

Gender differences in goal setting for HIV prevention among college students

By: Johanna E. Soet, M.A; Colleen DiIorio, Ph.D; William N. Dudley, Ph.D; and Tammy M. Woodring, M.P.H.

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Abstract:

The purpose of this study was to identify HIV prevention goals of college students, to determine if there are differences in goal setting between males and females, and to determine if an association exists between goal setting and behavior. The data are from a study designed to identify HIV prevention practices of college students. The results of the study showed that 71.4% of the respondents indicated that they had a goal to reduce their risk of contracting HIV. The primary goals identified were condom use, limiting number of partners, abstinence, and monogamy. Females were more likely to select abstinence as their first goal, and men, condom use. Females were more likely than males to write high specificity and definitely effective goals. Significant associations were also found between HIV prevention goals and sexual behaviors. When males and females stated abstinence as their goal, there was a significant association with reports of never having sex. This association was significant for both sexually experienced males and females when the goal of abstinence was compared with the occasions of sex in the last three months. For males, having a condom use goal was significantly associated with consistent condom use. However, no significant association was found between females' condom use goals and reported consistency of condom use.

Key words: HIV/AIDS, college students, goal-setting, sexual behavior

Introduction

Estimates based on the age distribution of AIDS cases suggest that about half of new HIV infections are among people under the age of 25,¹ and the majority of these infections are acquired through sexual behaviors.² These statistics hold particular relevance for undergraduate college students most of whom are under 25 years of age and many of whom practice sexual behaviors that place them at risk for contracting HIV. In order to avoid HIV infection, college students, like others, must adopt behaviors to protect themselves. To date, the study of prevention behaviors among college students has focused on identifying antecedents to risk reduction behaviors including knowledge, attitudes toward condom use, and confidence in using a condom and discussing condom use with a sexual partner.³⁻⁵ This research has yielded important results that have been incorporated into risk reduction education programs. A much less studied area, but one that is important to self-regulatory behavior, is that of goal setting. According to Bandura, a personal goal is something a person wants to accomplish.⁶ He notes that goals are important in the self-regulation of behavior because they help focus attention on the

desired behavior, increase efforts toward the attainment of the desired behavior, and enhance persistence in the face of difficulties. Moreover, goal statements work to create internal standards against which current behavior can be compared. When behavior deviates from these predetermined standards, internal incentives can be created to modify behavior to meet desired performance goals.

The nature of goals and the association between goal setting and task performance has been examined in a number of studies.⁷⁻¹¹ Investigators have found that goal statements can vary in their level of specificity, the level of difficulty, and the proximity to desired outcomes.⁶ Overall people who set goals for the purpose of meeting some performance standard are more likely to be successful than those who do not set goals, but have the same desired outcome.⁶ Moreover, successful outcomes are more likely for people who set more specific or challenging goals.¹⁰ Although research addressing health related goals is minimal, investigators have shown the success of goal setting within the health domains of weight training,⁸ smoking cessation,⁷ and endurance performance.⁹ For example, Boyce and Wayda⁸ found among female university students engaged in a weight training experiment, the performance of those who had set their own goals (self-set goals) or who were assigned goals was significantly better than that of women in the control group who had no goals.

Although there is little empirical data supporting the relationship between goal setting and HIV risk reduction behaviors, interventionists often incorporate goal setting into prevention education.^{12,13} For example, a successful cognitive-behavioral risk-reduction intervention among adult men and women included goal setting as a technique to enhance perceived self-efficacy.¹³ However, in this study, the role of goal setting in changing behavior was not disentangled from that of the other mediators of change including self-efficacy and outcome expectancies. Because research in health behavior suggests that setting goals acts as motivation for behavioral change⁷⁻⁹ and goal setting is already included in many HIV prevention programs,^{12,13} the study of self-set goals and their relationship to the adoption of risk reduction behaviors is timely. To expand the understanding of risk reduction goals, the first aim of this paper was to determine the types of HIV prevention goals set by college students. Because men and women report differences in the adoption of HIV prevention behaviors, the second aim was to determine if gender differences exist in HIV prevention goals, and the third aim was to explore the association between goal setting and behavior.

