

**Table 2.38. Case-control studies of consumption of alcoholic beverages and breast cancer**

Reference, study location, period	Characteristics of cases	Characteristics of controls	Exposure assessment	Exposure categories	Relative risk (95% CI)	Adjustment factors	Comments
Kruk (2007), Poland; 1999-2006	858 identified through cancer registry and had a surgical procedure; 100% histologically confirmed; aged 28-78 years; response rate 74%	1085 hospital-based (patients attending a health check, or inpatients with non-malignant disease); matched by age, place of residence; response rate 69%	Self-reported questionnaire	<i>Alcohol intake (drinks/week)</i>  Never ≤1 ≥2 p for trend	<i>Premenopausal (n=308)</i> 1.0 0.82 (0.59-1.14) 1.66 (0.90-3.05) 0.28  <i>Postmenopausal (n=545)</i> 1.0 1.13 (0.87-1.45) 2.07 (1.57-4.66) 0.002	Age, physical activity, breastfeeding, stress, passive smoking	Risk was stronger among postmenopausal women than premenopausal women, but the test for interaction between alcohol drinking and menopausal status was not statistically significant; low intake range
Terry <i>et al.</i> (2007), Breast Cancer Family Registry (multisite: USA, Canada, Australia), 1995	811 through population-based cancer registries and from clinical and community settings	811 sister controls (unaffected with breast cancer)	Self-reported questionnaire	<i>Alcohol intake (drinks/week)</i> None <7 ≥7	1.0 0.91 (0.73-1.14) 0.85 (0.63-1.14)	Age	No significant difference by menopausal status
Beji & Reis (2007), Turkey, 2002-03	405 identified as outpatients in Breast Cancer Clinic, aged 28-72 years; 100% histologically confirmed; response rate not stated	1050 hospital-based (outpatients of other departments with non-malignant, non-endocrine or non-gynaecological disease, and relatives of the cases); no participants refused	Interviewer-administered questionnaire	<i>Alcohol use</i> Never Ever	1.0 3.87 (1.79-8.37)	Education, body mass index, history of diabetes or hypertension, age at first birth, breastfeeding, age at menarche, oral contraceptive use, hormone-replacement therapy use, family history of endometrial cancer	

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Bessaoud & Daurès (2008), France, 2002-04	437 identified through hospital and surgical records, aged 25–85 years; 100% histologically confirmed; response rate 91%	922 population-based (electoral roll); matched by age, area; response rate 72%	Interviewer-administered questionnaire	<i>Pattern of intake</i> Never Sporadic Frequent  <i>Intake (g/d)</i> None ≤5 5–≤10 10–≤15 ≥15  per 10 g/d	1.0 1.03 (0.62–1.71) 0.75 (0.40–1.41)  1.0 0.75 (0.20–2.88) 0.36 (0.10–1.53) 0.21 (0.10–0.91) 0.97 (0.23–4.10)  0.94 (0.75–1.17)	Education, parity, breastfeeding, age at first birth, duration of ovulatory activity, body mass index, physical activity, family history, cereal intake, meat intake, olive oil intake, energy intake, duration of alcohol intake	Low numbers of cases in higher intake categories; no significant difference by beverage type (but mostly wine drinkers); significant negative association for women with a frequent intake of 10–12 g/d wine versus non wine-drinkers and no significant association above 12 g/d intake (but based on a small subgroup); no difference by hormone replacement therapy use
Berstad <i>et al.</i> (2008), LA County Cancer Surveillance Program, 1998–2003 [update of Ma <i>et al.</i> (2006)]	1728 invasive cases identified through County Surveillance Program, aged 20–49 years; 100% histologically confirmed; response rate 62%	435 population-based (neighbourhood walk algorithm), matched by age, race to a subset of cases diagnosed 2000–03; response rate 74%	Interviewer-administered questionnaire	<i>Intake in last 5 years (drinks/week)</i> Never <3 3–6 7–14 ≥15 p for trend  <i>Lifetime intake (drinks/week)</i> Never <3 3–6 ≥7 p for trend	1.0 1.06 (0.80–1.42) 1.05 (0.73–1.53) 1.36 (0.82–2.24) 1.82 (1.01–3.28) 0.04  1.0 1.09 (0.84–1.41) 0.97 (0.68–1.39) 1.26 (0.81–1.96) 0.50	Age, race, education, family history, age at menarche, parity, age at first birth, breastfeeding, smoking, body mass index	No association for intake 15–20 years of age or total lifetime intake; no significant difference by beverage type, race, education, parity, age, age at menarche, age at first birth, breastfeeding, smoking, body mass index, or family history

