Sleep and Breast and Prostate Cancer Risk in the MCC-Spain Study

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Supplemental Table 1. Distribution of participant characteristics, breast cancer controls (n = 1,609), by categories of habitual sleep duration (hours), and siesta, MCC-Spain, 2008–2013.

	<6h (n=213) %	6h (n=313) %	7h (n=490) %	8h (n=445) %	9h+ (n=148) %	p value	Never Siesta (n=883) %	Ever Siesta (n=726) %	p value
Age (Years), Mean (SD)	62.7 (12.4)	58.3 (12.7)	55.7 (12.5)	57.2 (14.1)	64.0 (12.8)	*<0.001*	57.6 (13.2)	59.2 (13.4)	*0.01*
Centre						*<0.001*			*0.001*
Asturias	7.5%	9.6%	5.9%	7.2%	4.7%		7.6%	6.5%	
Barcelona	16.9%	16.3%	12.2%	12.4%	20.3%		15.1%	13.6%	
Cantabria	6.6%	12.1%	10.8%	15.5%	4.1%		12.1%	10.1%	
Girona	1.4%	1.6%	5.1%	3.6%	4.1%		3.9%	2.9%	
Granada	-	-	-	-	-		-	-	
Guipuzcoa	9.9%	10.5%	15.1%	14.2%	11.5%		10.8%	15.6%	
Huelva	3.3%	3.8%	4.3%	4.3%	5.4%		3.4%	5.1%	
Leon	15.5%	8.0%	9.4%	12.6%	18.2%		13.0%	9.9%	
Madrid	24.4%	24.9%	22.7%	15.5%	18.9%		22.4%	19.3%	
Navarra	10.8%	9.9%	9.8%	10.6%	9.5%		8.4%	12.3%	
Valencia	3.8%	3.2%	4.7%	4.3%	3.4%		3.40%	4.8%	
Education						*<0.001*			*0.85*
< Primary	27.7%	13.7%	9.0%	14.8%	37.2%		17.2%	15.8%	
Primary	37.6%	39.6%	25.7%	30.1%	29.7%		31.8%	31.3%	
Secondary	23.0%	26.8%	36.7%	31.9%	21.6%		29.7%	31.0%	
University	11.7%	19.8%	28.6%	23.1%	11.5%		21.3%	21.9%	
Socioeconomic Score						*<0.001*			*0.84*
Low (0-2)	45.1%	33.5%	22.4%	29.9%	47.3%		30.9%	33.2%	
Medium (3-5)	46.5%	48.9%	53.5%	48.5%	39.9%		48.9%	49.2%	
High (6-7)	6.6%	15.7%	23.3%	20.2%	8.1%		17.2%	17.5%	

Cigarette Smoking						*<0.001*			*0.31*
Never	67.1%	56.5%	52.0%	59.8%	75.7%		60.4%	57.9%	
Former	15.0%	18.2%	23.7%	18.2%	17.6%		19.6%	19.1%	
Current	17.8%	24.9%	24.3%	21.8%	6.8%		19.8%	23.0%	
Family History of Breast Cancer						*0.68*			*0.98*
None	88.7%	86.9%	88.0%	88.3%	85.8%		87.8%	87.7%	
Any	8.0%	8.3%	9.8%	7.2%	10.1%		8.49%	8.68%	
BMI (kg/m^2)						*<0.001*			*0.78*
<25	41.3%	44.4%	59.0%	51.2%	42.6%		50.4%	49.9%	
25-<30	36.2%	33.5%	28.6%	31.7%	31.8%		31.0%	32.5%	
>=30	22.5%	22.0%	12.4%	17.1%	25.7%		18.6%	17.6%	
Physical activity						*0.10*			*0.59*
Inactive	46.5%	45.0%	35.7%	37.8%	47.3%		41.7%	39.3%	
Slightly active	15.5%	15.3%	21.4%	19.3%	14.9%		18.7%	17.8%	
Moderately active	10.8%	11.2%	12.9%	12.6%	14.2%		11.7%	13.1%	
Very Active	27.2%	28.4%	30.0%	30.3%	23.6%		28.0%	29.9%	
Alcohol consumption[a]						*<0.001*			*<0.001*
<median	50.2%	44.7%	38.6%	43.4%	54.1%		47.7%	39.7%	
≥median	34.7%	43.5%	50.4%	44.3%	32.4%		39.0%	49.3%	
Parity						*<0.001*			*0.15*
Nulliparous	11.7%	19.2%	20.6%	23.1%	14.2%		17.7%	21.2%	
1-2 chilldren	50.7%	57.8%	58.0%	55.1%	45.9%		56.9%	52.9%	
3+ children	36.6%	23.0%	21.2%	21.1%	39.9%		25.0%	25.6%	
Age at First Child						*<0.001*			*0.01*
Nulliparous	11.7%	19.2%	20.6%	23.1%	14.2%		17.7%	21.2%	
<20 years	3.3%	4.5%	3.7%	3.6%	6.76%		5.6%	2.2%	
20-24 years	36.6%	27.2%	19.2%	20.4%	28.4%		24.2%	24.2%	

