PRIME
FOR LIFE!

Evaluation Results of a National Greek Sorority

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July 2002

Prevention Research Institute, Inc.

PRIME For Life

Executive Summary

PRIME For Life (PFL) is the research-based prevention and intervention program being used by a national Greek sorority to assist their members in making low-risk decisions regarding alcohol use. The PFL program is based on the Lifestyle Risk Reduction Model developed by Prevention Research Institute. This model holds that increasing personal perception of risk is a key step in encouraging behavior change. The perception of how real and imminent the risk is can form a motivation for either continuing or changing behavior. The immediate objective of the PFL program is the formation of an accurate perception of risk associated with drinking choices. Participants in the PFL program learn to decrease their risk for alcohol problems and/or alcoholism by making low-risk drinking choices (i.e., in terms of setting personal standards for the quantity and frequency of drinking that avoid impairment or health problems) that include abstinence.

This report contains the results for 821 women who completed the PFL program between January 2001 and May 2001 and for whom pre-tests and post-tests were available. The pre-test was completed before attending the 6.5 PFL program and the post-test was completed at the end of the program. Participation was voluntary and confidential.

Almost 75% of the women were under the legal age for alcohol use and 71% reported alcohol-related problems in the last month. In the two weeks prior to students attending the PFL program, two-thirds reported drinking four or more drinks on one occasion. Almost 40% reported drinking four or more drinks on five or more days in the last two weeks. However, most of the students considered themselves "moderate" or "light" drinkers.

Analyses revealed statistically significant and desirable changes in perception of risk. Overall, participants in the PFL program:

- Decreased their endorsement of drinking as a desirable characteristic of a social/ romantic partner.
- Decreased their endorsement of getting drunk as a good way to have fun and be social.
- Increased their understanding of the link between drinking and alcoholism.
- Increased the accuracy as to the level of drinking for which health and impairment problems emerge.
- Increased their personal perception of risk for developing alcoholism.
- Intended to make fewer high-risk drinking choices in the future.

In addition, students who were making the riskiest drinking choices showed the greatest increases in personal perception of risk for developing alcoholism.

When contrasted with past high-risk drinking choices, the students' behavioral intentions regarding future high-risk drinking choices were consistent with the increases in perception of risk. The pattern of results indicate that program participants changed their perception of risk, applied the information to their own drinking choices and intended to make fewer high-risk drinking choices in the future.

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PRIME For Life (PFL) is the research-based prevention and intervention program being used by a national Greek sorority to assist their members in making low-risk decision regarding alcohol use. The PFL program is based on the Lifestyle Risk Reduction Model developed by Prevention Research Institute. This model holds that increasing personal perception of risk is a key step in encouraging behavior change. Personal perception of risk is a measure of the chance of loss or peril that people associate with their behavior. In other words, is the pleasure associated with the behavior worth the possible consequences associated with the behavior? The perception of how real and imminent the risk is can form a motivation for either continuing or changing behavior.

Participants in the PFL program are presented documented research findings on alcohol use and risks associated with levels of use. However, the purpose of this strategy is not simply to increase participants' general knowledge of alcohol use but rather to facilitate understanding of the implications of the research for their own alcohol use. Participants learn to assess their personal level of risk for alcoholism and their location in the progression towards alcoholism indicated by their current drinking behavior. After this assessment, participants learn how to decrease their risk for alcohol problems and/or alcoholism by making low-risk drinking choices (i.e., in terms of setting personal standards for the quantity and frequency of drinking that avoid impairment or health problems) that include abstinence.

Research has demonstrated that higher perception of risk is associated with less drinking and drug use, both in adolescents (Bachman, Johnston, & O'Malley, 1988; Bachman, Johnston, & O'Malley, 1998, Feldman, Harvey, Holowaty & Shortt, 1999; Johnston, O'Malley, & Bachman, 1998) and adults (Brown, Goldman, & Christiansen, 1985; Fromme, Katz, & D'Amico, 1997; Roizen, 1983). These findings lend support to the program's effort to alter personal perception of risk associated with high-risk drinking. Thus, the immediate objective of the PFL program is the formation of an accurate perception of risk associated with drinking choices.

Data Collection

Students completed two surveys. One survey (pre-test) was completed before attending the six and one-half hour PFL class and one survey (post-test) was completed immediately after class. To measure short-term changes in perception of risk, pre-intervention and post-intervention views were compared.

Participants

There were 935 women who participated in the PFL program between January 2001 and May 2001. Twenty chapters participated in the program. Number of participants and match rate for each chapter are detailed in Table 1. Chapter and school names have been removed to maintain confidentiality. Of 935 participants, 821(87.8%) completed a pre-test and a post-test. There were 102 (10.9%) unmatched pre-tests and 12 (1.3%) unmatched post-tests. Of the twenty chapters, four chapters returned matching post-tests for all participants with a pre-test. Ten chapters had match rates (i.e., the percentage of post-tests matching pre-tests) of over 90%. Four chapters had match rates ranging from 80-89% and one chapter had a match rate of 77.6%. One chapter did not return any post-tests and accounted for 41.1% of the unmatched pre-tests.

Table 1. Surveys received by school.

