationships (Blackburn & Labarthe, 2012). However, in the years following the advent of the *DGA*, researchers conducting observational studies of nutritional epidemiology of chronic disease had fewer qualms in this regard. There remained the potential that the associations seen between dietary practices and health outcomes could be explained by underlying confounding relationships—such as those related to social inequalities and structural discrimination—but the *DGA*'s focus on factors that could be controlled by the individual made it unlikely that any other potential causes would figure prominently in explanations for the development of chronic disease.

Beginning in 1980 and continuing to this day, researchers at Harvard have tracked the eating habits, body weights, and health outcomes of “a large population of intelligent cooperative, and health-conscious” nurses, a population “generally white, thinner, . . . more highly educated, and [with] better access to medical care” than the rest of the U.S. population (Belanger, Hennekens, Rosner, & Speizer, 1978, p. 1039; also see Nelson, 2000). These researchers have found that nurses who weigh less are less likely to develop chronic disease or die prematurely. However, these women are also more likely to engage in many other health-related behaviors and to belong to social groups that value a slender body, a preference that aligns with the values of individual responsibility embedded in the *DGA*. The Harvard researchers explain their findings as a cause-effect relationship in ways that also align with the *DGA*: “[e]xcess body fat is a cause of cardiovascular diseases, several important cancers, and numerous other medical conditions” (Willett, Dietz, & Colditz, 1999, p. 427). Likewise, analysis of the U-shaped relationship between body weight and mortality (mortality is higher at both low and high body weights) supports the causal assumptions of the *DGA*, but in a paradoxical manner: High body weights are assumed to cause disease;

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low body weights are assumed to be caused *by* disease (Willett, Dietz & Colditz, 1999). Notably, these researchers further declare that their findings should be used to create public health messages cautioning against higher body weights and weight gain for all Americans. These assertions not only illustrate a rhetorical shift in the use of cause-effect language but also conflate the scientific enterprise of developing nutrition knowledge with the political enterprise of developing national nutrition policy (Menachami et al., 2013).

Evidence from Harvard's study of nurses has been central in reinforcing the core messages of the *DGA* (Hu et al., 2016), although investigations that do not align with *DGA* assumptions express their findings and influence policy differently. A study contemporaneous with that of the Harvard nurses shows that associations between obesity and mortality are much weaker among black women and are absent altogether among black women with low levels of education (Stevens et al., 1998). This study does not use cause-effect language to explain these findings, nor do researchers suggest that policy be modified to exempt these subpopulations from *DGA* recommendations—nor has the *DGA* been so modified. Thus, the *DGA* not only suggests a way to interpret evidence so that it aligns with assumptions embedded in its messages but also acts to reinforce findings that agree with its messages by including them in future policy. This illustrates the multi-directional entanglement of policy, privilege, and science that defines health for all Americans as managing body weight in order to prevent chronic disease, even when it seems that for some Americans, this is not related to improved health (Medvedyuk et al. 2017; Sturgiss et al. 2017).

ASSUMPTIONS OF CRITERIA: CONSTRUCTING REALITY

Defining health as managing body size is in turn linked to the need for consistent criteria for establishing what a “healthy” body size is. Dutta's (2010) “assumptions of criteria” challenge RHM scholars to ask, “From where do these criteria emerge?” One criterion that has been central to the public health focus on obesity has been BMI. Also called the Quételet index after the Belgian mathematician who created it, BMI ($BMI = \text{kg}/\text{m}^2$, where “kg” is body weight in kilograms, and “m” is height in meters) is a statistical formula expressing how relationship between weight and height would conform to a normal probability curve describing the build of an “average man”

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in 19th-century Belgium (Jelliffe & Jelliffe, 1979). It has no medical or biological basis in disease etiology and thus has only predictive, not causal, implications. Nevertheless, BMI is used to categorize bodies as “unhealthy,” a categorization that has more to do with the influence of the *DGA* and its assumptions than with the concerns or experiences of those targeted by this criterion.

