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Credibility of Information from Official Sources on HIV/AIDS Transmission

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S Y N O P S I S

Objective. The authors analyzed data from the 1991 National Planning Survey to (a) assess respondents' awareness of three official sources of information about HIV/AIDS (CDC, the Surgeon General, and state health departments); (b) assess respondents' perceptions of the reliability of these sources; and (c) compare respondents' personal beliefs about HIV transmission with their beliefs regarding the experts' view.

Methods. The authors conducted a secondary analysis of the responses of the 1622 survey participants who gave complete information.

Results. People with more years of formal education were more likely to have heard of the CDC and the Surgeon General. The CDC was given the highest overall reliability rating, followed by the Surgeon General and then state health departments. Transmission of HIV/AIDS by various modes of casual contact was perceived more likely among those who gave the CDC lower reliability ratings. However, regardless of their perceptions of the reliability of the CDC as a source of HIV/AIDS information, many respondents believed the probability of transmission by casual contact more likely than they believed experts said it was.

Conclusions. The discrepancy found between what people believe about health risks and what they think experts believe has important implications for the design of effective health information campaigns and for the design of questionnaire items that aim to assess people's "knowledge" and "attitudes" regarding sensitive health topics.

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HIV/AIDS has held a prominent position in the public consciousness for less than 20 years, yet many people can give answers about the ways in which HIV/AIDS is transmitted that match the information given by official sources.¹ But, do people actually believe what they say, or are they merely parroting back what they've heard from health information campaigns or experts interviewed in the media?

In 1987, stories about AIDS peaked in the media, followed in 1988 by an intensified nationwide campaign mounted by the Federal government that included the largest direct mailing in the history of public health.² The percentages of people who were relatively knowledgeable or said they knew a lot about the disease more than doubled between 1987 and 1991.¹ Nevertheless, a 1993 study showed that many people still held misconceptions or unrealistic concerns about the likelihood of HIV transmission via casual contact.³ In addition, studies conducted in the late 1980s and early 1990s found persistent gaps in AIDS knowledge across various social groups.^{1,4-9}

Source credibility is a cornerstone of any successful information campaign.¹⁰ Critics of efforts to disseminate AIDS information suggest that there may be high levels of mistrust of official information about AIDS among members of some population groups, as evidenced by the findings of several studies.^{3,11-15} Yet despite massive efforts to disseminate HIV/AIDS information, there have been few attempts to study people's trust of official agencies as a source of AIDS information. Clearly, mistrust of the government and the medical community, the primary sources of AIDS information, can be detrimental to AIDS prevention efforts.

We undertook a secondary analysis to examine the extent to which people trust official sources of AIDS information and how this is reflected in personal health beliefs.

METHODS

In the fall of 1991, the Applied Communication Research and Evaluation Branch of the National AIDS Information and Education Program (part of the Centers for Disease Control and Prevention [CDC]) conducted the National Planning Survey, designed to guide future AIDS communication efforts. The survey collected data on attitudes about several issues under

consideration for future campaigns, including condom use, discrimination against people with HIV/AIDS, and credibility of HIV/AIDS information sources.

The national telephone survey was conducted by a commercial research firm, DataStat. Telephone numbers were generated with computer-based random digit dialing. Interviewers were trained in the objectives of the study and procedures to follow in unusual interviewing situations. Five attempts were made to complete an interview at every selected household. Respondents were selected randomly from each of these households according to a quote derived from Bureau of Census data. Interviews were conducted in Spanish as needed. A total of 1622 interviews were completed, for a response rate of 74.9%.

The present study is a secondary analysis of responses to a subset of questions that asked about the credibility of AIDS information sources: respondents were asked about their familiarity with official sources of AIDS information, how reliable they perceived these sources to be, their own beliefs about HIV/AIDS transmission, and their perceptions of expert opinion on HIV/AIDS transmission.

Specifically, respondents were first asked whether they had heard of the Surgeon General and the CDC and to rate the reliability of each of these sources of AIDS information, as well as that of their state health department, on a scale from 1 (not reliable) to 10 (very reliable).

Next, respondents were asked a series of questions about HIV/AIDS transmission preceded by this introduction: "People don't always agree with what they are taught. For these next few questions we would like to first ask what medical experts have said. Then we'd like to read the same question and ask what you believe." After the introduction, the interviewer used the example of lung cancer and cigarette smoking to introduce the pattern of questioning—first, asking whether respondents had heard or read anything from medical experts about the relationship between lung cancer and smoking; second, asking what medical experts say about how likely it is to develop lung cancer from prolonged smoking; third, asking for the respondent's personal belief about the likelihood of developing lung cancer from prolonged smoking. Likelihood was rated using a five-point Likert-like scale ranging from "very likely" to "not possible."

