

The Alcohol-Related Problems Survey: Identifying Hazardous and Harmful Drinking in Older Primary Care Patients

Arlene Fink, PhD,^{*†} Sally C. Morton, PhD,[§] John C. Beck, MD,^{*} Ron D. Hays, PhD,^{*†} Karen Spritzer, BA,^{*} Sabine Oishi, MSPH,[‡] and Alison A. Moore, MD, MPH^{*}

OBJECTIVES: Older adults can incur problems at low levels of alcohol consumption because of age-related physiological changes, declining health and functional status, and medication use. We have developed and tested a screening measure specifically for older people, the Alcohol-Related Problems Survey (ARPS), to identify older adults with these risks.

DESIGN: Survey.

SETTING: Academic and community primary care clinics.

PARTICIPANTS: Five hundred forty-nine current drinkers aged 65 and older, mostly white with high school or more education.

MEASURES: Alcohol use was classified as harmful, hazardous, or nonhazardous depending upon consumption alone or combined with selected comorbidities and medication use. Harmful drinking (including alcohol abuse or dependence) means the presence of problems (e.g., hypertension, adverse drug events, legal problems) due to drinking. Hazardous drinking means risks for problems are likely. Nonhazardous drinking poses no known risks for problems.

RESULTS: Eleven percent of subjects were harmful drinkers and 35% were hazardous drinkers. Harmful drinking was more common in men than women and in persons younger than 75 than those aged 75 and older. Similar proportions of men and women and younger and older age groups were hazardous drinkers. Most harmful drinkers were identified by their use of alcohol with their comorbidity, whereas most hazardous drinkers were identified by their use of alcohol with medications. Test-retest reliability was substantial ($\kappa = 0.65$).

CONCLUSION: Physicians are urged to screen for alcohol-related problems in older persons. The ARPS reliably identifies harmful, hazardous, and nonhazardous drinking in older adults resulting most often from the interaction between alcohol and disease and medication use. *J Am Geriatr Soc* 50:1717–1722, 2002.

Key words: alcohol drinking; alcohol-related disorders—diagnosis; older people; questionnaires

Alcohol-related problems represent a major but neglected public health problem, especially in older Americans.^{1,2} These problems include heavy drinking; driving after drinking; or having adverse health, behavioral, legal, or social consequences of drinking.² Population-based studies using various methods and definitions of alcohol-related problems and conducted in diverse settings estimate that the prevalence of current alcohol-related problems in older Americans ranges from 2% to 22%.^{3–6} Because the U.S. population is aging, the number of older people with alcohol-related problems will increase even if the prevalence remains constant.⁶ A national study using 1989 Medicare claims data found that alcohol-related hospitalizations are more common than hospitalizations for myocardial infarction and are associated with considerable financial cost,⁷ and a recent study also among Medicare beneficiaries found that alcohol-related disease more than doubles the risk of hip fracture.⁸ Thus, identifying and managing alcohol-related problems in the growing population of older people is an important task.

Major medical organizations and researchers urge physicians to screen and assess all patients for alcohol-related problems.^{9–11} Persons aged 65 and older make six to eight ambulatory visits to physicians' offices each year,¹² providing physicians with opportunities for screening and assessment. Unfortunately, the screening and assessment methods that are available to physicians may be inadequate for older adults.¹³ Many ask questions about alcohol-related work or family problems because these factors are frequently markers of alcohol abuse in younger

From the ^{*}Department of Medicine, [†]School of Public Health, and [‡]Department of Psychiatry, University of California at Los Angeles, Los Angeles, California; and [§]RAND Statistics Group, RAND, Santa Monica, California. Financial support was received from the National Institute on Alcohol Abuse and Alcoholism (N44AA52009). Dr. Moore is supported by the Paul A. Beeson Physician Faculty Scholars in Aging Program and by the National Institute on Alcohol Abuse and Alcoholism through a K23 Mentored Clinical Scientist Career Development Award #00270.