School	Chapter	Total Students	Matched Pre-post tests %	Unmatched Pre-test %	Unmatched Post-test %
Total		935	87.8	10.9	1.3
XXXXXX	XXXX	64	96.9	3.1	
XXXXXX	XXXX	63	92.1	3.2	4.8
XXXXXX	XXXX	58	77.6	20.7	1.7
XXXXXX	XXXX	77	92.2	7.8	
XXXXXX	XXXX	23	95.7	4.3	
XXXXXX	XXXX	28	100.0		
XXXXXX	XXXX	23	100.0		
XXXXXX	XXXX	60	93.3	6.7	
XXXXXX	XXXX	42	0.0	100.0	
XXXXXX	XXXX	34	88.2	5.9	5.9
XXXXXX	XXXX	57	98.2	1.8	
XXXXXX	XXXX	37	88.1	11.9	
XXXXXX	XXXX	26	96.2	3.8	
XXXXXX	XXXX	18	100.0		
XXXXXX	XXXX	36	91.7		8.3
XXXXXX	XXXX	60	100.0		
XXXXXX	XXXX	59	83.1	15.3	1.7
XXXXXX	XXXX	57	96.5	3.5	
XXXXXX	XXXX	56	82.1	17.9	
XXXXXX	XXXX	52	90.4	7.7	1.9

Measures

Demographics

Students were asked to provide age, race, year in school, and living arrangements. The choices for race were: White, African-American, Hispanic, American Indian or Alaskan Native, Asian or Pacific Islander, and Other. The categories for year in school were: freshman, sophomore, junior, senior or graduate. Choices for living arrangements were: residence hall, sorority house, off-campus apartment, parents' home and other.

Alcohol Use

Description of self as drinker. Students were asked "How would you describe yourself as a drinker?" Choices were: abstainer or non-drinker, infrequent drinker, light drinker, moderate drinker, heavy drinker and problem drinker. This item appeared on both the pre-test and the post-test.

Two-week drinking recall. Students were asked how many drinks they had consumed on each day for the two weeks prior to the PFL class. These data were used to construct variables regarding frequency of use (how many days alcohol used), peak (greatest number of drinks consumed on one occasion) and drinking groups.

Drinking games. Students were asked the open-ended item "How many days have you played drinking games in the last month?"

Alcohol-related problems. Students were asked to indicate which, if any, of eleven alcohol-related problems they had experienced in the last month. The problems were: had a hangover, said something under the

influence that you wish you had not said, missed a class, done something you later regretted, got into a fight or argument, injure yourself, driven a car under the influence, gone further sexually when ordinarily wouldn't, performed poorly on a test or important project, damaged a relationship with a romantic partner, and damaged a relationship with a friend.

Drinking after college. Students were asked, "Which of the following is your best guess about how much you will drink after college?" Choices were: will drink more than I do now, will drink about the same as do now, will drink less than I do now, and don't know.

Perception of Risk

Perception of risk was measured with seven outcome variables. The first measured risky beliefs about people who drink, the second measure assessed risky beliefs regarding the role of drinking in fun, the third measure assessed accuracy regarding who is at risk for alcoholism, and the remaining measures were specific to alcohol choices. These items were included on both the pre-test and the post-test.

Beliefs about people who drink. This measure addressed students' beliefs regarding the desirability of drinking behavior in people.

1. A person who has never been drunk is missing a good time.
2. It is hard to have a good time with people who don't drink at all.
3. I would not like it if someone I was dating never drank at parties.
4. It is good to be able to drink more than other people before getting drunk.
5. People who drink alcoholic beverages are more fun than people who don't.
6. People are not really drinking if they have only 1 or 2 drinks.

Responses were measured on a 5-point Likert scale ranging from strongly agree (1) to strongly disagree (5) and added to produce an accuracy score ranging from 6 to 30. The score was then divided by 6 to yield a score ranging from 1-5 for ease of interpretation.

Beliefs about alcohol and fun. This measure addressed students' beliefs regarding the role of alcohol in having fun.

1. Drinking is a good way to help a person be friendly and meet new people.
2. I believe that getting drunk for kicks is just a part of being young.
3. Drinking is a good way to have fun.
4. It is never okay to get drunk, even to celebrate something special. (reverse-coded)

Responses were measured on a 5-point Likert scale ranging from strongly agree (1) to strongly disagree (5) and added to produce an accuracy score ranging from 4 to 20. The score was then divided by 4 to yield a score ranging from 1-5 for ease of interpretation.

Beliefs about drinking and alcoholism. This measure addressed participants' accuracy regarding the association between drinking and developing alcoholism. Participants were asked the degree to which they agreed with the following statements:

1. My drinking choices determine whether or not I develop alcoholism.
2. Anyone who consumes alcohol could develop alcoholism.

Responses were measured on a 5-point Likert scale ranging from strongly agree (1) to strongly disagree (5) and added to produce an accuracy score ranging from 2 to 10. The score was then divided by 2 to yield a score ranging from 1-5 for ease of interpretation.

> Risk for specified level of alcohol use. Three measures addressed participants' personal perception of risk for specific levels of alcohol use. Participants were asked, "What is YOUR risk of being harmed (physically and in other ways) by:"

1. Drinking two drinks every day?
2. Drinking four drinks every day?
3. Drinking a six-pack on a Friday or Saturday night?

Response choices were: no risk (1), small risk (2), medium risk (3) and great risk (4).

> Risk for developing alcoholism. This measure assessed participants' personal perception of risk for develop alcoholism. Students were asked to rate their risk for developing alcoholism on a scale from 1 (low) to 10 (high).

Drinking choices in the past year

> After completing the class, participants were asked to respond to the item "In the past year, I made high-risk drinking choices." Participants chose from six responses: never, rarely, sometimes, a lot, almost always and always.

