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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 |

| 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 | Proportion (%) 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 |
|-------------------------|-----------------------------------|------------|---------------------------------|--------------------|--------------------------|---|-------------------------|--|---------------------------|---|--|---|
| | | | 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 |

| 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 | Proportion (%) 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 |
|------------------------|-----------------------------------|------------|-----------------------------------|--------------------|--------------------------|--|-------------------------|------------------------------------|---------------------------|---------------------------------|--|---|
| 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 |

| 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 | Proportion (%) 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 |
|------------------------|-----------------------------------|------------|---|--------------------|--------------------------|---|-------------------------|--|---------------------------|------------------------------|--|---|
| 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 |

| 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 | Proportion (%) 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 |
|---------------------------|-----------------------------------|-------------------------|---|--------------------|--------------------------|--|-------------------------|---|---------------------------|---|---|--|
| Nishikitani ³⁹ | 2005 | Japan | one police department Information technology engineers | 377 | 0 | (7.9) 28 (5) | 19.4 | weekly h, payroll (continuous) Overtime ≥45 h/month vs. less (payroll) | 45.1 | week (continuous) 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 |

| 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 | Proportion (%) 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 |
|-------------------------|-----------------------------------|------------|---|--------------------|--------------------------|---|-------------------------|-----------------------------------|---------------------------|---|--|--|
| | | | 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 |

| 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 |
|--|-----------------------------------|------------|--|--------------------|--------------------------|------------------------------------|--------------------------|-----------------------------------|---------------------------|-----------------------------------|--|--|
| 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