

FOCUS: VACCINES

Healthy Bodies, Toxic Medicines: College Students and the Rhetorics of Flu Vaccination

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This article examines flu vaccination beliefs and practices produced during a survey of undergraduate students in Spring 2012 (IRB#10-732). This research uses the methods of rhetorical analysis — or the study of persuasive features and arguments used in language — to examine statements respondents made regarding flu and flu vaccine. In these responses, students generated unique categories of arguments about the perceived dangers of flu vaccination, including the assertion that vaccines cause disease (including illnesses and conditions other than flu), that vaccines are toxic medicines, and that vaccines carry unknown, population-wide risks that are inadequately acknowledged. This study provides insight into vaccination beliefs and rationales among a population at risk of flu (college students) and suggests that further study of this population may yield important keys to addressing flu vaccine concerns as expressed by college students. Rhetorical analysis also offers a useful set of methods to understanding vaccination beliefs and practices, adding to existing methods of study and analysis of vaccination practices and beliefs in medicine and public health.

Sometimes too much science can contribute to sickness.

— Survey Respondent

INTRODUCTION

Influenza (flu) has both global and local consequences. Preventing the spread of flu is an international and national priority requiring coordination among govern-

ments, non-governmental organizations (NGOs†), and other political entities. At the same time, flu prevention occurs most often at the local level, through the care of a private medical practitioner, student health center, or local health department. Given the intensely global and local consequences of influenza, health officials constantly struggle with how to best communicate the risks of flu and the benefits of flu vaccina-

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†Abbreviations: NGO, non-governmental organization; CDC, Centers for Disease Control and Prevention; ACIP, Advisory Council for Immunization Programs.

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tion — the predominant method of flu prevention preferred by health officials — particularly to young adults whose perceptions of risks and media consumption habits are different than the typical targets of flu vaccination campaigns, such as young children, the infirm, and the elderly.

Flu is a viral illness that typically causes disease of the respiratory tract. Influenza A and B strains circulate annually during flu season (roughly September through March, though seasons can run shorter or longer). Flu is described generally as a moderate to severe disease, which can in some cases cause hospitalization and deaths [1]. The impact of flu outbreaks on college campuses has been studied extensively. Studies have shown that students and university systems are particularly vulnerable should such an outbreak occur on campus, because students, faculty, and staff living and working in close quarters provide optimal conditions for many communicable diseases to spread and local health centers could become easily overwhelmed by demand and absenteeism [2-7]. Even an outbreak of flu that appears small nationally, if contained within one university or even one residence hall, could significantly disrupt university activities and overwhelm local health systems [8].

Young adults and college students were particularly vulnerable during the 2009/2010 H1N1 pandemic. In the early wave of the pandemic, 73 percent of cases of H1N1 occurred in patients younger than 24 years of age, prompting the Centers for Disease Control and Prevention (CDC) to issue special guidelines on flu prevention to institutions of higher education [7,9,10]. However, H1N1 vaccination rates for young adults remained low. The overall vaccination rate across the United States was only 27 percent (Healthy People 2020 guidelines have a goal of 70 percent flu vaccination coverage among healthy adults with no risk factors). Vaccination coverage for children and young adults ages 6 months to 24 years specifically are not available from the CDC, though the overall vaccination rate for adults older than 18 was 22.7 percent, and the vac-

ination rate for all initial target groups (which included pregnant women, caregivers of young children, and adults with high-risk medical conditions) was 34.2 percent, well below public health goals to vaccinate everyone in high risk groups [10-12].

The Advisory Council for Immunization Programs (ACIP) expanded its guidance to recommend that all children and adults older than 6 months receive an annual flu vaccination in 2010, officially including otherwise healthy adults — as well as young adults and college students — among those who should be vaccinated annually [13]. However, in the three flu seasons for which data are available since that change in recommendation, adults from 18 to 49 years of age have consistently had the lowest vaccination rates among all age groups [14-16]. Persuading this group to vaccinate, therefore, remains a public health challenge. This challenge is compounded by a variety of other factors about vaccination, including significant skepticisms about flu vaccine first expressed during the 2009/2010 pandemic [17], a national anti-vaccination context that questions the safety and efficacy of many vaccines (including flu vaccine) [18-21], as well as various forms of skepticism about flu vaccine that operate differently at local levels and distinctly from national anti-vaccination sentiments [22,23].

This article reports on a survey of college students' beliefs about flu and flu vaccination, analyzing the arguments that young adults use when describing their perspectives on vaccinations as a component of overall health maintenance. Rhetorical analysis of qualitative, open-ended responses reveals unique forms of argumentation and perspectives on health and wellness, reflected in respondents' positions on flu vaccine. These responses included novel claims of vaccine skepticism, perspectives on health and the body, and rhetorics about the efficacy of vaccination. Although not generalizable to the entire population, rhetorical analysis reveals unique modes of argumentation as articulated among one group of young adults, complicating global assumptions about young adults' vaccine practices and beliefs.

