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The Vagaries Of Public Support For Government Actions In Case Of A Pandemic

Karen M. Hilyard,

Assistant professor of public relations and codirector of the Risk, Health, and Crisis Communication Research Unit at the University of Tennessee, in Knoxville

Vicki S. Freimuth,

Professor of public relations at the University of Georgia, in Athens

Donald Musa,

Program director, Qualitative Data Analysis Program, and a research associate, Survey Research Program, at the University Center for Social and Urban Research, University of Pittsburgh, in Pennsylvania

Supriya Kumar, and

Postdoctoral appointment in the Graduate School of Public Health, University of Pittsburgh

Sandra Crouse Quinn

Professor of family science and associate dean for public health initiatives in the School of Public Health, University of Maryland, in College Park

Karen M. Hilyard: khilyard@utk.edu

Abstract

Government health measures in a pandemic are effective only with strong support and compliance from the public. A survey of 1,583 US adults early in the 2009 H1N1 (swine influenza) pandemic shows surprisingly mixed support for possible government efforts to control the spread of the disease, with strong support for more extreme measures such as closing borders and weak support for more basic, and potentially more effective, policies such as encouraging sick people to stay home from work. The results highlight challenges that public health officials and policy makers must address in formulating strategies to respond to a pandemic before a more severe outbreak occurs.

Although far smaller and less severe than other influenza pandemics of the past century,¹ the 2009 H1N1 (swine flu) pandemic and the virus that caused it remain a concern for public health officials for three reasons. First, unlike typical influenza outbreaks, H1N1 caused proportionally more hospitalizations and deaths among those under age sixty-five,¹ and certain groups, such as people with obesity, appeared to be at risk for severe complications not previously seen in influenza.² Second, the World Health Organization (WHO) believes that H1N1 could mutate into a more dangerous form,³ such as the 1918 avian flu that killed fifty million people, many of whom were ages 20–40 and were previously healthy.⁴ And third, although the H1N1 pandemic turned out not to be severe, public health officials discovered problems with their initial efforts to mitigate the spread of the disease and increase public support for those efforts.

Greater public awareness of flu pandemics as a result of the H1N1 outbreak provided a unique opportunity to evaluate strategies that officials might use in a more severe pandemic. We began a longitudinal assessment of public support for government action just after the virus emerged in Mexico and in several areas in the United States. That was early in the outbreak, before the development of a vaccine, the identification of groups that should

receive the vaccine first in cases of scarcity, and the beginning of the fall flu season in the northern hemisphere.

Using a representative, nationwide survey, we sought to determine levels of US public support for proposed government actions to fight a pandemic. We also looked for important predictors of public support. This paper reports the results of the first wave of our study—a window into the early stages of pandemic response.

Government Policies

Governments around the world were initially uncertain about the virulence of H1N1, so protection measures varied widely, from the routine to the draconian. In Mexico City, where the virus first emerged, officials canceled both private and public events, earning praise from international health experts despite failing to slow the transmission of the disease.⁵

China quarantined all Canadian and Mexican nationals. Hong Kong quarantined all guests at any hotel where even a single guest was diagnosed with H1N1. Singapore quarantined everyone arriving from Mexico. Many Asian nations subjected everyone arriving from abroad, and all schoolchildren, to routine temperature monitoring. They also required hospital staff and visitors to use protective clothing.⁶

To remove any possible threat of the virus's spreading from pigs to humans, Egypt slaughtered all of its more than 300,000 pigs.⁷ The European Union's health commissioner warned people not to travel to the United States or Mexico.⁸

In the United States, initial reactions included closing schools with one or more cases of flu and encouraging people to practice good hygiene habits and to engage in "social distancing," or limiting their contact with other people. As the pandemic progressed and school closures appeared ineffective, sick people were encouraged to stay home from work or school until twenty-four hours after their symptoms had subsided.⁹ They were also advised to avoid going to health care facilities unless their symptoms became severe.¹⁰

Vaccine was rushed into production and distribution, undergoing the standard Food and Drug Administration (FDA) approval process but at an accelerated pace.¹¹ Health care workers, children, and pregnant women were given priority for the first available vaccines. Later, numerous state and local health departments offered vaccines free to the general public.¹²

More-extreme policies in the federal plan for responding to the flu pandemic included widespread closings of schools, stores, churches, and public facilities; quarantines of suspected cases; and closing borders, which would include a ban on immigration. The government never took these steps, but they remain options for future pandemics.

