

## **The impact of alcohol consumption and physical activity on breast cancer: the role of breast cancer risk**

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**Supplement 1. Results of the complete-case analysis**
**Table 1.** Characteristics of the total study population and by Tyrer-Cuzick 10-year breast cancer risk

Characteristic	All women	TC 10-year breast cancer risk		
		<3.0%	3.0 to 4.9%	≥5.0%
Participants (n)	47,527	24,632	16,240	6,655
Breast cancer cases (n)	809	314	288	207
Age (years), mean (SD)	54.0 (9.6)	51.1 (9.7)	56.9 (8.6)	58.1 (7.8)
BMI, mean (SD)	25.2 (4.2)	24.9 (4.2)	25.5 (4.1)	25.7 (4.2)
Age at menarche (years), mean (SD)	13.1 (1.5)	13.2 (1.5)	13.0 (1.4)	12.9 (1.4)
Nulliparous (%)	12.4	9.4	15.3	16.3
Parous women only				
Age at first birth (years), mean (SD)	27.3 (5.2)	26.4 (5.1)	28.2 (5.1)	28.6 (5.3)
Number of childbirths, mean (SD)	2.2 (0.8)	2.3 (0.8)	2.1 (0.8)	2.1 (0.8)
Family history of breast cancer (%)	12.8	0.6	10.1	64.6
Education level (%)				
Secondary school	11.9	11.6	12.3	11.8
Gymnasium	30.7	34.0	27.7	25.7
University or higher	54.2	51.4	56.4	58.8
Other	3.3	3.0	3.6	3.6
Oral contraceptive use, ever (%)	85.7	87.0	84.3	83.8
Premenopausal (%)	44.3	58.9	29.9	25.1
Postmenopausal women only				
Age at menopause (years), mean (SD)	50.0 (5.1)	47.7 (5.7)	51.1 (4.3)	51.7 (4.3)
HRT use (%)				
Never	69.0	65.1	61.6	62.3
Past	24.8	21.4	23.4	23.7
Current	6.1	4.5	6.4	6.1
Smoking status (%)				
Never	48.8	50.9	47.0	45.4
Past	39.9	37.0	42.7	43.8
Current	11.3	12.1	10.3	10.9
Alcohol consumption (g/day, %)				
None	18.4	19.9	16.6	17.1
0.1 to 9.9	62.4	62.8	62.2	61.2
≥10.0	19.2	17.3	21.1	21.7
Total physical activity (MET-hours/day, %)				
<40.0	35.9	34.3	37.5	38.1
40.0 to 44.9	35.7	34.6	37.1	37.0
≥ 45.0	28.3	31.2	25.4	24.9

