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Preadolescents' perceptions of AIDS before and after Earvin Magic Johnson's announcement.

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Journal

Journal of Pediatric Psychology, 19(1)

ISSN

0146-8693

Authors

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Publication Date

1994

DOI

10.1093/jpepsy/19.1.3

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Preadolescents' Perceptions of AIDS Before and After Earvin Magic Johnson's Announcement¹

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Received November 20, 1992; accepted April 20, 1993

Compared sixth graders' AIDS concerns before and after Magic Johnson announced that he tested HIV-positive. Examined perceptions of self/other vulnerability (optimistic bias) using questionnaires (Study A) and interviews (Study B). Also examined AIDS worries mentioned in open-ended interviews (Study C). Studies A and B revealed a substantial degree of optimistic bias. Study C showed that AIDS is a prime concern of school-age students, mentioned under free or context-cued conditions by about 50%. There was little detectable effect of the publicity; the sole before—after difference in three studies was one increase in self- and other-vulnerability to AIDS—an increase attributable, with marginal significance, only to girls. Discussed implications for health promotion and differences between assessment approaches.

KEY WORDS: AIDS; preadolescents; worries; perceived vulnerability; optimistic bias.

This research was supported by grants from the National Institute of Child Health and Human Development (HD27035) and the University of California Universitywide AIDS Research Program (R901040). We very much appreciate the cooperation of the Irvine Unified School District and the many contributions of Sally Snyder and Bruce Givner. We are also grateful for the participation of Amy Watson and the Corinne A. Seeds University Elementary School, and Trina Panaqua and the Bruin Kids of UCLA. Special thanks are also due to Stewart Burgess, Virginia Elderkin-Thompson, Judy Koch-Jones, Tammy Merlo, Myung Nam, Anne O'Neill, and Kim Witte for assistance with data collection and coding.

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On the afternoon of November 7, 1991, Earvin "Magic" Johnson announced that he was retiring from the Los Angeles Lakers basketball team because he had tested positive for the human immunodeficiency virus (HIV) that causes AIDS. This startling and tragic event provided an opportunity to assess the impact that such an announcement—and its accompanying increments in AIDS awareness, interest, and information-would have on school-age students. Since that event, both the broadcast and print media have featured discussions with and about young people concerning Magic Johnson and the AIDS crisis. One radio announcer introduced her show with the compelling comment, "It's as if AIDS has pulled up a chair at every kitchen table in the country—and said that it's going to be around for a while" (Susan Estrich, KABE Talk Radio, AM 790, November 13, 1991, 9:05 a.m.). In the emotion-laden days following the oft-replayed announcement, commentators asserted that the AIDS risk was now clear to everyone; no one was exempt. The presentsstudies assess the validity of this view: Has AIDS been converted from a remote to a personalized danger for young people who are just entering the higherisk period?

Although news programs and special features have provided valuable insights into the thinking of young adolescents, the informational yield is limited because the data are acquired under conditions of high salience and attentional focus. Such discussions inform us about immediate reactions to unexpected, dramatic, and alarming events, but they do not tell us how or if the new information is being integrated into more enduring cognitive schemas.

Our ongoing research has afforded use a more systematic look at recent changes in young people's perceptions of AIDS within the context of a broad array of serious health risks and social problems. At the time of the announcement, our research team had three studies in progress that were examining students' perceptions of such risks. The overall strategy used methodological triangulation in a search for robust indicators of health-related concepts and concerns. Across the studies we used a structured set of open-ended questions, interview-generated judgments, and paper-and-pencil ratings. The first two studies examined optimistic bias: the tendency to view oneself as less vulnerable than other people. Previous studies have demonstrated such bias or "unrealistic optimism" in adults across a wide range of risks (Kirscht, Haefner, Kegeles, & Rosenstock, 1966; Kulik & Mahler, 1987; Weinstein, 1984, 1988), but there is little information about whether children and adolescents also show marked discrepancies in their self—other judgments. The third study involved a wider range of risk dimensions as well as open-ended questions about worries and concerns.

Although AIDS was not the sole focus, each of these studies included specific items on this topic. By distinguishing between responses given before and after the announcement, we were able to assess changes when attentional focus was diffused rather than directed, and when AIDS was embedded in a comprehensive risk matrix rather than singled out as an isolated concern.

