

Supplementary Online Content

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This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1. Other Baseline Sleep Characteristics by Exposure to ALAN While Sleeping

Characteristic		No ALAN exposure (n=7,807)	Small nightlight in room (n=17,320)	Light outside room (n=13,471)	Light/television in room (n=5,124)
Percent (%)					
Sleep duration, hours					
	<7 hours	26.4	25.4	27.6	42.8
	7-9 hours	72.7	73.9	71.6	56.0
	> 9 hours	0.9	0.8	0.9	1.2
When awakened at night, turns on light?					
	Never wakes up or does not turn on the light	85.2	89.6	89.9	82.0
	Turns on light/ Light already on	14.8	10.4	10.1	18.1
Wake-up pattern past 6 weeks					
	Same every day	66.6	65.1	64.4	63.2
	Same on workdays /Different on days off	22.2	26.2	25.4	22.7
	Different but consistent	2.5	2.5	3.1	3.9
	No consistent time	8.7	6.2	7.1	10.2
Bedtime pattern past 6 weeks					
	Same every day	66.9	66.2	63.3	53.7
	Same on workdays /Different on days off	17.4	20.2	20.1	19.3
	Different but consistent	5.0	4.9	6.0	7.7
	No consistent time	10.7	8.7	10.7	19.3
Time it takes to fall asleep					
	< 15 min	47.6	47.2	44.0	33.5
	15 - 30 min	35.7	37.9	39.3	37.9
	30 min - 1 hour	11.0	10.8	12.1	16.4
	> 1 hour	5.6	4.2	4.6	12.3
Frequency of waking up at night					

	< 1 day a month	8.5	5.8	4.8	6.6
	1-3 days a month	8.5	6.7	5.9	5.8
	≥ once a week	25.9	25.5	25.3	24.4
	Most or every night	57.1	62.0	64.0	63.2
Frequency of napping					
	Never	38.2	34.0	30.3	31.4
	< 1 day a month	20.6	22.5	22.2	19.1
	1-3 days a month	17.4	19.1	20.2	19.4
	≥ once a week	19.6	20.4	22.6	24.0
	Most or every day	4.3	4.0	4.7	6.2
Percent who used sleep medication in prior six weeks					
	Yes	25.0	24.0	23.3	22.1

eTable 2. Associations Between ALAN Exposure While Sleeping and Prevalent Obesity, Weight Gain and Incident Obesity, With Further Adjustment for Confounders That Could Also Be Mediators of Associations Between ALAN Exposure at Night and Obesity

Obesity parameter		No ALAN exposure (n=7,807)	Small nightlight in room (n=17,320)	Light outside room (n=13,471)	Light/television in room (n=5,124)	P trend	No ALAN exposure (n=7,807)	Any ALAN exposure (n=35,915)
	Prevalence ratios for outcome in relation to exposure to artificial light at night while sleeping							
BMI ≥ 30 kg/m ²	Percent of cases (%)	25.4	25.8	30.0	40.0		25.4	29.4
	Multivariable-adjusted PR ^c	1	1.01 (1.00, 1.02)	1.03 (1.02, 1.04)	1.05 (1.04, 1.07)	<0.001	1	1.02 (1.01, 1.03)
	Multivariable-adjusted PR ^d	1	1.00 (0.99, 1.01)	1.02 (1.01, 1.03)	1.03 (1.02, 1.05)	<0.001	1	1.01 (1.00, 1.02)
BMI ≥ 25 kg/m ²	Percent of cases (%)	56.7	58.0	62.4	71.6		56.7	61.6
	Multivariable-adjusted PR ^c	1	1.01 (1.01, 1.02)	1.03 (1.02, 1.04)	1.04 (1.03, 1.05)	<0.001	1	1.03 (1.02, 1.03)
	Multivariable-adjusted PR ^d	1	1.01 (1.00, 1.02)	1.03 (1.02, 1.03)	1.03 (1.02, 1.04)	<0.001	1	1.02 (1.01, 1.03)
Waist Circumference ≥88 cm	Percent of cases (%)	35.5	36.3	41.6	50.5		35.5	40.3
	Multivariable-adjusted PR ^c	1	1.05 (1.02, 1.09)	1.15 (1.11, 1.19)	1.18 (1.13, 1.23)	<0.001	1	1.11 (1.08, 1.15)
	Multivariable-adjusted PR ^d	1	1.03 (1.00, 1.07)	1.11 (1.08, 1.16)	1.12 (1.08, 1.17)	<0.001	1	1.08 (1.04, 1.11)
Waist Hip Ratio ≥0.85	Percent of cases (%)	25.7	24.4	27.2	33.9		25.7	26.8
	Multivariable-adjusted PR ^c	1	0.99 (0.95, 1.04)	1.06 (1.01, 1.11)	1.11 (1.05, 1.17)	<0.001	1	1.03 (0.99, 1.08)
	Multivariable-adjusted PR ^d	1	0.98 (0.93, 1.02)	1.03 (0.98, 1.08)	1.06 (1.00, 1.13)	0.003	1	1.01 (0.97, 1.06)
Waist Height Ratio ≥0.5	Percent of cases (%)	52.1	52.1	57.0	66.5		52.1	56.0
	Multivariable-adjusted PR ^c	1	1.02 (1.00, 1.05)	1.08 (1.06, 1.11)	1.12 (1.09, 1.15)	<0.001	1	1.06 (1.04, 1.09)
	Multivariable-adjusted PR ^d	1	1.01 (0.99, 1.04)	1.06 (1.03, 1.09)	1.08 (1.05, 1.12)	<0.001	1	1.04 (1.02, 1.07)
Relative risks for outcome in relation to exposure to artificial light at night while sleeping								
Weight gain of 5 kg or more	Number of events	1080	2509	2040	893		1080	5442
	Cumulative incidence	15.6	15.9	16.7	21.5		15.5	16.9
	Multivariable-adjusted RR ^c	1	1.00 (0.93, 1.06)	1.01 (0.95, 1.09)	1.15 (1.05, 1.25)	0.005	1	1.02 (0.96, 1.09)
	Multivariable-adjusted RR ^d	1	1.00 (0.93, 1.06)	1.00 (0.93, 1.07)	1.13 (1.04, 1.23)	0.02	1	1.02 (0.96, 1.08)
BMI percent increase of 10% or more	Number of events	754	1796	1439	591		754	3826
	Cumulative incidence	10.9	11.4	11.9	14.3		10.9	11.9
	Multivariable-adjusted RR ^c	1	1.03 (0.95, 1.11)	1.04 (0.95, 1.13)	1.11 (1.00, 1.24)	0.07	1	1.04 (0.97, 1.12)
	Multivariable-adjusted RR ^d	1	1.03 (0.95, 1.12)	1.03 (0.95, 1.12)	1.12 (1.01, 1.25)	0.09	1	1.04 (0.97, 1.12)
Overweight (BMI ≥)	Number of events	459	1110	766	266		459	2142
	Cumulative incidence	14.8	16.5	16.4	21.5		14.8	16.9

25 kg/m ²) ^a	Multivariable-adjusted RR ^c	1	1.11 (1.01, 1.23)	1.07 (0.96, 1.20)	1.21 (1.05, 1.39)	0.05	1	1.11 (1.01, 1.22)
	Multivariable-adjusted RR ^d	1	1.12 (1.01, 1.24)	1.07 (0.96, 1.19)	1.20 (1.03, 1.38)	0.09	1	1.11 (1.01, 1.22)
Obesity (BMI ≥ 30 kg/m ²) ^b	No. of events	306	791	628	246		306	1665
	Cumulative incidence	5.8	6.7	7.3	9.6		5.8	7.3
	Multivariable-adjusted RR ^c	1	1.15 (1.01, 1.31)	1.19 (1.04, 1.36)	1.27 (1.07, 1.50)	0.005	1	1.18 (1.04, 1.33)
	Multivariable-adjusted RR ^d	1	1.13 (0.99, 1.29)	1.15 (1.00, 1.31)	1.23 (1.04, 1.46)	0.02	1	1.15 (1.02, 1.30)

Abbreviations: BMI, body mass index, PR, prevalence ratio, and RR, relative risk.

