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Are you going to finish that drink?

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Abstract

Data are from the 2000 National Alcohol Survey Methodological Follow-up, which includes 323 individuals from across the United States. Directly measured estimates of drink volume and amount left unfinished along with self-report of the frequency and reasons for which drinks are not finished and are compared across groups. Overall, 12% of drinks reported in the sample were not finished. Smaller amounts of beer and wine volume were left by men, heavier drinkers and older persons. This research was supported by grant P-30-A05595 to the Alcohol Research Group, Public Health Institute from the National Institute on Alcohol Abuse and Alcoholism (NIAAA).

Keywords

beer; wine; spirits; survey; unfinished

INTRODUCTION

Survey self-report measures of alcohol consumption are the primary source of information on population drinking amounts and patterns (Greenfield, 2000) and these individual measures are the source of dose-response and other risk estimates for alcohol-related health and social problems (Greenfield, 2001; Rehm, Greenfield, & Kerr, 2006). While considerable methodological research has focused on how best to assess the number of drinks consumed by beverage and pattern (Dawson, 2003) and on the amount of alcohol contained in a drink (Kerr, Greenfield, Tujague, & Brown, 2005), no information on the commonly observed phenomenon of drinks left unfinished exists in the literature. To fill this gap, respondents in our methodological survey focused on estimating drink alcohol content were asked whether they ever left any of their drinks unfinished and, if so, how often and why? They were also asked to report the proportion of the container they typically left or to pour the amount they typically left unfinished into their usual glass and to measure it using a provided beaker. These data were analyzed in relation to the subject's usual drink size and monthly volume of alcohol and compared across age, gender and alcohol volume groups. Results inform the social and medical epidemiology literature relating to alcohol by quantifying the degree to which measures of alcohol consumption may over-report actual alcohol intake for some individuals.

METHODS

Sample and Weighting

This sample was drawn from a population of 3,499 participants in the 2000 National Alcohol Survey (NAS) that consumed at least 1 alcoholic drink in the past month and had an average

yearly consumption of at least 12 beverages. From October 2003 to February 2004, 323 individuals were enrolled and completed the current study (43% cooperation rate of 751 contacted). For more information on the sample, see Kerr et al. (2005). Participants were compensated \$25 for completing the survey. Sample weights for the 2000 NAS Methodological Follow-up Survey were calculated from information on age, gender and ethnicity, along with respondent's population weights from the original 2000 NAS. These weights link the Follow-up sample cases back to the general population of drinkers meeting eligibility criterion. There were 3 individuals for wine and 11 for spirits that were excluded because they either answered they did not know the frequency of leaving a drink unfinished or they refused to answer. There were 12 individuals for wine and 9 for beer that were included in analyses of the frequency of drinks left unfinished but were excluded from analyses of the percentage of volume left unfinished due to missing volume estimates.

Measurement

Both drink size and the volume left unfinished were measured directly. For drinks consumed from a glass the volume in ounces consumed was determined by a process where subjects measured the actual number of ounces in their typical drink by pouring water into their standard glass then measuring this volume using the Perfect Beaker™, which they had received prior to the interview. This methodology has been used previously (Kerr et al., 2005). For the volume of unfinished ounces the same process was used; the subject poured water into their standard glass up to the level they would usually leave unfinished, and then this volume was measured by pouring it into the Perfect Beaker™. For drinks consumed from a container, the subject was directly asked the size of the usual container from which they drank (typically a 12 ounce container for beer), and the proportion of volume that was left in the container when they finished the drink.

The monthly number of drinks was based on beverage-specific graduated frequency questions assessing the relative frequency of 5+, 3–4, 2 and 1 drink episodes for each beverage group. The monthly number of unfinished drinks was based on the total number of monthly drinks and the relative frequency of leaving a drink unfinished. The frequency of unfinished drinks was not directly asked as a percentage, instead subjects could choose 'occasional container or glass', 'sometimes on the final container or glass', 'nearly always on the final container or glass', 'more than half of the containers or glasses', or 'nearly every container or glass'. Conversion proportions were used to convert these choices into actual number of drinks left (sensitivity analyses indicated that results were robust to choice of conversion proportions). For spirits-based drinks we do not have complete data for the volume of mixed drinks, therefore spirits-based drinks have not been included in the analysis of total volume left unfinished. Subjects that reported leaving a drink unfinished were asked, for each type of beverage, to answer the open-ended question of why they did not finish all their drinks. The answers were then coded into categories based on the 6 most commonly given reasons as well as an 'other' category.

