EPIDEMIOLOGY

Heavy Episodic Drinking in Europe: A Cross Section Study in Primary Care in Six European Countries

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Abstract — Aims: We examined the prevalence of heavy episodic drinking in general practice attenders who were non-hazardous drinkers, the associated risk factors and the outcome over 6 months. **Methods**: Consecutive attenders aged 18–75 were recruited from the UK, Spain, Slovenia, Estonia, the Netherlands and Portugal and followed up after 6 months. Data were collected on alcohol use using the Alcohol Use Disorder Identification test (at recruitment and 6 months) and risk factors for heavy episodic alcohol use at recruitment. **Results**: The prevalence of heavy episodic drinking in non-hazardous drinkers was 4.5% across Europe [lowest in Portugal (1.5%); highest Netherlands (8.4%)]. It was less frequent in Spain, Slovenia, Estonia and Portugal compared with the UK and Netherlands. It was higher in men [odd ratio (OR) 4.4, 95% confidence interval (CI) 3.3, 5.9], people between 18 and 29 years of age, those employed (OR 1.8, 95% CI 1.3, 2.6) and those using recreational drugs (OR 2.1, 95% CI 1.4, 3.3). It was lower in people with existing DSMIV major depression (OR 0.54, 95% CI 0.31, 0.96). Heavy episodic drinkers were more likely to become hazardous drinkers at 6 months (male: OR 7.2, 95% CI 4.1, 12.7; female: OR 9.4, 95% CI 4.3, 20.6). **Conclusion**: Women and men in the UK, men in the Netherlands and younger people in all countries are at the greatest risk of exhibiting heavy episodic drinking behaviours even in the absence of hazardous alcohol use. There is hence an urgent need for general practitioners to consider early detection and management of heavy episodic drinking behaviour in this population.

BACKGROUND

Alcohol consumption in Europe is associated with high mortality rates (Her and Rehm, 1998) and accounts for over 3% of the overall burden of disease (Rehm *et al.*, 2005). Marketing forces, lower costs of alcohol, changes in public perception of alcohol use and lack of consistent public health policies have led to altered drinking patterns across the continent (Gual and Colom, 1997; Lehto, 1997; Bloomfield *et al.*, 2003; ESEMeD Project, 2004; Rehm *et al.*, 2005).

Heavy episodic drinking (i.e. excessive episodes of drinking together with or without hazardous alcohol use) in particular is on the increase across the world. Population estimates from the USA have reported levels of 10.7% in women and 24.7% in men (Banta *et al.*, 2008) and these can be as high as 30% in women and 42% in men attending sexually transmitted infection clinics (Hutton *et al.*, 2008). Men are more likely to engage in this behaviour than women (Harrell and Karim, 2008), but there is evidence that this gender gap is closing in younger people (Abbott-Chapman *et al.*, 2008; Keyes *et al.*, 2008). There is little information on the prevalence of heavy episodic drinking behaviour in the absence of hazardous alcohol use and even less is known on whether this can lead to more hazardous alcohol use or even alcohol dependence.

There is no internationally agreed definition of heavy episodic (also known as binge) drinking but consumption of six or more drinks (double the maximum safe limit) on a single occasion at least monthly is considered to carry significant risk of harm. This includes accidents, injuries and an increased risk of heart disease (Gmel *et al.*, 2003). There are limited data on heavy episodic drinking rates in the UK and Europe (Kuntsche *et al.*, 2004). The three UK-government-

funded national studies on heavy episodic drinking each of which adopted different definitions have reported markedly different prevalence rates (McAlaney and McMahon, 2006).

Screening for harmful alcohol consumption using standardized instruments such as the WHO's AUDIT (the Alcohol Use Disorder Identification test) (Babor *et al.*, 2001) is commonly done in general practice. People identified as hazardous drinkers are then offered brief alcohol interventions and it is assumed that those not screening positive are safe drinkers. In this study, we tried to gain a better understanding of heavy episodic drinking in people identified as non-hazardous drinkers on the AUDIT. We used all the baseline and some of the 6 month follow-up data from the predict D family practice cohort of attenders in six European countries (King *et al.*, 2006, 2008) to examine the prevalence of heavy episodic drinking in non-hazardous drinkers, the associated risk factors and observed outcome over 6 months.