Methods

Procedures

Data for this study were collected as part of a larger study on HIV risk-reduction practices of college students. Participants were selected from students attending six colleges and universities, both public and private, in a large southeastern metropolitan area. Once approval had been obtained from the institutional review board at each school, a request for a random sample of students currently enrolled in a degree-seeking program and under age 25 was made to each registrar. The address lists were checked for completeness; those students without a complete address were deleted from the sample. Survey packets that included the study questionnaire, a cover letter containing the elements of informed consent, a self-addressed, stamped envelope, and a five-dollar bill as an incentive to complete the survey were sent to students. Students were asked to complete the questionnaire and return it. Survey packets were sent by first class mail; a

reminder postcard was sent one week after the first mailing, and a second survey packet was sent to the non-responders three weeks after the first mailing. Of 5,893 survey packets mailed, 2,468 were returned representing a 42.9% response rate.

Sample

The sample was limited to respondents who were unmarried, between 18 and 25 years of age who had written at least one HIV prevention goal ($N = 1,525$). The average age of the sample was 20.2 years ($SD = 1.73$). Fifty-four percent of the total sample was female, 31.7% was white, 58.8% African American, 4.9% Asian, 3.6% Hispanic, and 1% Native American or other. Twenty-nine percent of the participants were freshman, 22.2% sophomores, 24% juniors, and 24.6% seniors. Ninety-six percent of the sample identified themselves as heterosexual, 1.8% identified as bisexual, and 1.3% as homosexual, with .5% not responding. Eighty-six percent of the males and 87% of the females were sexually active. Sexually active was defined as ever having had vaginal, oral or anal sex. For the males in the sample, 18.2% reported no occasions of vaginal, oral or anal sex in the past 3 months; 16.2% of the females reported the same.

Measures

To measure HIV prevention goals, participants indicated whether they had personal goals by responding to the question, “Do you have any personal goals at this time about reducing your risk of being infected with HIV? By personal goals, we mean have you made up your mind to *make* some change, or to *maintain* some change that you have previously made in your sexual relationships, your use of drugs, or any other aspect of your life that might place you at risk for HIV?” They were then asked, “If yes, what is your personal goal or goals (i.e., what have you made up your mind to do)? Please *be as specific as possible*. List each goal separately if you have more than one goal.” Participants were not asked to rank their goals in order of importance. Each goal was evaluated and coded on four dimensions—content, specificity, effectiveness, and control. These four dimensions were agreed upon and a goal coding manual was developed to guide the coding of goals. Goal content refers to the subject matter of the goal. Based on goal statements, 14 content categories were identified. The categories were the following:

1. condom use
2. protection/safer sex
3. discussion/communication
4. education
5. limit number of partners
6. monogamy
7. marriage
8. abstinence
9. no drugs/alcohol
10. no IV drugs
11. no anal sex
12. testing
13. avoiding “tempting” situations and being prepared
14. other

If a goal did not fit into any of the first 13 categories, it was coded as “other.” Specificity refers to the extent to which specific actions and/or timeframes are included in the goal statement. The specificity dimension was rated as one of three categories: high (e.g., always use a condom), medium (e.g., use condoms), or low (e.g., use condoms more). Effectiveness refers to the probable efficacy of the goal. The effectiveness dimension was rated as one of four possible categories: definitely effective (e.g., use a condom each and every time), possibly effective (e.g., use condoms), indirectly effective (e.g., getting tested for HIV), and ineffective (e.g., use the pill).

Control refers to the locus of control for the successful completion of the goal. The control dimension was divided into three categories: self-control (e.g., abstinence), mutual control (e.g., condom use), or other control behavior (e.g., have my partner tested). Before coding the entire data set, raters were trained on using the coding manual. The percent agreement between the trainer and the raters was assessed for each dimension and was required to be .90 or above before coding began.

Sexual activity status was determined by asking 3 questions: “How old were you when you first *willingly* had vaginal intercourse/oral (oral-genital contact) intercourse/anal intercourse?” For each question the respondent could provide an age or check “never had.” For this study, a dichotomous measure was used where 0 represented those who had never engaged in any sexual activity including vaginal, oral or anal sex, and 1 represented those who had engaged in at least 1 of the 3 behaviors.