Behavioral Intentions

> After completing the class, students were asked to indicate their intentions regarding high-risk drinking choices in the future. In response to the item "Based on everything I have learned about risks and what is important to me, I have decided to make high-risk drinking choices:" students chose never, rarely, sometimes, a lot, almost always and always.

Results

Sample for Analysis

As the focus of this report is change as a result of participating in the PFL program, only students who provided a matched pre-test and post-test were included in the analysis. Two sets of analyses were performed. First, the pre-tests for the chapter with no post-tests were compared to the pre-tests of chapters who provided both a pre-test and post-test. A series of analyses revealed that there were no statistically significant differences in age, race, year in school, participation in drinking games, alcohol use or perception of risk between the chapter with no post-tests and the chapters that provided matched cases. The chapter was excluded from subsequent analyses. This step decreased the sample size from 935 cases to 893 cases.

Second, to ensure that the students who provided both a pre-test and a post-test did not differ from students who did not provide both tests, comparisons were made between the two groups.There were no statistically significant differences in age, race, year in school, participation in drinking games, alcohol use or perception of risk between unmatched and matched surveys. This step decreased the sample size from 893 cases to 833 cases.

The twelve post-tests were also dropped from subsequent analyses however, there were too few cases to determine if they differed from post-tests from students who also completed the pre-test. This step decreased the sample size from 833 cases to 821 cases, thus 87.8% of the 935 cases were retained for analysis.

Demographics

Of 821 students, 724 (88.1%) were Caucasian. Of the remaining, 7 (0.9%) were African-American, 36 (4.4%) were Hispanic, 10 (1.2%) were American Indians, 22 (2.7%) were Asian and 18 (2.2%) selected "Other." The "Other" category for race may include participants who identify themselves with other racial groups as well as those who identify with two or more racial groups. Race was unavailable for four students or 0.5% of the sample.

Age ranged from 17 years to 26 years with an average age of 19.8 and a standard deviation of 1.2 years. Almost three-fourths, 74.7%, of women were under the legal drinking age of 21. There were 197 (24%) freshman, 239 (29.1%) sophomores, 239 (29.1%) juniors, 145 (17.7%) seniors and 1 (0.1%) graduate student in the sample.

The majority of students, 437 (53.2%), lived in a residence hall, 110 (13.4%) lived in a sorority house, 206 (25.1) lived in off-campus housing, 39 (4.8%) in the parent's home, and 29 (3.5%) specified other or did not report their living arrangements.

Overall, the women in this sample were Caucasian, between 19 and 20 years of age, in their sophomore or junior year in college, and living in a residence hall or off-campus housing.

Alcohol Use

Description of self as drinker. The alcohol use variables were taken from the pre-test. Of 821 students, a small percentage of students (5.1%) described themselves as "abstainers" and reported no use of alcohol in the past two weeks (Table 2). Approximately half of students described themselves as "moderate" drinkers, and one-fourth described themselves as "light" drinkers. The smallest group was the "heavy" drinkers with 4% of students choosing this description. No students described themselves as "problem" drinkers.

Table 2. Students' description of self as drinker.

Measure	Number (N=821)	%
Self-described		
Abstainers	42	5.1
Infrequent	117	14.3
Light	210	25.6
Moderate	396	48.2
Heavy	33	4.0
Unknown	23	2.8

        Two-week drinking recall. Students were asked to report the number of alcoholic beverages consumed on each day for the two weeks prior to the PFL class. Peak drinking, or the highest amount the student reported in one day, and frequency of drinking were calculated. Table 3 reveals the percentage of students within peak drinking categories and frequency of drinking categories for all drinkers and then by self-described drinking group.

Table 3. Percentage of students within peak drinking and frequency of drinking categories by self-described drinking category.

Measure	All drinkers (n=731) %	Infrequent (n=101) %	Light (n=206) %	Moderate (n=391) %	Heavy (n=33) %
Peak drinking					
No drinks	6.4	25.7	7.8	1.3	-
1-3 drinks	23.3	54.5	34.5	11.3	-
4-6 drinks	39.1	15.8	47.1	43.7	6.1
7-9 drinks	18.3	2.0	8.3	26.9	30.3
10-12 drinks	10.3	-	1.9	14.6	42.4
13+ drinks	2.6	2.0	0.5	2.3	21.2
Frequency of drinking					
No days	6.4	25.7	7.8	1.3	-
1-2 days	28.5	57.4	42.2	15.6	6.1
3-4 days	29.3	15.8	30.6	34.3	3.0
5-6 days	24.2	1.0	14.6	34.8	30.3
7-8 days	8.8	-	4.4	11.5	30.3
9+ days	2.9	-	0.5	2.6	30.3

        In the column labeled "all drinkers," the most frequent peak drinking range is 4-6 drinks with 39.1% of drinkers reporting 4-6 drinks as the maximum consumed on any occasion in the last two weeks. Looking across the self-described drinking groups, a pattern of increased peak drinking emerges. Moving right across the table, 1-3 drinks is the most frequent range reported by students who considered themselves "infrequent" drinkers. Both "light" and "moderate" drinkers reported 4-6 drinks as their peak, however 7.8% of "light" drinkers reported no drinking as compared to 1.3% of "moderate" drinkers. While 10.7% of "light" drinkers reported a peak of 7 drinks

or more, 43.8% of "moderate" drinkers reported a peak of 7 drinks or more. Finally, the most frequently reported peak for students who considered themselves "heavy" drinkers was 10-12 drinks. The pattern of drinking frequency shown in the bottom half of Table 3 is similar to the peak drinking pattern.