COLLEGE STUDENTS AND VACCINATION

College students are notoriously difficult to vaccinate against the flu. The most recent studies on college students and flu vaccination practices found a range of barriers to vaccination. Lee et al. (2012) studied H1N1 vaccination practices of medical students in England and found that, although this population reported higher levels of vaccination (49.2 percent) than other segments of young adults, even medical students still expressed barriers to vaccination such as “fear of side effects (67.9 percent), lack of vaccine information (50.9 percent), lack of perceived risk (45.3 percent), and inconvenience (35.8 percent)” [24]. Poehling et al. (2012) studied 2009/2010 H1N1 flu vaccination rates at eight colleges in North Carolina and found that factors such as being a freshman, parental educational status, and involvement in school activities were positive predictors of vaccination [6]. Ravert et al. (2012) studied reasons for low acceptance of H1N1 vaccine according to the health belief model and found that negative perceptions of flu vaccine efficacy was the biggest determinant of non-vaccination — i.e., students expressed safety and effectiveness concerns about the vaccine as outweighing their concerns about contracting the disease it was intended to prevent [25]. Meagan Ramsey and Cecile Marczynski’s (2011) study of H1N1 flu vaccination risk produced similar findings. The majority of respondents reported safety and efficacy concerns (responding positively to statements such as “It [the vaccine] will not work” or “There has not been enough testing” on the questionnaire) as the chief reasons college students produced for not vaccinating against H1N1. Nearly all of these studies suggest that better information and increased knowledge about the safety and efficacy of vaccinations would offer an effective mode of intervention for increasing vaccination rates among this at-risk population [26].

Z. Janet Yang’s (2012) study of college students and flu vaccine practices suggests some slightly different findings regarding reasons for vaccinating or not vaccinating

based on perception of disease in addition to perceptions of the vaccine. Yang found that college students responded to the exigencies surrounding H1N1 influenza in different ways than other groups did. Some were overly optimistic about their abilities to fight off disease, some were overly concerned about the possible damages of the vaccine, and others were overwhelmed by public health information, which they perceived as “hype.” These perceptions led to extremes in terms of fear, optimism, and information overload among college students. To be effective, Yang concludes, flu vaccine interventions need to emerge from specific lessons learned from college students’ levels of vaccine acceptance, rather than by applying strategies developed in other populations. Yang also notes a great degree of variability among student responses to flu vaccine and flu vaccine promotional materials, indicating that a local approach to studying vaccination beliefs and habits might be necessary to ascertain the various perspectives college students have on vaccination [23]. Findings like those determined by Yang, as well as the persistently low rates of vaccination among young adults, suggest that a new approach to understanding vaccine hesitancy might offer useful perspectives on why certain facets of this group do not choose to vaccinate. The study reported here uses the methods of rhetorical analysis, discussed further in the next section, to analyze the persuasive elements of vaccine hesitancy as offered by respondents to a survey of college students.

RHETORICAL ANALYSIS AND STUDY DESIGN

Though often known more popularly as “empty language,” the discipline of rhetorical studies defines *rhetoric* more broadly, as any language that responds to and within the constraints of a given situation for the purposes of persuasion or argumentation. Aristotle defined rhetoric as “an ability in each [particular] case, to see the available means of persuasion,” emphasizing rhetoric as an action or a process, rather than a product [27]. Rhetoric,

Table 1. Vaccinators and nonvaccinators: Survey responses to basic questions about flu.

Question	Response Option	Number of Responses	
		Vaccinators (n=189)	Nonvaccinators (n=376)
Question 1: Have you ever had the flu?	Yes	126	229
	No	50	96
	Don't Know	11	49
	Blank	2	2
Question 2: Has anyone in your household (at home or at school) had the flu?	Yes	151	290
	No	22	50
	Don't Know	12	34
	Blank	3	2
Question 3: How long do you think it usually takes to recover from the flu?	<24 hrs	1	4
	1-2 days	14	40
	3-4 days	63	117
	5-6 days	61	103
	1 week or more	50	98
	Blank	0	4
Question 4: Who do you think should be vaccinated against the flu?	All adults and children over 6 mo.	151	127
	Anyone with a weak immune system	31	177
	Children	2	18
	Pregnant women	1	5
	Seniors citizens	3	3
	Blank	1	1

under this conception, is the practice of working within a context and being responsive to it. Rhetorical theorist Kenneth Burke argues that this process of “seeing the available means of persuasion” necessarily involves identification, whereby “a speaker persuades an audience by the use of stylistic identifications ... the speaker draws on identification of interests to establish rapport between himself and his audience” [28]. Through identification, rhetors aim to connect to their audiences by producing arguments that are likely to be recognizable, create connections, and have the potential to persuade the audience that the speaker addresses. In turn, the practice of rhetorical analysis aims to do two things: first, to analyze how speakers use language and style of argumentation to persuade, justify, or describe their positions; and second, to analyze how those arguments reflect the persuasive context of a particular issue.

