

Enhancing the Self-Report of Alcohol Consumption in the Community: Two Questionnaire Formats

ABSTRACT

Two questionnaire formats for assessing alcohol consumption in a community sample were compared. Subjects completed the Semi-Quantitative Food Frequency Questionnaire and a questionnaire specifically targeting alcohol use. Across all alcoholic beverages, subjects reported lower consumption on the alcohol questionnaire than on the food frequency questionnaire. The results suggest that food frequency questionnaires may provide a better means for enhancing self-report of alcohol use than questionnaires that target solely alcohol intake. (*Am J Public Health*, 1994;84:294-296)

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Introduction

Assessment of alcohol consumption typically involves targeting alcohol use directly or obtaining alcohol data as part of a more general dietary assessment.¹⁻⁴ When a specific alcohol questionnaire is used, respondents may be more likely to attend to the questions, and a more accurate report may be obtained.⁵ In contrast, embedding alcohol intake questions in a general diet questionnaire may neutralize the negative feelings toward alcohol reporting potentially evoked in some population segments^{6,7} and/or increase the number of associated cues that can enhance recall.⁸ Little is known about reporting issues for the moderate drinking levels that are of greater relevance for public health research.⁹

Direct comparisons of the above two questionnaire methods have been rare.¹⁰ The purpose of this study was to determine whether embedding alcohol questions in a general diet questionnaire would lead to increased reporting of alcohol use among a community-based sample. A food frequency questionnaire was chosen since such questionnaires are currently one of the primary methods for measuring dietary intake in public health research.¹¹

Methods

Subjects

Subjects originated from a sample of 357 men and women who agreed to participate in a study evaluating the effects of increases in community-based physical activity on health outcomes.¹² Residents of Sunnyvale, Calif, between 50 and 65 years old were recruited through a random-digit dialing community telephone survey and citywide promotion.¹³

Procedures

Prior to randomization, subjects underwent two evaluation sessions scheduled 3 days apart. All subjects completed a semiquantitative food frequency questionnaire. In addition, the final 237 subjects entering the study completed an alcohol consumption questionnaire. These

237 individuals constitute the sample of interest. The order in which each subject completed the two questionnaires (i.e., during session 1 or 2) was determined randomly.

Measures

Food frequency questionnaire. The Semi-Quantitative Food Frequency Questionnaire was used to measure dietary intake over the previous year.¹⁴ This questionnaire has proven to be reproducible and valid across a variety of nutrients, including alcohol.^{14,15} Among its advantages are ease of administration across large samples and specification of drink size for different types of alcoholic beverages.¹⁴

Alcohol consumption questionnaire. The alcohol consumption questionnaire was composed of the same questions as the food frequency questionnaire with respect to the frequency of beer, red wine, white wine, and liquor consumed over the past year.

Statistical Analysis

Two categories were defined for each questionnaire: nondrinkers (those choosing the "never or less than once monthly" category) and drinkers (those choosing any of the other eight alcohol use categories). The McNemar symmetry chi-square statistic for paired comparisons¹⁶ was used to compare the frequencies obtained across the two questionnaires for each alcoholic beverage separately and for all types of alcoholic beverages combined. Cohen's kappa was applied to measure agreement across the two questionnaires.¹⁶

Subjects' alcohol responses were then grouped into four categories and compared across the two questionnaires.

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The categories were nondrinker (never or less than one drink monthly), light drinker (one drink per week through one drink per month), moderate drinker (one drink per day through two drinks per week), and heavy drinker (two drinks per day or more). These categories reflect the somewhat lower alcohol consumption rates typically reported by people in this older age group.¹⁷

Results

Descriptive data for the 237 subjects are shown in Table 1. Subjects were comparable on these variables to the larger study sample from which they were drawn, and they were similar to the northern California population from which they were recruited (Table 1).¹² The mean number of drinks per previous 2-week period reported by those indicating alcohol intake over the past year on the alcohol consumption questionnaire was similar to that of national samples in this age range.¹⁸

Classification of Drinkers and Nondrinkers on the Two Questionnaires

The amount of interquestionnaire agreement for the drinking/nondrinking classification is shown in Table 2. For all four types of alcoholic beverage, the alcohol consumption questionnaire resulted in significantly fewer individuals classified as drinkers than did the food frequency questionnaire ($P_s < .05$). Cohen's kappa ranged from .48 (white wine) to .70 (liquor), signifying fair to good agreement between the two questionnaires.¹⁶ Comparable analyses conducted separately for each sex led to similar results.