Address correspondence to Arlene Fink, PhD, 1562 Casale Road, Pacific Palisades, CA 90272. E-mail: afink@mednet.ucla.edu

adults. Such questions may not be pertinent to older patients who are retired or living alone.^{14,15}

Alcohol screening measures such as the Cut down, Annoyed by criticism, Guilty about drinking, Eye-opener drinks (CAGE),¹⁶ Michigan Alcoholism Screening Test (MAST),¹⁷ and MAST-Geriatric Version (MAST-G)¹⁸ have been used in primary care settings to identify persons who meet criteria for current or lifetime alcohol abuse and dependence. In contrast to these alcohol screening measures, the Alcohol Use Disorders Identification Test (AUDIT)^{19,20} is designed to detect a broader spectrum of drinking risks (hazardous drinking) and harms (harmful drinking). Defined by the World Health Organization (WHO), harmful drinking is use of alcohol that causes physical or psychological complications, whereas hazardous drinking is the use of alcohol that places an individual at risk for such complications.²¹ The AUDIT uses amount of drinking to define hazardous drinking, but, in older persons, alcohol-related risks and problems may result not only from the amount of drinking but also from the combination of alcohol use with common medical comorbidities (e.g., diabetes mellitus,²² hypertension,²³ depression^{24,25}), medications,^{26,27} and declining functional status.²⁸ None of the existing screening measures for alcohol-related problems include items on these alcohol-associated risks that are particularly relevant to older people.

We developed the Alcohol-Related Problems Survey (ARPS, available by e-mail from Arlene Fink at afink@mednet.ucla.edu) to meet the growing need for a screening measure that is targeted to older adults. The ARPS is unique in that it aims to move beyond the traditional alcohol-use paradigm (which focuses on identification of abuse and dependence); it aims to detect older persons who abuse or are dependent on alcohol, but it also aims to detect the much larger population of older adults who are at risk for or are experiencing problems because of their use of alcohol alone or in conjunction with their comorbidities, medication use, and functional status. The purpose of this report is to describe the development and testing of the ARPS in a large cross-section of older persons in primary care settings.

METHODS

The Alcohol-Related Problems Survey

The ARPS is a self-administered questionnaire that includes 60 items on the presence of medical and psychiatric conditions (14 items), symptoms of disease (12 items), smoking behavior (1 item), medication use (17 items), physical function and health status (6 items), quantity and frequency of alcohol use (2 items), episodic heavy drinking (2 items), symptoms of alcohol abuse and dependence (4 items), driving after drinking (1 item), and gender (1 item). We adapted the items on physical and mental functioning from the Medical Outcomes Study 36-Item Short-Form Health Survey.²⁹ The quantity and frequency questions and the questions on symptoms of alcohol abuse and dependence were based on AUDIT items.^{19,20} All other questions were developed for the ARPS.

The ARPS uses scoring rules to designate respondents as harmful, hazardous, or nonhazardous drinkers. The harmful and hazardous categories are based on those de-

veloped by WHO.²¹ We defined the nonhazardous category of drinkers as those persons whose use of alcohol does not currently place them at risk for physical or psychological complications. Using the RAND/University of California at Los Angeles (UCLA) panel method,^{30,31} an expert panel developed the scoring rules for the ARPS.^{28,32} To assist the panel in developing these scoring rules, we provided the panelists with a variety of relevant references, including a review of the literature on the determinants and consequences of alcohol use in older people and the appropriateness of available screening measures.¹⁵ They were then asked to use these data and their expert opinion to identify clinical indications for harmful, hazardous, and nonhazardous drinking in older persons. One example of a nonhazardous drinker, as defined by the expert panel, is a person who consumes one drink or less a day and has no medical problems that will be made more difficult to treat because of alcohol use. An illustrative hazardous drinker is an individual who regularly takes flurazepam and drinks three drinks two to three times a week. An illustrative harmful drinker is an older person who currently has peptic ulcer disease and drinks four drinks daily. The expert panel agreed that neither the quantity and frequency of alcohol use alone nor symptoms of alcohol abuse and dependence adequately describe the spectrum of hazardous and harmful drinking in older persons and that supplementary information regarding comorbidities and use of medications was needed.²⁸ There were no significant differences in panelists' ratings of risks between persons aged 65 to 74 and those aged 75 and older.

Before surveying the sample described in this report, we conducted cognitive debriefing interviews³³ with 57 older persons attending a primary care clinic to obtain data on the clarity of language and acceptability of the length of the ARPS. Using data from the interviews, we revised the measure and then pilot tested it with a sample of 19 older adults who were not subsequently included in the analysis of this study's sample of 549 drinkers. The ARPS used with the study's sample and described in this report reflects the results of the pilot test.