Data are presented as prevalence ratio or relative risk (95% confidence intervals).

^a among women with a BMI < 25 kg/m² at baseline (n=17,179).

^b among women with a BMI < 30 kg/m² at baseline (n=31,188).

^c Additionally adjusted for sleep duration (<7, 7-9, >9), turns on light when awakened at night (yes/no), bedtime pattern (same every day, same on workdays /different on days off, different but consistent, no consistent time), number of wake-ups (< 1 day a month, 1-3 days a month, ≥ once a week, most or every night), time it takes to fall asleep (< 15 min, 15-30 min, 30 min-1 hour, > 1 hour), frequency of napping (never, < 1 day a month, 1-3 days a month, ≥ once a week, most or every day), and sleep medication use

^d Additionally adjusted for total physical activity (MET-h/wk, quintiles), leisure time physical activity (insufficient, moderate, high), total energy intake, fat consumption (quintiles), fiber consumption (quintiles), glycemic load (quintiles), and night time snacking (yes, no).

eTable 3. Comparison of Baseline Characteristics Between Those With and Without Body Mass Index Estimates at Follow-up

Characteristic	Complete follow-up		Lost to follow-up	
	n (%)			
n (%)	38,950	(89.1)	4,772	(10.9)
Mean (SD)				
Age at baseline, y	55.5	(8.8)	54.1	(9.4)
BMI (kg/m ²)	27.3	(5.7)	28.8	(6.4)
Waist circumference (cm)	85.2	(14.0)	89.1	(14.9)
Waist hip ratio	0.80	(0.08)	0.82	(0.08)
Waist height ratio	0.52	(0.09)	0.54	(0.09)
Sleep duration, h	7.1	(1.0)	6.9	(1.2)
Total MET-h/wk of physical activity	51.1	(31.2)	49.5	(30.3)
Caffeine consumption (mg/d) ^a	27.9	(38.2)	29.1	(39.1)
Fiber consumption (g) ^a	17.3	(8.4)	15.8	(8.4)
Fat consumption (g) ^a	68.4	(30.1)	67.8	(32.7)
Total energy intake (kcal/d) ^a	1630	(627)	1620	(724)
Glycemic load ^a	84.5	(37.0)	88.0	(42.0)
Health Eating Index-2015 ^a	72.0	(9.3)	69.7	(9.8)
Proportion (%)				
Light at night exposure while sleeping				
No light	17.8		18.7	
Small nightlight	40.5		32.8	
Light outside the room	31.2		27.9	
Light/television in room	10.6		20.6	
Race/ethnicity				
Non-Hispanic White	86.9		61.5	
Non-Hispanic Black	6.8		22.4	
Hispanic	3.9		13.2	
Other	2.4		2.9	
Residential location				
Urban	21.0		19.2	
Suburban or Small town	60.5		56.3	
Rural	18.5		24.5	
Marital status				
Never married	5.0		7.2	
Married, living as married	76.7		67.4	
Separated, divorced, widowed	18.3		25.4	
Educational attainment				
High school degree or less	14.4		18.6	
Some college	32.3		40.6	
College degree or higher	53.3		40.8	
Income				
< \$49,999	22.4		32.2	
\$50,000-\$99,999	39.8		37.7	

≥ \$100,000	34.1		25.6	
Missing	3.8		4.5	
No. family members aged <18 y				
None	56.7		46.0	
1	12.3		15.5	
2	10.1		11.6	
≥3	4.3		5.8	
Missing	16.6		21.1	
No. family members aged ≥65 y				
None	63.6		62.2	
1	9.6		8.7	
≥2	10.3		8.0	
Missing	16.6		21.1	
Alcohol consumption				
Never	3.6		5.3	
Former	13.9		19.4	
Current consumption, ≤ 1 drink/d	71.2		65.4	
Current consumption, > 1 drink/d	11.3		9.8	
Smoking status				
Never	57.4		54.6	
Former	35.4		32.6	
Current	7.2		12.8	
Leisure time physical activity (MET hours/week)				
< 7.5	43.7		53.9	
7.5-21	32.5		28.0	
≥ 21	23.8		18.1	
Night-time snacking (yes)	7.2		13.1	
Menopause (yes)	64.9		59.3	
Perceived stress in highest quartile	21.8		31.5	
Depression (yes)	19.9		24.2	
Type 2 diabetes (yes)	5.1		8.1	
Hypertension (yes)	31.2		37.5	
High cholesterol level (yes)	34.5		35.6	

Abbreviations: BMI, body mass index; MET, metabolic equivalent.

Data are presented as mean (standard deviation), or percentage.

^a Calculated after excluding women who reported implausibly extreme energy intakes (<500 and >5000 kcals/d).

eTable 4. Prevalence Ratios and 95% CIs for the Association Between Other Sleep Characteristics and Measures of Prevalent Obesity

