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Normative Beliefs, Misperceptions, and Heavy Episodic Drinking in a British Student Sample*

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ABSTRACT. Objective: Numerous studies have demonstrated the existence and effect of normative misperceptions on heavy episodic drinking behavior. However, there has been little work on these processes or application of normative-belief interventions outside the U.S. college system. The aim of the current study, therefore, was to investigate heavy episodic drinking and normative misperceptions in a U.K. university setting. **Method:** An email containing a link to a survey Web site was distributed to all current undergraduate students at the University of Paisley, Scotland. In addition to age and gender questions, the survey contained items on students' personal behavior and perception of the level of that behavior in three groups of increasing social distance: close friends, other students of the same age, and other people of the same age in U.K. society in general. **Results:** Completed surveys from 500 respondents were returned. In keeping with previous research, significant correlations were

found between the respondents' behavior and the perception of that behavior in others, with beliefs about the most proximal individuals being the most strongly correlated. The majority of respondents were also found to overestimate alcohol consumption in other students. An age effect was noted, in which misperceptions appeared to decrease with age but did not vary between genders. **Conclusions:** The findings of the study indicate that the normative-belief alcohol consumption processes that have been found on U.S. college campuses also operate in U.K. university settings. This raises the possibility of applying social-norms interventions from the United States to the United Kingdom and potentially elsewhere in the world. Furthermore, the study noted apparent age effects in the degree of misperception, the implications of which are discussed. (*J. Stud. Alcohol Drugs* 68: 385-392, 2007)

NUMEROUS STUDIES HAVE ESTABLISHED that American college students tend to overestimate alcohol consumption in their fellow students and that the greater this overestimation is, the more an individual will drink (Borsari and Carey, 2001, 2003). On the assumption that an individual's perception of "normal" behavior in others is a determinant of his or her own behavior (social cognitive theory; Bandura, 1986), several interventions have been designed that aim to correct this misperception and thus reduce alcohol consumption. Overall, these normative-belief interventions appear to be effective and are of increasing popularity, having been successfully applied to reduce heavy episodic drinking behavior in students on a range of American college campuses (Perkins et al., 2005).

There is, however, one main deficit with the current research on normative beliefs and heavy episodic drinking: With a few exceptions, such as the research conducted in New Zealand by Kypri and Langley (2003), studies have focused almost exclusively on American college students. There is a need for these normative-belief and misperception

processes to be studied outside of the American college system, so as to further establish the ecological validity of them. This is particularly important if normative-belief interventions are to be applied to reduce heavy episodic drinking behavior in populations outside the United States. As rates of heavy episodic drinking behavior apparently rise in the United Kingdom (Baker, 2006) and elsewhere in Europe (Rehm et al., 2003), it could be argued that it is inevitable that normative-belief interventions will come to be applied to U.K. and other European settings.

There are, however, differences between U.S. college campuses and other settings, which could potentially influence how normative beliefs and misperceptions operate in relation to heavy episodic drinking. First, there is the difference in the legality of drinking behavior. The legal age for purchasing alcoholic beverages in the United Kingdom, for example, is 18 years, as opposed to 21 in the United States. Thus, the majority of U.K. students can drink alcohol openly and legally in bars whereas the majority of U.S. students cannot.

Second, there would appear to be wider cultural differences in attitudes toward alcohol use and drunkenness in the two countries. Both students and university officials in the United Kingdom have been found to have more permissive attitudes toward heavy episodic drinking and intoxication than their counterparts in the United States (Delk and Meilman, 1996).

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The aim of the current study, therefore, was to examine if the normative-belief processes that have been found in American college students also operate in U.K. university students. If this were found to be the case, it would provide support for future applications of social-norms interventions in a U.K. setting.

Method

Participants

Participants consisted of students at the University of Paisley, in Paisley, Scotland. At the time the study took place, there were 11,613 undergraduate students registered with the university, all of whom were invited to take part in the survey. The university itself is located in the center of town and is attended primarily by students who live in the region. The vast majority of students live in privately owned accommodations outside the campus, with fewer than 10% staying in university-owned halls of residence. As such, the university is similar in many ways to what have been referred to in the United States as commuter colleges.

