

Gender-Specific Misperceptions of College Student Drinking Norms

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This study evaluated perceptions of same-sex and opposite-sex gender-specific versus gender-nonspecific drinking norms among college students (115 men, 111 women). This research is consistent with previous findings that college students overestimate the quantity and frequency of drinking among their gender-nonspecific peers and demonstrates that both men and women overestimate the quantity and frequency of the drinking of their same-sex peers. The findings suggest that perceived same-sex norms are more strongly associated with problematic drinking than are gender-nonspecific norms and that perceived same-sex drinking norms are stronger predictors of alcohol consumption for women than for men. Results suggest that interventions incorporating normative feedback should be framed differently for women than for men.

One theory regarding the widespread use of alcohol among college students involves misperceptions of peer drinking norms. For the purposes of this research, we focused exclusively on *descriptive drinking norms*, or the perceptions of actual peer drinking behavior (Cialdini, Reno, & Kallgren, 1990). A large number of studies have demonstrated that college students misperceive peer drinking norms (Baer & Carney, 1993; Baer, Stacy, & Larimer, 1991; Perkins & Berkowitz, 1986; Perkins, Meilman, Leichter, Cashin, & Presley, 1999; Perkins & Wechsler, 1996; Prentice & Miller, 1993); specifically, college students tend to overestimate heavy alcohol consumption of their peers (Perkins & Berkowitz, 1986; Perkins & Wechsler, 1996). College students' misperceptions of peer drinking has been suggested as a cause of heavy drinking; as a consequence, many interventions target changing misperceptions of peer drinking norms (Agostinelli, Brown, & Miller, 1995; Baer et al., 1992; Borsari & Carey, 2000; Fabiano, McKinney, Hyun, Mertz, & Rhoads, 1999; Haines & Spear, 1996; Marlatt et al., 1998; Neighbors, Larimer, & Lewis, 2004; Nye, Agostinelli, & Smith, 1999; Walters, 2000).

Gender Differences in Normative Misperceptions

Prior research has demonstrated that gender differences are present in some aspects of peer drinking norms (Adams & Nagoshi, 1999; Lo, 1995; Nagoshi, Wood, Cote, & Abbit, 1994). For example, men have been shown to perceive more permissive social and institutional norms than women (Adams & Nagoshi, 1999). In addition, previous research has demonstrated that same-sex peer drinking norms best explain alcohol use in college undergraduates

(Korcuska & Thombs, 2003). However, this research examined perceived same-sex peer drinking norms for closest same-sex friend and typical same-sex student but did not evaluate perceived gender-nonspecific drinking norms or opposite-sex peer drinking norms. Additional research is needed to assess which reference groups are stronger predictors of alcohol consumption and alcohol-related consequences and which referents are more specific reference groups for normative feedback interventions because a more specific referent, whether it be gender or age, may make these interventions more effective. According to social comparison theory (Festinger, 1954) and social impact theory (Latane, 1981), socially proximal comparison groups are more relevant and have greater influence than more distal comparison targets. In addition, previous research has suggested that specific, relevant attitudes are better predictors of behavior (Kim & Hunter, 1993; Morrison, 1989) than attitudes toward a general concept (Ajzen, 1982; Ajzen & Fishbein, 1977). For example, perceptions of close friends' drinking norms have been demonstrated to be more precise, as well as more salient, to college students and have been shown to be a better predictor of alcohol consumption compared to perceptions of typical student drinking norms or perceptions of gender-nonspecific drinking norms (Baer et al., 1991). By the same token, we suggest that same-sex norms are more specific as well as more relevant compared to drinking norms of gender-nonspecific norms and should be more effective in terms of normative feedback interventions.

Gender-nonspecific drinking norms refers to the drinking norms of the typical student, without reference to gender. *Gender-specific norms* refers to same-sex norms and opposite-sex norms. *Perceived same-sex norms* refers to perceptions of typical drinking by same-sex peers (i.e., men's perceptions of men's drinking and women's perceptions of women's drinking). Similarly, *perceived opposite-sex norms* refers to perceptions of typical drinking by opposite-sex peers (e.g., men's perceptions of women's drinking and women's perceptions of men's drinking). A primary goal of this study was to examine gender differences in same-sex and opposite-sex misperceptions of peer drinking norms.

