

A Test of the Theory of Reasoned Action in the Context of Condom Use and AIDS

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The theory of reasoned action (TRA) was employed as a framework for understanding adolescents' behavior that could put them at risk for contracting AIDS. The TRA focuses on the role of subjective norms and attitudes toward behavior to predict behavioral intentions and risk-avoidance behavior (condom use). Adolescent participants ($N = 492$) in three groups (8th grade, 11/12th grade, and early college) filled out questionnaires. Results supported Ajzen and Fishbein's contentions regarding the role of attitude and subjective norms, but subjective norms also functioned as a predictor of attitudes. Additional evidence indicated models by gender and sexual experience were different. For sexually active adolescents, attitude was a better predictor of both behavioral intentions and condom use than subjective norms, but for sexually inactive adolescents, subjective norm was a better predictor. For male adolescents, subjective norm was a better predictor of both behavioral intentions and condom use than attitude, but for female adolescents, attitude was a better predictor only of behavioral intention. Implications and directions for future research using the TRA are discussed.

■ The number of people infected with HIV continues to increase at alarming rates. Even if a cure is found for AIDS, and that possibility is at least years away, it will be important to reduce high risk behaviors and maintain low risk behavior to prevent spread of the disease. The purpose of this study was to explore the factors associated with risk-related behaviors among adolescents using the theory of reasoned action (TRA) as the analytic framework.

There are many models of persuasion which could be applied to risky behavior and AIDS, and adolescents are a crucial target population because of their risk-taking behavior. The TRA could be particularly useful for this group because it incorporates a number of relevant variables including behavior, behavioral intention, attitudes toward behavior and social norms (Ajzen & Fishbein, 1980). The TRA has also been used in research on health behaviors and AIDS (e.g., Fishbein, 1990; Griffin, Neuwirth, & Dunwoody,

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1995; Kashima, Gallios, & McCamish, 1992; Pleck, Sonenstein, & Ku, 1990), often with the goal of designing specific health intervention messages.

The TRA focuses on the cognitive structure underlying the behavior (Fishbein & Middlestadt, 1989). The ability to know what influences behavior has numerous implications because it would become possible to more accurately target persuasive campaigns. According to the TRA, the best predictor of whether or not a person will engage in a behavior is the person's behavioral intention. In a meta-analysis of TRA, the relation between behavior and behavioral intention was .53 (Sheppard, Hartwick, & Warshaw, 1988). If true, then it will be possible to influence behavior by influencing behavioral intention. For example, in order to change adolescents' behavior that puts them at risk for contracting HIV, it would be possible to persuade them to *intend* to use condoms or to intend to abstain from sexual intercourse. In fact, behavioral intentions have been shown to be significantly associated with future condom use reported one month (Fisher, 1984), three months (Boyd & Wandersman, 1991), and four months later (Van der Velde, Hookyaas, & Van der Pligt, 1992).

According to the TRA, a person's behavioral intent is determined jointly by two factors: the individual's *attitude* toward the behavior and *subjective norm* (i.e. the perception that others think he or she should engage in the behavior). These two components are not expected to contribute equally to behavioral intention; they must be weighted for each particular issue under consideration. For adolescent risk behavior, it may be the case that the attitude or normative component is a stronger predictor. Variables other than subjective norm and attitude influence intention only indirectly (Fishbein & Middlestadt, 1989; Griffin et al., 1995). Sheppard et al.'s (1988) TRA meta-analysis reported the average relation between attitudes, subjective norms and behavioral intention was .66.

Attitudinal Component

An attitude in the TRA is a person's evaluation of performing/not performing a specific behavior. This is a personal factor, made up of an individual's feelings with respect to performing the behavior in question (Fishbein, 1990). Attitude toward behavior is proposed to be a function of beliefs and belief strength. A person may believe that using condoms during intercourse is good but may convey a lack of trust to a partner. Additionally, a person could feel that abstinence is generally good but feel quite negatively about his/her own abstinence. The more a person believes that performing a behavior will lead to positive outcomes (or prevent negative outcomes), the more favorable his/her attitude will be. These attitudinal components are generally assessed with belief-strength or belief-evaluation scales (e.g., "Having sex without condoms increases my risk of contracting AIDS"; "Increasing my risk of contracting AIDS is good/bad"). Studies have shown that adolescents' attitudes toward condom use do predict their intentions to use condoms (Boldero, Moore, & Rosenthal, 1992; Boyd & Wandersman,

1991; Kashima, Gallios, & McCamish, 1993; Richard & Van der Pligt, 1991; Schaalma, Kok, & Peters, 1993).