Several studies of children's AIDS perceptions have indicated that young people view AIDS as a serious, life-threatening, and stigmatizing disease (e.g., Bell, Feraios, & Bryan, 1990; Brown & Fritz, 1988; De Loye, Henggeler, & Daniels, 1993; Eiser, Eiser, & Lang, 1990; Santilli & Roberts, 1993). Although children are relatively knowledgeable about fundamental facets, many hold misperceptions about source and course (e.g., Fassler, McQueen, Duncan, & Copeland, 1990; McElreath & Roberts, 1992; Osborne, Kistner, & Helgemo, 1993; Sigelman, Estrada, Derenowski, & Woods, 1993; Walsh & Bibace, 1991). Investigators are now examining personal characteristics and experiences that may contribute to the development of AIDS-related attitudes and behaviors. In one study, for example, adolescents who knew a person with AIDS (PWA) did not differ from their peers in AIDS knowledge, attitudes, or perceived vulnerability, but they did express less anxiety about interacting with a PWA (Zimet et al., 1991).

The experiences and comments of well-known musicians, athletes, and actors might be expected to have a significant impact on young people, given the well-documented finding that adolescents obtain more of their information about AIDS from television than from parents, teachers, or any other source (Fassler et al., 1990; Henggeler, Melton, & Rodrigue, 1992; Lindauer, Schvaneveldt, & Young, 1993; McElreath & Roberts, 1992). On a more general level, media messages have been shown to influence children's health-promoting and health-risking behaviors (Siegel, 1993). The present paper focuses on a highly salient type of media message: celebrity disclosure. The goal was to compare students' concepts and concerns about AIDS before and after Magic Johnson's announcement that he was HIV-positive. The major research questions were whether this announcement would increase (a) estimates of the likelihood that people in general would contract AIDS, (b) perceptions of personal vulnerability, or (c) frequency of identifying AIDS as a current concern or worry.

OVERVIEW

In three separate studies, sixth-grade students' perceptions of AIDS were assessed before and after the announcement that Magic Johnson had tested positive for HIV. The participants ranged in age from 10 to 13 years. All were attending public schools in Southern California, and most were Caucasian. Study A used a group-administered questionnaire asking students to indicate the likelihood that they themselves and the likelihood that people like them would be affected by specified health and environmental events, while Study B asked similar questions using a private interview format. In Study C, students provided open-ended responses rather than ratings. At the beginning and again at the end of an extensive interview involving multidimensional judgments of risk and

vulnerability, students were asked to describe their current worries and concerns. From content analysis we calculated the frequency of spontaneous mentions of AIDS. These were all between-groups designs, with each student participating in only one study and in either the Time 1 (before announcement) or Time 2 (after announcement) phase.

Although the present paper focuses exclusively on AIDS, it is important to understand the context in which judgments were elicited. In all three studies, AIDS was embedded in a set of 18 other health and environmental events that children and adolescents are likely to confront either directly (personally) or indirectly (through social or media exposure). The goal was not only to select familiar and relevant problems but also to include both chronic (e.g., allergies) and acute (e.g., break a bone) difficulties that covered the spectrum from relatively minor (flu) to severe (cancer). The events were pretested to ensure comprehension, and standard definitions were developed for use on those rare occasions when a student indicated unfamiliarity with one of the concepts. The final set included six disease-injury items (cancer, heart attack, AIDS, broken bone, allergies, flu), six life-style behaviors (use illicit drugs, drink too much alcohol, smoke cigarettes, eat too many unhealthy foods, not get enough exercise, and have too much stress), and seven physical and social environmental hazards (air pollution, acid rain, a big earthquake, fire, chemicals or pesticides in food, toxic waste, and shootings or gang violence).

STUDY A: University of Method Participants

During the Time 1 (before announcement) phase, 100 students were surveyed in May 1991; 144 students participated in the Time 2 (after announcement) phase during the months of December 1991 and January 1992. There were 49 girls and 51 boys in the Time 1 sample and & different group of 72 girls and 72 boys in the Time 2 sample.

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Measure

Students were asked to estimate their own risk (self-vulnerability [SV]) as well as that of people in general (other-vulnerability [OV]) of contracting AIDS and of being affected by the 18 other environmental and health problems listed above. For each of the 19 problems, the SV item asked, "What are your chances? Will this happen to you?" The OV item asked, "Think of other people your age.

What are the chances this will happen to a typical person?" Each event was presented twice on a single page, once for the SV and once for the OV question. Judgments were made on 10-point scales that ranged from will not happen to will happen. The anchors on either side of the midpoint were might not happen and might happen.

