

ALCOHOL USE DISORDERS IN PRIMARY CARE PATIENTS IN CAGLIARI, ITALY

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Abstract — Aims: To evaluate the number of subjects with possible alcohol use disorders (SPAUD) among primary care patients in Cagliari, Sardinia, Italy, by means of the self-administration of Alcohol use disorder identification test (AUDIT) and CAGE questionnaires. **Methods:** 939 patients waiting in 10 surgeries of primary care physicians were asked to take part in the study. A sample of 309 women and 197 men (total 506), aged between 18 and 65 years, agreed to participate and completed both questionnaires. SPAUD were defined as those achieving cut-off scores of 5 for AUDIT and/or 1 for CAGE. **Results:** Seventy-nine (15.61%) patients were SPAUD, achieving a positive score in at least one questionnaire. Fifty-six (11.07%) and forty-six (9.09%) patients yielded positive results with AUDIT and CAGE, respectively. Twenty-three (4.55%) patients were positive at both AUDIT and CAGE. Significantly higher proportions of men than women were recorded among SPAUD. **Conclusions:** The results of the present survey indicate a high number of SPAUD in a sample of primary care settings in Cagliari, closely similar to the occurrence of alcohol use disorders estimated in several other community-based primary care clinics in Western Countries.

INTRODUCTION

Alcohol use disorders (AUDs) are regarded as one of the most important public health problems (Saitz, 2005; Room *et al.*, 2005). These disorders include alcohol abuse and alcohol dependence as well as less severe drinking problems such as heavy, hazardous or harmful drinking (Reid *et al.*, 1998). Epidemiological estimations of AUDs vary largely on the basis of (i) the specific disorder evaluated (i.e. heavy drinking or alcohol dependence), (ii) methods used for the evaluation (medical interviews or questionnaires), (iii) differences in the selected cut-off scores of questionnaires, and (iv) settings studied (general population, in- or outpatients). Several epidemiological studies have estimated a higher prevalence of AUDs in medical settings than in the general population (Allen *et al.*, 1995; O'Connor and Schottenfeld, 1998). Namely, lifetime prevalence of alcohol abuse or dependence has been identified in ~10% of the general population and in 16–36% of outpatients (O'Connor and Schottenfeld, 1998; National Institute on Alcohol Abuse and Alcoholism, 2000). Furthermore, in US primary care settings the ratio between alcohol dependence and hazardous drinking has been found to be equal to 1:4 (National Institute on Alcohol Abuse and Alcoholism, 2000), with the latter averaging between 7.5 and 19.7%, depending upon the different threshold values used (Fleming *et al.*, 1998). Despite the high prevalence of AUDs among primary care patients, <50% are properly diagnosed by their physicians; indeed, appropriate treatment is made available to only 24% (O'Connor and Schottenfeld, 1998). Furthermore, less severe drinking problems are more common and respond to treatment better than alcohol abuse and dependence; further, primary care physicians are in the favourable position of being able to identify and manage patients at risk for all AUDs (Reid *et al.*, 1999; Fiellin *et al.*, 2000; National Institute on Alcohol Abuse and Alcoholism,

2003). Accordingly, National Institute on Alcohol Abuse and Alcoholism recommends that physicians screen primary care patients not only for alcohol abuse and dependence but also for all AUDs (National Institute on Alcohol Abuse and Alcoholism, 2003).

Patient denial and lack of physician's time and willingness represent the main barriers in the identification of AUDs in primary care settings (Ferguson *et al.*, 2003). In order to overcome these barriers, a large number of alcohol screening instruments have been tested and validated in clinical settings over the years (National Institute on Alcohol Abuse and Alcoholism, 2000). Among these, the Alcohol use disorder identification test (AUDIT) and CAGE are two widely validated questionnaires for the screening of AUDs, the first being more sensitive in the identification of less severe drinking problems (Saunders *et al.*, 1993) and the second performing better in the identification of patients with alcohol abuse or dependence (Fiellin *et al.*, 2000; Saitz, 2005). AUDIT, developed as part of the World Health Organization (WHO) Collaborative Project on Early Detection of Persons with Harmful Alcohol Consumption (Saunders *et al.*, 1993) consists of 10 questions regarding alcohol consumption, drinking behaviour, adverse reactions, and alcohol-related problems (Saunders *et al.*, 1993). Each question is scored by a 5-point scale (0–4), with 40 being the most severe score. A score of 8 or higher is typically considered a positive indicator of an AUD (Reid *et al.*, 1999). However, a score of 5 is thought to be appropriate for women (Cyr and McGarry, 2002; Reinert and Allen, 2002) and provides a good trade-off between sensitivity and specificity (Piccinelli *et al.*, 1997).

