Snoring: A Source of Noise Pollution and Sleep Apnea Predictor

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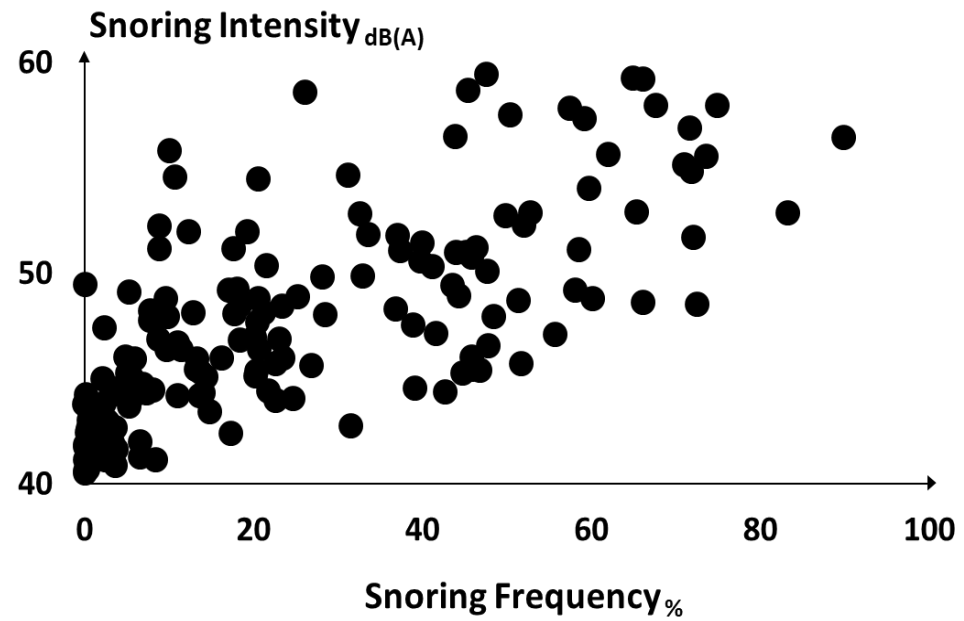E-mail: msowho1@jhmi.edu Phone: +1 410 550 6264