**Table 2.** Effect of alcohol consumption and physical activity on breast cancer for all women

Lifestyle factor				Breast cancer		Breast cancer	
	N total	%	N all cases	Crude OR [95%CI]	Adj.* OR [95%CI]		
<b>Alcohol (g/day)</b>							
0	8,751	18.4	130	Reference		Reference	
0.1-9.9	29,647	62.4	498	1.1	[0.9, 1.4]	1.2	[1.0, 1.4]
10.0-40.0	9,137	19.2	181	1.3	[1.1, 1.7]	1.3	[1.0, 1.6]
Per 10 g/day	47,535	100	809	1.1	[1.0, 1.2]	1.1	[1.0, 1.2]
<b>Alcohol (g/day)</b>							
	N total	%	N ER+ cases <sup>a</sup>	Crude OR [95%CI]		Adj.* OR [95%CI]	
0	8,730	18.4	92	Reference		Reference	
0.1-9.9	29,578	62.4	380	1.2	[1.0, 1.5]	1.3	[1.0, 1.6]
10.0-40.0	9,106	19.2	135	1.4	[1.1, 1.8]	1.4	[1.1, 1.8]
Per 10 g/day	47,414	100	607	1.2	[1.1, 1.3]	1.1	[1.0, 1.2]
<b>Alcohol (g/day)</b>							
	N total	%	N ER- cases <sup>a</sup>	Crude OR [95%CI]		Adj.* OR [95%CI]	
0	8,730	18.4	17	Reference		Reference	
0.1-9.9	29,578	62.4	49	0.9	[0.5, 1.5]	0.8	[0.4, 1.3]
10.0-40.0	9,106	19.2	15	0.8	[0.4, 1.7]	0.7	[0.4, 1.5]
Per 10 g/day	47,414	100	81	0.9	[0.7, 1.2]	0.9	[0.6, 1.2]
<b>Physical activity</b>							
	N total	%	N all cases	Crude OR [95%CI]		Adj.* OR [95%CI]	
<b>Total activity (MET-hours/day)</b>							
<40.0	17,075	35.9	276	Reference		Reference	
40.0 to 44.9	13,462	28.3	227	1.1	[0.9, 1.3]	1.2	[1.0, 1.4]
≥45.0	16,990	35.7	306	1.0	[0.9, 1.2]	1.3	[1.0, 1.5]
Per 5 MET-hours/day increase	47,527	100	809	1.0	[0.9, 1.0]	1.0	[1.0, 1.1]
<b>Moderate activity (hours/day)</b>							
< 2.0	14,118	29.7	222	Reference		Reference	
2.0 to 4.9	18,445	36.7	305	1.1	[1.0, 1.3]	1.1	[0.9, 1.3]
≥ 5.0	14,963	31.5	282	1.0	[0.8, 1.1]	1.1	[0.9, 1.3]
Per 1 hour/day increase	47,527	100	809	1.0	[1.0, 1.0]	1.0	[1.0, 1.0]
<b>Vigorous activity (hours/day)</b>							
< 0.2	31,810	66.9	532	Reference		Reference	
≥ 0.2	15,716	33.1	277	1.1	[0.9, 1.2]	1.1	[1.0, 1.3]
Per 1 hour/day increase	47,527	100	809	1.1	[0.9, 1.3]	1.1	[0.9, 1.4]
<b>Recreational activity (hours/day)</b>							
< 1.5	17,551	36.9	282	Reference		Reference	
1.5 to 2.5	13,872	29.2	236	1.1	[0.9, 1.3]	1.1	[0.9, 1.3]
≥ 2.5	16,103	33.9	291	1.1	[1.0, 1.3]	1.1	[0.9, 1.3]
Per 1 hour/day increase	47,527	100	809	1.0	[1.0, 1.0]	1.0	[1.0, 1.1]

\*Adjusted for age, BMI (<25.0, 25.0 to 29.9, ≥30.0 kg/m<sup>2</sup>), ethnicity (European ancestry yes/no), oral contraceptive use (ever, never), use of hormone replacement therapy (never, ever), family history of breast cancer in mother or sister(s) (yes, no), age at menarche (<13, 13, 14, ≥15 years), parity and age at first birth (nulliparous; one or two births, age at first birth <26 years; one or two births, age at first birth ≥26 years; ≥3 births, age at first birth <26 years; ≥3 births, age at first birth ≥26 years), education level (secondary school, high school, university or higher, other), and menopausal status (post or premenopausal); <sup>a</sup> Breast cancer patients with missing data on ER status were excluded from the analysis (n=121)

**Table 3.** Effect of alcohol consumption and physical activity on breast cancer for women at varying levels of risk based on 10-year Tyrer-Cuzick predictions

