Egocentrism, Message Explicitness, and AIDS Messages Directed Toward Adolescents: An Application of the Theory of Reasoned Action

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In the context of health promotion campaigns, the present study explored how adolescents process information in making decisions about behavior which could put them at risk for contracting HIV. The theory of reasoned action was employed as a framework. Two manifestations of adolescent egocentrism were studied: personal fable (uniqueness) was proposed to predict attitudes toward behavior; imaginary audience (focus on others) was proposed to predict subjective norms. This study also investigated the effects of a message variable, explicitness. Two levels of explicitness, high and low, were manipulated in two messages. Adolescent participants (N = 492) filled out questionnaires and read and rated a randomly assigned message. Relations among variables in the models differed in the two message conditions. Additional findings pertaining to the nature of the individual variables studied, for example the nature of adolescent egocentrism, are presented. Implications and directions for future research in the theory of reasoned action, message explicitness, adolescent egocentrism, and AIDS education campaigns are discussed.

AIDS is a preventable disease insofar as it can be avoided by changes in behavior (Reardon, 1989; Witte, 1991). In that sense, AIDS prevention is similar to campaigns designed to reduce lung cancer fatalities due to smoking or car accident fatalities due to alcohol consumption. Adolescents have been targeted by AIDS educators because of the incidence of teenage sexual activity and experimentation with drugs, both of which increase potential risk for HIV (Furstenberg, Moore, & Peterson, 1985; Newcomb, Maddahian, & Bentler, 1986). Indeed, epidemiological patterns for adolescents reveal a substantial increase in HIV infection in the past decade. Adolescents may feel free from risk of contracting HIV, yet perceived risk is a significant component in effectiveness of persuasive messages (Boster & Mongeau, 1984; Rogers, 1975).

The purpose of this study is to examine the effects of AIDS education messages targeted toward adolescents. A model predicting adolescents' intentions to behave in ways that could reduce their risk for contracting HIV is proposed and tested. The effects of message explicitness are examined in conjunction with social-cognitive developmental indicators of adolescent egocentrism (Elkind, 1967). This study is needed because 1) adolescents are at risk for contracting HIV; 2) research and campaigns have not generally targeted adolescents; and 3) most work with AIDS campaigns has been atheoretical.

Theory of Reasoned Action

Most of the resources dedicated to AIDS prevention programs have been atheoretical and use inappropriate designs given specific population characteristics (Atkin & Freimuth, 1989; Witte, 1992, 1994). Several researchers have proposed using the theory of reasoned action (TRA) for research on adolescents and risk for contracting HIV (see Atkin & Freimuth, 1989; Fishbein & Middlestadt, 1989; Ross & Rossner, 1989; Witte, 1994), but few studies to date have used the TRA in this context. According to the theory of reasoned action, the best predictor of a behavior is a person's behavioral intention. For example, to change adolescents' behavior regarding HIV, one could persuade them to *intend* to use condoms or to *intend* to abstain from sex. Behavioral intentions, in turn, are determined jointly by two factors: a personal factor (individual's attitude toward the behavior) and a social factor (subjective norm or perception of others' views).

Attitudes are proposed to be a function of beliefs and the evaluation of those beliefs (Fishbein, 1990). A person's evaluation of each belief about the behavior and the strength with which each belief is held jointly influence the attitude (O'Keefe, 1990). For example, a person may believe that using condoms during sexual intercourse will prevent AIDS but may believe more strongly that not using condoms will convey trust to a partner. This leads to:

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H1: Attitudes toward avoiding risk behavior will predict behavioral intentions.

Subjective norm is one's perception that important others desire performance of a specific behavior. The normative component is measured by the product of perceived (1) expectation of others and (2) motivation to comply. Expectation of others (i.e., what valued others think about the behavior) could influence a person's behavior, but only if the person thought it was important to comply with these attitudes. Individuals may hold positive attitudes toward a behavior, but not act on it because of disapproval of significant others. On the other hand, individuals with negative attitudes toward a behavior may still perform a behavior because of the influence of significant others. This suggests:

H2: Subjective norms will predict behavioral intentions.

The theory of reasoned action suggests that social norms are extremely influential in choices about sexual behavior (Rhodes & Wolitski, 1990), but there has been little research in this area. DiClemente (1990) reported that adolescents who perceived referent-group norms as supporting condom use were almost twice as likely to report using condoms during sexual intercourse. For adolescents, peers are an especially powerful source of normative influence (e.g., Cohen, Brook, & Kandel, 1991; Foster-Clark & Blyth, 1991; Rotheram-Borus & Koopman, 1991). Researchers also have found that parents and adults outside the family can be influential, depending on the issue (Foster-Clark & Blyth, 1991; Marin & Marin-VanOss, 1990; Niles, 1981; Young & Ferguson, 1979).

Theory of reasoned action in health contexts. The TRA has been applied to predict a variety of behaviors such as smoking (Chassin et al., 1981; Fishbein, 1980), using contraceptives (Fisher, 1984; Jaccard & Davidson, 1972), and drinking (Budd & Spencer, 1985; Schlegel, Crawford, & Sanbourn, 1977). Several researchers specifically applied the theory of reasoned action to AIDS interventions (Fishbein, 1990; Fishbein & Middlestadt, 1989; Fishbein, Middlestadt, & Hitchcock, 1991). Fishbein (1990) described research in progress to predict American and Mexican male and female college students' differential intentions to use condoms. Fishbein found significant between- and within-culture differences. Specifically, U.S. male students' intentions to use condoms were predominantly under normative control, but Mexican male students' intentions were primarily under attitudinal control. Like U.S. men, U.S. female students' intentions to tell their partner to use a condom were under normative control. For the Mexican female students, however, this intention was determined equally by subjective norms and attitudes. Fishbein (1990) also presented preliminary results of another study with sexually experienced and inexperienced males. For sexually inexperienced males, intention to use condoms was under attitudinal control, but the same behavior was under normative control for sexually experienced males. Pleck, Sonenstein, and Ku (1990) also reported that sexual experience for males was associated with differences in perceptions of the costs and benefits of some, but not all, aspects of using condoms.