		N	Obesity (BMI ≥30)	Overweight (BMI ≥25)	Waist Circumference ≥88cm	Waist Hip Ratio ≥0.85	Waist Height Ratio ≥0.5
Sleep duration, hours	<6h	3315	1.04 (1.03, 1.06)	1.03 (1.02, 1.04)	1.11 (1.07, 1.15)	1.02 (0.97, 1.08)	1.08 (1.05, 1.11)
	6-6.9 h	9056	1.02 (1.01, 1.03)	1.01 (1.01, 1.02)	1.07 (1.04, 1.10)	1.04 (1.00, 1.08)	1.05 (1.03, 1.07)
	7-9 h	30918	1 (referent)	1 (referent)	1 (referent)	1 (referent)	1 (referent)
	> 9 h	377	1.02 (0.98, 1.06)	1.02 (0.99, 1.05)	1.11 (1.00, 1.23)	0.96 (0.82, 1.13)	1.11 (1.04, 1.20)
When awakened at night, turns on light?	Never wakes up or does not turn on the light	37576	1 (referent)	1 (referent)	1 (referent)	1 (referent)	1 (referent)
	Turns on light/ Light already on	5144	1.02 (1.01, 1.03)	1.02 (1.01, 1.03)	1.10 (1.07, 1.14)	1.12 (1.08, 1.17)	1.08 (1.06, 1.11)
Wake-up pattern past 6 weeks	Same every day	28388	1 (referent)	1 (referent)	1 (referent)	1 (referent)	1 (referent)
	Same on workdays /Different on days off	10823	1.01 (1.00, 1.02)	1.01 (1.00, 1.02)	1.03 (1.00, 1.06)	1.01 (0.97, 1.05)	1.02 (1.00, 1.04)
	Different but consistent from week to week	1245	1.01 (0.99, 1.03)	1.01 (0.99, 1.03)	1.06 (0.99, 1.13)	1.03 (0.94, 1.13)	1.07 (1.02, 1.12)
	No consistent time	3262	1.04 (1.02, 1.05)	1.02 (1.01, 1.03)	1.11 (1.07, 1.15)	1.09 (1.04, 1.15)	1.07 (1.04, 1.10)
	P trend		<0.001	<0.001	<0.001	0.001	<0.001
Bedtime pattern past 6 weeks	Same every day	27950	1 (referent)	1 (referent)	1 (referent)	1 (referent)	1 (referent)
	Same on workdays /Different on days off	8552	1.01 (1.00, 1.02)	1.01 (1.00, 1.02)	1.05 (1.02, 1.09)	1.05 (1.00, 1.09)	1.05 (1.02, 1.07)
	Different but consistent from week to week	2428	1.02 (1.01, 1.04)	1.02 (1.01, 1.03)	1.10 (1.05, 1.15)	1.07 (1.00, 1.14)	1.09 (1.05, 1.12)
	No consistent time	4785	1.05 (1.04, 1.06)	1.04 (1.03, 1.05)	1.19 (1.15, 1.23)	1.14 (1.09, 1.19)	1.12 (1.09, 1.14)
	P trend		<0.001	<0.001	<0.001	<0.001	<0.001
Time it takes to fall asleep	< 15 min	19478	1 (referent)	1 (referent)	1 (referent)	1 (referent)	1 (referent)
	15-30 min	16548	1.00 (0.99, 1.00)	1.00 (1.00, 1.01)	1.01 (0.99, 1.04)	1.03 (0.99, 1.06)	1.03 (1.01, 1.05)
	30 min-1 hour	5203	1.01 (0.99, 1.01)	1.01 (1.00, 1.02)	1.05 (1.01, 1.09)	1.04 (0.99, 1.10)	1.06 (1.03, 1.08)
	> 1 hour	2435	1.04 (1.02, 1.06)	1.04 (1.02, 1.05)	1.16 (1.11, 1.21)	1.14 (1.07, 1.21)	1.12 (1.09, 1.15)

	P trend		<0.001	<0.001	<0.001	<0.001	<0.001
Frequency of waking up at night	< 1 day a month	2631	1 (referent)	1 (referent)	1 (referent)	1 (referent)	1 (referent)
	1-3 days a month	2892	0.98 (0.97, 1.00)	1.00 (0.98, 1.01)	0.97 (0.90, 1.03)	0.97 (0.88, 1.05)	0.98 (0.93, 1.02)
	≥ once a week	11014	0.99 (0.98, 1.01)	0.99 (0.98, 1.00)	0.96 (0.91, 1.01)	0.96 (0.89, 1.03)	0.95 (0.91, 0.98)
	Most or every night	26849	1.02 (1.01, 1.03)	1.00 (0.99, 1.02)	1.05 (1.00, 1.10)	1.00 (0.94, 1.06)	0.99 (0.96, 1.03)
	P trend		<0.001	0.04	<0.001	0.32	0.13
Frequency of napping	Never	14532	1 (referent)	1 (referent)	1 (referent)	1 (referent)	1 (referent)
	< 1 day a month	9448	1.02 (1.01, 1.03)	1.02 (1.01, 1.03)	1.10 (1.06, 1.14)	1.08 (1.04, 1.13)	1.08 (1.06, 1.11)
	1-3 days a month	8390	1.04 (1.03, 1.05)	1.04 (1.03, 1.05)	1.19 (1.15, 1.23)	1.14 (1.09, 1.19)	1.13 (1.10, 1.16)
	≥ once a week	9352	1.06 (1.05, 1.06)	1.05 (1.04, 1.06)	1.24 (1.20, 1.28)	1.20 (1.15, 1.25)	1.17 (1.14, 1.20)
	Most or every day	1989	1.07 (1.05, 1.09)	1.06 (1.05, 1.07)	1.27 (1.21, 1.33)	1.25 (1.17, 1.33)	1.20 (1.16, 1.24)
	P trend		<0.001	<0.001	<0.001	<0.001	<0.001
Sleep medication use in prior six weeks	None	33307	1 (referent)	1 (referent)	1 (referent)	1 (referent)	1 (referent)
	Yes	10413	0.99 (0.98, 1.00)	0.99 (0.98, 0.99)	0.97 (0.95, 1.00)	1.01 (0.98, 1.05)	0.98 (0.96, 1.00)

^a Adjusted for age at baseline, race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, others), residential location (urban, suburban or small town, rural), educational attainment (high school degree or less, some college, college degree or higher), household income (<\$49,999, \$50,000-\$99,999, \$100,000+, missing), number of family members <18 years living in household (none, 1, 2, ≥3, missing), and number of family members ≥65 years living in household (none, 1, ≥2, missing), marital status (never married, married, other), smoking status (never smoker, current smoker, former smoker), alcohol consumption (never, former, current drinker ≤ 1 drink/day, current drinker > 1 drink/day), caffeine consumption (quintiles), menopausal status, depression, and perceived stress (quartile)

eTable 5. Relative Risks and 95% CIs for Other Sleep Characteristics, Subsequent Weight Gain, and Incident Obesity

		Weight gain of 5 kg or more	BMI percent increase of 10% or more	Overweight (BMI ≥ 25 kg/m ²) ^b	Obesity (BMI ≥ 30 kg/m ²) ^c
Sleep duration	<7 hours	1.10 (1.05, 1.16)	1.11 (1.05, 1.18)	1.05 (0.97, 1.14)	1.17 (1.06, 1.28)
	7-9 hours	1 (referent)	1 (referent)	1 (referent)	1 (referent)
	> 9 hours	1.35 (1.10, 1.64)	1.40 (1.10, 1.79)	1.37 (0.99, 1.92)	1.18 (0.77, 1.80)
When awakened at night, turns on light?	Never wakes up or does not turn on the light	1 (referent)	1 (referent)	1 (referent)	1 (referent)
	Turns on light/ Light already on	1.06 (0.99, 1.13)	1.05 (0.96, 1.14)	1.16 (1.04, 1.29)	1.18 (1.04, 1.33)
Wake-up pattern past 6 weeks	Same every day	1 (referent)	1 (referent)	1 (referent)	1 (referent)
	Same on workdays /Different on days off	0.97 (0.92, 1.02)	1.00 (0.94, 1.07)	0.95 (0.88, 1.03)	1.07 (0.97, 1.18)
	Different but consistent from week to week	0.97 (0.84, 1.11)	1.01 (0.86, 1.19)	0.97 (0.77, 1.22)	1.06 (0.83, 1.36)
	No consistent time	1.00 (0.92, 1.10)	1.04 (0.93, 1.16)	1.06 (0.91, 1.22)	1.11 (0.94, 1.31)
	P trend	0.49	0.53	0.93	0.09
Bedtime pattern past 6 weeks	Same every day	1 (referent)	1 (referent)	1 (referent)	1 (referent)
	Same on workdays /Different on days off	1.02 (0.97, 1.08)	1.06 (0.99, 1.13)	0.99 (0.90, 1.08)	1.11 (0.99, 1.23)
	Different but consistent from week to week	1.04 (0.95, 1.14)	1.00 (0.89, 1.13)	1.11 (0.95, 1.29)	1.20 (1.01, 1.44)
	No consistent time	1.06 (0.99, 1.14)	1.05 (0.96, 1.15)	1.10 (0.97, 1.24)	1.19 (1.04, 1.37)
	P trend	0.07	0.22	0.12	0.002
Time it takes to fall asleep	< 15 min	1 (referent)	1 (referent)	1 (referent)	1 (referent)
	15-30 min	0.99 (0.95, 1.04)	1.03 (0.97, 1.09)	1.08 (1.00, 1.17)	1.08 (0.98, 1.19)
	30 min-1 hour	1.04 (0.97, 1.11)	1.08 (0.98, 1.17)	1.18 (1.06, 1.32)	1.05 (0.91, 1.21)
	> 1 hour	1.02 (0.93, 1.13)	1.08 (0.96, 1.22)	1.28 (1.08, 1.51)	1.27 (1.05, 1.54)
	P trend	0.43	0.07	<0.001	0.03
Frequency of waking up at night	< 1 day a month	1 (referent)	1 (referent)	1 (referent)	1 (referent)
	1-3 days a month	1.01 (0.87, 1.17)	0.93 (0.78, 1.11)	1.16 (0.89, 1.50)	1.07 (0.79, 1.43)
	≥ once a week	1.06 (0.91, 1.23)	0.99 (0.82, 1.18)	1.20 (0.92, 1.57)	1.09 (0.81, 1.47)
	Most or every night	1.04 (0.88, 1.21)	0.94 (0.78, 1.14)	1.10 (0.84, 1.45)	1.09 (0.80, 1.49)
	P trend	0.17	0.52	0.97	0.61
	Never	1 (referent)	1 (referent)	1 (referent)	1 (referent)