25-29 years	30.5%	30.7%	32.4%	32.1%	35.1%		32.3%	31.7%	
>29 years	16.9%	18.2%	23.7%	20.0%	14.9%		19.7%	20.1%	
Age at menarche						0.33			0.88
<12 years	20.7%	20.4%	19.8%	16.9%	14.2%		18.9%	18.5%	
12-13 years	21.1%	21.7%	25.9%	24.3%	18.9%		22.9%	24.0%	
14+ years	55.4%	55.6%	52.4%	56.6%	61.5%		54.5%	56.6%	
Oral Contraceptive Use						<0.001			0.42
Never	57.3%	48.6%	45.3%	53.9%	63.5%		50.6%	52.8%	
Ever	42.3%	51.4%	54.7%	45.8%	36.5%		49.3%	47.1%	
Hormone Replacement Therapy						0.32			0.33
Never	85.9%	89.8%	89.0%	91.7%	90.5%		90.3%	88.8%	
Ever	7.5%	5.1%	8.8%	6.5%	5.4%		6.3%	7.7%	
Menopausal Status						<0.001			0.12
Premenopausal	85.0%	70.0%	59.4%	67.6%	79.7%		67.3%	71.1%	
Postmenopausal	15.0%	30.0%	40.4%	32.4%	20.3%		32.6%	28.9%	
Night Shift Work						<0.001			0.23
Never	67.1%	69.3%	77.8%	70.3%	60.1%		71.7%	70.2%	
Ever	11.7%	12.8%	11.6%	10.6%	6.8%		10.0%	12.5%	
Housewife	15.5%	13.4%	7.8%	15.3%	22.3%		12.6%	14.2%	
Chronotype						0.62			0.88
Morning	35.7%	33.5%	34.1%	29.9%	28.4%		32.4%	32.6%	
Neither	29.1%	35.1%	32.2%	33.7%	23.6%		32.0%	32.0%	
Evening	16.9%	15.3%	18.6%	19.1%	16.9%		18.2%	17.1%	
Outdoor blue light spectrum[b]						0.37			0.68
< median (0.15)	51.3%	53.7%	50.6%	50.0%	36.2%		49.1%	51.5%	
≥ median (0.15)	48.7%	46.3%	49.4%	49.0%	63.8%		50.9%	48.5%	

Note in some cases the sum does not equal the total due to missing data.

[a] Median = 1.63 ethanol g/day in women.
[b] Participants in Barcelona and Madrid only, n=491 included breast cancer controls, current address

Supplemental Table 2. Distribution of participant characteristics, prostate cancer controls (n = 1,179), by categories of habitual sleep duration (hours), and ever siesta, MCC-Spain, 2008–2013.