Lifestyle factor	10y TC risk <3.0%					10y TC risk 3.0-4.9%					10y TC risk >5.0%				
	Breast cancer		Breast cancer			Breast cancer		Breast cancer			Breast cancer		Breast cancer		
Alcohol (g/day)	N total	%	N all cases	Adj. <sup>a</sup> OR	[95%CI]	N total	%	N all cases	Adj. <sup>a</sup> OR	[95%CI]	N total	%	N all cases	Adj. <sup>a</sup> OR	[95%CI]
0	4,913	19.9	57		Reference	2,700	16.6	37		Reference	1,138	17.1	36		Reference
0.1-9.9	15,468	62.8	196	1.1	[0.8, 1.4]	10,106	62.2	179	1.4	[1.0, 2.0]	4,073	61.2	123	1.0	[0.7, 1.5]
10.0-40.0	4,256	17.3	61	1.1	[0.8, 1.6]	3,435	21.2	72	1.6	[1.0, 2.3]	1,446	21.7	48	1.2	[0.7, 1.8]
10 g/day	24,637	100	314	1.1	[1.0, 1.3]	16,241	100	288	1.1	[1.0, 1.2]	6,657	100	207	1.1	[0.9, 1.3]
Alcohol (g/day)	N total	%	ER+ cases <sup>b</sup> (N)	Adj. <sup>a</sup> OR	[95%CI]	N total	%	ER+ cases <sup>b</sup> (N)	Adj. <sup>a</sup> OR	[95%CI]	N total	%	ER+ cases <sup>b</sup> (N)	Adj. <sup>a</sup> OR	[95%CI]
0	4,903	19.9	39		Reference	2,693	16.6	26		Reference	1,134	17.1	27		Reference
0.1-9.9	15,439	62.8	148	1.2	[0.8, 1.7]	10,078	62.2	137	1.5	[1.0, 2.3]	4,061	61.3	95	1.1	[0.7, 1.7]
10.0-40.0	4,249	17.3	45	1.3	[0.8, 2.0]	3,423	21.1	56	1.7	[1.1, 2.8]	1,434	21.6	34	1.1	[0.7, 1.9]
10 g/day	24,591	100	232	1.2	[1.0, 1.4]	16,194	100	219	1.1	[1.0, 1.3]	6,629	100	156	1.1	[0.9, 1.3]
Physical activity	N total	%	N all cases	Adj. <sup>a</sup> OR	[95%CI]	N total	%	N all cases	Adj. <sup>a</sup> OR	[95%CI]	N total	%	N all cases	Adj. <sup>a</sup> OR	[95%CI]
Total activity (MET-hours/day)															
<40.0	8,443	34.3	92		Reference	6,095	37.5	109		Reference	2,537	38.1	75		Reference
40.0 to 44.9	8,511	34.6	125	1.4	[1.0, 1.8]	6,018	37.1	103	1.0	[0.8, 1.3]	2,461	37.0	78	1.1	[0.8, 1.5]
≥45.0	7,678	31.2	97	1.3	[1.0, 1.8]	4,127	25.4	76	1.2	[0.9, 1.6]	1,657	24.9	54	1.2	[0.8, 1.8]
5 MET-hours/day increase	24,632	100	314	1.0	[0.9, 1.1]	16,240	100	288	1.1	[1.0, 1.2]	6,655	100	207	1.1	[1.0, 1.2]
Moderate activity (hours/day)															
< 2.0	6,058	24.6	82		Reference	4,625	28.5	77		Reference	1,908	28.7	54		Reference
2.0 to 4.9	5,251	21.3	70	1.1	[0.8, 1.4]	3,776	23.3	67	1.1	[0.9, 1.5]	1,566	23.5	41	1.1	[0.8, 1.5]
≥ 5.0	13,322	54.1	162	1.1	[0.9, 1.5]	7,839	48.3	144	1.1	[0.8, 1.5]	3,181	47.8	112	1.2	[0.8, 1.7]
1 hour/day increase	24,632	100	314	1.0	[1.0,1.0]	16,240	100	288	1.0	[1.0,1.1]	6,655	100	207	1.0	[1.0,1.1]
Vigorous activity (hours/day)															
< 0.2	16,227	65.9	195		Reference	10,992	67.7	193		Reference	4,591	69.0	144		Reference
≥ 0.2	8,404	34.1	119	1.2	[0.9, 1.5]	5,248	32.3	95	1.1	[0.9, 1.4]	2,064	31.0	63	1.0	[0.7, 1.4]
1 hour/day increase	24,632	100	314	1.1	[0.8, 1.5]	16,240	100	288	1.3	[1.0, 1.8]	6,655	100	207	0.9	[0.5, 1.4]
Recreational activity (hours/day)															
< 1.5	8,666	35.2	105		Reference	6,297	38.8	98		Reference	2,588	38.9	79		Reference
1.5 to 2.5	7,122	28.9	83	0.9	[0.7, 1.2]	4,753	29.2	85	1.2	[0.9, 1.6]	1,997	30.0	68	1.1	[0.8, 1.6]
≥ 2.5	8,843	35.9	126	1.1	[0.8, 1.4]	5,190	32.0	105	1.3	[1.0, 1.8]	2,070	31.1	60	0.9	[0.7, 1.3]
1 hour/day increase	24,632	100	314	1.0	[1.0, 1.1]	16,240	100	288	1.0	[1.0, 1.1]	6,655	100	207	0.9	[0.9, 1.0]