Because of its length, several abbreviated forms of AUDIT have also been evaluated (Reinert and Allen, 2002). AUDIT-C (also called AUDIT-3) includes only the first three questions from AUDIT, AUDIT-4 the first three and the last questions, and Five-Shot Questionnaire the first two questions from AUDIT and three from CAGE (Bush *et al.*, 1998; Gual *et al.*, 2002; Seppa *et al.*, 1998). These abbreviated forms require less time for administration although further research is needed for a more thorough evaluation (Reinert and Allen, 2002). It has also been observed recently that a different

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item sequence may influence the performance of AUDIT in general physicians (Bischof *et al.*, 2005).

CAGE, an acronym for the keywords in its four questions ('Cut down', 'Annoyed', 'Guilty', 'Eye opener'), is probably the most frequently used screening instrument for alcohol abuse or dependence (Isaacson and Schorling, 1999, Fiellin *et al.*, 2000). CAGE is considered positive when two or more answers are affirmative (Fiellin *et al.*, 2000). However, a cut-off of 1 is often recommended for women, because of their higher sensibility to toxic effects of alcohol (Bradley *et al.*, 1998; McGarry and Cyr, 2005), and when screening for AUDs is performed in primary care settings (Allen *et al.*, 1995; Ogborne, 2000).

Despite the large number of studies conducted worldwide in primary care units using CAGE or AUDIT questionnaires (Fiellin *et al.*, 2000; Reinert and Allen, 2002; Beich *et al.*, 2003), only one has been conducted in Italy (Piccinelli *et al.*, 1997). In this study, using a standardized interview, AUDs were found in ~17% of patients from 10 primary care clinics in Verona, a Northern Italian town with a population of ~250 000 inhabitants. When these results were correlated with those obtained by the self-administration of AUDIT, it was found that a cut-off score of 5 was associated with a sensitivity of 0.84, a specificity of 0.90, and a predictive value of 0.60.

The present study was designed to (i) estimate the number of primary care patients with possible AUDs in Cagliari, a town in Sardinia, Southern Italy, with a population of ~160 000 inhabitants, by means of the self-administration of AUDIT and CAGE questionnaires; (ii) compare the results with those collected in the same setting both elsewhere in Italy and in other countries; (iii) introduce the use of self-administered questionnaires for AUDs screening in a sample of general physicians in Cagliari. In the present study, in order to identify a wide spectrum of patients with possible AUDs, both questionnaires were used with the selected cut-off scores of 1 and 5 for CAGE and AUDIT, respectively. In other words, it was deemed preferable to risk inclusion of a false-positive case rather than fail to recognize a subject with possible AUDs (Allen *et al.*, 1995).

SUBJECTS AND METHODS

The present study was carried out in collaboration with *Ordine dei Medici Chirurghi e degli Odontoiatri della Provincia di Cagliari* and *Società Italiana di Medicina Generale*. All general physicians in Cagliari ($n = 124$) were asked to allow the presence of an investigator in their surgeries. Among those who gave their consent, a sample of 10 physicians (9 men and 1 woman) was chosen on the basis of the location of their surgeries, to provide for a distribution as widespread as possible throughout the different areas of the town. The investigators were psychologists carrying out their mandatory training at the University of Cagliari. They were selected by means of an interview assessing their interest in this research issue. An investigator attended each surgery for 1 week (Monday to Friday) and asked all patients waiting to see the physician to take part in the study. Patients were informed of the project aims and assured that their answers would be kept strictly confidential. Those agreeing to participate were

informed of the size of a standard drink and the questionnaires for subsequent self-administration were illustrated. AUDIT and CAGE questionnaires were preceded by four questions regarding gender, age, education, and marital status. Patients achieving a score equal to or higher than the cut-off values (1 and 5 for CAGE and AUDIT, respectively) in at least one of the two questionnaires were defined as subjects with a possible AUDs (SPAUD). Since this study was aimed at testing a tool for potential routine use by physicians, no different cut-off scores were adopted for gender, in order to not excessively burden the physician's subsequent workload while improving acceptability of the tool (Vinson *et al.*, 2004).