Predictors of Attitudes and Subjective Norms

Three predictors of attitudes and norms will be proposed. Knowledge of AIDS and personal fable are proposed to predict attitudes, and imaginary audience is proposed to predict subjective norms.

Knowledge of AIDS. The TRA postulates only indirect links between knowledge and behavioral change. Indeed, knowledge without modification of attitudes or perception of AIDS as a personal concern has been shown to have little effect on behavior (Ross & Rossner, 1989). On the other hand, the main impetus of AIDS interventions with adolescents had been to provide more information (increase knowledge). Knowledge, if effective at all, should predict attitudes, probably through the belief component.

There are conflicting reports of the level of adolescent knowledge of AIDS in the United States. Most recent studies indicate students are generally well informed about AIDS (e.g., Brown, 1992; DiClemente, Zorn, & Temoshok, 1986, 1987; Gray & Saracino, 1989; Roscoe & Kruger, 1990; Sunenblick, 1988). Some have reported that none or few students have translated their knowledge into behavior change (Baldwin & Baldwin, 1988; Edgar, Freimuth, & Hammond, 1988; Gray & Saracino, 1989; Ross & Rossner, 1989; Simkins & Eberhage, 1984; Skurnick, Johnson, Quinones, Foster, & Louria, 1991; Sunenblick, 1988). Others have reported that students' knowledge about AIDS significantly influenced risk reduction behaviors (Carroll, 1988; Rickert, Jay, Gottlieb, & Bridges, 1989). Further study, especially considering theories incorporating knowledge as a variable, is clearly needed. The authors propose:

H3: High knowledge of AIDS will predict more positive attitudes toward avoiding risk behavior.

Adolescent Egocentrism

A model of AIDS prevention among adolescents must also include cognitive–developmental factors. Processes of normal development may lead to activities which place adolescents at high risk for contracting HIV (Sunenblick, 1988). Egocentrism, in particular, may be critical in processing health messages (Orr & Ingersoll, 1991). Egocentrism refers to a lack of differentiation in some area of subject–object interaction (Piaget, 1962). Specifically, formal operational egocentrism revolves around differentiation of self from other selves (Inhelder & Piaget, 1958). The

components of formal operational egocentrism have been used to explain a range of typical adolescent behaviors including heightened self-consciousness, risk taking, idealism (Lapsley, Milstead, Quintana, Flannery, & Buss, 1986), and loudness and faddish dress (Elkind, 1967). Elkind (1967) proposed the emergence of two egocentric phenomena in adolescence: personal fable and imaginary audience.

Adolescent personal fable. Personal fable is the tendency for adolescents to believe they are so unique that no one else can understand their problems or ever have their experiences (Elkind, 1967, 1978). Personal fable has been used to explain reckless behavior such as drug use and failure to use contraceptives (Cvetkovich, Grote, Bjorseth, & Sarkissian, 1975; Irwin & Millstein, 1986). Personal fable may affect contraceptive use if adolescents fail to apply laws of probability to themselves. Adolescents high in personal fable feel invincible and believe natural laws relating to mortality and fertility do not apply to them (Gershenson & Handler, 1985). If a person truly believes that s/he cannot contract HIV, then AIDS messages, as they have been constructed in the past, would produce little behavioral change (Boyer & Hein, 1991). Clearly this developmental phenomenon, personal fable, should be considered when constructing AIDS prevention messages for adolescents. It is more likely to be associated with the attitude than the normative component of the TRA. This leads to:

H4: Higher personal fable will predict more negative attitudes toward risk avoiding behavior.

Adolescent imaginary audience. Imaginary audience is an adolescent's false assumption that others are thinking about him/her (Elkind, 1967) and are preoccupied with thoughts about him/her. Adolescents believe others are paying more attention to them than is actually the case (Enright, Shukla, & Lapsley, 1980), so imaginary audience is more a product of the adolescent's own cognitions than an actual occurrence. Adolescents who are overly concerned with themselves extend this preoccupation and assume others are just as preoccupied with them. In relation to sexuality, imaginary audience might function like this (see Cvetkovich et al., 1975): the adolescent focuses on the reactions of others to her/his sexual behavior (e.g., condom use) and modifies behavior based on these anticipations. Imaginary audience has not been investigated in conjunction with how adolescents make decisions about risk behavior, but it is likely to be related to the normative component of the theory of reasoned action as follows:

H5: Higher imaginary audience will predict more sensitivity to subjective norms.

Age differences in egocentrism. The differences reported by grade for personal fable and imaginary audience have been relatively consistent, with egocentrism scores generally decreasing through adolescence (see Elkind & Bowen , 1979; Enright, Lapsley, & Shukla 1979; Enright et al., 1980; Simmons, Rosenberg, & Rosenberg, 1973). These two phenomena are thought to emerge around age 11 or 12 and decline over time (age 15 or 16) with consolidation of formal operational thought. Thus:

H6: Age will be inversely related to both personal fable and imaginary audience.