In the early 1970s, researchers used measurements taken from men around the globe to validate the use of BMI as a relative measure that would “remove the dependency of weight on height” and provide a measurement for relative body fatness (Keys, Fidanza, Karvonen, Kimura, & Taylor, 1972). Keys et al. (1972) noted at the time that “it is scientifically indefensible to include a value judgment” of “desirable” or “undesirable” in an objective description of relative body mass (p. 664). In fact, BMI was rarely used in this manner until the 1990s (Nuttall, 2015). Conducted as part of the surveillance of “the public” needed to measure the impact of the *DGA*, research published in 1994 used BMI values to categorize individuals as overweight (BMI \geq 27.8 and 27.3 for men and women, respectively; “obesity” was not used) and noted a sharp increase in rates of “overweight” beginning in 1980 (Kuczmarski et al., 1994, p. 211). This study also showed the same population differences as research published 15 years earlier (Bray, 1979); older women categorized as black or African-American were more likely to be “overweight” than other subgroups. Although the researchers noted that “no one has yet found a satisfactory way to achieve long-term weight reduction that works on a population-wide basis” (Kuczmarski et al., 1994, p. 210), a *Time* magazine article published in response to these findings echoed the cause-effect assertions in the *DGA*, claiming that “despite all the fuss about diet and fitness, Americans in the ’80s ate too much and exercised too little” (Elmer-Dewitt, 1995, p. 61). As concerns about this newly discovered “obesity epidemic” grew, the cascade of assumptions institutionalized in the *DGA* ensured that explanations for higher body weights were attributed causally to poor calorie management and not to other explanatory factors such as increases in income inequality that occurred concomitantly with higher rates of obesity.

As a means of tracking and studying the very “obesity epidemic” that the 1980 *DGA* was supposed to prevent, BMI has become ubiquitous in research articles as a way to relate body fatness to health outcomes. PubMed shows just seven articles for 1980 using this measure to assess obesity. Nearly

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300 articles on BMI and obesity were published in 1990, over 1,000 were published in 2000, and over 7,000 were published in 2017.⁴ The unclear relationship that BMI has to health outcomes and longevity in humans belies its origins as a statistical formula (Heymsfield, Peterson, Thomas, Heo, & Schuna, 2016); some research indicates that—as defined by BMI—lower ranges of “obesity” are not associated with higher mortality rates and “overweight” is associated with lower mortality rates, relative to “normal weight” individuals (Flegal, Kit, Orpana, & Graubard, 2013). Yet nutrition scientists have continued to rely on BMI as a measure of health, extrapolating its use to measure health in rats (Mutiso, Rono, & Bukachi, 2014), a treatment that assumes BMI corresponds to a material reality rather than a statistical or rhetorical one. Using BMI to measure health in rats illustrates the assumption that “calories in, calories out,” body size, and health outcomes can be controlled and monitored the same way in public health as in a lab. It effectively removes from consideration the effect of social inequalities and structural discrimination on health outcomes, just as the 1980 *DGA* did.

Just as cause-effect assumptions regarding body size and health operate to reflect and reinforce policy, so do criteria used to measure body size. Although absent from earlier editions, the 1995 *DGA* includes a BMI chart with yellow, orange, and red zones to indicate “healthy” and “unhealthy” weights in individuals, in direct contradiction to its intended use as a statistical measure for populations (HHS & USDA, 1995). BMI has continued to be used to categorize body weights as “healthy” or otherwise in every edition of the *DGA* since.

Conclusion

The *DGA* not only provides an example of how scientific claims are translated into policy via dominant values, but shows how those same values and claims, now certified as policy, shape future scientific endeavors. In public health nutrition, policy is shaped by biomedical approaches that assume a positivist idea of scientific progress. But, the *DGA* also reproduces the values of restraint and self-discipline that are social norms of the middle-class professionals whose expertise is part of the policymaking process. A

⁴The following PubMed search terms were used: (“body mass index” OR “Quetelet index” OR BMI) AND obesity.

failure to interrogate assumptions behind public health nutrition policies—of “settled” scientific issues, of universal values, and assumptions related to populations targeted—obscures how these are replicated in subsequent scientific endeavors and how “the public” gets defined and managed.

Certainly, in nutrition science—and we presume, in other areas where science-based policy is meant to produce behavior change, and those changes must be monitored, measured, and analyzed in the service of policy evaluation—a critical engagement with scientific claims entails a critical engagement with the policies related to those claims and the value systems that shaped them. Public health policy imports the values of policymakers into messages of scientific certainty that obscure not only the socially constructed nature of science, but the interplay of power and control present in the formulation of health problems, the development of solutions, and the characterization of targeted populations (Dutta, 2010). In concert with these perspectives, a stasis theory adapted to a critical public health approach offers much practical potential for RHM scholars to engage with the field of public health more broadly. As a means of critical inquiry into complex relationships among policy, values, and science, this framework allows researchers to examine unquestioned assumptions embedded in public health nutrition messages and measures employed to evaluate them. RHM scholars are already familiar with ways in which dominant cultural values and perspectives are perpetuated through rhetorics of health and medicine; the correspondence between the stases and Dutta’s (2010) set of assumptions provides a way to extend this critical perspective to public health messages and their related scientific endeavors. Specifically, linking the stases to the set of assumptions from Dutta’s critical approach to health communication, which are themselves posed in an overlapping, non-linear fashion, draws attention to the complex interactions taking place among all levels of questioning when creating, implementing, evaluating, and extending public health policies, programs, and practices.