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Predictors of Alcohol Consumption and Alcohol-Related Problems

An additional goal of this study was to determine whether perceptions of same-sex norms would better predict alcohol consumption and alcohol-related problems than would perceptions of opposite-sex and gender-nonspecific drinking norms. On the basis of the fact that perceived same-sex norms are more specific, they should be more relevant compared to opposite-sex and gender-nonspecific perceptions of peer drinking norms. Therefore, we expected that perceptions of same-sex drinking norms would be a better predictor of alcohol consumption and alcohol-related problems than perceptions of opposite-sex drinking norms and gender-nonspecific drinking norms.

An additional hypothesis is that this should be especially true for women. Alcohol appears to be a more integral behavior for men compared to women, especially on campus. Prentice and Miller (1993) proposed the idea that alcohol is more relevant to the male social identity compared to the female social identity. On the basis of the central nature of alcohol for men, students may identify the "typical student" as being male when estimating norms. If so, when same-sex perceived norms are collected the referent will not change for men, because their "typical student" was male to start with; however, the referent for women will change to the referent being solely female. Therefore, we expected perceptions of same-sex peer drinking norms to be more strongly associated with alcohol consumption and related problems for women compared to men.

In sum, the primary purpose of this research was to examine gender differences in perceptions of college student drinking norms. The specific hypotheses were that (a) participants would overestimate gender-specific and gender-nonspecific drinking norms, (b) estimates of men's drinking would be higher than estimates of women's drinking, (c) perceptions of same-sex gender-specific norms would better predict alcohol consumption and alcohol-related negative consequences when compared to gender-nonspecific and opposite-sex drinking norms, and (d) same-sex peer drinking norms would be more strongly associated with alcohol consumption and alcohol-related problems for women.

Method

Participants

Participants included 226 (51% women, 49% men) students from undergraduate psychology classes. The average age of participants was 19.85 years ($SD = 2.39$). Ethnicity was 93.75% Caucasian and 6.25% "other." Participants received extra course credit for completing the study questionnaires. The majority of the sample (80%) reported drinking at least once in the previous 3 months.

Procedure

After providing informed consent, participants received a packet of questionnaires. The questionnaire packet included instruments designed to measure demographic information, alcohol consumption, alcohol-related negative consequences, and perceived gender-specific and -nonspecific drinking norms. Students participated individually or in groups. The measures of perceived norms reflect the perceived norms of students from the

campus as a whole and not the norms of the group of students who participated in the study.

Measures

Perceived norms. We measured perceived norms with two versions of the Drinking Norms Rating Form (Baer et al., 1991). The gender-nonspecific version assessed perceptions of others' drinking practices for the typical student (e.g., "How many drinks on average do you think a typical student at your college consumes on a given occasion?"). The gender-specific version assessed perceptions of others' drinking practices for the typical same-sex student and typical opposite-sex student. (e.g., "How often do you think a typical student of the same sex at your college consumes alcohol?" and "How often do you think a typical student of the opposite sex at your college consumes alcohol?"). Internal reliability (Cronbach's alpha) in this sample was .76 for the gender-nonspecific version and .80 for the gender-specific version.

Alcohol consumption. We assessed alcohol consumption with the Alcohol Consumption Index (ACI; Knee & Neighbors, 2002) and the Daily Drinking Questionnaire (Collins, Parks, & Marlatt, 1985). The ACI consists of eight items, four of which are aimed at heavy episodic drinking and inquire about the number of occasions on which the participant consumed five or more drinks at one sitting. Four items are more general questions about number of drinks consumed in a given timeframe (e.g., "On average, how many drinks do you consume on weekends [Friday–Sunday]?"). Internal reliability (Cronbach's alpha) in this sample was .96. A modified version of the Daily Drinking Questionnaire (Collins et al., 1985) included items in which participants report the average number of standard drinks consumed for each day of the week over the previous 3 months. Standard drinks were defined as 4 oz of wine, a 10-oz wine cooler, 12 oz of beer (8 oz of Canadian, malt liquor, or "ice" beers, or 10 oz of a microbrew), or 1 cocktail with 1 oz of 100-proof liquor or 1.25 oz of 80-proof liquor. In this sample, the internal reliability coefficient was .73.