Gender differences in egocentrism. Differences by gender in egocentrism appear to function in opposite ways for imaginary audience and personal fable. Most researchers have reported that girls scored significantly higher on imaginary audience measures (e.g., Elkind & Bowen, 1979; Enright et al., 1980; Hudson & Gray, 1986; Lapsley, FitzGerald, Rice, & Jackson, 1989; Pesce & Harding, 1986; Riley, Adams, & Nielsen, 1984; Walters et al., 1991). Boys scored higher on personal fable (FitzGerald, 1991; Lapsley et al., 1989). Therefore:

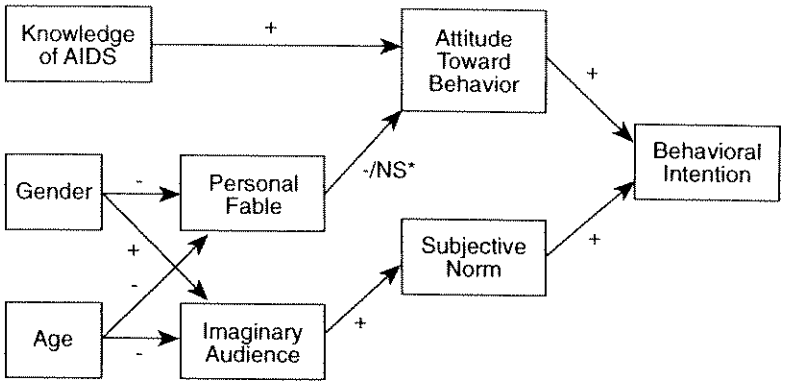
H7: Women will score higher on imaginary audience, and men will score higher on personal fable.

Message Variable Should Affect Attitude toward Avoiding Risk Behavior

Developmental variables like egocentrism may provide an important key to understanding adolescents' responses to AIDS messages. Adolescents high in personal fable may require more explicit messages to break through their aura of invincibility, specifically to affect their attitudes. Some researchers have advocated use of explicit messages in AIDS campaigns, though this type of explicit detail has been avoided in past AIDS education campaigns (Rotheram-Borus & Koopman, 1991). Explicit detail is conceptually similar to variables like explicit conclusions and verbal immediacy, both of which have received little attention in constructing health messages.

Explicitness in the present study is equated with straightforward detail such that explicit messages leave no doubt about their possible meaning (Nystrand & Wiemelt, 1991). Brown, Waszak, and Childers (1989) stated, "Most [campaigns] deliberately did not include explicit references to sex or condoms to get air time and avoid political fallout" (p. 102). Explicitness might thus serve to personalize AIDS messages. By personalizing AIDS messages, it might be possible to reduce the negative effect of personal fable (invincibility) on attitudes. Thus:

H8: There will be differences in the models based on language explicitness, specifically in the path from personal fable to attitude toward avoiding risk behavior.



**Model will be tested separately and compared for implicit and explicit messages. Specifically, the path from personal fable to attitude should be different.*

FIGURE 1 Proposed Model for AIDS

Summary for Proposed Model

The model presented in Figure 1 will be tested by combining the hypotheses reviewed. Models will be tested for high and low explicit messages to examine differences in the path from personal fable to attitude.

METHOD

Participants

To enable cross-sectional comparisons, three grade levels were sampled (N = 492): eighth grade students (n = 230), eleventh and twelfth grade students (n = 106), and first and second year college students (n = 156). The junior high students ranged in age from 13–15 (M = 14.5), high school from 17–19 (M = 17.7), and college from 19–21 (M = 20.3). No students refused participation. The sample included 290 women (58%) and 202 men (42%), and participants were 80% Caucasian. Schools in and around a mid-sized southeastern community were contacted to recruit junior high and high school participants. College students were recruited from introductory communication courses at a large southeastern university.

Overview of Procedure

The data collection procedure was comprised of three stages: (1) pre-measures, (2) the stimulus message, and (3) post-measures. Participants

were asked initially to fill out measures assessing imaginary audience, personal fable, knowledge of AIDS, and demographic information. After completing these instruments, participants read one of four randomly assigned AIDS messages. Each of the four messages represented two levels of manipulated explicitness (high/low explicit) replicated across passages (A and B). When participants finished reading the stimulus AIDS message, they returned it and the initial measures to the investigator to prevent contamination with the measures to follow. Participants then completed another set of measures including, (1) attitude toward avoiding risk behavior, (2) subjective norms, and (3) behavioral intention.

Stimulus materials. The two stimulus messages used in this study were adapted from messages currently in use by health care educators. The specific behavioral recommendations urged students to: use condoms properly, use condoms regularly, engage in only monogamous sex, abstain from sex, screen sexual partners, and reduce risky sexual acts.

In the high explicit version, each behavioral recommendation is explicitly detailed rather than simply informative. The differences in the high and low explicit messages were primarily located in the section of the message articulating risk reduction methods.[1] For example, one low explicit passage read, "Reducing sexual activity can help reduce your risk for getting AIDS." The parallel high explicit passage stated, "Every different person you have sex with increases your risk of getting AIDS." The length of the messages was similar with the low explicit messages being slightly shorter. Messages were presented with a short introduction.[2]

Two message passages were constructed to estimate possible passage-specific effects (see Hunter, Hamilton, & Allen, 1989). The message passages (A and B) were held constant for length and number of specific risk-avoidance recommendations. T-tests indicated no significant differ-

[1] The stimulus messages were pretested with 100 college students. Results indicated the high explicit message was perceived as more explicit ($t(95) = 3.29$; $p = .001$) than the low explicit message. The manipulation check for explicitness did not function entirely as predicted in the main study as there was no significant main effect for perceived explicitness ($F(1, 480) = .56$; $p = .45$). A significant effect for explicitness on the marker variable would have provided a more convincing explanation. Nevertheless, the differential impact of message versions on the relations in the models is a type of validation of the manipulation. It is quite plausible that audiences can experience the effect of a message without realizing or being able to articulate the content.

