**Table 1. Descriptive Characteristics of the Overall Study Population and by Relative Amplitude Categories**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Characteristics** | **Overall Sample  (n=4,587)** | **RA Below Median  (n=2,293)** | **RA Above Median  (n=2,293)** | **p-value** |
| Age (y) | 48.72 (16.67) | 49.64 (17.55) | 46.98 (16.37) | <0.001 |
| Female (%) | 52.9% | 51% | 54.5% | 0.096 |
| Race/Ethnicity (%)  *Asian Black*  *Hispanic White* | 4.8% 11% 14.5% 66.8% | 4.8% 16.5% 12.6% 62.3% | 4.8% 6.7% 16.2% 70.2% | <0.001 |
| Married (%) | 63.9% 36.1% | 56.3% 43.6% | 68.6% 31.4% | <0.001 |
| Education Dichotomous-College Education Dichotomous-No College | 63.6% 36.3% | 61.9% 38% | 64.5% 35.5% | 0.288 |
| Smoking Status (%) | 19.3% | 24% | 15.8% | <0.001 |
| Alcohol | 2.52 (2.13) | 2.63 (2.21) | 2.49 (2.12) | 0.250 |
| Sleep Duration (h) | 6.94 (1.61) | 6.81 (1.98) | 7.07 (1.2) | 0.002 |
| Sleep Disorder (%) | 10.8% | 12% | 9.6% | 0.092 |
| BMI (kg/m2) | 29.37 (7.11) | 30.45 (7.74) | 28.35 (6.41) | <0.001 |
| Obesity (%) | 39.2% | 45.2% | 33.5% | <0.001 |
| Waist Circumference (cm) | 100.14 (16.57) | 103.13 (17.81) | 97.21 (15.11) | <0.001 |
| Central Adiposity (%) | 56.8% | 62.4% | 50.8% | <0.001 |
| Systolic Blood Pressure (mmHg) | 121.29 (16.35) | 123.41 (17.34) | 119.26 (15.09) | <0.001 |
| Diastolic Blood Pressure (mmHg) | 69.48 (11.9) | 69.58 (13.08) | 69.1 (11.08) | 0.211 |
| Hypertension (%) | 43.3% | 49.6% | 36.7% | <0.001 |
| Cardiovascular Disease (%) | 9.5% | 13.4% | 5.9% | <0.001 |
| Inter-daily Stability | 0.64 (0.16) | 0.58 (0.16) | 0.68 (0.15) | <0.001 |
| Intra-daily Variability | 0.69 (0.25) | 0.76 (0.25) | 0.63 (0.24) | <0.001 |
| M10 Midpoint | 14.16 (2.72) | 14.48 (2.99) | 13.92 (2.47) | <0.001 |
| M10 Counts | 497.17 (169.59) | 455.74 (153.98) | 532.67 (174.95) | <0.001 |
| L5 Midpoint | 3.89 (3.67) | 4.41 (4.04) | 3.47 (3.23) | <0.001 |
| L5 Counts | 36.82 (37.39) | 59.75 (45.35) | 17.97 (9.5) | <0.001 |
| Relative Amplitude | 0.86 (0.12) | 0.77 (0.13) | 0.94 (0.03) | <0.001 |

1 BMI: body mass index; L5: Least Active 5 hour period; M10: most active 10-hour period; RA: relative amplitude

2 RA median value was 0.89

3 Chi-square tests were used to compare mean values across categories for categorical values and t-tests were used for continuous variables