Alcohol-related problems. We measured alcohol-related problems with the Rutgers Alcohol Problem Index (RAPI; White & Labouvie, 1989), which asks participants to rate the occurrence of 23 items reflecting the influence that alcohol has had on health and social functioning in the previous 3 months. Sample items include "missed a day (or part of a day) of school or work" and "got into fights, acted bad, or did mean things." Internal reliability (Cronbach's alpha) in this sample was .88.

Results

Misperceptions of Drinking Norms

We expected to replicate previous findings indicating that, in general, students overestimate the prevalence of alcohol consumption on their campus. A paired-samples *t* test indicated that participants' estimates of typical student drinking were almost six standard drinks per week higher ($M = 16.77$, $SD = 9.82$) than the actual sample norm ($M = 10.89$, $SD = 11.69$), $t(225) = 8.04$, $p < .0001$. In addition, participants overestimated frequency of consumption, $t(224) = 9.56$, $p < .0001$, and typical consumption per occasion, $t(224) = 5.87$, $p < .0001$. As an extension of previous literature, we wished to determine whether men misperceive the typical male student's consumption and whether women misperceive the typical female student's consumption. Consistent with expectations, male participants perceived that men drink more per week, $t(109) = 7.10$, $p < .0001$; drink more frequently, $t(110) = 9.48$, $p < .0001$; and drink more on typical occasions, $t(110) = 7.03$, $p < .0001$, than the actual sample norms for men's drinking. Similarly, female participants perceived that women drink more per week, $t(114) = 4.93$, $p < .0001$; drink more frequently,

$t(114) = 6.30, p < .0001$; and drink more on typical occasions, $t(114) = 2.54, p = .01$, than the actual norms for women's drinking.

Sex Differences in Perceived Gender-Nonspecific Versus Gender-Specific Drinking Norms

We used a repeated measures analysis of variance to examine differences in perceived drinking norms as a function of gender of perceiver and gender of target. Gender of perceiver was entered as a between-subjects factor, and gender of target (unspecified, men, and women) was a within-subject factor. We examined perceived number of drinks per week, perceived frequency, and perceived number of drinks per occasion separately. Means and standard deviations of perceived norms by gender are presented in Table 1, which also includes actual sample norms.

For perceived drinks per week, overall, men's perceptions were higher than women's, $F(1, 221) = 5.85, p < .05$. There was also a main effect of target gender, $F(2, 442) = 88.67, p < .0001$, with women being perceived to consume fewer drinks per week than men and gender-nonspecific perceptions falling in the middle. The interaction between gender of perceiver and gender of target was not significant ($F < 1$). For perceived frequency, there was no main effect of gender of perceiver, $F(1, 221) = 2.18, ns$. There was a main effect of target gender, $F(2, 442) = 69.24, p < .0001$, with women being perceived to drink less frequently than men, and gender-nonspecific perceptions again falling in the middle. The interaction between gender of perceiver and gender of target was significant, $F(2, 442) = 4.15, p < .05$. The pattern of means indicated that men's perceptions were higher than women's perceptions, but only for gender-specific targets. Results were similar for perceived number of drinks per occasion. The main effect of gender of perceiver was not significant, $F(1, 221) = 2.51, ns$. There was a main effect of target gender with the same pattern of means, $F(2, 442) = 155.05, p < .0001$. The interaction was again significant, with men's perceptions being higher than women's, with the exception of one target; however, in this case men perceived higher norms for gender-nonspecific and men's drinking, whereas men and women did not differ in their perceptions of women's drinking.

Consequences of Gender-Specific Versus Gender-Nonspecific Normative Perceptions

Given the relative consistency of findings for different drinking norms (i.e., drinks/week, frequency, and drinks/occasion), the remaining results are limited to perceived norms for number of drinks per week. It is not surprising that perceived norms were highly correlated across targets. Correlations with gender-nonspecified perceived weekly norms were .73 and .55 for same-sex and opposite-sex perceived norms, respectively. Same- and opposite-sex perceived norms were correlated .41. Regression was used with each target included as a predictor; thus, results represent unique effects for each target.

Perceived Norms as a Predictor of Alcohol Consumption

We used hierarchical multiple regression, with participants' gender entered as a covariate at Step 1, to determine whether perceived gender-specific drinking norms were better predictors of alcohol consumption than perceived gender-nonspecific drinking norms. Gender-nonspecific, same-sex, and opposite-sex perceived weekly drinking norms were added at Step 2. We conducted analyses that examined number of drinks per week and scores on the ACI separately.