Normative Component

A normative component predicts behavioral intention jointly with attitude. Subjective norm is the person's perception that important others desire performance of a specific behavior, and it is a product of expectations of significant others and motivation to comply with those expectations. Studies show that perceptions of condom use norms (especially for partners) predict adolescents' intentions to use condoms (Basen-Engquist, 1992; Boyd & Wandersman, 1991; Jemmott & Jemmott, 1991; Kashima et al., 1992).

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. For example, if an adolescent knew that his/her mother thought it was extremely important to abstain from sexual intercourse, that parent's opinion would be relevant only if the adolescent was motivated to please her/his mother. A message created to target this norm might focus on parent(s) wanting children to be safe. Individuals may also 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 may still perform a behavior because of the influence of significant others. It might also be possible that an adolescent would have a high motive to comply with others but not know what to do (no clear expectations).

Research indicates what specific referents are important for adolescents (Kandel & Andrews, 1987). For adolescents, peers are a tremendous source of influence (Brown, DiClemente, & Reynolds, 1991; Rotheram-Borus & Koopman, 1991). Parents and adults outside the family can also be influential, depending on the issue (Foster-Clark & Blyth, 1991). These sources of influence, and their relative importance, will be important for understanding adolescents' normative beliefs.

To the extent that attitudes and subjective norm predict behavioral intentions, we would expect the following hypothesis to be supported:

- H1: Attitude and subjective norm will be positively related to behavioral intention and more strongly related to behavioral intention than any other variables measured.

Relation Between Attitude and Subjective Norm

The question of the relation between attitude and subjective norm has not been resolved, but it is not necessary that they be correlated. In most research, the attitudinal component has been more strongly associated with behavioral intention than norms, even if both are significant (see O'Keefe, 1990, p. 84). Generally, attitude and subjective norms are significantly and positively correlated (range .40 to .70, O'Keefe, 1990, p. 85).

This general finding may reflect the true impact of two unrelated influences. That is, attitude and subjective norm are unrelated to each other,

and attitude is more strongly related to behavioral intentions than are subjective norms. However, the finding may also reflect that attitude mediates, to some degree, the relationship between norms and intentions. It is not hard to envision an instance where perception of the attitudes of significant others influences a young person's own attitudes which, in turn, influence intentions. If that were the case, then the impact of norms on intentions would be smaller than the impact of attitude on intentions, because the former effect is *indirect* and the latter is *direct*.

- RQ1: What is the relation between attitude and subjective norm in predicting behavioral intentions related to AIDS and risk behavior?

Predictors of Behavioral Intention Change by Group

Though researchers argue only attitudes and subjective norms directly influence behavioral intention, there may be other important variables to consider. The same behavior may be under the influence of different components for different groups of people (Fishbein & Middlestadt, 1989; Kashima et al., 1992). Unfortunately, evidence from Freimuth, Hammond, Edgar, and Monahan's (1990) content analysis of 100 AIDS PSAs indicated messages were developed for general audiences rather than targeted for specific groups.

Past sexual experience. O'Keefe (1990) reported the best support for an additional predictor of behavioral intention, beside attitude and subjective norms, was for past behavior. Past behavior may stabilize behavioral intentions (Kashima et al., 1992). Past behavior may function like direct experience where performing a behavior might give a person greater information or confidence. Using condoms in the past may make people more likely to have condoms available or make agreements to use condoms (Kashima et al., 1992). Middlestadt and Fishbein (1990) reported intention to use condoms was predicted mainly by normative factors for sexually experienced women but by attitudes for inexperienced women. Fishbein, Middlestadt and Hitchcock (1991) also reported unpublished data on undergraduate males' intentions to use condoms. For sexually inexperienced males, attitudes were better predictors, but for sexually experienced males, subjective norms were better predictors of intention to use condoms. Clearly, more data would be useful to understand the influence of past behavior such as sexual experience.

