



Letter to the Editor

The dark side of adherence—a commentary on Palm et al. (2018) factors influencing adherence to continuous positive airway pressure treatment in obstructive sleep apnea and mortality associated with treatment failure – A national registry-based cohort study. *Sleep Med.* 2018 Jul 17; 51: 85–91



We were pleased to see Palm and colleagues reporting on adherence to positive airway pressure (PAP) treatment for obstructive sleep apnoea (OSA) in *Sleep Medicine*, volume 51 [1]. Their study has multiple strengths: sample size ($n = 16,425$), length of follow-up (1.2yrs) and an under-researched population (Sweden). Significant predictors of PAP adherence were humidifier use, increased age, OSA severity and weight. We would like to use this opportunity to highlight that in addition to such biomedical (eg, Body Mass Index disease severity etc.) and psychosocial factors (eg, self-efficacy, depression, support), we have to take the sleep context into account. Current research, including our own [2,3], has extrapolated from models of waking behaviour. However, behaviour change as it relates to treatments for sleep (whether that is PAP, cognitive behaviour therapy for insomnia, or behavioural treatments for infant sleep disturbances), happens at night, or rather at a particular time: before, during, and after the sleep period. Behaviour then, may be influenced by (1) sleep disruption (sleepiness, sleep inertia, sleep deprivation), (2) sleep physiology (eg, changes in neural activity related to decision making and emotion processing during sleep), and (3) the sleep/bed context.

Let us take PAP treatment as an example: patients waking up in the middle of the night might remove the mask because (1) they are too sleepy to realise what is happening; (2) of a change in activity in neurological areas involved in decision making and emotion processing that results in different weightings placed on emotions (do not use PAP because they feel unattractive) versus rational decisions (use PAP to avoid negative health sequela); and (3) they lack support from their (usually supportive) bed partner who is asleep next to them. Thus, non-adherence is partly driven by physiological, neurological, and contextual changes that occur during the night, and this should be considered when trying to explain non-adherence. Our team has already begun to unravel this relationship using empirical data [4,5]. Such research is needed and can complement elegant studies like the one by Palm and colleagues, which are

vital to understanding non-adherence to treatments for sleep disorders.

Conflict of interest

The ICMJE Uniform Disclosure Form for Potential Conflicts of Interest associated with this article can be viewed by clicking on the following link: <https://doi.org/10.1016/j.sleep.2018.10.017>.

References

- [1] Palm A, Midgren B, Theorell-Haglow J, et al. Factors influencing adherence to continuous positive airway pressure treatment in obstructive sleep apnea and mortality associated with treatment failure - a national registry-based cohort study. *Sleep Med* 2018;51:85–91.
- [2] Crawford MR, Espie CA, Bartlett DJ, et al. Integrating psychology and medicine in CPAP adherence- new concepts? *Sleep Med Rev* 2014;18:123–39.
- [3] Crawford MR, Bartlett DJ, Coughlin SR, et al. The effect of continuous positive airway pressure usage on sleepiness in obstructive sleep apnoea: real effects or expectation of benefit? *Thorax* 2012;67(10):920–4.
- [4] Salanitro M, Norris E, Valliere A, et al. Time estimation following a nap condition in good sleepers. *J Sleep Res* 2018;27:287.
- [5] Araújo T, Lemyre A, Vallières A, et al. Sociocultural variations of coping strategies for sleep difficulties in couple relationships in Canada and Brazil. *Sleep Hypn* 2019;21:158–69.

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