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Is injury compensation “bad” for health? A systematic meta-review

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Background

There is a commonly held view that injury compensation has a negative impact on health status, and systematic reviews that support this thesis have been used to influence policy and practice decisions. Such reviews of primary studies are considered the highest level of evidence. This study evaluates the quality of the evidence of a negative correlation between injury compensation and health outcomes, based on a review of systematic reviews that have been conducted on this topic.

Objective

To evaluate the validity of the conclusions of systematic reviews that have examined the association between compensation and health status following injury.

Methods

A protocol for this meta-review was developed *a priori* to establish the search strategy, study selection process, quality assessment method, and method of synthesis. MEDLINE/PubMED, CINAHL, EMBASE, PEDro, EconLit, Lexis, ABI/INFORM, The Cochrane Library, and AHRQ EPC databases were searched to identify potentially relevant reviews. Reviews that examined the impact of compensation on recovery, involved adults, and were published in English were included. Narrative reviews, and reviews involving medical negligence or idiopathic/non-specific causes of symptoms were excluded. The methodological quality of the included reviews was evaluated independently by both reviewers using the validated Assessment of Multiple Systematic Reviews (AMSTAR) tool. The 11 criteria in this instrument evaluate, broadly, the design, search strategy, method of study selection, quality appraisal, and method of synthesis used in a systematic review. In addition to the quality appraisal, data were extracted on other characteristics, particularly with respect to compensation scheme design and the way in which outcomes were measured.

Results

Eleven systematic reviews met the inclusion criteria for this meta-review (Figure 1). They were comprised of primary studies involving different observational designs, conditions, compensation systems and processes, populations, and health and non-health outcome measures. Seven of the reviews qualitatively synthesized the results of their primary studies, and four conducted a meta-analysis. Nine of the 11 reviews concluded that compensation is associated with poor health, one found no evidence of such a relationship, and one failed to reach a conclusion. The quality appraisal revealed that the qualitatively synthesized reviews took more measures to limit the potential for bias than the meta-analyses, and met more of the AMSTAR criteria (see Table 1 for information on the AMSTAR results and other study characteristics). Five of the reviews (including the four meta-analyses) did not evaluate the quality of the primary studies included in their

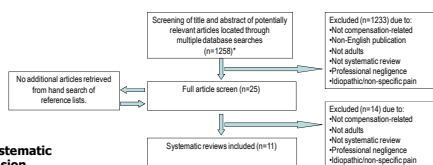


Figure 1. Selection of systematic reviews for inclusion *duplicates removed

syntheses, and information on the design, subjects, compensation scheme characteristics, and outcome measures was insufficient or incomplete. These reviews were thus considered to be at risk of Type I error, and notably, all concluded that compensation was associated with poor health outcomes. In many reviews, the intervention of interest (i.e., compensation) was not clearly defined. Some reviews did not distinguish between compensation *per se*, schemes, and processes to procure compensation (e.g., litigation), choosing to combine the results of studies involving a range of compensation-related concepts. A range of health and non-health (proxy) outcome measures was used – some of which (e.g., claim duration) have a questionable relationship, if any, to the latent health state of interest.

