People hold beliefs about how much other people drink (Wild, 2002). Sometimes these beliefs are not accurate. Specifically, heavy drinkers have been found to overestimate how much others drink, compared with people who drink moderately (Baer et al., 1991; Kypri and Langley, 2003). This ‘normative fallacy’ is thought to occur because the heavy drinkers’ primary source of comparison, their close friends and social network may contain a disproportionate number of heavy drinkers (i.e. heavy drinkers tend to interact with other heavy drinkers). It is also possible that heavier drinkers assume others drink more as a means of justifying their own behaviour (Neighbors et al., 2006). So, when heavy drinkers are asked how much others of the same sex in the general population drink, they tend to overestimate the levels of alcohol consumption.

Beyond being an interesting finding, why does this matter? Levels of alcohol consumption are under a certain degree of social control (Kanfer, 1986; Becker and Rosenstock, 1987). This control may be moderated by the person’s beliefs about how much others drink (Wild, 2002). If the heavy drinker thinks that others drink more than they actually do, then the extent to which these social comparisons can act as a pressure to reduce drinking may be diminished.

Correcting normative misperceptions is one of the core components of some brief interventions for problem drinkers (Neal and Carey, 2004; Riper et al., 2009). Such brief interventions have been shown to reduce the amount problem drinkers consume, at least in the short term. The hypothesized mediator of these reductions in alcohol consumption is the correction of normative misperceptions. Indeed, some studies have found that reductions in alcohol consumption were preceded by a shift towards more accurate perceptions about how much other people drink (Neal and Carey, 2004; Neighbors et al., 2004, 2006; Doumas et al., 2009).

One limitation of the existing research in this area is that it has largely been conducted with convenience samples of American college students (Riper et al., 2009). Do these misperceptions occur in the general adult population as well? A recent study by Bertholet et al. (2011) found normative misperceptions in a random sample from a census of 20-year-old Swiss men. Previous research with smokers has also found that normative misperceptions are greater with younger adults when compared with those over 25 (Cunningham and Selby, 2007). Is there a similar association between age and degree of normative misperception among drinkers? The following hypotheses guided the research: (a) normative misperceptions about drinking will be observed in a general population sample of drinkers; (b) the extent to which normative misperception occurs will increase as severity of the participants’ drinking increases and (b) normative misperceptions will decrease as participants get older.
households. Participants were then selected from all adult residents in the household who drink alcohol at least once per month by surveying the potential participant with the most recent birthday. A total of 101,122 households were contacted, of which 29,790 gave an immediate refusal to participate, and 42,077 claimed that no adult in the household drank once per month or more. Of the remaining 29,255 households, 14,009 had an adult who agreed to participate.

The survey collected information on the respondents’ current drinking, including the number of drinks consumed on each day of the past week. Severity of alcohol problems was assessed using the Alcohol Use Disorders Identification Test (AUDIT, Babor et al., 1989; Saunders and Conigrave, 1990). Respondents with a score of 8 or more on the AUDIT were asked about their perceptions regarding the typical alcohol consumption of Canadians of the same sex: (a) what percent do you think drink more than you in a typical week; (b) what percent do you think do not drink any alcohol at all and (c) what percent do you think have seven or more drinks in a typical week? To explore the relation between perceptions of how much others consume and the actual amount others consume, population norms were generated using data from the 2008 Canadian Alcohol and Drug Use Monitoring Survey (CADUMS, Health Canada, 2009).

RESULTS

Of the 14,009 respondents, 2757 had AUDIT scores of 8 or more. Table 1 shows the demographic and drinking characteristics of these respondents, compared with the 11,252 participants who were screened out of the full survey because their AUDIT scores were <8.

Table 2 presents the normative perceptions of the problem drinking sample (n = 2757). When asked what percent of Canadians of the same sex drank more than they do in a typical week, the average answer was 39.1%. This perception about others’ drinking was approximately three times higher than the actual proportion of Canadians who drank more than the respondents (13.3%; CADUMS population data grouped by age and sex). Similarly, the perception of the proportion of Canadians who drank seven or more drinks per week was 47.0%, more than double the actual percent of Canadians who drank seven or more drinks per week (17.7%; population data grouped by sex). Finally, respondents underestimated the proportion of Canadians of the same sex who were abstinent. Participants’ average estimates were 17.7% vs. the actual abstinence rate of 21.1% (population data grouped by sex).

Table 2. Normative misperceptions regarding others drinking

| Variable                                                                 | n = 2757 |
|-------------------------------------------------------------------------|----------|
| Average (%) of perceived same sex who drink more                        | 39.1     |
| % perceived minus actual drink more                                     | 25.8     |
| % perceived minus actual abstinent                                     | 17.7     |
| Average (%) of perceived same sex that have 7 + drinks per week         | 47.0     |
| % perceived minus actual that have 7 + drinks per week                  | 29.3     |

*The respondents’ estimate of the percent of Canadians of the same sex who drink more than they do minus the percent who actually drink more (population data grouped by age and sex).

The respondents’ estimate of the percent of Canadians of the same sex who are abstinent minus the percent who are actually abstinent (population data grouped by sex).

The respondents’ estimate of the percent of Canadians of the same sex who drink seven or more drinks per week minus the percent who actually drink seven or more drinks per week (population data grouped by sex).