	<6h (n=152) %	6h (n=242) %	7h (n=352) %	8h (n=302) %	9h+ (n=131) %	*p* value	Never Siesta (n=405) %	Ever Siesta (n=774) %	*p* value
Age (Years), Mean (SD)	66.1 (7.85)	65.4 (8.40)	64.4 (8.89)	67.7 (7.33)	71.1 (6.79)	*<0.001*	66.6 (9.01)	66.3 (7.92)	*0.53*
Centre						*<0.001*			*<0.001*
Asturias	6.6%	3.7%	5.4%	8.3%	17.6%		10.9%	5.4%	
Barcelona	30.3%	37.2%	26.7%	30.5%	25.2%		29.6%	30.4%	
Cantabria	4.6%	11.6%	17.6%	18.9%	10.7%		17.8%	12.4%	
Girona	-	-	-	-	-		-	-	
Granada	14.5%	7.4%	10.5%	7.3%	10.7%		7.7%	10.6%	
Guipuzcoa	-	-	-	-	-		-	-	
Huelva	11.2%	6.2%	5.4%	6.6%	8.4%		3.0%	9.0%	
Leon	-	-	-	-	-		-	-	
Madrid	25.0%	27.3%	28.4%	22.8%	22.1%		26.9%	24.9%	
Navarra	-	-	-	-	-		-	-	
Valencia	7.9%	6.6%	6.0%	5.6%	5.3%		4.2%	7.2%	
Education						*<0.001*			*0.11*
< Primary	23.0%	16.5%	14.2%	18.2%	32.8%		22.7%	16.9%	
Primary	37.5%	31.8%	34.9%	32.8%	42.0%		33.1%	35.8%	
Secondary	27.0%	27.3%	30.1%	28.8%	19.1%		26.9%	27.9%	
University	12.5%	24.4%	20.7%	20.2%	6.1%		17.3%	19.4%	
Socioeconomic Score						*<0.001*			*0.31*
Low (0-2)	38.8%	32.6%	36.6%	31.5%	53.4%		38.3%	35.8%	
Medium (3-5)	50.0%	46.3%	49.1%	48.7%	38.9%		43.2%	49.6%	
High (6-7)	9.21%	17.4%	13.4%	17.2%	5.3%		13.1%	14.1%	

Cigarette Smoking						*0.04*			*0.04*
Never	29.6%	18.6%	31.5%	27.5%	30.5%		31.9%	25.2%
Former	44.7%	55.4%	48.6%	48.0%	49.6%		47.4%	50.5%
Current	25.7%	26.0%	19.3%	24.2%	19.8%		20.2%	24.2%
Family History of Prostate Cancer						*0.97*			*0.66*
None	90.8%	85.5%	88.9%	87.4%	90.1%		87.9%	88.4%
Any	5.3%	6.6%	6.3%	5.6%	6.9%		6.7%	5.8%
BMI (kg/m^2)						*0.14*			*0.08*
<25	28.3%	20.7%	23.3%	28.5%	21.4%		28.4%	22.5%
25-<30	47.4%	53.3%	55.4%	48.0%	47.3%		49.1%	52.2%
>=30	24.3%	26.0%	21.3%	23.5%	31.3%		22.5%	25.3%
Physical activity						*0.30*			*0.21*
Inactive	43.4%	39.7%	38.6%	42.4%	42.7%		42.5%	40.1%
Slightly active	13.8%	14.5%	9.4%	14.6%	9.2%		9.6%	13.7%
Moderately active	9.2%	12.8%	13.9%	8.3%	11.5%		10.9%	11.6%
Very Active	33.6%	33.1%	38.1%	34.8%	36.6%		37.0%	34.6%
Alcohol consumption[a]						*0.34*			*0.09*
<median	46.7%	46.3%	42.3%	41.1%	43.5%		47.4%	41.5%
≥median	34.9%	41.7%	46.9%	45.0%	43.5%		40.7%	44.8%
Night Shift Work						*0.003*			*0.25*
Never	77.6%	71.9%	75.3%	72.2%	58.8%		67.4%	74.8%
Ever	20.4%	24.4%	23.3%	24.8%	38.9%		26.4%	24.7%
Chronotype						*0.16*			*0.23*
Morning	43.4%	43.0%	41.5%	37.7%	29.0%		40.7%	39.1%
Neither	19.7%	24.8%	30.1%	31.8%	30.5%		24.2%	30.2%
Evening	7.9%	9.5%	12.2%	9.9%	9.9%		9.6%	10.6%
Outdoor blue light spectrum[b]						*0.14*			*1.00*

