

Supplementary Table 1 The relationships among demographic characteristics, sleep disorders and HCC level

Variables	Sleep Disorders		OR (95%CI)	<i>p</i>	Original HCC Median(Q ₁ - Q ₃) (ng/g hair)	Original HCC GM±GSD (ng/g hair)	<i>t</i> / <i>F</i>	Cohen's d/ η ²	<i>p</i>
	Yes [n (%)] (n=124)	No [n (%)] (n=311)							
Gender									
Male	40(24.39)	124(75.61)	1.00	0.140	3.33 (2.22-5.08)	3.28±1.67	0.836	0.086	0.403
Female	84(31.00)	187(69.00)	1.39 (0.90-2.16)		3.05 (2.11-4.55)	3.14±1.66			
Age									
<30	19(29.23)	46(70.77)	1.00	0.603	3.41 (2.42-4.49)	3.36±1.61	1.134	0.005	0.323
30-	40(25.64)	116(74.36)	0.84 (0.44-1.59)		2.95 (2.10-4.88)	3.05±1.66			
40-	65(30.37)	149(69.63)	1.06 (0.58-1.94)		3.24 (2.20-4.72)	3.25±1.67			
Ethnicity									
Han	95(27.70)	248(72.30)	1.00	0.718	3.17 (2.10-4.73)	3.16±1.67	0.704	0.003	0.495
Uyghur	14(29.79)	33(70.21)	1.11 (0.57-2.16)		3.28 (2.28-4.06)	3.24±1.63			
Others	15(33.33)	30(66.67)	1.30 (0.67-2.53)		3.63 (2.56-4.84)	3.47±1.60			

Education									
High school and below	33(32.67)	68(67.33)	1.00		3.58 (2.26-4.86)	3.33±1.71			
Junior college	72(26.09)	204(73.91)	0.73 (0.44-1.19)	0.340	3.12 (2.13-4.67)	3.15±1.64	0.467	0.002	0.627
Bachelor degree and above	19(32.76)	39(67.24)	1.00 (0.50-2.00)		3.18 (2.33-4.19)	3.18±1.65			
Marital status									
Spinsterhood	13(24.53)	40(75.47)	1.00		3.41 (2.42-5.18)	3.41±1.63			
Married	95(29.50)	227(70.50)	1.29 (0.66-2.52)	0.716	3.19 (2.16-4.63)	3.21±1.65	1.450	0.007	0.236
Others (divorce, widow and remarry)	16(26.67)	44(73.33)	1.12 (0.48-2.61)		3.35 (1.87-4.71)	2.92±1.72			
Monthly income(yuan)									
<3000	30(32.26)	63(67.74)	1.00		3.20 (2.20-5.06)	3.27±1.69			
3000-5000	87(27.62)	228(72.38)	0.80 (0.49-1.32)	0.653	3.16 (2.14-4.55)	3.14±1.64	0.846	0.004	0.430
≥5000	7(25.93)	20(74.07)	0.74 (0.28-1.93)		3.64 (2.21-5.32)	3.54±1.73			
Physical exercise									
Never	30(30.00)	70(70.00)	1.00	0.453	3.52 (2.06-4.94)	3.24±1.68	0.794	0.005	0.497
<3 times/week	34(23.78)	109(76.22)	0.99		2.94	3.03±1.64			

			(0.56-1.72)		(2.10-4.24)				
≥3 times/week	17(34.00)	33(66.00)	0.72 (0.42-1.22)		3.37 (2.38-5.41)	3.35±1.68			
Irregular	43(30.28)	99(69.72)	1.19 (0.60-2.36)		3.24 (2.28-4.83)	3.27±1.68			
Smoking status									
Frequently	19(22.89)	64(77.11)	1.00		3.16 (2.11-4.96)	3.14±1.66			
Occasionally	13(24.53)	40(75.47)	1.10 (0.49-2.46)	0.469	3.28 (2.25-4.81)	3.21±1.66	0.039	<0.001	0.990
Quitted	7(28.00)	18(72.00)	1.31 (0.48-3.60)		2.83 (2.14-5.17)	3.20±1.78			
Never	85(31.02)	189(68.98)	1.52 (0.86-2.68)		3.19 (2.15-4.62)	3.21±1.66			
Alcohol consumption									
Frequently	8(24.24)	25(75.76)	1.00		3.21 (2.18-5.08)	3.18±1.70			
Occasionally	49(29.34)	118(70.66)	1.30 (0.55-3.08)	0.821	3.34 (2.29-5.06)	3.28±1.66	0.312	0.002	0.817
Quitted	5(21.74)	18(78.26)	0.87 (0.24-3.09)		2.82 (2.14-5.15)	3.03±1.79			
Never	62(29.25)	150(70.75)	1.29 (0.55-3.03)		3.15 (2.10-4.49)	3.15±1.64			
Length of service (years)									
<20	61(26.29)	171(73.71)	1.00	0.445	3.11 (2.12-4.82)	3.13±1.66	-0.784	0.077	0.433

≥20	63(31.03)	140(68.97)	1.26 (0.83-1.91)		3.28 (2.21-4.68)	3.26±1.66			
Type of work									
Oil transportation	67(25.48)	196(74.52)	1.00		3.17 (2.10-4.66)	3.13±1.66			
Oil extraction	4(23.53)	13(76.47)	0.90 (0.28-2.86)	0.162	2.85 (2.15-4.85)	3.03±1.84	0.583	0.004	0.626
Refinery	19(29.23)	46(70.77)	1.21 (0.66-2.21)		3.53 (2.18-5.16)	3.37±1.70			
Others	34(37.78)	56(62.22)	1.78 (1.07-2.95)		3.33 (2.43-4.34)	3.30±1.62			

Yes: workers with sleep disorders; No: workers without sleep disorders; %: prevalence of sleep disorders at each row; t/F: values calculated by student *t*

tests or variance analyses used transformed HCC; Cohen'd/η²: effect sizes of *t* tests and variance analyses