THE UBIQUITIOUS NATURE OF “POST-CONCUSSIVE”, RELATIVE TO GENERAL INJURY & STRESS RELATED SYMPTOMATOLOGY

Dr. Marek J. Celinski
Dr. J. Douglas Salmon Jr.
Similar to chronic pain views, current literature and related theory postulate that CNS related organic factors are responsible for the initial presentation of PCS while the longer-term maintenance of such symptoms (reflecting chronic conditions), is dependent on psychological/psychosocial processes (Lishman, 1988).
Main Thesis

- This presentation does not take issue with this traditional view as part of the picture.

- However, we present a broader perspective and postulate that “concussion” is not required for the emergence of “post concussive symptoms”.

- We endorse the view that each respective symptom must be evaluated/treated in its own right.
Studies Supporting Thesis

- A comparative symptom study of roughly balanced TBI groups from mild to very severe brain trauma
- A study consistent with the literature reflecting the inverse nature of psychopathology and brain trauma severity
- A comparative symptom study of concussed and non-concussed rehabilitation populations
- A comparative symptom study of rehabilitation versus non-clinical unemployed and employed individuals
Study I: PCS Symptoms Across Concussed and Non-Concussed Head Injured

- Balanced groups of WSIB patients:
  - I: 0 PTA (N=13)
  - II: PTA<1 hr (N=17)
  - III: 1hr<PTA<24 hrs (N=12)
  - IV: PTA>24 hrs (N=12)

- No group differences re PCS symptoms representation nor symptom rankings
PCS Symptoms Similarly Distributed Across Non/Concussed Head Injured

- Marek, add here Table 6.5, RCL p 40
Study II: Inverse Relationship Between Psychopathology and TBI Severity

- 570 WSIB patients:
  - I: 0 PTA (N=247)
  - II: 0<PTA<7 days (N=323)
  - III: PTA>7 days (N=70)

- Consistent with literature psychopathology inversely related to brain trauma severity
Study II: Inverse Relationship Between Psychopathology and TBI Severity

- Marek, psychopathology graph goes here
Next Studies Derived During R-SOPAC Validation

- R-SOPAC evolved from a concussive symptom approach with:
  - Emotional, Cognitive, Physical domains
  - Intensity and Coping dimensions
  - Symptoms expanded over other “PCS” measures
  - Ability to consider “base rates” in the population at large, thereby addressing criticisms of prior measures
  - Likert scale format allows for considered distinction beyond symptom presence/absence
# Rehabilitation Survey of Problems and Coping

by J. Douglas Salmon, Jr., Ph.D. and Marek Celinski, Ph.D.

## Part 1: Survey of Problems

**Instructions:** Below is a list of items. Circle the number, ranging from 0-Not a Problem to 6-Extreme Problem, beside the item that best describes how much of a problem each one is for you. **Please note:** The higher the number, the more of a problem it is for you.

Please indicate the degree to which you are able to cope with your condition or problem overall:

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>Cannot Cope</th>
<th>Can Cope Satisfactorily</th>
<th>Can Cope Very Well</th>
</tr>
</thead>
</table>

1. Sleep
2. Balance
3. Concentration
4. Dizziness
5. Self-confidence
6. Noise in ears
7. Sexual activity
8. Reading
9. Nightmares
10. Pain (other than headache)
11. Hand co-ordination
12. Memory
13. Depression/Sadness
14. Headaches
15. Epileptic Seizures
16. Anger/Irritability
17. Decision making
18. Tired/Low energy
19. Nervous/Worried
20. Planning/Organizing
21. Feeling helpless
22. Upsetting memories
23. Muscle tension
24. Fear of Driving/ of being a passenger
25. Embarrassed of my appearance

---

*Copyright © 2000 by J. Douglas Salmon Jr., Marek Celinski, and Multi-Health Systems Inc. All rights reserved.*

*In the United States, 968 Niagara Falls Blvd., North Tonawanda, NY 14120-2506, 1-800-456-3051.*

*In Canada, 65 Ovetline Blvd., Suite 210, Toronto, ON M8Z 1P1, 1-800-244-6000, 1-416-228-1790, Fax: 1-416-426-1720.*

*Printed in Canada*
# Rehabilitation Survey of Problems and Coping

by J. Douglas Salmon, Jr., Ph.D. and Marek Celinski, Ph.D.

## Part 2: Survey of Coping

**Name:**

**Date:**

**Instructions:** Below is a list of items. Circle the number, ranging from 0-Cannot Cope at All to 6-Can Cope Very Well, beside the item that best describes how well you can cope and manage in terms of living your normal life in spite of each problem. **Please note:** The higher the number, the better you are able to cope.