Participant Eligibility

Eligible participants were aged 65 and older, able to read and understand English, and reported drinking at least one alcoholic beverage in the past 12 months. Trained research assistants recruited participants from the waiting rooms at UCLA's Internal Medicine suites, an academic internal medicine practice, and at the Santa Barbara Medical Foundation, a large community-based group practice. The institutional review boards at participating sites approved the study's protocol. All subjects were compensated \$5 for their participation.

The study sample included 549 current older drinkers. Of 4,073 persons approached for participation, 2,837 (70%) were not eligible, and 174 (4%) did not provide enough information to assess eligibility (e.g., age and drinking status). The primary reasons for ineligibility were that persons were younger than 65 (47% of those ineligible), had not had a drink in the past 12 months (42%), had already participated in the study during a previous visit (8%), or were not English speaking (3%). Of 1,062 eligible persons (26% of the 4,073 persons approached),

321 (29% of those eligible) refused to participate, and 148 (14%) agreed to participate but could not (e.g., were called in to see their healthcare providers before completing the study protocols). Forty-four (4%) subjects were originally considered eligible for the study, but, because they failed to provide data on quantity or frequency of drinking, they were subsequently excluded from the analysis. No statistically significant differences were found between the 513 subjects who refused to participate, did not provide complete data, or could not participate and the 549 subjects in the study sample in gender (53% vs 56% male), ethnic composition (82% vs 87% white), or health status (78% vs 81% reported good to excellent).

Statistical Analysis

We computed descriptive statistics on subjects' reported demographic characteristics, number of reported medical conditions and medications used, self-rated health, ability to perform usual daily activities, and quantity and frequency of drinking. Subjects were classified as harmful drinkers if they met one or more of the clinical indications for harmful drinking. Subjects were classified as hazardous drinkers if they met one or more of the clinical indications for hazardous drinking and did not meet any of the clinical indications for harmful drinking. All other drinkers were classified as nonhazardous drinkers. We used the chi-square test to compare the proportions of men and women and subjects aged 65 to 74 and 75 and older in their drinking classifications.

To identify the indications that were most accountable for all hazardous and harmful drinkers in the study sample, we cataloged the indications that were most frequently responsible for each subject's drinking classification. We then arranged the indications hierarchically from most to least inclusive. For each of the top indications, we then listed the most frequent comorbidities and medications reported by the respondents who were considered harmful or hazardous drinkers by that indication.

To ascertain the test-retest reliability of the ARPS' drinking classifications, we asked a randomly selected subsample of 78 subjects to complete the ARPS twice, and we computed a weighted kappa statistic³⁴ to compare agreement between the proportions of harmful, hazardous, and nonhazardous drinking classifications among the subsample.

We also asked participants to report on their ability to understand the questions in the ARPS, to complete it independently, and to complete it in a timely fashion. Statistical analysis was performed using SAS, version 8.1 (SAS Institute, Cary, NC).

RESULTS

The average age of persons in our study sample was 75 (range 65–100), and the majority was male, white, and married and had at least a high school education and average income over \$25,000 (Table 1). Most persons also reported having excellent or good health and little or no difficulty performing usual daily activities. In contrast, many had medical and psychiatric conditions that could be worsened or caused by alcohol use or used multiple medications with potential to interact negatively with alcohol or be less efficacious when used with alcohol. Approxi-

Table 1. Demographic and Health-Related Characteristics of Sample, N = 549

Characteristic	n	(%)
Sex		
Male	307	(56)
Female	242	(44)
Ethnicity		
White, not of Hispanic origin	468	(87)
Hispanic	28	(5)
Black, not of Hispanic origin	23	(4)
Asian or Pacific Islander	8	(2)
American or Alaskan Native	7	(1)
Other	6	(1)
Education		
<12th grade	31	(6)
≥12th grade	507	(94)
Marital status		
Married	349	(65)
Widowed	109	(20)
Divorced	47	(9)
Never married	35	(6)
Income		
≤\$25,000	125	(26)
\$25,000–49,999	152	(31)
≥\$50,000	210	(43)
Self-rated health		
Excellent or very good	165	(43)
Good	151	(39)
Fair or poor	67	(17)
Difficulty with usual daily activities		
None	340	(64)
A little bit or some	161	(30)
Quite a bit or incapable	33	(6)
Number of comorbidities potentially caused or worsened by alcohol use		
None	0	
1–3	389	(71)
≥4	160	(29)
Number of medications used with potential alcohol interaction		
None	66	(12)
1–3	292	(46)
4–6	174	(32)
≥7	50	(9)
Usual number of drinks		
1	366	(67)
2	128	(23)
≥3	55	(10)
Usual frequency of drinking on drinking days		
≤1 time per month	133	(24)
2–4 times per month	120	(22)
2–3 times per week	92	(17)
≥4 times per week	204	(37)

