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Do compensation processes impair mental health? A meta-analysis

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ABSTRACT

Background: Victims who are involved in a compensation processes generally have more health complaints compared to victims who are *not* involved in a compensation process. Previous research regarding the effect of compensation processes has concentrated on the effect on *physical* health. This meta-analysis focuses on the effect of compensation processes on *mental* health.
Method: Prospective cohort studies addressing compensation and mental health after traffic accidents, occupational accidents or medical errors were identified using PubMed, EMBASE, PsycInfo, CINAHL, and the Cochrane Library. Relevant studies published between January 1966 and 10 June 2011 were selected for inclusion.
Results: Ten studies were included. The first finding was that the compensation group already had higher mental health complaints at baseline compared to the non-compensation group (standardised mean difference (SMD) = −0.38; 95% confidence interval (CI) −0.66 to −0.10; $p = .01$). The second finding was that mental health between baseline and post measurement improved less in the compensation group compared to the non-compensation group (SMD = −0.35; 95% CI −0.70 to −0.01; $p = .05$). However, the quality of evidence was limited, mainly because of low quality study design and heterogeneity.
Discussion: Being involved in a compensation process is associated with higher mental health complaints but three-quarters of the difference appeared to be already present at baseline. The findings of this study should be interpreted with caution because of the limited quality of evidence. The difference at baseline may be explained by a selection bias or more anger and blame about the accident in the compensation group. The difference between baseline and follow-up may be explained by secondary gain and secondary victimisation. Future research should involve assessment of exposure to compensation processes, should analyse and correct for baseline differences, and could examine the effect of time, compensation scheme design, and claim settlement on (mental) health.

Victims who are involved in a compensation process generally have a worse recovery than victims who are *not* involved in a compensation process.[1–5] This hampered recovery of victims who claim monetary compensation for the injuries, costs and losses relating to an accident is often explained by the theory that being involved in claims settlement creates an unconscious financial incentive for victims *not* to get better as long as the settlement lasts (*secondary gain*).[6] Another explanation is that the compensation process is a stressful experience[7]: victims suffer from renewed distress (*secondary victimisation*)[8] caused by the claims settlement process.

Previous research regarding the effect of compensation has concentrated on investigating the effect on *physical* health, such as the level of pain, disability, disease symptoms, and (more indirectly) return-to-work. Several systematic reviews were conducted regarding the correlation between compensation and physical well-being[9–11] and also a systematic meta-review has been performed over 11 systematic reviews that all concern the effect of compensation on physical health.[12] Although most studies found an association between compensation and poor health outcomes, the quality of the existing evidence on the association between compensation and worse health outcomes has become the subject of debate.[13–15]

In contrast to physical health, few studies investigated the association between compensation procedures and *mental* health. Similar to physical health, most studies measuring mental health found that victims who are involved in compensation claims had higher levels of depression, anxiety and post traumatic stress

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disorder (PTSD) than non-compensated victims.[16–18] However, another study did not find a relation between compensation procedures and mental health.[19] To be able to draw a general conclusion about the effect of compensation procedures on mental health of trauma victims, we conducted a systematic review and meta-analysis. To our knowledge, no meta-analytic study has yet investigated the overall effect of compensation on mental health. Considering the negative effect of the compensation procedure on physical health and the fact that the compensation procedure can be stressful, we hypothesised that victims involved in a compensation process have higher mental health problems compared to victims who are not involved in a compensation process.

Method

Study selection

A literature search was conducted using five electronic databases: PubMed, EMBASE, PsycINFO, CINAHL, and Cochrane library on studies published from 1966 to 10 June 2011. No language restrictions were applied. Search terms included *compensation*, *workers' compensation*, or *litigation*, combined with empirical study designs, i.e. *epidemiological*, *clinical*, *cohort*, *longitudinal*, *follow-up*, *prospective*, *retrospective studies* or *meta-analysis*, combined with type of accidents, i.e. *traffic accidents*, *occupational accidents*, or *medical errors*. We also included *whiplash injuries*, because this injury could be associated with traffic accidents without specifically mentioning the accident. Various synonyms were used for each concept. We used subject heading terms when available. The exact search strategy is available from the authors.

