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# Title Page

Title: Factors associated with self-efficacy for managing recovery in the trauma intensive care population: A prospective cohort study

Disclaimers: Nil

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**Keywords:** Self-efficacy, psychosocial factors, trauma, injury, intensive care unit, quality of life, nurses, nursing, recovery, patient outcome.

**Abstract**

**Objective:** The aim of this paper was to identify factors associated with self-efficacy for managing recovery in the trauma intensive care population.

**Introduction:** Injury accounts for 6.5% of disease burden in Australia, with similar levels being reported in other developed countries. While some studies regarding self-efficacy have identified a relationship to patient recovery post acute injury, others have been inconclusive. This study will identify factors associated with self-efficacy for managing recovery in the trauma intensive care population.

**Methods:** A prospective cohort study of patients aged ≥18 years, admitted to a metropolitan tertiary hospital in South East Queensland between June 2008 and August 2010 for the acute treatment of injury. Demographic, injury, acute care and psychosocial factors were considered. The primary outcome was self-efficacy measured by the 6-item self-efficacy scale (SES) 1 and 6 months post hospital discharge. All factors significant ($p < 0.10$) on univariate analysis were included in multivariable modelling where $p < 0.05$ was considered significant.

**Results:** A total of 88 patents were included. The mean self-efficacy score at 1 and 6 months was similar (6.8 vs 6.9 respectively). Self-efficacy at 1 month, psychological distress (K-10) Score and illness perception (K10) Score accounted for 68.4% (adjusted $R^2$) of the variance in 6 month self-efficacy ($F_{3,75}$) = 57.17, $p < 0.001$). Illness perception was the strongest contributor to 6 month self-efficacy (Beta = -0.516), followed by psychological distress (beta = -0.243) and self-efficacy at 1 month (beta = 0.205).

**Conclusion:** Significant factors associated with self-efficacy for managing recovery at 6 months included 1 month self-efficacy, illness perception and

psychological distress. To promote patient recovery, screening patients at 1 month in order to commence relevant interventions could be beneficial.

## Introduction

Injury is estimated to account for 6.5% of the burden of disease in Australia, with similar levels being reported in other developed countries.[1, 2] Injuries are a leading cause of death and disability in the Western world resulting in significant health burden on all populations, regardless of age, sex, income, or geographical region.[3] The physical, cognitive and psychological disabilities due to injury can lead to reduced quality of life (QOL) and long term disability placing a significant economic and social burden on society.[4-6]

Various factors have been identified as being related to patient recovery post injury including age, gender, income, level of education, self-efficacy and acute psychological response.[7-9] One study found that an individual's acute psychological response to injury directly predicted both the level of disability and the QOL twelve months post traumatic injury.[9] In a further study, 20.7% of trauma patients twelve months post injury had developed post traumatic stress disorder (PTSD) and 6.6% had developed depression, affecting patients return to work and functional recovery.[10]

Self-efficacy (SE) has been proposed as an important psychological factor that may be related to patients' recovery post injury.[11-13] The concept of SE is a core concept of social cognitive theory. Bandura[14] describes SE as a person's belief (confidence) in their ability to perform a set of actions; the greater a person's belief, the more likely they will initiate and continue with activities and attain a

positive outcome.[14] SE has been found to influence various health outcomes including pain-related disability, compliance with discharge instructions, locomotion recovery and QOL.[12, 15-18] Few studies have investigated factors found to significantly improve SE in the acute injury population.[11, 13, 19, 20] There is some literature to suggest that education has been found to improve SE in acute musculoskeletal and whiplash injury groups,[11, 13] but results of studies testing educational, physical and psychological interventions have been inconsistent.[19, 21-24] Given the burden of injury on society and the health care system, identifying strategies that may potentially improve SE is important. The aim of this paper was to identify the factors associated with SE for managing recovery in the patient with trauma admitted to the intensive care unit (ICU). This information might inform the development of future interventions and enhances practices for a range of health care providers.