Experience And Research

Understanding predictors of public support for government action is critical in a pandemic because empirical evidence shows that public health measures can greatly mitigate the spread of disease. In the 1918 influenza pandemic, US cities where public health interventions were introduced quickly and continued for longer periods had transmission rates that were 30–50 percent lower than those in cities that responded more slowly and less forcefully.¹³

EXPERIENCE WITH SARS

Computer simulations and real-world experience with severe acute respiratory syndrome (SARS) show that social distancing can prevent or slow disease transmission^{14,15} as long as at least 60 percent of the population complies with the policy.¹⁶ Implementing social distancing seems like common sense, and the policy was used successfully in Asia during the SARS epidemic. However, such policies may work in group-oriented Asian cultures but not in more individualistic countries such as the United States, Australia, and Western Europe.¹⁷

Canada used quarantine successfully in the Toronto area during the SARS outbreak, but SARS never threatened the general population there. About one-third of the approximately 23,000 people quarantined—some of them at their own request—were health care workers. Guarantees of paid sick leave while in quarantine were critical factors in Canadians' compliance with the policy.¹⁸

RESPONSES TO H1N1 PANDEMIC

Abundant data are available about the public's perceptions of risk, individual preventive behavior, and use of vaccine in the 2009–10 H1N1 pandemic.^{19,20} However, relatively little research has been conducted on public support for government action in a pandemic, and most of that work predates the H1N1 outbreak. Some respondents did not know what the word *pandemic* meant, and none had experienced H1N1.

The limited pre-H1N1 data show that 70–80 percent of US respondents favored compulsory quarantine for flu patients in a pandemic.^{21,22} Robert Blendon and coauthors²³ also reported that a large majority of working adults could stay home from work for up to ten days, and more than half could stay home for a month, without serious financial problems.

It is important to note that the questions that elicited those responses asked what people could do rather than what they would do. The questions thus did not address important intangible barriers to social distancing, including respondents' perceptions of contagion risk and policy effectiveness, fear of job loss, and objections to policies based on civil liberty or mental health grounds.

ATTITUDES TOWARD SETTING VACCINATION PRIORITIES

Attitudes toward rationing or prioritizing of vaccines are another area in which little research has been conducted. Both Hye-Jin Paek and her coauthors²² and Catherine DesRoches and her colleagues²⁴ found that just over half the public would support government policies limiting the vaccine to high-risk groups.

An emerging virus would require the rapid development of a new vaccine, perhaps bypassing standard testing protocols. Both Sandra Crouse Quinn and her coauthors²⁵ and Paek and her coauthors²² found fewer than 40 percent would support vaccines that had not yet been fully approved. Other surveys conducted before^{21,23,24} and during^{19,20} the H1N1 outbreak did not address this question.

ROLE OF CURRENT STUDY

Our study examined levels of support for all of these actual and hypothetical policies in the early weeks of the outbreak, when concerns about the virus's potential severity were high. Controlling for demographic and attitudinal factors to see the effect of each variable separately, we examined how risk perception, concern about H1N1, trust in the government's handling of the crisis, and perceived fairness predicted support for government action.

Additionally, we examined attitudes about new or not-fully-approved vaccines and medicines—as noted, a topic that few previous surveys had covered. We also examined support for more-moderate measures such as encouraging sick people to stay home from work, and more-extreme measures such as quarantines and border closings.

Our study took place during the initial stages of the H1N1 epidemic, which is typically a pivotal time. In an epidemic's initial stages, no one knows what trajectory the disease will take;²⁶ the public may be complacent even as public health officials are increasingly alarmed. Thus, our study took a snapshot of the time when uncertainty was highest, instead of gauging public response to a severe but hypothetical pandemic or documenting behavior and attitudes once people began to realize that the 2009 pandemic would be mild.

With a more virulent strain of influenza, the outcome could have been much different, and public compliance might have been a deciding factor in the outbreak's severity. Therefore, our data are especially instructive in anticipating initial public responses to government action in future pandemics.

