

Supplementary materials for:

Rehm J, Allamani A, Della Vedova R, Elekes Z, Jakubczyk A, Landsmane I, Manthey J, Moreno-España J, Pieper L, Probst C, Snikere S, Struzzo P, Voller F, Wittchen H, Gual A, Wojnar M. General practitioners recognizing alcohol dependence: a large cross-sectional study in 6 European countries. *Ann Fam Med*. 2015;13(1):28-32.

Web Appendices:

Web Appendix 1

Detailed listing of sampling procedure by country

	Germany	Hungary	Italy 1 - Friuli-Venezia Giulia	Italy 2 - Tuscany	Latvia	Poland	Spain
Number of GP assessments	2.304	2.308	1.149	1.005	2.468	2.396	1.373
Number of interviewed patients	1.356	2.306	492	451	1.302	1.197	1994
GP Selection							
Source of GP practices	from complete register	from complete register	from previous research	from a local large GP association	from complete register	from complete register	from complete register
Procedure of selecting PC Centers	contacted all registered GPs in selected regions	selection of GPs nationwide: stratified by population for each region	contacted GPs that expressed interest previously	all GPs in this association were contacted	selection of GPs nationwide: stratified by region, urbanization and size of GP practice	randomly contacted; refusals replaced by next GP in register	randomly contacted; refusals replaced randomly
Represented regions	Saxony and Berlin (federal states), Potsdam and Potsdam-Mittelmark (counties)	Hungary	Friuli-Venezia Giulia (federal state)	Tuscany (federal state)	Latvia	Podkarpackie and Lodzkie (federal state)	Catalonia (autonomous community)
Population size of regions	7,817,000	9,957,731	1,221,860	3,692,202	2,023,825	4,654,602	7,553,650
Number of Centers contacted	207	60	90	120	238	103	30
Number of Centers refused	121	10	60	95	133	54	5
Number of Centers included	76	50	30	25	105	49	23

Main determinants of patients selection for GP assessment and interview were health care system and logistic capacities. First, GP assessments before the day of medical visit could not be done in most regions because the majority of patients appeared spontaneously without prior appointment. Second, interviews had to be conducted on the same day of medical visit in some regions out of logistic reasons. These conditions inhibited stratified sampling of patients and has led to different sampling strategies of the interviewees across the regions. Details of the strategies can be found below:							
Patient Selection							
Selecting patients for GP assessment; prerequisite in all countries: meeting eligibility criteria	all patients on a given day	all patients on a given day	40 patients per GP; assessment conducted as interview	all patients on a given day	all patients on a given day	all patients on a given day	all patients on a given day
Procedure of selecting patients for interview; prerequisite in all countries: meeting eligibility criteria and providing consent	all patients providing contact details	all patients	17 patients per GP, stratified by sex and age: 1) patients with alcohol dependence; 2) risky drinkers; 3) normal drinkers; 4) abstainers	1) all patients with alcohol problems as assessed by GP; 2) sample of general population	1) all patients with alcohol problems as assessed by GP; 2) sample of general population	1) all patients currently in treatment for AD with GP; 2) all patients with alcohol problems; 3) random subsample of the rest	all patients
Number of patients contacted for interview	1792	2608	542	539	1470	1482	2645
Number of patients refused	432	300	50	87	168	285	650
Data Collection Characteristics							
GP assessment	after consultation	after consultation	as interview during consultation	during or after consultation	before or after consultation	after consultation	after consultation
Spontaneous patients	included	included	included	included	included	excluded	included
First-time patients	included	included	included	included	excluded	excluded	included
Other Exclusion criteria	none	none	severe mental impairment that may hinder comprehension of questions	severe mental impairment that may hinder comprehension of questions	severe mental impairment that may hinder comprehension of questions	only patients for full consultation included	severe mental impairment that may hinder comprehension of questions