METHODS

Design/setting

We conducted a prospective study in which consecutive general practice attendees aged 18–75 were recruited between April 2003 and September 2004 from the UK, Spain, Slovenia, Estonia, the Netherlands and Portugal and followed up after 6 months (King *et al.*, 2006). We recruited 27 general practices in the Medical Research Council's General Practice Research Framework, distributed across the UK; 9 large primary care centres in Andalucía, Southern Spain; 82 general practices distributed nationwide in Slovenia; 23 general practices distributed nationwide in Estonia; 6 large general practice centres near Utrecht, The Netherlands; two large primary

care centres in urban and rural areas of Portugal that include 25 general practitioners. Participants attending these practices gave informed consent for an interview at their home or the general practice within 2 weeks. In the UK and the Netherlands, researchers approached people in the waiting room before they saw their doctor but in the other four countries the general practitioners asked people to participate before they met the researcher.

We used all the data collected from predict D at baseline and a subset of the information collected at 6 months. The 6 months data used in this study were data on the WHO's AUDIT.

Measures of alcohol use and other factors at baseline

Data on alcohol use as defined by the WHO's AUDIT were collected at recruitment and after 6 months. The World Health Organization's AUDIT has been validated for screening across a wide range of countries and cultures and has a Test–retest reliability of 0.86 (Babor *et al.*, 2001). Heavy episodic drinking was assessed from responses to the third question of the AUDIT. This enquired about the consumption of 'six or more drinks on one occasion' at least every month (Gmel *et al.*, 2003; Miller *et al.*, 2004). Total AUDIT scores of 8 or more were classed as hazardous drinking.

Data were also collected on a number of potential risk factors for harmful alcohol use (Macciardi *et al.*, 1999; Booth *et al.*, 2000; Cheng *et al.*, 2004). These were:

- Demographic variables: age, sex, marital status, educational level, owner occupier accommodation, being in paid employment and living alone or with others.
- A DSM-IV diagnosis of major depression (over 6 months) according to the depression section of the Composite International Diagnostic Interview (CIDI) (Robins *et al.*, 1988; World Health Organisation, 1997). Those detected by the CIDI with major depression were informed about their diagnosis and encouraged to seek help from their general practitioners.
- A life-time screen for depression based on the first two questions of the CIDI. People answering yes to both questions screened positive (Arroll *et al.*, 2003).
- Anxiety and panic symptoms in the previous 6 months using the relevant sections of the Patient Health Questionnaire (Spitzer *et al.*, 1999).
- Past history of an alcohol problem or treatment for an alcohol problem.
- Controls, demands and rewards for work were estimated by an adapted version of the work content instrument (Karasek and Theorell, 1990). Participants were categorized as experiencing difficulties without support in paid or unpaid work; and experiencing distress without being respected for their paid or unpaid work.
- Physical and mental well-being were assessed by the Short Form 12 (Jenkinson *et al.*, 1997). Higher scores are indicative of greater well being.
- Participants were asked whether or not they had a long-standing physical illness or disability. This information was not corroborated through a screen of the participants' notes.
- Use of recreational drugs at least once in the past was recorded using relevant questions adapted from the CIDI.

- Difficulties in getting on with people and maintaining close relationships were assessed using two questions from a social functioning scale (Tyrer, 1990).
- History of serious psychological and emotional problems and suicide in first-degree relatives (Qureshi *et al.*, 2005), as well as disabilities and serious problem with recreational drug and alcohol among in general close people.
- Major life events in the preceding 6 months, using the List of Threatening Life Experiences Questionnaire (Brugha *et al.*, 1985).
- Childhood experiences of physical and/or emotional and sexual abuse were assessed using three screening questions (Fink *et al.*, 1995).
- Number of general practice (GP) consultations in the preceding 6 months.