Table 3. Continued

Lifestyle factor	10y TC risk <3.0%					10y TC risk 3.0-4.9%					10y TC risk >5.0%				
	Breast cancer		Breast cancer			Breast cancer		Breast cancer			Breast cancer		Breast cancer		
Physical activity	N total	%	N all cases	Adj. <sup>a</sup> OR	[95%CI]	N total	%	N all cases	Adj. <sup>a</sup> OR	[95%CI]	N total	%	N all cases	Adj. <sup>a</sup> OR	[95%CI]
Total activity (MET-hours/day)															
<40.0	8,443	34.3	92		Reference	6,095	37.5	109		Reference	2,537	38.1	75		Reference
40.0 to 44.9	8,511	34.6	125	1.4	[1.0, 1.8]	6,018	37.1	103	1.0	[0.8, 1.3]	2,461	37.0	78	1.1	[0.8, 1.5]
≥45.0	7,678	31.2	97	1.3	[1.0, 1.8]	4,127	25.4	76	1.2	[0.9, 1.6]	1,657	24.9	54	1.2	[0.8, 1.8]
5 MET-hours/day increase	24,632	100	314	1.0	[0.9, 1.1]	16,240	100	288	1.1	[1.0, 1.2]	6,655	100	207	1.1	[1.0, 1.2]
Moderate activity (hours/day)															
< 2.0	6,058	24.6	82		Reference	4,625	28.5	77		Reference	1,908	28.7	54		Reference
2.0 to 4.9	5,251	21.3	70	1.1	[0.8, 1.4]	3,776	23.3	67	1.1	[0.9, 1.5]	1,566	23.5	41	1.1	[0.8, 1.5]
≥ 5.0	13,322	54.1	162	1.1	[0.9, 1.5]	7,839	48.3	144	1.1	[0.8, 1.5]	3,181	47.8	112	1.2	[0.8, 1.7]
1 hour/day increase	24,632	100	314	1.0	[1.0,1.0]	16,240	100	288	1.0	[1.0,1.1]	6,655	100	207	1.0	[1.0,1.1]
Vigorous activity (hours/day)															
< 0.2	16,227	65.9	195		Reference	10,992	67.7	193		Reference	4,591	69.0	144		Reference
≥ 0.2	8,404	34.1	119	1.2	[0.9, 1.5]	5,248	32.3	95	1.1	[0.9, 1.4]	2,064	31.0	63	1.0	[0.7, 1.4]
1 hour/day increase	24,632	100	314	1.1	[0.8, 1.5]	16,240	100	288	1.3	[1.0, 1.8]	6,655	100	207	0.9	[0.5, 1.4]
Recreational activity (hours/day)															
< 1.5	8,666	35.2	105		Reference	6,297	38.8	98		Reference	2,588	38.9	79		Reference
1.5 to 2.5	7,122	28.9	83	0.9	[0.7, 1.2]	4,753	29.2	85	1.2	[0.9, 1.6]	1,997	30.0	68	1.1	[0.8, 1.6]
≥ 2.5	8,843	35.9	126	1.1	[0.8, 1.4]	5,190	32.0	105	1.3	[1.0, 1.8]	2,070	31.1	60	0.9	[0.7, 1.3]
1 hour/day increase	24,632	100	314	1.0	[1.0, 1.1]	16,240	100	288	1.0	[1.0, 1.1]	6,655	100	207	0.9	[0.9, 1.0]

<sup>a</sup>Adjusted for age, BMI (<25.0, 25.0 to 29.9, ≥30.0 kg/m<sup>2</sup>), ethnicity (European ancestry yes/no), oral contraceptive use (ever, never), use of hormone replacement therapy (never, ever), family history of breast cancer in mother or sister(s) (yes, no), age at menarche (<13, 13, 14, ≥15 years), parity and age at first birth (nulliparous; one or two births, age at first birth <26 years; one or two births, age at first birth ≥26 years; ≥3 births, age at first birth <26 years; ≥3 births, age at first birth ≥26 years), education level (secondary school, high school, university or higher, other), and menopausal status (post or premenopausal). <sup>b</sup> Breast cancer patients with missing data on ER status were excluded from the analysis (n=121)

**Table 4.** Effect of alcohol consumption and physical activity on breast cancer for pre- and postmenopausal women

Lifestyle factor	Premenopausal					Postmenopausal				
	N total		Breast cancer			N total		Breast cancer		
Alcohol (g/day)	N total	%	N all cases	Adj. <sup>a</sup> OR	[95%CI]	N total	%	N all cases	Adj. <sup>a</sup> OR	[95%CI]
0	3,925	18.7	38		Reference	4,826	18.2	92		Reference
0.1-9.9	13,719	65.2	182	1.3	[0.9, 1.9]	15,928	60.1	316	1.1	[0.9, 1.4]
10.0-40.0	3,401	16.2	38	1.0	[0.7, 1.7]	5,728	21.6	143	1.4	[1.0, 1.8]
10 g/day	21,045	100	258	1.0	[0.9, 1.2]	26,482	100	551	1.1	[1.0, 1.2]
Alcohol (g/day)	N total	%	N ER+ cases <sup>b,c</sup>	Adj. <sup>a</sup> OR	[95%CI]	N total	%	N ER+ cases <sup>b,c</sup>	Adj. <sup>a</sup> OR	[95%CI]
0	3,925	18.7	25		Reference	4,826	18.2	67		Reference
0.1-9.9	13,719	65.2	141	1.6	[1.0, 2.4]	15,928	60.1	239	1.2	[0.9, 1.5]
10.0-40.0	3,401	16.2	29	1.2	[0.7, 2.1]	5,728	21.6	106	1.4	[1.0, 2.0]
10 g/day	21,045	100	258	1.1	[0.9, 1.3]	26,482	100	551	1.2	[1.0, 1.3]