Qualification of
interviewer

trained students

trained
interviewers

trained GPs

trained
psychologists and
statisticians

trained interviewers

trained
interviewers

trained
sociologists

Web Appendix 2

List of questionnaire items used by general practitioners for patient assessment

Section	Content	Sample items
General		
Socio-demographics	Age, sex, ethnicity	Sex of the patient: <ul style="list-style-type: none"> ○ male ○ female
General health	Height, weight, blood pressure (systolic/diastolic), smoking	Smoking: <ul style="list-style-type: none"> ○ yes, cigarettes/day: _ _ ○ no, not in _ _ years ○ never
Main health problems	High blood pressure, diabetes, high cholesterol, coronary heart diseases, cancer, liver diseases, pain, respiratory diseases, viral infections, gastrointestinal diseases, arthrosis, depression, anxiety disorders, adiposity, migraine, sleeping disorder, other	Please check all boxes that apply: <ul style="list-style-type: none"> ○ high blood pressure ○ diabetes ○ high cholesterol
Cause for consultation	Check-up/laboratory, acute illness, prevention, chronic illness, referral, other	Please check all boxes that apply: <ul style="list-style-type: none"> ○ check-up/laboratory ○ acute illness
Alcohol Use Section		
Alcohol use, problems and clinical signs	Current alcohol use, problems with alcohol and clinical signs for AUD: breath smelling of alcohol, red eyes, elevated liver enzymes, enlarged liver, unspecific pain in the upper abdomen, morning nausea or vomiting, malnutrition, weight loss, premature aging, puffy or red face, increased sweating, red palms, history of epileptic seizures, tremor, unsteady gait, increased frequency of small accidents, bloated stomach, enlarged abdomen, muscle atrophy, other	Are there clinical signs for an AUD? <ul style="list-style-type: none"> ○ no ○ yes <ul style="list-style-type: none"> ○ breath smelling of alcohol ○ red eyes ○ elevated liver enzymes ○ enlarged liver
AUD Diagnoses	Current diagnoses <ul style="list-style-type: none"> ○ alcohol dependence ○ alcohol abuse Lifetime diagnoses: <ul style="list-style-type: none"> ○ alcohol dependence ○ alcohol abuse 	Do you believe your patient would be diagnosed with alcohol dependence? <ul style="list-style-type: none"> ○ no ○ yes
Treatment for AUD	Currently in treatment for AUD: <ul style="list-style-type: none"> ○ type of treatment 	Do you know which treatment the patient is receiving?

- location of treatment
 - reasons for no treatment
- lifetime treatment for AUD (no/yes)

- psychosocial treatment
- pharmacological treatment (specify)
- psychosocial and pharmacological treatment

Notes. AUD = Alcohol Use Disorder

Web Appendix 3

Sample characteristics by data source and sex

	Patients assessed by GP			CIDI interview ^a		
	Male (N=5,461)	Female (N=7,542)	Total (N=13,003)	Male (N=3,715)	Female (N=5,383)	Total (N=9,098)
Age Category % (CI)						
18 – 29	18.0 (17.0 - 19.0)	16.8 (16.0 - 17.7)	17.3 (16.7 - 18.0)	18.1 (16.8 - 19.3)	17.2 (16.2 - 18.2)	17.5 (16.7 - 18.3)
30 – 39	18.0 (17.0 - 19.0)	18.3 (17.4 - 19.2)	18.2 (17.5 - 18.8)	18.9 (17.6 - 20.1)	19.2 (18.1 - 20.3)	19.1 (18.3 - 19.9)
40 – 49	21.6 (20.5 - 22.7)	22.8 (21.9 - 23.8)	22.3 (21.6 - 23.0)	21.9 (20.5 - 23.2)	22.2 (21.1 - 23.3)	22.1 (21.2 - 22.9)
50 – 64	42.4 (41.1 - 43.7)	42.0 (40.9 - 43.1)	42.2 (41.3 - 43.0)	41.2 (39.6 - 42.8)	41.4 (40.1 - 42.8)	41.3 (40.3 - 42.3)
Age mean (SD)	44.5 (13.4)	44.6 (13.0)	44.5 (13.2)	44.2 (13.6)	44.3 (13.1)	44.3 (13.3)
Married or cohabiting % (CI)	NA	NA	NA	64.7 (63.2 - 66.3)	64.2 (62.8 - 65.5)	64.4 (63.4 - 65.4)
Employed % (CI)	NA	NA	NA	65.7 (64.2 - 67.3)	59.8 (58.5 - 61.1)	62.2 (61.2 - 63.2)
Unemployed % (CI)	NA	NA	NA	13.4 (12.3 - 14.5)	13.3 (12.4 - 14.2)	13.3 (12.6 - 14.0)
SES – self classified % (CI)						
Above average	NA	NA	NA	8.2 (7.3 - 9.2)	6.6 (5.9 - 7.2)	7.2 (6.7 - 7.8)
Average	NA	NA	NA	69.4 (67.9 - 70.9)	71.2 (70.0 - 72.4)	70.5 (69.5 - 71.4)
Below average	NA	NA	NA	22.4 (21.0 - 23.7)	22.3 (21.1 - 23.4)	22.3 (21.4 - 23.2)
Education in years mean (SD)	NA	NA	NA	12.6 (3.6)	12.8 (3.6)	12.7 (3.6)
BMI (GP only ^b) mean (SD)	26.6 (4.6)	25.8 (5.6)	26.2 (5.2)	26.7 (4.7)	25.9 (5.6)	26.3 (5.3)
Hypertension (GP only ^b) % (CI)	30.9 (29.7 - 32.1)	24.6 (23.7 - 25.6)	27.3 (26.5 - 28.0)	27.6 (26.1 - 29.0)	21.9 (20.8 - 23.0)	24.2 (23.3 - 25.0)