4 Education Dichotomous: DMDEDUC2 – Education level for adults (20+).

5 Smoking Status: SMQ040 – Do you know smoke cigarettes?

6 Alcohol: ALQ130 - Avg # alcoholic drinks/day - past 12 mos.

7 Sleep Disorder: SQL060 – Ever told by doctor have sleep disorder?

**Table 2. Multivariable Logistic regression Models for 24-h Rest-Activity Pattern Variables in Relation to Cardiovascular Disease (n=4,587)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **24-h Rest-Activity Pattern Variables** | **Model 1 OR (95% CI) p-trend** | **Model 2 OR (95% CI) p-trend** | **Model 3 OR (95% CI) p-trend** | **Model  OR (95% CI) p-trend** |
| Inter-daily Stability (IS60) < 0.58 0.58 - 0.73 > 0.73 | 1.32 (0.97-1.78) 0.72 (0.52-0.98)  *p-trend=0.037* | 1.08 (0.59-1.96) 0.48 (0.31-0.76)  *p-trend=0.002* | 1.1 (0.59-2.06) 0.52 (0.32-0.83)  *p-trend=0.007* | 1.09 (0.59-2.03) 0.5 (0.31-0.8)  *p-trend=0.004* |
| Intra-daily Variability (IV60) < 0.56 0.56 - 0.77 > 0.77 | 2.09 (1.38-3.16) 3.82 (2.78-5.26)  *p-trend<0.001* | 1.74 (1.13-2.68) 3.1 (1.8-5.34)  *p-trend<0.001* | 1.7 (1.12-2.59) 2.85 (1.69-4.8)  *p-trend<0.001* | 1.7 (1.11-2.59) 2.78 (1.54-5.02)  *p-trend<0.001* |
| M10 Midpoint < 12.82 12.82 - 15.15 > 15.15 | 0.95 (0.77-1.18) 0.53 (0.39-0.72)  *p-trend<0.001* | 1.28 (0.98-1.67) 1.39 (0.88-2.18)  *p-trend=0.154* | 1.3 (0.99-1.72) 1.32 (0.84-2.09)  *p-trend=0.229* | 1.27 (0.97-1.66) 1.32 (0.83-2.09)  *p-trend=0.234* |
| M10 Counts (x100) < 4.13 4.13 - 5.57 > 5.57 | 0.36 (0.28-0.46) 0.21 (0.15-0.29)  *p-trend<0.001* | 0.39 (0.25-0.6) 0.28 (0.18-0.46)  *p-trend<0.001* | 0.41 (0.26-0.65) 0.32 (0.2-0.51)  *p-trend<0.001* | 0.41 (0.27-0.64) 0.32 (0.2-0.51)  *p-trend<0.001* |
| L5 Midpoint < 2.6 2.6 - 3.98 > 3.98 | 0.94 (0.76-1.17) 1.1 (0.79-1.53)  *p-trend=0.574* | 1.16 (0.75-1.8) 1.7 (1.18-2.44)  *p-trend=0.004* | 1.11 (0.71-1.74) 1.59 (1.07-2.37)  *p-trend=0.021* | 1.18 (0.77-1.79) 1.57 (1.07-2.29)  *p-trend=0.021* |
| L5 Counts < 21.05 21.05 - 38.7 > 38.7 | 1.05 (0.8-1.38) 1.6 (1.23-2.06)  *p-trend<0.001* | 1.04 (0.64-1.7) 1.59 (1.06-2.37)  *p-trend=0.024* | 1.02 (0.61-1.68) 1.45 (0.91-2.33)  *p-trend=0.120* | 1.09 (0.67-1.76) 1.55 (1.02-2.36)  *p-trend=0.040* |
| Relative Amplitude < 0.85 0.85 - 0.92 > 0.92 | 0.49 (0.38-0.63) 0.29 (0.2-0.4)  *p-trend<0.001* | 0.53 (0.38-0.74) 0.38 (0.22-0.66)  *p-trend<0.001* | 0.57 (0.4-0.83) 0.43 (0.22-0.83)  *p-trend=0.013* | 0.55 (0.37-0.81) 0.4 (0.23-0.69)  *p-trend=0.001* |

1 CI: confidence interval; L5: Least Active 5 hour period; M10: most active 10-hour period; OR: Odds Ratio

2Model 1 represents univariate associations.  
3Model 2 is adjusted for age, sex, marital status, education, race/ethnicity, smoking, and alcohol use.  
4Model 3 is adjusted for model 2 covariates and additionally for BMI.