Normative perceptions were correlated with respondents’ age as well as the number of drinks they had in the last week and their AUDIT scores (see Table 3). Because of the multiple correlations conducted, a Bonferroni correction was applied (0.05/18 tests resulting in a significance level of P < 0.0028). Although some of these Pearson correlations were significant, the degree of correlation was usually quite small, indicating only a limited relationship (or at least a limited linear relationship). Specifically, there was only limited support for the hypothesis that the level of normative misperception would reduce as respondents got older with the highest Pearson correlation, r = −0.07 for the relationship between perceptions of the proportion of Canadians who drank more than the respondent and the respondents’ age. Both amount of alcohol consumed in the last week and AUDIT scores were more consistently related to normative perceptions about levels of alcohol consumption. Participants who drank more were more likely to perceive that more Canadians of the same sex drank seven or more drinks per week compared with participants who drank less. Finally, it should be noted that there was a significant (P < 0.001) negative correlation between participants’ amount of alcohol consumption and perceptions of the proportion of Canadians who drank more than they did. Not surprisingly, those respondents who drank more perceived that fewer Canadians drank more than they did when compared with respondents who drank less.

DISCUSSION

There were substantial normative misperceptions in this general population sample of problem drinkers. Participants overestimated the proportion of Canadians who drank more than they do and who drank more than seven drinks per week by more than double the actual proportion of Canadians who drank more than they did. The magnitude of discrepancy is comparable with findings consistently reported in the college student literature (Neighbors et al., 2006). In contrast, the perception of the proportion of Canadians who were abstinent was fairly accurate. This finding is in sharp contrast with normative misperceptions for smokers where a general population sample of Canadian smokers overestimated the proportion of Canadian smokers...
Another issue to consider with normative misperception research to-date is the assumption that comparison data of general population drinking such as were used here are the gold standard. Self-reported drinking on these population surveys under-reports the actual amount of alcohol consumed (when compared with alcohol sales data generated estimates of per capita consumption, Stockwell et al., 2004). Thus, it is possible that the extent of normative misperception reported in the present (and other) studies are in fact overestimates of the extent to which heavy drinkers overestimate how much others drink.

Despite our uncertainty about the accuracy of general population comparison data, there probably still exists some level of normative misperception, particularly among heavier drinkers, if for no other reason than their tendency to spend time with other heavier drinkers. Irrespective of the actual degree of accuracy of population norms data, interventions targeting normative misperceptions might be useful in general population samples as they have proved to be among college students. Some research already demonstrates that brief interventions targeting normative misperceptions in general population samples have an impact (Cunningham et al., 2001; Wild et al., 2007; Cunningham et al., 2009). However, to date, these studies have not tested whether the impact of these brief interventions is actually mediated by reductions in normative misperceptions among those who reduce their drinking. Nevertheless, further research in this area would appear to be warranted, both to increase our understanding of why (and how much) heavy drinkers overestimate other’s drinking and to explore whether correcting these misperceptions is an active ingredient in motivating change from problem drinking.

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Table 3. Correlations between normative perceptions and age and levels of alcohol consumption

| Variable                                      | Age    | Last week drinking | AUDIT    |
|-----------------------------------------------|--------|--------------------|----------|
| % perceived same sex who drink more           |        |                    | −0.07*   |
| % perceived minus actual drink more           |        | −0.25*             | −0.21*   |
| % perceived same abstinence                   | 0.05   | 0.02               | 0.05     |
| % perceived minus actual abstinent            | 0.07*  | 0.07*              | 0.06     |
| % perceived same sex that have 7+drinks per week | 0.05   | 0.21*             | 0.11*    |
| % perceived minus actual that have 7+drinks per week | 0.03   | 0.17*             | 0.10*    |

*P < 0.001.

by 20% (Cunningham and Selby, 2007). It is possible that some of this difference could be due to variations in the way the question was asked—smokers were asked to estimate the percent of Canadians their own age and sex who smoked, while drinkers in the present study were asked to estimate the percent of people their own sex who did not drink at all. However, it is difficult to imagine that the degree of difference was solely due to this difference in wording, pointing to a potentially interesting contrast in normative misperceptions between smokers and drinkers that merits further examination.

As predicted, there was a statistically significant association between severity of the persons’ own drinking and the extent to which drinking norms were overestimated. These correlations were relatively small, however, indicating that this is not a powerful relationship. One limitation to generalizing these results to the general population of all alcohol drinkers is that the sample was restricted to problem drinkers (i.e. those with an AUDIT score of 8 or more). Although this is a liberal definition of problem drinking, restricting the sample in this manner could have led to reductions in the observed relationship between severity of alcohol consumption and levels of normative misperceptions.

There was only limited evidence of an association between the participants’ age and their estimates of how much others drink. One limitation of this finding was that participants’ estimates of how much other Canadians drink was not age specific. As was mentioned earlier, in the related research with smokers, where age was strongly associated with normative misperceptions, smokers were asked to estimate the percent of Canadians their age and sex who smoked (as opposed to the present study where participants were just asked how much Canadians of their same sex drank, Cunningham and Selby, 2007). Although this difference was intentional because age-independent norms were the most relevant for the larger intervention trial of which this survey is a part (Cunningham et al., 2008), it is possible that the relationship between norms and age exists only with normative misperceptions about the proportion of people one’s own age who drink (or smoke).
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