Three groups were created based on combinations of the peak drinking category and the frequency of drinking category. The first group was comprised of students who did not report any alcohol use in the past two weeks, students who reported a peak drinking range of 1-3 drinks on 1-3 occasions and students who reported drinking 1-3 drinks on 3 to 9+ occasions. The quantity and frequency of alcohol use for this group are closest to the low-risk guidelines in the curriculum. The second group was comprised of students who reported drinking 4 or more drinks on 1-4 occasions in the last two weeks. This group of students seemed to be showing a pattern of drinking that included occasional episodic heavy drinking. The third group was comprised of students who reported drinking 4 or more drinks on 5 or more occasions. This group of students seemed to be drinking large amounts on a frequent basis. The quantity and frequency of the alcohol use for the last two groups would be considered high-risk drinking in the PFL curriculum. Of 788 students, 32.4% were in the low-risk group, 27.9% were in the episodic heavy group and 39.7% were in the frequent heavy drinking group.

Table 4 reveals the percentage of participants by drinking group and the self-description. Of "infrequent" drinkers, 80.2% were in the low-risk group and 17.8% were in the episodic heavy group. The largest category for "light" drinkers was low-risk followed by episodic heavy. For "moderate" drinkers, 58.3 % reported a pattern of frequent heavy drinking. All but two of the self-described "heavy" drinkers fell into the frequent heavy pattern of drinking.

Table 4. Percentage of self-description drinking in drinking group constructed from peak/frequency.

Measure	Abstainers (n=36) %	Infrequent (n=101) %	Light (n=206) %	Moderate (n=391) %	Heavy (n=33) %
Peak drinking					
Low-risk	100.0	80.2	42.2	12.5	0.0
Episodic Heavy		17.8	37.4	29.2	6.1
Frequent Heavy		2.0	20.4	58.3	93.9

Drinking games. There was a wide range in the number of days students reported playing drinking games in the past thirty days. Overall, as shown in Table 5, 61.9% of students reported playing drinking games. Less than one-third of low-risk drinkers reported playing drinking games. However, the majority of episodic and frequent heavy drinkers reported playing games, with 66.5% and 78.9%, respectively. The average number of game days for episodic drinkers was three times higher than low-risk drinkers. Frequent heavy drinkers reported approximately twice as many days playing drinking games as episodic heavy drinkers.

Table 5. Drinking games in last month.

	All Students (n=781)	Low-risk (n=251)	Episodic Heavy (n=206)	Frequent Heavy (n=313)
Games				
% reporting games	61.9%	31.4%	66.5%	78.9%
Range	0 - 30	0 - 20	0 - 15	0 - 30
Mean	2.6	0.7	2.1	4.3
Median	1.0	0.0	1.5	4.0

Problems. At pre-test, students were asked to report if they had experienced problems in the last month while using alcohol. Of 788 students, 71.1% reported experiencing at least one alcohol-related problem in the last month. Of 565 students reporting problems, 15.8% were in the low-risk drinking group, 31.9% were in the episodic heavy group and 52.4% were in the frequent heavy drinking group. The most frequently reported problem was a hangover. Over half of the women in the sample had experienced a hangover in the last month. As shown in Table 6, of the students reporting hangovers, 12.2% were low-risk drinkers, 30.9% were episodic heavy drinkers and 56.9% were frequent heavy drinkers. It should be noted that the drinking groups were constructed based on a two-week recall whereas the time length for problems was one month. Thus, it is possible that students who reported low-risk drinking in the two weeks prior to the PFL class could have made high-risk drinking choices three or four weeks prior to the PFL class. Over one-fourth of students had said something they wished they had not or missed a class in the last month due to alcohol use. Approximately one-fifth of students did something they regretted or got into a fight of argument; ten percent had injured themselves or driven under the influence. For each problem, 56% to 78% of students reporting that problem had a pattern of frequent heavy use of alcohol in the last two weeks.

Table 6. Alcohol associated problems in the last month and percentage within drinking group.

Problem	Number Reported	Low-risk %	Episodic Heavy %	Frequent Heavy %
Had a hangover	469	12.2	30.9	56.9
Said something wished had not	278	12.2	29.9	57.9
Missed a class	223	8.0	21.0	71.0
Done something regretted	161	11.2	26.7	62.1
Got into fight/argument	155	8.4	32.9	58.7
Injured yourself	112	9.8	23.2	67.0
Driven under influence	86	7.0	15.1	77.9
Gone further sexually	57	14.0	26.3	59.6
Performed poor on test/project	56	12.5	21.4	66.1
Damaged a romance	49	8.2	18.4	73.5
Damaged a friendship	36	11.1	25.0	63.9
No problems reported	223	74.4	17.9	7.6

Analysis revealed statistically significant differences between the drinking groups in the number of alcohol related problems experienced in the last month. Of eleven possible problems, students in the low-risk group reported an average of 0.7 problems. Episodic heavy drinkers reported significantly more problems than low-risk drinkers with an average of 2.1 problems. Frequent heavy drinkers reported the highest average at 3.4 problems.

Drinking after college. Students were asked how they expected their drinking to change after college. As shown in the first column in Table 7, over half of all students expected to use alcohol less after college. Within drinking groups, 54.6% of low-risk drinkers expected to drink about the same after college. Although over one-third (35%) of episodic heavy drinkers expected to drink the same after college, 59.4% believed they would drink less alcohol. Among frequent heavy drinkers, 22% expected to use alcohol in the same amount and 73.5% expected to consume less alcohol.