[2] The message introduction stated, "Next, we would like you to read a message about AIDS. Students your age on a special teenage task force wrote this message to tell people how to avoid getting AIDS. With the exception of corrected spelling, this message was typed exactly as the students wrote it. Please read the message carefully. Take as long as you like. We will ask you some questions about it later. When you are finished reading the message, return this booklet to the researcher. The researcher will give you the last part of the survey."

ences in perceived explicitness between passages. Consequently, results for the two passages were combined in subsequent path analyses.

Instruments

The variables measured in the model (see Figure 1) included behavioral intention, attitude toward risk behavior, knowledge of AIDS, personal fable, subjective norm, imaginary audience, age, and gender. All measures (except knowledge) were subjected to exploratory factor analyses (varimax rotation) to confirm unidimensionality.

Behavioral intention. This scale tapped participants' intentions to behave in ways which could reduce their risk of contracting AIDS through sexual contact, and contained six five-point Likert items. Each of the items was presented with responses ranging from "Strongly Agree" to "Strongly Disagree." The items included the following: "I am likely to limit my number of sexual partners in the future"; "I am likely to ask my sexual partner about his/her past sexual experience"; "I am likely to be monogamous (have only one sexual partner) in the future"; "I am likely to use (have my partner use) condoms every time I have sex in the future"; "I am likely to avoid sexual intercourse with people who may be at risk for AIDS"; and "I am likely to abstain from (not have) sexual intercourse in the future." These items were constructed to correspond to the message content. After a factor analysis, one item (abstain) was deleted, and the five-item revised scale yielded a unidimensional scale. The reliability was moderate ($\alpha = .69$), but improved within age group (college, .73; high school, .67; junior high, .77). These five items were summed and averaged to form a composite scale with a high score indicating more intention to reduce risk behaviors.

Attitude toward avoiding risk behavior. Attitude in this study was measured as evaluation of behavioral beliefs but not belief strength. The attitude component of the theory of reasoned action has proven simpler to measure in past research than subjective norm, with correlations between attitude toward behavior and the sum of belief evaluation and belief strength generally above .65 (see O'Keefe, 1990; specifically Bagozzi, 1982; Fishbein, Ajzen, & Hinkle, 1980; Jaccard & Davidson, 1972; King, 1975; Riddle, 1980). The measure of attitude toward avoiding risk behavior consisted of six five-point Likert items that paralleled the measure of behavioral intention, for example, "Avoiding sexual intercourse with people who may be at risk for AIDS is good" and "Limiting a person's number of sexual partners to a few is good." Following a factor analysis, one item (abstain) was deleted, and the remaining five-item scale yielded a unidimensional scale. The reliability was moderate ($\alpha = .68$) but improved within age group (college, .74; high school, .68; junior high, .73). The five items were summed and averaged to form a composite scale

with a high score indicating more positive attitudes toward risk-reducing behavior.

Knowledge of AIDS. The measure of knowledge of AIDS proposed in the present research was derived from previous research (DiClemente et al., 1987). Modifications from pretest results yielded an 11-item measure with responses of "True", "False", "Don't Know."[3] Participants who responded "Don't Know" were scored as responding incorrectly to that item. The item difficulties ranged from .25 to .98 (M = .73). All of the discrimination scores were positive (M = .30), indicating that the high knowledge group scored higher on each of the items than did the low knowledge group. There were, however, three items which did not discriminate more than 10% between high and low knowledge groups and were deleted. The remaining eight items were summed to form a composite scale with a high score indicating more accurate knowledge of AIDS (KR–20 = .36).

Personal fable. The personal fable scale used in the present research was developed by D.K. Lapsley (personal communication, October 18, 1991). Personal fable has been equated with a uniqueness dimension by previous researchers (e.g., Dolcini et al., 1989; Enright et al., 1979; Enright et al., 1980). Six uniqueness items were included: "No one has the same thoughts and feelings that I have," "I'm somehow different from everyone else," "I'm the only one that can understand me," "Nobody will ever really know what I am like," "No one sees the world the way I do," and "Sometimes I think that no one really understands me." The scale was unidimensional, and the reliability was moderate ($\alpha = .72$) but improved within age group (college, .73; high school, .78; junior high, .70). The six items were summed and averaged to form a composite scale with higher scores indicating more personal fable uniqueness characteristics.

Subjective norm. Subjective norm is calculated as a function of two components: 1) expectations of significant others, and 2) motivation to comply. Three targets for the measures of subjective norm were used in the present research: peers, parent(s), and a respected adult. For the respected adult, participants were asked to think about a specific adult they respected (other than parents).