From a rhetorical perspective, both language use and style of argumentation reflect the attempt that a rhetor makes to form identifications with the audience, as a way of enacting the available means of persuasion in a situation. Units of analysis could include arguments that reflect particular kinds of reasoning practices or preferences; appeals to the speaker’s credibility (*ethos*) or that appeal to logic (*logos*); or commonplaces, or shared cultural values or ideals. These arguments are then understood to be part of the persuasive context of an issue because the use of an argument reflects a rhetor’s assumptions about the shared understanding (identification) he or she might forge with an audience. The discourse need not actually persuade to be significant. From a rhetorical standpoint, what rhetors think will be persuasive is just as key to understanding the persuasive context as is how audiences

Table 2. Vaccinators' rationales for vaccinating (responses to question 6b, "If you did receive a flu vaccination, which of the following best characterizes the main reason for your decision?").

Response Option	Number of Responses
The flu vaccination was free, covered by insurance, or convenient for me to get	60
A health care provider, family member, or friend recommended that I get the vaccine	69
I wanted to avoid missed work or passing the flu to family members and friends	29
I have gotten the flu in the past and want to avoid getting it again	26
I saw reports about the flu vaccine on TV, in newspapers and magazines, and/or on the Internet that made me confident that the flu vaccine would prevent the flu	3

Table 3. Nonvaccinators' rationales for not vaccinating (responses to question 6a, "If you did not receive a flu vaccination, which of the following best characterizes the main reason for your decision?").

Response Option	Number of Responses
The flu vaccination was too expensive or not convenient for me to get	68
A health care provider, family member, or friend recommended that I not get the vaccine	17
I want to avoid the side effects of the flu vaccine or am worried about contracting the flu from the vaccine	35
I am not worried about getting the flu and do not think I need to get the flu vaccine	222
I saw reports about the flu vaccine on TV, in newspapers and magazines, and/or on the Internet that made me unsure about the flu vaccine	9
I cannot be vaccinated because of allergy or other contraindication	5
I contracted the flu and therefore did not need to be vaccinated this season	6

react. The existence of a particular argument indicates the rhetor perceives that it will be responsive to an element of an issue's context.

To study the rhetorics of flu vaccination used by a group of college students, this study elicited responses to closed- and open-ended online survey questions and asked students to describe their beliefs and per-

spectives on flu vaccination. For this study, 569 college undergraduates responded to a survey circulated at a large land-grant university in the southeast United States (this research was approved for human subjects research, IRB#10-732). Although all undergraduate students were eligible to participate in the survey, it was directly sent through email listservs to one college within the uni-

Table 4. Vaccinators' and nonvaccinators' measures of health and flu risk.

Question	Number of Responses			
	Vaccinators (n=189)		Nonvaccinators (n=376)	
	Strongly Agree/ Agree	Strongly Disagree/ Disagree	Strongly Agree/ Agree	Strongly Disagree/ Disagree
10: College students are likely to get the flu.	180	8	311	62
11: The flu is a serious disease for college students.	137	52	156	217
15: I get colds and illnesses frequently.	47	142	67	307
16: I have chronic health problems that increase my risk of getting really sick with the flu.	28	161	15	359
17: If I were to contract the flu, my school and work commitments would be significantly disrupted.	161	26	251	123
18: If I were to contract the flu, I would likely be hospitalized or suffer long-term effects from this illness.	7	182	5	369
19: I rarely get sick.	119	68	273	102

versity and four academic departments that agreed to participate. The survey was distributed at the end of the flu season (April-May) to gain data from the most recent flu season. This convenience sample is not intended to provide inferential or generalizable data; the purpose of the data collection was to gather descriptive data about attitudes toward flu, vaccination, and health to build understanding about the diverse persuasive context within which flu vaccine rhetorics exist by generating arguments for rhetorical analysis.

The survey questions assessed both a respondent-generated report of vaccination practices and behaviors alongside arguments against flu vaccine. The first four questions (Table 1) asked students about their experiences with and knowledge about the flu and flu vaccine recommendations. Question 5 asked students whether they had vaccinated in the most recent year. Question 6 asked

students to report their reasons for vaccinating/not vaccinating (Tables 2 and 3). Questions 7 through 9 asked students where they went for information about flu and flu vaccine. Questions 10 through 19 asked students to rate college students' risk of flu, the best way to avoid getting the flu, and rate their own level of health relative to the flu and their school and work obligations (Tables 4 and 5).

