

Appendix 2: Supplementary tables [posted as supplied by authors]

Table A. Overview of the 36 published studies investigating the association between long working hours and alcohol use

First author	Year of study entry / publication	Study site	Population	No of participants	Mean follow-up time (yr)	Mean (SD) age / age range at entry	Pro-portion (%) of women	Definition of long working hours	% with long working hours	Alcohol use measure	Definition of risky alcohol use (% cases at baseline/ follow-up)	Covariates in the multivariable adjusted model
Cross-sectional studies												
Holtermann ⁵⁹	1970	Denmark	Non-random sample of the population	1560	0	40-59	0	≥46 h/w vs. ≤40 h	18.6	No. of alc.beverages /d	≥3 beverages /d (18.8)	None; data included men only
Seaman ⁴⁴	1981	USA	Railroad workers	3657	0	Not reported	Not reported	Average weekly h (continuous)	n.a.	Problem drinking, sum of 17 items (continuous)	n.a.	Age and sex
Kawakami ³¹	1985	Japan	Computer factory workers	1298	0	Men: 32 (8); women 23 (5)	19.6	Average overtime h /month (continuous)	n.a.	Frequency of drinking (continuous)	n.a.	Age, marital status, education, occupation, income, health status, work stress; sex-stratified
Marchand ⁵¹	1987	Canada	Random sample of the population	8812	0	36.4 (11.1)	39.7	Average h /week (continuous)	n.a.	No. of drinks /past week (continuous)	n.a.	Work schedule, job seniority
Proctor ⁴⁵	1988	USA	Automotive workers	206	0	36.0 (8.5)	35.6	>8 h/day / >5 d/week (past 7 days) vs. less	66.5	History of alcohol abuse	Yes vs. no (3.4)	None
Ezoe ³²	1989	Japan	Camera factory workers	2800	0	Men: 36.3 (8.4); women 30.8 (7.1)	23.9	Average daily h (continuous)	n.a.	Frequency of drinking (continuous)	n.a.	None; sex-stratified
Maruyama ³³	1990	Japan	Middle	3928	0	37.0%	0	≥10 h/day	69.8	Frequency of	Every day	None; data

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			managers			<45 years; 35.8% 45-49 years; 27.1% ≥50 years		vs. less		drinking	vs. less (64.0)	included men only
Raggatt ⁵³	1991	Australia	Long-distance coach drivers	93	0	39.9 (6.8)	0	Average weekly h, from the preceding 4 weeks roster (continuous)	n.a.	Frequency of drinking >3 alcoholic drinks to help sleep after shifts (continuous)	n.a.	None; data included men only
Baldwin ⁵⁶	1993	UK	Physicians	142	0	25	45.1	Hours worked last week (continuous)	n.a.	Diary on alcohol use; units/ past week (continuous)	n.a.	None
Nakanishi ³⁴	1994	Japan	Office workers	949	0	35-54	0	≥10 h day vs. less	29.7	Frequency of drinking	Every day vs. less (61.7)	Age, smoking, BMI, eating habits, exercise, sleep length; data included men only
Shields ⁵²	1994	Canada	Random sample of the population	3746	0	25-54	43.4	≥41 h /week vs. less (in 1994/5 and 1996/7 surveys)	Men: 50; women: 28	No of drinks /past week	Increased no. of drinks between 1994/5 and 1996/7 (men:34; women 25)	Age, SES, self-employment, shift work, education, income, no. of children, marital status; sex-stratified