Respondents were then asked a parallel set of questions about HIV transmission from the following: (a) casual contact such as shaking hands or kissing on

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the cheek, (b) sharing utensils such as plates, forks, or glasses, (c) use of public toilets, (d) exposure to mosquitoes or other insects, (e) being treated by a dentist, and (f) being treated by a doctor.

In addition, using the same five-point scale respondents were asked about the likelihood of an AIDS vaccine becoming available in the next 10 years.

Data analysis. We compared the mean reliability ratings of the three information sources by sex, ethnicity, and educational level, using analyses of variance to assess significance.

Since the CDC is the main government agency that produces and disseminates educational materials on HIV/AIDS issues, we used chi-square tests to look at sociodemographic differences between those who said they had heard of the CDC and those who said they had not. For those who had heard of the CDC, we compared mean reliability ratings of the CDC by respondents' self-reported sex, "racial" or ethnic group, and educational level using analysis of variance.

We recoded reliability ratings of the CDC into three categories: high reliability corresponded to scores from 8 through 10 on a scale of 10; moderate reliability included the middle range of scores (4 through 7); and low reliability included the lowest three ratings (1–3). We used analyses of covariance to assess how different levels of perceived reliability of the CDC—controlling for sex, ethnicity, and education—were related to beliefs. Finally, paired t-tests were conducted to assess significant differences between a respondent's own belief and what he or she thought the medical experts say within each category of reliability.

RESULTS

Sample. We analyzed data for the 1622 respondents who completed the National Planning Survey. The sample was 51.4% male, and the mean age was 40.2 years (standard deviation = 12.5). A large majority (80.9%) described themselves as white, 9.9% as black, 5.3% as Hispanic, and 1.7% as Asian/Pacific Islander. By self-report, 9.7% of the sample did not graduate from high school, 33.2% were high school graduates, 26.8% had some college, 18.0% were college graduates, and 12.3% had some postgraduate education. Generally, the sample distributions reflect those of the target population—the national adult population ages 18 to 65 years residing in the 48 contiguous states—however, the sample reported a higher level of education. According to the 1990 Census, only 20.3% of adults ages 25 and older have a baccalaureate degree or more education,¹⁶ while 30% of the survey respondents were in this category.

Familiarity with and perceived reliability of official sources. Nearly all (94%) respondents had heard of the Surgeon General; a little over three-fourths (78%) had heard of the CDC. No differences in awareness of the CDC's existence were found by sex. However, only about half (52.3%) of Hispanic respondents had heard of the CDC, compared with 79.9% of white respondents and 75.8% of black respondents ($\chi^2 = 36.11$, $P < 0.001$). These significant differences by ethnicity persisted in subgroup analyses by educational level (high school graduates $\chi^2 = 15.51$, $P < 0.001$; college graduates $\chi^2 = 13.75$, $P < 0.001$.) Awareness of the CDC increased with increasing levels of education: 46.7% of

Table 1. Awareness of government entities and perception of their reliability as sources of information about HIV/AIDS transmission, 1622 adult respondents to the National Planning Survey, 1991

Category	N	Reliability of state health department Mean score	Heard of Surgeon General Percent	Reliability of Surgeon General Mean score	Heard of CDC Percent	Reliability of CDC Mean score
All respondents	1622	5.92	93.5	6.60	77.6	7.08
Sex						
Male	834	5.76	93.6	6.55	78.4	6.92
Female	788	6.08 ^a	93.5	6.65	76.6	7.25 ^b
Ethnicity						
White	1312	5.79	97.0	6.58	79.9	7.09
Black	161	6.44	88.2	6.45	75.8	6.86
Hispanic	86	6.40 ^c	59.3 ^c	7.45 ^b	52.3 ^c	7.54
Education						
< 8th grade	45	7.57	52.3	6.85	46.7	6.61
9–12 grades	112	6.15	81.3	6.71	63.4	6.94
High school grad.	538	5.74	94.2	6.11	69.7	6.64
Some college	435	5.85	95.2	6.52	77.9	6.84
College graduate	292	5.98	97.9	7.03	91.1	7.55
Post-graduate	200	5.95 ^c	98.0 ^c	7.27 ^c	93.0 ^c	7.76 ^c

NOTES: Reliability was measured on a scale of 1 (not reliable) to 10 (very reliable). Analyses of variance were used to assess mean differences in reliability ratings by demographic category. Chi-square tests were used to assess differences in percentages of respondents having heard of CDC and Surgeon General.