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Kocić <i>et al.</i> (2008) Serbia, years of recruitment not stated	120 cases identified through hospital records, aged 30-69 years; histological confirmation not stated; response rate not stated	120 hospital-based (with non-occupational accidental injuries, no benign breast disease), matched by age; response rate not stated	Interview-administered questionnaire	<i>Alcohol intake</i> No Yes	1.0 4.8 (1.9-12.4)	Age at first birth, breastfeeding, height, body mass index, passive smoking, physical activity, family history, maternal death in childhood	No data available on dose-response relationship
Newcomb <i>et al.</i> (2009), Collaborative Breast Cancer Study, Wisconsin and New Hampshire, USA, 1995-2000; data also included in Sprague <i>et al.</i> (2008)	6327 invasive cases identified through cancer registries; aged 20-69 years; histological confirmation not stated; response rate 80%	7558 population-based (drivers' license for aged <65 years, and Medicare beneficiaries for women aged 65-69 years); matched by age, region; response rate 76%	Interview-administered questionnaire (telephone)	<i>Recent alcohol intake (drinks/week)</i> None <1 1-3.4 3.5-6.9 7-13.9 ≥14 p for trend  Per 1 drink Per 1 drink v Per 1 drink	1.0 0.94 (0.85-1.04) 0.99 (0.88-1.10) 1.02 (0.91-1.17) 1.11 (0.97-1.28) 1.24 (1.03-1.49) 0.003  1.01 (1.00-1.02) <i>Premenopausal</i> 1.00 (0.99-1.01) <i>Postmenopausal</i> 1.02 (1.01-1.03)	Age, region, body mass index, education, family history, age at menarche, age at menopause, age at first birth, parity, menopausal status, hormone-replacement therapy use, wine, beer and spirit consumption	Significant interaction by menopausal status (p=0.05), with stronger association in postmenopausal than premenopausal women; no significant difference by beverage type, although slightly stronger association in postmenopausal women for intake of spirits; wine intake not associated with risk, with no difference between red or white wine

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Dolle <i>et al.</i> (2009), USA, 2 case-control studies in Seattle, 1983-1992	897 invasive cases; recruited 1983-1992; aged 21-45 years; response rate 83% and 86% in the two studies	1569 population-based (random digit-dialling), matched by age; response rate 71% and 76% in the two studies	Interviewer-administered questionnaire	<i>Alcohol use (drinks/week)</i> None or <1 1-2 ≥3 p for trend	1.0 1.0 (0.7-1.3) 1.1 (0.9-1.4) 0.54	Age, family history, breastfeeding, duration of oral contraceptive use	Premenopausal women only
Brown <i>et al.</i> (2009), Asian migrants in US & Hawaii, 1983-1987	597 cases; aged 20-55 years; 100% histologically confirmed; all of Asian ethnicity; response rate 70%	966 population-based (random-digit dialling in the US; Health Surveillance Program in Hawaii), matched by age, ethnicity, area of residence; response rate 75%	Interviewer-administered questionnaire	<i>Alcohol intake (g/d)</i> None <1 1-4.9 5-9.9 10-19.9 ≥20 p for trend	1.0 0.8 (0.6-1.1) 1.0 (0.7-1.5) 1.5 (0.8-2.7) 1.3 (0.7-2.4) 0.8 (0.4-1.6) 0.86	Age, study area, ethnicity, age at menarche, parity, age at first birth, menopausal status, age at menopause, family history, history of benign breast disease	Low intake of alcohol in study population (~64% of drinkers consumed <1 g/d, with a median of 0.48 g/d among cases and 0.40 g/d among controls); no association for ever versus never drinkers or with drinks per week (OR:0.6, 0.3-1.5 for ≥14 drinks/week versus none)

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Knight <i>et al.</i> (2009), Women's Environmental Cancer and Radiation Epidemiology Study, USA and Denmark, 1985-2001	708 cases of <i>in situ</i> or invasive asynchronous contralateral breast cancer (diagnosed $\geq 1$ y after first breast cancer) identified through cancer registries; aged <55 years; response rate 71%	1399 women with unilateral breast cancer identified through cancer registries, matched on year of birth, year of diagnosis, region, ethnicity, radiation treatment; none had a subsequent diagnosis of any other cancer; response rate 66%	Telephone interview	<i>Average alcohol intake (drinks/day)</i>		Age at first diagnosis	Regular drinking defined as $\geq 1$ drink/month; increased risk with increasing duration of drinking (OR: 1.4, 95% CI 1.0-1.9) for $\geq 30$ years versus never); increased risk when started drinking $\geq 20$ years versus < 20 years; cases more likely to have a family history of breast cancer
				Never	1.0		
				<1	1.3 (1.0-1.7)		
				$\geq 1$	1.2 (0.8-1.7)		
				p for trend	0.16		
				<i>Ever drank regularly</i>			
				No	1.0		
				Yes	1.3 (1.0-1.6)		
				<i>Ever drank regularly after first diagnosis</i>			
				No	1.0		
				Yes	1.2 (0.9-1.5)		
Zaridze <i>et al.</i> (2009), 3 cities, Russia, 1990-2001	519 deaths identified from death certificates, 1990-2001; aged 15-74 years; overall response rate ~97% (i.e. for all deaths)	5475 deaths not judged to be due to alcohol or tobacco	Face-to-face interview with proxy	<i>Usual vodka intake (0.5 L bottles/week)</i>		Age, city, smoking	Number of breast cancer deaths refer to ever-drinkers only; reference group includes ever-drinkers only and women with a usual intake of <0.5 bottles of vodka (or equivalent) and maximum intake of <0.5 bottles/day; this population has unusually high alcohol intake (moderate alcohol intake is within the reference category)
				<0.5	1.0		
				0.5-0.9	0.99 (0.86-1.13)		
				1-3	0.54 (0.43-0.69)		
				$\geq 3$	0.26 (0.17-0.39)		
				p for trend	0.0002		