



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]



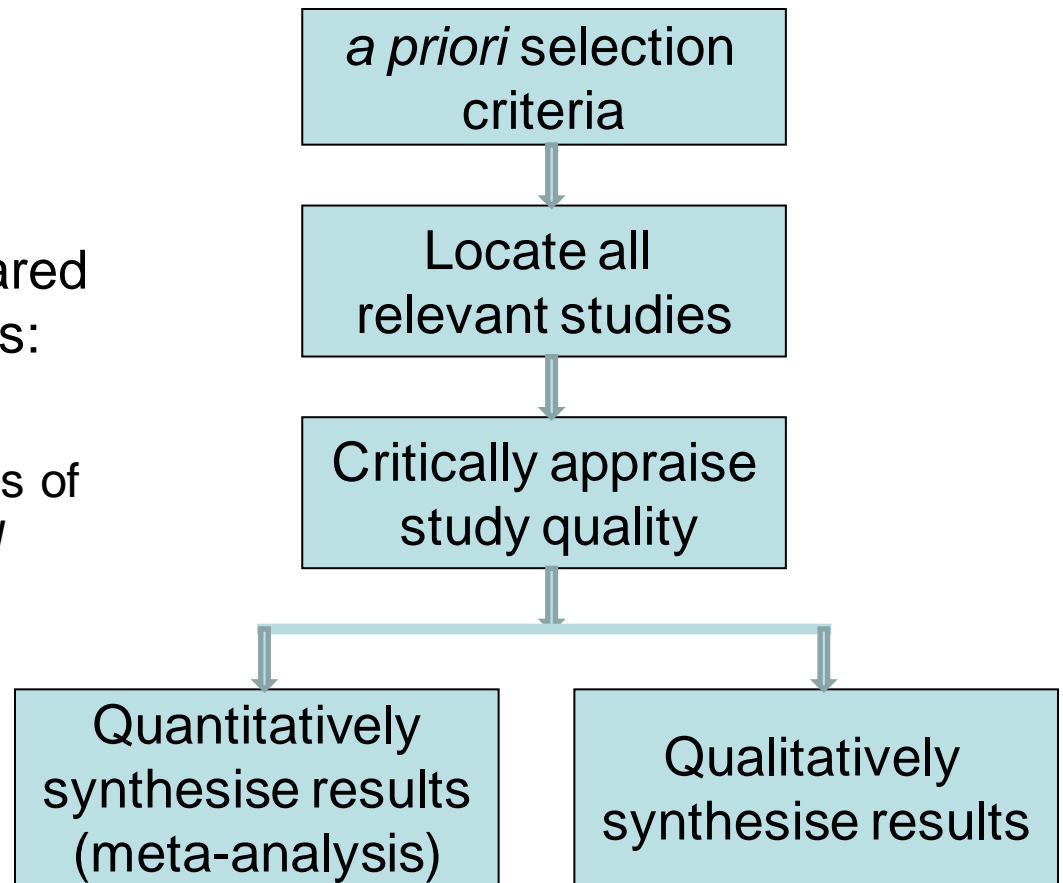
Context: research in this field

- 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





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

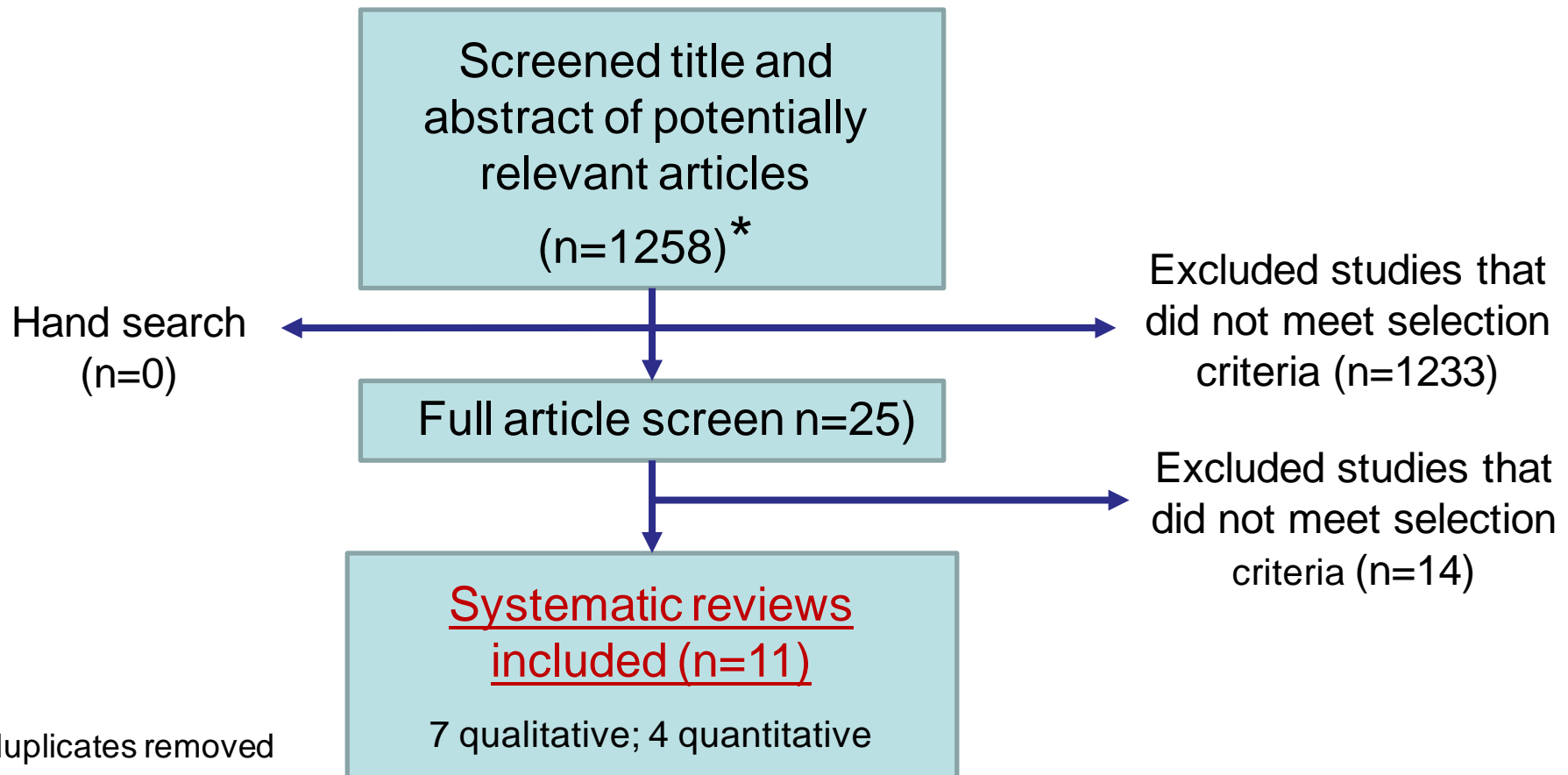


Search strategy

- Databases searched
 - PubMed, CINAHL, EMBASE, PEDro, PsycInfo, EconLit, Lexis, ABI/INFORM, The Cochrane Library, US AHRQ Evidence-based Practice Centers
- 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





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)

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11 studies included: general description

Author	Injury (# studies)	Compensation	Outcome measures	Association?
Steenstra	Low back pain (4)	WC	Sick leave	Yes
Scholten-Peeters	Whiplash (7)	Litigation	Symptoms, Disability	No
Cote	Whiplash (1)	Litigation	Claim duration	Yes
Carroll	Whiplash (2)	Litigation	RTW, Claim duration	Yes
Carroll	MTBI (3)	Litigation, WC	RTW, Claim duration, Symptoms, Disability	Yes
Carroll	Neck pain (0)	WC	RTW	Inconclusive
Oh	Shoulder surgery (2)	WC	Satisfaction, Function	Yes
Koljonen	Shoulder surgery (21)	WC	Function	Yes
Harris	Surgery (+++) (129)	Litigation, WC	Satisfaction, QoL, Symptoms, Function	Yes
Belanger	MTBI (7)	Litigation	Function	Yes
Binder & Rohling	MTBI (18)	Litigation, WC	RTW, Symptoms, Function	Yes