^a $P \leq 0.01$

^b $P \leq 0.05$

^c $P \leq 0.001$

CDC = Centers for Disease Control and Prevention

those with less than an eighth grade education and 93.0% of those with post-graduate education had heard of the CDC ($\chi^2 = 114.84, P < 0.001$) (Table 1).

The CDC had the highest overall reliability rating, followed by the Surgeon General, with state health departments rated least reliable. Reliability ratings differed across sociodemographic categories (Table 1). As a group, women rated the reliability of all three agencies higher than men. The reliability ratings of both the CDC and the Surgeon General were highest among those with at least a college degree.

Beliefs about HIV/AIDS transmission. Prior to being asked what their own beliefs were regarding transmission, respondents were asked whether they had heard what experts had said and what they believed that information to be. Approximately half of the respondents said that they did not know what the experts had to say about each of the following: casual

contact, utensils, public toilets, and insects. This finding was consistent when we controlled for ethnicity, sex, or educational level. (Note: This may be attributable to the way the question was phrased—respondents may have thought they were being asked whether there was any “news” regarding the topic.)

When asked about whether they were aware of the view of medical experts with regard to transmission through an infected dentist or doctor, the frequencies of “yes” responses were dramatically higher; more than 80% said they were aware of expert opinion about transmission through a dentist, and 60% said they were aware of expert opinion about transmission through a doctor.

We found differences in beliefs regarding transmission when responses were grouped according to the perceived reliability of the CDC, even when we controlled for sex, ethnicity, and educational level. (See Table 2 for results of ANCOVA.) Respondents who saw the CDC as less reliable consistently reported transmission via all

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of the casual modes (casual contact, utensils, toilets, insects) as well as by an infected dentist as more likely than those who attributed higher reliability to the CDC. (Interestingly, the majority of respondents believed transmission via doctor or dentist to be at least somewhat likely. This is probably due to the wide media attention given to a case in which a patient claimed to have been infected by a dentist.) People who gave the CDC the highest reliability rating tended to rate the likelihood of transmission by casual modes as relatively low, in keeping with currently held expert opinion.

Across all levels of trust in the CDC, the majority of respondents believed an HIV/AIDS vaccine would be available in the next 10 years.

We used paired t-tests to compare respondents' perceptions of how medical experts would rate the likelihood of transmission and how they rated the likelihood of transmission for each of the scenarios presented. Within each level of perceived reliability of the CDC, we found significant differences between respondents' own beliefs and their perception of expert opinion (except with regard to the likelihood of vaccine development) among respondents who reported both their own beliefs and their perceptions of expert opinion. (See Table 3.) Regardless of perceptions about the reliability of the CDC, the mean ratings of the respondents' perceptions of expert opinion about the likelihood of transmission were higher than the mean ratings

Table 2. Respondents' own beliefs regarding the likelihood of HIV transmission and vaccine development, by perceived reliability of the CDC, National Planning Survey, 1991: adjusted mean responses

Belief	Perceived reliability of CDC						F	P
	Low		Medium		High			
	n	Mean	n	Mean	n	Mean		
Transmission via:								
Public toilets	79	3.26	493	3.53	542	3.76	9.16	0.001
Utensils	81	3.11	490	3.23	540	3.46	5.46	0.004
Insects	81	2.79	487	2.98	538	3.32	12.84	0.001
Casual contact	81	3.73	489	4.02	540	4.19	7.79	0.001
Doctor	80	2.29	491	2.27	540	2.32	0.24	
Dentist	80	1.84	489	1.93	541	2.09	4.01	0.018
Likelihood of HIV/AIDS vaccine								
within 10 years	79	2.16	487	2.04	539	2.09	0.74	

NOTES: Means are adjusted for sex, ethnicity, and education. Likelihood was measured on a scale from 1 (very likely) to 5 (not possible).