Table 7. Students' guess about their level of alcohol use after college.

	All (n=781) %	Low-risk (n=251) %	Episodic Heavy (n=217) %	Frequent Heavy (n=313) %
Guess				
More	3.1	7.2	1.4	1.0
Same	36.1	54.6	35.0	22.0
Less	53.5	23.5	59.4	73.5
Don't Know	7.3	14.7	4.1	3.5

Two composite measures and seven single items were used to measure change in perception of risk. A series of paired sample t-tests were performed comparing the students' average pre-test score to the average of their post-test scores (see Table 8). These tests reveal whether or not students showed a statistically significant change over the course of the program. The number of students varies for each measure due to missing data.

Students showed statistically significant and desired changes in scores on six of the seven outcome measures. These measures were 1) beliefs about people who drink, 2) beliefs about alcohol and fun, 3) beliefs about drinking and alcoholism, 4) drinking two drinks daily, 5) drinking a six-pack on Friday or Saturday night and 6) personal perception of risk for developing alcoholism. Although this analysis revealed desired changes for students as a single group, it was clear from examination of the alcohol use variables (i.e., peak, frequency) that students differed in terms of their alcohol use. Therefore, an additional analysis was run to see if some students experienced more change over of the course of the program than other students.

Table 8. Results of t-tests for perception of risk measures.

Measure	n	Pre-test Mean (SD)	Post-test Mean (SD)	t
Beliefs about people who drink	788	3.9 (0.6)	4.0 (0.7)	-6.1***
Beliefs about alcohol and fun	809	2.6 (0.7)	2.7 (0.8)	-8.8***
Beliefs about drinking & alcoholism	811	3.3 (0.8)	3.9 (0.8)	-18.4***
Risk for specified level of alcohol use				
Two drinks every day	794	2.7 (0.9)	2.5 (0.9)	8.5***
Four drinks every day	795	3.5 (0.8)	3.5 (0.8)	-.3
Six-pack on Friday/Saturday night	790	2.9 (0.9)	3.3 (0.8)	-13.6***
Risk for developing alcoholism	779	1.0 (0.4)	3.1 (2.2)	-25.2***

***$p < .001$

Change in Perception of Risk by Drinking Groups

Three patterns of alcohol use were identified based on peak drinking and frequency of drinking: low-risk, episodic heavy and frequent heavy. These groups differed in their use of alcohol, participation in drinking games and number of alcohol-related problems experienced in the last month. Students' alcohol use should influence their response to the curriculum, especially on measures regarding personal perception of risk. Simply put, it is desirable that students making high-risk drinking choices show greater increases in perception of risk as their high-risk drinking choices do increase their risk for health and impairment problems.

A MANOVA (Multivariate Analysis of Variance) with repeated measures was used to identify differential rates of change in the outcome measures between drinking groups. This analysis strategy yielded information regarding changes within individuals from pre-test to post-test (within-subjects) as well as information about differences between drinking groups. There were three effects in the MANOVA. These are the TIME effect, the GROUP effect and the TIME-by-GROUP effect. The within-subjects effect, or TIME effect indicated whether a significant change occurred from pre-test to post-test scores. The previous series of t-tests gave similar information. The between-subjects effect or GROUP (i.e., drinking group) effect revealed whether or not drinking groups differed from one another adjusting for the fact that each subject provided two scores. For example, a significant GROUP effect would indicate that one of the drinking groups had a higher or lower mean score than other drinking groups on the outcome measure (when averaging across their pairs of scores).

The TIME effect was allowed to interact with the GROUP effect to examine whether or not certain groups experienced more change from pre-test to post-test than other groups. A significant TIME-by-GROUP effect would indicate that one or more of the drinking groups (i.e., low-risk, episodic heavy or frequent heavy) changed more than the other drinking groups over the course of the intervention.

Beliefs about people who drink. The TIME effect for the beliefs about people who drink was significant, meaning that participants moved away from viewing drinking as a desirable or necessary characteristic of a "fun" person, friend or romantic partner. All groups experienced similar rates of change from pre-test to post-test as shown by the nearly parallel lines on Chart 1. However, there was a significant GROUP effect. Recall that this measure has possible scores ranging from 1-5 with lower scores indicating endorsement of drinking/drunk as a quality of a fun person. Thus, a score of 4 or 5 indicates disagreement or strong disagreement with these beliefs, while a score of 3 indicates neutrality about these beliefs. Overall, low-risk drinkers disagreed or strongly disagreed that drinking/being drunk was a necessary quality. Students who reported episodic heavy drinking tended to disagree with the beliefs and frequent heavy drinkers expressed more agreement regarding these beliefs.

Chart 1. Change in beliefs about people who drink by drinking group.
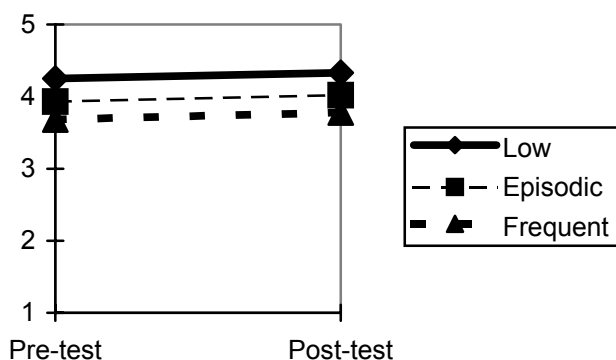
Beliefs about alcohol and fun. The TIME effect for the beliefs about alcohol and fun was significant, meaning that participants moved away from viewing drinking/being drunk as a part of being young, meeting new people and having fun. All groups experienced similar rates of change from pre-test to post-test as shown by the nearly parallel lines on Chart 2. However, there was a significant GROUP effect. This measure has possible scores ranging from 1-5 with lower scores indicating endorsement of drinking/drunk as a part of having fun. Low-risk drinkers were neutral concerning the role of drinking/being drunk in having fun. Episodic heavy drinkers were in agreement that drinking/getting drunk was part of being young, social and fun and frequent heavy drinkers were in clear agreement with these beliefs.