Statistical analysis

All statistical analyses were undertaken in Stata Release 10.1. Participants with one or more missing responses to any of the AUDIT questions were excluded. The prevalence of heavy episodic drinking at baseline was described by age, gender, marital status, employment, accommodation owned, living status and educational level of the population in each country and on the whole sample. We used multivariate analyses to assess the association between heavy episodic drinking and potential risk factors overall and within each country. Prevalence odds ratios (ORs) were estimated using a mixed effect logistic regression model to account for clustering on general practices. We used random effect logistic regression to model prevalence ORs in countries with more than 20 clusters and 30 observations per cluster and in other countries we used a fixed effect logistic regression with robust standard error (Heck and Thomas, 2000).

Descriptive data on drinking habits at 6 months were obtained and the risk of becoming a hazardous or dependent drinker was computed separately in men and women across all six countries using random effects logistic regression model with adjustment for age, country and being a heavy episodic drinker at baseline.

RESULTS

Fifty-nine per cent of attendees approached agreed to participate, ranging from 44 and 45% in the UK and the Netherlands respectively to 87% in Spain (King *et al.*, 2006). Data were available for 7193 participants, 97 (1.3%) could not be classified as heavy episodic or hazardous drinkers because of missing data. Of the 7096 with complete data, 2099 (29.6%) had not drunk alcohol in the previous 6 months, 4415 (62.2%) were normal drinkers (AUDIT score less than 8) and 582 (8.2%) were either hazardous or dependent drinkers who were excluded from further analyses. Women made up two-thirds of participants. Data on 6514 participants to include 4583 (70.4%) women and 1931 (29.6%) men were used in the final analyses. There were various socio-demographic differences between the participants in the six countries (Table 1).

Table 1. Prevalence rates by various socio-demographic characteristics

Characteristics	UK			Spain			Slovenia			Estonia			Netherlands			Portugal			Total		
	Number of heavy episodic drinkers	Total	(%)	Number of heavy episodic drinkers	Total	(%)	Number of heavy episodic drinkers	Total	(%)	Number of heavy episodic drinkers	Total	(%)	Number of heavy episodic drinkers	Total	(%)	Number of heavy episodic drinkers	Total	(%)	Number of heavy episodic drinkers	Total	(%)
Overall	93	1146	8.1	27	1193	2.3	39	1057	3.7	30	955	3.1	89	1043	8.4	17	1120	1.5	295	6514	4.5
Age																					
18–29	16	82	19.5	8	154	5.2	8	125	6	8	259	3	35	135	26	4	134	3	79	889	9
30–49	42	376	11.2	11	384	2.9	19	402	5	12	385	3	29	359	8	9	398	2	122	2304	5
50+	35	688	5	8	655	1.2	12	530	2	10	311	3	25	549	5	4	588	1	94	3321	3
Sex																					
Male	32	358	8.9	21	331	6.3	31	353	9	16	205	8	57	351	16	12	333	4	169	1931	9
Female	61	788	7.7	6	862	0.7	8	704	1	14	750	2	32	692	5	5	787	1	126	4583	3
Marital status																					
Not married/living partner	33	283	11.7	12	360	3.3	10	305	3	10	311	3	34	263	13	5	305	2	104	1827	6
Married/living partner	60	862	7	15	832	1.8	29	749	4	20	644	3	52	766	7	12	814	1	188	4667	4
Missing	0	1	0.0	0	1	0.0	0	3	0	0	0	0	3	14	21	0	1	0	3	20	15
Employment status																					
Full time employed/student	61	565	10.8	23	402	5.7	32	567	6	20	692	3	70	556	13	13	529	2	219	3311	7
Retired	12	313	3.8	3	188	1.6	5	382	1	5	142	4	3	141	2	2	310	1	30	1476	2
Other	20	268	7.5	1	602	0.2	2	101	2	5	121	4	10	314	3	2	280	1	40	1686	2
Missing	0	0	0	0	1	0.0	0	7	0	0	0	0	6	32	19	0	1	0	6	41	15
Accommodation owned																					
Yes	68	911	7.5	22	1041	2.1	35	945	4	24	798	3	45	629	7	13	814	2	207	5138	4
No	25	234	11	5	150	3.3	4	104	4	6	157	4	40	387	10	4	302	1	84	1334	6
Missing	0	1	0.0	0	2	0.0	0	8	0	0	0	0	4	27	15	0	4	0	4	42	10
Living status																					
Not alone	78	997	7.8	27	1117	2.4	36	929	4	28	852	3	70	855	8	16	1030	2	255	5780	4
Alone	15	149	10.1	0	76	0.0	3	128	2	2	103	2	19	188	10	1	90	1	40	734	5
Educational level																					
None	2	26	8	12	791	1.5	8	241	3	7	111	6	1	77	1	10	735	1	40	1981	2
Any	90	1099	8.2	15	402	3.7	31	816	4	23	844	3	88	940	9	7	385	2	254	4486	6
Missing	1	21	5	0	0	0.0	0	0	0	0	0	0	0	26	0	0	0	0	1	47	2