For example, in the case of the *DGA*, a commonly held assumption is that observational studies from nutritional epidemiology provide appropriate evidence on which to base dietary guidance for the prevention of chronic disease. Beginning with the foundational Seven Countries Study begun by Ancel Keys and colleagues in 1958, these types of studies have provided the rationale for *DGA* recommendations, despite criticisms that such studies are not evidence of a cause-effect relationship. Problematically, after the 1980 *DGA* established the general features of what ought to be considered a

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“healthy diet” and “healthy weight,” the potential bias already present in these kinds of studies was magnified considerably. The white, middle-class professionals most concerned with the pursuit of health were the same populations followed in the most influential post-1980 studies, as indicated by their names: the Nurses’ Health Study, the Health Professionals’ Follow-up Study, and the Physicians’ Health Study. But the precedent for using these studies to create the *DGA* had already been set, a situation that served to reinforce *DGA* recommendations, the perceived validity of these studies, and the social norms around dietary habits and body size that both represented. However, by questioning not just the criteria for determining “healthy weight,” as many critical scholars of obesity do, but the values embedded in public health policy that necessitated these criteria, an adapted stasis theory framework creates opportunities to uncover possible alternative approaches. These might include emphasizing contributions from other fields of nutrition science (for example, biochemistry and physiology) in creating dietary guidance, rather than relying primarily on nutritional epidemiology.

Another kind of critique might focus on the assumption that the *DGA*’s generalized nutrition advice is the appropriate means for communicating about food and health to all Americans. This assumption directly impacts how “the public” of public health is understood and subsequently treated. One emerging model for interrogating paradigmatic assumptions of nutrition science and advocating for alternative approaches for conceptualizing the public in “public health” is the Culture-Centered Approach (CCA). Created by Dutta (2005), the CCA is a lens for understanding science-based policy that resonates with the work of RHM scholars. Built on the notion that ways of understanding and negotiating the meanings of health are embedded within cultural contexts and the values deeply connected with them (Dutta, 2008), this approach interrogates erasures in public health messages that homogenize populations, their needs, and their concerns. It argues against a one-size-fits-all approach toward intervention and seeks to engage communities at the local level. This agenda can gain traction when paired with rhetorical work that makes use of stasis theory to illuminate entangled relationships between policy and fact.

Other critiques might challenge assumptions embedded in the *DGA*’s focus on individual consumption practices and rhetorics of personal responsibility. As is, these assumptions reduce complex social-environmental models of health to individual responsibility for balancing “calories in” and “calories out.” Interrogating embedded assumptions in the *DGA* entails

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shifting attention to larger structural issues that occur “upstream” of the individual without losing sight of how such assumptions have constructed an individual whose agency and biology is both asserted and undermined. Such investigations might include a focus on, among others, animal husbandry, environmental conservation, and sustainable farming practices (Cohen, Aboelata, Larijani, & Mikkelsen, 2004), whiteness and privilege in food reform efforts (Alkon & Agyeman, 2011; Slocum, 2007), unquestioned assumptions of nutrition science (Hite et al., 2010), and neoliberal critiques of food activism (Guthman, 2008; Sbicca & Meyers, 2017). Such investigations could lead to more nuanced, accurate understandings of public health’s public and the ways that individuals coalesce as a collective to engage in everyday health.

All of these embedded *DGA* assumptions must be understood as a complex mix of mutually influential scientific claims, dominant values, and policy imperatives. Combining stasis theory with critical health communication scholarship emphasizes how public health policy and public health science rely on these assumptions to “settle” questions at each level of stases. This framework encourages RHM scholars to interrogate these assumptions, to investigate how they might influence or shape arguments at other levels, and to make explicit the relationships among dominant value systems and ideologies, science-based public health policies, and the scientific claims used to reinforce and perpetuate these policies. This adapted approach offers numerous insertion points for RHM scholars to leverage their critical expertise in the service of meaningful engagement with science-based public health policy.

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