- RQ2: What is the effect of past sexual experience on predictors of intentions to use condoms?

Gender. Fishbein and colleagues consistently urge researchers and campaign designers to gather information for specific populations. Fishbein and Middlestadt (1989) stated, "the relative weights of attitude and normative components are expected to vary from population to population, as well as from one behavior to another" (p. 102). The example often given by Fishbein and colleagues is how weights might vary by gender. For example, a girl's intention to abstain from sex may be under attitudinal control, but the same

behavior for a boy may be under normative control. Alternatively, a girl's intention to have a monogamous sexual relationship may fall under normative control but for a boy may be under attitudinal control. Men generally report strong negative reactions to condoms, yet women are more likely to report discussing safer sex (Metts & Fitzpatrick, 1992). Though much past attention has focused on men and HIV, women are the fastest growing risk group/population (for discussion see Cline, McKenzie & Glassman, 1992; Kimberly, Serovich & Greene, 1995). Fishbein (1990) reported data on American college students' intentions to use/tell partner to use condoms. For American men, intention to use condoms was primarily under normative control, but for women, intention to tell a partner to use a condom was under normative control. Clearly, gender must be considered when using TRA to design health messages.

RQ3: What is the effect of gender on predictors of intentions to use condoms?

METHOD

Participants

To enable cross-sectional comparisons across later adolescence, students from three grade levels were sampled ($N = 492$): eighth grade ($n = 230$), eleventh and twelfth grade ($n = 106$), and first and second year college ($n = 156$). The sample included 290 females (58%) and 202 males (42%), primarily Caucasian (80%). 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.

Procedure

Participants were asked initially to complete measures assessing imaginary audience, personal fable, knowledge of AIDS, demographic information, and sexual experiences. Participants then completed a set of measures including (1) attitude toward avoiding risk behavior, (2) motivation to comply with others, (3) others' expectations, (4) behavioral intentions, and (5) condom use (for those sexually active). This study was part of a larger project examining adolescents and health risks (Greene, Rubin, & Hale, 1995).

Measurement

Behavioral intention. This scale tapped participants' intentions to behave in ways which could reduce their risk of contracting AIDS through sexual contact. The scale contained five five-point Likert items (e.g., "I am likely to limit my number of sexual partners in the future"; "I am likely to use (have my partner use) condoms every time I have sex in the future" with responses ranging from "Strongly Agree" to "Strongly Disagree"). The scale was unidimensional¹ and moderately reliable (Cronbach's $\alpha = .69$).

Attitude toward risk behavior. The measure of attitude toward avoiding risk behavior consisted of five five-point Likert items that paralleled the behavioral intention measure (e.g., "Avoiding sexual intercourse with people who may be at risk for AIDS is good"; "Using (having a partner use) a condom every time someone has sex is good" with responses ranging from "Strongly Agree" to "Strongly Disagree").² The five-item scale was unidimensional and moderately reliable ($\alpha = .68$).

Subjective norm. Subjective norm is calculated as a function of two components: (1) expectations of significant others, and (2) motivation to comply. Based on past research with adolescents, peers, parents, and a respected adult were used in the present research. The measure of expectations of significant others contained 18 five-point Likert items (e.g., "My friends think that using (having partners use) a condom every time someone has sex is good" with responses ranging from "Strongly Agree" to "Strongly Disagree"). These six items were repeated, changing the target from friends to parent(s), then to a respected adult. These items were unidimensional and were summed and averaged to form three composite scales (friends, parents, and respected adult). 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"; "It is important for me to do what my friends think I should do." These items were summed and averaged to form three composite scales. The score for motivation to comply for any target was then multiplied by the score for expectations of that target. The scores by target were averaged to form a single indicator of subjective norm with low reliability (Cronbach's $\alpha = .64$).