Study Data And Methods

From June 3 to July 6, 2009, we surveyed a nationally representative, random sample of 1,543 adults, including oversamples of African Americans and Hispanics. We weighted all analyses to make them demographically representative of the US population as reported by the May 2009 Current Population Survey (CPS).

SURVEY INSTRUMENT AND MEASURES

Our survey instrument described H1N1 as “the current influenza outbreak” and used the term *swine flu* rather than H1N1. We developed measures of support for eight actual or potential government actions using a four-point scale ranging from “strongly oppose” to “strongly favor” (Exhibit 1). Based on the clustering of the distributions, we dichotomized responses to oppose (strongly oppose or oppose) or favor (strongly favor or favor).

Predictors of support for pandemic policies were standard demographic characteristics and self-reported attitudes regarding H1N1, including respondents' perceptions of their susceptibility and the pandemic's severity, and respondents' concern about getting the disease. Additional independent variables included respondents' confidence in the government's handling of the pandemic, measured by indexing perceived levels of government openness, honesty, commitment, caring and concern, and competence in addressing H1N1; the extent to which respondents believed that the government's response was in their personal best interest; and the degree to which respondents believed that the government would protect them from swine flu.^{27,28} We calculated a mean score for the trust scale and categorized responses above that score as indicating high trust, and those below that score as indicating low trust.

We also measured respondents' perception of how fairly all groups of Americans were treated with regard to H1N1, constructing a scale from four questions that asked about fairness, equal access to antiviral drugs and vaccines, and respondents' degree of confidence that they would receive equal treatment in a quarantine. For the analysis, we divided the responses at the median value into categories of less and more perceived fairness. In addition, we asked respondents whether they “personally had ever experienced discrimination or been hassled when seeking health care because of your race, ethnicity or color,” and we categorized the responses as “yes” or “no.”

DATA ANALYSIS

We used the statistical software Stata, version 10.1, for complex survey analysis procedures incorporating weighting and stratification variables. For categorical measures in the bivariate analysis, we used adjusted Pearson chi-square tests. We examined the relationships between support for government actions and both demographic and attitudinal measures through binary logistic regression for dichotomous outcomes. In all analyses, a p value of <0.05 indicated a significant finding.

Results

OVERALL SUPPORT FOR GOVERNMENT ACTION

Respondents' views of some policies were nearly evenly divided (Exhibit 1). Slightly fewer than half supported encouraging people to stay home from work when sick; closing schools, stores, places of worship, and other gathering places; and setting priorities to determine who would get limited supplies of vaccines or drugs.

On the other hand, strong majorities supported quarantining people exposed to the flu to limit their contact with others; closing borders to visitors from countries with flu outbreaks; helping people care for sick family members at home so they wouldn't have to go to the hospital; and distributing medicines or vaccines at designated public locations. Only about one in five respondents supported offering people new vaccines or drugs that had not yet been approved.

Our next step was to determine which demographic characteristics, such as age or race, and which attitudes, such as risk perception or trust, were most closely associated with support for these policies. Although public health messages often target specific demographic groups where particular risks or attitudes are more prevalent, ultimately, the goal is to change the attitudes and behaviors of individuals. Messages that focus on attitudes can reach individuals in multiple population groups simultaneously. We report attitudinal data for the entire sample in Exhibit 2, demographic predictors of support in Appendix Supplement 1, and attitudinal predictors of support in Appendix Supplement 2.²⁹

Generally, we found that although few people saw themselves as highly susceptible to H1N1, almost half felt that the pandemic could be severe and had concerns about getting the disease. A majority trusted the government's ability to handle the pandemic and treat people fairly.

PREDICTORS OF SUPPORT FOR VARIOUS STRATEGIES

In an initial bivariate analysis (see Appendix Supplements 1 and 2),²⁹ we found that some demographic and attitudinal variables were associated with support levels for particular policies. For example, higher trust in the government's handling of the pandemic appeared to be related to support for closing borders.

However, to make meaningful use of the data, it is important to go beyond bivariate analysis and evaluate each predictor individually, with all other variables being equal. We therefore used logistic regression to control for all other demographic and attitudinal variables,³⁰ singling out critical predictors of support that policy makers and public health officials should focus on (see Appendix Supplement 3).²⁹ We detail the results of this more precise analysis below.

