Lavender Essential Oil Improved Sleep in Residents of a Memory Care Assisted Living Facility

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Introduction

- People with dementia often have problems with sleep, including difficulties falling and staying asleep.
- Aromatherapy is a form of complementary medicine that uses fragrant oils extracted and distilled from plant material, known as essential oils, for altering mood or behavioral health.
- The purpose of this study was to determine if lavender can be an effective tool to manage sleep disruption in patients residing in a memory care assisted living facility.

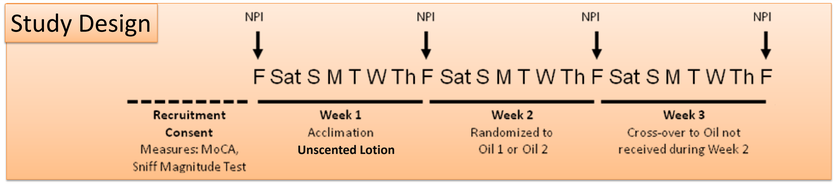
Methods

- Double-blinded, randomized-controlled cross-over trial of AFNOR certified, grade A, medicinal quality lavender oil (Young Living Inc.) versus control oil (almond).
- 22 residents from Deer Crest memory care units (Red Wing, MN) were monitored for 3 weeks with actigraphs (Ambulatory Monitoring Inc.) and Neuropsychiatric Inventory (NPI) measured every week.
- Treatment was applied at bedtime to participants' neck and upper back over 1 min and a diffuser containing the corresponding treatment was activated for 20 min.

Analysis

- Weekday epochs of actigraph data (4 x 24 h, Mon noon to Fri noon) were identified for analysis. Total sleep periods were manually defined in actigraph data using sleep logs completed by facility staff.
- A mixed effects linear regression model using a random intercept for subject nested within treatment order was chosen to model the effect of lavender oil versus control; covariates adjusting for age, sex, treatment period, and time. Other covariates throughout the model included: baseline measurements for the outcome, baseline NPI score, Montreal Cognitive Assessment (MoCA) score, and ability to smell.
- Items analyzed included: Total minutes sleep, sleep percent (the time spent sleeping divided by the total sleep period), and NPI score.

Study Design

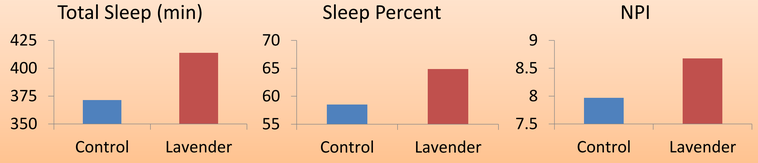


Demographics

Enrolled	22
Completed Intervention	21
Health complication (study unrelated)	
Adhered to intervention	17
Protocol deviation (error in treatment)	
Complete Data Set	11
Actigraph dysfunction, non-compliance	

	Control Oil First	Lavender First	p-value
N	8	13	
Age	86.8	84.2	0.40
Female	62.5	76.9	0.48
Baseline NPI	8.9	10.7	0.37
Baseline MoCA	5.2	9.1	0.15
Acclimination Week - Total Sleep	428.6	389.2	0.69
Total Sleep - Sleep Percent	66.6	59.4	0.62

Figures



Analysis

	Total Sleep	Sleep Percent	NPI
Trt A	371.37 (41.56)	58.54 (6.06)	7.97 (0.86)
Trt B	413.83 (41.56)	64.85 (6.06)	8.68 (0.86)
Difference	42.46 (15.69)***	6.31 (2.1)***	0.71 (0.23)***
p-value	0.0084	0.004	0.0022
N (21)	21	21	21
Obs (168)	110	110	152
BIC	1289.9	868.90	591.9
ResVar	6303.93	113.04	1.5862

All models account for age, sex, treatment period, and time as covariates and for subject and treatment order as nested random effects . Significance Key: *: p<.1 **: p<.05 ***: p<.01

Results

- During treatment with lavender oil residents, on average, experienced 42.5 (p=0.008) more minutes of sleep than when they received the control.
- Sleep percent increased during the lavender oil treatment by 6.31 percentage points (p=0.004) during their sleep period compared to when treated with control.
- There was, on average, an increase of 0.71 points in NPI score when treated with lavender oil.
- These results do not appreciably change when accounting for the moderating variables of acclimation value of outcome, baseline NPI, baseline MoCA, or baseline ability to smell.
- There was not a significant effect of time or the order in which oils were applied.

Conclusion

- The use of lavender shows promise as a non-pharmacologic alternative for management of sleep disturbance in residents of memory care assisted living facilities.

Disclosures

- This work was funded by a donation from a non-profit private foundation.
- Essential oils and diffusers were donated by Young Living, Inc.

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