Table 4. Continued

Lifestyle factor	Premenopausal					Postmenopausal				
	N total	%	Breast cancer			N total	%	Breast cancer		
Physical activity			N all cases	Adj. <sup>a</sup> OR	[95%CI]			N all cases	Adj. <sup>a</sup> OR	[95%CI]
Total activity (MET-hours/day)										
<40.0	6,870	32.6	74		Reference	10,205	38.5	202		Reference
40.0 to 44.9	7,197	34.2	92	1.2	[0.9, 1.6]	9,793	37.0	214	1.2	[1.0, 1.4]
≥45.0	6,978	33.2	92	1.3	[0.9, 1.7]	6,484	24.5	135	1.3	[1.0, 1.6]
5 MET-hours/day increase	21,045	100	258	1.0	[1.0, 1.1]	26,482	100	551	1.0	[1.0, 1.1]
Moderate activity (hours/day)										
< 2.0	5,049	24.0	58		Reference	7,542	28.5	155		Reference
2.0 to 4.9	4,512	21.4	61	1.3	[1.0, 1.8]	6,081	23.0	117	1.0	[0.8, 1.3]
≥ 5.0	11,484	54.6	139	1.2	[0.9, 1.6]	12,858	48.6	279	1.1	[0.9, 1.4]
1 hour/day increase	21,045	100	258	1.0	[1.0, 1.1]	26,482	100	551	1.0	[1.0, 1.1]
Vigorous activity (hours/day)										
< 0.2	13,504	64.2	151		Reference	18,306	69.1	381		Reference
≥ 0.2	7,541	35.8	107	1.2	[0.9, 1.6]	8,175	30.9	170	1.0	[0.9, 1.3]
1 hour/day increase	21,045	100	258	1.3	[1.0, 1.7]	26,482	100	551	1.0	[0.8, 1.3]
Recreational activity (hours/day)										
< 1.5	7,307	34.7	78		Reference	10,244	38.7	204		Reference
1.5 to 2.5	6,238	29.6	77	1.2	[0.9, 1.6]	7,634	28.8	159	1.0	[0.8, 1.3]
≥ 2.5	7,500	35.6	103	1.4	[1.1, 1.9]	8,603	32.5	188	1.0	[0.8, 1.2]
1 hour/day increase	21,045	100	258	1.1	[1.0, 1.1]	26,482	100	551	1.0	[0.9, 1.0]

<sup>a</sup>Adjusted for age, BMI (<25.0, 25.0 to 29.9, ≥30.0 kg/m<sup>2</sup>), ethnicity (European ancestry yes/no), oral contraceptive use (ever, never), use of hormone replacement therapy (never, ever), family history of breast cancer in mother or sister(s) (yes, no), age at menarche (<13, 13, 14, ≥15 years), parity and age at first birth (nulliparous; one or two births, age at first birth <26 years; one or two births, age at first birth ≥26 years; ≥3 births, age at first birth <26 years; ≥3 births, age at first birth ≥26 years), and education level (secondary school, high school, university or higher, other); <sup>b</sup>Breast cancer patients with missing data on ER status were excluded from the analysis (n=121); <sup>c</sup>We were unable to perform the stratified analysis for ER- breast cancers due to a relatively small sample size (n=81)



**Supplement 2.** Effect of alcohol consumption and physical activity on breast cancer for pre- and postmenopausal women (results from imputed dataset as described in main article)