The 19 problems were arranged in one of four random orders and presented in response booklets. Order of self- and other-judgments was fixed for each student but counterbalanced within each classroom such that half of the participants always made OV judgments first and half always estimated SV first. In other words, students were randomly assigned to one of four problem orders, and approximately half in each order judged OV and then SV, while the other half judged SV first and then OV.

Procedures

Administered in school classes, the questionnaire took about 15-20 minutes to complete. A trained graduate student gave instructions while another research staff member helped with materials and answered questions. Teachers and other school personnel did not participate in the study. The students were assured that their responses were confidential and anonymous, and they were asked not to put their names on their questionnaires.

The list of events was read aloud before the questionnaires were distributed, and students were encouraged to ask questions if any of the terms were unfamiliar or unknown. Standard definitions were provided on request, but these requests were rare. The rating scale was presented as a type of ruler with 10 marked sections but no numbers. For practice, the students began by indicating their chances of a relatively common event (i.e., being at a ball game on a day the home team wins) and a relatively uncommon event (finding a \$5 bill on the way home from school).

Results

Responses were multiplied by 10 to create 100-point scales. The data were then analyzed in a $2 \times 2 \times 2$ mixed analysis of variance design. There was one within-subject factor, optimistic bias (OB), which contrasted estimates of OV and SV. The other two factors were between subjects: Gender and Time (before announcement or Time 1 vs. after announcement or Time 2).

The means by gender and time are presented in Table I. There was a substantial optimistic bias effect, F(1, 240) = 274.33, p < .001, with OV estimates almost twice those for SV. There were no differences between Time 1 and Time 2, indicating that Magic Johnson's announcement had no discernible

Table 1. Studies A and B: Perceptions of Alibo at Time 1 (Before Announcement) Versus Time 2 (After Announcement)

		Augu	Study A: Group survey			
		Time 1			Time 2	
	Girls	3.00 S	Total (n = 100)	Girls	Boys (n = 72)	Total (n = 144)
Other-vulnerability	\$5.71	48.63	52.17	47.78	49.44	48.61
Self-vulnerability	29.49	25.88	27.69	27.92	26.53	27.22
Optimistic bias	26.22	22.75	24.48	19.86	22.91	21.39
		Study B	Study B: Individual interview		•	
		Time 1			Time 2	
	Girls (n = 24)	Boys (n = 17)	Total $(n = 41)$	Girls (n = 15)	Boys (n = 17)	Total (n = 32)
Other-vulnerability	32.71	52.94	42.83	58.67	53.53	\$6.10
Self-vulnerability	18.96	21.77	20.36	29.00	24.41	26.71
Optimistic bias*	13.75	31.17	22.47	29.62	29.12	29.39

"Time main effect, F(1, 69) = 5.44; p < .05; Time \times Gender interaction, F(1, 69) = 3.80; p < .06.

effect on early adolescents' perceptions of AIDS when measured in this manner. Finally, neither the main effect of gender nor its interactions approached significance.

STUDY B

Method

Participants

The first phase, conducted between May and November 1991, involved 24 girls and 17 boys. The second phase, conducted in November 1991 immediately after the announcement, included a new sample of 15 girls and 17 boys. Prior to their participation, all students had returned signed parental consent forms and given their verbal assent as well. None of these students had participated in Study A.

Measure and Procedures

An interview protocol that focused explicitly on self- and other-vulnerability was developed to parallel the questionnaire used in Study A. Using the same four event orders developed for Study A, we randomly assigned each student to one list for SV and to a different list for OV. The full set of events was rated along one dimension and then along the other dimension, with the SV-OV order counterbalanced.

These 20-minute interviews were conducted in a private setting at school such as the nurse's office. The students were told that the interviewer was interested in their opinions about different things that happen to people and to the environment. They were reassured that there were no right or wrong answers and that their responses would be confidential.

A ring with a 2-inch human figure attached to it was placed in the middle of a rod such that it could slide in either direction. The figure was portrayed as representing either a typical person (OV) or the student (SV). For self-vulnerability, the students were asked to "pretend that this person is you. When I read one of the cards to you, tell me how likely it is that it will happen to you sometime during your life, any time from now on." For other-vulnerability, students were asked to "pretend that this figure is someone else just like you—just a typical person your age. When I read one of the cards, think of other people like you in the United States and tell me how likely you think it is that it will happen to a typical person sometime during his or her life, any time from now on."

