INTRODUCTION

• Persistent musculoskeletal pain (MSP) after motor vehicle collision (MVC) is common and results in substantial societal costs. 1,2

• Negative recovery expectations have been found to be powerful predictors of adverse pain outcomes following MVC. 3 However, the determinants of negative recovery expectations remain poorly understood. For example, it is not known to what extent negative recovery expectations represent accurate self-assessment vs. self-fulfilling prophecy.

• Individual characteristics associated with negative recovery expectations may provide useful targets for recovery expectation determinants. To our knowledge, associations between individual characteristics and recovery expectations after MVC have not been previously assessed.

METHODS

• European Americans age 18-65 who presented to one of eight emergency departments (ED) (Figure 1) within 24 hours of MVC were recruited into this prospective observational study. Exclusion criteria included hospital admission after ED evaluation.

• Participants completed ED assessments including an evaluation of demographic characteristics, pre-MVC physical and mental health status, crash characteristics, initial post-MVC symptoms, sense of life threat, and sense of accident fault. Participants were asked to predict the number of days they would take to recover emotionally and to recover physically. They were also asked to rate their certainty of recovery.

• Bivariate analyses assessed the relationship of expected time to physical recovery, expected time to emotional recovery, and certainty of recovery with sociodemographic factors, pre-MVC physical and mental health factors, MVC characteristics, and post-MVC psychological and somatic symptoms. Backwards stepwise logistic regression modeling (p≤0.10, post≤0.15) was then performed using characteristics associated at p≤0.05 in bivariate analyses. This yielded a set of optimal predictive factors.

• These factors were then evaluated in individual logistic regression models adjusted for age, sex, and study site, with standardized beta shown.

RESULTS

• 859/948 (91%), 840/947 (89%), 861/946 (90%) of participants completed 6 weeks, and 12 months follow-up, respectively.

• Interestingly, expected time to emotional recovery, expected time to physical recovery, and certainty of recovery were only weakly associated (Table 1), suggesting that recovery expectations are not global but specific to outcome type.

• Physical recovery expectations in the hours after MVC most strongly predicted pain outcomes and emotional recovery expectations most strongly predicted PTSD outcomes (Table 2).

• Acute psychological distress (intense, traumatic distress, greater sense of life threat) was most strongly associated with poorer expected recovery time, following by number of somatic symptoms in the ED (e.g., dizziness, nausea, ringing in ears), and trait anxiety. Better self-reported physical health and trait optimism were protective against long estimated time to emotional recovery.

• Acute pain severity and extent were most strongly associated with poorer expectations of physical recovery, followed by age, other’s fault, and pre-MVC pain and depressive symptoms (Table 4).

• Both acute pain and acute psychological distress were associated with recovery uncertainty, along with pre-MVC pain and psychological characteristics (Table 5).

CONCLUSIONS

• Factors influencing expectations of physical & emotional recovery differ.

• Acute pain and acute psychological symptoms are the dominant predictors of physical and emotional characteristics, respectively.

• Further studies are needed to evaluate whether differences in the etiology of persistent pain after MVC may exist between individuals with positive vs. negative expectations of recovery.

REFERENCES


3. domeier RM, Rathlev NK, Soward KM, Rathlev NK, Soward KM. Acute psychological distress (intense, traumatic distress, greater sense of life threat) was most strongly associated with poorer expected recovery time, following by number of somatic symptoms in the ED (e.g., dizziness, nausea, ringing in ears), and trait anxiety. Better self-reported physical health and trait optimism were protective against long estimated time to emotional recovery.

4. Acute pain severity and extent were most strongly associated with poorer expectations of physical recovery, followed by age, other’s fault, and pre-MVC pain and depressive symptoms (Table 4).

5. Both acute pain and acute psychological distress were associated with recovery uncertainty, along with pre-MVC pain and psychological characteristics (Table 5).

TABLE 1. Individual characteristics associated with long ETER (AUROC=0.714) Characteristic Standardized-β p-value Overall Pain Severity (0-10 NRS) 0.65 <.0005 Number of body regions w/pain 0.44 <.0005 ED somatic symptoms (W) 0.32 <.0005 Patient Age (years) 0.29 <.0005 Other Person’s Fault (yes/no) 0.22 <.0005 Neck Pain prior to MVC (yes/no) 0.22 <.0005 Depressive Symptoms (CES-D) 0.17 <.005

TABLE 2. Prevalence of poor recovery expectations in the emergency department (ED) and association with adverse pain and mental health outcomes (n = 948).

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>6 weeks</th>
<th>6 months</th>
</tr>
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<tbody>
<tr>
<td>Pain defined via pain score ≥ 4</td>
<td>364 (41)</td>
<td>262 (30)</td>
</tr>
<tr>
<td>Pain defined via pain score ≥ 4 (0-10 NRS) in the neck, shoulder, or back</td>
<td>1.5 (1.3-1.7)</td>
<td>1.2 (1.1-1.4)</td>
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TABLE 4. Individual characteristics associated with long ETER (AUROC=0.714) Characteristic Standardized-β p-value Overall Pain Severity (0-10 NRS) 0.65 <.0005 Number of body regions w/pain 0.44 <.0005 ED somatic symptoms (W) 0.32 <.0005 Patient Age (years) 0.29 <.0005 Other Person’s Fault (yes/no) 0.22 <.0005 Neck Pain prior to MVC (yes/no) 0.22 <.0005 Depressive Symptoms (CES-D) 0.17 <.005

TABLE 5. Individual characteristics associated with long ETER (AUROC=0.698) Characteristic Standardized-β p-value Number of body regions w/pain 0.46 <.0005 Periarticular pain (PDI) 0.44 <.0005 Sense of life threat (0-10 NRS) 0.31 <.0005 ED somatic symptoms (W) 0.29 <.0005 Other Person’s Fault (yes/no) 0.22 <.0005 Neck Pain prior to MVC (yes/no) 0.22 <.0005 Depressive Symptoms (CES-D) 0.18 <.005

REFERENCES


3. domeier RM, Rathlev NK, Soward KM, Rathlev NK, Soward KM. Acute psychological distress (intense, traumatic distress, greater sense of life threat) was most strongly associated with poorer expected recovery time, following by number of somatic symptoms in the ED (e.g., dizziness, nausea, ringing in ears), and trait anxiety. Better self-reported physical health and trait optimism were protective against long estimated time to emotional recovery.

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