Frequency of napping	< 1 day a month	0.99 (0.93, 1.05)	0.97 (0.90, 1.04)	1.01 (0.92, 1.11)	1.04 (0.92, 1.17)
	1-3 days a month	1.03 (0.97, 1.10)	0.97 (0.89, 1.04)	1.11 (1.00, 1.22)	1.03 (0.91, 1.16)
	≥ once a week	1.09 (1.02, 1.16)	1.05 (0.97, 1.13)	1.19 (1.08, 1.31)	1.22 (1.08, 1.37)
	Most or every day	1.01 (0.90, 1.14)	0.99 (0.86, 1.15)	1.09 (0.89, 1.33)	1.28 (1.04, 1.58)
	P trend	0.02	0.44	<0.001	<0.001
Sleep medication use in prior six weeks	None	1 (referent)	1 (referent)	1 (referent)	1 (referent)
	Yes	1.08 (1.03, 1.14)	1.12 (1.05, 1.19)	1.13 (1.04, 1.22)	1.05 (0.95, 1.16)

Abbreviations: BMI, body mass index.

^a Adjusted for age at baseline, log of follow-up time, race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, others), residential location (urban, suburban or small town, rural), educational attainment (high school degree or less, some college, college degree or higher), household income (<\$49,999, \$50,000-\$99,999, \$100,000+, missing), number of family members <18 years living in household (none, 1, 2, ≥3, missing), and number of family members ≥65 years living in household (none, 1, ≥2, missing), marital status (never married, married, other), smoking status (never smoker, current smoker, former smoker), alcohol consumption (never, former, current drinker ≤ 1 drink/day, current drinker > 1 drink/day), caffeine consumption (quintiles), menopausal status, depression, and perceived stress (quartile).

^b among women with a BMI < 25 kg/m² at baseline.

^c among women with a BMI < 30 kg/m² at baseline.

eTable 6. Association Between ALAN Exposure While Sleeping and Incident Obesity (BMI ≥ 30.0) Stratified by Selected Factors

		Number of participants at baseline	Adjusted ^a relative risk and 95% CIs for incident obesity (Light/television in room vs. no light)	P for trend ^b	P interaction
BMI (kg/m ²)	18.5 to < 25 (normal weight)	15317	1.78 (0.86-3.69)	0.30	
	25 to <30 (overweight)	12475	1.14 (0.97-1.34)	0.10	0.19
Age group	< 50 y	8260	1.53 (1.17-2.00)	0.009	
	50-59 y	10895	1.27 (0.97-1.65)	0.13	
	≥ 60 y	9066	1.16 (0.81-1.67)	0.05	0.98
Race/ethnicity	Non-Hispanic White	25144	1.35 (1.12-1.63)	<0.001	
	Non-Hispanic Black	1327	1.14 (0.74-1.75)	0.73	
	Other ^c	1747	1.87 (1.01-3.47)	0.18	0.69
Residential location	Urban	5758	1.30 (0.90-1.88)	0.45	
	Suburban, small town	17237	1.28 (1.04-1.59)	0.23	
	Rural	5184	1.54 (1.07-2.21)	0.005	0.26
Educational attainment	High school degree or less	3725	1.32 (0.89-1.97)	0.11	
	Some college	8503	1.36 (1.04-1.77)	0.01	
	College degree or higher	15991	1.37 (1.07-1.76)	0.06	0.79
Income	< \$49,999	5574	1.56 (1.13-2.15)	0.05	
	\$50,000-\$99,999	10826	0.95 (0.74-1.22)	0.71	
	\geq \$100,000	10668	1.88 (1.37-2.59)	<0.001	0.11
Household composition	Absence of a family member aged <18 y or ≥ 65 y	10721	1.42 (1.08-1.87)	0.007	
	Presence of a family member aged <18 y or ≥ 65 y	13189	1.16 (0.91-1.48)	0.20	0.03
Smoking	Never	16311	1.28 (1.02-1.61)	0.01	
	Former	9855	1.39 (1.04-1.85)	0.02	
	Current	2054	1.34 (0.88-2.04)	0.25	0.74
Alcohol consumption	Never/former	4399	1.41 (0.98-2.01)	0.11	
	Current, ≤ 1 drink per day	20197	1.27 (1.04-1.54)	0.008	

	Current, > 1 drink per day	3591	1.75 (1.01-3.03)	0.08	0.79
Sleep duration ^d	<7 h	7090	1.45 (1.09-1.91)	0.02	
	7-9 h	20877	1.28 (1.04-1.58)	0.01	0.77
Leisure time physical activity (MET-h/wk)	< 7.5 (insufficient)	10662	1.21 (0.96-1.52)	0.08	
	7.5 to 21 (moderate)	9578	1.33 (0.99-1.78)	0.02	
	≥ 21 (high)	7962	1.64 (1.11-2.41)	0.13	0.14
Healthy Eating Index-2015, tertile ^e	1 (lower diet quality)	9230	1.05 (0.83-1.33)	0.89	
	2	9230	1.51 (1.13-2.03)	0.005	
	3 (higher diet quality)	9230	1.71 (1.18-2.48)	0.003	0.001
Night time snacking	No	26177	1.34 (1.12-1.60)	0.002	
	Yes	1560	1.39 (0.84-2.30)	0.09	0.12
Having diabetes, hypertension, or high cholesterol	No	15834	1.38 (1.08-1.76)	0.009	
	Yes	12322	1.25 (1.00-1.55)	0.06	0.28

Abbreviations: BMI, body mass index; MET, metabolic equivalent.

^a Adjusted for age at baseline, log of follow-up time, race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, others), residential location (urban, suburban or small town, rural), educational attainment (high school degree or less, some college, college degree or higher), household income (<\$49,999, \$50,000-\$99,999, \$100,000+, missing), number of family members <18 years living in household (none, 1, 2, ≥3, missing), and number of family members ≥65 years living in household (none, 1, ≥2, missing), marital status (never married, married, other), smoking status (never smoker, current smoker, former smoker), alcohol consumption (never, former, current drinker ≤ 1 drink/day, current drinker > 1 drink/day), caffeine consumption (quintiles), menopausal status, depression, and perceived stress (quartile) except a stratifying variable.