Measures

To aid response rate, it was decided to use a relatively short questionnaire based on multiple choice. Respondents were first asked, by use of multiple-choice response options, how many days in a month they would normally drink alcohol. This question was then repeated several times for respondents' perception of frequency of drinking in close friends, other students of the same age at the university, and others of the same age in the United Kingdom.

The next set of questions related to the typical number of drinks the respondent had on a night out in a pub or club. The phrase "night out" is a colloquial expression equivalent to the phrase "partying," which has often been used in American-based alcohol-use and normative-belief studies (e.g., Perkins et al., 2005). Again, respondents were first asked about their own behavior and then about their perceptions of their close friends, other students of the same age, and others of the same age in general.

Finally, respondents were asked to indicate their frequency of drunkenness in a typical month, followed by their perception of frequency of drunkenness in the selected referent groups. The same frequency response format was used as for the items on frequency of drinking alcohol. The questionnaire finished with items on gender and age range.

Procedure

All registered undergraduate students at the university were invited to take part in an "alcohol use and perception" survey via an internal email containing a link to a

survey Web site. The Internet is an increasingly popular method of collecting survey data from select groups and has been used successfully in several previous alcohol-use and normative-belief student surveys (e.g., Kypri et al., 2004a). Over the course of 2 weeks, 500 completed questionnaires were returned. The vast bulk of these were received within 2 days of the initial email invitation.

As the end of the semester examination period was approaching, it was decided not to issue a reminder email in an attempt to elicit more responses. This was based on the assumption that student alcohol consumption in this period would be less overall than consumption throughout the majority of the academic year and therefore would be unrepresentative. Analysis conducted following the return of the 500th questionnaire indicated that the sample was representative of the student population in terms of age and gender, and as such the survey was terminated and the main phase of data analysis began.

Results

Demographics

The final sample consisted of 500 individuals: 172 male respondents (35%) and 328 female respondents (65%). The mean (SD) age of respondents was 28 (10) years. This is a higher mean age than may be expected; however, it is important to note that the University of Paisley has a high proportion of mature students.

Information on the gender and age ranges of the student population was obtained from the Student Records Office. Chi-square analysis revealed no significant differences between the sample and the overall student population for these factors.

Personal alcohol consumption and normative beliefs

The mean and SDs of individuals' personal consumption behaviors and their perception of those behaviors in others are presented in Table 1. Overall, individuals rated those around them as drinking more frequently, drinking more on a night out, and becoming drunk more frequently than themselves. This perception rose as the social distance from the individual increased, with perceptions of close friends being the most closely matched to the respondent's own behavior.

It was then determined if, as in previous research, an individual's alcohol consumption was associated with their perception of the alcohol consumption of those around them. This was done by correlating the individual's behavior on the three measurement items with his or her perception of the behavior in each referent group. This revealed an overall significant positive relationship between the individual's own consumption and his or her perception of consumption

TABLE 1. Mean and SD of personal consumption and perception of consumption in referent groups on three outcome measures, *n* = 500

Alcohol consumption measure	Personal consumption Mean (SD)	Perceived consumption in close friends Mean (SD)	Perceived consumption in other students Mean (SD)	Perceived consumption in others of same age Mean (SD)
Frequency of drinking, days per month	4.6 (6.2)	6.7 (7.0)	10.3 (7.4)	9.2 (7.7)
No. of drinks on night out	4.5 (2.0)	5.3 (1.8)	5.6 (1.7)	5.6 (1.6)
Frequency of drunkenness, days per month	1.9 (3.1)	2.9 (3.8)	4.3 (5.1)	4.3 (5.2)

in others, as depicted in Table 2. The order of strength of these correlations was consistent with previous normative-belief heavy episodic drinking research, with perceptions of alcohol consumption behavior in close friends being the most strongly associated to personal behavior.

Normative misperceptions

Having found evidence to support the effect of normative beliefs on personal alcohol consumption, the next stage of analysis focused on establishing if such beliefs were in fact incorrect and therefore misperceptions. This was done by comparing the individual’s reports of their own behavior against their perceptions of the behavior in other students at the university. It is important to reiterate that all of the respondents were themselves students; thus, the assumption was made that if the sample was representative, then the respondent’s overall personal behavior equates to the actual norm for students at the university. The percentages of responses to each response option on each outcome measure are depicted in Figures 1-3, separated into personal behavior (the actual norms) and perceived behavior of other students.