STAYING HOME—Significant predictors of support for the government's encouraging people to stay home from work when sick were age, amount of education, and level of trust

in the government. Adults age 65 and older were only half as likely as those ages 18–34 to favor a policy of staying home from work. Those having a bachelor's degree were about twice as likely to favor the policy as those with less than a high school education. Finally, those with greater trust (versus less trust) that the government would handle the H1N1 pandemic well were more likely to support staying home from work.

QUARANTINE—Significant predictors for support of a quarantine included sex, with women about one and a half times more likely than men to favor quarantining. Support was also associated with the attitudinal characteristics of greater perceived susceptibility, greater perceived severity, and more concern about H1N1, as well as greater trust in the government's handling of the pandemic.

BORDER CLOSINGS—Women were significantly more likely than men to support closing the borders, as were those ages 35–64 versus those ages 18–34, and those reporting greater—versus less—perceived severity of H1N1. However, Hispanics were significantly less likely to support border closings than white non-Hispanics. Those with a bachelor's degree were less likely to support border closings than those with a high school education or less.

CLOSING GATHERING PLACES—We found support for closing schools and other gathering places from those with greater perceived susceptibility, greater perceived severity, and greater perceived government fairness. People age 65 and older were less likely than those ages 18–34 to favor these closings.

CARING FOR PEOPLE AT HOME—Both people ages 35–64 and those over age 65 were more likely to support helping people care for sick family members at home, compared to people ages 18–34. People who reported that they had been discriminated against in receiving health care were more likely to support this policy than were those who reported experiencing no discrimination.

USE OF NEW VACCINES—Support for offering new and not-yet-approved vaccines or drugs was not associated with any independent variable in the bivariate analysis. However, we found one significant predictor in the regression analysis: Women were significantly less likely than men to favor offering unapproved medicines.

RATIONING VACCINE—Significant predictors of support for setting priorities in case of limited supplies of vaccines and drugs included income, with both those earning \$50,000–\$74,999 a year and those earning at least \$75,000 a year more likely to favor setting priorities than people earning under \$25,000. Education was also a significant predictor: Those who had a bachelor's degree were twice as likely to favor setting vaccine priorities as those with less than a high school education. Attitudinal predictors of setting vaccine priorities included greater trust in the government's handling of H1N1 and greater perceived government fairness.

PUBLIC DISTRIBUTION OF VACCINE—Finally, significant predictors of support for distributing medicines and vaccines at designated public locations were having attended some college (as opposed to having less than a high school education) and having greater trust in the government's handling of the pandemic.

Policy Implications

Compared to other studies before and after the pandemic, our data captured a pivotal time in the H1N1 outbreak: It was real, not hypothetical—the World Health Organization had just

declared a pandemic—yet no one at that time could predict with any accuracy how severe the outbreak would be.

Overall levels of support for government policies were somewhat counterintuitive, both in terms of which policies were supported and in the splintered patterns of support among demographic and attitudinal groups. Once other variables were controlled for, the people who opposed particular policies were often a patchwork of different demographic groups and attitudes. That creates a major challenge in directing communication and education efforts to the right people.

OPPOSITION LEVELS

One finding that is particularly important for public health officials is that even the policies with the highest levels of support in our study were still opposed by roughly one-quarter of the respondents. Several basic, commonsense efforts to mitigate the spread of the disease—such as staying home from work while sick, or closing schools and other public gathering places—had surprisingly weak support, with fewer than half of the respondents in favor. It is even more surprising that although only 49.8 percent supported encouraging people to stay home from work, 71.5 percent supported closing borders. Social distancing is considered to be far more effective in a pandemic than closing borders, so this relatively low level of support for staying home from work presents a critical communication challenge for public health officials.

OPTIMISTIC BIAS—Several factors may play a role here. First is optimistic bias, the well-documented tendency for individuals to believe that they are less vulnerable to common risks than other people are, despite statistical evidence to the contrary. Especially early in the pandemic, people whose communities had not experienced the disease might have been less willing to accept the inconvenience or intrusion of policies that they felt were unnecessary for them.