< median (0.15)	62.3%	50.3%	45.9%	47.1%	54.4%		50.2%	50.0%
≥ median (0.15)	37.7%	49.7%	54.1%	52.9%	45.6%		49.8%	50.0%

Note in some cases the sum does not equal the total due to missing values.

[a] Median = 18.8 ethanol g/day in men.

[b] Participants in Barcelona and Madrid only, n=623 included prostate cancer controls, current address

Supplemental Table 3. Associations of specific types of habitual sleep problems and breast and prostate cancer risk, MCC-Spain, 2008–2013.

	Breast Cancer Cases n=1,543	Breast Cancer Controls n=1,560	OR[a]	LCI	UCI	Prostate Cancer Cases n=1,008	Prostate Cancer Controls n=1,150	OR[b]	LCI	UCI
Problems Falling Asleep										
No	923	891	1.00	-	-	758	840	1.00	-	-
Yes	447	481	0.96	0.81	1.13	153	177	1.00	0.78	1.28
Waking Up in the Middle of the Night										
No	923	891	1.00	-	-	758	840	1.00	-	-
Yes	485	522	0.96	0.82	1.13	194	225	0.99	0.79	1.24
Taking Medication to Fall Asleep										
No	923	891	1.00	-	-	758	840	1.00	-	-
Yes	411	414	1.07	0.89	1.27	123	151	0.94	0.71	1.23
Frequent Changes in Time of Sleep										
No	1,344	1,334	1.00	-	-	733	863	1.00	-	-
Yes	199	226	0.91	0.73	1.13	275	287	1.13	0.92	1.39

Note the sum does not equal the total due to missing data.

[a] Models adjusted for age, centre, education, socioeconomic status, cigarette smoking status, family history of breast cancer in first degree relatives, BMI, physical activity, alcohol consumption, parity, age at first child, oral contraceptive, hormone replacement therapy, age at menarche, menopausal status. Categories for missing values were created for family history of breast cancer in first degree relatives, alcohol consumption, and hormone replacement therapy.

[b] Models adjusted for age, centre, education, socioeconomic status, cigarette smoking status, family history of prostate cancer in first degree relatives, BMI, physical activity, alcohol consumption. Categories for missing values were created for family history of prostate cancer in first degree relatives and alcohol consumption

Supplemental Table 4. Associations of siesta and breast and prostate cancer risk adjusted for other habitual sleep characteristics, MCC-Spain, 2008–2013.

	Breast Cancer Cases n=1,270	Breast Cancer Controls n=1,273	OR[a]	LCI	UCI	Prostate Cancer Cases n=832	Prostate Cancer Controls n=963	OR[b]	LCI	UCI
Siesta										
Never	616	669	1.00	-	-	257	332	1.00	-	-
Ever	654	604	1.22	1.03	1.43	575	631	1.22	0.98	1.51
Frequency of Siesta (Days Per Week)										
Never	616	669	1.00	-	-	257	332	1.00	-	-
<3	144	132	1.08	0.82	1.43	95	82	1.28	0.89	1.85
3-5	103	80	1.40	1.01	1.94	54	59	1.34	0.87	2.07
6-7	407	392	1.23	1.02	1.48	426	490	1.19	0.95	1.49
Duration of Siesta (Minutes)										
Never	616	669	1.00	-	-	257	332	1.00	-	-
<15	95	106	1.07	0.78	1.46	62	74	1.07	0.72	1.60
15-29	140	149	1.06	0.81	1.38	127	130	1.27	0.93	1.74
30-59	196	176	1.18	0.93	1.51	162	175	1.25	0.94	1.67
60+	223	173	1.49	1.17	1.89	224	252	1.21	0.93	1.57

Note the sum does not equal the total due to missing data.