Prevalence of heavy episodic drinking

Overall 295 (4.5%) of the non-hazardous drinkers reported heavy episodic drinking. This was lowest in Portugal (17, 1.5%) and highest in the Netherlands (89, 8.4%). The majority were men 169 (57.3%), 122 (41%) were between 30 and 49 years of age, 219 (76%) were in current employment, 207 (71%) owned they own accommodation and 40 (14%) lived on their own. There were significant differences in levels of heavy episodic drinking between countries in term of age and sex but not in terms of marital and living status, educational level and accommodation type. Of the 126 (3%) women reporting heavy episodic drinking, nearly half were from the UK (61, 7.7%) and only five (1.0%) were from Portugal. The level in the 18 to 29-year-old group was high (9%) compared with those over 50 years of age, with the highest rates in the Netherlands (35, 26%) and lowest in Portugal (4, 3%) (Table 1).

Associations with heavy episodic drinking on multivariable analysis

On multivariable analysis, country, age, sex, employment, the absence of major depression, physical health score and use of recreational drugs were associated with heavy episodic drinking (Table 2). The prevalence in Spain, Slovenia, Estonia and Portugal was significantly lower than the UK and the Netherlands. The odds of heavy episodic drinking was more than four times greater in men when compared with women and about three times higher in people between 18 and 29 years when compared with people older than 50 years of age (Table 2).

Country-specific associations on multivariate analyses

Individual country analysis found that heavy episodic drinking was more likely to occur in men rather than women in all countries but the UK. Further, in the UK, being 50 years of age or younger, the presence of panic syndromes, lower general practice consultation rates and lower emotional functioning on SF 12 was associated with heavy episodic drinking. In Slovenia and Spain, it was associated with being

employed; in Portugal with other anxiety disorders and in the Netherlands with increasing age and high physical functioning on the SF 12 (Table 3).

Hazardous drinking after 6 months

Complete data at 6 month were available on 258 of the heavy episodic drinkers and 5766 of all study participants. Of the 258 heavy episodic drinkers, 42 (16%) had become hazardous drinkers at 6 months (Table 4) and of the remaining 5508 drinkers 73 (1.3%) became hazardous drinkers. Most of the hazardous drinkers at 6 months were from the UK (36, 31%) and the Netherlands (30, 26%) with a predominance of men (74, 64%).

Multivariable analyses stratified by sex indicated that heavy episodic drinking at baseline was predictive of hazardous drinking in both men and women. Additionally, younger women and those from the Netherland and the UK were more likely to become hazardous drinkers at 6 months (Table 5).