As can be seen, the majority of students appear to perceive themselves as consuming less alcohol less frequently than other students at the university. This is particularly noticeable with the perceived frequency of drunkenness of other students. Approximately half of the respondents stated that they did not drink enough alcohol to become drunk in a typical month, yet only 4% believed that this is the nor-

mal frequency of drunkenness for a student at the university. In contrast, a cumulative percentage of 52% of respondents stated that the majority of other students got drunk at least twice a week or more frequently, whereas in reality only 12% of respondents reported such a frequency of drunkenness.

A series of one-way within-subjects analyses of variance (ANOVAs) was conducted for the individuals’ own behavior and their perception of that behavior in others for each of the outcome measures to further investigate these discrepancies. It was first established that there was a significant linear trend ($F = 169.97, 1/499 \text{ df}, p < .001$) for the individuals’ perception of their own frequency of drinking and the frequency of drinking in others at increasing social distance. A similar significant linear relationship was also found for number of drinks on a night out ($F = 195.297, 1/499 \text{ df}, p < .001$) and frequency of drunkenness ($F = 93.747, 1/499 \text{ df}, p < .001$). Post hoc analysis using a series of Tukey tests ($p < .05$) confirmed the significant differences between the actual normative behavior and the perceived norm for other students for each of the three outcome measures.

This significant difference between the actual norm of student alcohol consumption at the university (individuals’ mean consumption) and the perceived consumption of other students therefore appears to be a genuine misperception. It is not possible to establish with the same certainty if the perceptions of alcohol use in close friends and others of the same age are inaccurate, as the former may include nonstudents and there are no comparable data available on the latter.

Degree of misperception and personal consumption

Individuals’ personal degree of misperception, if any, was then calculated by subtracting an individual’s perceived norm for students in the age group the individual belonged to from the actual norm for that age group. These results were then correlated to personal consumption on each measure, using Pearson correlations.

Personal frequency of consumption was associated with the degree of misperception of frequency of consumption

TABLE 2. Pearson correlation between individual behavior and perception of behavior in referent groups, *n* = 500

Alcohol consumption measure	Referent group		
	Close friends	Other students of same age	Others of same age in society
Frequency of drinking	.458 [†]	.287 [‡]	.151 [†]
Typical no. of drinks on night out	.764 [†]	.616 [†]	.576 [†]
Frequency of drunkenness	.541 [†]	.230 [†]	.103*

* $p < .05$; [†] $p < .01$; [‡] $p < .001$.