5Model 4 is adjusted for model 2 covariates and additionally for self-reported sleep disorders.

**Table 3. Multivariable Logistic regression Models for 24-h Rest-Activity Pattern Variables in Relation to Hypertension (n=4,587)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **24-h Rest-Activity Pattern Variables** | **Model 1 OR (95% C.I.) p-trend** | **Model 2 OR (95% C.I.) p-trend** | **Model 3 OR (95% C.I.) p-trend** | **Model 4 OR (95% C.I.) p-trend** |
| Inter-daily Stability (IS60) < 0.58 0.58 - 0.73 > 0.73 | 1.16 (1.0-1.34) 1.19 (1.07-1.33)  *p-trend=0.002* | 0.92 (0.78-1.09) 0.93 (0.72-1.19)  *p-trend=0.565* | 0.94 (0.78-1.12) 1.01 (0.77-1.32)  *p-trend=0.942* | 0.92 (0.78-1.09) 0.94 (0.73-1.21)  *p-trend=0.613* |
| Intra-daily Variability (IV60) < 0.56 0.56 - 0.77 > 0.77 | 1.25 (1.01-1.54) 1.5 (1.19-1.89)  *p-trend<0.001* | 1.1 (0.87-1.39) 0.98 (0.69-1.4)  *p-trend=0.921* | 1.06 (0.84-1.33) 0.88 (0.62-1.26)  *p-trend=0.488* | 1.09 (0.85-1.38) 0.94 (0.66-1.35)  *p-trend=0.754* |
| M10 Midpoint < 12.82 12.82 - 15.15 > 15.15 | 1.02 (0.87-1.2) 0.55 (0.48-0.63)  *p-trend<0.001* | 1.07 (0.83-1.39) 0.97 (0.81-1.17)  *p-trend=0.782* | 1.11 (0.85-1.44) 0.97 (0.79-1.19)  *p-trend=0.774* | 1.08 (0.84-1.4) 0.96 (0.8-1.16)  *p-trend=0.699* |
| M10 Counts (x100) < 4.13 4.13 - 5.57 > 5.57 | 0.71 (0.6-0.84) 0.45 (0.4-0.51)  *p-trend<0.001* | 1.08 (0.88-1.32) 0.81 (0.66-0.98)  *p-trend=0.032* | 1.19 (0.94-1.5) 1.05 (0.86-1.29)  *p-trend=0.634* | 1.09 (0.89-1.35) 0.83 (0.69-1.0)  *p-trend=0.055* |
| L5 Midpoint < 2.6 2.6 - 3.98 > 3.98 | 0.83 (0.72-0.96) 0.85 (0.69-1.04)  *p-trend=0.117* | 0.88 (0.75-1.03) 1.16 (0.93-1.45)  *p-trend=0.189* | 0.88 (0.75-1.04) 1.09 (0.88-1.34)  *p-trend=0.447* | 0.89 (0.75-1.04) 1.14 (0.9-1.43)  *p-trend=0.280* |
| L5 Counts < 21.05 21.05 - 38.7 > 38.7 | 1.25 (1.05-1.49) 1.43 (1.17-1.74)  *p-trend<0.001* | 1.39 (1.04-1.84) 1.59 (1.13-2.24)  *p-trend=0.007* | 1.29 (0.96-1.73) 1.36 (0.94-1.96)  *p-trend=0.108* | 1.38 (1.03-1.85) 1.57 (1.1-2.24)  *p-trend=0.013* |
| Relative Amplitude < 0.85 0.85 - 0.92 > 0.92 | 0.8 (0.71-0.92) 0.5 (0.43-0.58)  *p-trend<0.001* | 0.87 (0.65-1.15) 0.61 (0.44-0.84)  *p-trend=0.002* | 1.01 (0.75-1.35) 0.77 (0.54-1.1)  *p-trend=0.149* | 0.88 (0.65-1.19) 0.62 (0.44-0.88)  *p-trend=0.007* |

1 CI: confidence interval; L5: Least Active 5 hour period; M10: most active 10-hour period; OR: Odds Ratio

2Model 1 represents univariate associations.  
3Model 2 is adjusted for age, sex, marital status, education, race/ethnicity, smoking, and alcohol use.  
4Model 3 is adjusted for model 2 covariates and additionally for BMI.