Table 3. Respondents' own beliefs versus respondents' beliefs about expert opinion regarding the likelihood of HIV transmission and vaccine development, by perceived reliability of the CDC, National Planning Survey, 1991

Belief	n	Perceived reliability of CDC													
		Low				Medium				High					
		Experts say		Own beliefs		Experts say		Own beliefs		Experts say		Own beliefs			
Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD				
Transmission via:															
Public toilets	32	3.84	1.08	3.25 ^a	1.19	254	4.15	1.05	3.66 ^b	1.27	304	4.28	0.96	3.88 ^b	1.12
Utensils	36	3.78	1.31	2.89 ^b	1.21	244	3.82	1.14	3.26 ^b	1.25	287	3.96	1.22	3.56 ^b	1.24
Insects	40	3.22	1.53	2.60 ^a	1.41	275	3.46	1.25	2.93 ^b	1.32	311	3.86	1.23	3.45 ^b	1.30
Casual contact. . .	44	4.36	0.92	3.66 ^c	1.35	282	4.43	0.82	4.05 ^b	1.04	343	4.59	0.71	4.22 ^b	1.06
Doctor	52	2.44	1.23	2.00 ^a	1.01	329	2.53	1.10	2.17 ^b	0.97	360	2.57	1.18	2.31 ^b	1.11
Dentist	60	1.92	1.08	1.63 ^a	0.84	426	2.22	1.12	1.85 ^b	0.93	488	2.34	1.18	2.09 ^b	1.09
Likelihood of HIV/AIDS vaccine															
within 10 years . .	42	1.81	0.67	1.93	1.00	269	1.94	0.75	1.90	0.85	316	1.93	0.72	1.89 ^a	0.88

^a $P \leq 0.05$ ^b $P \leq 0.001$ ^c $P \leq 0.01$

of respondents' own beliefs regarding the likelihood of transmission. The majority (77.4%) of respondents rated the likelihood of a vaccine being developed within 10 years as "somewhat" or "very" likely; similarly, 61.8% thought that experts would say that it was "somewhat" or "very" likely that a vaccine would be developed within 10 years.

DISCUSSION

Awareness of government entities and the perception of their credibility differed across demographic groups. While the overall credibility ratings of the three entities were relatively high, the CDC and the Surgeon General were generally seen as more credible than state health agencies. The relatively high rating of the Surgeon General given by the Hispanic respondents (Table 1) may be related to the fact that, at the time of this study, this post was filled by a Latina physician, Antonia Novello, MD. Nearly half of Hispanic respondents indicated that they had not heard of the CDC, compared to about a quarter of black respondents and about one-fifth of whites.

We also found educational level to be an important factor in awareness of the CDC. The association between higher educational levels and more trust in the

CDC might be explained by a stronger identification with formal institutions of people who are part of the "establishment" than among those who feel disenfranchised.³ The highest reliability rating for the state health departments was from those with the least formal education. This may reflect respondents' familiarity with and exposure to this institution. Agencies, thus, may want to consider ways of enhancing their visibility—for example, by promoting people who are perceived as credible by diverse constituencies.

The distinctions between respondents' own beliefs and those they believe to be held by experts has both methodological and public health implications. First, finer distinctions need to be made when asking people about their knowledge and beliefs regarding HIV or any health issue. Researchers need to devise strategies that distinguish between what people say they "know" and what they actually believe since this distinction may be crucial to the adoption of recommended preventive behaviors or public support of non-discriminatory policies. By implication, educational programs based on the assumption that if people are able to repeat messages they in fact believe them may be operating on a misleading premise.

Second, the discrepancy found between people's own beliefs and what they perceive that experts

believe—even among those who express high levels of trust in official agencies—requires further explanation. Risk perception researchers suggest non-experts tend to interpret the magnitude of risk differently from experts.¹⁷⁻¹⁹ People's fears of diseases such as AIDS are not easily alleviated by experts' assurances about low probabilities of casual transmission.²⁰

Finally, perceptions about HIV/AIDS and other public health problems are clearly affected by media coverage. Media reports of the case of Kimberly Bergalis, who may have been infected through her dentist, raised fears across the nation²¹ despite extensive coverage of official reassurances that such transmission is highly unlikely.²² Having the mass media pay attention to particular risks, suggest some researchers, may raise public concerns about the risk. Further, it has been suggested that public concern increases as the media provide more technical infor-

mation about a controversy, even if the information is thought by experts to be reassuring.²³

In general, respondents to this study seemed to believe that medical experts underestimate or downplay the risk of HIV/AIDS infection. Predictably, though, the responses of those who rated the CDC as more reliable tended to be closer to what was seen as the official position. Obviously, the perceived credibility of sources is a key factor in people's willingness to accept expert opinion. The discrepancy between what people believe and what they think experts say has important methodological implications as well as implications for the design of effective health information campaigns.

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