Men reported consuming more drinks per week than women, $t(221) = 2.48, p = .01, \beta = .16, R^2 = .03$. Both same-sex gender-specific drinking norms, $t(218) = 3.43, p < .0001, \beta = .34$, and gender-nonspecific drinking norms, $t(218) = 2.37, p < .05, \beta = .22$, were uniquely related to number of drinks consumed per week, whereas opposite-sex gender-specific drinking norms were not ($t < 1$). Perceived norms accounted for an additional 26% of the variance in drinks per week, over and above the variance accounted for by gender. We found the same pattern of results with the ACI. Men reported consuming more drinks per week than women, $t(221) = 2.27, p < .05, \beta = .15, R^2 = .02$. Both same-sex gender-specific social norms, $t(218) = 2.86, p < .01, \beta = .30$, and gender-nonspecific social norms, $t(218) = 2.01, p < .05, \beta = .20$, predicted alcohol consumption, whereas opposite-sex gender-specific norms did not ($t < 1$). This model accounted for 18% of the variance in ACI scores, beyond the variance accounted for by

Table 1
Means and Standard Deviations for Actual and Perceived Drinking

Drinking variable by sex	Actual sample norms		Perceived gender unspecified		Perceptions of men's drinking		Perceptions of women's drinking	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Drinks per week								
Women	8.83	9.37	15.16	8.19	19.79	10.48	12.41	6.03
Men	13.00	13.41	18.44	11.15	21.92	12.31	15.17	7.96
Frequency per week								
Women	1.08	1.04	2.39	1.24	2.72	1.17	1.91	1.05
Men	1.38	1.36	2.26	1.31	3.04	1.35	2.05	1.19
Drinks per occasion								
Women	4.24	2.90	5.44	2.16	6.83	2.68	4.82	1.81
Men	5.08	3.82	6.21	2.41	7.24	2.52	4.89	1.87

Note. Drinks per week and drinks per occasion represent number of standard drinks. Frequency per week represents number of drinking occasions per week.

gender. In sum, for drinks per week and ACI scores, both same-sex gender-specific social norms and gender-nonspecific social norms predicted alcohol consumption, whereas opposite-sex gender-specific social norms did not.

Perceived Norms as a Predictor of Alcohol-Related Problems

Are perceived gender-specific drinking norms better predictors of alcohol-related problems than perceived gender-nonspecific drinking norms? To answer this question, we again used hierarchical multiple regression, with participants' gender entered as a covariate at Step 1 and gender-nonspecific, same-sex, and opposite-sex perceived drinking norms added at Step 2. The criterion variable was RAPI score. RAPI scores did not vary as a function of gender ($t < 1$). Same-sex gender-specific drinking norms, $t(218) = 2.89, p < .01, \beta = .32$, were uniquely related to alcohol problems, whereas neither gender-nonspecific drinking norms nor opposite-sex gender-specific drinking norms were uniquely associated with alcohol problems ($ts < 1$). Perceived norms explained 8% of the total variation in alcohol-related problems. Thus, in relation to negative consequences of alcohol, same-sex gender-specific social norms were the only significant predictor.

Gender as a Moderator of the Consequences of Normative Misperceptions

Our final question concerned whether misperceptions of peer drinking norms were more strongly associated with alcohol consumption and alcohol-related problems among men or women. We

conducted a hierarchical regression including participant gender, same-sex, and opposite-sex perceived drinking norms at Step 1 and added the two-way products of participant gender and both gender-specific norms at Step 2. We evaluated moderation with tests of the regression coefficients for the product terms. Analyses revealed the relationship between perceived same-sex gender-specific drinking norms and consumption to be stronger for women than for men. This was true for drinks per week, $t(223) = -2.43, p < .05$, and ACI, $t(223) = -2.70, p < .01$. Figure 1 represents predicted means derived from the regression equation in which high and low perceived same-sex norms were defined as one standard deviation above and below the mean, respectively (Aiken & West, 1991). These models accounted for 32% and 24% of the total variations for drinks per week and ACI, respectively. The relationship between perceived opposite-sex drinking norms and alcohol consumption was not moderated by gender for drinks per week, $t(223) = 1.15, ns$, or ACI, $t(223) = 0.13, ns$. These findings suggest that women's alcohol consumption is more strongly influenced than men's by same-sex gender-specific drinking norms. The relationships among normative misperceptions and alcohol problems were not moderated by sex.