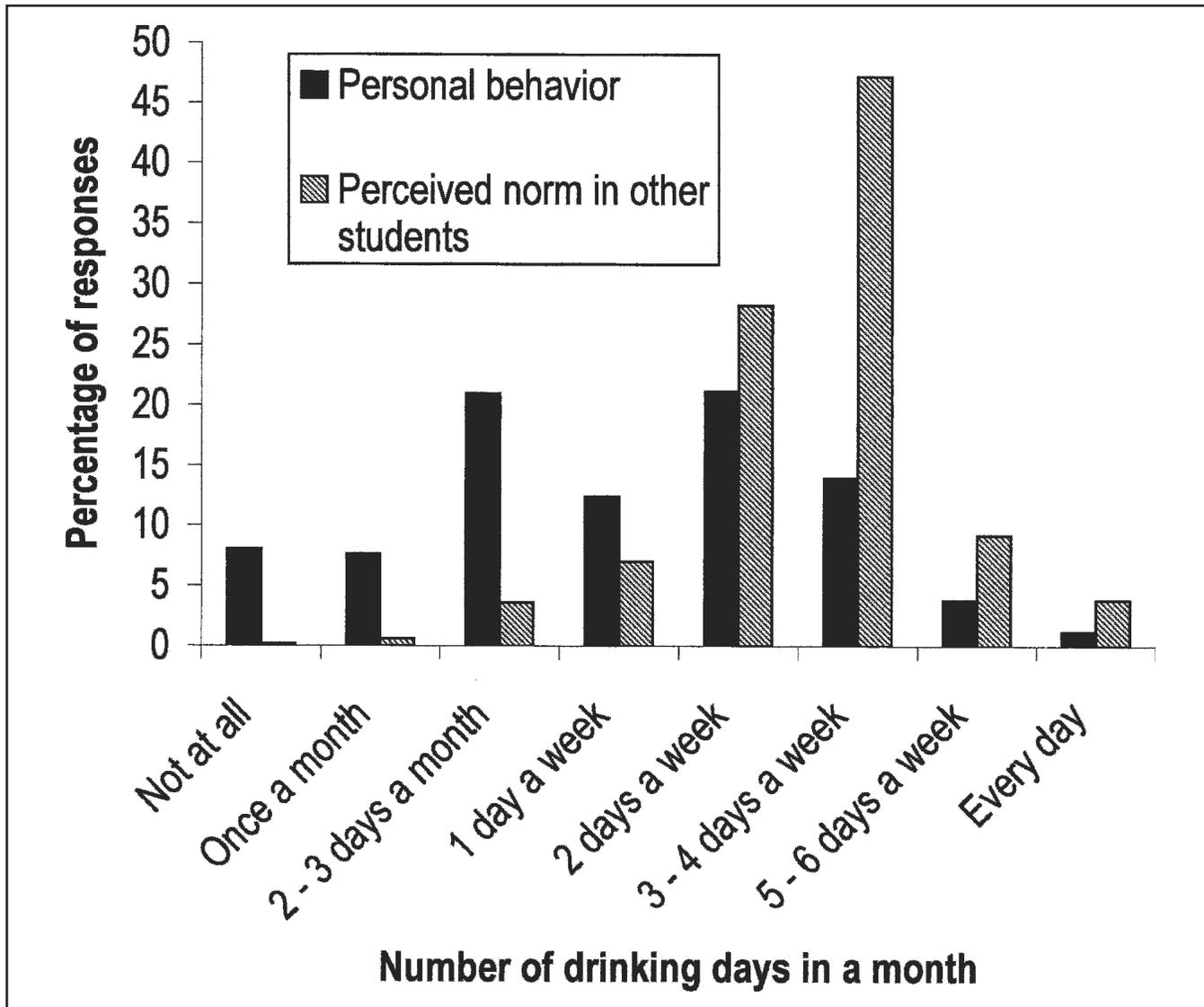


FIGURE 1. Personal number of drinking days in a month and perceived number of drinking days for other students of the same age

in other students ($r = .295$, 499 df, $p < .001$). Number of drinks on a night out was also associated with misperception of number of drinks on a night out ($r = .611$, 499 df, $p < .001$). Finally, frequency of drunkenness was associated with degree of misperception of frequency of drunkenness in other students ($r = .247$, 499 df, $p < .001$).

Gender and age effects on normative misperceptions

A two-way between-subjects ANOVA was used to test for age and gender differences in degree of misperception of consumption for other students for each of the consumption measures. To do this, age was collapsed into two categories: those ages 18-24 ($n = 259$) and those ages 25 and older ($n = 241$), creating a 2×2 design.

This cut-off point was chosen partly because it was the natural median split between the age ranges. In addition, it separates respondents into both a younger age group, similar to that used in the majority of previous normative-belief heavy episodic drinking research, and an older group, which has not traditionally been included in such research. This allowed for analysis of possible age effects on normative misperceptions.

A significant main effect was found for age ($F = 6.046$, 1/495 df, $p < .05$) on degree of misperception of frequency of drinking for other students, with the younger group having the greatest misperception. No significant main effect was found for gender on degree of misperception and there was no significant interaction with age. A significant main effect was also found for age ($F = 43.2$, 1/495 df, $p < .001$) on degree of misperception of number of drinks on a night