mately two-thirds of the sample usually drank one drink on drinking occasions and more than a third usually drank alcohol at least four times per week.

The characteristics of the sample are shown in Table 2. More men than women were classified as harmful drinkers, and more women than men were nonhazardous

Table 2. Harmful, Hazardous, and Nonhazardous Drinking in Older Adults, N = 549

Drinking Behavior and Age	Men (n = 307)		Women (n = 242)	
	n	(%)	n	(%)
Harmful* (n = 62)				
65–74	29	(9)	11	(5)
≥75	16	(5)	6	(2)
Hazardous† (n = 193)				
65–74	63	(21)	38	(16)
≥75	52	(17)	40	(17)
Nonhazardous‡ (n = 294)				
65–74	68	(22)	84	(35)
≥75	79	(26)	63	(26)

*Harmful drinking is associated with the likely presence of alcohol-related problems and includes abusive and dependent drinking.

†Hazardous drinking can complicate medical diagnosis and treatment, pose risks for medical or psychosocial problems, and precipitate adverse drug reactions.

‡Nonhazardous drinking has no known risks or problems.

drinkers. No differences were found in hazardous drinking between men and women. There were also no differences between subjects who were aged 65 to 74 and those aged 75 and older among any of the drinking groups.

In our hierarchical analyses, 74% (n = 46) of the harmful drinkers and 80% (n = 154) of the hazardous drinkers were identified by the top two indications for each of these drinking risk categories. The top two indications for harmful drinking included alcohol use in combination with medical conditions that may be caused or worsened by alcohol (Table 3). The top two indications for hazardous drinking included the use of alcohol with medications that may adversely interact with alcohol or whose efficacy may be diminished by alcohol. Hypertension was the most common comorbidity among those clas-

sified by the top clinical indication for harmful drinking, whereas arthritis and pain medicines were the most common medications used among those classified by the top clinical indication for hazardous drinking.

The weighted kappa for test-retest reliability was 0.65, suggesting substantial agreement between the proportions of harmful, hazardous, and nonhazardous drinkers in a subsample of 64 study participants who completed the ARPS twice (82% of those given two surveys) an average of 7 days apart.

Most participants who completed the ARPS had no difficulty understanding the questions (96%) or with its length (79% reported it was neither too short nor too long). Ninety percent of respondents completed the survey unassisted. The average time to complete the ARPS, including 11 questions included only for research purposes, was 16 minutes.

DISCUSSION

The ARPS is a unique measure to identify older persons whose use of alcohol may be causing them harm or increasing their risk for harm. It not only identifies persons who have symptoms of alcohol abuse and dependence but also those whose use of alcohol in combination with their comorbidities and medication use may be hazardous or harmful.

In this sample of primarily white, educated, older drinkers, the ARPS identified almost half as harmful or hazardous drinkers. Most harmful drinkers were identified as such because of the amount they drank in combination with medical and psychiatric comorbidities that are common in older people and that are known to be exacerbated by alcohol, such as hypertension²³ and depression.^{24,25} In contrast, most hazardous drinkers were identified as such because of the amount they drank in combination with medications having the potential to interact adversely with alcohol and that are frequently taken by older adults, in-

Table 3. Hierarchical Ranking of Most-Common Clinical Indications for Harmful and Hazardous Drinking, N = 549