## Materials and methods

### *Research design*

This project is a 6-month sub-study of a larger 2-year prospective cohort study designed to determine factors related to QOL in trauma patients requiring admission to ICU up to 24 months post hospital discharge. SE is relatively stable in the absence of an intervention and therefore this timeframe was considered appropriate to measure SE after injury. The study was conducted in a metropolitan tertiary hospital in South-East Queensland, Australia.

Study participants were screened daily by the ICU research nurse over a 2 year period from June 2008 to August 2010 for potential enrollment, with liaison with the Trauma Registry Nurse Coordinator to determine eligibility.

*Participants and procedure*

Convenience sampling included adults 18 years and older, admitted to ICU for acute treatment of injury and allocated an injury code (ICD-10-AM code: S00 – S99, T00 – T35, T63, T66 – 72 or T 75 – 77). Participants with spinal cord injuries, burns, severe traumatic brain injuries, or a history of psychosis were excluded due to the different recovery pathways experienced by participants (Table 1). All patients who met the study criteria over the 2 years of enrollment were considered eligible for inclusion in the study.

The initial questionnaire containing demographic data was completed in hospital after a research assistant obtained consent. Self-administered questionnaires were posted by mail at 1, 6, 12 and 24 months post discharge with telephone follow-up by the research assistant to obtain results or participants could return completed questionnaire by mail. Up to 4 attempts to contact participants were made at each time point. For the purpose of the sub-study being reported in this paper data at 1 and 6 months were used.

*Measures*

Data were collected from multiple sources including participants, their health care records and the Queensland Trauma Registry (QTR). The primary outcome was SE during recovery measured by the 6-item self-efficacy scale (SES)[25] 1 and 6 months post hospital discharge as a measure of each participant's belief in their ability to perform a set of actions to aid their recovery. The proposed factors included: demographic details (age, gender, marital status, income and employment); injury and acute care characteristics (ISS,

body injury location, hospital length of stay [LOS] and ICU LOS). The post-acute factors included (post traumatic stress disorder symptoms, psychological distress, perceived social support and perceptions of illness).

*Self-efficacy:* The SES is a 6-item Likert scale for managing recovery. This chronic disease SES has been adapted to reflect recovery post injury.[25] It measures participants' confidence in undertaking activities such as reducing emotional stress, managing their injury, pain and fatigue so as not to interfere with daily activities. The total mean score ranges from 1 (not at all confident) to 10 (totally confident) with the total SES derived by taking the average of the 6 items.[25] Reliability of the 1 and 6 month SES in the present study was good (internal consistency coefficient $\alpha = 0.93$ and $\alpha = 0.94$ respectively), which is in accordance with the psychometric data presented by Lorig and colleagues.[25]

*Post traumatic stress:* The PTSD Checklist - Civilian Version (PCL-C) measures trauma related stress.[26] It consists of a self-report rating scale comprising of 17 items with a 5-point Likert scale (1 = not at all, 5 = extremely) designed to elicit information about personal feelings over the preceding month.[26] All items were summed to give a total severity score ranging from 17 to 85, higher scores reflecting more post traumatic stress. Reliability of the PCL-C in the present study was good (internal consistency coefficient $\alpha = 0.93$), which is in accordance with previously reported psychometric data.[27, 28] Evidence of convergent validity were also reported.[29]

*Psychological distress:* The Kessler Psychological Distress Scale (K-10)[30] yields a global measure of psychological distress at 6 months post injury. It

consists of ten items based on questions about anxiety and depressive symptoms experienced by the person in the preceding four weeks. Participants rate items on a scale ranging from 1 (none of the time) through to 5 (all of the time); items were summed to give scores ranging from 10 to 50, where 50 indicates high risk for anxiety or depressive disorder. Reliability of the K-10 in the present study was also good (internal consistency coefficient α=0.93), which is in accordance with previously reported psychometric data.[31]