[a] Models adjusted for age, centre, education, socioeconomic status, cigarette smoking status, family history of breast cancer in first degree relatives, BMI, physical activity, alcohol consumption, parity, age

at first child, oral contraceptive, hormone replacement therapy, age at menarche, menopausal status, sleep duration, ever sleep problems, timing of sleep. Categories for missing values were created for family history of breast cancer in first degree relatives, alcohol consumption, and hormone replacement therapy.
[b] Models adjusted for age, centre, education, socioeconomic status, cigarette smoking status, family history of prostate cancer in first degree relatives, BMI, physical activity, alcohol consumption, sleep duration, ever sleep problems, timing of sleep.
Categories for missing values were created for family history of prostate cancer in first degree relatives and alcohol consumption.

Supplemental Table 5. Associations of siesta and other habitual sleep characteristics and breast and prostate cancer risk, MCC-Spain, 2008–2013.

	Breast Cancer Cases n=1,543	Breast Cancer Controls n=1,560	OR[a]	LCI	UCI	p value	Prostate Cancer Cases n=1,008	Prostate Cancer Controls n=1,150	OR[b]	LCI	UCI	p value
Sleep Duration (h)						0.05						0.47
<7												
Never Siesta	252	277	1.00	-	-		117	125	1.00	-	-	
Ever Siesta	216	233	1.00	0.76	1.31		225	257	0.93	0.67	1.30	
7												
Never Siesta	241	250	1.00	-	-		85	116	1.00	-	-	
Ever Siesta	242	229	1.14	0.87	1.50		203	231	1.17	0.81	1.70	
7+												
Never Siesta	268	317	1.00	-	-		114	140	1.00	-	-	
Ever Siesta	324	254	1.49	1.17	1.91		264	281	1.24	0.89	1.73	
Ever Sleep Problems						0.42						0.87
No												
Never Siesta	453	491	1.00	-	-		245	287	1.00	-	-	
Ever Siesta	470	400	1.29	1.07	1.57		513	553	1.12	0.90	1.41	
Yes												
Never Siesta	308	353	1.00	-	-		71	94	1.00	-	-	
Ever Siesta	312	316	1.10	0.87	1.39		179	216	1.19	0.79	1.80	
Timing of Sleep						0.36						0.07
Sleep Before 00h												
Never Siesta	306	309	1.00	-	-		150	184	1.00	-	-	
Ever Siesta	321	302	1.15	0.91	1.46		324	293	1.40	1.04	1.87	
Sleep After 00h												
Never Siesta	455	535	1.00	-	-		166	197	1.00	-	-	
Ever Siesta	461	414	1.31	1.08	1.59		368	476	0.93	0.72	1.24	

Note the sum does not equal the total due to missing data.

[a] Models adjusted for age, centre, education, socioeconomic status, cigarette smoking status, family history of breast cancer in first degree relatives, BMI, physical activity, alcohol consumption, parity, age at first child, oral contraceptive, hormone replacement therapy, age at menarche, menopausal status. Categories for missing values were created for family history of breast cancer in first degree relatives, alcohol consumption, and hormone replacement therapy.

[b] Models adjusted for age, centre, education, socioeconomic status, cigarette smoking status, family history of prostate cancer in first degree relatives, BMI, physical activity, alcohol consumption. Categories for missing values were created for family history of prostate cancer in first degree relatives and alcohol consumption.

Supplemental Table 6. Associations of selected habitual sleep characteristics and breast cancer risk by menopausal status, MCC-Spain, 2008–2013.