Chart 2. Change in beliefs about alcohol and fun by drinking group.
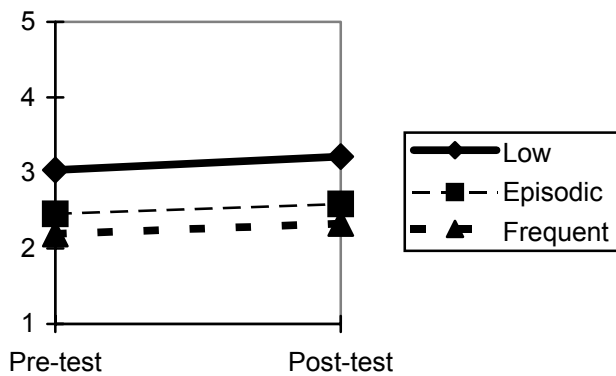
Beliefs about drinking and alcoholism. The TIME effect was significant meaning that participants increased the accuracy of their beliefs regarding the role of drinking in the development of alcoholism. There was no interaction between drinking group and time meaning all participants experienced the same rate of change. There was no GROUP effect meaning that low-risk drinkers, episodic heavy drinkers and frequent heavy drinkers held similar levels of agreement with these beliefs. This relationship is illustrated in Chart 3.

Chart 3. Change in beliefs about drinking and alcoholism by drinking group.
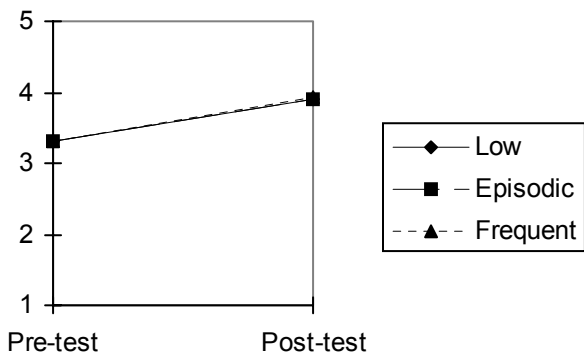
Drinking two drinks daily. The TIME effect for the risk associated with drinking two drinks daily was significant. At pre-test, particpants viewed two drinks daily as a medium risk. At post-test, students reduced their perception of risk and thus held a more accurate view of the risk associated with drinking two drinks daily. Two drinks daily is consistent with the low-risk drinking guidelines outlined in the PRIME For Life curriculum. All groups experienced similar rates of change from pre-test to post-test as shown on Chart 4. However, there was a significant GROUP effect. Frequent heavy drinkers were more likely to assess two drinks daily as less risky than either low-risk drinkers or episodic heavy drinkers.

Chart 4. Change in risk associated with drinking two drinks daily by drinking group.
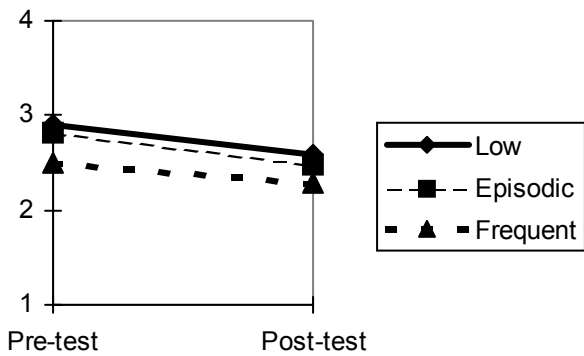

Drinking four drinks daily. The TIME effect for the risk associated with drinking four drinks daily was not statistically significant. Participants did not change their assessment of this level of drinking as a medium to great risk. However, there was a significant GROUP effect. Frequent heavy drinkers assessed the risk associated with four drinks daily lower than episodic heavy drinkers. Low-risk drinkers did not differ from either the frequent heavy drinkers or the episodic heavy drinkers.

Chart 5. Change in risk associated with drinking four drinks daily by drinking group
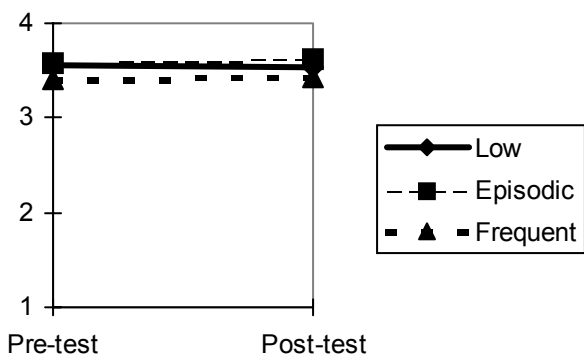
Drinking six drinks on a weekend night. The TIME effect for the risk associated with drinking six drinks on a weekend night was statistically significant with participants increasing their assessment of risk from pre-test to post-test. The GROUP effect was also significant with frequent heavy drinkers assessing the risk associated with six drinks as lower than episodic heavy drinkers and low-risk drinkers. The TIME-by-GROUP effect was significant meaning that frequent heavy drinkers experienced a greater increase from pre-test to post-test than episodic heavy drinkers or low-risk drinkers.