Additional variables. Other variables were measured (see Greene et al., 1995), with most responses ranging from "Strongly Agree" to "Strongly Disagree." Specifically, measures of knowledge of AIDS (8 true/false items such as "you can get AIDS from donating blood"), attitude toward homosexuality (6 five-point Likert items such as "Homosexuals should not be allowed to work with children"), imaginary audience (10 four-point Likert items such as "Feel nervous because you worry about whether people like you"), personal fable (46 five-point Likert items such as "I believe I can do anything I set my mind to"), salience (3 five-point Likert items such as "I worry that I might contract AIDS"), risk-taking behavior (frequency of condom use, age at first intercourse, number of past sexual partners, and IV drug use), age, and gender were included. Condom use was measured by a single five-point Likert item with responses ranging from "Never" to "Always", "How often do you (does your partner) use a condom when you have intercourse?"

RESULTS

Models were run using LISREL 7.16 (Joreskog & Sorbom, 1990), first predicting behavioral intention and then condom use using attitude and subjective norm as predictors. The first model, predicting behavioral inten-

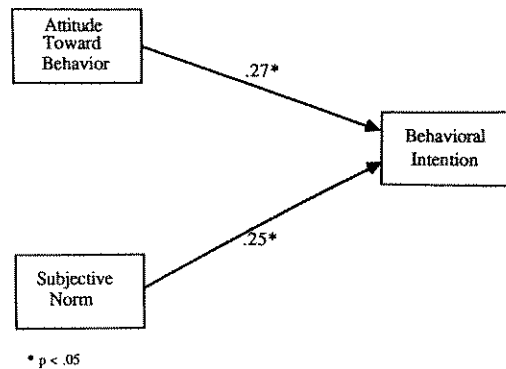


Figure 1. Model predicting behavioral intention.

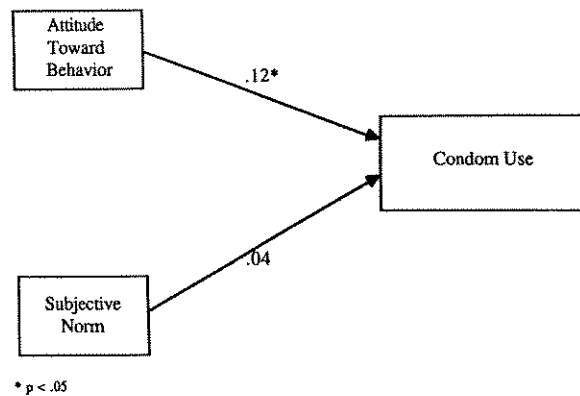


Figure 2. Model predicting condom use.

tion, is presented in Figure 1. The model yielded a chi-square of 141 ($df = 1$; $p < .001$), indicating the model was different from the data. Additional evidence (*Goodness of Fit Index* = .86; *Root Mean Square Residual* = .22), however, indicated the model approached recommended levels. The second model, predicting condom use, is presented in Figure 2. The model yielded a chi-square of 61 ($df = 1$; $p < .001$), indicating the model was different from the data. Additional evidence ($GFI = .86$; $RMSR = .21$), however, indicated the model approached recommended levels. The paths in the model predicting behavioral intention were much stronger than those predicting condom use.

An additional model was run to examine the relation between behavior and behavioral intention, and it is presented in Figure 3. The model used attitude and subjective norms to predict behavioral intention which, in turn, predicted condom use. The model yielded a chi-square of .44 ($df = 2$; $p = .80$), indicating the model was not significantly different from the data.

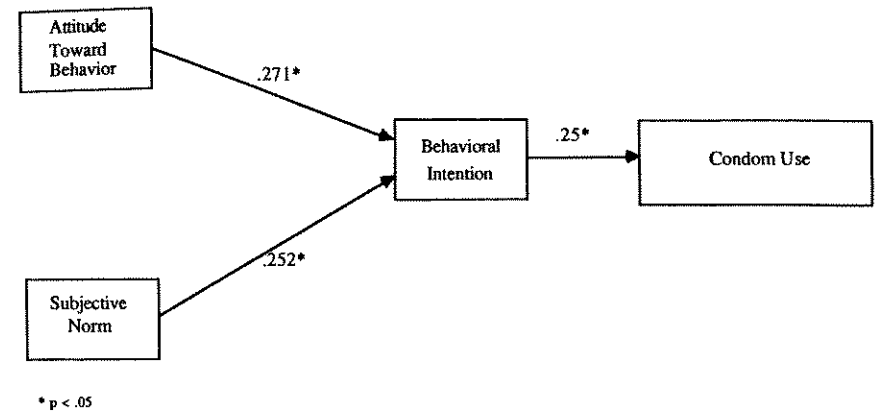


Figure 3. Model combining behavioral intention and condom use.

