

M.D. SPREEUWENBERG, C.G.M.H. WILLEMS, H. VERHEESEN, J. SCHOLS, L.P. DE WITTE. *Dynamic lighting as a tool to influence the day-night rhythm of clients with psychogeriatric disorders: A pilot study in a Dutch nursing home. Gerontechnology 2010;9(2):250;*

doi:10.4017/gt.2010.09.02.278.00 **Purpose** A disturbed day-night rhythm is characteristic of people with psychogeriatric (PG) disorders^{1,2}. For the nursing staff nocturnal restlessness, night wandering and an increased risk of falling of clients are recognizable signals. The aim of this study is to investigate whether offering dynamic lighting that varies in light intensity (lux) and color (K), improves the day-night rhythm of PG patients. **Method** The longitudinal, quasi-experimental study lasted three months and was conducted at the nursing home Klevarie in Maastricht, the Netherlands. The intervention group consisted of 10 clients of the 1st ward, where special lighting of the types Philips Savio and Philips Rotaris was installed in one of the three common living rooms. The control group consisted of 10 clients of the 2nd ward with no dynamic lighting. After a baseline period, two schedules of dynamic lighting were offered for 1.5 months each, differing in the length of intense and cool light offered in the afternoon to account for the 'sundowning' effect. In the 1st lighting schedule the intense and cool light was offered until 5 p.m. and in the 2nd lighting schedule until 7 p.m. Activity registration was performed using a waterproof, watch-like unit of the type Vivago WristCare³. It leads to valid measurements of the day and night rhythm⁴. A random intercept, multivariate, multilevel analysis was used to study the longitudinal, group effects of dynamic lighting. This analysis corrects for potential time-dependent observations. **Results & Discussion** In the intervention group, especially the 1st lighting schedule had a large influence on the activity level of clients, leading to reduced activity during the day, during the night and during the early evening, compared to the baseline period (*Figure 1*). Since both the activities during the night and the day decreased, the ratio of the day-night rhythm remained the same. During the 2nd lighting schedule the clients in the intervention group showed less activity during daytime compared to the baseline period. No other differences were found. To conclude, especially the first lighting schedule lead to reduced activity of patients with PG during the day, early evening and nighttime. However, due to the small sample size of the study, the effects found should be interpreted with some caution. Although, the effects of dynamic lighting seem very promising, it but should be further explored in a larger setting.

References

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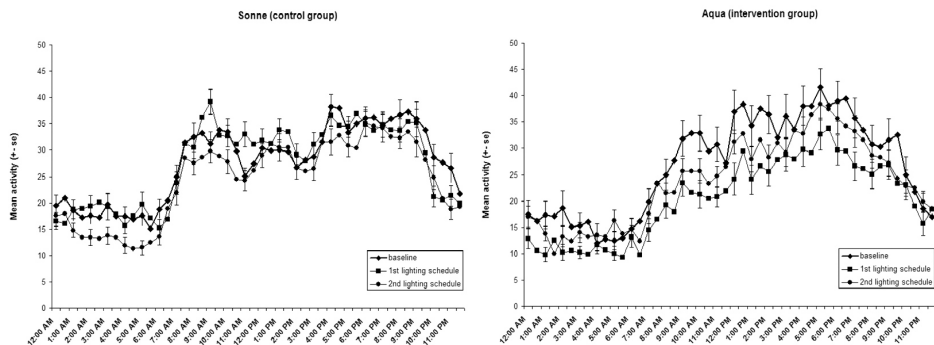


Figure 1. 'Needs & Dependence' variables that determine 'Benefits'