Sexual activity in the past three months was assessed by asking, “With how many different partners have you had sexual intercourse in the past 3 months?” For this analysis, the results were dichotomized into those who had no partners in the past three months and those who had one or more.

Condom use was measured using responses to the item, “How often do you use a condom?” The item was rated on a 5-point scale ranging from never to every time. For this analysis, this measure was dichotomized into consistent condom users (every time or almost every time) and inconsistent users (sometimes to never).

Results

Data were analyzed using SPSS 9.0. Descriptive statistics were used to identify the types of HIV prevention goals for males and females, and chi square analyses were used to assess differences in the dimensions of goal statements for males and females and to examine the association between goal setting and behavior. The large sample size ($n = 1,525$) provides considerable statistical power to detect small differences as statistically significant. To aid in the interpretation of the chi square statistics, we have included Cohen’s (1988) measure of effect size, w , which in

all tables reported here is equal to $\sqrt{\frac{\chi^2}{N}}$ (also equal to phi and Cramer’s V in the tables). We have only included w for chi squared values associated with $p < .001$. Cohen¹⁴ has proposed small, moderate, and large effect size of $w = .1, .3,$ and $.5$ respectively.

For the analyses, only the first goal written by each respondent was evaluated because by using only the first goal all participants who had goals were included. The top four responses written for the HIV prevention goals were: 23% condom use, 22% limiting number of partners, 19% abstinence, and 17% monogamy. Forty percent of participants identified a high specificity goal, 35% a medium specificity goal, and 25% a low specificity HIV prevention goal. Forty-five percent of all participants identified a possibly effective HIV prevention goal, 33% a definitely effective HIV prevention goal, 22% an indirectly effective HIV prevention goal, and less than one percent an ineffective HIV prevention goal. Fifty-seven percent of participants identified a self-control goal, 42% a mutual control goal, and less than one percent another control goal. With respect to the types of goals males and females wrote, a significant association was found between gender and the content dimension of participants' HIV prevention goals ($\chi^2(13, 1,525) = 34.63, p < .001$) (Table 1). Males were significantly more likely to state a condom use goal ($\chi^2(1, 1,525) = 4.27, p < .05$) and a no IV drug use goal ($\chi^2(1, 1,525) = 5.62, p < .01$). Females were more likely to state an abstinence goal ($\chi^2(1, 1,525) = 8.67, p < .01$).

Table 1. Content dimension of HIV prevention goals by gender

Dimension	Males <i>n</i> = 699		Females <i>n</i> = 826		Total <i>n</i> = 1,525		Individual χ^2
	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	
Condom Use*	24.9	174	20.5	169	22.5	343	4.27
Limit # of Partners	23.7	166	21.3	176	22.4	342	1.30
Monogamy	16.3	114	17.7	146	17.0	260	.50
Abstinence*	15.7	110	21.7	179	19.0	289	8.68
Protection	4.9	34	5.0	41	4.9	75	.01
No Drugs/Alcohol	2.7	19	1.8	15	2.2	34	1.41
Testing	2.0	14	2.9	24	2.5	38	1.27
Marriage	1.6	11	2.9	24	2.3	35	3.00
Discussion	1.6	11	2.1	17	1.8	28	.49
Avoiding Situation	.7	5	1.3	11	1.0	16	1.39
No IV Drugs*	1.0	7	.1	1	.5	8	5.62
No Anal Sex	.0	0	.2	2	.1	2	1.70
Education	.7	5	.8	7	.8	12	.08

Overall $\chi^2 = 34.63, p = .00097, w = .15$; * Significant gender differences $p < .05$

With regard to the other three dimensions (specificity, effectiveness, control), a significant association was found between gender and the specificity dimension of participants' HIV prevention goals ($\chi^2(2, 1,525) = 19.04, p < .0001$). Females were significantly more likely than males to write a goal that was coded as high specificity, and males were significantly more likely than females to write a goal that was coded as low specificity. A significant difference was also found between males and females in the effectiveness dimension for the goals ($\chi^2(3, 1,525) = 9.25, p < .026$). Females were found to be more likely to write a definitely effective goal (Table 2). No significant gender differences were found for the control dimension.