DISCUSSION

Main findings

To our knowledge, this study is the first to make a direct comparison of heavy episodic drinking habits in non-hazardous drinkers attending family doctors in Europe. Overall, the prevalence was 4.5% across Europe with the lowest rates in Portugal (1.5%) and the highest in the Netherlands (8.4%). Heavy episodic drinking was less likely to be reported in Spain, Slovenia, Estonia and Portugal in comparison with the UK and the Netherlands. In all countries but the UK, it was more common in men. Heavy

Table 2. Multivariate models—associations with heavy episodic drinking

Heavy episodic drinking	OR	SD	P-value	OR 95% CI	
UK	1				
Spain	0.21	0.07	<0.001	0.11	0.40
Slovenia	0.30	0.08	<0.001	0.18	0.49
Estonia	0.27	0.08	<0.001	0.16	0.47
Netherlands	0.89	0.25	0.68	0.52	1.53
Portugal	0.14	0.06	<0.001	0.06	0.34
18–29 years	1.00				
30–49 years	0.74	0.14	0.12	0.51	1.08
50+ years	0.37	0.08	<0.001	0.24	0.58
Female	1				
Male	4.38	0.65	<0.001	3.27	5.85
Unemployed	1				
Employed	1.81	0.33	<0.001	1.27	2.58
No major depression	1				
Major depression	0.54	0.16	0.04	0.31	0.96
SF12– Physical Health Score	1.02	0.01	0.02	1.00	1.04
No drug consumption	1				
Drug consumption	2.14	0.46	<0.001	1.40	3.26

Table 3. Multivariate models—associations with heavy episodic drinking by country

Heavy episodic drinking	OR	SD	P-value	OR 95% CI	
Random effect					
UK					
18–29 years	1.00				
30–49 years	0.81	0.33	0.60	0.36	1.81
50+ years	0.40	0.18	0.04	0.16	0.96
SF 12– Mental Health Score	0.97	0.01	0.03	0.94	1.00
Panic syndrome	4.18	1.95	<0.001	1.67	10.45
No. of consultations	0.92	0.04	0.04	0.84	1.00
Slovenia					
Male	9.76	4.67	<0.001	3.82	24.91
Employed	3.84	2.37	0.03	1.15	12.86
Estonia					
Male	4.50	2.10	<0.001	1.80	11.26
Fixed effect					
Spain					
Male	15.20	9.48	<0.001	4.48	51.60
Employed	10.98	8.34	<0.001	2.48	48.66
Netherlands					
Male	9.23	3.40	<0.001	4.49	18.98
18–29 years	1.00				
30–49 years	0.24	0.11	<0.001	0.10	0.57
50+ years	0.09	0.05	<0.001	0.03	0.26
SF 12– Physical Function Score	1.04	0.02	0.05	1.00	1.08
Portugal					
Male	9.73	7.65	<0.001	2.08	45.44
Other anxiety disorder	29.90	38.46	0.01	2.40	372.21