The measure of expectations of significant others contained 18 Likert items that paralleled the measures of behavioral intention and

[3] The eleven items used in the present study included the following: "AIDS is caused by a virus"; "You can get AIDS from donating blood"; "Most homosexuals have AIDS"; "If you kiss someone with AIDS, you can get AIDS"; "You can tell if people have the AIDS virus by looking at them"; "The cause of AIDS is unknown"; "Using a condom during sex can lower the risk of getting AIDS"; "People with AIDS usually have lots of other diseases as a result of AIDS"; "There is no cure for AIDS"; "AIDS can be cured if treated early"; and "A new vaccine has recently been developed for the treatment of AIDS."

attitude, for example, "My friends think that using (having partners use) a condom every time someone has sex is good" and "My friends think that limiting one's number of sexual partners to a few is good." These six items were repeated, changing the target from friends to parent(s), then to a respected adult. After deletion of the abstinence items, these scales were unidimensional and were summed and averaged to form three composite scales (friends, parents, and respected adult) with higher scores indicating perception of more positive attitudes toward avoiding risk behavior.

The measure of motivation to comply with significant others contained six Likert items (two items repeated for three target groups). The items included the following: "What my friends think is important to me" and "It is important for me to do what my friends think I should do." These items were repeated for parent(s) and a respected adult. These pairs of items were unidimensional and were summed and averaged to form three composite scales with higher scores indicating more motivation to comply with target(s).

In order to create the scores for subjective norm, three product variables were created. This procedure is consistent with ones reported by Ajzen and Fishbein (1980). The score for motivation to comply for friends was multiplied by the score for expectations of friends, producing a possible range of 1 to 25. This procedure was repeated for parents and then for the respected adult scores. These three scores were then summed and averaged to form a single indicator with a higher score indicating more subjective norm. The reliability was moderate ($\alpha = .64$) but improved within age group (college, .68; high school, .69; junior high, .63).

Imaginary audience. Imaginary audience was proposed to be a predictor of subjective norm, particularly to influence motivation to comply. The imaginary audience scale included ten Likert-type items developed by Walters et al. (1991) with four-point responses ranging from "Always" to "Never."[4] The scale was unidimensional, and the reliability was good ($\alpha = .83$) and improved within age group (college, .83; high school, .82; junior high, .84). The items were summed and averaged to form a composite scale with a higher score indicating more imaginary audience.

[4] The imaginary audience items were selected from Walters et al. (1991) on the basis of item loading on their first factor (.5 or above). The following ten items were retained: "Feel uncomfortable because everyone is looking at you when something is wrong with the way you look"; "Feel nervous because you worry about whether people like you"; "Feel awful because you hair got soaked on the way to an important party"; "Feel embarrassed because your parents would not let you go to a party with older popular friends"; "Feel terribly embarrassed because of a big pimple on your nose"; "Feel embarrassed because when you arrived you found that you were dressed wrong for a party"; "Feel embarrassed because you think others are thinking about you because you do not have a date for an important party"; "Feel embarrassed at not being invited to a boy–girl party"; "Feel embarrassed because you think your friends feel sorry for you because you do not have enough money to pay a bill at a restaurant"; and "Wonder what other kids are thinking about you when you are at a party where you don't know anyone."

RESULTS

Results of Analyses of Variance

Each post-message variable was first subjected to a separate four-way analysis of variance, with participants nested in combinations of message explicitness (high and low explicit), message passage (A and B), grade (8th, 11/12th, and college), and gender. Results for post-message variables are presented in Table 1. ANOVAs for pre-message variables were run by grade and gender. Post hoc differences in means were tested via PLSD procedure. A zero-order correlation matrix is presented in Table 2.

Behavioral intention. There was a significant main effect for grade, with college students ($M = 4.47$) and high school students ($M = 4.40$) reporting more positive behavioral intention than junior high students ($M = 4.25$). There was also a significant main effect for gender, with women ($M = 4.47$) scoring higher on behavioral intention than men ($M = 4.19$).

Subjective norm. There was a significant main effect for grade, with college students ($M = 16.22$) reporting the highest scores on subjective norm, followed by high school students ($M = 15.29$) and finally junior high students ($M = 14.62$). There was also a significant main effect for gender, with women ($M = 15.98$) scoring higher than men ($M = 14.25$).

Attitude toward avoiding risk behavior. There was a significant main effect for grade, with college students ($M = 4.68$) and high school students ($M = 4.60$) reporting more positive attitudes toward avoiding risk behavior than junior high students ($M = 4.38$). There was also a significant main effect for gender, with women ($M = 4.60$) scoring higher on attitude toward avoiding risk behavior than men ($M = 4.42$).

Knowledge of AIDS. There was a significant main effect for grade ($F(2, 486) = 10.49$; $p < .001$). Both college students ($M = 14.22$) and high school students ($M = 14.14$) had more accurate knowledge of AIDS than junior high students ($M = 13.63$). There was no significant main effect for gender.

Imaginary audience. There was a significant main effect for grade ($F(2, 486) = 11.09$; $p < .001$), with both college students ($M = 2.36$) and junior high students ($M = 2.46$) scoring higher on imaginary audience than high school students ($M = 2.17$). Women ($M = 2.46$) had significantly higher scores on imaginary audience ($F(2, 486) = 23.28$; $p < .001$) than men ($M = 2.23$).