Table 2 . Specificity and effectiveness dimension of HIV prevention goals by gender

Specificity Level*	Males		Females		Total	
	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
Low	28.9	202	22.2	183	25.2	385
Medium	37.3	261	33.5	277	35.3	538
High	33.8	236	44.3	366	39.5	602
Effectiveness Level**						
Not effective	.4	3	.5	4	.5	7
Indirectly effective	21.7	152	22.6	187	22.2	339
Possibly effective	48.8	341	41.5	343	44.9	684
Definitely effective	29.0	203	35.4	292	32.5	495

* $\chi^2 = 19.04, p = .00007, w = .11$; ** $\chi^2 = 9.25, p = .026$.

In the last stage of analysis, the association between the participants' goals and their self-reported behavior was explored. The association between abstinence and condom use goals and self-reported measures of sexual activity and condom use were assessed. In the overall sample, those who defined abstinence as their goal were significantly more likely to never have engaged in sexual intercourse (vaginal, oral or anal) ($\chi^2 (1, 1,525) = 290.79, p < .001$) (Table 3).

Additionally, those who were sexually experienced and who defined abstinence as their goal were more likely to have not engaged in sex in the past 3 months ($\chi^2 (1, 1,328) = 80.581, p < .001$). Participants who had condom use as their goal were more likely to report consistent condom use ($\chi^2 (1, 1,266) = 6.32, p < .05$).

Table 3. Association between HIV prevention goals and behavior

	Abstinence goal				χ^2
	Yes		No		
	%	<i>n</i>	%	<i>n</i>	
Ever engaged in sexual activity**					
Yes	54.4	163	94.0	1162	290.792 ^a
No	43.6	126	6.0	74	
Sexual activity in last 3 months**					
Yes	54.3	89	84.0	978	80.581 ^b
No	45.7	75	16.0	186	
	Condom use goal				χ^2
	Yes		No		
	%	<i>n</i>	%	<i>n</i>	
Consistent	71.8	227	64.1	609	6.138
Inconsistent	28.2	89	35.9	341	

* $p < .05$; ** $p < .001$; ^a $w = .44$; ^b $w = .25$

To examine gender differences in the association between goals and behavior, separate chi square statistics were run for males and females. When males ($\chi^2(1, 699) = 133.01, p < .001$) and females ($\chi^2(1, 862) = 162.277, p < .001$) stated abstinence as their goal, there was a significant association with reports of never having sex (Table 4). In addition, the association was significant for both sexually experienced males ($\chi^2(1, 605) = 32.55, p < .001$) and females ($\chi^2(1, 723) = 50.85, p < .001$) when the goal of abstinence is compared with the occasions of sex in the last three months (no sex v. had sex). For males, having a condom use goal was significantly associated with consistent condom use ($\chi^2(1, 582) = 8.43, p < .01$). However, no significant association was found between females' condom use goals and reported consistency of condom use ($\chi^2(1, 684) = .36, p = .5393$) (Table 5).

Table 4. Association between HIV prevention goal and behavior for students who define abstinence as their first goal

	Abstinence goal				χ^2
	Yes		No		
Males	%	<i>n</i>	%	<i>n</i>	
Ever engaged in sexual activity*					
Yes	51.8	57	92.9	547	133.007 ^a
No	48.2	53	7.1	42	
Sexual activity in last 3 months*					
Yes	50.0	29	82.1	449	32.548 ^b
No	50.0	29	17.9	98	
Females					
Ever engaged in sexual activity*					
Yes	59.2	106	95.1	615	162.277 ^c
No	40.8	73	4.9	32	
Sexual activity in last 3 months*					
Yes	56.6	60	85.7	529	50.851 ^d
No	43.4	46	14.3	88	

* $p < .001$; ^a $w = .44$; ^b $w = .23$; ^c $w = .43$; ^d $w = .26$

Table 5. Association between HIV prevention goal and behavior for students who define condom use as their first goal

	Condom use goal				c^2
	Yes		No		
Males*	%	<i>n</i>	%	<i>n</i>	
Consistent condom use	80.8	126	68.5	292	8.432 ^a
Inconsistent condom use	19.2	30	31.5	134	

Females

Consistent condom use	63.1	101	60.5	317	
Inconsistent condom use	36.9	59	39.5	207	.356

* $p < .001$; $^a w = .12$, $p = .004$.