Chart 6. Change in risk associated with drinking six drinks on a weekend night by drinking group
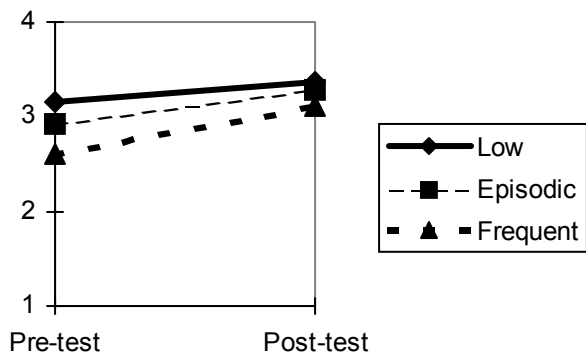
Risk for developing alcoholism. The TIME effect for participants' personal perception of risk for developing alcoholism was statistically significant with participants increasing their assessment of risk from pre-test to post-test. The GROUP effect was also significant with low-risk drinkers assessing their risk as lower than both episodic heavy and frequent heavy drinkers The TIME-by-GROUP effect was significant meaning that episodic heavy and frequent heavy drinkers experienced a greater increase from pre-test to post-test than low-risk drinkers.

Chart 7. Change in personal perception of risk for developing alcoholism by drinking group
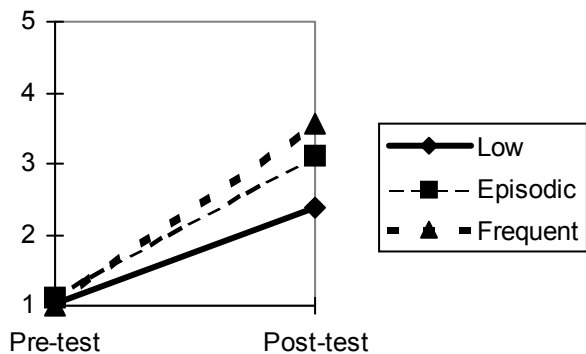
A summary of the statistically significant results for the MANOVA are presented in Table 9. Overall, students experienced desired change from pre-test to post-test for six of the seven outcome variables. Looking at the TIME column in Table 9, it can be seen that there was a statistically significant effect for TIME for all outcome variables except the "four drinks every day."

Moving across to the GROUP column, it can be seen that there were six significant GROUP effects. This means that there were significant differences between the drinking groups. For beliefs about people who drink and beliefs about alcohol and fun, low-risk drinkers differed from both episodic heavy and frequent heavy drinkers. Frequent heavy drinkers also differed from episodic heavy drinkers. Low-risk drinkers held the most accurate beliefs regarding people who drink, frequent heavy drinkers held the least accurate and episodic heavy drinkers fell in between the two groups. Similarly, low-risk drinkers were the least likely to endorse beliefs that alcohol is necessary to have a good time while frequent heavy drinkers were the most likely to endorse this view. Episodic heavy drinkers were between the two groups. There was no GROUP effect for the beliefs about drinking and alcoholism. All three drinking groups were similar in their beliefs regarding the link between drinking and alcoholism.

GROUP effects were also found for specific levels of alcohol use. Frequent heavy drinkers rated the risks of drinking two drinks daily significantly lower than both frequent heavy and episodic heavy drinkers. Frequent heavy drinkers also rated the risk of drinking four drinks daily lower than episodic heavy drinkers. Finally, frequent heavy drinkers rated the risks of drinking six drinks lower than both episodic heavy and low-risk drinkers.

The last GROUP effect was for personal perception of risk for developing alcoholism. Episodic heavy drinkers and frequent heavy drinkers rated their personal risk for developing alcoholism significantly higher than low-risk drinkers.

There were two significant TIME-by-GROUP effects. Episodic heavy drinkers and frequent heavy drinkers experienced more of an increase in their perception of the risk associated with drinking six drinks than low-risk drinkers. Episodic heavy drinkers and frequent heavy drinkers also reported greater increases in personal perception of risk from pre-test to post-test.

Table 9. Summary of MANOVA results.

Measure	TIME	GROUP	TIME x GROUP
Beliefs about people who drink	X	X	
Beliefs about alcohol and fun	X	X	
Beliefs about drinking & alcoholism		X	
Risk for specified level of alcohol use			
Two drinks every day	X	X	
Four drinks every day		X	
Six-pack on Friday/Saturday night	X	X	X
Risk for developing alcoholism	X	X	X

***$p < .001$

Past Drinking Behavior and Intentions for Future Drinking

After completing the class, participants were asked how often they had made high-risk drinking choices in the past and how often they intended to make high-risk drinking choices in the future. In the last year, 26% of students claim to have made high-risk drinking choices a lot, almost always or always. After completing the PFL class, only 7% of participants planned to make high-risk drinking choices a lot, almost always or always.