Questions 20 through 23 asked participants to provide narrative responses about their opinions about flu and flu vaccine. Questions 20 and 21 were designed to create and generate the strongest reactions among respondents, asking students to either agree or disagree with the statement: "I think the flu shot could be dangerous to my health." This question was purposefully phrased in an overstated tone ("dangerous") to elicit the strongest opinions in agreement or opposition to the statement. The follow-up question,

Table 5. Vaccinators and nonvaccinators and the best way to prevent flu.

Question	Number of Responses			
	Vaccinators (n=189)		Nonvaccinators (n=376)	
	Strongly Agree/ Agree	Strongly Disagree/ Disagree	Strongly Agree/ Agree	Strongly Disagree/ Disagree
12: The best way to avoid getting the flu is by sanitary measures, such as hand washing and hand sanitizer.	167	22	343	28
13: The best way to avoid getting the flu is by diet and lifestyle changes, such as eating healthy food, getting extra sleep, and taking vitamins.	118	60	298	76
14: The best way to avoid getting the flu is by getting a flu shot.	157	32	171	204

question 21, asked respondents to state why they felt the flu shot could be dangerous to health (Table 6). These were the only questions that were specifically intended to generate argumentative responses, aside from the general reflection on health and its relationship to vaccination practices created through the sequence of the early questions. Question 23 invited respondents to share any thoughts they had about flu or flu vaccine, asking, “Are there any other thoughts you would like to share about flu and flu vaccination?” Some respondents used this space to offer positive comments about flu vaccine as well, though the rhetoric of vaccine skepticisms will be the only data analyzed here. The final four questions asked for demographic data. The survey included a total of 30 questions.

The questions were designed to produce answers that would address the following research questions:

1. How many students obtained a flu vaccine? Why did they vaccinate/not vaccinate?

2. How did students perceive their own level of health and risk of flu?

3. How did students perceive flu vaccine as a viable flu preventative in comparison to other preventive health behaviors?

4. Among those skeptical about flu vaccines, how did they articulate arguments,

justifications, and descriptions about the flu vaccine?

The rhetoric of the questions themselves attempted to shift respondents’ thinking throughout the survey from basic questions about vaccination practice and rationale (questions about vaccine decisions), to personal health, to preferred preventive medicine and health maintenance behaviors, and, finally, to beliefs about the flu vaccine. The responses to question 21 were then analyzed according to the rhetoric — analyzing both language use and style — that the students produced in describing their arguments about the dangerousness of flu vaccine (Table 6). From an initial analysis, a set of themes was identified, and the arguments were reviewed and thematic codes refined until all arguments were accounted for. This method of analysis examines the persuasive context of flu vaccine skepticism, as elicited from the discourses students produced to argue their positions on vaccination.

SKEPTICISM AND REPORTED VACCINATION PRACTICES

Out of 569 respondents, 33 percent received the flu shot during the 2011-2012 flu season, a trend slightly higher than national numbers (Table 1 outlines flu experience by

Table 6. Common argumentative themes in response to Question 21: “If you think the flu shot could be dangerous to your health, please explain why.”

Theme: Vaccine Causes Disease		
Sub-theme	Sample Response	Number of Responses
Side Effects	I don't think the shot has been around long enough to prove it's safe yet, so I don't think it's safe until it's been around long enough that any adverse effects can be documented.	9
Personal Experience: With the Flu Vaccine	When I got the flu shot from a doctor's office last year, I experienced a fair amount of pain after I got the shot, and I experienced numbness in my arm for about 48 hours.	7
Personal Experience: Friend or Family Member	My mother had an allergic reaction that felt like the flu when she got the flu shot.	7
Flu Vaccine Causes the Flu	Since the vaccination is a live virus, it is possible that by getting the vaccine to prevent myself from getting the flu, I would actually contract it.	8
Vaccine is an Unnecessary Exposure to Disease or Risk	I think vaccinations in general are not a good thing. I think that they increase the risk of contracting the disease.	8
Theme: Medicine is Toxic/Body is Better on its Own		
Sub-theme	Sample Response	Number of Responses
Avoid Medicines or Toxins	The idea of injecting a mass-produced, watered-down virus into my bloodstream only to possibly avoid contracting a non-life threatening illness is ludicrous.	8
Immune System/Body Works Best on its Own	I prefer to keep my own immune system robust. I haven't gotten a flu shot in my 4 years of college, and have only gotten a mild flu once. Either I am lucky or I have a very good immune system.	8
Theme: Long-term, Far-Reaching Uncertain Effects		
Sub-theme	Sample Response	Number of Responses
NA	I believe that flu vaccines perpetuate the ever [sic] evolving virus and if people who are otherwise healthy are getting the vaccine regularly, they are putting themselves at risk for a new epidemic that cannot be predicted of having the virus mutate with another species strain.	9
Theme: Flu Vaccine is Ineffective		
Sub-theme	Sample Response	Number of Responses
NA	I don't think that there is a reason to get a vaccine that is an educated guess on which flu strain will appear that year because of the ever [sic] evolving virus. There is no point in catching two strains if you catch the actual one and one from being vaccinated.	9
Theme: Pharma/Crony Capitalism		
Sub-theme	Sample Response	Number of Responses
NA	Secondly, remember who is profiting from vaccinations. Obviously those making a great deal of money off of it will try to coerce people into believing they NEED the shot.	2