Discussion

The present research evaluated perceptions of gender-specific versus gender-nonspecific drinking norms. It demonstrates that both men and women overestimate the quantity and frequency of the drinking of their same-sex peers. In addition, this research shows that perceived same-sex norms are more strongly associated with problematic drinking than gender-nonspecific norms and that perceived same-sex drinking norms are stronger predictors of

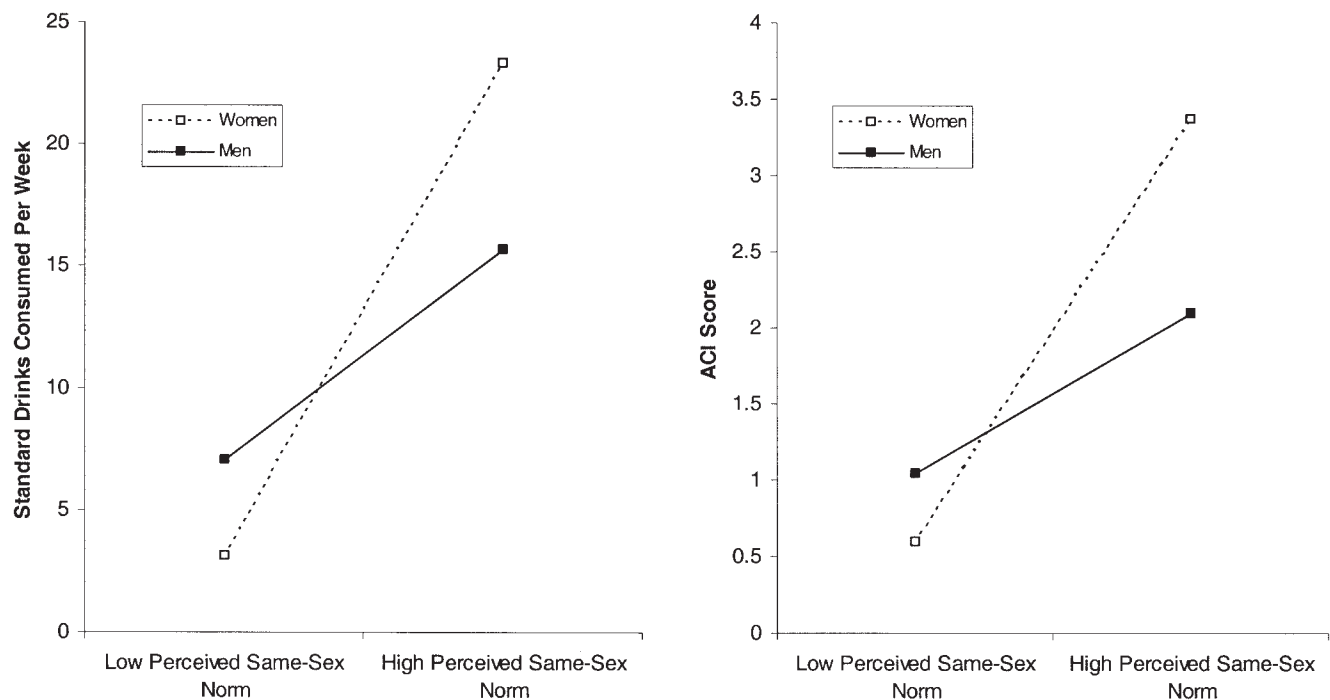


Figure 1. Alcohol consumption as a function of perceived same-sex drinking norms and gender. ACI = Alcohol Consumption Index.

alcohol consumption for women than for men. The findings suggest that interventions incorporating normative feedback should be framed differently for women than for men.

Gender-Specific Perceptions

Our results demonstrate that men overestimate the drinking of their male peers and that women overestimate the drinking of their female peers. This finding is important for two reasons. First, it demonstrates that normative perceptions are not confounded by gender differences in drinking. Second, it provides empirical evidence supporting the use of gender-specific normative referents in social norms based prevention interventions.