5Model 4 is adjusted for model 2 covariates and additionally for self-reported sleep disorders.

**Table 4. Logistic regression models for 24-h Rest-Activity Pattern Variables in Relation to Obesity (n=4,587)**

|  |  |  |  |
| --- | --- | --- | --- |
| 24-h Rest-Activity Pattern Variables | Model 1  Tertile1 OR (95% C.I.)  Tertile2 OR (95% C.I.)  Tertile3 OR (95% C.I.) p-trend | Model 2  Tertile1 OR (95% C.I.)  Tertile2 OR (95% C.I.)  Tertile3 OR (95% C.I.) p-trend | Model 3  Tertile1 OR (95% C.I.)  Tertile2 OR (95% C.I.)  Tertile3 OR (95% C.I.) p-trend |
| Inter-daily Stability (IS60) < 0.58 0.58 - 0.73 > 0.73 | 0.95 (0.83-1.09) 0.85 (0.73-0.98)  *p-trend=0.026* | 0.93 (0.73-1.17) 0.77 (0.67-0.88)  *p-trend<0.001* | 0.93 (0.76-1.14) 0.79 (0.69-0.9)  *p-trend<0.001* |
| Intra-daily Variability (IV60) < 0.56 0.56 - 0.77 > 0.77 | 0.95 (0.79-1.15) 1.16 (0.99-1.36)  *p-trend=0.063* | 0.94 (0.75-1.17) 1.24 (1.05-1.47)  *p-trend=0.014* | 0.9 (0.72-1.13) 1.12 (0.93-1.34)  *p-trend=0.234* |
| M10 Midpoint < 12.82 12.82 - 15.15 > 15.15 | 0.81 (0.67-0.99) 0.87 (0.73-1.05)  *p-trend=0.151* | 0.9 (0.69-1.17) 1.08 (0.82-1.42)  *p-trend=0.579* | 0.92 (0.7-1.21) 1.05 (0.81-1.35)  *p-trend=0.737* |
| M10 Counts (x100) < 4.13 4.13 - 5.57 > 5.57 | 0.89 (0.78-1.02) 0.54 (0.47-0.63)  *p-trend<0.001* | 0.8 (0.65-0.99) 0.42 (0.34-0.52)  *p-trend<0.001* | 0.84 (0.67-1.05) 0.46 (0.36-0.58)  *p-trend<0.001* |
| L5 Midpoint < 2.6 2.6 - 3.98 > 3.98 | 1.04 (0.88-1.24) 1.12 (0.97-1.29)  *p-trend=0.135* | 1.07 (0.87-1.31) 1.36 (1.11-1.66)  *p-trend=0.003* | 1.08 (0.87-1.33) 1.28 (1.02-1.6)  *p-trend=0.032* |
| L5 Counts < 21.05 21.05 - 38.7 > 38.7 | 1.33 (1.09-1.62) 1.64 (1.44-1.86)  *p-trend<0.001* | 1.37 (1.12-1.67) 1.72 (1.35-2.18)  *p-trend<0.001* | 1.39 (1.14-1.68) 1.67 (1.33-2.08)  *p-trend<0.001* |
| Relative Amplitude < 0.85 0.85 - 0.92 > 0.92 | 0.74 (0.61-0.91) 0.51 (0.42-0.62)  *p-trend<0.001* | 0.71 (0.55-0.92) 0.45 (0.34-0.6)  *p-trend<0.001* | 0.74 (0.57-0.94) 0.47 (0.35-0.63)  *p-trend<0.001* |

1 CI: confidence interval; L5: Least Active 5 hour period; M10: most active 10-hour period; OR: Odds Ratio

2Model 1 represents univariate associations.  
3Model 2 is adjusted for age, sex, marital status, education, race/ethnicity, smoking, and alcohol use.  
4Model 3 is adjusted for model 2 covariates and additionally for self-reported sleep disorders.