vaccination choice). Nationally, vaccination rates were only 28.6 percent for otherwise healthy adults aged 18-49 (precise data on 18-24 year olds, or those typically of college

age, are not available from the CDC) [16]. Across the closed-ended questions, students indicated a complex view of personal health, perceptions of flu, and ideas about the best

ways to prevent disease as it related to their vaccination decision. Overall, some themes that emerged across vaccinating students included a complex and often conflicting view on personal risk, community health, and the best way to prevent flu; by contrast, non-vaccinating students, though still conflicted about their own risk of flu versus the risks to college students more generally, were slightly more coherent in their rationales for not vaccinating, their views on flu seriousness, and their strategies for the best methods of flu prevention. Across both vaccinating and non-vaccinating students, however, is a persistent skepticism about the flu shot as the best method for flu prevention.

Among students who chose to vaccinate, their reasons for vaccinating were somewhat divided (Table 2); the two top reasons for vaccinating (11 percent and 12 percent of respondents, respectively) were “the vaccination was free, covered by insurance, or convenient for me to get,” and health care or family member recommendation. Two additional reasons — wanting to avoid missing work or school and wanting to avoid the flu based on past experience with the disease — each received 5 percent of responses. Vaccinating students expressed relatively high levels of personal health but concern about flu (Table 4). Although only 25 percent of respondents said that they get “colds and illnesses frequently” and 63 percent said that they “rarely get sick,” 72 percent either agreed or strongly agreed that the flu is a “serious disease for college students” and 95 percent either agreed or strongly agreed that college students were “likely to get the flu.” Vaccinating students also overwhelmingly estimated that their “school and work commitments would be significantly disrupted” if they were to contract the flu, with 85 percent of respondents agreeing to that statement.

However, vaccinating students were somewhat conflicted regarding the most preferred method for preventing flu. Questions 12 through 14 (Table 5) asked respondents to cite the “best way” to prevent the flu. Although 83 percent either agreed or strongly

agreed that the best way to prevent flu was the flu shot, slightly more respondents (88 percent) reported that they also thought that “sanitary measures, such as hand washing and hand sanitizer” was the best way to prevent flu. Additionally, 17 percent of vaccinators disagreed with the statement that the flu shot was the best way to prevent flu, indicating that they remained unconvinced that the vaccine was the best way to prevent flu despite being vaccinated. Finally, 62 percent of vaccinators also chose “diet and lifestyle choices” as a preferred means for preventing flu. Although there is clearly significant overlap in the choices students made regarding the “best way to prevent flu,” these data indicate that, even when students chose to vaccinate, students still saw other methods for flu prevention as equally or more viable than the vaccine.

Non-vaccinating student responses were slightly less conflicted regarding flu prevention, particularly with respect to vaccination (Table 3). Reported reasons for not getting the flu shot overwhelmingly included low perception of personal risk of contracting the flu, with 39 percent of respondents stating, “I am not worried about getting the flu and do not think I need to get the flu vaccine,” as the main reason for not vaccinating. The next-highest responses were convenience and cost (12 percent), and the third highest reason for not vaccinating was vaccine safety, with 6 percent of respondents expressing safety concerns. Non-vaccinating respondents reported high levels of personal health and lower levels of perceived flu risk (Table 4). Eighty-two percent of respondents disagreed with the statement “I get colds and illnesses frequently,” and 73 percent agreed that they “rarely get sick.” However, a majority (67 percent) reported that their “school and work commitments would be significantly disrupted” if they were to contract the flu. Similar to the vaccinating students, non-vaccinating students still had a lower level of expectation of flu susceptibility for college students generally than they did for themselves, with 83 percent either agreeing or strongly agreeing that college students were “likely to get the flu.”

However, non-vaccinating students were more likely to have a lower estimation of flu seriousness, with 58 percent either disagreeing or strongly disagreeing with the statement that “the flu is a serious disease for college students.”