Analyses

Survey-weighted proportions of drinks unfinished and monthly volume unfinished were estimated and statistical significance of estimates was determined through t tests while differences between groups were determined through Wald tests (Stata Corp., 2005). Surveyweighted logistic regression models of the likelihood of always finishing drinks were estimated including age, ethnicity, education level, gender and a dichotomous alcohol volume measure indicating whether the person was in the top 25% of drinkers in this sample.

RESULTS

The mean percentage of total drinks that were reported as not finished was 12% (SE=0.01). This value ranged from 8% (SE=0.02) for spirits to 14% for beer (SE=0.02), with 12% (SE=0.02) for wine. Women consistently reported a higher percentage of drinks left unfinished by beverage. However, only wine showed a statistically significant difference with women at 17% (SE=0.02) and men at 8% (SE=0.02). When drinking behavior was analyzed by grouping subjects into those that were in the top 25% or bottom 75% of overall drinking by volume (based on this sample), the differences between the two groups were all statistically significant. Overall, the lighter drinkers left 14% (SE=0.02) of drinks unfinished compared with 4% (SE=0.01) for the heavier drinkers.

Table 1 also shows us what percent of total volume was left unfinished for reported wine and beer consumption. For all wine drinkers, the mean of wine ounces left unfinished was 3% (SE=0.01), while among only those drinkers that did not finish wine the mean was 7% (SE=0.01). There were no statistically significant differences between men and women, however heavier and lighter drinkers (determined by splitting into top 25% or bottom 75% of overall drinking by volume) demonstrated different drink finishing patterns. For all subjects who drank wine, lighter drinkers left on average 4% (SE=0.01) of their total reported ounces of alcohol, which differed significantly from the 1% (SE=0.003) reported by heavier drinkers. Among only those drinkers that left some wine, lighter drinkers left a higher percentage than heavier drinkers, though this difference was not statistically significant. Younger drinkers, aged 18–34 and aged 35–54, left significantly more of their drinks by volume than did the oldest drinkers, those aged 55 and above. The largest of these differences was for those individuals that leave wine, with a mean of 8% (SE=0.02) for the youngest group, 6% (SE=0.01) for the middle group, and 3% (SE=0.01) for the eldest group.

Males and the heaviest 25% of drinkers were most likely to always finish their drinks, controlling for age, ethnicity and educational attainment level. For wine drinks, males were 2.6 (95% CI=1.32–5.0) times more likely than females to finish all their drinks, while heavier drinkers were 3.1 (95% CI=1.3–7.1) times more likely than lighter drinkers to finish their drinks. The same pattern was true for beer drinkers, with males 3.6 (95% CI=1.7–7.6) times more likely than females to finish all drinks and heavier drinkers 3.0 (95% CI=1.3–6.8) times more likely than lighter drinkers to finish. For spirits-based drinks no significant differences were found.

There were 29 subjects (11 % of the sample) who left at least 30% of their total drinks unfinished. On average, these individuals left 60% (SE=0.03) of their drinks unfinished. Of these, 19 subjects left over 50% of their drinks unfinished, and the mean percent of drinks unfinished for this subgroup was 69% (SE=0.03). Of the 29 individuals, most (17) are female and this group generally includes more light drinkers, with a mean of 15 (SE=4.2) drinks being consumed monthly. This is significantly lower than the mean of 43 (SE=3.5) drinks per month for those drinkers that leave less than 30% of drinks unfinished.

Table 2 shows the distribution of reasons given by subjects who did not finish a specific beverage. For wine drinkers, the most commonly given reason was “did not want anymore”. Two additional reasons were that the wine became too warm or that the meal was finished, implying that wine drinkers often associate drinking wine with eating a meal. The majority of beer drinkers that left beer unfinished said they did so because the beer had become too warm or too flat. Not wanting more was also an important reason for beer drinkers. For spirits drinkers the two primary reasons were that they “did not want anymore” or that the drink has become too warm (or that the ice had melted). For those in the top 25% of drinkers in this sample in particular, reasons other than the top six categories described in Table 2 were often given.

Theses included heartburn, acid reflux and indigestion, sediment in wine, flatness in beer, sleepiness or falling asleep, forgetting about the drink and, in the case of one beer drinker, “Because it will make a mess when I smash the can.”.