Personal fable. There was a significant main effect for grade ($F(2, 486) = 5.76$; $p < .01$). College students ($M = 2.66$) scored lowest on

TABLE 1 Summary of ANOVAs for Post-Message Variables in the Model

	Behavioral Intention		*Subjective Norm*		*Attitude Toward Behavior*	
Effect	*Ms*	*F*	*Ms*	*F*	*Ms*	*F*
Language Manipulation	.05	.17	17.65	1.85	.07	.26
Message Passage	.11	.36	.89	.09	.84	3.12
Grade	1.67	5.69*	77.85	8.14**	3.73	13.78**
Gender	7.35	24.97**	273.79	28.62**	2.50	9.24*
Lang. Manip. X Passage	.24	.83	3.68	.39	.05	.20
Lang. Manip. X Grade	.18	.62	10.78	1.13	.09	.35
Lang. Manip. X Gender	.01	.04	10.77	1.13	.08	.30
Passage X Grade	.13	.46	18.70	1.96	.19	.72
Passage X Gender	.05	.16	2.66	.28	.37	1.37
Grade X Gender	1.56	5.30*	12.99	1.36	.16	.60
Lang. Manip. X Passage X Grade	.36	1.24	1.43	.15	.06	.22
Lang. Manip. X Passage X Gender	.32	1.09	3.93	.41	.01	.05
Lang. Manip. X Grade X Gender	.13	.45	20.59	2.15	.39	1.44
Passage X Grade X Gender	.17	.58	8.94	.94	.22	.81
Lang. Manip. X Passage X Grade X Gender	.08	.28	13.37	1.40	.19	.71
Error	.29		9.57		.27	

*$p < .01$; **$p < .001$

personal fable, followed and high school students (M = 2.83). Junior high students (M = 2.98) scored highest. Differences by gender were also predicted for personal fable. Men (M = 2.96) had significantly higher scores on personal fable ($F(2, 486) = 5.56$; $p < .01$) than did women (M = 2.77).

TABLE 2 Pearson Correlations Among Variables in the Model

Variable	*Imag. Aud.*	*Pers. Fable*	*Know.*	*Att. Beh.*	*Subj. Norm*	*Beh. Intent.*	*Age*
Imaginary Audience	1.0						
Personal Fable	.03	1.0					
Knowledge of AIDS	-.03	-.07	1.0				
Attitude Toward Risk Beh.	-.01	-.16**	.04	1.0			
Subjective Norm	.20**	-.16**	.09	.50**	1.0		
Behavioral Intention	.03	-.14**	.03	.40**	.39**	1.0	
Age	-.13*	-.15*	.17*	.24**	.20**	.17**	1.0

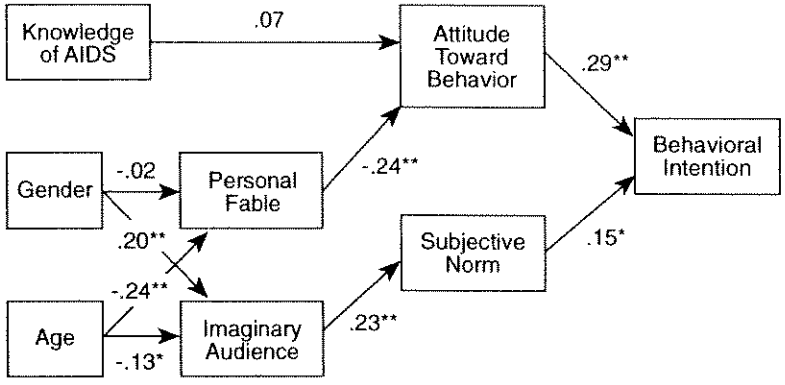
*$p < .01$; **$p < .001$

Results of Path Models

The model presented in Figure 1 was tested twice using LISREL 7.16 (Joreskog & Sorbom, 1990). It was tested (combining passages A and B) separately for high explicit messages and then low explicit messages predicting behavioral intention.

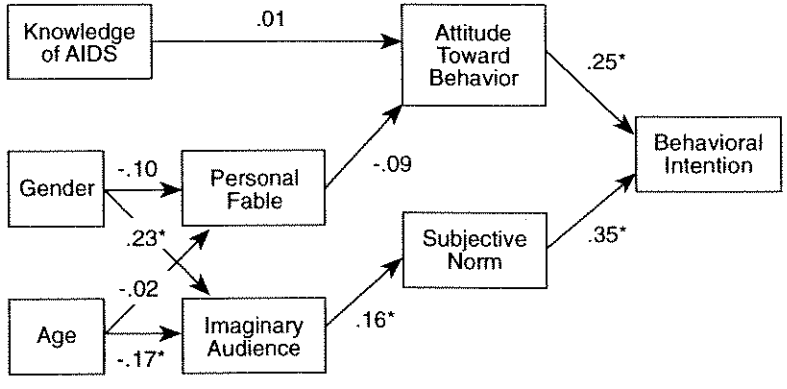
Results of model predicting behavioral intention for high explicit messages. The overall fit of the model for high explicit messages was moderate, accounting for 15% of the variance in behavioral intention. Of the nine paths proposed, seven proved to be statistically significant. The observed path coefficients are presented in Figure 2. The model yielded a chi-square of 132.40 ($df = 16$; $p < .001$), indicating the model might be rejected. Additional evidence (GFI = .88), however, indicated the model approached the recommended .9 level, and only two of the standardized residuals were greater than could be expected by sampling error. The modification indices indicated that freeing the path from subjective norm to attitude ($\beta = .502$) would significantly improve the model. This model yielded a chi-square of 59.9 ($df = 15$; $p < .001$) indicating this model might also be rejected. Additional evidence indicated this model exceeded the recommended .9 level (GFI = .95), and none of the standardized errors was greater than could be expected by sampling error.