Non-vaccinating students were slightly less divided regarding the best means for preventing flu (Table 5). For 91 percent of students, “sanitary measures, such as hand washing and hand sanitizer” were cited as the best means for preventing flu; 79 percent stated that diet and lifestyle were the best methods for flu prevention; and only 45 percent cited the flu shot. Notably, among the 45 percent of respondents who said that the flu shot was the best way to prevent the flu but were not vaccinated, 44 percent of those respondents cited cost or convenience as their reason for not vaccinating, so these are perhaps individuals who would have been vaccinated if it were available to them. Although there is clearly a perception that a variety of measures are necessary for flu prevention — flu vaccine, sanitary measures, and lifestyle changes — sanitary measures were offered as a more equivocal answer among this group for flu prevention.

Twelve percent of respondents agreed with the statement “I think the flu shot could be dangerous to my health,” 86 percent disagreed, and 2 percent (9) left the question blank. Overall, 62 people responded to the follow-up question, “If you think the flu shot can be dangerous to your health, please explain why” (Table 6). Of those, 54 answers were coded for arguments against flu vaccine (8 of the 62 responses were either non sequitur or provided arguments in favor of the flu vaccine out of possible misunderstanding of the question), and 75 distinct arguments were identified. Lengthier answers often contained multiple arguments that were coded separately.

Respondents provided a wide range of arguments as to why they thought the flu shot could be dangerous to their health. Rhetorical analysis was used to examine the language and style used to construct arguments about flu vaccine danger. Overall, five major argumentative categories, with eight

sub-themes, in language use were identified across the responses (Table 6).

Some of these responses are unsurprising and known responses to flu vaccine, such as concerns about flu vaccine causing the flu. However, two interlocking meta-arguments emerge across these statements that express skepticism about the role that vaccination plays in preventing flu: first, a conceptualization of the vaccine as something foreign and toxic that therefore has the potential to damage health; and second, a configuration of the body as something that operates more desirably without the interference of anything foreign — including medicines like vaccines.

PERSUASIVE CONTEXT OF VACCINE SKEPTICISM: RHETORICS OF DISEASE, TOXICITY, AND THE UNKNOWN

The analysis that follows examines the first three major categories of arguments — that flu vaccine causes disease, that vaccines and medicine are toxic, and that the vaccine has long-term consequences that are unknown. These arguments contain both novel perspectives on flu vaccine and demonstrate how respondents perceive the dangers of flu vaccine most specifically. Although not intended to be a generalizable or representative sample, this dataset offers descriptive perspectives on the persuasive field regarding flu vaccination among college students.

The Flu Shot Causes Disease

The flu shot as a cause of disease was an argumentative pattern throughout the narrative responses, though respondents used different argumentative styles, including types of evidence and assertions, to argue for how and when flu shots caused disease. Significantly, these arguments were more multifaceted than the standard known charge that flu shots cause the flu. Although some students directly stated that they felt the flu shot could transmit the flu virus to them, others made broader claims about the flu shot and its impact on health and illness.

Personal experience, either of the individual or his/her family and friends, was a

common style of argumentation that used *ethos* — or the credibility of the speaker — to establish the jeopardy involved in vaccination. Past experiences of parents and grandparents in particular were frequently referenced as a rationale for seeing the flu vaccine as either unnecessary or dangerous. The following statement is typical of such an argument: “My grandmother lived in a nursing home and was forced to get flu vaccines. She would protest and say no, but they would give it to her anyway. And EVERY time she came down with the flu. The few times my mom had the vaccine she also became sick.” Although this story also has elements of the argument that the flu vaccine caused someone to contract flu, the writer does not directly assert that the flu vaccine gave his grandmother the flu. Instead, he states that his grandmother was vaccinated and then came down with the flu, not directly attributing getting the flu to the vaccine itself. This before-and-after argumentation implies that there is a correlation between vaccine administration and contraction of the flu, but does not, at the level of language use, directly state that the flu shot caused the flu.

Respondents used before-and-after personal narratives to describe their own experiences with the flu shot as well, stating things such as, “The only time that I recall having the flu, which was many years ago, when I was a child, I had a flu shot that season.” Similarly here, when using the *ethos* of personal experience as the argumentative style, the speakers indicate a vague causal relationship between getting the flu vaccine and getting sick, citing the vaccine — not the virus — as the source of disease. This type of argument asserts that that the body was healthy prior to being vaccinated, that the experience of vaccinating coincides with the experience of illness, and that if the vaccination had not occurred, the person might have remained healthy. In each case, the vaccine is a cause of illness, rather than something that prevents it.