DISCUSSION

Our results indicate that while about one in ten drinks reported by this sample were not finished, the percentage of overall volume estimated to be left in the glass or container was only about 3%. Some differences were observed by group with younger beer and wine drinkers leaving 4% of their volume while those 55 and older only left 1%. A similar discrepancy was seen between heavier drinkers in the top 25% by volume in this sample who left only 1% of their volume and lighter drinkers who left 4%. This result would be expected given that heavier drinkers were found to be three times as likely to always finish their drinks. The age difference could have been expected to work differently given that young people tend to drink more, but it may be that older drinkers pay more attention to pouring only what they want or are more concerned about “wasting” their beverages.

There are limitations to the accuracy of our estimates for the monthly volume of drinks and the monthly volume of unfinished beverages since both are based on the volume of a subject’s usual drink and may not capture variability in drinking behavior. There may also be accuracy issues related to self-pouring and self-measurement of drink volume and amount unfinished. Also, unfinished spirits volume could not be calculated due to complications regarding amounts of mixers and ice melt. Another potentially important limitation is that we did not ask if respondents ever finished other people’s drinks, or if others finished their beverages when they did not. This behavior would tend to reduce the overall amount estimated to be unfinished and could also be an indication of a drinking problem.

Although we conclude that unfinished drinks are not a major issue in alcohol consumption measurement, some individuals were found to leave a substantial proportion of their reported alcohol volume unfinished. Most of these individuals were already considered to be lighter drinkers, so that categorical measures are unlikely to be affected by information on drinks unfinished. Studies interested in specific amounts of alcohol consumed, particularly those focused on health outcomes, may want to consider including questions regarding unfinished drinks. Future research could also consider reports of individuals who always finish their drinks and those who finish other’s drinks in relation to health and social outcomes or alcohol dependence. Reluctance to leave any alcohol could be an indicator of alcohol involvement in some cases.

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Table 1

Percent of Total Drinks and Percent of Total Volume that were Reported as Not Finished by Drink Type and Drinker Characteristics

	Wine	Beer	Spirits	Total
	n=278	n=250	n=250	n=323
Mean Percent of Total Drinks	12%	14%	8%	12%
Gender				
Women	17% ^b	17%	10%	14%
Men	8% ^b	12%	7%	10%
Total Volume of Drinking				
Bottom 75%	15% ^b	17% ^b	10% ^a	14% ^b
Top 25%	4% ^b	3% ^b	4% ^a	4% ^b
	All wine drinkers	All beer drinkers	Only wine leavers	Only beer leavers
	n=266	n=241	n=112	n=131
Mean Percent of Total Volume	3%	3%	7%	6%
Gender				
Women	4%	4%	7%	5%
Men	2%	3%	7%	6%
Total Volume of Drinking				
Bottom 75%	4% ^b	4% ^b	7%	6% ^b
Top 25%	1% ^b	1% ^b	4%	2% ^b
By Age				
18–34	4% ^a	4% ^a	8% ^a	6% ^a
35–54	3% ^b	3% ^b	6% ^c	6% ^b
55 and above	1% ^{a, b}	1% ^{a, b}	3% ^{a, c}	3% ^{a, b}

All values are significantly different than zero at the 1% level.

^{a, c} statistically significant difference between groups at the 5% level

^b statistically significant difference between groups at the 1% level

12 wine drinkers and 9 beer drinkers were excluded from the total volume estimates due to missing values.

Table 2
Reasons Given for Not Finishing Drinks by Drink Type, Gender and Volume of Drinking

	Had enough	Too warm	Intoxicated	Not like	Meal Over	Meal Begin	Other
Wine (n=125)							
Gender	50%	13%	6%	8%	11%	0%	12%
Women	53%	16%	5%	5%	9%	0%	10%
Men	45%	10%	6%	11%	13%	0%	16%
Total Volume of Drinking							
Bottom 75%	48%	13%	6%	8%	12%	0%	13%
Top 25%	60%	14%	5%	7%	4%	0%	9%
Beer (n=141)							
Gender	22%	54%	4%	5%	4%	1%	11%
Women	25%	59%	4%	5%	2%	1%	5%
Men	20%	50%	3%	4%	6%	1%	15%
Total Volume of Drinking							
Bottom 75% **	24%	59%	3%	5%	1%	0%	8%
Top 25% **	12%	29%	8%	5%	20%	4%	23%
Spirits (n=87)							
Gender	33%	31%	7%	2%	0%	7%	20%
Women	32%	27%	10%	0%	0%	11%	19%
Men	33%	35%	4%	3%	0%	3%	22%
Total Volume of Drinking							
Bottom 75%	35%	33%	6%	2%	0%	7%	17%
Top 25%	27%	26%	11%	0%	0%	7%	29%

** Statistically significant differences between groups.