

THE EFFECT OF MOOD AND THE AMOUNT OF TIME EXPOSURE TO OUTDOOR LIGHT IN IL-6 LEVEL: AN EPIDEMIOLOGICAL STUDY

Laura Bonetti Kirsch, Rosa Maria Levandovski, Bianca Pfaffenseller, Clarissa Severino Gama, Maria Paz Loayza Hidalgo

Abstract: The objective of this epidemiological study was to evaluate the influence of mood in the relationship between the amount of time of exposure to outdoor light and IL-6 levels. **Methods:** This is a cross-sectional study. The sample (154 subjects; 54 men; age mean = 43.5+12.8); participants live in a rural area in the south of Brazil. Chronobiological and light parameters were assessed using the Munich Chronotype Questionnaire, sleep quality was assessed using the Pittsburgh Sleep Quality Index, and depressive symptoms were assessed with the Beck Depression Inventory (BDI). The levels of inflammatory cytokines (IL-2, IL-4, IL-6, IL-10, TNF-alpha and interferon) were assayed in plasma collected during the daytime. **Results:** IL-6 showed a positive correlation with light exposure ($r = 0.257$; $p < 0.001$) and a negative correlation with MSFsc ($r = -0.177$; $p = 0.028$). A multi-linear regression analysis indicated that only time of light exposure was an independent factor predicting the level of IL-6 ($\beta = 0.26$, $p = 0.002$). Non depressed subjects exposed to a different intensity of light did not interfere with IL-6 levels ($t = -1.6$; $p = 0.1$). However, when the two depressive groups with low and high light exposure were compared, the low exposure light group presented a lower level of IL-6 than the high exposure to light group ($t = -2.19$ and $p = 0.0037$). **Conclusion** The amount of time that participants are exposed to outdoor light is directly related to their IL-6 levels. Additionally, depressed subjects differ in their IL-6 levels if they are exposed to light for differing amounts of time.