**Table 4. Logistic regression models for 24-h Rest-Activity Pattern Variables in Relation to Central Adiposity (n=4,587)**

|  |  |  |  |
| --- | --- | --- | --- |
| **24-h Rest-Activity Pattern Variables** | **Model 1 OR (95% C.I.) p-trend** | **Model 2 OR (95% C.I.) p-trend** | **Model 3 OR (95% C.I.) p-trend** |
| Inter-daily Stability (IS60) < 0.58 0.58 - 0.73 > 0.73 | 1.2 (0.97-1.49) 1.17 (1.02-1.35)  *p-trend=0.027* | 1.0 (0.74-1.34) 0.92 (0.78-1.09)  *p-trend=0.348* | 1.01 (0.75-1.35) 0.94 (0.81-1.1)  *p-trend=0.473* |
| Intra-daily Variability (IV60) < 0.56 0.56 - 0.77 > 0.77 | 1.21 (0.97-1.5) 1.17 (0.99-1.37)  *p-trend=0.059* | 1.08 (0.81-1.44) 1.05 (0.87-1.27)  *p-trend=0.618* | 1.06 (0.79-1.42) 0.98 (0.8-1.18)  *p-trend=0.799* |
| M10 Midpoint < 12.82 12.82 - 15.15 > 15.15 | 1.0 (0.85-1.19) 0.8 (0.66-0.97)  *p-trend=0.024* | 1.08 (0.85-1.38) 1.02 (0.74-1.42)  *p-trend=0.890* | 1.1 (0.86-1.42) 1.0 (0.73-1.36)  *p-trend=0.988* |
| M10 Counts (x100) < 4.13 4.13 - 5.57 > 5.57 | 0.9 (0.78-1.04) 0.68 (0.59-0.78)  *p-trend<0.001* | 0.76 (0.59-0.97) 0.55 (0.44-0.68)  *p-trend<0.001* | 0.78 (0.61-1.0) 0.58 (0.47-0.72)  *p-trend<0.001* |
| L5 Midpoint < 2.6 2.6 - 3.98 > 3.98 | 0.94 (0.81-1.09) 0.91 (0.76-1.09)  *p-trend=0.306* | 0.88 (0.73-1.05) 1.18 (0.91-1.52)  *p-trend=0.210* | 0.88 (0.73-1.07) 1.12 (0.86-1.47)  *p-trend=0.395* |
| L5 Counts < 21.05 21.05 - 38.7 > 38.7 | 1.48 (1.29-1.71) 1.7 (1.38-2.08)  *p-trend<0.001* | 1.6 (1.33-1.93) 2.0 (1.55-2.58)  *p-trend<0.001* | 1.61 (1.31-1.97) 1.96 (1.53-2.5)  *p-trend<0.001* |
| Relative Amplitude < 0.85 0.85 - 0.92 > 0.92 | 0.95 (0.7-1.29) 0.56 (0.45-0.7)  *p-trend<0.001* | 0.91 (0.63-1.31) 0.47 (0.36-0.61)  *p-trend<0.001* | 0.94 (0.65-1.35) 0.49 (0.37-0.63)  *p-trend<0.001* |

1CI: confidence interval; L5: Least Active 5 hour period; M10: most active 10-hour period; OR: Odds Ratio

2Model 1 represents univariate associations.  
3Model 2 is adjusted for age, sex, marital status, education, race/ethnicity, smoking, and alcohol use.  
4Model 3 is adjusted for model 2 covariates and additionally for self-reported sleep disorders.