^b Tests for linear trend across each category of exposure to artificial light at night while sleeping (no light, small nightlight, light outside the room, and light/television in room) were performed.

^c A modified obesity cutoff (BMI ≥25 kg/m²) was applied for Asian Americans.

^d Subjects with a sleep duration > 9 hours were not analyzed due to small sample size (n=221).

^e Calculated after excluding women who reported implausibly extreme energy intakes (<500 and >5000 kcals/d).

eTable 7. Adjusted Relative Risks and 95% CIs for the Joint Association of ALAN Exposure, Leisure Time Physical Activity, and Healthy Eating Index–2015 With Subsequent Weight Gain of ≥ 5 kg and Incident Obesity

			Leisure time physical activity		Healthy Eating Index-2015	
			High	Insufficient	Tertile 3 (higher quality diet)	Tertile 1 (lower quality diet)
Weight gain of 5 kg or more	ALAN	No ALAN exposure	1	1.32 (1.14, 1.52)	1	1.45 (1.26, 1.67)
		Light/television in room	1.40 (1.16, 1.69)	1.35 (1.16, 1.56)	1.37 (1.15, 1.64)	1.47 (1.27, 1.70)
Obesity (BMI ≥ 30 kg/m ²)	ALAN	No ALAN exposure	1	1.96 (1.47, 2.63)	1	2.05 (1.54, 2.73)
		Light/television in room	1.72 (1.17, 2.53)	2.21 (1.63, 2.98)	1.82 (1.26, 2.62)	2.05 (1.52, 2.76)

^a Adjusted for age at baseline, log of follow-up time, race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, others), residential location (urban, suburban or small town, rural), educational attainment (high school degree or less, some college, college degree or higher), household income (<\$49,999, \$50,000-\$99,999, \$100,000+, missing), number of family members <18 years living in household (none, 1, 2, ≥ 3 , missing), and number of family members ≥ 65 years living in household (none, 1, ≥ 2 , missing), marital status (never married, married, other), smoking status (never smoker, current smoker, former smoker), alcohol consumption (never, former, current drinker ≤ 1 drink/day, current drinker > 1 drink/day), caffeine consumption (quintiles), menopausal status, depression, and perceived stress (quartile), as well as Healthy Eating Index-2015 for leisure time physical activity and leisure time physical activity for Healthy Eating Index-2015.

eTable 8. Association Between ALAN Exposure While Sleeping and Subsequent Weight Gain Using Percent Increase in BMI as a Continuous Variable^a

		Beta-coefficient and 95% CI for outcome in relation to exposure to artificial light at night while sleeping compared to no light				
	Outcome	No ALAN exposure	Small nightlight in room	Light outside room	Light/television in room	P trend
Percentage increase in BMI	Self-reported BMI in all women (n=31,301)	Ref	0.04 (-0.17, 0.25)	0.04 (-0.18, 0.26)	0.44 (0.15, 0.74)	0.02
	Measured BMI in subcohort ^b (n=1,569)	Ref	0.19 (-0.82, 1.21)	0.85 (-0.21, 1.91)	1.39 (-0.04, 2.82)	0.02
Absolute increase in BMI	Self-reported BMI in all women (n=31,301)	Ref	0.01 (-0.05, 0.07)	0.03 (-0.03, 0.09)	0.16 (0.08, 0.23)	0.004
	Measured BMI in subcohort ^b (n=1,569)	Ref	0.06 (-0.21, 0.34)	0.25 (-0.03, 0.54)	0.48 (0.09, 0.86)	0.01

Abbreviations: BMI, body mass index. Data are presented as beta-coefficient (95% confidence interval). Women with 5% weight loss which may be related to intentional or unintentional weight loss and extreme values of BMI increase (>99 percentile) were excluded in the analyses.

^a Adjusted for age at baseline, log of follow-up time, race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, others), residential location (urban, suburban or small town, rural), educational attainment (high school degree or less, some college, college degree or higher), household income (<\$49,999, \$50,000-\$99,999, \$100,000+, missing), number of family members <18 years (none, 1, 2, ≥3, missing), and number of family members ≥65 years (none, 1, ≥2, missing), marital status (never married, married, other), smoking status (never smoker, current smoker, former smoker), alcohol consumption (never, former, current drinker ≤ 1 drink/day, current drinker > 1 drink/day), caffeine consumption (quintiles), menopausal status, depression, and perceived stress (quartile).

^b A subsample of women who had their height and weight remeasured at 7.9 years of median follow-up.

eTable 9. Comparison of Baseline Characteristics Between 2 Categories (Clusters) of Women With Television in Room

Characteristic	Television in room cluster 1		Television in room cluster 2	
	n (%)		n (%)	
n (%)	1,667	(54.9)	1,368	(45.1)
Mean (SD)				
Age at baseline, y	53.5	(8.4)	53.3	(8.5)
BMI (kg/m ²)	27.5	(5.3)	31.6	(6.7)
Waist circumference (cm)	85.6	(13.1)	95.1	(15.6)
Sleep duration, h	7.1	(1.0)	6.2	(1.2)
Total MET-h/wk of physical activity	49.6	(28.8)	45.5	(28.5)
Caffeine consumption (mg/d) ^a	27.5	(38.3)	32.0	(38.6)
Fiber consumption (g) ^a	16.4	(8.5)	14.3	(7.5)
Fat consumption (g) ^a	66.2	(30.4)	73.2	(36.9)
Total energy intake (kcal/d) ^a	1586	(619)	1706	(738)
Glycemic load ^a	83.2	(39.2)	95.2	(46.4)
Health Eating Index-2015 ^a	71.3	(8.2)	64.9	(9.1)
Percent (%)				
Race/ethnicity				
Non-Hispanic White	73.3		54.6	
Non-Hispanic Black	21.2		33.7	
Hispanic	3.8		9.1	
Other	1.7		2.6	
Residential location				
Urban	17.6		19.8	
Suburban or Small town	62.2		55.0	
Rural	20.2		25.2	
Marital status				
Never married	7.0		9.7	
Married, living as married	76.2		57.9	
Separated, divorced, widowed	16.9		32.5	
Educational attainment				
High school degree or less	10.6		28.7	
Some college	37.6		47.0	
College degree or higher	51.7		24.3	
Income				
< \$49,999	13.1		47.7	
\$50,000-\$99,999	42.2		39.0	
≥ \$100,000	41.0		10.2	
Missing	3.8		3.1	
No. family members aged <18 y				
None	54.1		45.2	
1	14.8		16.0	
2	10.8		9.6	
≥3	3.7		4.4	