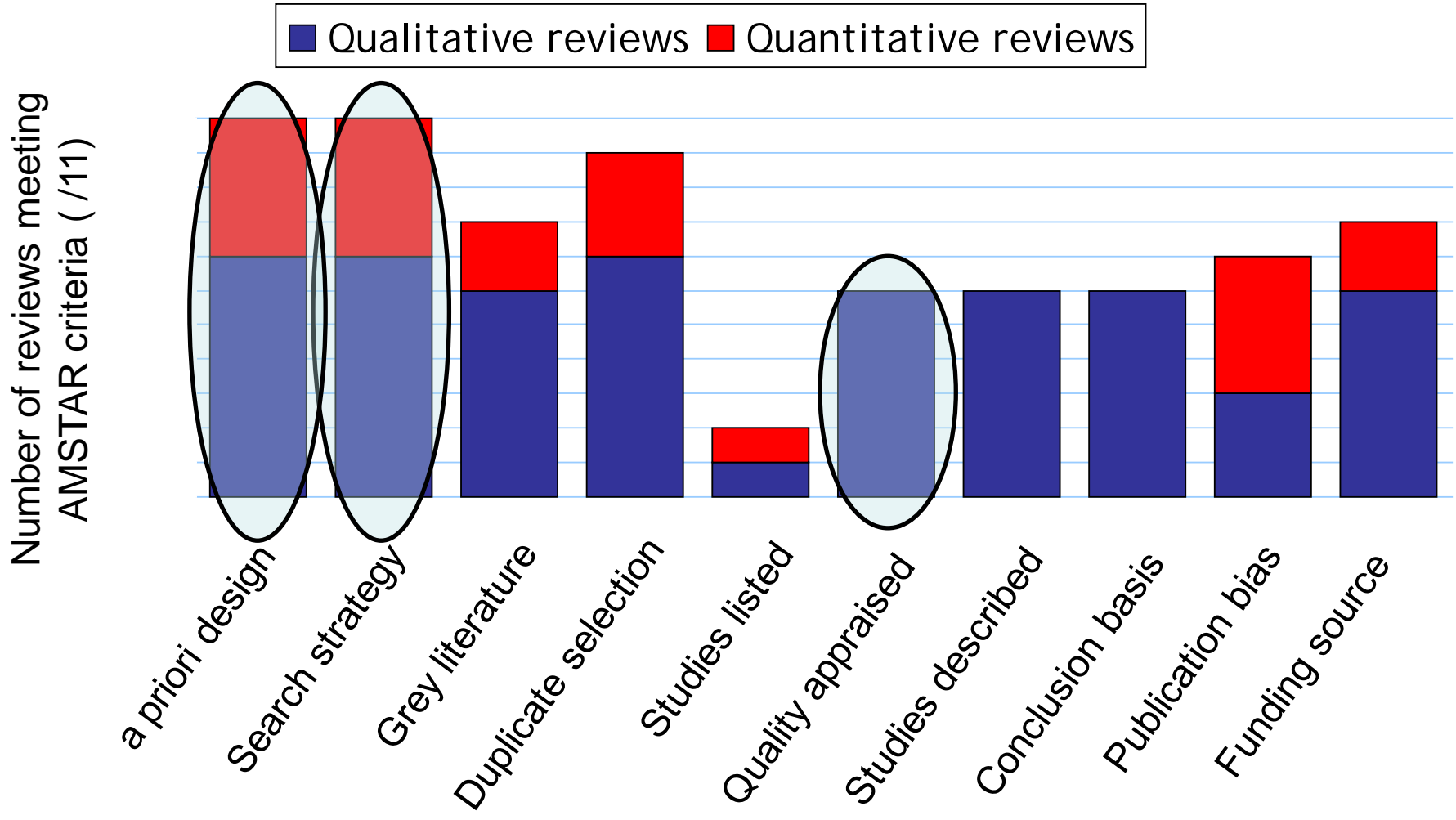


Quality appraisal results

- 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)