The interviewer situated the marker at the center of the rod before reading each event, and the student moved the marker as far as desired to the left to indicate that the event will not happen or to the right to indicate that it will happen. Practice items were used to ensure understanding, and none of the students had difficulty with the task. The 10-inch rod was marked every inch with a strip of tape to help students gauge their responses, but no numbers were visible. The numbers were placed on the back of the rod and recorded unobtrusively, in half-inch increments, by the interviewer.

The major differences between the two studies were that (a) Study B involved a face-to-face interview rather than a guestionnaire; (b) Study B used a three-dimensional visual analog scale rather than a paper-and-pencil rating instrument; and (c) judgments were presented by self-other dimension in Study B and by event in Study A. These differences in assessment mode, response format, and sequencing were designed both to entrance the generality of the findings and to identify sources of methodological specificity.

Results Sepsy.

As in Study A, the data were analyzed in a $2 \times 2 \times 2$ mixed analysis of variance design with one repeated measure, OV versus SV, and two between-subjects factors, Time (before vs. after announcement) and Gender. As can be seen in Table I, there was again substantial indication of optimistic bias, with other-vulnerability estimates generally twice as high as self-vulnerability estimates, F(1, 69) = 74.35, p < .001. There was also a significant Time main effect, F(1, 69) = 5.44, p < .05, and a nearly significant Time \times Gender interaction, F(1, 69) = 3.80, p < .06, reflecting an after-announcement increase in estimates of OV and SV by girls but not by boys. It is interesting to note that, after the announcement, levels for girls and boys did not differ; the before-after difference was attributable largely to the fact that the Time 1 assessments from girls were substantially lower than those from boys.

STUDY C August 18, 2016

Method Participants

The participants were 84 sixth-grade students. The Time 1 phase, conducted between July and December 1990, included 23 girls and 24 boys. The Time 2 phase, conducted between December 1991 and February 1992, involved 18 girls and 19 boys. None of these students had participated in Study A or Study B.

Measure and Procedures

The structured interview protocol was designed for a larger study of young people's health information processing. The major components involved perceptions of the 19 common health and environmental risks described above. This study differed from the others in that four dimensions were assessed: seriousness or severity, population prevalence, personal vulnerability, and perceived controllability over the event or its consequences. As noted above, these dimensional findings will be reported in a subsequent publication. The focus here is on a more qualitative component. At the beginning and the end of the session, open-ended questions were used to elicit students' primary worries or concerns, both in general and as related specifically to (a) health and (b) the environment. The students were asked to identify the things that they worry or "think hard" about. The latter phrasing was included because, during pretesting, several students asserted that they just did not worry.

Once again, interviews were conducted in private. One of five female graduate students conducted each interview, working with an undergraduate observer who assisted with materials and response recording. Interviewers and observers received systematic training, including role-play exercises and observations of ongoing interviews, and followed a set of explicit guidelines. The interviews took approximately 45 minutes to 1 hour, and all were audiotaped.

Students were assured that everything they said was confidential and that there were no right or wrong answers. Given the focus on worries and concerns, special care was taken to prevent iatrogenic (interview-produced) distress. The interview concluded with a positive mood induction phase during which the student was asked to discuss "good things that happen to people—things that make you and others your age feel good." The interviewers were trained not only to conduct the interview in a sensitive manner but also to monitor for any signs of anxiety or distress so that the session could be discontinued. No student appeared distressed by the procedures, and no session was truncated.

Coding

The open-ended responses were transcribed from the audiotapes, and the transcriptions were checked and corrected as needed by a second coder. Once these verbatim transcriptions were obtained, three raters counted the number of students who mentioned AIDS during any of these open-ended components. A stringent criterion was applied such that only those responses that explicitly mentioned AIDS were included. Worries about deadly viruses or incurable illnesses were not counted because such comments could refer to other catastrophic diseases. Interjudge agreement was 100%.

Results

Three sets of frequencies were obtained: the total number of students who mentioned AIDS at the beginning of the interview, the number who mentioned it at the end whether or not they mentioned it initially, and the number who mentioned AIDS on either or both occasions. The beginning-of-interview index may be considered comparable to "free recall" because AIDS had not yet been mentioned by the interviewer. The end-of-interview index reflects "context-cued recall," that is, the number who mentioned the disease after completing the multidimensional ratings of the health and environmental events.

As can be seen in Table II, approximately 25% of the students mentioned AIDS spontaneously at the beginning of the interview, 34-46% mentioned AIDS at the end, and approximately 50% mentioned AIDS on one or both occasions. This within-session increase is probably a joint function of greater comfort as the session progresses and cuing or even disinhibition created by the inclusion of AIDS in the events that were rated.