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Trinkoff ⁴⁶	1994	USA	Representative sample of nurses	2511	0	43	95.0	Overtime ≥4 d/month vs. none	38.6	No. of drinks /occasion	≥5 drinks /occasion (17.0)	None
Uchiyama ³⁵	1994	Japan	Patients with hyper-tension	1615	0	Men: 53.8 (6.5); women 54.0 (6.0)	43.8	≥10 h /d vs. less	24.1	Daily alcohol consumption	≥58 ml ethanol /d (18.6)	None; sex-stratified
Au ⁵⁵	1996	Australia	Random sample of the population	2273	0	45-50	100	≥49 h/week vs. 35-40 h	7.4	Daily alcohol consumption	≥3 drinks /day vs. less (5.0)	None; data included women only
Liu ³⁶	1996	Japan	AMI patients and healthy controls	343	0	Mean 54.0-60.3	0	≥61 h/week vs. ≤40 h	24.2	Daily alcohol consumption	≥50 ml ethanol /d (64.0)	None; data included men only
Tarumi ³⁷	1997	Japan	Office workers	623	0	Mean 37.9-40.0	23.8	≥50 h/week vs. <45 h	28.4	Frequency of drinking	Daily vs. less (48.6)	None
Baldwin ⁴⁷	1998	USA	Physicians	3493	0	1 st and 2 nd post-graduate year	43.5	>80 h /week vs. less	41.9	Increased alcohol use	Yes vs. no (% not reported)	None
Lallukka ³⁸	1998	Japan	Public sector employees	1076	0	Men: 51.3; women 50.9	27.7	>40 h /week vs. less	Men: 49; women 55	Units of alcohol /previous week	>280g ethanol /week (men), >140g (women) (men: 23; women 4)	Age, occupational class, marital status; sex-stratified
Pimenta ⁶²	1999	Spain	University graduates	3852	0	Men: mean 39.1 (10.2) to	66.6	Men: ≥60 h /week vs. ≤39 h; women:	12.2	G ethanol / day (continuous)	n.a.	None; sex-stratified

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Nakata ⁴²	2002	Japan	Employees of a trading and a pharmaceutical company	306	0	41.2 (12.1); women: 33.6 (8.5) to 37.3 (9.4) 36.0 (10.5)	46.1	≥50 h /week vs. 30-39 h Monthly overtime working hours (continuous)	n.a.	G ethanol /week (continuous)	n.a.	Age, sex, marital status, education, occupation, company type, medication, smoking, physical activity, sleep duration, commuting time, job satisfaction, interpersonal conflicts, depression, BMI
Marchand ²⁹	2003	Canada	Random sample of the population	76136	0	39.3 (14.0)	49.7	Average weekly h (continuous)	n.a.	No. of drinks/previous week	≥15 drinks/w (men); ≥10 (women) (8.1)	Age, sex, education, occupation, psychosocial working conditions, work schedule, physical health, smoking, physical activity
Gu ⁵⁰	2004	USA	Policemen of	408	0	42.8	26.5	Average	n.a.	No. of drinks/	n.a.	None

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Nishikitani ³⁹	2005	Japan	Information technology engineers	377	0	28 (5)	19.4	weekly h, payroll (continuous) Overtime ≥45 h/month vs. less (payroll)	45.1	Mean g ethanol /d (continuous)	n.a.	None; sex-stratified
Otsuka ⁴⁰	2006	Japan	Non-random sample of the population	1220	0	Men: 41.7 (11.5); women: 41.3 (11.3)	40.0	≥61 h/w vs. less	15.7	Frequency of drinking	≥6 d /week vs. less (20.7)	None
Schluter ⁶³	2006	Australia & New Zealand	Representative sample of nurses	2222	0	29.4% <40 y; 66.0% 40-59 y; 4.6% ≥60 y	91.6	≥50 h/w vs. <40	7.4	No. of drinks /d	>2 drinks /d (13.9)	Age, sex, country, smoking, job stress, mental health, country*sex
Cheng ⁶⁰	2007	Taiwan	Random sample of the population	9636	0	43.3% ≥45 y	0	≥49 h/w vs. 40	Not reported	CAGE questionnaire	Alcohol dependence; CAGE ≥2 (9.1)	Age, occupation, pay system, psychosocial working conditions, shift work; data included men only
Gibb ⁵⁸	2007	New Zealand	Birth cohort	777	0	30	51.6	≥50 h/w vs. 30-49	20.0	DSM-IV alcohol abuse/dependence (CIDI)	Case vs. not (9.0)	Age
Jones ⁵⁷	2007	UK	Public sector	420	0	Men: 41;	54.0	4-week	n.a.	4-week diary	n.a.	Within-subject

