

Title: Serial Diverse Imagining Task: A New Remedy for Bedtime Complaints of Worrying and Other Sleep-Disruptive Mental Activity

Authors: Beaudoin, Luc P. (Simon Fraser University), Digdon, Nancy (MacEwan University), O'Neill, Kelly (MacEwan University), & Rachor, Geoffrey (MacEwan University)

Introduction: A racing mind, worries, and uncontrollable thoughts are common bedtime complaints among poor sleepers. Beaudoin created a Serial Diverse Imagining task (SDIT) that can be used at bedtime to divert attention away from sleep interfering thoughts, An app randomly presents recordings of relatively concrete words one at a time with an 8-second interval between recordings during which the person creates and maintains a mental image of the word until the next recording prompts the next image and so on. Our study is an experimental test of SDIT compared to the standard treatment of Structured Problem-solving (SP) and to the combination of both treatments. A key feature of SP is that it must be done earlier than bedtime and requires about 15 minutes to do it. SDIT, which is done at bedtime, does not have those constraints.

Method: 154 university students (137 female) who complained of excessive cognitive pre-sleep arousal were randomly assigned to receive SDIT, SP, or both. At baseline, they completed Pre-Sleep Arousal Scale (Somatic and Cognitive), Sleep Quality Scale, Glasgow Sleep Effort Scale and Sleep Hygiene Index. Depending on the measure, participants redid it one week and/or one month after starting the intervention. (They also completed sleep diaries and appraisals of the interventions, which are omitted due to space).

Results: Repeated measures ANOVAs indicated that cognitive and somatic pre-sleep arousal, sleep effort, and sleep quality improved significantly relative to baseline ($p < .001$; Partial $\eta^2 = .43$ to $.71$) even though sleep hygiene worsened ($p < .001$; Partial $\eta^2 = .23$). The latter finding is not unexpected because the baseline was done at the start of the academic term before the onset of academic pressures. The fact that we found sleep and arousal improvements in this context are notable.

Conclusion: Beaudoin's Serial Diverse Imagining Task (SDIT) was as effective as Structured Problem-Solving (SP) in reducing pre-sleep arousal, sleep effort, and poor sleep quality. One advantage of SDIT is that it can be done at bedtime, unlike SP.

Beaudoin, L. P., Digdon, N., O'Neill, K. & Racour, G. (Abstract accepted for 2016 publication). Serial diverse imagining task: A new remedy for bedtime complaints of worrying and other sleep-disruptive mental activity. Poster to be presented at *SLEEP 2016* (A joint meeting of the American Academy of Sleep Medicine and the Sleep Research Society). Denver, CO.