More pertinent to the present focus is the between-rather than the withinsession comparisons (i.e., frequencies before and after the public announcement). Although the number of AIDS mentions appeared higher on each index after the announcement, as can be seen in Table II, the before-after differences were not significant.

Additional Findings

Detailed analyses of the dimensional ratings are beyond the scope of this paper, yet it should be noted that not one of the dimensions suggested an impact of the announcement. In other words, there were no before-after differences in assessments of the seriousness, population prevalence, personal vulnerability, or controllability of AIDS. Thus, null findings emerged in this study both for openended worries and for structured ratings of risk dimensions.

Table II. Study C: Percentage of Students Naming AIDS as a Concern

	Time 1: Before announcement			Time 2: After announcement		
	Girls (n = 24)	Boys (n = 23)		Girls (n = 18)	Boys (n = 19)	Total (n = 37)
Beginning of interview (Free recall)	25	22	o 24	28	26	27
End of interview (Cued recall)	29	39	34	44	47	46
Beginning or end of interview (Free or Cued recall)	42	48	45	61	53	57

DISCUSSION

Three noteworthy conclusions can be drawn from the studies reported here. The first finding is that even sixth-grade children show a high degree of concern about AIDS, with approximately one in four mentioning AIDS spontaneously when asked to describe current worries. This figure increases to 50% when those who mention it at the beginning of the interview are combined with those mentioning it at the end, after they had evaluated AIDS as one of 19 health and environmental problems.

A second conclusion is that, like adults, preadolescents evidence a substantial degree of what has been called optimistic bias when gauging their risk of contracting AIDS. Whether assessed through individual interviews or group questionnaires, boys and girls rated unknown but similar others as substantially more likely than themselves to contract AIDS. This finding is consistent with previous studies demonstrating that older adolescents and adults display what has been labeled unrealistic optimism across a broad array of risks and hazards, including AIDS (Gladis, Michela, Walter, & Vaughan, 1992; Kirscht et al., 1966; Nemeroff, Brinkman, & Woodward, in press; Weinstein, 1984).

A third conclusion is that Magic Johnson's announcement that he had tested positive for HIV, while it galvanized public and media interest, had at most a modest impact on students' risk perceptions. Three diverse methodologies were used to probe perceptions about AIDS before and after the announcement. During private interviews about perceived vulnerability to AIDS, both self- and other-risk perceptions of sixth-grade girls were higher after than before the announcement. There were increases in vulnerability assessments for both the self and an unknown other, but no change in the level of optimistic bias. This difference was not found for boys, nor did differences emerge for either gender during the group survey of a comparable sample of sixth-grade students. Analogously, no significant difference was found in a third study that included non-directive questions about worries and concerns, even though there was a 12% increase in the number of youngsters spontaneously mentioning AIDS after the announcement.

Both the assessment context and the procedures must be considered when interpreting these findings. None of the studies focused explicitly on AIDS. To the contrary, AIDS was embedded in a set of 18 other health and environmental problems for Studies A and B, and in Study C, the questions about worries were open-ended and nondirective. Thus, the most valid conclusion is that the effects of the announcement on students' risk perceptions, when considered within a broad array of everyday and catastrophic concerns, were quite modest.

Ineluctably, there are limitations and uncertainties when studies are launched in response to an unexpected event rather than following extensive planning and pretesting. Ideally, we would have interviewed individual students

to ensure that they were aware of Magic Johnson's announcement and understood its meaning. Even though this information was not available, numerous discussions with students, parents, and school staff-as well as media exposure-all suggested that young people in Southern California were quite aware of these events. It would also have been useful to assess the personal characteristics of the students in order to compare the Time 1 and Time 2 samples. Although we cannot know for certain, the likelihood of comparability seems high because the participants were drawn from the same schools during two consecutive years. It is also possible that more compelling before-after differences would have emerged in Studies B and C had samples been larger. Perhaps the most important limitation is more logical than procedural: Exen if a marked pattern of beforeafter differences were to surface, it would be difficult to ascribe such changes to the announcement per se, given the many other intervening events between Time 1 and Time 2. In summary, it is always risky to interpret negative results such as these, and readers should do so with caution. The fact that negligible effects emerged across different samples and such diverse methodologies, however, strengthens the validity of the findings.

It is interesting to speculate about the one significant finding that did emerge: an increase in after-announcement ratings by girls during an interview about self- versus other-vulnerability to AIDS. As noted above, the methodology of this study differed from that of the companion group survey in several ways, including the use of a private interview format. The individual assessment context may have facilitated greater attention from these young respondents as well as more candor, given that classmates were not present to distract, influence, or embarrass them.