Gender-Nonspecific Versus Gender-Specific Perceptions

Overall, perceived same-sex norms appear to be more strongly associated with heavy drinking than are perceived gender-nonspecific drinking norms. Although both gender-nonspecific and same-sex perceived norms are uniquely associated with consumption, only same-sex perceived norms are uniquely associated with drinking problems. This finding suggests that more specific normative referents (i.e., same sex) have a greater influence on behavior, as suggested by social comparison theory (Festinger, 1954) and social impact theory (Latane, 1981). Previous research has demonstrated that perceptions of a best friend's drinking (Baer et al., 1991), as well as peer use (Andrews, Tildesley, Hops, & Li, 2002), better predict alcohol consumption compared to a less specific or more distal referent. Along the same line, our findings suggest that men and women find that same-sex specific norms are more relevant comparisons than opposite-sex and gender-nonspecific drinking norms.

We also found that perceived same-sex drinking norms are stronger predictors of behavior than gender-nonspecific drinking norms for women than for men. This result is likely due to men's and women's differential perception of the "typical student" referent. Women and men may picture the "typical student" referent as being male; thus, when perceived same-sex drinking norms are assessed, men are still thinking of the typical same-sex student referent as being male, whereas women picture the typical same-sex student referent as female versus male. In combination, these two findings have important implications for the framing of normative feedback interventions, particularly with regard to the specificity of the normative referent.

Implications for Interventions

Interventions typically frame feedback by presenting actual norms for the average student on campus. The present results suggest that, at least for women, gender-specific same-sex norms might be a better referent in normative interventions. In general, more specific reference groups are likely to have a stronger influence on behavior. This does not imply, however, that a more specific reference in normative feedback will necessarily be better for all groups of students. The results of this research demonstrate that women overestimate the drinking of their same-sex peers; that perceived same-sex norms are better predictors of drinking than perceived gender-nonspecific norms, especially for women; and that actual norms for women are lower than actual norms for

gender-nonspecific students. In combination, these findings support same-sex-specific feedback for women. In contrast, presenting male-specific normative feedback to men would describe more prevalent drinking than presenting gender-nonspecific normative feedback to men and may reduce the efficacy of the intervention instead of enhance it. In addition, same-sex-specific norms were not more influential than gender-nonspecific norms for men.

Limitations

The data in this study are cross-sectional, limiting our ability to make causal inferences. The results were consistent with the notion that perceived norms influence drinking, but we cannot rule out the possibility that the relationship functions in the opposite direction. In fact, previous research has shown evidence for both causal directions (Marks, Graham, & Hansen, 1992). In addition, we cannot rule out the influence of actual drinking behavior. However, Marks et al. (1992) found that the relationship between perceived norms and subsequent drinking several months later was stronger than the relationship between reported drinking and subsequent perceived norms. Although these findings have clear suggestions for refining normative feedback interventions, they will remain speculative until verified with experimental evidence. Sample representation is also a limitation in this research. The sample consisted of students from a single university with very little ethnic diversity. It is unclear how results might differ in a more diverse sample. Also, this sample included only introductory psychology students, who may drink more or less than other students, which may account for some of the discrepancy between actual and perceived norms. Actual drinking norms are from psychology students only, whereas perceived norms are based on the campus as a whole. An additional limitation is that drinking measures were based on retrospective self-reports. We attempted to minimize potential social desirability bias by assuring participants that all responses were completely anonymous (Babor, Stephens, & Marlatt, 1987). Finally, this research focused exclusively on descriptive drinking norms. Additional research is necessary to examine whether similar findings are evident for injunctive social norms for drinking (i.e., the extent to which students believe that their peers approve or disapprove of drinking).

Conclusions

This research extends previous work on the perceptions of drinking norms among college students. Previous research has shown that college students overestimate the drinking of their peers, but *peers* has typically not been defined more specifically than the average student at the same university. This research reveals that overestimation is also evident when peers are limited to same-sex students on campus. Perceptions of same-sex norms are more strongly associated with drinking than are perceptions of gender-nonspecific students, especially for women. In combination, these findings suggest that normative feedback interventions may be more effective if gender-specific feedback is provided to women. Although future research is needed to empirically evaluate this issue, this study provides a critical step toward examining what feedback should be provided, and to whom, in brief interventions that incorporate normative information.

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