Behavior, Cognition and Dreaming

EFFECT OF COGNITIVE REAPPRAISAL ABILITY ON PRESLEEP EMOTION REGULATION AND SLEEP ONSET

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Introduction: Cognitive reappraisal is generally considered to be an effective emotion-regulation strategy. However, previous studies on the association between cognitive reappraisal and sleep showed inconsistent results. One possible reason for the inconsistent findings is that previous studies used self-reported measure to assess the frequency to use reappraisal, which has been shown not to correlate with the effectiveness of reappraisal. The present study examined the hypothesis that the impact of presleep reappraisal on sleep onset process depends on individual's cognitive reappraisal ability (CRA).

Materials and methods: 24 normal sleepers were recruited (13 female, aged 22±3.02 years). Participants came to sleep lab for two nights and one daytime session. For two nights, participants did a presleep cognitive task and got two different feedbacks for the two conditions, a baseline condition with neutral feedback and an experimental night with negative feedback to induce emotion. After getting negative feedback in the experimental night, participants were instructed to use cognitive reappraisal to reduce negative emotion. The change of subjective emotion ratings and physiological reaction were measured during the task. Polysomnographic recording and subject experience ratings were conducted for the sleep onset process. For daytime session, the CRA was measured with subjective emotion reactivity to a standard laboratory challenge with anger-inducing films.

Results: At experimental night, participants with better CRA in reducing negative valence of emotion exhibited better emotion regulation outcomes ($r=0.49$, $p=0.01$), less presleep somatic arousal increments ($r=-0.43$, $p=0.04$), lower beta power before falling asleep ($r=-0.47$, $p=0.02$), and less overestimation of their sleep onset latency ($r=-0.48$, $p=0.02$). Besides, participants with better CRA in reducing dominance of emotion exhibited shorter emotion regulation time ($r=-0.5$, $p=0.01$), lower beta power after falling asleep ($r=-0.51$, $p=0.01$), and less sleep onset latency increment ($r=-0.52$, $p=0.009$).

Conclusions: The findings support our hypothesis that CRA could predict whether cognitive reappraisal strategy is effective for presleep emotion regulation in reducing pre-sleep arousal and facilitating sleep onset.

Sleep Breathing Disorders

THE EFFECT OF SMELL ON THE SLEEP QUALITY, RESPIRATORY PATTERN AND MERIDIAN OF ADULTS WITH OBSTRUCTIVE SLEEP APNEA SYNDROME

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Introduction: The treatments modalities for obstructive sleep apnea syndrome (OSAS) contain risks and poor compliance for either surgical or non-surgical options. So, alternative treatment for OSAS have been investigated for decades. Stimulation of trigeminal olfaction could strengthen lateral pharyngeal wall of upper airway, hence it may be able to improve the severity of OSAS.

Materials and methods: Eessential oil Phalaenopsis Bellina was used. We analyzed the result of **Sleep Quality, Respiratory Pattern via polysomnography, and Meridian** before and after aromatherapy between investigated and controlled group.

Results: From 2015/9 to 2016/6, 30 participants joined the study. 20 people were OSAS patients and 10 people were controlled group. Improved sleep efficiency and Mean SaO_2 with Increment of REM and Meridian expression were noted after essential oil delivery with statistical significance.

Conclusions: Essential oils Phalaenopsis Bellina as aromatherapy on OSAS showed improved sleep efficiency, elevated Mean SaO_2 and more harmonic Meridian expression. Further investigation should be launched for a larger sample size and for the other essential oils.

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Sleep Breathing Disorders

DIFFERENCES IN THREE-DIMENSIONAL CRANIOFACIAL ANATOMY BETWEEN RESPONDERS AND NON-RESPONDERS TO MANDIBULAR ADVANCEMENT SPLINT TREATMENT IN OBSTRUCTIVE SLEEP APNEA PATIENTS

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Introduction: The primary aim of this study was to assess the differences in the upper airway morphology between responders and non-responders to mandibular advancement splint (MAS) treatment in obstructive sleep apnea (OSA) patients based on cone beam computed tomography (CBCT) images. The secondary aim of this study was to assess the differences in the anatomical structures surrounding the upper airway between responders and non-responders to MAS treatment.

Materials and methods: This retrospective study includes data obtained from 64 OSA patients (23 females and 41 males) who underwent MAS therapy in a prospective study. All patients were provided with an adjustable MAS. NewTom3G CBCT scans were obtained at baseline. Follow-up polysomnography (PSG) tests were performed to assess the apnea-hypopnea index (AHI) with the MAS *in situ*. The patients were considered a responder if they achieved an AHI< 10 events/hour with MAS *in situ*, and a non-responder if they achieved an AHI≥ 10 events/hour with MAS *in situ*. Several upper airway and craniofacial variables based on CBCT images were measured to determine the differences between responders and non-responders to MAS.

Results: There were 42 responders (age=58.64±10.14 (mean±SD) yrs; AHI=23.05±11.85; BMI=27.62±3.83) and 22 non-responders (age=55.73±10.66 yrs; AHI=36.31±20.07; BMI=30.79±5.85) to MAS. With and without controlling for the effect of BMI, there were no significant differences in the upper airway morphology between responders and non-responders (respectively, $P=0.17–0.97$ and $P=0.22–0.97$). After controlling for the effect of BMI, the length of the maxilla of the responders, 52±3.9 mm, was significantly shorter than that of non-responders, 54.8±4.4 mm ($F=3.54$; $P=0.04$). The maxillomandibular enclose size of the responders, 46.8±5.3 cm^2, was significantly smaller than that of the non-responders, 49.9±5.9 cm^2 ($T=-2.19$; $P=0.03$). The tongue area of the responders, 32.6±3.8 cm^2, was significantly smaller than that of the non-responders, 34.8±4.4 cm^2 ($T=-2.08$, $P=0.04$). However, after controlling for the effect of BMI, there were no longer significant differences in the maxillomandibular enclosure area ($F=2.40$, $P=1.27$) and the tongue area ($F=2.39$; $P=0.13$) between responders and non-responders to MAS.

Conclusions: Within the limitations of this study, we conclude that there is no significant difference in upper airway morphology between responders and non-responder to MAS treatment in OSA patients. However, non-responders to MAS had a longer maxillary length, a larger maxillomandibular enclosure area, and a larger tongue area than responders to MAS.