Most of the participants were white, and data on ethnic identification were unavailable for analysis—two facts that may limit generalizability. It is possible that the effects of Johnson's announcement would have been more detectable in a sample of black students. This possibility is buttressed by a study of adults demonstrating that levels of expressed concern following the disclosure were increased more in African American than in Caucasian men (Kalichman & Hunter, 1992). This study also illustrated the specificity of the effect of celebrity disclosures: Although self-concern and self-estimated risk for getting AIDS did not change, after the announcement adult males expressed more concern about an acquaintance getting AIDS, and they also reported discussing AIDS with friends more often. In future work it would seem desirable to assess the participants' ethnic and perceived similarity to the public figure as well as other attributes that may enhance or undermine the potency of the message (Mays, Flora, Schooler, & Cochran, 1992).

Another factor that should be considered is the timing of the assessments. Study B was the only one in progress precisely when the announcement was made, and thus the before-after phases were separated by only a few days.

School contacts, subject recruitment, and data collection efforts needed to be reestablished for the other two studies and, consequently, more time (i.e., 1 to 2 months) elapsed between the announcement and the Time 2 measures. In subsequent studies of the impact of such salient events, it would be enlightening to collect information during two or more postevent intervals so that the effects of fading exposure and salience can be examined. The need for such information is underscored by a study of risk perceptions following a major earthquake in California (Burger & Palmer, 1992). Optimistic bias concerning natural disasters disappeared immediately following the earthquake but returned within 3 months. Also noteworthy was the specificity of this effect: There were no analogous effects on perceived vulnerability to unrelated hazards such as getting mugged or developing a drinking problem.

It is unclear why the after-announcement interview ratings were higher for girls but not for boys. Previous studies using diverse methodologies have demonstrated that females tend to acknowledge health concerns more readily than do males (Brown & Fritz, 1988; DiClemente, Zorn, & Temoshok, 1987; Gochman & Saucier, 1982; Kirscht et al., 1966). If this oft-found pattern reflects differential concern rather than merely differential willingness to report such concerns, it would follow that girls may be more receptive than their male counterparts to new, risk-relevant information, or perhaps more likely to integrate salient events into their evolving cognitive schemas. This gender difference may have been enhanced by the fact that the graduate student interviewers were female. Consistent with this Study B pattern is the fact that, during the open-ended elicitation of worries in Study C, there was a 19% increase in the proportion of girls who mentioned AIDS after the announcement, in contrast to a 5% increase for boys. These gender differences should be interpreted with caution, however. In Study C, the gender effect failed to reach statistical significance. In Study B, the before-after difference is largely attributable to the fact that the Time 1 assessments of girls were substantially lower than those of boys, not to any gender difference in Time 2 levels.

This series of studies focused exclusively on the cognitive realm; behaviors and intentions were not assessed. Given that it is often easier to modify cognitions than actions (Whalen & Kliewer, in press), it seems reasonable to conclude that the announcement has not had a significant impact in the behavioral realm. Indeed, a failure to find after-announcement changes in the sexual practices or intentions of high school students buttresses this assumption (Who's Who Among American High School Students, 1992). The modest findings reported here should not be interpreted, however, as evidence against the potential significance of affectively laden, real-life events or the educational impact of hero figures. The present study assessed only undirected ripple effects and reminded us that we cannot assume beneficial outcomes no matter how poignant the naturally occurring intervention. The impact of systematically harnessing and in-

corporating information about significant others—especially respected celebrities—into preventive programs has not yet been examined.

In conclusion, the substantial degree of spontaneous concern about AIDS suggests that today's youth view AIDS prevention efforts as relevant and necessary, but the clear indications of optimistic bias suggest that many young people may not yet be acknowledging their personal need for knowledge and prudence, or that when such personalization occurs, it is short-lived. The pattern of findings underscores the need for tailored and concentrated health-protective messages aimed at keeping AIDS in the forefront as young people, who are on the edge of the high-risk period, begin to explore and experiment with risky behaviors. The promise of targeted interventions is clear (Osborne et al., 1993), and their feasibility is buttressed by evidence of widespread parental support for early AIDS education in the schools (Sigelman, Derenoveski, Mullaney, & Siders, 1993). The challenge is to decrease unrealistic optimism by increasing perceptions of personal susceptibility and responsibility, without engendering obsessive worry, unwarranted inhibitions, or reactive risk taking.

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