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Development of chronic pain following severe accidental injury. Results of a 3-year follow-up study

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Abstract: **OBJECTIVE:** Motor vehicle accidents (MVA) and work-related injuries are two of the more common causes of chronic pain. Nevertheless, there is little evidence on predicting factors regarding the development of chronic pain following physical injury. **METHODS:** The present study investigated temporal associations between accident-related factors, psychological factors [symptoms of posttraumatic stress disorder (PTSD), anxiety, depression, coping], and the development of chronic pain in a sample of individuals who had sustained severe accidental injuries (N=90). Assessments were performed within 1 month of the accident, and at 6, 12, and 36 months post trauma. **RESULTS:** A total of 40 individuals (44%) reported accident-related pain 3 years after the accident. Individuals with chronic pain showed significantly more symptoms of PTSD, depression, and anxiety, more disability, and more days off work. Analysis of temporal associations between psychological variables and the development of chronic pain indicated that the separation of the pain from the nonpain group mostly occurred between 6 (T2) and 12 months (T3). Differences were much less pronounced at T1. **CONCLUSION:** The prevalence of chronic pain in severely injured patients 3 years after the accident is considerably high. The development of chronic pain is more related to psychological factors, particularly PTSD symptoms, in the aftermath of the accident, as compared to sociodemographic and accident-related variables at the time of the accident. These findings may be helpful to elucidate the problems in predicting chronic pain conditions in injured subjects and to recognize the onset of a chronic pain condition more reliably.

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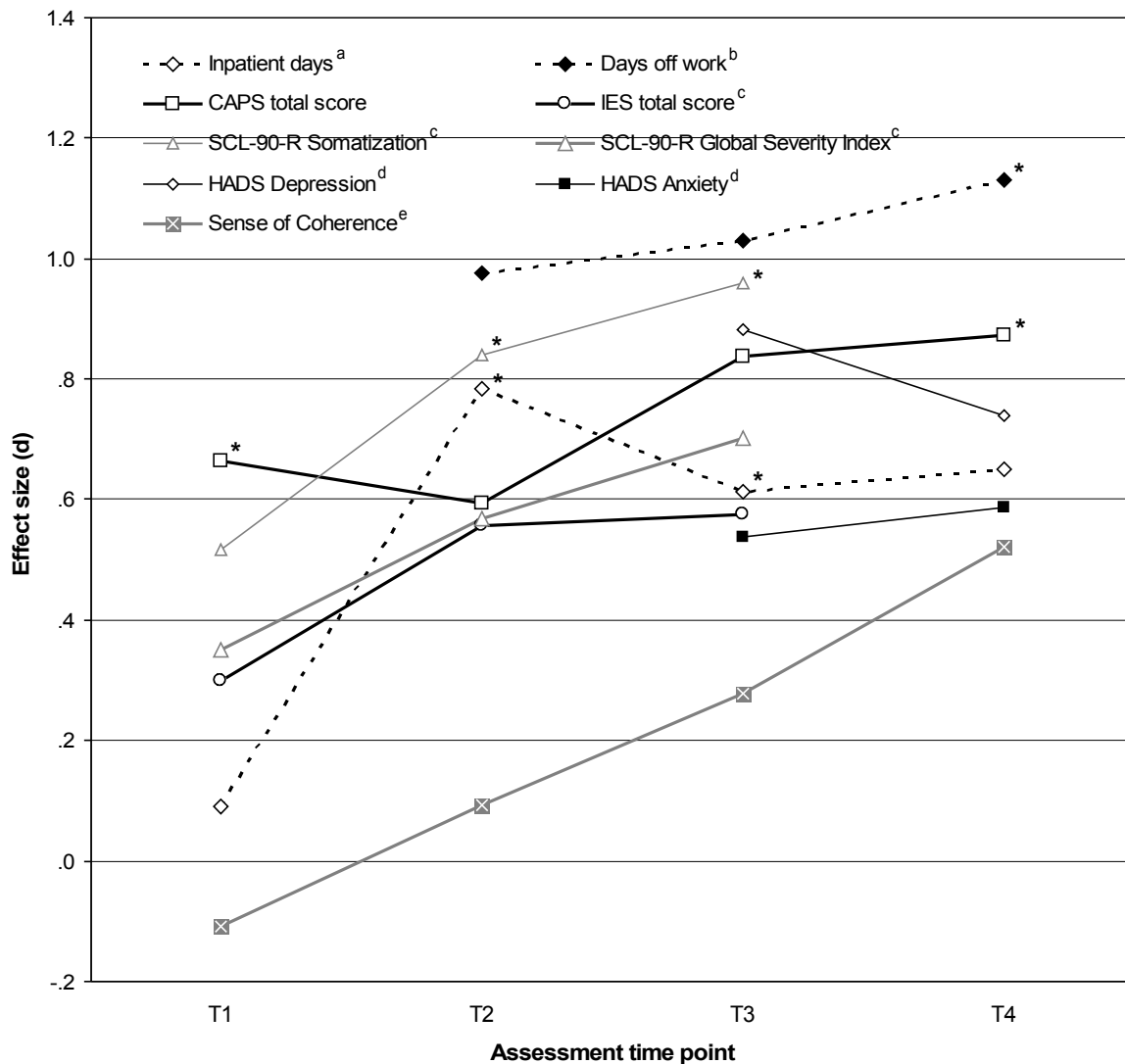
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Figures

Figure 1. Inpatient days, time off work, and psychological variables in accident-victims with chronic pain (n=40) at 3 years follow-up (T4): Course of effect sizes over time when compared to accident-victims without pain (n=50).



^a T1: Days at Intensive Care Unit

^b No data assessed before the accident

^c Assessed at T1, T2, and T3

^d Assessed at T3, and T4 only

^e Changed sign for effect size

CAPS: Clinician administered PTSD scale

IES: Impact of event scale

SCL-90-R: Symptom checklist-90-R

HADS: Hospital anxiety and depression scale

Assessments at two weeks (T1), 6 months (T2), 12 months (T3), and 36 months (T4) post accident.

Effect size: $d = (\text{mean}_{\text{patients with pain}} - \text{mean}_{\text{patients without pain}}) / \text{pooled standard deviation}$.

Effect sizes of $d > .4$ are significant at $p \leq .05$ or higher.

Increasing effect size over time means increasing association between pain and, e.g. SCL-90-R Somatization.

* Significant predictors ($p \leq .05$) in logistic regression analysis (backward stepwise removal method for all independent variables of one assessment time point with pain at T4 as dependent variable).