	Premeno pausal Cases n=561	Premeno pausal Controls n=489	OR[a]	LCI	UCI	Postmen opausal Cases n=982	Postmeno pausal Controls n=1,071	OR[a]	LCI	UCI	*p* value
Sleep Duration (h)											*0.93*
<7	132	125	0.96	0.69	1.34	336	385	0.95	0.75	1.20	
7	218	197	1.00	-	-	265	282	1.00	-	-	
>7	211	167	1.14	0.85	1.54	381	404	0.98	0.78	1.23	
Ever Sleep Problems											*0.45*
No	383	336	1.00	-	-	540	555	1.00	-	-	
Yes	178	153	0.94	0.71	1.25	442	516	0.93	0.78	1.12	
Timing of Sleep											*0.81*
Sleep Before 00h	228	195	1.00	-	-	399	416	1.00	-	-	
Sleep After 00h	333	294	0.96	0.73	1.26	583	655	0.88	0.73	1.06	
Siesta											*0.75*
Never	297	280	1.00	-	-	464	564	1.00	-	-	
Ever	264	209	1.17	0.90	1.52	518	507	1.26	1.05	1.51	

Note the sum does not equal the total due to missing data.

[a] Models adjusted for age, centre, education, socioeconomic status, cigarette smoking status, family history of breast cancer in first degree relatives, BMI, physical activity, alcohol consumption, parity, age at first child, oral contraceptive, age at menarche. Categories for missing values were created for family history of breast cancer in first degree relatives, and alcohol consumption.

Supplemental Table 7. Associations of various habitual sleep characteristics and breast cancer risk by night shift work history and chronotype, MCC-Spain, 2008–2013.

	Never night shift					Ever night shift					Always housewife					
	Cases n=1,175	Controls n=1,129	OR[a]	LCI	UCI	Cases n=205	Controls n=176	OR[a]	LCI	UCI	Cases n=132	Controls n=209	OR[a]	LCI	UCI	p value
Sleep Duration (h)																0.95
<7	345	357	0.95	0.76	1.18	67	64	1.07	0.61	1.88	47	73	0.72	0.33	1.55	
7	386	375	1.00	-	-	62	56	1.00	-	-	24	38	1.00	-	-	
>7	444	397	1.06	0.86	1.30	76	56	1.18	0.68	1.05	61	98	0.75	0.36	1.58	
Ever Sleep Problems																0.47
No	726	653	1.00	-	-	115	100	1.00	-	-	69	111	1.00	-	-	
Yes	449	476	0.89	0.74	1.06	90	76	1.18	0.74	1.89	63	98	1.16	0.69	1.96	
Timing of Sleep																0.65
Sleep Before 00h	491	459	1.00	-	-	80	59	1.00	-	-	46	73	1.00	-	-	
Sleep After 00h	684	670	0.90	0.76	1.08	125	117	0.85	0.53	1.37	86	136	0.79	0.46	1.34	
Siesta																0.79
Never	582	624	1.00	-	-	98	86	1.00	-	-	67	109	1.00	-	-	
Ever	593	505	1.26	1.06	1.49	107	90	1.15	0.73	1.81	65	100	1.13	0.68	1.86	