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			employees			women 40		diary on daily hours (continuous)		on daily use, units of alcohol (continuous)		analysis, adj. negative & positive affect; sex-stratified
Nash ⁵⁴	2007	Australia	Physicians	1418	0	54.3% ≥50 y	29.4	≥60 h/week vs.<40 h	20.4	AUDIT test	≥8 AUDIT points (14.6)	Age, sex, marital status, specialty, country of origin, solo practice, work conditions, holiday, mental health, personality traits
Hasegawa ⁴³	2008	Japan	Random sample of the population	392	0	26.4% ≤34 y, 34.8% 35-54 y, 38.8% ≥55 y	38.8	≥49 h/week vs.40-48 h	Men: 19.0; women: 4.1	CAGE questionnaire	CAGE≥2 (men: 16.5, women 3.8)	Sex-stratified, adjusted for age, marital status, depression, income, employment type, occupation, company size
Bazargan ⁴⁸	2009	USA	Representative sample of physicians in California	377	0	45.5% <50y, 54.5% ≥50 y	24.9	≥65 h/week vs. <40 h	Not reported	AUDIT test	≥8 AUDIT points (5.7)	Age, sex, marital status
Kobayashi ⁴¹	2009	Japan	Manu-facturing company workers	737	0	40.9 (8.9) to 45.4 (10.7)	0	>10 h /d vs. 7-9 h	18.0	Frequency of alcohol consumption	Often versus none/ rarely/ sometimes (41.3)	None; data included men only
Speicher ⁶¹	2010	France	Physicians	292	0	27.7 (1.7)	65.1	Average h /week	n.a.	AUDIT test (continuous)	n.a.	None

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de Oliveira ⁴⁹	2013	USA	Physicians	1417	0	46% >30 y	43	(continuous) >70 h/w vs. less	24.0	No. of drinks /w	≥5 vs. less (28.0)	None
Prospective studies Bildt ³⁰	1993	Sweden	Random sample of the population in the county of Stockholm	347	4	46-63	55.0	Works often overtime vs. less	Men: 44; women: 31	weekly alcohol use	>140 g/w (men); >105g (women) (% not reported)	Age; sex-stratified
Marchand ²⁸	1994	Canada	Random sample of the population	6526	8	35.6 (10.3)	45	Weekly working hours (continuous)	n.a.	daily number of drinks /past week	≥15 drinks/w (men); ≥10 drinks/w (women) (7.0; onset 11.6)	Cycle, SES, neighbourhood, psychosocial work factors

Note. N of participants is from the analytic sample. AMI=Acute myocardial infarction. SES=Socioeconomic status. BMI=Body mass index. CIDI= World Health Organization's Composite International Diagnostic Interview. AUDIT=World Health Organization's Alcohol Use Disorders Identification Test.

Table B. Overview of the 27 studies with unpublished individual-participant-data on long working hours and risky alcohol use

Study (acronym)	Year of study entry	Study site	Population	n of participants (n in prospective data)	Mean (SD) follow-up time (yr)	Mean (SD) age	Proportion (%) of women	% with very long working hours (≥ 55 /week)	% with risky alcohol use at baseline	% new cases of risky alcohol use at follow-up
Alameda County Study (ALAMEDA) ⁶⁴	1973	USA	Community sample, Alameda county, CA	2556 (1069)	21.9 (0.4)	43.3 (9.3)	39.8	9.0	4.1	1.2
National Health and Nutrition Survey I (NHANES-I) ⁶⁵	1982	USA	Random sample of the population	5269 (1640)	9.1 (1.5)	50.4 (11.2)	56.4	9.8	5.0	2.0
Cooperative Health Research in the Region Augsburg Survey 1 (KORA 1) ⁷⁰	1984	Germany	Random sample of the population	2339	0	42.4 (10.2)	35.7	19.5	38.8	n.a.
Americans' Changing Lives (ACL) ⁶⁶	1986	USA	Random sample of the population	1865 (1432)	12.6 (4.2)	45.0 (13.9)	52.1	12.3	5.8	1.7
Cooperative Health Research in the Region Augsburg Survey 2 (KORA 2) ⁷⁰	1989	Germany	Random sample of the population	2232	0	42.7 (10.7)	38.0	14.2	32.5	n.a.
Whitehall II (Whitehall) ⁷⁸	1991	UK	Public sector employees	7678 (3535)	5.8 (0.4)	49.1 (5.9)	30.4	9.8	15.7	15.2
National Survey of Families and Households (NSFH) ⁶⁷	1992	USA	Random sample of the population	5852 (2478)	8.7 (0.8)	47 (28.5)	54.3	12.7	13.0	2.9
Wisconsin Longitudinal Study, Graduates (WLSG) ⁶⁹	1992	USA	College graduates of 1957, WI	8040 (6375)	11.1 (0.3)	54.1 (0.5)	51.3	13.7	2.3	2.8
Work, Lipids and Fibrinogen Stockholm (WOLF S) ⁸¹	1992	Sweden	Employees working in private and public companies in Stockholm county	5443	0	41.5 (11.0)	43.2	4.2	8.2	n.a.
Wisconsin Longitudinal Study, Siblings (WLSS) ⁶⁹	1993	USA	Siblings of WLSG college graduates	4472 (3152)	11.3 (0.5)	52.3 (6.9)	51.5	14.6	2.6	2.0
Cooperative Health Research in the Region Augsburg Survey 3 (KORA 3) ⁷⁰	1994	Germany	Random sample of the population	2178	0	42.8 (10.5)	40.3	14.4	25.9	n.a.

