

## Meta-analysis: Pursuing compensation after closed-head injury slows recovery

Binder LM, Rohling ML. *Money matters: a meta-analytic review of the effects of financial incentives on recovery after closed-head injury.* *Am J Psychiatry.* 1996 Jan;153:7-10.

### Objective

To determine, using meta-analysis, the effect of financial incentives on recovery after closed-head injury.

### Data sources

The literature was searched using MEDLINE (past 20 years), and the references from all identified studies were reviewed.

### Study selection

Studies were selected if they were published and included patients with closed-head injury who were compared on the basis of the presence or absence of financial incentives. Financial incentives were identified as being present when the patient was classified in the source study either as pursuing a claim or compensation or as being in litigation. Eligibility criteria included all levels of severity of closed-

head injury and data on the effect of financial claims or incentives from which effect sizes could be calculated.

### Data extraction

Dependent variables extracted were symptom occurrence and duration, ratings by relatives, ratings by clinicians, data on return to work, and neuropsychological measures. Weighted effect sizes were calculated for each variable and then averaged within each study to obtain a mean effect size, which was then weighted by group size. An effect size of 0.5 indicated that the mean of the index group was greater than that of the control group by half of a standard deviation (SD). Effect sizes were calculated by 2 independent reviewers. Differences were resolved by discussion after which agreement was 100%.

### Main results

17 studies met the inclusion criteria and yielded 18 study groups (1 study consisted of 2 experimental groups) that included 2353 patients of whom 673 were pursuing compensation. 113

effect sizes were calculated. The effect sizes ranged from 0 to 2.13 across the 18 study groups, and the mean effect size was 0.57 (SD 0.56). The weighted effect sizes ranged from 0 to 1.78, and the weighted mean effect size was 0.47 ( $P < 0.001$ ), showing an overall association between the presence of financial incentives and increased symptoms or disability after closed-head injury. Data from 9 studies, which included time of onset of symptoms (early vs late), duration of post-traumatic amnesia, and severity of brain injury, suggested that the association was causal.

### Conclusion

The less severe the brain injury, the greater the importance of financial incentives in determining symptoms and disability after closed-head injury.

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### Commentary

This clever meta-analysis by Binder and Rohling puts together the strongest support to date for the argument that pursuing compensation after closed-head injury increases the likelihood of a patient having more numerous and more severe symptoms. From their weighted mean effect size of 0.47, the authors calculate that symptoms in patients pursuing compensation after head injury would decrease, on average, by 23% if all compensation and litigation were eliminated—a clinically meaningful reduction.

Their finding is statistically significant and robust. Bias, particularly ascertainment bias, although probably present in a few source studies, is unlikely to explain the result.

Late-onset symptoms were more sensitive to compensation status, which is

consistent with Lishman's (1) thesis that these symptoms are more likely to be psychogenic.

This study has the great virtue of not entangling itself in diagnosis. A disinterested approach is taken—any symptom is measured. No persuasive evidence exists to suggest that only particular symptoms are susceptible to compensation status (2).

This study supports the contention that patients do not benefit by engaging in protracted legal battles. It is possible that a system of no-fault compensation would serve patients better (3). Further, what may help is an inquisitorial legal system (in which judgements are made by a judge or tribunal directing the search for the truth) rather than an adversarial one (in

which judgements are based on 2 sides putting forward opposing views). In the meantime, when assessing symptoms after head injury, do not forget to ask whether compensation is in the offing.

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