ECONOMIC CONSIDERATIONS—Second, the response to the policy of staying home may be purely economic, because large numbers of people cannot work from home, will not be paid if they do not report to work, and don't have paid sick days or are discouraged from using them. Similarly, school and day care closings could force parents to stay home from work, leading them to disapprove of those closings.

MIXED MOTIVATIONS—Third, it is possible that strong support for closing borders has little to do with trying to mitigate the pandemic. Instead, it could indicate anti-immigrant sentiment, especially since we conducted our survey on the heels of the outbreak's beginnings in Mexico.

LACK OF SUPPORT FOR CLOSING PUBLIC PLACES

Only 44.2 percent of our respondents supported closing schools, day care facilities, places of worship, and stores in a pandemic. Given that many studies show schools as vectors of infection transmission, weak support for this policy is cause for concern. Policy makers should support solid research on the efficacy and timing of school closures in a pandemic, to acquire evidence that will support the policy of keeping children home.

However, it is also possible that answers to the survey question were affected by its mingling of religion, commerce, and education. This potential flaw should be corrected in future studies.

Typically, the components of risk perception—in this case, perceived susceptibility to disease and perceived severity of the disease—affect whether someone will take steps to mitigate risk. Indeed, support for a quarantine and for closing schools, stores, and places of worship was associated with higher perceived risk. However, increased perceived risk had no apparent impact on support for staying home from work; only about half of the people in any group supported this measure.

WORKERS' ECONOMIC MOTIVATIONS

Officials responsible for giving the public information about risk should realize that even messages that raise levels of perceived risk may not translate into support for the policy of staying home. This is not to say that risk perception does not play a role, but that the most salient risk for many individuals is to livelihood, rather than health.

Lower socioeconomic groups are usually assumed to be less able to work from home or take sick leave, but a wide variety of jobs cannot easily be performed away from the job site. Even corporate executives are subject to cultural norms encouraging people to report to work even when they are sick, or discouraging or limiting the use of leave time when children are sick or child care is unavailable.

A February 2010 study by the Institute for Women's Policy Research, based on statistics from the Centers for Disease Control and Prevention (CDC), found that an estimated eight million of the twenty-six million US adults thought to have contracted H1N1 worked while sick with the virus. Although the reasons for this cannot be determined, the institute blamed a lack of paid sick leave—which may disproportionately affect women, members of minority groups, and younger workers in low-wage jobs.³¹

Canadian public health officials found that addressing these issues was essential to the success of the SARS quarantine. Without laws and support mechanisms in place to make it financially feasible for workers to stay home when they are sick, efforts to increase public support for such policies may be futile.

COMMUNICATION STRATEGIES

In designing messages to promote compliance with policies in a pandemic, public health officials typically look at predictors of support and tailor messages to several audiences. However, it is worth noting that our survey found wide variability in levels of support and little consistency in the variables that predicted support. Factor analysis failed to reveal relationships between what might appear to be similar policies, so policy makers should not simply assume that there are logical continuums of support from less restrictive to more restrictive, or least effective to most effective, policies. Our results argue instead for a granular examination of each policy and each group.

For example, although women were far more likely than men to support quarantines and border closings, two methods of potentially separating the sick from the well, they were not significantly more likely to support other such policies, such as staying home from work when sick, closing schools and gathering places, or caring for the sick at home. It is possible that respondents perceived quarantines and border closings as things that other people might be subject to, whereas the three remaining policies seemed more likely to be applied to the respondents themselves.

Whatever the explanation, it is clear that no inferences should be made about support for one policy based on support for what public health officials may believe to be a similar policy.

AGE DIFFERENCES

Compared to the referent group of those ages 18–34, those over age 65 were far less likely to support social distancing and yet far more likely to support caring for the sick at home. There are various possible explanations for these differences, and it is not clear which of them is more likely. Perhaps older people have a more traditional work ethic when it comes to job absences, or perhaps they are more isolated and therefore place more importance on maintaining social connections at church and other gathering places. They may also have more experience or confidence in caring for the sick, and be more wary of hospitals as vectors for germs, compared to younger people.

People ages 35–64 also tended to support caring for the sick at home, but they did not agree with the older respondents on other questions. However, they were more likely than younger adults to support border closings. Again, no simple pattern emerges.