Study (acronym)	Year of study entry	Study site	Population	n of participants (n in prospective data)	Mean (SD) follow-up time (yr)	Mean (SD) age	Proportion (%) of women	% with very long working hours (≥ 55 /week)	% with risky alcohol use at baseline	% new cases of risky alcohol use at follow-up
Belgian Job Stress Project (Belstress) ⁸⁴	1994	Belgium	Public sector employees	17507 (1758)	6.6 (1.1)	45.4 (5.9)	24.1	4.8	21.9	11.8
Midlife in the United States (MIDUS) ⁶⁸	1995	USA	Random sample of the population	4768 (3066)	8.9 (0.4)	44.8 (10.8)	48.2	14.9	10.1	1.2
Work, Lipids and Fibrinogen Norrland (WOLF N) ⁸²	1996	Sweden	Employees working in private and public companies in Jämtland and Västernorrland counties	4567	0	44.0 (10.2)	16.5	1.2	6.1	n.a.
Health and Social Support (HeSSup) ⁷⁹	1998	Finland	Random sample of the population	16232 (9636)	5	39.6 (10.2)	55.3	8.8	9.9	6.4
British Birth Cohort 1970 (BCS) ⁷⁶	1999	UK	National birth cohort	6219 (4423)	4.4 (0.3)	29.8 (1.7)	44.7	6.0	20.9	17.4
Burnout, Motivation and Job Satisfaction (PUMA) ⁷⁵	1999	Denmark	Employees in the human service sector	1795	0	42.8 (10.1)	82.8	0.8	6.4	n.a.
Danish Work Environment Cohort (DWECS 2000) ⁷²	2000	Denmark	Random sample of the population	5540 (3544)	5.0 (0.2)	41.8 (11.0)	46.8	7.9	5.6	7.9
Finnish Public Sector Study (FPS) ⁸⁰	2000	Finland	Public sector employees	44119 (24299)	3.4 (0.7)	44.6 (9.4)	80.2	3.1	10.4	5.6
Heinz-Nixdorf Recall (HNR) ⁷¹	2000	Germany	Random sample of the population	1790	0	53.3 (4.9)	40.6	16.9	19.8	n.a.
Helsinki Health Study (HHS) ²⁴	2000	Finland	Public sector employees	8567 (6693)	6.6 (0.8)	49.4	79.9	2.0	4.4	3.9
National Child Development Study (NCDS) ⁷⁷	2000	UK	National birth cohort	8040 (5009)	8.3 (0.4)	42.0 (0)	44.3	8.7	19.0	14.8
National Longitudinal Survey of Youth 1979 (NLSY) ²⁶	2002	USA	Random sample of youth (14-22y)	6115 (5013)	3.8 (0.2)	41.0 (0.8)	50.5	7.8	11.5	3.8
Copenhagen Psychosocial Questionnaire Version II (COPSOQ II) ⁷³	2004	Denmark	Random sample of the population	4304	0	43.7 (10.2)	52.4	5.1	9.6	n.a.

Study (acronym)	Year of study entry	Study site	Population	n of participants (n in prospective data)	Mean (SD) follow-up time (yr)	Mean (SD) age	Pro-portion (%) of women	% with very long working hours (≥55/week)	% with risky alcohol use at baseline	% new cases of risky alcohol use at follow-up
Danish Work Environment Cohort (DWECS 2005) ⁷⁴	2005	Denmark	Random sample of the population	1874	0	41.8 (10.7)	44.0	20.2	10.1	n.a.
Household, Income, and Labour Dynamics in Australia (HILDA) ⁸³	2005	Australia	Random sample of the population	6417 (4767)	4 (0.1)	41.9 (12.8)	47.6	11.2	11.0	5.1
German Socioeconomic Panel Survey (SOEP) ²⁵	2006	Germany	Random sample of the population	8803 (5840)	4 (0.1)	43.2 (10.7)	46.8	9.7	7.7	4.3

Note. N of participants is from the analytic sample