These more generalized arguments that flu vaccine caused illness contrast starkly to the direct statements that assert that the flu shot causes the flu. In these arguments, re-

spondents use a range of other persuasive devices, oftentimes quasi-scientific *logos* appeals:

- “Since the vaccination is a live virus, it is possible that by getting the vaccine to prevent myself from getting the flu I would actually contract it.”

- “By the nature of the flu shot, a small portion of the illness is introduced to your immune system so the body can build antibodies [sic] to fight against potential infection. This means that there is a small risk when getting a flu shot.”

- “Just not sure that it’s safe to get an injection of a live virus that may or may not prevent my contraction of the virus elsewhere, and may cause me to become infected just from receiving the vaccine.”

In each of these cases, the speakers use scientific and technical terms (“live virus,” “anti-bodies” [sic]) to describe their perception of the vaccine’s operation and justify a direct statement asserting that the vaccine can cause the flu. They also remove their personal experiences from the argument, only stating a remote connection to self (“I would actually contract it”). In this case, the vaccine is still constructed as a site of harm, but instead of suggesting an experience-based before-and-after scenario, these arguments maintain that the actual operation of the vaccine as it is intended to work is faulty (from within this purview). This argument questions the *logos* inherent to the medicine, claiming that the vaccine is intrinsically risky in how it operates and instead maintaining that the vaccine may cause disease.

Medicine is Toxic/Body is Better on its Own

A second significant argumentative pattern conflated flu vaccine with a desire to avoid what respondents defined as unnecessary toxins or contaminants. Arguments about medications and how they work with bodies operated in a few distinct ways. Either respondents wanted to avoid medications to ensure bodies were able to “fight through” diseases without any assistance, or they saw medications and flu vaccines as something that might impede or injure the

body and leave it less capable of working well on its own.

Equating vaccinations and medications in general with toxins was a language pattern in eight responses, with participants stating things such as, “I do not ingest chemicals that are unnecessary” and “Adding things to your body that you don’t really need isn’t good for your health, regardless of what it is.” In these cases, vaccinations are not seen as a source of health maintenance or flu prevention; instead, flu vaccines jeopardize overall health by introducing something toxic and dangerous. In responses such as the one that follows, the respondent asserts that medicines in general should be limited to only “very serious” diseases that are likely to be “terminal,” suggesting that preventive use of medication for diseases that are not life-threatening is unnecessary:

“I don't think in general/overall it could be dangerous to my health but I am a person who is skeptical of taking medications. I don't think that it is necessary to take many medications/vitamins, etc. often or for every small instances of pain or sickness, but only necessary for very serious diseases, epidemics, or sicknesses that are certain or very likely to be terminal.”

This statement expresses skepticism about the role that medicine plays in keeping a healthy body over the long term, whether it is through ensuring health by preventing disease or ensuring that medicines will still work when they are needed for serious diseases.

Other arguments compared the strength and certainty of one’s own body to the potentially toxic flu vaccination. This assertion emerged alongside other arguments, particularly the desire to build up “natural immunity” by contracting disease; concerns that vaccines cause bodies to not be able to fight off contagion on their own; and strong associations between the flu shot and either getting the flu, feeling poorly, or subjecting

one’s self to side effects with few benefits. These arguments work in stages: the vaccine is first conceptualized as toxic; that toxin is seen as unnecessary at best and harmful at worst; and finally, that harm could extend to long-term implications, where the body cannot be relied upon when it is needed because it has been damaged by the toxins in the vaccine. All together, a tone of anxiety emerges in these rhetorics about the ability of medicine to adequately respond to disease without toxic consequences.

In the toxic medicine arguments, participants almost always use either “I” or “you” language, making declarative statements when stating things like, “I see no reason to inject things in my body,” “I do not ingest chemicals that are unnecessary,” or “I prefer to keep my own immune system robust.” This differs substantially in style from the more detached *ethos* and *logos* appeals in the “flu vaccine causes disease” arguments. Indeed, the toxic medicine arguments typically avoid evidence or extensive rationalization and are not rooted in personal experiences, anecdotes, or an alternative understanding of the science behind vaccination. Instead, they are largely reflective of perceptions of one’s own body, how the immune system works, and how to best maintain optimal health in an environment where medicine can both cure and cause disease. The consequences of vaccine decisions are always individual in this purview as well. “I won’t ingest toxins” limits the jeopardy of the vaccine to the self only, which operates in contrast to the arguments discussed next about population-wide consequences of vaccination.