Table 4. Drinking habits of all participants at 6 M

Country	Sex	Heavy episodic drinkers at baseline– outcome at 6 months				Non-heavy episodic drinkers at baseline– outcome at 6 months			
		Non-heavy episodic drinkers (%)	Heavy episodic drinkers (%)	Hazardous (%)	Total	Non-heavy episodic drinkers (%)	Heavy episodic drinkers (%)	Hazardous (%)	Total
UK									
	Female	23 (44.2)	20 (38.5)	9 (17.3)	52	598 (95.4)	19 (3)	10 (1.6)	627
	Male	13 (46.4)	8 (28.6)	7 (25)	28	269 (94.4)	6 (2.1)	10 (3.5)	285
	Total	36 (45)	28 (35)	16 (20)	80	867 (95.1)	25 (2.7)	20 (2.2)	912
Spain									
	Female	3 (60)	1 (20)	1 (20)	5	684 (99.4)	0 (0)	4 (0.6)	688
	Male	12 (66.7)	3 (16.7)	3 (16.7)	18	227 (95.4)	7 (2.9)	4 (1.7)	238
	Total	15 (65.2)	4 (17.4)	4 (17.4)	23	911 (98.4)	7 (0.8)	8 (0.9)	926
Slovenia									
	Female	5 (71.4)	2 (28.6)	0 (0)	7	639 (99.4)	3 (0.5)	1 (0.2)	643
	Male	19 (67.9)	7 (25)	2 (7.1)	28	276 (94.2)	9 (3.1)	8 (2.7)	293
	Total	24 (68.6)	9 (25.7)	2 (5.7)	35	915 (97.8)	12 (1.3)	9 (1)	936
Estonia									
	Female	12 (92.3)	1 (7.7)	0 (0)	13	689 (98.6)	3 (0.4)	7 (1)	699
	Male	10 (66.7)	4 (26.7)	1 (6.7)	15	163 (91.6)	6 (3.4)	9 (5.1)	178
	Total	22 (78.6)	5 (17.9)	1 (3.6)	28	852 (97.1)	9 (1)	16 (1.8)	877
Netherlands									
	Female	14 (48.3)	12 (41.4)	3 (10.3)	29	576 (96.6)	15 (2.5)	5 (0.8)	596
	Male	16 (30.2)	23 (43.4)	14 (26.4)	53	250 (92.9)	11 (4.1)	8 (3)	269
	Total	30 (36.6)	35 (42.7)	17 (20.7)	82	826 (95.5)	26 (3)	13 (1.5)	865
Portugal									
	Female	4 (100)	0 (0)	0 (0)	4	701 (99.7)	1 (0.1)	1 (0.1)	703
	Male	3 (50)	1 (16.7)	2 (33.3)	6	278 (96.2)	5 (1.7)	6 (2.1)	289
	Total	7 (70)	1 (10)	2 (20)	10	979 (98.7)	6 (0.6)	7 (0.7)	992
Overall									
	Female	61 (55.5)	36 (32.7)	13 (11.8)	110	3887 (98.3)	41 (1)	28 (0.7)	3956
	Male	73 (49.3)	46 (31.1)	29 (19.6)	148	1463 (94.3)	44 (2.8)	45 (2.9)	1552
	Total	134 (51.9)	82 (31.8)	42 (16.3)	258	5350 (97.1)	85 (1.5)	73 (1.3)	5508

Table 5. Multivariable model—risk of hazardous drinking at 6 month stratified by sex

Risk of hazardous drinking at 6 months	OR	SD	$P > z$	OR 95% CI	
Female					
18–29 years	1				
30–49 years	0.50	0.20	0.08	0.23	1.10
50+ years	0.30	0.14	0.01	0.12	0.73
UK	1				
Spain	0.34	0.19	0.06	0.11	1.03
Slovenia	0.07	0.07	0.01	0.01	0.53
Estonia	0.35	0.18	0.04	0.13	0.94
Netherlands	0.44	0.22	0.10	0.16	1.15
Portugal	0.07	0.08	0.02	0.01	0.61
Non-heavy episodic drinking at baseline	1				
Heavy episodic drinking at baseline	9.36	3.75	<0.001	4.27	20.51
Male					
18–29 years	1				
30–49 years	0.96	0.38	0.93	0.45	2.08
50+ years	0.71	0.27	0.37	0.33	1.51
UK	1				
Spain	0.52	0.33	0.30	0.15	1.81
Slovenia	0.52	0.26	0.20	0.19	1.40
Estonia	1.04	0.57	0.94	0.36	3.05
Netherlands	1.02	0.61	0.97	0.31	3.31
Portugal	0.84	0.71	0.84	0.16	4.39
Non-heavy episodic drinking at baseline	1				
Heavy episodic drinking at baseline	7.15	2.10	<0.001	4.01	12.72

episodic drinking was predictive in both sexes of hazardous drinking at 6 months.