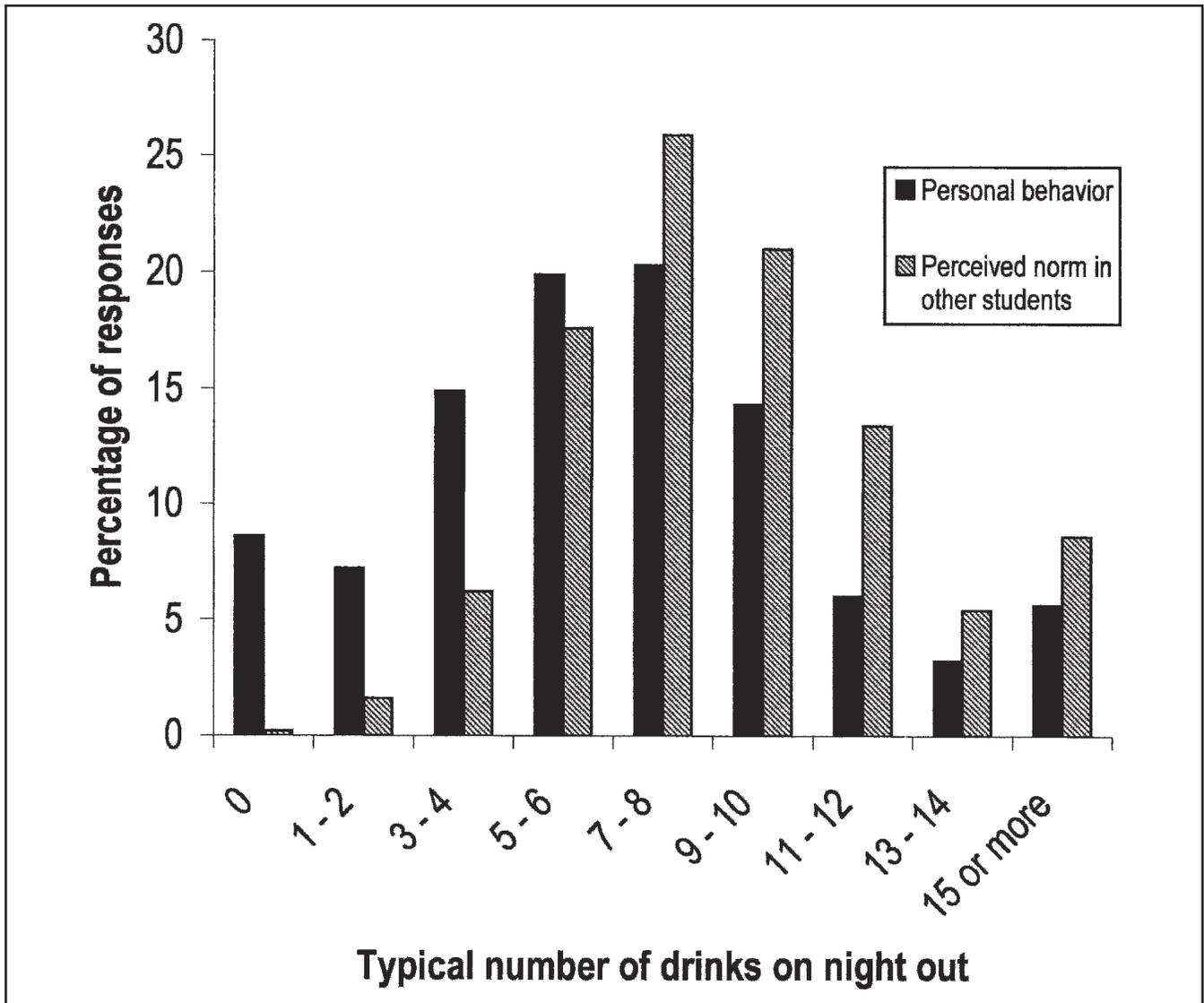


FIGURE 2. Typical number of alcoholic drinks on a night out and perceived number of drinks on a night out for other students of the same age

out, with the younger group again misperceiving to the greatest extent. Again, there was no significant main effect of gender and no significant interaction. No significant main effects or interactions were found in relation to degree of misperception of frequency of drunkenness for other students of the same age.

Discussion

This study replicates previous normative-belief heavy episodic drinking research conducted in the American college system. First, there was an association between individuals' personal alcohol consumption and their beliefs about alcohol consumption in those around them. The order of strength of these associations was as predicted by

social cognitive theory, with the perceived behavior of the most salient individuals (close friends) being the most strongly correlated to personal behavior.

It should be noted, of course, as Bandura (1986) originally posited in social cognitive theory, that although the assumption is that perception is influencing behavior, a process of reciprocal causality may be occurring. Therefore, heavy episodic drinking behavior itself may increase how common individuals perceive the behavior to be in others, possibly as a way to justify their own consumption to themselves. As the current study is a cross-sectional one, it is impossible to test for this. This highlights the need, as commented elsewhere (e.g., Kypri and Langley, 2003), for longitudinal studies of normative beliefs and heavy episodic drinking to be conducted.