	Morning Chronotype					Neither Chronotype					Evening Chronotype					
	Cases n=458	Controls n=504	OR[a]	LCI	UCI	Cases n=494	Controls n=504	OR[a]	LCI	UCI	Cases n=203	Controls n=282	OR[a]	LCI	UCI	p value
Sleep Duration (h)																0.48
<7	148	173	0.92	0.67	1.28	126	169	0.74	0.52	1.06	89	84	1.00	0.63	1.60	
7	160	164	1.00	-	-	165	156	1.00	-	-	92	90	1.00	-	-	
>7	150	167	0.97	0.70	1.35	203	179	1.03	0.74	1.42	122	108	1.14	0.73	1.78	
Ever Sleep Problems																0.99
No	283	297	1.00	-	-	298	284	1.00	-	-	183	159	1.00	-	-	
Yes	175	207	0.92	0.70	1.22	196	220	0.94	0.71	1.24	120	123	0.87	0.60	1.27	
Timing of Sleep																0.79
Sleep Before 00h	269	289	1.00	-	-	175	160	1.00	-	-	61	51	1.00	-	-	
Sleep After 00h	189	215	0.93	0.71	1.23	319	344	0.74	0.56	1.00	242	231	0.92	0.58	1.45	
Siesta																0.44
Never	243	269	1.00	-	-	233	275	1.00	-	-	148	159	1.00	-	-	
Ever	215	235	1.00	0.76	1.31	261	229	1.33	1.02	1.75	155	123	1.45	1.00	2.08	

Note the sum does not equal the total due to missing data.

[a] Models adjusted for age, centre, education, socioeconomic status, cigarette smoking status, family history of breast cancer in first degree relatives, BMI, physical activity, alcohol consumption, parity, age at first child, oral contraceptive, hormone replacement therapy, age at menarche, menopausal status. Categories for missing values were created for family history of breast cancer in first degree relatives, alcohol consumption, and hormone replacement therapy.

Supplemental Table 8. Associations of various habitual sleep characteristics and prostate cancer risk by night shift work history and chronotype, MCC-Spain, 2008–2013.

	Never night shift					Ever night shift					p value
	Cases n=710	Controls n=851	OR[a]	LCI	UCI	Cases n=296	Controls n=297	OR[a]	LCI	UCI	
Sleep Duration (h)											0.30
<7	237	292	0.97	0.75	1.26	105	90	1.28	0.81	2.04	
7	213	265	1.00	-	-	75	81	1.00	-	-	
>7	260	294	1.19	0.91	1.54	116	126	1.05	0.67	1.65	
Ever Sleep Problems											0.35
No	534	627	1.00	-	-	223	211	1.00	-	-	
Yes	176	224	0.94	0.74	1.20	73	86	0.77	0.51	1.15	
Timing of Sleep											0.05
Sleep Before 00h	346	344	1.00	-	-	126	131	1.00	-	-	
Sleep After 00h	364	507	0.70	0.57	0.87	170	166	1.13	0.78	1.63	
Siesta											0.42
Never	215	273	1.00	-	-	100	106	1.00	-	-	
Ever	495	578	1.13	0.90	1.42	196	191	1.10	0.75	1.62	

	Morning Chronotype					Neither Chronotype					Evening Chronotype					p value
	Cases n=426	Controls n=460	OR[a]	LCI	UCI	Cases n=280	Controls n=328	OR[a]	LCI	UCI	Cases n=110	Controls n=117	OR[a]	LCI	UCI	
Sleep Duration (h)																0.39
<7	153	167	1.15	0.81	1.62	91	90	1.20	0.78	1.85	39	33	1.47	0.69	3.11	
7	122	144	1.00	-	-	89	106	1.00	-	-	39	43	1.00	-	-	
>7	151	149	1.29	0.90	1.84	100	132	0.85	0.56	1.29	32	41	0.80	0.38	1.71	
Ever Sleep Problems																0.19
No	327	341	1.00	-	-	213	247	1.00	-	-	72	87	1.00	-	-	
Yes	99	119	0.91	0.66	1.27	67	81	0.99	0.66	1.48	38	30	1.54	0.79	2.98	
Timing of Sleep																0.53
Sleep Before 00h	261	258	1.00	-	-	93	96	1.00	-	-	21	14	1.00	-	-	
Sleep After 00h	165	202	0.81	0.61	1.08	187	232	0.78	0.54	1.14	89	103	0.54	0.24	1.25	
Siesta																0.35
Never	135	158	1.00	-	-	78	97	1.00	-	-	45	36	1.00	-	-	
Ever	291	302	1.23	0.91	1.67	202	231	1.11	0.76	1.64	65	81	0.76	0.41	1.42	

Note the sum does not equal the total due to missing data.