<table>
<thead>
<tr>
<th>Cannot Cope At All</th>
<th>Can Cope Satisfactorily</th>
<th>Can Cope Very Well</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sleep</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>2. Balance</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>3. Concentration</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>4. Dizziness</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>5. Self-confidence</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>6. Noise in ears</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>7. Sexual activity</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>8. Reading</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>9. Nightmares</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>10. Pain (other than headache)</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>11. Hand co-ordination</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>12. Memory</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>13. Depression/Sadness</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>14. Headaches</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>15. Epileptic Seizures</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>16. Anger/Irritability</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>17. Decision making</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>18. Tired/Low energy</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>19. Nervous/Worried</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>20. Planning/Organizing</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>21. Feeling helpless</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>22. Upsetting memories</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>23. Muscle tension</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>24. Fear of Driving/ of being a passenger</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>25. Embarrassed of my appearance</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
</tr>
</tbody>
</table>

Please indicate how disabled you feel overall:

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Study III: PCS Symptoms Across Non/Head Injured Rehab Populations

WSIB patients:
- I: Back Injured (N=79)
- II: HI with PTA=0 (N=194)
- III: 1hr<PTA<24 hrs (N=38)
- IV: 24 hrs<PTA< 7 days (N=30)
- V: PTA> 7 days (N=47)

No group differences re Cognitive, Psychological, Physical Intensity subscales

Most severe TBI group trend towards lowest intensity subscales across all groups
Hi Marek, please include p 74 of the R-SOPAC Manual but collapsing the data so that only the cognitive, physical and emotional Intensity subscales would be shown for each of the groups.
### Table 7.19
Employed, Unemployed, Clinical R–SOPAC Means Comparison.

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Age (Mean)</th>
<th>Intensity – Total (Mean)</th>
<th>Coping – Total (Mean)</th>
<th>Overall Total (Mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed</td>
<td>88</td>
<td>43.7</td>
<td>24.4</td>
<td>20.5</td>
<td>44.9</td>
</tr>
<tr>
<td>Unemployed</td>
<td>102</td>
<td>36.2</td>
<td>37.0</td>
<td>34.3</td>
<td>71.3</td>
</tr>
<tr>
<td>Clinical</td>
<td>194</td>
<td>40.8</td>
<td>77.9</td>
<td>68.0</td>
<td>145.8</td>
</tr>
</tbody>
</table>

### Table 7.20
Employed, Unemployed, Clinical R–SOPAC Test Results.

<table>
<thead>
<tr>
<th>Group</th>
<th>Intensity – Total (Mean)</th>
<th>Coping – Total (Mean)</th>
<th>Overall Total (Mean)</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed vs. Unemployed</td>
<td>&lt;.001</td>
<td>&lt;.0001</td>
<td>&lt;.001</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Unemployed vs. Clinical</td>
<td>&lt;.0001</td>
<td>&lt;.0001</td>
<td>&lt;.0001</td>
<td>&lt;.005</td>
</tr>
<tr>
<td>Clinical vs. Employed</td>
<td>&lt;.0001</td>
<td>&lt;.0001</td>
<td>&lt;.0001</td>
<td>.ns</td>
</tr>
</tbody>
</table>
Summary of Un/Employed-Clinical Comparison

- All groups show presence of “PCS” like symptoms across physical, cognitive and emotional dimensions

- Unemployment alone presents a substantial risk over employed for increased “PCS” like symptoms across all 3 domains

- Heterogeneous rehab group shows presence of same number of “PCS” symptoms relative to un/employed

- Relative to un/employed, heterogeneous clinical group shows increased PCS-like symptom intensity, and poorer symptom coping i.e. quantitative not qualitative difference
Conclusions re “PCS” Symptoms

- “PCS” like symptoms are common in the general population

- There appears to be a quantitative and not qualitative difference between the non-rehab and rehab populations

- The presence of psychopathology is inversely related to degree of brain trauma sustained

- Beyond unemployment as a major contributing stressor, the following likely better accounts for higher intensity PCS symptoms in rehab patients than does brain trauma: physical limitations, pain, sleep disturbance, related emotional/social adjustment difficulties, medication side effects, etc.
Conclusions cont…

- A high degree of overlap exists between the employed, unemployed, general rehab and TBI populations

- As such, each symptom must be evaluated/treated in its own right and considered relative to premorbid baseline e.g. is “dizziness” vestibular, ataxic, anxiety, &/or medications related, etc.

- We gain nothing clinically by viewing “PCS” as a unitary concept, which it clearly is not

- Viewing PCS as unitary, discourages more thorough investigation of each distinct symptom thus diagnostically and therapeutically disadvantaging the patient
Conclusions cont…

- Others Marek???????