WHODAS 2.0 Number of days of inability to carry out usual activities or work due to health condition % (CI)

	NA	NA	NA	1·6 (1·4 - 1·7)	1·5 (1·3 - 1·6)	1·5 (1·4 - 1·6)
Severe distress % (CI)						
Depression or anxiety (GP ^b)	12·4 (11·5 - 13·3)	16·4 (15·5 - 17·2)	14·7 (14·1 - 15·3)	11·9 (10·8 - 13·0)	16·0 (15·0 - 17·0)	14·4 (13·6 - 15·1)
Mental distress assessed by K10 (self ^b)	NA	NA	NA	5·2 (4·5 - 6·0)	6·4 (5·7 - 7·0)	5·9 (5·4 - 6·4)
Alcohol use last 12 months (GP and self ^b) % (CI)	66·2 (64·9 - 67·6)	46·9 (45·7 - 48·1)	55·1 (54·2 - 56·0)	78·9 (77·5 - 80·2)	54·8 (53·4 - 56·1)	64·4 (63·4 - 65·4)
Currently smoking (GP and self ^b) % (CI)	38·6 (37·3 - 39·9)	26·0 (24·9 - 27·0)	31·3 (30·5 - 32·1)	38·5 (36·9 - 40·1)	27·1 (25·9 - 28·3)	31·7 (30·7 - 32·7)

Notes. CI = 95% confidence interval based on standard error. SD = standard deviation. NA = not applicable because this information has not been assessed by general practitioner. SES = socioeconomic status. BMI = Body-Mass-Index. WHODAS 2.0 = World Health Organization Disability Assessment Schedule 2. K10 = Kessler Psychological Distress Scale; cutoff for severe mental distress was 21 points in a total score range from 0 – 40.

^a Data was weighted with inverse sampling probabilities.

^b Data was derived from different sources: ‘GP’ indicates that the general practitioner has provided the answer while ‘self’ indicates that the information derives from the interviewed patient him/herself. ‘GP and self’ means that both sources of information were used for the respective sample, i.e. the ‘GP’ response is displayed for the sample assessed by the GP and the ‘self’ response is displayed for the interviewed sample.

Web Appendix 4

Logistic regression and multinomial logistic regression on diagnostic classes of alcohol dependence