Missing	16.7	24.9
No. family members aged ≥ 65 y		
None	68.5	62.9
1	8.8	6.9
≥ 2	6.1	5.4
Missing	16.7	24.9
Alcohol consumption		
Never	2.5	3.7
Former	13.0	21.1
Current consumption, ≤ 1 drink/d	73.4	66.8
Current consumption, > 1 drink/d	11.0	8.4
Smoking status		
Never	50.7	45.2
Former	38.2	32.2
Current	11.1	22.6
Leisure time physical activity (MET hours/week)		
< 7.5	48.1	67.3
7.5-21	31.9	22.8
≥ 21	20.0	9.9
Night time snacking (yes)	10.5	26.8
Menopause (yes)	57.1	59.8
Perceived stress in highest quartile	16.2	46.4
Depression (yes)	17.3	27.6
Sleep duration, h		
< 7 h	28.4	63.8
7-9 h	70.3	35.6
> 9 h	1.3	0.6
When awakened at night, turns on light?		
Never wakes up or does not turn on the light	87.2	82.2
Turns on light/ Light already on	12.8	17.8
Wake-up pattern past 6 weeks		
Same every day	67.1	59.9
Same on workdays /Different on days off	24.7	20.9
Different but consistent	3.4	4.0
No consistent time	4.9	15.2
Bedtime pattern past 6 weeks		
Same every day	60.9	43.6
Same on workdays /Different on days off	20.7	18.1
Different but consistent	7.1	8.3
No consistent time	11.4	30.0
Time it takes to fall asleep		
< 15 min	44.5	12.7
15 - 30 min	41.5	35.2
30 min - 1 hour	11.2	25.9

> 1 hour	2.9		26.2	
Frequency of waking up at night				
< 1 day a month	3.0		3.1	
1-3 days a month	59.4		42.1	
≥ once a week	26.2		31.9	
Most or every night	11.4		22.9	
Frequency of napping				
Never	35.2		28.5	
< 1 day a month	21.2		16.9	
1-3 days a month	20.2		19.9	
≥ once a week	19.1		27.7	
Most or every day	4.3		7.0	
Sleep medication use in prior six weeks				
Yes	19.3		27.3	

Abbreviations: BMI, body mass index; MET, metabolic equivalent.

Data are presented as mean (standard deviation), or percentage.

^a Calculated after excluding women who reported implausibly extreme energy intakes (<500 and >5000 kcals/d).

eTable 10. Association Between ALAN Exposure While Sleeping, Subsequent Weight Gain, and Incident Obesity Including Adjustment for Categories (Clusters) of Women With Television in Room

		Exposure to artificial light at night while sleeping						P trend
		No ALAN exposure (n=7,807)	Small nightlight in room (n=17,320)	Light outside room (n=13,471)	Television in room cluster 1 (n=1,667)	Television in room cluster 2 ^d (n=1,368)	Light in room (n=1,694)	
Weight gain of 5 kg or more	MV-adjusted RR ^c	1	1.01 (0.94, 1.07)	1.03 (0.96, 1.10)	1.21 (1.08, 1.36)	1.09 (0.96, 1.24)	1.19 (1.07, 1.33)	<0.001
BMI percent increase of 10% or more	MV-adjusted RR ^c	1	1.04 (0.96, 1.12)	1.04 (0.96, 1.13)	1.19 (1.03, 1.38)	1.03 (0.87, 1.21)	1.17 (1.01, 1.34)	0.03
Overweight (BMI ≥ 25 kg/m ²) ^a	MV-adjusted RR ^c	1	1.11 (1.00, 1.22)	1.08 (0.97, 1.20)	1.18 (0.97, 1.43)	1.24 (0.96, 1.62)	1.25 (1.04, 1.51)	0.02
Obesity (BMI ≥ 30 kg/m ²) ^b	MV-adjusted RR ^c	1	1.15 (1.01, 1.30)	1.20 (1.05, 1.37)	1.29 (1.02, 1.62)	1.52 (1.17, 1.97)	1.27 (1.01, 1.59)	<0.001

Abbreviations: BMI, body mass index. Data are presented as relative risk (95% 95% confidence interval).

^a among women with a BMI < 25 kg/m² at baseline (n=17,179)

^b among women with a BMI < 30 kg/m² at baseline (n=31,188)

^c Adjusted for age at baseline, log of follow-up time, race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, others), residential location (urban, suburban or small town, rural), educational attainment (high school degree or less, some college, college degree or higher), household income (<\$49,999, \$50,000-\$99,999, \$100,000+, missing), number of family members <18 years living in household (none, 1, 2, ≥3, missing), and number of family members ≥65 years living in household (none, 1, ≥2, missing), marital status (never married, married, other), smoking status (never smoker, current smoker, former smoker), alcohol consumption (never, former, current drinker ≤ 1 drink/day, current drinker > 1 drink/day), caffeine consumption (quintiles), menopausal status, depression, and perceived stress (quartile).

^d Women within cluster 2 are more likely to be nonwhite, had lower levels of physical activity and poorer diet quality, lower educational attainment and household income, higher stress and depression, and worse sleep characteristics than those within cluster 1.

eTable 11. Association Between ALAN Exposure While Sleeping, Subsequent Weight Gain and Incident Obesity, After Excluding Women Who Responded “Yes” to Waking Up for Any Reason Every Night or Most Nights (n = 26 849)

		Exposure to artificial light at night while sleeping						
		No ALAN exposure	Small nightlight in room	Light outside room	Light/television in room	P trend	No ALAN exposure (n=2980)	Any ALAN exposure (n=11959)
Weight gain of 5 kg or more	No. of events	457	1007	755	354		457	2116
	Cumulative incidence	15.3	16.8	17.1	22.9		15.3	17.7
	Multivariable-adjusted RR ^c	1	1.06 (0.96, 1.17)	1.06 (0.95, 1.18)	1.27 (1.12, 1.45)	0.002	1	1.09 (0.99, 1.19)
BMI percent increase of 10% or more	No. of events	317	730	522	258		457	2116
	Cumulative incidence	10.7	12.2	11.9	16.8		15.3	17.7
	Multivariable-adjusted RR ^c	1	1.11 (0.98, 1.26)	1.06 (0.93, 1.21)	1.37 (1.18, 1.61)	0.003	1	1.13 (1.01, 1.27)
Overweight (BMI ≥ 25 kg/m ²) ^a	No. of events	202	451	309	101		202	861
	Cumulative incidence	14.3	17.2	17.5	20.9		14.3	17.7
	Multivariable-adjusted RR ^c	1	1.20 (1.03, 1.40)	1.19 (1.01, 1.41)	1.25 (1.00, 1.56)	0.03	1	1.20 (1.05, 1.39)
Obesity (BMI ≥ 30 kg/m ²) ^b	No. of events	116	316	221	100		116	637
	Cumulative incidence	5.0	6.9	6.8	10.1		5.0	7.2
	Multivariable-adjusted RR ^c	1	1.37 (1.12, 1.68)	1.32 (1.07, 1.64)	1.64 (1.25, 2.14)	0.001	1	1.39 (1.15, 1.68)

Abbreviations: BMI, body mass index.

^a among women with a BMI < 25 kg/m² at baseline (n=6,932).

^b among women with a BMI < 30 kg/m² at baseline (n=12,442).