[a] Models adjusted for age, centre, education, socioeconomic status, cigarette smoking status, family history of breast cancer in first degree relatives, BMI, physical activity, alcohol consumption. Categories for missing values were created for family history of prostate cancer in first degree relatives and alcohol consumption.

Supplemental Table 9. Associations of various sleep characteristics at around age 40 years and breast and prostate cancer risk, MCC-Spain, 2008–2013.

	Around age 40 years					Around age 40 years				
	Breast Cancer Cases n=1,052	Breast Cancer Controls n=1,093	OR[a]	LCI	UCI	Prostate Cancer Cases n=751	Prostate Cancer Controls n=827	OR[b]	LCI	UCI
Sleep Duration[c] Weekdays (h)										
<6	59	64	0.82	0.55	1.22	65	70	1.07	0.72	1.58
6	157	183	0.76	0.58	0.99	152	171	1.01	0.76	1.34
7	371	339	1.00	-	-	291	332	1.00	-	-
8	333	366	0.86	0.69	1.06	192	195	1.22	0.93	1.6
9+	131	141	0.87	0.65	1.17	50	57	1.05	0.68	1.64
Per 1 hour			1.03	0.95	1.11			1.01	0.93	1.09
Sleep Duration[c] Weekends (h)										
<6	23	19	1.28	0.66	2.49	14	20	0.80	0.38	1.69
6	46	53	0.90	0.56	1.43	48	53	1.07	0.66	1.71
7	156	165	1.00	-	-	129	148	1.00	-	-
8	337	376	0.92	0.7	1.21	210	238	1.07	0.78	1.47
9+	490	480	1.07	0.81	1.4	350	368	1.14	0.85	1.54
Per 1 hour			1.02	0.94	1.09			1.07	0.99	1.16
Timing of Sleep Weekdays										
Sleep Before 23h	135	132	1.00	-	-	214	198	1.00	-	-
Sleep at 23-00h	391	427	0.88	0.66	1.17	291	321	0.85	0.65	1.11
Sleep at 00-01h	483	486	0.96	0.72	1.27	216	260	0.84	0.63	1.13
Sleep After 01h	42	48	0.79	0.48	1.3	29	46	0.54	0.32	0.92
Timing of Sleep Weekends										
Sleep Before 23h	30	42	1.00	-	-	82	51	1.00	-	-
Sleep at 23-00h	158	174	1.15	0.67	1.98	200	224	0.55	0.36	0.83
Sleep at 00-01h	719	744	1.20	0.72	1.99	416	470	0.57	0.38	0.85
Sleep After 01h	145	133	1.26	0.72	2.21	53	82	0.40	0.23	0.67
Social Jetlag[d]										
0-1h	239	268	1.00	-	-	196	193	1.00	-	-

1-2h	491	540	0.95	0.75	1.19	243	293	0.88	0.67	1.17
2+h	309	275	1.14	0.88	1.49	299	324	0.89	0.68	1.18

Note the sum does not equal the total due to missing data

[a] Models adjusted for age, centre, education, socioeconomic status, cigarette smoking status, family history of breast cancer in first degree relatives, BMI, physical activity, alcohol consumption, parity, age at first child, oral contraceptive, hormone replacement therapy, age at menarche, menopausal status. Categories for missing values were created for family history of breast cancer in first degree relatives, alcohol consumption, and hormone replacement therapy.

[b] Models adjusted for age, centre, education, socioeconomic status, cigarette smoking status, family history of prostate cancer in first degree relatives, BMI, physical activity, alcohol consumption. Categories for missing values were created for family history of prostate cancer in first degree relatives and alcohol consumption.

[c] Based on responses to questions for the time the participant usually turns off the lights to go to sleep and the time the participant usually wakes up.

[d] The absolute difference in hours of midpoints of sleep between weekdays and weekends.