Additional evidence ($GFI = .99$; $RMSR = .01$) also indicated the model achieved recommended levels. This model fit the data quite well.

The first research question addressed the relation between attitude and subjective norms. Modification indices for both Figures 1 and 2 indicated freeing the path from subjective norm to attitude ($beta = .502$) would significantly increase the fit of the model (chi-square reduction = 123, with loss of one df). Thus, evidence would indicate that attitude and subjective norms predict behavioral intention about equally, but subjective norm is also a predictor of attitudes (and not the reverse).

It was expected that attitudes and subjective norms would be more highly correlated with behavioral intention and condom use than any other variables measured. Table 1 presents these correlations and supports Hypothesis 1. In fact, attitude ($r = .40$) and subjective norm ($r = .39$) were clearly the most highly correlated with indicators of behavioral intention, though not with condom use. The differential strength in patterns of correlations between behavioral intention and condom use also lends credence to a specificity argument.

Models by past sexual experience. Three regression models were run to test RQ 2. The first two models used attitude and norms to predict behavioral intentions separately for those who had and had not been sexually active. For sexually active adolescents ($F(2,248) = 27.37$; $p < .001$), attitude ($R^2 = .17$; $beta = .34$) is a better predictor of behavioral intention than subjective norms (R^2 change = .01; $beta = .14$). For sexually inactive students ($F(2,236) = 50.45$; $p < .001$), subjective norm ($R^2 = .27$; $beta = .42$) is a better predictor of behavioral intention than attitudes (R^2 change = .03; $beta = .19$).

The third model used attitude and norms to predict condom use for those who were sexually active. For sexually active adolescents ($F(1,211) =$ previously 4.19; $p < .05$), attitude ($R^2 = .02$; $beta = .14$) is a better predictor of

TABLE 1
Pearson Correlations of Variables with Behavioral Intention and Condom Use

Variables	Behavioral Intention	Condom Use
Attitude Toward Risk Behavior	.40**	.13
Subjective Norm	.39**	.10
Imaginary Audience	.03	.01
Personal Fable	-.14**	-.08
Knowledge of AIDS	.03	.02
Attitude Toward Homosex.	.06	-.06
Saliency	.10	.06
Use IV	.03	.01
Age of First Intercourse	.21*	-.02
Different Partners	-.20*	-.01
Age	.17**	-.22**

* = $p < .01$; ** = $p < .001$. Significance levels vary according to amount of data available for analyses.

condom use than subjective norms ($R^2 = \text{NS}$; $\beta = .05$). No data were available for the model predicting actual condom use for those who were not sexually active.

Models by gender. Four regression models were run to test RQ 3. The first two used attitude and norms to predict behavioral intention separately for women and men. For female adolescents ($F(2,287) = 36.17$; $p < .001$), attitude ($R^2 = .18$; $\beta = .35$) is a better predictor of behavioral intention than subjective norms (R^2 change = $.02$; $\beta = .17$). For male adolescents ($F(1,200) = 33.21$; $p < .001$), subjective norm ($R^2 = .14$; $\beta = .29$) is a better predictor of behavioral intention than attitudes (R^2 change = $.02$; $\beta = .15$).

The next two models used attitude and norms to predict condom use separately for women and men. For female adolescents, neither attitude nor subjective norms was a good predictor of condom use. For male adolescents ($F(1,90) = 4.20$; $p < .05$), subjective norm ($R^2 = .05$; $\beta = .21$) is a better predictor of condom use than attitudes ($R^2 = \text{NS}$; $\beta = .08$).