^c Adjusted for age at baseline, log of follow-up time, race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, others), residential location (urban, suburban or small town, rural), educational attainment (high school degree or less, some college, college degree or higher), household income (<\$49,999, \$50,000-\$99,999, \$100,000+, missing), number of family members <18 years living in household (none, 1, 2, ≥3, missing), and number of family members ≥65 years living in household (none, 1, ≥2, missing), marital status (never married, married, other), smoking status (never smoker, current smoker, former smoker), alcohol consumption (never, former, current drinker ≤ 1 drink/day, current drinker > 1 drink/day), caffeine consumption (quintiles), menopausal status, depression, and perceived stress (quartile).

eTable 12. Association Between ALAN Exposure While Sleeping, Subsequent Weight Gain, and Incident Obesity, After Excluding Women Who Reported Taking Naps

		Exposure to artificial light at night while sleeping						
		No ALAN exposure	Small nightlight in room	Light outside room	Light/television in room	P trend	No ALAN exposure (n=2980)	Any ALAN exposure (n=11959)
Weight gain of 5 kg or more	No. of events	376	802	564	295		376	1661
	Cumulative incidence	14.3	14.9	15.2	22.7		14.3	16.0
	Multivariable-adjusted RR ^c	1	1.05 (0.94, 1.17)	1.02 (0.90, 1.15)	1.34 (1.17, 1.54)	0.002	1	1.08 (0.97, 1.19)
BMI percent increase of 10% or more	No. of events	273	597	394	206		273	1197
	Cumulative incidence	10.5	11.2	10.7	15.9		10.5	12.6
	Multivariable-adjusted RR ^c	1	1.07 (0.94, 1.22)	0.97 (0.84, 1.12)	1.31 (1.10, 1.55)	0.09	1	1.07 (0.94, 1.21)
Overweight (BMI ≥ 25 kg/m ²) ^a	No. of events	186	370	239	102		186	711
	Cumulative incidence	14.9	14.5	15.1	21.8		14.9	15.4
	Multivariable-adjusted RR ^c	1	0.97 (0.83, 1.14)	0.97 (0.82, 1.16)	1.22 (0.98, 1.52)	0.26	1	1.00 (0.86, 1.16)
Obesity (BMI ≥ 30 kg/m ²) ^b	No. of events	100	255	189	80		100	524
	Cumulative incidence	4.8	6.0	6.8	9.3		4.8	6.7
	Multivariable-adjusted RR ^c	1	1.26 (1.01, 1.58)	1.35 (1.07, 1.70)	1.54 (1.15, 2.06)	0.003	1	1.33 (1.08, 1.63)

Abbreviations: BMI, body mass index.

^a among women with a BMI < 25 kg/m² at baseline (n=6,365).

^b among women with a BMI < 30 kg/m² at baseline (n=11,009).

^c Adjusted for age at baseline, log of follow-up time, race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, others), residential location (urban, suburban or small town, rural), educational attainment (high school degree or less, some college, college degree or higher), household income (<\$49,999, \$50,000-\$99,999, \$100,000+, missing), number of family members <18 years living in household (none, 1, 2, ≥3, missing), and number of family members ≥65 years living in household (none, 1, ≥2, missing), marital status (never married, married, other), smoking status (never smoker, current smoker, former smoker), alcohol consumption (never, former, current drinker ≤ 1 drink/day, current drinker > 1 drink/day), caffeine consumption (quintiles), menopausal status, depression, and perceived stress (quartile).

eTable 13. Association Between ALAN Exposure While Sleeping, Subsequent Weight Gain, And Incident Obesity With Inverse Probability Weighting to Account for Loss to Follow-up^d

		Exposure to artificial light at night while sleeping				P trend
		No ALAN exposure	Small nightlight in room	Light outside room	Light/television in room	
Weight gain of 5 kg or more	Multivariable-adjusted RR ^c	1	1.01 (0.94, 1.08)	1.03 (0.96, 1.11)	1.17 (1.07, 1.28)	<0.001
BMI percent increase of 10% or more	Multivariable-adjusted RR ^c	1	1.04 (0.95, 1.13)	1.04 (0.95, 1.14)	1.13 (1.01, 1.27)	0.03
Overweight (BMI ≥ 25 kg/m ²) ^a	Multivariable-adjusted RR ^c	1	1.11 (0.99, 1.23)	1.08 (0.96, 1.21)	1.22 (1.04, 1.42)	0.03
Obesity (BMI ≥ 30 kg/m ²) ^b	Multivariable-adjusted RR ^c	1	1.15 (1.01, 1.31)	1.20 (1.04, 1.37)	1.33 (1.12, 1.58)	<0.001

Abbreviations: BMI, body mass index. Data are presented as relative risk (95% confidence interval).

^a among women with a BMI < 25 kg/m² at baseline (n=17,179).

^b among women with a BMI < 30 kg/m² at baseline (n=31,188).

^c Adjusted for age at baseline, log of follow-up time, race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, others), residential location (urban, suburban or small town, rural), educational attainment (high school degree or less, some college, college degree or higher), household income (<\$49,999, \$50,000-\$99,999, \$100,000+, missing), number of family members <18 years (none, 1, 2, ≥3, missing), and number of family members ≥65 years (none, 1, ≥2, missing), marital status (never married, married, other), smoking status (never smoker, current smoker, former smoker), alcohol consumption (never, former, current drinker ≤ 1 drink/day, current drinker > 1 drink/day), caffeine consumption (quintiles), menopausal status, depression, and perceived stress (quartile).

^d Adjusted for age at baseline, log of follow-up time, race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, others), residential location (urban, suburban or small town, rural), educational attainment (high school degree or less, some college, college degree or higher), household income (<\$49,999, \$50,000-\$99,999, \$100,000+, missing), number of family members <18 years living in household (none, 1, 2, ≥3, missing), and number of family members ≥65 years living in household (none, 1, ≥2, missing), marital status (never married, married, other), smoking status (never smoker, current smoker, former smoker), alcohol consumption (never, former, current drinker ≤ 1 drink/day, current drinker > 1 drink/day), caffeine consumption (quintiles), menopausal status, depression, and perceived stress (quartile), sleep duration (<7, 7-9, >9), turns on light when awakened at night (yes/no), bedtime pattern (same every day, same on workdays /different on days off, different but consistent, no consistent time), number of wake-ups (< 1 day a month, 1-3 days a month, ≥ once a week, most or every night), time it takes to fall asleep (< 15 min, 15-30 min, 30 min-1 hour, > 1 hour), frequency of napping (never, < 1 day a month, 1-3 days a month, ≥ once a week, most or every day), sleep medication use, total physical activity (MET-h/wk, quintiles), leisure time physical activity (insufficient, moderate, high), total energy intake, fat consumption (quintiles), fiber consumption (quintiles), glycemic load (quintiles), and night time snacking (yes, no).

eTable 14. Association Between ALAN Exposure While Sleeping, Subsequent Weight Gain, And Incident Obesity in Analysis Limited to 1 Randomly Selected Woman per Sibship (n = 39 188)

		Exposure to artificial light at night while sleeping						
		No ALAN exposure	Small nightlight in room	Light outside room	Light/television in room	P trend	No ALAN exposure	Any ALAN exposure
Weight gain of 5 kg or more	Multivariable-adjusted RR ^c	1	1.01 (0.94, 1.08)	1.02 (0.95, 1.10)	1.17 (1.08, 1.27)	0.002	1	1.04 (0.98, 1.11)
BMI percent increase of 10% or more	Multivariable-adjusted RR ^c	1	1.03 (0.95, 1.12)	1.04 (0.95, 1.13)	1.11 (0.99, 1.24)	0.10	1	1.05 (0.97, 1.13)
Overweight (BMI ≥ 25 kg/m ²) ^a	Multivariable-adjusted RR ^c	1	1.10 (0.99, 1.22)	1.06 (0.95, 1.19)	1.21 (1.05, 1.40)	0.06	1	1.10 (1.00, 1.21)
Obesity (BMI ≥ 30 kg/m ²) ^b	Multivariable-adjusted RR ^c	1	1.11 (0.98, 1.27)	1.17 (1.01, 1.34)	1.27 (1.07, 1.51)	0.005	1	1.15 (1.02, 1.31)

Abbreviations: BMI, body mass index. Data are presented as relative risk (95% confidence interval).