Chart 8. Participants' description of high-risk drinking in the past year and future intentions
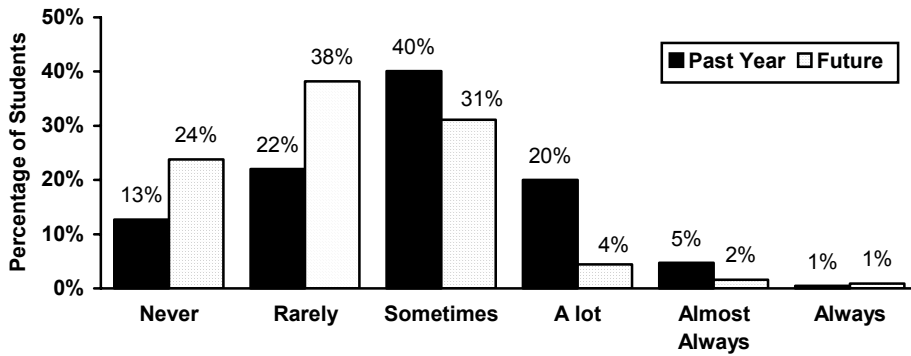
Summary

Of 821 students, 5.1% described themselves as abstainers. Students who described themselves as "infrequent" drinkers made up 14.3% of the sample. Over three-fourths of "infrequent" drinkers reported a pattern of drinking no more than 3 drinks on 1-4 days in the last two weeks. This drinking pattern is considered as carrying low-risk for health or impairment problems. However, one-fourth of "infrequent" drinkers reported a drinking pattern more consistent with episodic heavy drinking. Low-risk drinking choices were reported by 42.2% of "light" drinkers however, only 12.5% of self-described "moderate" drinkers reported low-risk drinking choices. The percentage of "light" and "moderate" drinkers reporting episodic heavy drinking was roughly one-third in both cases. Frequent heavy drinking was reported by 20.4% of "light" drinkers. Frequent heavy drinking was the most frequent pattern reported by "moderate" drinkers at 58.3%. To summarize, "infrequent" drinkers are often low-risk drinkers and "light" drinkers show low-risk or episodic heavy drinking. Most "moderate" drinkers report a pattern of frequent heavy drinking as do the majority of self-described "heavy" drinkers. Only 12.5% of "moderate" drinkers report a drinking pattern that could be described as carrying low risk for problems.

Differences emerged between the low-risk group, episodic heavy group and frequent heavy group in terms of participation in drinking games, alcohol-related problems and estimates about future alcohol use. The majority of low-risk drinkers did not participate in drinking games in the last month, experienced no alcohol-related problems in the same time and believed they would continue their current level of drinking after college. About two-thirds of episodic heavy drinkers reported engaging in drinking games an average of two times in the last month. Approximately one-third of the students reporting problems were in the episodic heavy group and on average had experienced two alcohol-related problems in the last month. Over half of these students indicated that they intended to drink less after college. Frequent heavy drinkers engaged in drinking games four times a month and experienced an average of 3.4 problems in the same time period. Almost three-fourths of these students intended to drink less after college.

Not unexpectedly, students drinking larger amounts and drinking more frequently experienced alcohol related problems. High-risk drinkers also participated in drinking games more than low-risk drinkers. The majority of women in both the episodic heavy group and frequent heavy drinking group believed that they would drink less after college. This may indicate a belief that the quantity and/or frequency choices that they are currently making are specific to this time period in their life (late adolescence/early adulthood) or to the college context and that these drinking choices have no lasting or future effects. The PFL program addresses this mistaken belief in terms of the short-term and long-term risks associated with high-risk drinking choices.

Statistically significant changes were found for six of the seven measures of perception of risk. After completing the PFL curriculum, students were less likely to endorse drinking as a desirable characteristic of a "fun" person or getting drunk as a good way to have fun and be social. There was also an increase in students' understanding of the link between drinking and alcoholism. Students came to a more accurate understanding of the level of drinking (i.e., quantity and frequency) for which health and impairment problems emerge. Finally, students increased their personal perception of risk for developing alcoholism.

Further analysis of the same outcome variables revealed clear differences between drinking groups. Students who were episodic heavy or frequent heavy drinkers endorsed more risky beliefs than low-risk drinkers. Both groups of heavy drinking students saw drinking as desirable in both social partners and social occasions. Low-risk drinkers and episodic heavy drinkers were similar in their risk assessment for two drinks daily, four daily and six drinks on a weekend night. However, frequent heavy drinkers assessed the risks of drinking lower than episodic heavy drinkers across all quantities. Frequent heavy drinkers also assessed the risks as smaller than low-risk drinkers at two drinks and six drinks. At four drinks, there were no differences between the low-risk drinkers and either of the high-risk groups but episodic heavy drinkers assessed the risks as higher than frequent heavy drinkers.

There were two instances where differential response to the curriculum was found between drinking groups. From pre-test to post-test, frequent heavy drinkers and episodic heavy drinkers experienced a greater increase in perception of risk associated with six drinks on a weekend night than low-risk drinkers. Frequent heavy drinkers and episodic heavy drinkers also experienced greater increases in their personal perception of risk for developing alcoholism than low-risk drinkers. These differential changes are consistent with the goals of the PRIME For Life curriculum. Simply put, frequent heavy and episodic drinking or high-risk drinking choices increase the risk for health and impairment problems, including alcoholism; students who were making these drinking choices increased their perception of risk surrounding high-risk drinking choices.

When contrasted with past high-risk drinking choices, the students' behavioral intentions regarding future high-risk drinking were consistent with increased perception of risk. For example, whereas 13% of students reported never making high-risk drinking choices in the past, approximately 25% of students intended to never make high-risk drinking choices in the future. As a group, students moved towards intending to make fewer high-risk drinking choices. Overall, the pattern of results indicate that program participants changed their perception of risk, applied the information to their own drinking choices, and intended to make fewer high-risk drinking choices in the future.

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