Lifestyle factor	Premenopausal					Postmenopausal				
	Breast cancer		Breast cancer			Breast cancer		Breast cancer		
Alcohol (g/day)	N total	%	N all cases	Adj. <sup>a</sup> OR	[95%CI]	N total	%	N all cases	Adj. <sup>a</sup> OR	[95%CI]
0	5,007	19.7	44		Reference	6,093	18.9	115		Reference
0.1-9.9	16,018	63.0	205	1.34	[0.94, 1.91]	18,912	58.7	374	1.08	[0.86, 1.35]
10.0-40.0	4,391	17.3	49	1.08	[0.69, 1.69]	7,232	22.4	171	1.30	[1.00, 1.70]
10 g/day	25,417	100	298	1.03	[0.87, 1.21]	32,237	100	659	1.11	[1.01, 1.22]
Alcohol (g/day)	N total	%	N ER+ cases <sup>b,c</sup>	Adj. <sup>a</sup> OR	[95%CI]	N total	%	N ER+ cases <sup>b,c</sup>	Adj. <sup>a</sup> OR	[95%CI]
0	5,001	19.7	31		Reference	6,080	18.9	86		Reference
0.1-9.9	16,000	63.0	160	1.55	[1.01, 2.36]	18,869	58.7	282	1.12	[0.86, 1.46]
10.0-40.0	4,387	17.3	39	1.24	[0.73, 2.10]	7,214	22.4	127	1.35	[1.00, 1.84]
10 g/day	25,388	100	229	1.07	[0.89, 1.29]	32,163	100	495	1.14	[1.03, 1.27]

## Supplement 2. Continued

Lifestyle factor	Premenopausal					Postmenopausal				
			Breast cancer					Breast cancer		
Physical activity	N total	%	N all cases	Adj. <sup>a</sup> OR	[95%CI]	N total	%	N all cases	Adj. <sup>a</sup> OR	[95%CI]
Total activity (MET-hours/day)										
<40.0	8,308	32.7	89		Reference	12,454	38.6	240		Reference
40.0 to 44.9	8,581	33.8	107	1.20	[0.89, 1.63]	11,699	36.3	256	1.18	[0.97, 1.42]
≥45.0	8,528	33.5	101	1.22	[0.90, 1.65]	8,084	25.1	163	1.24	[1.00, 1.55]
5 MET-hours/day increase	25,417	100	298	1.04	[0.95, 1.13]	32,237	100	659	1.03	[0.96, 1.10]
Moderate activity (hours/day)										
< 2.0	8,984	35.3	101		Reference	12,865	39.9	255		Reference
2.0 to 4.9	7,398	29.1	94	1.31	[0.96, 1.77]	11,164	34.6	239	1.02	[0.84, 1.24]
≥ 5.0	9,036	35.6	102	1.19	[0.88, 1.60]	8,208	25.5	165	1.14	[0.92, 1.42]
1 hour/day increase	25,417	100	298	1.01	[0.97, 1.05]	32,237	100	659	1.02	[0.99, 1.06]
Vigorous activity (hours/day)										
< 0.2	16,154	63.6	178		Reference	21,936	68.0	450		Reference
≥ 0.2	9,263	36.4	120	1.16	[0.91, 1.49]	10,301	32.0	209	1.02	[0.85, 1.22]
1 hour/day increase	25,417	100	298	1.29	[1.00, 1.68]	32,237	100	659	0.93	[0.72, 1.22]
Recreational activity (hours/day)										
< 1.5	8,831	34.7	94		Reference	12,393	38.4	241		Reference
1.5 to 2.5	7,285	28.7	86	1.19	[0.87, 1.63]	9,051	28.1	187	1.03	[0.84, 1.27]
≥ 2.5	9,300	36.6	119	1.37	[1.02, 1.86]	10,793	33.5	231	1.00	[0.82, 1.27]
1 hour/day increase	25,417	100	298	1.07	[1.00, 1.13]	32,237	100	659	0.98	[0.93, 1.03]

<sup>a</sup>Adjusted for age, BMI (<25.0, 25.0 to 29.9, ≥30.0 kg/m<sup>2</sup>), ethnicity (European ancestry yes/no), oral contraceptive use (ever, never), use of menopausal hormone therapy (never, ever), family history of breast cancer in mother or sister(s) (yes, no), age at menarche (<13, 13, 14, ≥15 years), parity and age at first birth (nulliparous; one or two births, age at first birth <26 years; one or two births, age at first birth ≥26 years; ≥3 births, age at first birth <26 years; ≥3 births, age at first birth ≥26 years), and education level (secondary school, high school, university or higher, other); <sup>b</sup> Breast cancer patients with ER- status were excluded from the analysis (n=101); <sup>c</sup> We were unable to perform the stratified analysis for ER- breast cancers due to a relatively small sample size (n=29 for premenopausal women and n=74 for postmenopausal women)