Discussion

The first aim of this study was to describe the HIV prevention goals of college students. The results show that college students' first priorities to prevent HIV included condom use, limiting number of partners, abstinence, and monogamy. All of these goals are effective methods to reduce the likelihood of contracting HIV. These findings are consistent with the literature that suggests that college students are knowledgeable about HIV and the actions needed to prevent contracting the virus.¹⁵⁻¹⁸

In regard to the other goal dimensions, most participants wrote a high or medium specificity goal and identified either a definitely or possibly effective goal. Moreover, the majority of participants wrote a goal that was considered to be a self-control goal (57%) suggesting that participants view HIV prevention as under their own control. It is encouraging that college students are able to identify and set goals that are related to effective HIV prevention practices. In accordance with Eagly's social role theory¹⁹ and the literature that suggests that males and females have different sexual behaviors,^{3,20} a significant difference was found between the responses given by males and females on the content dimension of their HIV prevention goals. When examining participants' goals, males' number one goal was condom use, while females' number one goal was abstinence. This finding conforms to the tenets of social role theory in that the assertive qualities that define the masculine role, as well as society's acceptance of male sexuality, may allow a man to seek out and plan for sex, e.g., carry and use a condom. Within sexual relationships, women have been defined as the "gatekeepers" with abstinence being a stereotypical behavior of females. Despite recent changes in attitudes toward women's sexuality, it appears that women in this study may still feel reluctant to put such a sexually assertive goal as condom use as their first priority. However, women do seem to recognize the importance of condom use as a protective behavior against HIV transmission. When considering all goals listed, condom use was the second most frequent goal (36%) written by women after limiting partners (38%).

Significant gender differences were also found when other dimensions of the goals were compared. Females were found to write high specificity goals more often than males. The initial findings suggested that this difference might be due to the higher rate of women writing abstinence goals, which usually is coded as high specificity. To further explore men and women's differences in goal specificity, differences within the content areas where men and women differed, namely condom use and abstinence were examined. These findings showed that when both males and females wrote condom use as their HIV prevention goals, there continued to be a significant difference in the level of specificity. However, upon closer scrutiny women were writing goals such as "do not have sex, unless a condom is used," which added an abstinence dimension to a condom use goal. Women seemed more likely to have a back-up plan of refusing sex if a condom was not used, which was reflected in higher specificity scores.

The findings of this study also demonstrate significant associations between the HIV prevention goals of condom use, abstinence, and self-reported behaviors. For the overall sample, a participant who wrote an abstinence goal was significantly more likely to have never had sex. Because this is cross-sectional data, the nature of this relationship and whether this goal will predict future behavior cannot be determined. However, another finding that may lend some support to the role of goal setting in behavior is that of those who have been sexually active in the past and have written an abstinence goal, 46% reported no sex in the past three months, compared to 15.9% of those who had not written an abstinence goal. This seems to indicate that those students who have initiated sex and yet wrote an abstinence goal were consciously restricting their sexual activity up until the time of this survey. These findings were true for both males and females.

With respect to condom use overall, participants who wrote condom use goals were more likely to report being consistent users of condoms. However, there were gender differences within this association. It seems for men, having condom use as a goal was significantly related to consistent condom use, yet for women, having condom use as their goal showed no association with consistent condom use. One explanation for this finding may relate to control. Because condom use for women may function more as an other-controlled goal, rather than a mutually or self-controlled goal, even though a woman may have condom use as her first priority she may not be able to enact this goal with a resistant partner. For men, however, condom use may be more of a self- or mutually-controlled goal, allowing them more power to ultimately enact the behavior.