Figure S1. A scatter plot of Snoring intensity vs Snoring frequency for the 162
participants in the study population.
Definitions: Snoring intensity, participant's mean peak inspiratory sound level in decibels
(dB(A)); Snoring frequency the percentage of inspiratory breaths during sleep with sound
peaks ≥ 40 dB(A). Pearson's correlation coefficient; $r = 0.71$ and $p < 0.0001$.
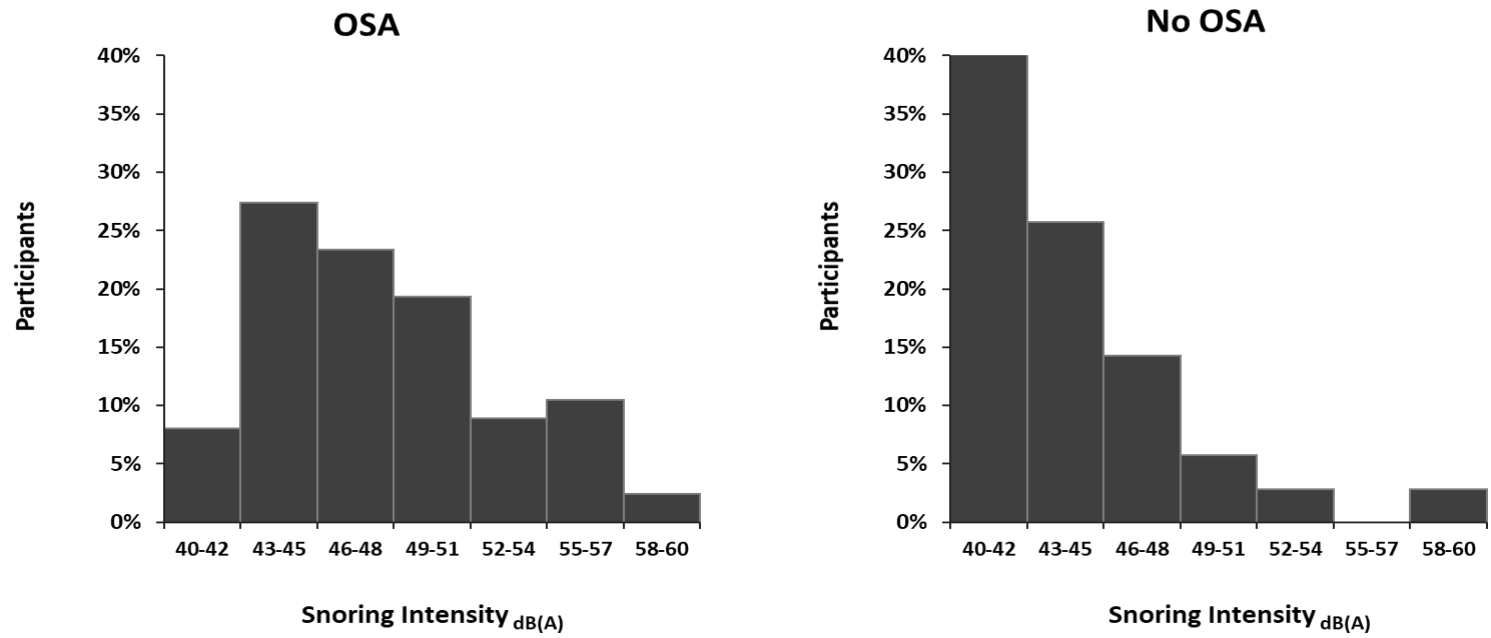
Figure S2a. The distribution of snoring intensity in decibels (dB(A)) for participants with and without obstructive sleep apnea (OSA).
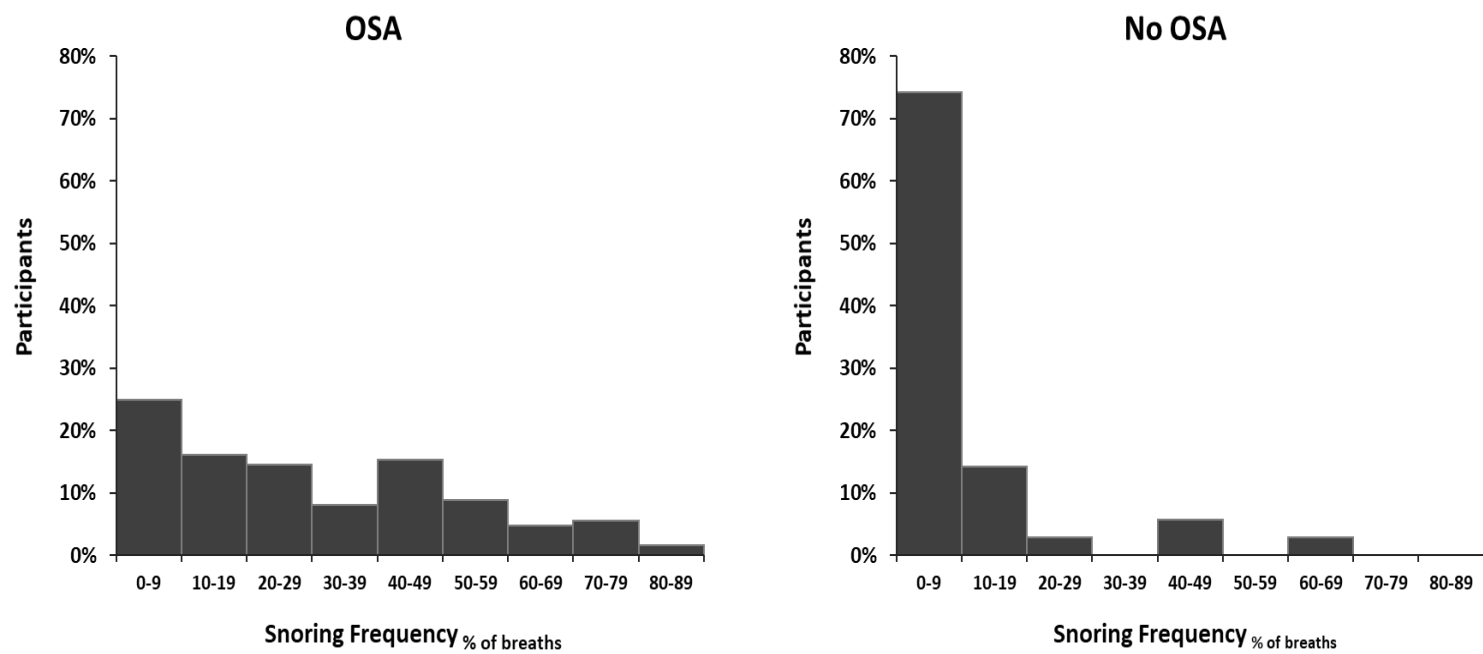
Figure S2b. The distribution of the proportion of snoring breaths for participants with and without obstructive sleep apnea (OSA).

Table S1a: Association of Snoring Intensity and OSA

	Snoring Intensity		
	< 53 dB(A)	≥ 53 dB(A)	Overall
OSA	0.743	0.955	0.772
No OSA	0.257	0.045	0.228
Total	1	1	1

Table S1a. Shows the proportion of participants with and without OSA in the snoring intensity categories. Fisher's exact test demonstrated that OSA was dependent on snoring intensity with a p value = 0.00.

Table S1b: Association of Snoring frequency and OSA

	Snoring Frequency		
	< 25% of Breaths	≥ 25% of Breaths	Overall
OSA	0.633	0.953	0.780
No OSA	0.337	0.047	0.220
Total	1	1	1

Table S1b. Shows the proportion of participants with and without OSA in the snoring frequency categories. Fisher's exact test demonstrated that OSA was dependent on snoring frequency with a p value = 0.00.

Table S2: Association of breath-by-breath peak inspiratory sound and inspiratory duty cycle

Outcome: Peak inspiratory Sound	*B*	SE	p-value
Fixed Effects			
Intercept	45.81	0.55	<0.0001
T_i/T_{TOT}	8.88	0.63	<0.0001
N1	-6.46	0.23	<0.0001
N2	-2.92	0.12	<0.0001
REM	-5.37	0.16	<0.0001
Non-Supine	-2.93	0.18	<0.0001
Random Effects		*N*	
Subject ID		77	
Observations		15,597	

Table S2. Shows the association between with peak inspiratory sound in decibels (dB(A)) and the severity of upper airway obstruction represented by T_i/T_{TOT} (inspiratory duty cycle). Randomly selected breaths were analyzed in a linear mixed effects regression model to account for repeated measures within individuals. Sleep stage and position are included in the model as categorical variables with N3 sleep and supine position used as the references. The beta coefficients (*B*), standard errors (SE) and p values are presented.