When a nondrinker was defined as an individual having no drinks or less than

	Study Sample		Community Sample ^a	
	Men	Women	Men	Women
No.	135	102	765	1109
Age, y (mean \pm SD)	56.4 \pm 4.1	57.0 \pm 4.3	56.8 \pm 4.4	56.9 \pm 4.5
Education, y (mean \pm SD)	15.8 \pm 2.5	14.1 \pm 2.4	15.2 \pm 3.0	13.7 \pm 2.7
Caucasian, %	89.1	88.7	88.4	92.2
Body mass index, kg/m ² (mean \pm SD)	27.2 \pm 4.2	26.1 \pm 5.1	26.0 \pm 3.6	25.0 \pm 3.6
Cigarette smokers, %	17.3	23.5	18.5	25.6
Alcohol intake over previous 2-week period, No. of drinks ^b (mean \pm SD)	10.5 \pm 8.6	6.3 \pm 5.3	12.8 \pm 16.4	6.5 \pm 10.9

Note. There were no statistically significant differences between the two groups on the variables evaluated.
^aBased on a random-digit dialing telephone survey of people 50–65 years of age residing in Sunnyvale, Calif, during the period in which the clinical trial recruitment was initiated.
^bFor subjects reporting some alcohol intake during the past year on the alcohol consumption questionnaire (the study sample included 83 women and 120 men; the community sample included 914 women and 658 men).

one drink per month across all types of alcoholic beverages and a drinker was defined as someone having one drink or more per month, significant discrepancies between the two questionnaires continued ($P < .002$; $\kappa = .45$). While 83.5% of subjects were identified as drinkers on both questionnaires, there was discordance between the two questionnaires for 11% of the sample, with the alcohol consumption questionnaire identifying lower numbers of drinkers than the food frequency questionnaire.

Analyses indicated similar reporting patterns regardless of whether the food frequency questionnaire was completed on day 1 or day 2.

Relative Frequency of Alcohol Intake

In addition to identifying fewer drinkers relative to the food frequency ques-

tionnaire, the alcohol consumption questionnaire generally resulted in a lower reported frequency of intake among drinkers across all three drinking frequency categories (light, moderate, and heavy) (see Table 3).

Discussion

Although it was completed within 3 days of the food frequency questionnaire and used identically worded items and time frame, the alcohol consumption questionnaire consistently resulted in the identification of a smaller percentage of drinkers and a lower reported frequency of alcohol intake. Although clearly not representative of the US population as a whole in this age group, the study sample did provide a good representation of the subjects in the age range of interest residing in the target community, which was

Semi-Quantitative Food Frequency Questionnaire	Alcohol Consumption Questionnaire							
	Beer [*]		Liquor ^{***}		Red Wine ^{**}		White Wine ^{**}	
	Nondrinker % Agreement (No.)	Drinker % Agreement (No.)	Nondrinker % Agreement (No.)	Drinker % Agreement (No.)	Nondrinker % Agreement (No.)	Drinker % Agreement (No.)	Nondrinker % Agreement (No.)	Drinker % Agreement (No.)
Nondrinker	67.8 (82)	3.5 ^a (4)	78.9 (86)	9.4 ^a (12)	71.5 (108)	18.6 ^a (16)	50.0 (34)	7.1 ^a (12)
Drinker	32.2 ^a (39)	96.5 (112)	21.1 ^a (23)	90.6 (116)	28.5 ^a (43)	81.4 (70)	50.0 ^a (34)	92.9 (157)
Total	100 (121)	100 (116)	100 (109)	100 (128)	100 (151)	100 (86)	100 (68)	100 (169)

^aSubjects for whom the two questionnaires were discordant.
^{*} $P < .0001$; ^{**} $P < .001$; ^{***} $P < .05$.

TABLE 3—Percentage of Subjects Categorized as Nondrinkers or as Light, Moderate, or Heavy Drinkers on the Semi-Quantitative Food Frequency Questionnaire (SFFQ) and Alcohol Consumption Questionnaire (ACQ), by Type of Alcoholic Beverage

	Nondrinkers, %		Drinkers, %					
			Light		Moderate		Heavy	
	SFFQ	ACQ	SFFQ	ACQ	SFFQ	ACQ	SFFQ	ACQ
Beer	36	51	42	31	17	15	5	3
Red wine	52	64	32	26	13	9	3	1
White wine	19	29	46	37	28	27	7	7
Liquor	41	46	30	29	24	19	5	6

Note. Percentages are rounded off to the nearest integer. Spearman rank correlation coefficients for the two questionnaires were .78 for beer intake, .62 for red wine intake, .74 for white wine intake, and .79 for liquor intake.

largely White and well educated. The results suggest that use of alcohol items embedded in a food frequency questionnaire as opposed to a questionnaire specifically targeting alcohol intake may result in higher estimates of usual consumption in middle-aged and older adults. □

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