DISCUSSION

These results indicate that the TRA is a useful way of understanding adolescents and risk behavior. Both adolescents' attitudes toward avoiding risk behavior and subjective norms were predictors of their intentions to behave in ways to reduce their risk of contracting HIV. The strongest relations were among attitude toward avoiding risk behavior, subjective norm, and behavioral intention ($r = .39 - .50$). Both subjective norms and attitudes are important components of adolescents' intentions to reduce their risk of contracting HIV.

The paths in the models predicting behavioral intention were stronger than the paths predicting condom use; nonetheless, behavioral intention and condom use were strongly and positively correlated ($r = .38$). The measures of behavioral intention, subjective norm and attitude toward avoiding risk behavior were specific to the participants' attitudes and actions related to sexual behavior (action component). Condom use was measured in terms of a frequency item (different time element). These findings lend further evidence to the strength of attitude-behavior relations being located in their specificity (Ajzen & Fishbein, 1974; Kim & Hunter, 1993).

The full model (including both behavioral intention and condom use) fit the data best in this study. In terms of actual adolescent condom use, intent to use condoms is a crucial component. Kashima et al. (1992), for example, indicated having a plan to use a condom was the best way to have condom use occur; this can minimize intervening variables such as lack of availability of condoms which can interfere with the relation between behavior and behavioral intention. Metts and Fitzpatrick (1992) and Edgar (1992) focus on cognitive approaches to condom use, presenting scripts and goals, plans, and actions models of condom use. Continued inclusion of both behavioral and intention variables in studies will be crucial to explore how decisions to use condoms are made.

Additional evidence from these data indicates that attitude toward avoiding risk behavior and subjective norms are the only direct predictors of behavioral intention, a claim made by Ajzen and Fishbein (1974). There were no large correlations between behavioral intention and any of the predictor variables besides subjective norms and attitudes. This evidence points to the "sufficiency" of attitude toward avoiding risk behavior and subjective norm for predicting behavioral intention. Other predictors of behavioral intention have been proposed, for example, prior behavior (Bentler & Speckart, 1981) and perceived behavioral control (Ajzen & Madden, 1986), but none has been examined in the context of AIDS-related behavior.

The correlation between attitudes and subjective norms was the strongest in the study ($r = .50$). Previous researchers have reported the correlation between attitudes and subjective norms to be positive, significant, and generally above $.3$ (e.g., Ajzen & Fishbein, 1980; Miniard & Cohen, 1981). Some have argued attitudes and subjective norms are not conceptually distinct, that it is not possible to distinguish between personal and social influences on behavioral intention (see O'Keefe, 1990). For example, Miniard and Cohen (1981) reported that a manipulation designed to affect subjective norm also affected attitude, and a manipulation designed to affect attitudes also influenced subjective norms. The correlations between attitudes and subjective norms and other variables are of the same sign and generally the same magnitude in these data. Clearly the two elements are related empirically, even if conceptually distinct.

Models by past sexual experience. There were differences in models by past sexual experience as expected. For sexually active or experienced

adolescents, attitudes are a better predictor (of both behavioral intentions and condom use) than subjective norms. For adolescents who were not sexually active, however, the reverse was true: subjective norms are a better predictor of behavioral intentions than attitudes. These findings are inconsistent with those reported by Fishbein et al. (1991) and Middlestadt and Fishbein (1990), but both of these studies examined only behavioral intention (and as neither is published, it is difficult to estimate what other possible factors could account for these differences). Given these contradictions, exploration of this kind of information will be crucial when considering development of messages targeting sexually active and inactive adolescents because they would lead to markedly different campaigns and specific health messages.

Models by gender. There were differences in models by gender as expected. For female adolescents, attitudes are a better predictor of behavioral intentions than subjective norms. For women in this study, neither attitudes nor norms predicted condom use. For male adolescents, however, the reverse was true: subjective norms are a better predictor (of both behavioral intentions and condom use) than attitudes. These findings are consistent with those reported by Fishbein (1990) for men but not for women. This kind of information will be crucial when considering development of messages targeting males and females because it would lead to messages for women focused on individual attitudes and messages for men focused on norms (likely the role of peers).

ENDNOTES

1. Tests of measurement were performed separately for each variable using factor analyses (varimax rotation). For all variables included, the solutions were unidimensional with loadings above .6 on the single factor.

2. 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.

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