TRUST IN GOVERNMENT

Of the attitudinal characteristics, perceived severity and perceived trust in the government's handling of H1N1 were the two most influential predictors of support for government action. Yet although those who perceived the severity of the crisis to be high were significantly more likely than others were to support quarantines, closing borders, and closing schools and public gathering places, perceived severity appeared to have no impact on other mitigation policies. Trust in the government was linked to support for staying home from work, quarantines, prioritizing limited supplies of medicine, and distributing medicines publicly, but not to support of not-fully-approved medicines or closing borders.

Based on these data, public health officials can make no assumptions about how a given group will respond to a policy. Instead, officials should set strategies on a group-by-group and policy-by-policy basis.

CHANGING ATTITUDES IN THE FACE OF A REAL THREAT

Our results contrast with the more consistent levels of support across demographic and attitudinal groups seen in surveys conducted prior to H1N1,^{22,23} when the idea of a pandemic was hypothetical. That change suggests that the reality of H1N1 prompted quite different responses to potential policies and more varied responses across demographic groups. It may also represent confusion, as people grappled with unfamiliar policies and issues.

Conclusion

Three important considerations for public health officials emerge from this study. First, greater consistency in support for government action is seen in hypothetical situations than in an actual pandemic. Second, during the actual H1N1 pandemic, no clear patterns of support emerged by demographic groups or attitudinal groups, nor could policies be easily grouped or counted on to evoke similar responses. Third, the economic risks of compliance with government action in a pandemic may trump the health risks of noncompliance.

For public health officials, these findings mean that data collected prior to a pandemic might not be applicable when a real pandemic hits. Campaigns to increase support for government action need to be conducted at a detailed level, paying close attention to differences among attitudinal and demographic groups on a policy-by-policy basis. Finally, people's fears about losing their income or job must be addressed if a high degree of compliance with government policies is to be achieved.

However, in the early stages of a pandemic, communication alone is unlikely to persuade people to risk their jobs or their ability to get food or medical attention. The economic, logistical, and political consequences of keeping people home from work and school, closing businesses, closing borders, and dramatically changing the way health care is delivered in a pandemic cannot simply be an afterthought.

Before a severe pandemic strikes, policy makers must revisit their plans for dealing with pandemics and devise strategies that most people can realistically follow, as well as sufficient financial and legal supports to facilitate compliance.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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EXHIBIT 1**Americans' Support For Government Actions Regarding Swine Flu, 2009**

Do you favor or oppose the following type of action that the government has done or might do?	Unweighted (number)	Weighted (%)	
		Strongly oppose/oppose	Strongly favor/favor
Quarantining those who might have been exposed to the flu to limit their contact with others	1,524	22.1	77.9
Helping people give health care to sick family members at home rather than having them be in the hospital	1,519	24.7	75.3
Giving out medicines or vaccines to people at a designated public location	1,515	25.3	74.7
Closing the borders to visitors from countries with outbreaks of flu	1,521	28.5	71.5
Encouraging people to stay home from work	1,527	50.2	49.8
Setting priorities to determine who gets limited supplies of vaccines or drugs	1,520	51.8	48.2
Closing schools, stores, places of worship, and other places where people gather	1,519	55.8	44.2
Offer people vaccines or drugs that are new and not yet approved	1,520	78.3	21.7

SOURCE Authors' analysis.

EXHIBIT 2**Americans' Attitudinal Characteristics Regarding H1N1, 2009**

Characteristic	Unweighted (number)	Weighted (%)
Perceived susceptibility to H1N1		
Less susceptibility	1,273	85.8
More susceptibility	244	14.2
Perceived severity of H1N1		
Less severe	874	58.0
More severe	650	42.0
Concern about getting H1N1		
Less concern	804	53.8
More concern	723	46.2
Trust in government's handling		
Less trust	579	40.9
More trust	953	59.1
Fairness of treatment of all groups		
Less fairness	587	38.4
More fairness	909	61.6
Ever experienced discrimination		
No	1,329	87.6
Yes	202	12.4

SOURCE Authors' analysis. **NOTES** Totals vary because of missing data. See the Study Data and Methods section for definitions.