Eligible studies were selected in three steps. First, titles and abstracts were screened and studies were excluded if title and abstract did not meet any of the following inclusion criteria: (1) participants were injured by traffic accidents, occupational accidents, or medical errors; (2) some participants were involved in a compensation process; (3) some other participants were not involved in a compensation process; (4) outcome measure was mental health related (e.g. depression, anxiety, or PTSD); (5) type of study was a follow-up design with at least two measurements (baseline and follow up). In the second step, we retrieved full text articles of the remaining studies. Studies were excluded if they did not fulfil the inclusion criteria mentioned above. We excluded according to the following order: (1) outcome, (2) non exposed group (i.e. non-compensation group), (3) study design, (4) type of accident, and (5) exposed group (i.e. compensation group). If a study was excluded based on one criterion, then the remaining criteria were not investigated further. Finally, we searched the reference lists of the included studies to find additional publications. The study selection was conducted independently by two investigators (NE and LH). Disagreements were resolved by a third investigator (DB).

Data extraction

We extracted information about the number of participants at the start of the study, percentage of males, average age, type of accident, and type of injury. Furthermore, we collected information about the recruitment setting, country, the kind of compensation system (i.e. third party, no fault, worker's compensation, litigation), and we calculated the percentage of participants who were involved in a compensation process (versus not involved in compensation). In addition, we extracted when the baseline and follow-up measurements were conducted, the percentage of participant drop-out, the mental health instruments, and all mental health outcome data. If studies did not report sufficient data or dichotomous data only, authors of these studies were contacted. If studies did not report standard deviations, we calculated the standard deviations according to guidelines in the Cochrane handbook.[20] Finally, we investigated whether studies reported significant differences between cohorts regarding gender, age, education, occupational status before injury, injury severity, and mental health/psychopathology before injury. Data extraction was performed by the primary investigator (NE) and randomly checked by another investigator (DB).

Quality assessment

We used the Newcastle Ottawa Scale (NOS)[21] to assess the quality of the included studies. The scale is praised for its simplicity of use.[20] A disadvantage is its unknown validity.[22] We chose this scale because it was recommended for evaluation of cohort studies by the Cochrane Handbook.[20]

We slightly modified the NOS for this review. We interpreted the item about the representativeness of the exposed cohort as a question about whether the researchers recruited their participants from a valid setting and whether all eligible participants were equally approached to participate. The item about whether the outcome of interest was present at the start of the study was removed. This was done because we wished to investigate whether there is a *difference* in mental health rather than examining the *presence* of a disease or not. Because we removed this item, our NOS contained seven questions.

Furthermore, the item about comparability of cohorts asked for two important factors which need to be equal in both cohorts to be able to compare the cohorts. We decided the most important factors to be: (1) mental health at baseline, because the outcome measure needs to be equal at baseline to draw conclusions about the follow up, and (2) gender, because being female is one of the best predictors of depression, anxiety[23] and PTSD prevalence.[18,24] The length of follow-up needed to be at least three months, as three months is the median time for recovery from depression[25] and it is also the average time needed to recover from PTSD.[26] Finally, we decided that the loss to follow-up needed to be less than twenty percent.[27]

The NOS uses a star system to allow a visual semi-quantitative assessment. High quality studies are awarded a maximum of one star for each item than can be answered affirmatively, except for item 4 to which a maximum of two stars can be allocated. The quality of the studies was assessed independently by two reviewers (NE and DB).

Data analysis

First, we analysed the baseline measurement to investigate whether victims who start a compensation procedure have a similar mental health score *at baseline* as victims who are not involved in a compensation process. We calculated the pooled standardised mean difference (SMD) and 95% confidence intervals (CI) of the *total* mental health by adding the various mental health outcomes together. When a study included multiple mental health measures, a combined effect size was calculated. If anxiety, depression or PTSD was *higher* in the compensation group than in the non-compensation group, we indicated the effect direction to be negative. For studies measuring SF MCS, the effect direction was negative if the SF MCS was *lower* in the compensation group than in the non-compensation group. A negative effect size indicates that injury victims who are involved in compensation process have more mental health complaints at baseline compared to non compensated victims. The one-study removed analysis was conducted to show the impact of each study on the combined effect. We performed subgroup analyses in which we removed studies with baseline measurements other than directly after the