Results of model predicting behavioral intention for low explicit messages. The overall fit of the model for low explicit messages was



*p < .05; **p < .01

FIGURE 2 Betas for Model Predicting Behavioral Intention for High Explicit Messages



*p < .05

FIGURE 3 Betas for Model Predicting Behavioral Intention for Low Explicit Messages

moderate, accounting for 27% of the variance in behavioral intention. Of the nine paths proposed, five proved to be statistically significant. The observed path coefficients are presented in Figure 3. The model yielded a chi-square of 112.79 ($df = 16$; $p < .001$), indicating the model might be rejected. Additional evidence (GFI = .91), however, indicated the model reached the recommended .9 level, and only two of the standardized residuals were greater than could be expected by sampling error. The modification indices indicated that freeing the path from subjective norm to attitude ($\beta = .484$) would significantly improve the model. This model yielded a chi-square of 48 ($df = 15$; $p < .001$) indicating this model might also be rejected. Additional evidence indicated this model exceeded the recommended .9 level (GFI = .96), and only one of the standardized errors was greater than could be expected by sampling error.

DISCUSSION

This study proposed that the theory of reasoned action would be a useful way of understanding adolescents' intentions to behave in ways to reduce their risk of contracting HIV. Using this framework, attitude toward avoiding risk behavior and subjective norm predicted behavioral intention. Other variables, egocentrism and knowledge, were proposed to predict attitudes toward avoiding risk behavior and subjective norm. There was also a message variable, explicitness, that was proposed as an intervention. Results of this study indicate that the variables in the model were generally related in ways predicted by theory and past research.

Findings for Proposed Models

The hypothesized paths generally functioned as predicted, and the paths in the model were all in hypothesized directions. The hypothesized models fit the data moderately well. In large samples, virtually any model tends to be rejected as inadequate (Bentler & Bonett, 1980) because the chi-square statistic is so sensitive to sample size. Additional information (e.g., GFI, residuals) indicated the proposed model was useful in explaining relations. Indeed, when considering sample size, the effect of freeing the path from subjective norm to attitude, and other fit indicators, the models were particularly promising.

Components of TRA. The items measuring behavioral intention were developed according to Ajzen and Fishbein's (1980) criteria and were specific in terms of target and action. Behavioral intention was directly correlated with attitude toward avoiding risk behavior and subjective norm. Participants who reported more intention to behave in ways to reduce their risk of contracting HIV had more positive attitudes toward avoiding behavior which could put them at risk for contracting HIV and scored higher on subjective norms.

Participants who reported positive attitudes toward avoiding risk behavior also reported lower scores on personal fable or less feeling of uniqueness (r = -.16). As predicted, personal fable may interfere with the ability to understand risk of contracting HIV, thus adolescents may not personalize the risk. This relation between attitude and personal fable was affected, as predicted, by message explicitness.

Subjective norm was directly correlated (r = .20) with imaginary audience as predicted. That is, participants who scored higher on subjective norm reported higher scores on imaginary audience. Both of these variables are focused on what influence others have.

Knowledge of AIDS. Many researchers have reported baseline information about the level of knowledge of AIDS in this country. Much of this research has been based on the assumption that increasing knowledge will result in behavior and attitude change, but these relations have not been well established (see Hornik, 1989).

One interesting finding in this study was the lack of relationships between knowledge and behavioral intention and knowledge and attitude. These findings support other researchers (e.g., Gray & Saracino, 1989; Skurnick et al., 1991; Sunenblick, 1988) who have reported no relation between knowledge and behavior in the context of AIDS. These findings should serve as a caution to those developing education strategies focused solely on increased knowledge leading to attitude or behavior change.

Adolescent egocentrism. Both age and gender differences for imaginary audience and personal fable functioned as predicted in this study, another indication of the importance of segmenting audiences for message dissemination. Measurement of imaginary audience has proven problematic in past research (see Walters et al., 1991), but the newly derived scale proved to be a good measure of imaginary audience in the present study. Imaginary audience was a good predictor of subjective norm. Women scored higher on imaginary audience than did men as predicted and as reported by previous researchers.

Measurement of the personal fable construct has also proven problematic in previous research. Part of the scale constructed by D.K. Lapsley (personal communication, October 18, 1991) was used in the present study. These results indicate a need for more work on measurement of this construct. Personal fable, as predicted, was associated with attitudes toward risky behavior, and the manipulation of explicitness affected this relation as expected. Men scored higher on personal fable than did women as predicted and as reported by previous researchers.

The evidence related to personal fable (uniqueness) in this study is similar to research findings concerning the relation between fear or threat appeals and age. Specifically, meta-analytic evidence shows that fear or

threat appeals are ineffective for younger audiences. Young people may believe that they are not susceptible to the negative consequences enumerated in the appeal (perhaps believing the message cannot be directed at them). As audiences grow older, their perceived vulnerability to risks increases and fear or threat appeals become more effective (Boster & Mongeau, 1984). Theories explaining personal fable are consistent with these fear/threat appeal findings.

Findings for the Theory of Reasoned Action

The theory of reasoned action has received only limited use in the context of AIDS-related behavior research (e.g., Fishbein, 1990; Pleck et al., 1990). The present results indicate that the theory of reasoned action is a useful way of understanding adolescents' risk-taking behavioral intention. Both adolescents' attitudes toward avoiding risk behavior and subjective norm were good predictors of their intentions to behave in ways to reduce their risk of contracting HIV. The strongest relations in the models presented in this study were among attitude toward avoiding risk behavior, subjective norm, and behavioral intention (rs = .39–.50). There was indication that subjective norm and attitude toward avoiding risk behavior could be predicted by other variables. Specifically, personal fable predicted attitude toward avoiding risk behavior (r = -.16), and imaginary audience predicted subjective norm (r = .20).

