Is Compensation “Bad” for Health?  
A Systematic Meta-review

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The “bad for health” argument has been used in an attempt to influence legislation

- NSW Parliamentary Inquiry into Personal Injury Compensation Law (2005):
  - “There is good evidence to suggest that people who are injured and who claim compensation for that injury have poorer health outcomes than people who suffer similar injuries but who are not involved in the compensation process.” (AFOM 2001)
  - “Statistically, compensated patients have nearly 4 times the odds of having a poor health outcome after surgical intervention compared to non-compensated patients.” (Harris 2005)
Editorial in *Injury* (September 2009)

- Cameron & Gabbe:
  - “*There is a strong, consistent, temporal relationship between compensation and delayed recovery from injury. There are also plausible reasons for a causal relationship.*” [emphasis added]
Context: research in this field

- No routine longitudinal data collection on health after injury
- Data sources
  - Administrative data → claim duration, propensity to claim data
  - Observational studies → health outcomes data
    - Problem of bias due to non-random allocation
      - Selection bias and confounding, measurement bias
    - Problem of heterogeneity (hard to compare results)
      - Different populations, injuries, and injury severity
      - Different compensation scheme designs / different laws
      - Different outcome measures
- Increasing number of systematic reviews
  - Becoming more influential
    - Practice, policy, legislation
What is a systematic review?

- A study that summarises the results of all relevant primary studies on a topic
- Less potential for bias compared to traditional literature reviews:
  - Representative sample of studies selected on the basis of pre-established criteria, and
  - Study quality is evaluated

Diagram:
- a priori selection criteria
  - Locate all relevant studies
  - Critically appraise study quality
    - Quantitatively synthesise results (meta-analysis)
    - Qualitatively synthesise results
Aim and method

• Question
  – What is the quality of systematic reviews that have looked at the association between compensation and health outcomes

• Method
  – A “review of reviews” using the systematic method
  – Study selection criteria established before the search
  – Database searches
  – Quality appraisal of the studies
    • Dual, independent review using a validated instrument to evaluate the search strategy, study selection, quality appraisal, and synthesis (Shea et al 2007)
Study selection criteria

• Inclusion criteria
  – Study design: *systematic reviews*
  – Participants: *adults 18+ years of age with injury from an external cause (eg. RTC, other trauma)*
  – Intervention: *compensation, any definition*
  – Outcome measure(s): *any*
  – Publication in *English*

• Exclusion criteria
  – Narrative reviews
  – Reviews involving professional negligence
  – Reviews involving idiopathic or non-specific causes of injury
Search strategy

• Databases searched

• Search dates
  – Date of database inception to August 2008

• Search terms
  – Compensation, insurance, litigation, health outcome, health status, prognosis, personal injury, meta-analysis, literature review, systematic review
Study selection process

- Screened title and abstract of potentially relevant articles (n=1258)*
- Full article screen n=25)
- Systematic reviews included (n=11)
  > 7 qualitative; 4 quantitative

* duplicates removed

Excluded studies that did not meet selection criteria (n=1233)
Excluded studies that did not meet selection criteria (n=14)
Quality appraisal

AMSTAR criteria

- A priori design?
- Search strategy documented?
- Grey (unpublished) literature searched?
- Duplicate study selection (two reviewers, independently)?
- List of all studies considered and reasons for exclusion?
- Study characteristics provided?
- Study quality appraised?
- Were the conclusions linked to study quality?
- Appropriate method of synthesis?
- Publication bias assessed?
- Disclosure statement provided?

How we drew our conclusions

• Qualitative synthesis

• Indicators of the overall quality of the reviews
  • Methodological quality
    → more attempts to minimise bias = greater internal validity
  • How compensation was addressed
    → preferable to look at a particular aspect of compensation scheme design, law, or legal process (defined structure, process, or outcome)

• How outcomes were measured
  → preferable to use health outcome measures, not proxy measures (eg. claim duration or RTW)
### 11 studies included: general description

<table>
<thead>
<tr>
<th>Author</th>
<th>Injury (# studies)</th>
<th>Compensation</th>
<th>Outcome measures</th>
<th>Association?</th>
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<tbody>
<tr>
<td>Steenstra</td>
<td>Low back pain (4)</td>
<td>WC</td>
<td>Sick leave</td>
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<tr>
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</table>
Quality appraisal results

• Kappa score
  – 0.53 (moderate agreement beyond chance between the two reviewers)

• Quality scoring (11 AMSTAR criteria)
  – Qualitative reviews did better, meeting an average of 77% of the AMSTAR criteria (median 9; 6-10)
  – Quantitative reviews met 52% of the AMSTAR criteria (median 6; 4-7)
Meta-analysis

- Smith et al. 1991: 1.3 (0.5, 2.6)
- Jones et al. 1993: 2.1 (1.0, 3.4)
- Smith et al. 1999: 1.8 (0.9, 3.2)
- Ng et al. 2004: 2.3 (1.9, 2.7)
- Chu et al. 2009: 2.1 (1.8, 2.5)
- Summary measure: 2.2 (1.9, 2.4)
## Results

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<tr>
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“Best” evidence

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<th>Authors</th>
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<th>Outcome measurement</th>
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</table>

1. High quality study +
2. Single compensation concept +
3. Health outcomes measured

**Strong evidence of no association** between litigation and worse health (after whiplash injury)
Summary of results (indicators of overall quality)

• Methodological quality
  – Nearly half of the reviews did not assess primary study quality (meta-analyses in particular)

• How compensation was addressed
  – Problems with combining studies involving different compensation systems/pathways
  – General lack of understanding about the nature of compensation

• How outcomes were measured
  – No consensus re: outcome measurement
  – Are claim duration and RTW suitable proxies for health?
Conclusion

– One higher quality review (with some limitations) found strong evidence of no association between compensation and poor health outcomes among people with whiplash injuries

– This finding challenges existing views
  • Litigation does not seem to be associated with poor health outcomes among people with whiplash injuries
  • People with whiplash do not appear to be exaggerating the extent of their injury for financial gain – even though their injury is unverifiable and there is greater potential for ex post moral hazard
Implications

• Proceed with caution
  – The evidence is equivocal → no consistent, good quality evidence that compensation is “bad” or “good” for health
  – Jurisdictional differences in scheme design / laws are usually not considered when studies are combined
  – Concepts / terms related to compensation are used as if interchangeable and homogeneous
  – Different outcome measures used, no consensus re: measuring the impact of compensation on health

• Systematic reviews and meta-analyses are not perfect
  – It is important for users to evaluate and compare the quality of systematic reviews
  – It is also important to consider the quality of the primary studies that are included in systematic reviews
Limitations

• Bias in the search, study selection phases
  • Publication bias in systematic reviews (Tricco et al 2009)
  • No search of the unpublished literature
  • Excluded non-English publications
  • Selection criteria
    • Didn’t specify a particular (health) outcome measure *a priori*

• Bias in the synthesis phase
  • Subject to the methodological and reporting limitations of the included systematic reviews
This paper has been published:

• Spearing N, Connelly L. Is compensation bad for health? A systematic meta-review. *Injury* 2010 Jan 7 [Epub ahead of print.] In press; doi 0.1016/j.injury.2009.12.009
References

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• The authors declare that they have no personal or financial relationships with other people or organizations that could inappropriately influence (bias) their work.
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• Centre of National Research on Disability and Rehabilitation Medicine (CONROD)