Clinical Indication	Range of Drinking	Comorbidities or Medications*	n
Harmful drinking (n = 62)			
Most common (n = 27)	≥3 drinks ≥2–3 times per week	Hypertension	21
		Depression or other psychiatric condition	6
		Gout	6
Second most common (n = 19)	Any amount	Hepatitis in past 12 months	8
		Cirrhosis or other liver condition (excluding hepatitis)	7
		Gastritis in past 12 months	6
Hazardous drinking (n = 193)			
Most common (n = 90)	≥1 drink per day	Arthritis and pain medications	88
		Cimetidine or ranitidine	25
		Antidepressants	23
		Warfarin	15
		Nitrates	10
		Diphenhydramine	9
		Antiseizure medications	5
Second most common (n = 64)	≥2 drinks per day	Aspirin (2 or more)	36
		Antihypertensives	23

*Most-common comorbidities or medications reported by subjects meeting criteria for these clinical indications.

cluding aspirin (in doses exceeding 650 mg daily),³⁵ nonsteroidal antiinflammatory agents,³⁶ and antihypertensives.³⁷

As others have found, harmful drinking was more common among men and among persons younger than 75 than those aged 75 and older.⁶ In this study sample, hazardous drinking was equally common among women and men and among those in the younger and older age groups.

The clinical indications for harmful and hazardous drinking for the ARPS were developed using the RAND/UCLA panel method.^{30,31} Although this method is reliable and valid,^{38,39} it was used to develop the clinical indications because there is limited scientific data available regarding the magnitude of risk from alcohol use in combination with comorbidity and medication use. We recommend that further research be conducted using the ARPS to better understand the nature and magnitude of these risks.

Since completing this study, we have validated the ARPS in additional ways. We have compared it to three screening measures for alcohol abuse and dependence: the CAGE, the SMAST, and the AUDIT.⁴⁰ We found that the ARPS identifies between 75% and 100% of persons who screen positively on these screening measures as harmful or hazardous drinkers. In unpublished work, we have also administered the ARPS to 42 older alcoholics in an ambulatory treatment program. Forty of these subjects were identified as harmful drinkers and the remaining two were identified as hazardous drinkers on the ARPS. We have also compared the ARPS with a new criterion standard for harmful and hazardous drinking.⁴¹ We developed this standard because the ARPS identifies many persons as harmful or hazardous drinkers who would not meet criteria for alcohol abuse or dependence; therefore, comparing the ARPS with a standard such as *Diagnostic and Statistical Manual of Mental Disorders* criteria⁴² for abuse and dependence would not be appropriate. In a sample of 166 older drinkers, including a wide range of drinkers from infrequent light drinkers to alcoholics, we found the ARPS to be 92% sensitive and 66% specific when compared with this new standard. Given the moderate specificity of the ARPS, we recommend that all patients who are classified by the ARPS as harmful or hazardous drinkers be evaluated by their healthcare providers to determine whether their use of alcohol in the context of their individual health and functional status is placing them at risk for or causing them harm.

The generalizability of this study's findings is circumscribed by the select nature of the sample. As in any community research, participants tend to be healthier because severely ill and disabled persons are less likely to volunteer for enrollment.⁴³ As alcohol abusers age, many die or are institutionalized because of alcohol-related illness or injury,⁴⁴ and they may be unaccounted for in these data. Just over 50% of eligible persons participated in the study, a rate that is consistent with other community research⁴⁵ but one that may introduce reservations about the applicability of the ARPS to typical primary care practices. Moreover, participants in this study were white and relatively well educated. We are conducting further research to confirm the ARPS' usefulness and feasibility with other populations, including those in clinical practices where patients

may be more likely to have some degree of cognitive impairment, lower educational level, or cultural characteristics that might influence their responses to the questionnaire. The length of the ARPS may also appear to be a concern. Although we found that respondents had little difficulty understanding the questions and completing the ARPS, it did take 16 minutes on average to complete with the embedded research questions. We also found that a group of older alcoholics in treatment (unpublished data) had little difficulty with the length of the ARPS (88% found it neither too short nor too long) or in understanding its questions (90% had no difficulty understanding the questions). Since completing this study, we have tested a computerized version of the ARPS, the Computerized ARPS (CARPS), that patients can complete easily in approximately 7 minutes while waiting for their appointments.⁴⁶

The ARPS can efficiently provide physicians and other healthcare workers with detailed clinical information regarding older patients' alcohol-related risks and problems to assist them in evaluating their risks and in determining the need for and type of intervention. Our current investigations are focusing on testing interventions in other populations to reduce harmful and hazardous drinking among older persons using the CARPS, coupled with immediate feedback of risks to patients and their physicians.

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