	OR (95% CI), p-value		RRR (95% CI), p-value		
	Model 1: GP diagnosis vs. remaining AD diagnoses	Model 2: GP diagnosis vs. remaining AD diagnoses	Model 3 (multinomial logistic regression): No AD diagnosis (base) vs. AD diagnosis by		
			only GP	only CIDI	GP & CIDI
Logistic regression (different models) with predictors as follows:	N=622	N=619	N=6,728		
Sex	0.77 (0.49 - 1.21), .260	0.69 (0.43 - 1.13), .142	0.43 (0.31 - 0.58), < .0001*	0.42 (0.31 - 0.58), < .0001*	0.22 (0.13 - 0.37), < .0001
Age	1.07 (1.05 - 1.09), < .0001°	1.06 (1.04 - 1.08), < .0001°	1.02 (1.01 - 1.04), .0005*	0.97 (0.95 - 0.98), < .0001*	1.02 (1.00 - 1.04), .041
Unemployment	3.62 (2.12 - 6.04), < .0001°	3.44 (1.90 - 6.21), < .0001°	3.47 (2.52 - 4.78), < .0001*	1.21 (0.81 - 1.81), .351	3.27 (1.97 - 5.42), < .0001
Socioeconomic status below average (self-reported)	1.06 (0.67 - 1.67), .804	0.92 (0.53 - 1.59), .765	1.50 (1.11 - 2.04), .0081	1.25 (0.90 - 1.73), .182	1.48 (0.91 - 2.41), .111
Number of years spent in education	0.87 (0.81 - 0.93), < .0001°	0.87 (0.81 - 0.95), .0009°	0.95 (0.91 - 0.99), .012	1.05 (1.01 - 1.09), .011	0.95 (0.89 - 1.02), .148
WHODAS sum score	1.01 (0.99 - 1.02), .460	1.00 (0.98 - 1.03), .947	1.00 (0.99 - 1.01), .737	1.01 (0.99 - 1.02), .343	1.01 (0.99 - 1.02), .255
K10 sum score	0.98 (0.95 - 1.01), .147	1.00 (0.96 - 1.05), .819	1.02 (1.00 - 1.05), .071	1.07 (1.04 - 1.09), < .0001*	1.07 (1.04 - 1.11), < .0001
Daily amount of ethanol intake in g	1.00 (0.99 - 1.00), .780	1.01 (1.00 - 1.01), .124	1.03 (1.03 - 1.04), < .0001*	1.04 (1.03 - 1.04), < .0001*	1.04 (1.03 - 1.05), < .0001
Number of days with at least 60g of ethanol	1.03 (0.98 - 1.08), .285	1.06 (0.98 - 1.14), .122	1.08 (1.02 - 1.15), .007	1.08 (1.02 - 1.14), .0066	1.09 (1.02 - 1.16), .0073
Hypertension (assessed by GP)	2.35 (1.42 - 3.87), .0009°	1.76 (1.03 - 2.99), .040	1.58 (1.16 - 2.16), .0039	0.73 (0.48 - 1.11), .143	1.23 (0.77 - 1.97), .373
Liver problems (assessed by GP)	20.31 (5.45 - 75.75), < .0001°	29.73 (6.49 - 136.31), < .0001°	10.20 (6.54 - 15.92), < .0001*	0.61 (0.19 - 1.97), .411	10.45 (5.74 - 19.03), < .0001

Anxiety (assessed by GP)	0.77 (0.48 - 1.25), .291	0.83 (0.47 - 1.46), .520	1.38 (0.92 - 2.07), .124	1.92 (1.29 - 2.86), .0013*	2.40 (1.34 - 4.30), .0031
Depression (assessed by GP)	1.04 (0.52 - 2.07), .941	1.36 (0.62 - 2.97), .444	1.23 (0.75 - 2.04), .413	0.92 (0.53 - 1.61), .780	1.32 (0.70 - 2.47), .387
DSM-V criterion 1 (AD) Alcohol is taken longer or more	-	0.38 (0.21 - 0.68), .0013°	-	-	-
DSM-V criterion 2 (AD) Desire to cut down or control AU	-	0.21 (0.12 - 0.36), < .0001°	-	-	-
DSM-V criterion 3 (AD) A lot of time spent on effects of AU	-	0.36 (0.18 - 0.75), .0062	-	-	-
DSM-V criterion 4 (new AUD) Craving	-	1.69 (0.73 - 3.91), .220	-	-	-
DSM-V criterion 5 (AA) Failure to meet role obligations	-	0.78 (0.39 - 1.54), .467	-	-	-
DSM-V criterion 6 (AA) Not quitting use despite social problems	-	5.53 (1.87 - 16.38), .0021°	-	-	-
DSM-V criterion 7 (AD) Reduced/given up activities	-	0.72 (0.28 - 1.84), .492	-	-	-
DSM-V criterion 8 (AA) AU in hazardous situations	-	0.39 (0.18 - 0.84), .016	-	-	-
DSM-V criterion 9 (AD) Continued AU despite physical/psychol. problem	-	0.80 (0.37 - 1.71), .565	-	-	-
DSM-V criterion 10 (AD) Tolerance	-	0.79 (0.39 - 1.60), .508	-	-	-
DSM-V criterion 11 (AD) Withdrawal	-	0.81 (0.33 - 1.97), .646	-	-	-