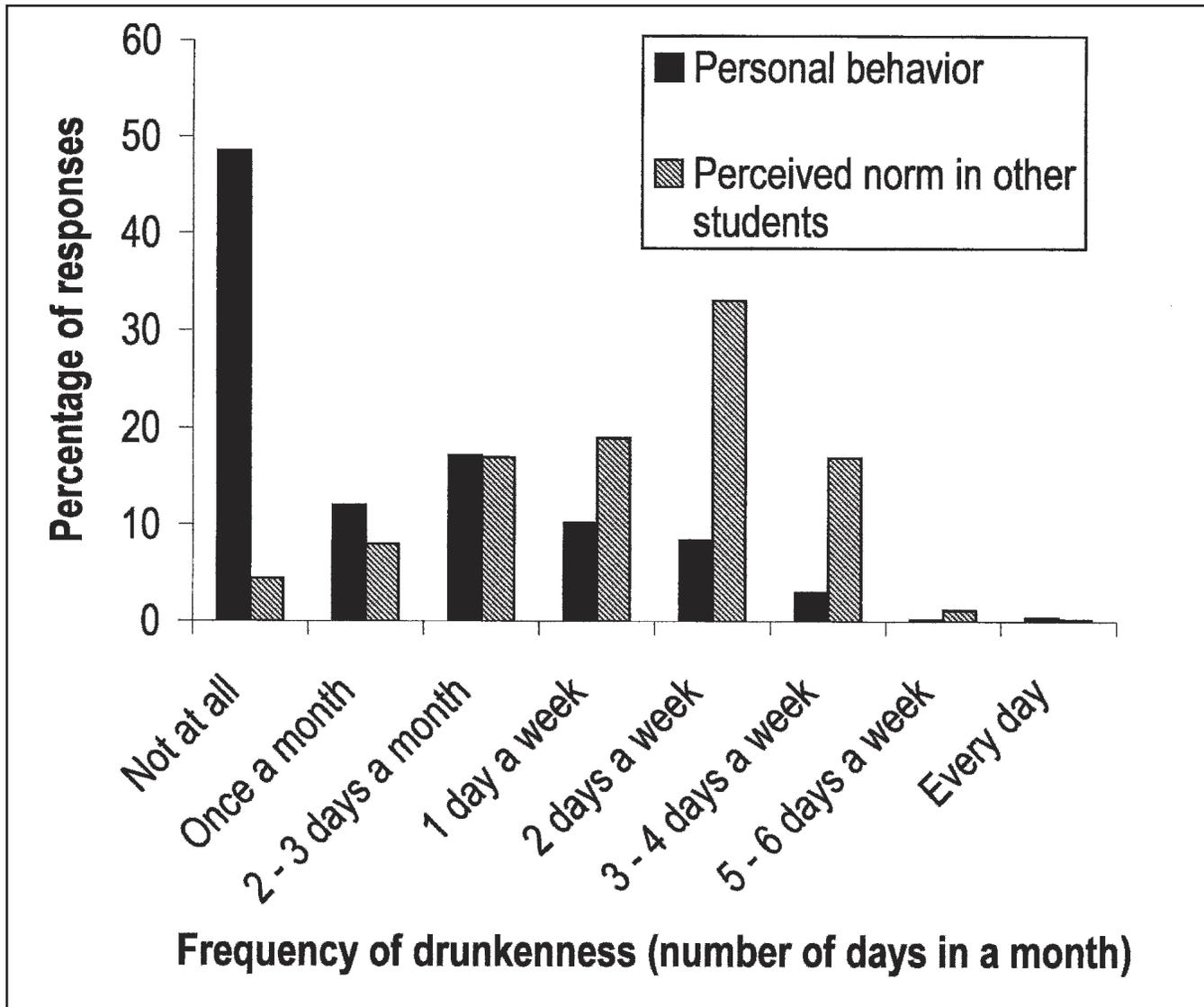


FIGURE 3. Personal frequency of drunkenness (days in a month) and perceived frequency of drunkenness of other students of the same age

Second, it was noted that there appeared to be an overall misperception of alcohol consumption in other students, with the majority of individuals believing themselves to drink less often, drink less on a night out, and become drunk less often than the average student. The proportion of students overestimating alcohol use and the distribution of these overestimations are comparable to the results found in American college-based studies (e.g., Perkins et al., 2005), although such figures do vary from one college setting to another.

