1. Participants who have no sleep the night before and participants who have eight hours of sleep the night before will have equal average mood ratings. Participants who are in the sun all day and participants who are indoors all day will have equal average mood ratings. There will be no interaction between the amount of hours the participants slept the night before and how much sunlight to which the participants are exposed.
2. The amount of sleep the participants get will have an effect on their average mood ratings. The amount of sunlight the participants are exposed to will have an effect on their average mood ratings. There will be an interaction between the amount of hours the participants slept the night before and how much sunlight to which the participants are exposed.
3. α = .05. I chose this level because I wanted a more liberal alpha level.
4. N/A
5. IV1: amount of sleep, no sleep or 8 hours of sleep.

IV2: exposure to sunlight, in sun all day or indoors all day.

1. Mood is measured by a self-reported mood rating on a scale of 1-10 (1 = happy; 10 = sad).
2. I will conduct a two-way analysis of variance (ANOVA) because there are two independent variables, both with two levels. Also, each participant is in only one group.
3. See last page.
4. See pages 3 and 4.
5. N/A
6. I failed to reject the null hypotheses for amount of sleep, exposure to sunlight, and an interaction between the amount of sleep and exposure to sunlight. The *p*-values were all over the alpha level (α = .05). They were *p* = .139, *p* = .341, and *p* = .735, respectively.
7. See page 5.
8. See page 6.

|  |  |  |  |
| --- | --- | --- | --- |
| **Between-Subjects Factors** | | | |
|  | | Value Label | N |
| amountofsun | 0 | inside all day | 16 |
| 1 | in sun all day | 17 |
| amountofsleep | 0 | no sleep | 17 |
| 8 | 8 hours of sleep | 16 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Descriptive Statistics** | | | | |
| Dependent Variable: moodrating | | | | |
| amountofsun | amountofsleep | Mean | Std. Deviation | N |
| inside all day | no sleep | 3.00 | .756 | 8 |
| 8 hours of sleep | 4.25 | 2.659 | 8 |
| Total | 3.63 | 1.996 | 16 |
| in sun all day | no sleep | 4.78 | 3.193 | 9 |
| 8 hours of sleep | 5.38 | 3.420 | 8 |
| Total | 5.06 | 3.211 | 17 |
| Total | no sleep | 3.94 | 2.487 | 17 |
| 8 hours of sleep | 4.81 | 3.016 | 16 |
| Total | 4.36 | 2.748 | 33 |

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| --- | --- | --- | --- | --- | --- | --- |
| **Tests of Between-Subjects Effects** | | | | | | |
| Dependent Variable: moodrating | | | | | | |
| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared |
| Corrected Model | 24.706a | 3 | 8.235 | 1.101 | .365 | .102 |
| Intercept | 623.019 | 1 | 623.019 | 83.287 | .000 | .742 |
| amountofsun | 17.334 | 1 | 17.334 | 2.317 | .139 | .074 |
| amountofsleep | 7.019 | 1 | 7.019 | .938 | .341 | .031 |
| amountofsun \* amountofsleep | .877 | 1 | .877 | .117 | .735 | .004 |
| Error | 216.931 | 29 | 7.480 |  |  |  |
| Total | 870.000 | 33 |  |  |  |  |
| Corrected Total | 241.636 | 32 |  |  |  |  |
| a. R Squared = .102 (Adjusted R Squared = .009) | | | | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **1. Grand Mean** | | | |
| Dependent Variable: moodrating | | | |
| Mean | Std. Error | 95% Confidence Interval | |
| Lower Bound | Upper Bound |
| 4.351 | .477 | 3.376 | 5.326 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **2. amountofsun** | | | | |
| Dependent Variable: moodrating | | | | |
| amountofsun | Mean | Std. Error | 95% Confidence Interval | |
| Lower Bound | Upper Bound |
| inside all day | 3.625 | .684 | 2.227 | 5.023 |
| in sun all day | 5.076 | .664 | 3.717 | 6.435 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **3. amountofsleep** | | | | |
| Dependent Variable: moodrating | | | | |
| amountofsleep | Mean | Std. Error | 95% Confidence Interval | |
| Lower Bound | Upper Bound |
| no sleep | 3.889 | .664 | 2.530 | 5.248 |
| 8 hours of sleep | 4.813 | .684 | 3.414 | 6.211 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **4. amountofsun \* amountofsleep** | | | | | |
| Dependent Variable: moodrating | | | | | |
| amountofsun | amountofsleep | Mean | Std. Error | 95% Confidence Interval | |
| Lower Bound | Upper Bound |
| inside all day | no sleep | 3.000 | .967 | 1.022 | 4.978 |
| 8 hours of sleep | 4.250 | .967 | 2.272 | 6.228 |
| in sun all day | no sleep | 4.778 | .912 | 2.913 | 6.642 |
| 8 hours of sleep | 5.375 | .967 | 3.397 | 7.353 |

**Results**

We conducted a two-way Analysis of Variance (ANOVA) in order to determine whether the amount of sun a participant was exposed to and the amount of sleep a participant had the night before would affect how a participant would rate their mood on a scale of 1-10 (1 = happy; 10 = sad). There was not a significant main effect for sun exposure, *F*(1, 29) = 2.317, *p* = .139, η2 = .074. Participants who stayed indoors all day (*M* = 3.63, *SD* = 1.996, 95%CI[2.227, 5.023]) had similar ratings to those who were in the sun all day (*M* = 5.06, *SD* = 3.211, 95%CI[3.717, 6.435]). There was also not significant main effect for amount of sleep, *F*(1, 29) = .938, *p* = .341, η2 = .031. When participants slept 8 hours the night before (*M* = 4.81, *SD* = 3.016, 95%CI[3.414, 6.211]), their moods were rated similarly to those who had no sleep the night before (*M* = 3.94, *SD* = 2.487, 95%CI[2.530, 5.248]). There was no significant interaction, *F*(1, 29) = .117, *p* = .735, η2 = .004. See Figure 1 to review these findings.

*Figure 1.* There was no significant interaction.