Limitations

The response rate of 42.9% indicates that the majority of students receiving the survey chose not to participate or for one reason or another did not read the invitation. To investigate possible selection and response biases, the reported sexual behavior of the sample (i.e., rates of sexual activity) were compared to other national samples of college students (the National College Health Risk Behavior Survey and the National Survey of Family Growth), and found to be comparable.^{21,22} Moreover, the rate of condom use in this sample is similar to what is reported elsewhere in the literature for college students.^{23,24} The sample characteristics to the enrollment figures of the schools from which each sample was drawn were also compared; the samples were similar in age, race, and academic status to those of the populations at each school. However, each sample had a greater proportion of female respondents than its respective school population. Thus, these data have limited generalizability to the school populations and also to young adult populations that are not attending college. It is also important to note that because there might be a female bias in the sample, the comparisons for men and women may not be entirely accurate. The design and analyses also impose certain limitations. Cause and effect relationships cannot be inferred due to the cross-sectional nature of the design. The use of multiple tests in the analyses (without corrections) increase the possibility of type I error. To guard against making spurious conclusions, statistics and significance levels for each finding below .05 were reported allowing the reader to assess the relative strength of each finding, and only those findings that were highly significant (<.001) and based on hypotheses generated from theory were discussed. As is the case for most research on sexual behavior, the data are all self-report. There is no objective measure of the participants' sexual and condom use behavior and no way to verify the accuracy of their reports. In addition to the limitation inherent in multiple tests, another limitation is that with such a large sample, we have been able to detect small differences as statistically significant. The

reader should be aware that for the findings discussed above, effect sizes ranged from small to moderate.¹⁴ The largest effect size of $w = .44$ was seen in associations between abstinence goals and sexual activity.

Implications for practice and research

Despite the limitations of the study, the findings point to several implications for health education practice and research on college campuses. First, although the goals written by participants covered over 14 different content areas, the primary goals corresponded to effective HIV prevention behaviors commonly recommended by the Surgeon General and Healthy People 2010 to prevent the contraction of HIV.²⁵ One of the leading health indicators for Healthy People 2010 is the increase in condom use among sexually active adults. It is good news that college students seem to be heeding these recommendations. However, further research needs to be done to determine if written goals are simply a reflection of knowledge or a real commitment to reduce risk of contracting HIV. The results of this study show that males and females differ somewhat in the type of goals they set and the level of specificity of those goals. While the percent of females who endorsed the top four goals was similar, males clearly favored condom use over abstinence. Females also tended to write goals that were more specific and effective than males.

This study is an initial study describing self-reported HIV prevention goals and risk-reduction behaviors of college students. It would be of interest to know if these findings can be replicated in other samples. Doing so would provide information that could be important in tailoring HIV prevention goal setting based on gender. In the meantime, information gained from this study can serve as a foundation for additional research on risk behaviors among college students and the development of age-specific interventions.

Finally, based on the results of the associations between goals and behavior, it appears that the inclusion of goal setting in HIV prevention programs might be beneficial. Bandura notes that goals that are more specific and more proximal to the behavior are more likely to be successfully met than those that are vague or relate to behavior in the distant future.⁶ Health educators who include goal setting in their programs may need to focus on setting goals that are specific to the behavior and developing the skills necessary to carry out those goals. Future research needs to consider whether there are age, racial, or gender differences in the likelihood of individuals to follow through on their defined HIV prevention goals along with their self-efficacy to act on their goal. Intervention research could focus on the effects of goal setting so that its efficacy can be discriminated from other components of the intervention.