Strengths and limitations

The large numbers of participants allowed for precise estimates for several associations. Our study explores an under-researched field of heavy episodic drinking in people not otherwise using alcohol hazardously. We reported lower rates of heavy episodic drinking primarily because we focused on the prevalence of heavy episodic drinking behaviour in general practice attenders who were not exhibiting hazardous alcohol behaviour. Other studies have reported heavy episodic drinking behaviour irrespective of whether the person is using alcohol hazardously or not. There are hence, no similar comparative data against which we can measure the level of the problem as described in this study. Additionally, we adopted a stringent definition of heavy episodic drinking of six or more drinks at least once a month. There are international variations in this definition, several are set lower at 4–5 alcohol drinks per heavy episode (Aalto *et al.*, 2009). Moreover, there may be variation between countries and from one person to another in each country on the size of the drink consumed. Lastly, most studies on heavy episodic drinking have focused on high-risk populations such as students or young people (Sun *et al.*, 2003; Hartley *et al.*, 2004; Bersamin *et al.*, 2005; Dantzer *et al.*, 2006). We included a culturally and geographically diverse group of European countries, recruited people across a wide age range and used validated, standardized instruments. The low levels of heavy episodic drinkers, however, in some countries placed limitation on the power of the analyses done in individual countries. The lower recruitment rates in the UK and the Netherlands when compared with those in the other four countries may have occurred because the study

was not so obviously introduced by the doctors. This could have led to selective sampling of attenders in the UK and the Netherlands since very high levels of heavy episodic drinking behaviours were reported in both countries. There is, however, little evidence to suggest that people partaking of heavy episodic drinking behaviours were more likely to proactively take part in research.

Although, our data are restricted to general practice attendees, we found little evidence in this sample in all countries but the UK that heavy episodic drinkers consulted their general practitioner more often than normal or abstinent drinkers. This suggests that our prevalence rates in these five countries might mirror the rates observed in the community. Our prospective data were limited to one 6 month follow up after recruitment and it is possible that transitions between normal, heavy episodic and hazardous drinking are more complex and bidirectional than our data suggest.

Heavy episodic drinking across the six European countries was more frequent in young men or women who were financially independent. It was higher in attendees from the Netherlands and the UK when compared with other countries. In the UK, women engaged in heavy episodic drinking to the same extent as men. Other research has highlighted the predominance of heavy episodic drinking behaviour in men (Harrell and Karim, 2008) and hence, it is of great concern that these differences between the sexes are lost in the UK. Although, data from the USA have suggested that the gender gap on heavy episodic drinking behaviour is closing, this was restricted to young student population (Abbott-Chapman et al., 2008; Keyes et al., 2008). We found high levels among UK female attendees up to the age of 50 years.

Implications

Heavy episodic drinking in women in the UK and men in the Netherlands gives considerable cause for concern, given the immediate problems that may arise directly from it. This includes accidents and relationship difficulties (Wechsler et al., 1994; Savola et al., 2005) the potential impact on the foetus in women who may become or who are pregnant (Ramadoss et al., 2006; Williams and Ross, 2007) and the long-term potential to develop into hazardous alcohol use. We need to explore the cultural forces that place people at risk of heavy episodic and hazardous drinking in Europe, and further research is required on early detection and management of heavy episodic drinking behaviour in the general practice setting.

The screening of general practice attendees using the AUDIT is now commonplace. Our data would suggest that general practitioners should focus on the early detection of heavy episodic drinkers not routinely picked up as hazardous alcohol users on the AUDIT as their risk of becoming hazardous drinker over 6 months is exceedingly high. Particular attention should be paid to men and those between the ages of 18 and 29. In the UK, however, both sexes merit equal attention. Further research on the effectiveness of early identification and prevention of hazardous alcohol use in this population is needed.

CONCLUSIONS

Women and men in the UK, men in the Netherlands and younger people in all countries are at the greatest risk of exhibiting heavy episodic drinking behaviours even in the absence of hazardous alcohol use. However, this can lead to hazardous drinking over 6 months and hence there is an urgent need for research on its early detection and management in general practice.

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