Differences in means were statistically analysed using the unpaired, 2-tailed Mann-Whitney test, while differences in proportions were assessed using a χ^2 -test and odds ratios with 95% confidence intervals.

Nine hundred and thirty-nine patients were approached in the primary care units (~0.6% of the whole population of Cagliari); 776 (82.64%) agreed to take part in the study. One hundred and thirty-three (17.14%) patients were excluded from the study following the returning of incomplete questionnaires. One hundred and thirty-seven (17.65%) patients were excluded as they had exceeded the 18–65 year age limits.

RESULTS

Five hundred and six (65.21%) patients filled out the questionnaires properly; their characteristics are shown in Table 1. Most subjects were women (61.07%), who had a high level of education (high school or degree, 72.13%), and were married (49.41%). In order to avoid the selection of subjects with high levels of education due to the relative degree of difficulty in filling out the questionnaires, that may have led to the possible exclusion of a higher proportion of subjects with lower levels of education, data from partially filled out questionnaires were also analysed. The majority of these incomplete questionnaires had been filled in by women [46/133 subjects did not specify their gender; among the 87 subjects stating their sex, 52 (59.77%) were women] and by people with high levels of education [49/133 subjects did not specify their level of education; among the 84 subjects providing this information, 58 (69.05%) had a high school diploma or a degree], with no significant difference in gender and level of education between subjects who filled out the questionnaires properly and those who returned incomplete questionnaires.

Data from properly filled out questionnaires were analysed using different cut-off values. Specifically, when the cut-off values of 1 and 5 for CAGE and AUDIT, respectively, were used both in men and women, 79 patients (15.61%) were SPAUD, with a significantly higher proportion of men (73.42%) than women (26.38%) ($P < 0.0001$). Indeed, 58 males (29.44% of all men, participating in the study), and 21 females (6.80% of all women taking part in the study) were identified. Table 2 shows the number of patients who were positive to AUDIT and/or CAGE. Table 3 shows the significantly higher proportions of SPAUD in men than women, even when patients were divided according to age. SPAUD did not differ significantly respect to non-SPAUD with regard to age, education, and marital status.

Table 1. Characteristics of patients completing the AUDIT and CAGE questionnaires

	Age Year (SEM)	Marital status				Level of Education			
		Single (% of total)	Married (% of total)	Divorced (% of total)	Widowed (% of total)	Primary school (% of total)	Secondary school (% of total)	High school (% of total)	Degree (% of total)
Men (<i>n</i> = 197)	43.97 (0.95)	80 (40.61)	101 (51.27)	12 (6.09)	4 (2.03)	8 (4.06)	44 (22.34)	97 (49.23)	48 (24.37)
Women (<i>n</i> = 309)	43.03 (0.75)	121 (39.16)	149 (48.22)	18 (5.83)	21 (6.80)	19 (6.15)	70 (22.65)	153 (49.51)	67 (21.68)
Total subjects (<i>n</i> = 506)	43.40 (0.59)	201 (39.72)	250 (49.41)	30 (5.93)	25 (4.94)	27 (5.34)	114 (22.53)	250 (49.41)	115 (22.73)

Table 2. SPAUD patients

	Men (<i>n</i> = 197)	Women (<i>n</i> = 309)	Total subjects (<i>n</i> = 506)
AUDIT \geq 5	45 (22.84%)	11 (3.56%)	56 (11.07%)
CAGE \geq 1	33 (16.75%)	13 (4.21%)	46 (9.09%)
AUDIT \geq 5 and CAGE \geq 1	20 (10.15%)	3 (0.97%)	23 (4.55%)

Patients achieving a score equal to or higher than the cut-off values (1 and 5 for CAGE and AUDIT, respectively) in at least one of the two questionnaires were defined as SPAUDs.

Numbers in brackets indicate the percentage over the total number.

When data were analysed using higher cut-off scores (2 and 8 for CAGE and AUDIT, respectively) both in men and women, the number of SPAUD was 30 (5.93%), with a significantly higher proportion of men (83.33%) than women (16.67%) ($P < 0.0001$).