Long-Term, Far-Reaching Uncertainties

A final pattern of argumentation asserted that flu vaccines could cause things such as epidemics, vaccine- and antibiotic-resistant strains of viruses and bacteria, and long-term vaccine side effects. Comments like the following indicate the wide range of perceived consequences of vaccination, both at the level of the individual and across the population: “I think immunizations against non-deadly diseases, such as the flu, are

detrimental to society. Diseases evolve to beat these shots and become stronger bugs. Your body forms better antibodies when it has the actual disease not the shot.” Here, the respondent asserts a complex argument. First, flu vaccinations encourage flu viruses to mutate to become resistant to the vaccine. This problem is not created by widespread disease, however, but only through the vaccination, as maintained by the second half of the respondent’s comment. Second, the argument maintains that the “actual disease” produces better antibodies than vaccination; the respondent either does not think that the virus will mutate as quickly if it is being actively communicated or believes that antibodies created through contracting disease are more protective against new strains. This argument combines a global concern — about the vaccination when administered across populations — alongside a personal concern about the body’s need to maintain “natural” forms of resistance and a robust immune system, gained by fighting off disease rather than by acquiring immunity through vaccination. Altogether, these concerns make flu shots “detrimental to society.”

Other respondents offer less specific global or long-term consequences that could result from vaccination. Arguments such as “Also, vaccines have been around a very short time, the long term effects are unknown and intimidating” and “Finally, there has not been enough research into the long-term effects of vaccines in future generations” indicate a more general concern about the unintended consequences of vaccines. Within this perspective, although a vaccine might appear to be good at controlling and even eradicating a disease in the short term, the long-term effects of the vaccine largely remain unknown, and therefore are a source of uncertainty and, within the context of the survey question, danger.

These arguments are distinct in a number of ways. First, they apply a series of *logos*-based arguments from other current controversies about the consequences of over-use of medicine (particularly antibiotics) to flu vaccination. Antibiotic resistance

is increasingly an issue discussed both professional and popular publications, and that concern appears in a range of arguments deployed against flu vaccination. Second, the danger that the students ascribe to vaccination here does not entirely apply to just themselves and their own health, but the health of communities as a whole. This subverts a typical counter-argument produced by public health officials when responding to vaccination skepticism. Public health officials often caution against elective non-vaccination because vaccination works best when it protects the health of the community (or herd immunity), rather than just the individual. Here, that counter-argument is reversed. The argument maintains that although I may experience a short-term benefit of disease protection, I may be contributing to long-term diminishing community health by encouraging flu viruses to evolve to be resistant to the vaccine. Such reasoning adopts the community-based rationale for vaccination as an argument against the vaccine.

CONCLUSION

The rhetorical analysis of these results indicates that the persuasive context of flu vaccination for young adults consists of a wide range of concerns that extend beyond just the vaccine into larger questions about medicine and its role in producing health. This analysis also demonstrates how various arguments are connected to different sources of vaccination decision-making. While some rationales rely upon past experience, others reflect alternative worldviews about the value of medicine and the body, and still others demonstrate different judgments of personal and community health, indicating a range in the locus of arguments that these respondents found persuasive. The diversity of perspectives in this convenience sample, although not generalizable, shows how even a small subset of non-vaccinators in one population is far from monolithic, but instead reflects a complex persuasive context.

This study has limitations. Most significantly, the convenience sample does not produce results that are generalizable or that

can be used to make inferences across populations. The data presented here are descriptive analyses and evidence that can be applied to the respondents only. Further study is needed to determine if any of the arguments students produced appear with any statistical significance among other populations. Additional study would be needed to determine whether representative samples of students on other college campuses agreed with or would produce similar arguments about flu vaccine. These data also do not indicate whether there are other predictable elements such as education level and background, geographic location, or other demographic factors that can be associated with particular opinions or perspectives on flu and flu vaccine. Despite these limitations, this analysis contributes important information that may shape the way future researchers and public health officials approach research of college students and the flu vaccine by showing how diverse the persuasive context surrounding vaccination can be. Future studies could combine the methods of rhetorical analysis with a sampling and study design or perhaps other methods, such as interviews with individuals or focus groups, which might allow for inferential findings from rhetorical analysis.

Through the application of rhetorical analysis to this set of discourses, this study also contributes a method qualitative analysis that might be useful to augment understanding of public arguments, reasoning practices, and belief structures to inform improved communication between public health and medical officials and the public in a variety of public spaces and issues. As public controversy also continues to grow more widely over the issue of vaccination, methods such as rhetorical analysis can allow researchers to see 1) why people are skeptical about vaccinations; 2) what forms of argumentative language and style are most persuasive among different populations; and 3) how discourses and counter-discourses may be crafted to more accurately address public concerns at local and interpersonal levels. A rhetorical approach, which is responsive to the language,

style, and context of argumentation surrounding an issue, might offer helpful insights into rationales of preventive health measures, the existing discourses for and against medical interventions, and how future vaccination campaigns may be more persuasive to audiences based on a working concept of the existing persuasive context of vaccination.

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