In a broadly similar example, Thombs et al. (2005) investigated normative misperceptions at Kent State University, which, like the University of Paisley, is primarily attended by students who commute to campus. This study used a similar approach to the current study, with questions

about students' frequency of drunkenness being part of the study. As with the current study, misperceptions about alcohol use in others appeared to grow as did social distance, with beliefs about close friends being more accurate than those about other students.

Overall, the respondents in both the current study and that of Thombs et al. (2005) perceived other students as becoming drunk more than twice as frequently as themselves. Therefore, as indicated in previous American research, individuals in the current study may be striving to match what is in fact an overinflated perception of what is normal for a student at the university. In support of this is the fact that the degree of misperception rose along with the individual's consumption for each of the three measures.

In contrast to previous normative-belief heavy episodic drinking research, the current study had a sample with a reasonably wide age range. The degree of misperception on several aspects of alcohol behavior appears to lessen as age increases, independent of gender. This increased accuracy may be a reflection of individuals gaining greater experience of the drinking behavior of others of their age group.

As predicted by the attribution theory component of social-norms theory (Heider, 1958), individuals' assumptions about behavior in others increase in accuracy as their association with them increases. That is, as an individual ages, his or her direct experience of observing and participating in alcohol use with peers may grow. As such, they may gain a more accurate perception of patterns of alcohol use in others.

Alternatively, if this misperception does serve to justify the individual's own consumption, as discussed above, then the drop in misperceptions may be an artifact of natural age-related reductions in consumption. If individuals are drinking less, the need to justify their consumption to themselves—and hence the misperception—may be reduced. It is of interest, however, that there was no apparent age effect on misperceptions of frequency of drunkenness. This may be a reflection of the nature of drunken behavior in public, which can be the most easily visually observed indicator of heavy episodic drinking. As such, it may be the alcohol consumption behavior most resistant to natural corrections of the misperception through aging.

There are several other aspects of the study that are of interest. The lack of significant differences between the degree of misperceptions of men and women is in contrast to previous research, which has found women to have an overall greater degree of misperception than men (e.g., Campo et al., 2003; Korcуска and Thombs, 2003). There are several possible explanations for this. First, it may be a reflection of the setting of the current study. As commented previously, there is evidence to suggest differences between the drinking cultures of U.S. versus U.K. universities. Berkowitz (2004) suggests greater misperceptions in women are a result of less involvement with alcohol. As previous research indicates, there is, in the United Kingdom, possibly greater equality between men and women in terms of their involvement in the heavy episodic drinking culture (Engineer et al., 2003). Second, it may be an artifact of the use of gender-nonspecific items in the questionnaire of the current study, with male students, for example, interpreting the "average" student as being female, given the higher ratio of female students attending the university.

There are several limitations to the study. Although the sample appears to be representative of the student population in terms of age and gender there are additional factors, such as full-time or part-time status, which could be potentially relevant. As these were not recorded in the survey, it

is impossible to know if the sample was representative on these points.

The use of the Internet to conduct the survey itself could be a factor undermining the validity of the data, although previous research into nonresponse bias of online studies of alcohol use suggests that may not be a problem (Kypri et al., 2004b). However, the sample is small in comparison with the total number of undergraduates attending the university. There are various possible reasons for this. First, several other unrelated surveys had been conducted via the university intranet system before the current one. Therefore, there might have been an element of response fatigue among the student body. Second, as noted previously, the survey was conducted before the examination period. Had the survey begun earlier and remained online longer, with email reminders being issued, a greater overall response rate may have been achieved (e.g., as in Kypri et al., 2004a).

In conclusion, the current study's findings replicate the results of normative-belief heavy episodic drinking research that has been conducted in the college system of the United States. In doing so, they provide support for the potential use of normative-belief interventions in the United Kingdom. By including an older age group, it further explores the potential of applying the successful social-norms interventions that have been used in the United States to groups other than young-adult school or college attendees.

Although a drop in misperception of alcohol consumption in others is to be expected by social-learning and normative-belief theories, it may be useful to continue to research these natural reductions so as to better inform interventions. This is an area on which future research into the field should focus so as to fully use the potential of social-norms research and interventions.

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