Findings for Message Explicitness

The language manipulation in this study, explicitness, was effective in changing relations among variables in the model. In the present study, explicitness was conceptualized at the argument or phrase level. The high explicit messages functioned to strengthen the relation between attitude toward avoiding risk behavior and behavioral intention. The path from personal fable to attitude toward avoiding risk behavior was negative, so high scores on personal fable are associated with negative attitudes toward avoiding risk behavior. Reading the high explicit message maximized this inverse relation. For participants low in personal fable this could certainly be beneficial, but it is potentially problematic for adolescents high in personal fable (younger participants).

The low explicit messages functioned to strengthen the relation between subjective norm and behavioral intention. The relation between imaginary audience and subjective norm is direct (for both high and low messages). That is, heightened imaginary audience may allow adolescents to focus on norms in a way that reinforces risk avoidance behaviors (if the norms are positive and not negative toward avoiding risk behavior). The relation between personal fable and attitude toward avoiding risk behavior in the low explicit condition was not significantly different

from zero. Using low explicit message, the personal fable aspect of egocentrism was not related to attitude toward avoiding risk behavior, and this is encouraging.

Limitations

Results of this study should be interpreted with some caution. There was no control condition used, and the simple repetition of information in the low explicit message to help control for length differences could also confound results. The study also employed a measure of behavioral intention rather than a measure of behavior as the outcome. This study was designed to test a developmental theory, but it employed three representative groups rather than sampling from all adolescent ages. The level of measurement in this area of the field is not very advanced. The reliabilities were generally moderate in this study. This should be a caution to continue to examine measurement in this field carefully.

Implications

Implications for AIDS campaigners. These data point to two specific ways to address adolescents. One is to use low explicit messages to target adolescents' normative beliefs, particularly for younger adolescents (higher in personal fable and imaginary audience). Another approach would use high explicit messages to target adolescents' attitudes toward risk behavior, and this might be more effective with older adolescents (low in personal fable).

This study showed that messages targeting eighth grade students, high in personal fable, may be most effective using less explicit language and focusing on either reinforcing or changing normative beliefs. Adolescents who are in an environment where they perceive that peers, parents, and important adults all support their risk avoidance may need to be reinforced. Messages directed toward high school students or college students, in contrast, must use high explicit language and focus on either reinforcing or changing attitudes toward avoiding risk behavior. These messages should target individuals' attitudes rather than norms.

The results of these data reinforce the need for campaigns specifically tailored to audience needs; adolescents cannot be treated as a single population. There were differences by grade on most variables in this study, an indication that messages should be developed separately for each of these three grade groups, not always a current practice. Other large differences were by gender, indicating that AIDS prevention messages cannot be expected to have the same effects on women and men.

Implications for egocentrism in model development. The role of egocentrism in adolescents' processing of health messages has been virtually ignored by previous researchers. Scholars have missed an important explanation for adolescent risk behavior. If there is an important message, such as protection from AIDS, it is useful to know how adolescents *think* about this behavior. This thought process is related to where adolescents are developmentally.

These results indicate that both imaginary audience and personal fable, are useful in predicting adolescents' intentions to behave in ways to reduce their risk of contracting HIV. High imaginary audience is associated with increased subjective norm which affects behavioral intention in what may be a positive way. Personal fable, however, interferes with adolescents' abilities to understand risk of contracting AIDS, specifically by affecting attitudes toward avoiding risk behavior. Clearly, in terms of risky behavior, imaginary audience is less of a problem than personal fable and may make adolescents more cautious. However, the value of imaginary audience for promoting caution can be expected to be a function of subjective norms. Those involved in groups where the norm promotes risky behavior may be at substantially greater risk.

Implications for theory development. AIDS campaigners must recognize the utility of theoretically based campaigns (Flora & Thoreson, 1988; Fishbein & Middlestadt, 1989; Witte, 1994). This kind of work must be conducted within a coherent theoretical framework. The present study employed the theory of reasoned action which proved to be a useful way of understanding adolescents and risk behavior. By using this theoretical framework, it was possible to see differential patterns of relations for message explicitness with attitude and subjective norm. Previous researchers have studied attitudes toward avoiding risk behavior, but many have failed to include normative measures. These data also point to interesting relations between attitudes and subjective norms that may assist in theory development.

Future Research

The results of this study indicate that the theory of reasoned action (TRA) is a fruitful way of looking at AIDS messages directed toward adolescents. Examination of other predictors of attitudes and norms, like egocentrism in the present study, would be beneficial. There is also little previous research where a message variable has been shown to cause changes in relations among components of the TRA. The interaction between message explicitness and variables in the theory of reasoned action should be examined further. It is also quite plausible, given the results for message explicitness, that other message variables (e.g., fear appeals or sensation seeking) would cause changes in relations among components of the theory, and this should also be explored. Future researchers should also consider the strength of the manipulation, specifi-

cally making the low explicit message less explicit and perhaps the high explicit message even more explicit.

The results of this study indicate there is still much work to be done in the area of AIDS messages. Future researchers should be guided by theory in predicting how variables might interact in this context. Additionally, the univariate differences by grade and gender should be explored further. This study makes a significant contribution to understanding how adolescents process AIDS messages, and there are additional questions to be addressed.

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