^a among women with a BMI < 25 kg/m² at baseline (n=15,339).

^b among women with a BMI < 30 kg/m² at baseline (n=27,905).

^c Adjusted for age at baseline, log of follow-up time, race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, others), residential location (urban, suburban or small town, rural), educational attainment (high school degree or less, some college, college degree or higher), household income (<\$49,999, \$50,000-\$99,999, \$100,000+, missing), number of family members <18 years living in household (none, 1, 2, ≥3, missing), and number of family members ≥65 years living in household (none, 1, ≥2, missing), marital status (never married, married, other), smoking status (never smoker, current smoker, former smoker), alcohol consumption (never, former, current drinker ≤ 1 drink/day, current drinker > 1 drink/day), caffeine consumption (quintiles), menopausal status, depression, and perceived stress (quartile).

eTable 15. Association Between ALAN Exposure While Sleeping and Sleep Hours

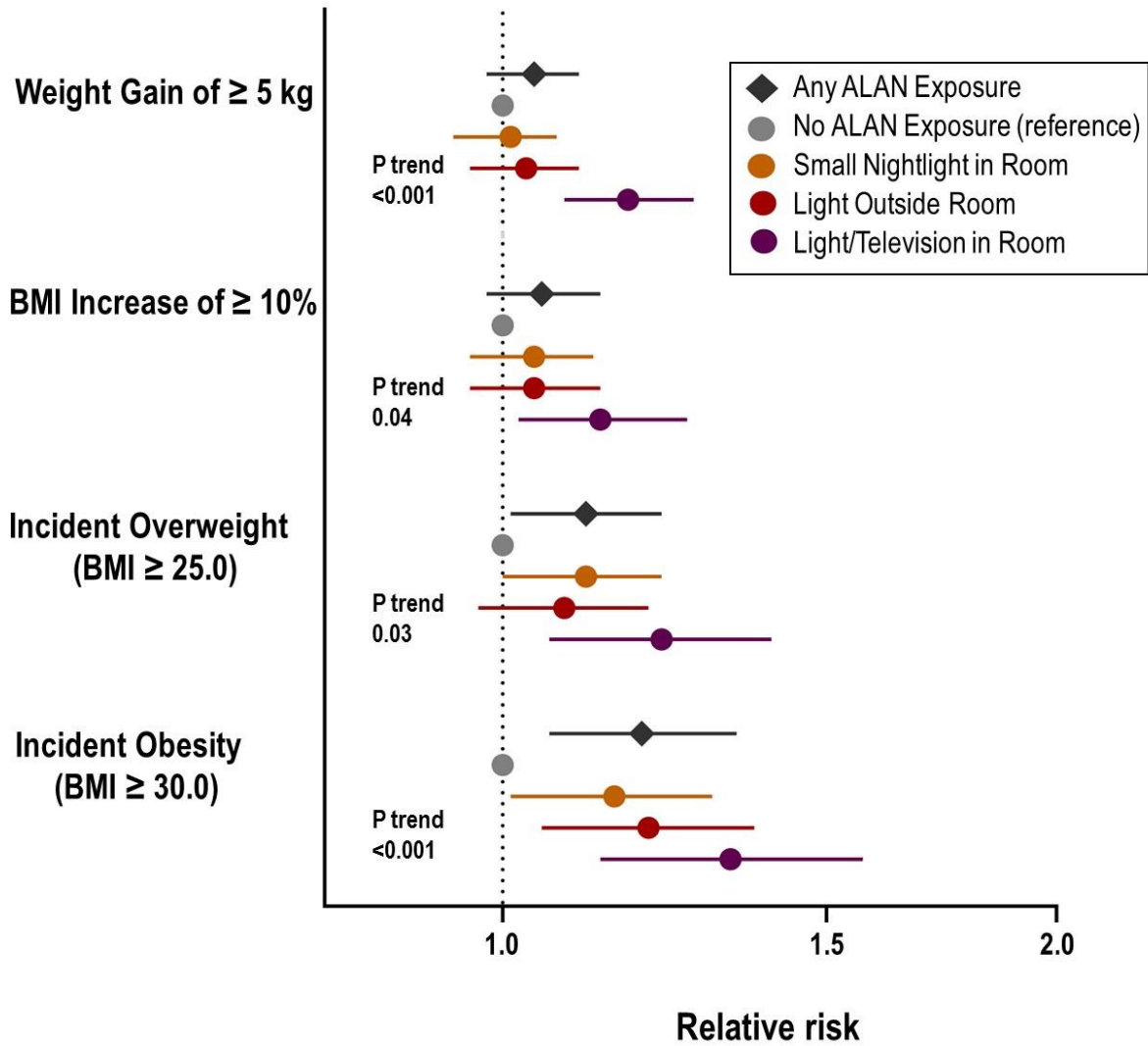
	Exposure to artificial light at night while sleeping compared to no ALAN exposure			
	Small nightlight in room	Light outside room	Light/television in room	P trend
Age-adjusted β coefficient	0.01 (-0.02, 0.04)	-0.04 (-0.07, -0.01)	-0.42 (-0.46, -0.38)	<0.001
Multivariable-adjusted β coefficient ^a	-0.02 (-0.04, 0.01)	-0.04 (-0.07, -0.01)	-0.26 (-0.30, -0.22)	<0.001
Multivariable-adjusted β coefficient ^b	-0.02 (-0.05, 0.004)	-0.04 (-0.07, -0.01)	-0.17 (-0.21, -0.13)	<0.001
Multivariable-adjusted β coefficient ^c	-0.03 (-0.05, 0.001)	-0.04 (-0.07, -0.01)	-0.17 (-0.21, -0.13)	<0.001

Data are presented as beta-coefficient (95% confidence interval).

^a Adjusted for age at baseline, log of follow-up time, race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, others), residential location (urban, suburban or small town, rural), educational attainment (high school degree or less, some college, college degree or higher), household income (<\$49,999, \$50,000-\$99,999, \$100,000+, missing), number of family members <18 years living in household (none, 1, 2, \geq 3, missing), and number of family members \geq 65 years living in household (none, 1, \geq 2, missing), marital status (never married, married, other), smoking status (never smoker, current smoker, former smoker), alcohol consumption (never, former, current drinker \leq 1 drink/day, current drinker > 1 drink/day), caffeine consumption (quintiles), menopausal status, depression, and perceived stress (quartile).

^b Additionally adjusted for turns on light when awakened at night (yes/no), bedtime pattern (same every day, same on workdays /different on days off, different but consistent, no consistent time), number of wake-ups (< 1 day a month, 1-3 days a month, \geq once a week, most or every night), time it takes to fall asleep (< 15 min, 15-30 min, 30 min-1 hour, > 1 hour), frequency of napping (never, < 1 day a month, 1-3 days a month, \geq once a week, most or every day), and sleep medication use.

^c Additionally adjusted for total physical activity (MET-h/wk, quintiles), leisure time physical activity (insufficient, moderate, high), total energy intake, fat consumption (quintiles), fiber consumption (quintiles), glycemic load (quintiles), and night time snacking (yes, no).



eFigure. Association Between ALAN Exposure While Sleeping, Subsequent Weight Gain, and Incident Obesity