Quality appraisal results



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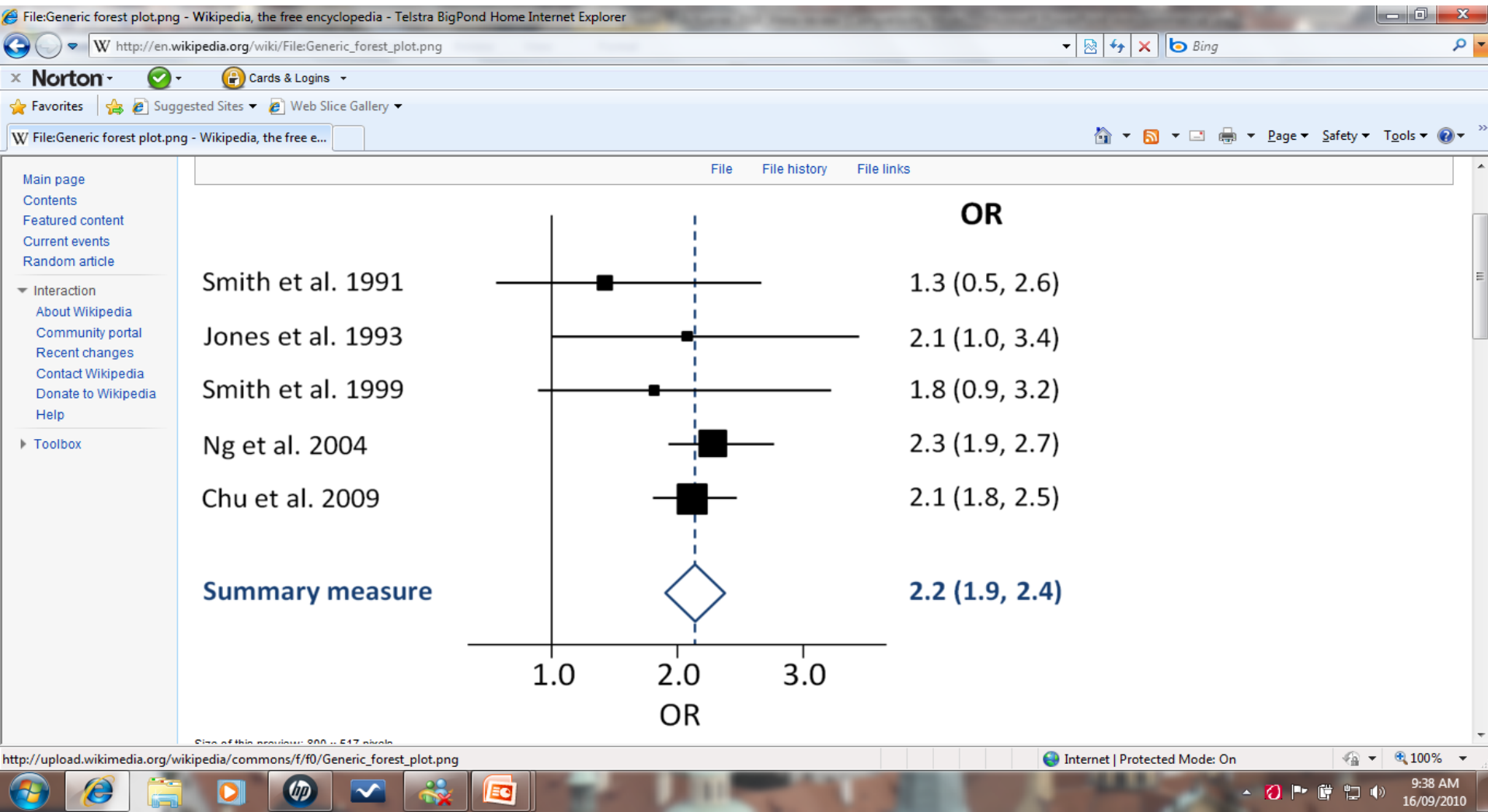
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Meta-analysis



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Results

Authors	Injury	Quality /11	Compensation	Outcome measures	Conclusion
Steenstra	Back pain	Higher (9)	WC	Sick leave	Yes
Scholten-Peeters	Whiplash	Higher (9)	Litigation	Symptoms, Disabil	No
Cote	Whiplash	Higher (10)	Litigation	Claim duration	Yes
Carroll	Whiplash	Higher (8)	Litigation	RTW, Claim duration	Yes
Carroll	Brain injury	Higher (8)	Litigation, WC	RTW, Disabil, Claim duration, Symptoms	Yes
Carroll	Neck pain	Higher (9)	WC	RTW	None
Oh	Surgery	Lower (6)	WC	Satisfaction, Function	Yes
Koljonen	Surgery	Lower (7)	WC	Function	Yes
Harris	Surgery	Lower (6)	Litigation, WC	Symptoms, Function Satisfaction, QoL	Yes
Belanger	Brain injury	Lower (6)	Litigation	Function	Yes
Binder & Rohling	Brain injury	Lower (4)	Litigation, WC	Symptoms, RTW, Function	Yes

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“Best” evidence

Authors	Injury	AMSTAR score	Compensation concept	Outcome measurement	Conclusion
Scholten-Peeters 2003	Whiplash	Higher (9/11)	Litigation	Symptoms, disability	Strong evidence of no association between litigation and poor health outcomes

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



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