Money matters: a meta-analytic review of the association between financial compensation and the experience and treatment of chronic pain

Rohling M L, Binder L M, Langhinrichsen-Rohling J

Authors' objectives
To review, evaluate and summarise the existing data on compensation and pain using meta-analytic techniques.

Searching
MEDLINE and PsycINFO were searched back to 1966 using the keywords: 'accident neurosis', 'traumatic neurosis', 'compensation-neurosis', 'chronic pain', 'disability', 'compensation' and 'litigation'. In addition, the reference lists of relevant review articles and studies were examined. Only published literature was included.

Study selection
Study designs of evaluations included in the review
Quasi-experimental studies. At a minimum, each study had to include at least one experimental group who were being compensated, and a control group who were not being compensated. No RCTs were identified.

Specific interventions included in the review
Financial reimbursement provided to a person in response to a complaint of pain. All forms of compensation were included without restriction to its source (e.g. workers' compensation, Social Security Disability Insurance (SSDI), Veterans Administration (VA) benefits, and civil settlements). Details of the interventions and duration of the interventions in the individual studies were not provided.

Participants included in the review
People with pain which was defined as self-reported discomfort attributed to somatic dysfunction. Trials in people with psychiatric disturbances or complaints of emotional pain were excluded. Sixty-eight percent of the included studies reported that patients had physical findings along with subjective pain complaints. Seventy-two percent of the studies focused exclusively on low back pain (LBP). The remaining 28% of studies examined heterogeneous samples of pain patients, most of who were suffering from LBP.

Outcomes assessed in the review
Pain experience. This was self-reported pain experience, and did not have to be corroborated by objective or physiological measures. Outcome data were classified as either behavioural (e.g. time spent in bed) or non-behavioural (e.g. intensity of pain experienced). Outcomes included in the 25 treatment studies were patients' reports of pain, activity level or exercise, physician's judgement, patients' judgement, patients' satisfaction, physical function, employment history, and treatment attrition.

How were decisions on the relevance of primary studies made?
The authors do not state how the papers were selected for the review, nor how many of the authors performed the selection.

Assessment of study quality
Each study was rated with respect to quality on a 4-point scale (1 = poor, 4 = excellent). An excellent study was internally and externally valid, used reliable instruments and appropriate statistical procedures, and selected a sample that was homogeneous for patient diagnosis and compensation status. No further details of the scale were provided. Each study was independently rated by two reviewers. The inter-rater reliability for coding of study quality was 0.60 (p<0.0002).
Data extraction
Each study was independently coded by two reviewers. Data were extracted on publication year, country of origin, type of statistics reported, method of calculating effect size, whether treatment was involved, number of treating disciplines (i.e. single versus multidisciplinary), primary author's professional training, treatment type, clinical setting, and type of treatment. Data were also extracted on patient diagnosis, age sex, and chronicity of pain.

Methods of synthesis
How were the studies combined?
Glass et al's procedures were used to estimate effect sizes (see Other Publications of Related Interest no.1). Where possible, effect sizes were obtained by subtracting the treatment group mean from the control group mean and dividing the result by the control group's standard deviation. When group means or standard deviations were unavailable, Glass et al's procedures were used to calculate effect sizes from reported summary statistics. For the overall effect size, all effect sizes were weighted by sample size.

How were differences between studies investigated?
A diffuse test on the unweighted mean effect size was performed. Follow-up analyses of other within-factor characteristic were performed.

Results of the review
Thirty-two studies with 36 independent comparisons (3,802 compensated patients and 3,849 control subjects).

The mean quality rating was 2.58 (SD=0.62) on a four point scale, which fell between fair and good. There was no significant association between study quality and effect size (p=0.34).

There was significant heterogeneity in the data. The chi-squared test on the unweighted mean effect sizes was 151.8, p<0.0001.

Overall 136 effect sizes from 36 comparisons were obtained. The single weighted mean effect size (ES) was 0.60 (p<0.0002). Conservative procedures yielded an effect size of 0.48 (p<0.0005). Both effect sizes differed from zero, indicating that compensation is related to increased reports of pain and decreased treatment efficacy.

Because the analysis relied entirely on published data a fail-safe N was calculated, which was 136. The fail-safe N is an estimate of the number of studies that would have to exist for a statistically significant ES to be reduced to nonsignificance.

Characteristics of treatment:
There was no difference in effect sizes between studies that evaluated treatment outcomes, with those that simply contrasted compensated and noncompensated patients with respect to treatment outcome. Furthermore, there was no difference in effect sizes for inpatients versus outpatients; active versus passive forms of treatment; single versus multidisciplinary treatment; medical versus behavioural treatment; the effect of surgery; low back pain versus other diagnoses; whether the patient was compensated or seeking compensation, and returning to work.

Authors' conclusions
No clear conclusions are presented. However, the authors state that the clearest finding to emerge from this meta-analytic review of the pain literature is that receiving financial compensation is associated with a greater experience of pain and reduced treatment efficacy.

CRD commentary
This is a reasonable review. The objectives are clear and two electronic databases were searched. However, only published research was included in the analysis, which the authors acknowledge may have resulted in bias against non-significant events. The methods of the review were stated, but the method used to assess the quality of the trials was not
clearly described, and a valid scale was not used. Although the studies seem to be of reasonable quality when scored using the author's criteria, none were RCTs, and it is unclear how many were prospective trials. No details of individual studies such as the type of intervention, duration of intervention, whether studies were prospective or retrospective were provided. It is unclear which outcome the effect sizes were calculated for. Although the authors code for a number of outcome measures, only a single effect size is calculated for each study. Given the lack of detail about the studies, the relatively poor quality of the individual studies and the lack of a clear definition of the main outcome measure, the results and conclusion of this review should be interpreted with caution.

**Implications of the review for practice and research**

**Practice:** The authors state that receiving financial compensation is associated with a greater experience of pain and reduced treatment efficacy.

**Research:** The authors state that further research should be conducted with observers who are blind to the patients’ compensation condition. In addition, the authors state that it will be important to conduct a longitudinal study that follows patients from injury through treatment, identifying which patients seek and obtain compensation.

**Bibliographic details**


**PubMedID**

8565928

**Other publications of related interest**


**Indexing Status**

Subject indexing assigned by NLM

**MeSH**

Adult; Back Pain /economics /psychology /therapy; Chronic Disease; Female; Financing, Government; Humans; Insurance Benefits; Male; Models, Psychological; Neurotic Disorders /economics /psychology; Pain /economics /psychology; Pain Management; Probability; United States; Workers' Compensation /legislation & jurisprudence

**AccessionNumber**

11997008387

**Date bibliographic record published**

30/04/2001

**Date abstract record published**

30/04/2001

**Record Status**

This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.