Sleep Quality and Fatigue as Predictors of the Benefits of an Interdisciplinary Treatment for Adults with Chronic Pain

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Background and aims

- Individuals with chronic pain are not adequately treated by routine biomedical procedures, including medications.
- Given the current “opioid crisis”, the availability of additional safe and efficient treatments is critical.
- Interdisciplinary treatments have been found effective in decreasing pain intensity, pain-related disability, and improving psychological function.
- However, the mechanisms of change of these treatments are not yet well-known.
- Sleep problems and fatigue are modifiable factors that are often comorbid with chronic pain.

Aim

To test the role that changes in sleep quality and fatigue might have in predicting the benefits of an interdisciplinary chronic pain treatment program.

Hypotheses

Greater improvements in sleep quality and greater decreases in fatigue severity would be associated with pre-to post-treatment decreases in:

1) Pain intensity
2) Disability
3) Depressive symptoms

Method

- This is an intervention study with pre- and post-treatment assessment.
- Participants attended a four-week interdisciplinary cognitive-behaviorally (CBT)-based pain management program.
- PROMIS-29 scales (measuring depression, sleep, fatigue and pain intensity) and the Physical Disability Index were administered at pre- and post-treatment.

Data analyses

- Pre- to post-treatment change scores were calculated for all the variables.
- Three multiple regression analyses were conducted to evaluate the contribution of pre- to post-treatment changes in fatigue and sleep quality to the prediction of outcomes (changes in pain intensity, disability, and depression) while controlling for demographic characteristics (age and sex) and pain intensity.

Results

- A total of 125 adults with chronic pain (76% women), with a mean age of 54.4 years participated, 53% reported significant pain in more than three locations.
- The average pain duration was 10.5 years (SD=11.7).
- Changes in fatigue, but not sleep quality, made independent and significant contributions to the prediction of all outcomes. See Tables 1, 2 and 3.

<table>
<thead>
<tr>
<th>Variables</th>
<th>R²</th>
<th>Δ R²</th>
<th>F</th>
<th>ΔF</th>
<th>β</th>
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<tbody>
<tr>
<td>Sex</td>
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<td>0.00</td>
<td>0.005</td>
<td>0.005*</td>
<td>-0.01</td>
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<td>Age</td>
<td></td>
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<td>-0.01</td>
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<tr>
<td>Pain Intensity</td>
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Table 1. Regression analysis predicting changes in pain intensity

<table>
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<tr>
<th>Variables</th>
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<th>F</th>
<th>ΔF</th>
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<tbody>
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<td>3.423</td>
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Table 2. Regression analysis predicting changes in disability

Conclusions

- Fatigue emerged as a key potential mechanism of treatment-related improvements.
- That suggests that interventions which effectively target fatigue may enhance the efficacy of CBT-based chronic pain treatment.
- This possibility should be evaluated in future research using larger sample sizes.
- A highly effective approach for treating fatigue has yet to be identified.

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