References

1. Rosenberg, P.S., Biggar R.J., Goedert J.J. (1996, Mar 17). Declining age at HIV infection in the United States [letter]. *New England Journal of Medicine*, 330(11), 789-90.
2. Center for Disease Control and Prevention. (2001). *HIV/AIDS Surveillance Report*. CDC, 13(1), 21.
3. Jadack, R.A., Hyde, J.S., Keller, M.L. (1995). Gender risk and knowledge about HIV, risky sexual behavior, and safer sex practices. *Research in Nursing & Health*, 18(4), 313-324.
4. Myers, T. & Clement, C. (1994). Condom use and attitudes among heterosexual college students. *Canadian Journal of Public Health. Revue. Canadienne de Sante Publique*, 85(1), 51-55.
5. O'Leary, A., Goodhart, F., Jemmott, L.S., Boccher-Lattimore, D. (1992). Predictors of safer sex on the college campus: A social cognitive theory analysis. *Journal of American College Health*, 40(6), 254-263.
6. Bandura, A. (1997). *Social-efficacy: The exercise of control*. New York: W.H. Freeman.
7. Borrelli, B. & Mermelstein, R. (1994). Goal setting and behavior change in a smoking cessation program. *Cognitive Therapy & Research*, 18(1), 69-83.
8. Boyce, B.A. & Wayda, V.K. (1994). The effects of assigned and self-set goals on task performance. *Journal of Sport & Exercise Psychology*, 16(3), 258-269.
9. Hall, H.K., Weinberg, R.S., Jackson, A. (1987). Effects of goal specificity, goal difficulty, and information feedback on endurance performance. *Journal of Sport Psychology*, 9(1), 43-54.
10. LaPorte, R.E. & Nath, R. (1976). Role of performance goals in prose learning. *Journal of Educational Psychology*, 68, 260-264.
11. Locke, E.A., Shaw, K.N., Saari, L.M., Latham, G.P. (1981). Goal setting and task performance: 1969-1980. *Psychological Bulletin*, 90(1), 125-152.
12. Kelly, J.A. (1995). *Changing HIV risk behavior: Practical strategies*. New York: Guilford Press.
13. The NIMH Multisite HIV Prevention Trial Group. (1998). The NIMH Multisite HIV Prevention Trial: Reducing HIV sexual risk behavior. *Science*, 280, 1889-1894.
14. Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum
15. Adame, D.D., Taylor-Nicholson, M.E., Wang, M.Q., Abbas, M.A. (1991). Southern college freshman students: A survey of knowledge, attitudes and beliefs about AIDS. *Journal of Sex Education and Therapy*, 17(3), 196-206.
16. Beckman, L.J., Harvey, S.M., Tiersky, L.A. (1996). Attitudes about condoms and condom use among college students. *Journal of American College Health*, 44(6), 243-249.
17. Lewis, J.E., Malow, R.M., Ireland, S.J. (1997). HIV/AIDS risk in heterosexual college students. A review of a decade of literature. *Journal of American College Health*, 45(4), 147-158.
18. Robb, H., Beltran, E.D., Katz, D., Foxman, B. (1991). Sociodemographic factors associated with AIDS knowledge in a random sample of university students. *Public Health Nursing*, 8(2), 113-118.
19. Eagly, A.H. (1987). *Sex differences in social behavior: A social role interpretation*. New Jersey: Lawrence Erlbaum Associates.
20. Oliver, M.B. & Hyde, J.S. (1993). Gender differences in sexuality: A meta-analysis. *Psychological Bulletin*, 114(1), 29-51.

21. Abma, J.C. (1997). *Fertility, family planning, and women's health: New data from the 1995 National Survey of Family Growth*. National Center for Health Statistics. Vital and Health Statistics Series No. 23, June 18, 1997.
22. Douglas, K.A., Collins, J.L., Warren, C., Kann, L., Gold, R., Clayton, S., Ross, J.G. & Kolbe, L.J. (1997). Results from the 1995 National College Health Risk Behavior Survey. *Journal of American College Health*, 46(2), 55-66.
23. DiIorio, C., Parsons, M., Lehr, S., Adame, D., Carlone, J. (1993) Knowledge of AIDS and safer sex practices among college freshmen. *Public Health Nursing*, 10(3), 159-165.
24. Hernandez, J.T. & Smith, F.J. (1990). Inconsistencies and misperceptions putting college students at risk of HIV infection. *Journal of Adolescent Health Care*, 11(4), 295-297.
25. U.S. Department of Health and Human Services. *Healthy People 2010*. 2nd ed. With Understanding and Improving Health and Objectives for Improving Health. 2 vols. Washington, DC: U.S. Government Printing Office, November 2000.

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