| Review authors | Injury | Method of synthesis | Included primary studies (number and design) | Compensation pathway(s) | Outcome measure(s) | Conclusion about compensation | Potential sources of bias (based on AMSTAR) | AMSTAR Criteria #/11 | Potential for bias |
|------------------------|---------------------------------------|---|--|---|--|---|--|----------------------|--------------------|
| Carroll et al | MTBI | Qualitative (best evidence synthesis) | 3 cohort + 1 meta-analysis | Litigation and/or compensation | RTW, Symptoms, Claim duration, Disability | "... where symptoms and disability are persistent, compensation and litigation factors are important." | No list of excluded studies. Combined heterogeneous compensation pathways. No assessment of publication bias. | 8 | Lower |
| Carroll et al | WAD | Qualitative (best evidence synthesis) | 2 cohort | Litigation | RTW, Claim duration | "There was also preliminary evidence that compensation or legal factors are associated with recovery." | No list of excluded studies. Combined heterogeneous compensation pathways. No assessment of publication bias. | 8 | Lower |
| Carroll et al | Neck pain in workers | Qualitative (best evidence synthesis) | 1 cohort | Workers' compensation | Return to active duty | "... no scientifically admissible studies considered the prognostic factors for recovery in workers' compensation claimants." | No list of excluded studies. No assessment of publication bias. | 9 | Lower** |
| Scholten-Peeters et al | WAD | Qualitative (level of evidence based on quality score and consistency of findings) | 7 cohort | Litigation | Symptoms and/or disability | "... we found strong evidence in the literature review of the following factors not affecting outcome: older age... and compensation." | No list of excluded studies. No disclosure statement. | 9 | Lower |
| Côté et al | WAD | Qualitative (best evidence synthesis) | 1 cohort | Compensation scheme design, Lawyer involvement | Claim duration | "Insurance and compensation systems have an important impact on the prognosis of whiplash." | No search for grey literature or non-English publications. | 10 | Lower* |
| Steinstra et al | ALBP | Qualitative (level of evidence based on quality score and consistency of findings) | 4 cohort | Workers' compensation | Duration of sick leave | "Patients with low back pain at the highest risk for long term absence are older females... and receiving a high level of compensation." | No search for grey literature or non-English publications. No list of excluded studies. | 9 | Lower |
| Oh et al | Shoulder injury and surgery | Qualitative (journal-determined level of evidence rating based on study design and quality) | 2 cohort (conflicting results) | Workers' compensation | Satisfaction, Functional measures | "A history of workers' compensation has been reviewed in relatively few series but does seem to negatively impact treatment results." | Incomplete list of included studies and no list of excluded studies. No summary table of compensation studies. No quality assessment. Conclusion not linked to study quality. No assessment of publication bias. | 6 | Higher |
| Kolonen et al | Shoulder injury and surgery | Meta-analysis (dichotomized outcomes data to yield OR, used REM) | 21 (1 RCT + 20 cohort) | Workers' compensation | Variety of functional measures | "This systematic review shows that compensation status of an individual receiving shoulder surgery continues to be a positive predictor of poor functional outcome." | Incomplete summary table. No quality assessment. Conclusion not linked to study quality. No statement of disclosure. | 7 | Higher |
| Harris et al | Range of conditions requiring surgery | Meta-analysis (dichotomized outcomes data to yield OR, used REM and FEM) | 129 (2 RCT*, 127 cohort, 57 case series) | Workers' compensation, Litigation | Functional measures, Symptoms, Quality of life, Satisfaction | "Overall, compensated patients have more than 3 times the odds of an unsatisfactory outcome compared with non-compensated patients." | No list of excluded studies. Incomplete summary table. No quality assessment. Combined heterogeneous compensation pathways. Conclusion not linked to study quality. | 6 | Higher |
| Belanger et al | MTBI | Meta-analysis (effect sizes weighted by sample size) | 7 Not described | Litigation | Neuro-psychological function measures | "... this meta-analysis provides compelling evidence that MTBI has little to no effect on neuro-psychological function by 2 months or greater post-injury in the MTBI population at large. Participants in litigation on the other hand, remain stable or get worse over time." | No search for grey literature or non-English publications. No list of excluded studies. Incomplete summary table. No quality assessment. Conclusion not linked to study quality. | 6 | Higher |
| Binder & Rohling | MTBI | Meta-analysis (using effect sizes weighted by sample size) | 18 Not described | Financial incentives including workers' compensation and litigation | Symptoms, RTW, Neuro-psychological function measures | "A moderate overall effect size, 0.47 was found. The effect was particularly strong for mild trauma. The data showed more abnormality and disability in patients with financial incentives despite less severe injuries." | No search for grey literature or non-English publications. No list of excluded studies. Incomplete summary table. No quality assessment. Combined heterogeneous compensation pathways. Conclusion not linked to study quality. No statement of disclosure. | 4 | Higher |

RTW=return to work; RCT=randomized controlled trial; ALBP=acute low back pain; WAD=whiplash associated disorder; MTBI=mild traumatic brain injury; *only 1 study included in the synthesis; †single study was inconclusive; ‡subjects not randomized on compensation status; OR=odds ratio; FEM=fixed effects model

Table 1. Study characteristics and summary of quality assessment results

Discussion

Those reviews that performed better in the quality assessment, investigated a single compensation process or scheme type, and used validated health outcome measures were considered more likely to provide the best quality of evidence about the impact of compensation on health outcomes. Six reviews were found to be of higher methodological quality, five of these focused on a particular compensation “intervention”, and among these, just one review specifically included studies using validated health outcome measures. The review by Scholten-Peeters et al (2003) was found to possess all three of the desired characteristics and was thus considered to be of better quality to answer the question (notwithstanding the limitations of primary studies in this field). Interestingly, this was the sole review to find no association between compensation (litigation) and health outcomes. The finding of this higher quality review challenges the belief that compensation is negatively associated with poor health outcomes. Thus, moves to alter compensation scheme design on the basis that compensation is “bad” for health are premature, as evidence of such an association is unclear.



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