Finally, when data were analysed using different cut-off values for men (2 and 8 for CAGE and AUDIT, respectively) and women (1 and 5 for CAGE and AUDIT, respectively), the number of SPAUD was 46 (9.09%), with a significantly higher proportion of men (54.35%) than women (45.65%) ($P = 0.0245$). Specifically, 25 men (12.69% of all men participating in the study) and 21 women (6.80% of all women participating in the study) were identified.

DISCUSSION

The results of the present study indicate that in the town of Cagliari, Southern Italy, ~16% of primary care patients were SPAUD according to the cut-off scores of 5 and 1 used for the AUDIT and CAGE questionnaires, respectively. These results are comparable with the number of subjects with AUDs found in US primary care settings (Fleming *et al.*, 1998; Fiellin *et al.*, 2000). These results are also in agreement with those of Piccinelli (Piccinelli *et al.* 1997), who reported a number of AUDs of ~17% in primary care settings in Verona, a Northern Italian town; in the latter study, AUDs were diagnosed by means of a standardized interview.

Moreover, the results of the present study indicated that 29.4% male and 6.8% female patients were SPAUD. These results closely resembled those recently found in a French study (Malet *et al.*, 2003): using a standardized interview and a self-administered CAGE questionnaire, with a cut-off score equal or higher than 2, the prevalence of AUDs was 27 and 5% in male and female patients, respectively.

A possible limitation of the present study is the lack of a diagnostic interview to evaluate the efficacy of the screening methodology used. However, alcohol problems often go unrecognized by primary care physicians and remain

Table 3. Patients and SPAUD divided into groups according to age

Age (years)	Men		Women		Total		χ^2 -test
	Total	SPAUD	Total	SPAUD	Total	SPAUD	
18–25	20	7 (35.00)	32	1 (3.12)	52	8 (15.38)	*
26–35	38	10 (26.32)	78	4 (5.13)	116	14 (12.07)	*
36–45	46	17 (36.96)	57	5 (8.77)	103	22 (21.36)	*
46–55	39	10 (25.64)	72	8 (11.11)	111	18 (16.22)	*
56–65	54	14 (25.93)	70	3 (4.29)	124	17 (13.71)	*
Total	197	58 (29.44)	309	21 (6.80)	506	79 (15.61)	*

* $P < 0.05$ proportion of SPAUD in men respect to women for each specific age group (χ^2 -test). Numbers in brackets indicate the percentage over the total number.

untreated, as doctors tend to worry that they do not have enough time and energy for a task which is seen as being labour-intensive (Hansen *et al.*, 1999; National Institute on Alcohol Abuse and Alcoholism, 2003; Saitz *et al.*, 2003; D'Amico *et al.*, 2005). In contrast, the results of the present study, showing that a rate of SPAUD comparable with the literature data can be collected by a member of the primary care team by means of two validated questionnaires, suggest that a preliminary screening of AUDs can be conducted in primary care units without a workload for the physician. Once the screening results indicate that a patient is a SPAUD, the physician's intervention is required for a more detailed assessment of the nature, extent, and treatment of the possible AUDs (National Institute on Alcohol Abuse and Alcoholism, 2000; Saitz, 2005). In the present study, the questionnaires were illustrated to patients by a member of our laboratory. However, we are convinced that this task could easily be taken care of by the physician. Accordingly, it has been reported recently that almost 70% of Finnish physicians use AUDIT in their routine activities (Aalto and Seppa, 2005). Moreover, the use of AUDIT proved to be associated with subsequent brief interventions (consisting of one-to-four short counselling sessions aimed at reducing alcohol intake) in subjects with harmful alcohol drinking (Aalto and Seppa, 2005).

In the present study, 133 patients were excluded because of their incomplete questionnaires. When the available data from these questionnaires were analysed, no difference in gender or level of education was found between subjects who had properly filled out the questionnaires and those who had returned incomplete questionnaires. Of course, we were not able to assess the reasons for returning incomplete questionnaires. However, physicians might be interested in finding out whether incomplete questionnaires are a sign of the patient's denial of her/his excessive alcohol consumption.

The results of the present study also suggest that the concomitant use of both AUDIT and CAGE questionnaires, rather than the use of only one of the two, led to the identification

of a higher number of SPAUD (specifically, ~30 and 40% more than those identified using AUDIT or CAGE alone, respectively).

In conclusion, we are convinced that simple and useful instruments such as AUDIT and CAGE questionnaires should be used in all surgeries of primary care physicians, by physicians or their staff, for an initial and rapid identification of SPAUD.

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