*Social support:* The Multidimensional Scale of Perceived Social Support Questionnaire (MSPSS) assesses an individual's perception of how much he or she receives outside social support from either family, friends and significant others at 6 months.[32] The 12-item scale uses a 7-point Likert-type response format (1 = very strongly disagree to 7 = very strongly agree). The 3 subscales (i.e., family, friends, significant other) are assessed with 4 items each, which are then summed and divided by 4 to give scores.[33] The score of individual items was summed and divided by 12 to give the total score ranging from 1 to 7, with higher scores suggesting greater levels of perceived social support.[32, 33] Reliability of the total MSPSS and for each subscale in the present study was assessed between α 0.95 and 0.97 for the total scale and each of the subscales; this is consistent with previous use of the scale.[33]

*Illness perception:* The Brief Illness Perception Questionnaire (Brief IPQ) measures cognitive and emotional representations of illness at 6 months.[34] Eight items except the causal question (item 9) are rated using a 0 (not at all affected) to 10 (extremely affected). The open ended causal question which could be grouped into categories was removed due to the number of factor

variables and lack of relevance.[34] Consistent with previous use of the scale, items 3, 4 and 7 were administered in negative format and were reversed for scoring purposes. A higher score reflects a more threatening view of the illness.[34] For the purpose of this study, the Brief IPQ was not separated and analysed into the cognitive illness items and emotional representations, but analysed as a single score. Reliability of the Brief IPQ in the present study was consistent with other research (internal consistency coefficient $\alpha$ = 0.84).[34]

*Injury severity:* The Abbreviated Injury Scale (AIS) and Injury Severity Score (ISS) measure the severity of injuries experienced by the participant.[35] The AIS Score is based on injuries ranked on a scale of 1 to 6 with 1 being minor, 5 severe and 6 a nonsurvivable injury.[35] The ISS overall severity of injuries ranges from 0 to 75 and is the sum of the square of the AIS for the 3 most serious injuries in different ISS body regions.[35] The QTR supplied the injury severity data for this study.

**Statistical methods**

Data analyses were performed using Statistical Package for the Social Sciences (SPSS) for Mac version 17.0 (SPSS Inc, Chicago, IL, USA) and Stata 11 (Statacorp/Texas). Data were cleaned and checked for missing and invalid values. Fifteen percent random sampling found 3 data entry errors and 1 coding error indicating a good representation of data accuracy.

Simple linear regression was used to identify variables significantly associated with SE ($p<0.10$). Variables identified as significant in this process were then included in multiple linear regression modelling to identify factors independently

associated with self-efficacy at 6 months. A backwards elimination process was used to simplify the model by dropping the least significant variable, then refitting the model. The process was repeated until the most parsimonious model (based on adjusted $R^2$, number of explanatory variables, significance and changes in coefficients) was identified. The rationale for using multiple linear regression was to objectively assess the degree and character of a set of factors identified as being related to SE for managing recovery. Variables included in simple linear regression and subsequent multivariable models are presented in Table 5.

Regression diagnostics were performed using both informal (graphic) and formal (statistical) checks to assess how well the data met the assumptions underlying multiple linear regression. Regression diagnostics included checking the normality and homoskedasticity of residuals. The degree of multicollinearity amongst explanatory variables was detected via variance inflation factors (VIF), where VIFs >2.5 were considered worrisome and VIFs >10 serious. In the case of highly related explanatory variables the decision was to omit the variable(s) considered theoretically less important. Further diagnostic steps included checking the linearity assumption between the response variable and interval - explanatory variables. Identification of outliers was followed up by checking that outlying data points were in fact ‘valid’ and not data entry errors. Interactions between factors were not considered during the modelling process due to the number of observations and number of explanatory variables used in the modelling process.

**Ethical considerations**

The relevant university and hospital Human Research Ethics Committees approved the study. Informed consent was initially obtained from the patient's next of kin where necessary, with consent obtained from the patient at a later time. When a patient was unavailable due to care requirements, they were revisited at a later time. Participants were free to withdraw from the study at any time. Data were stored in locked facilities with identifying and contact details stored separately to maintain confidentiality and anonymity. Computerised data files were password protected.

**Results**

One hundred and twenty-three patients were enrolled; 88 of these provided data at 6 months and therefore formed the cohort for this sub-study (Fig. 1). Of the 88 participants followed up at 6 months, 9 did not provide SE data at 1 month (n=79). One month SE was entered into the final model, as it was seen as important covariate for 6 month SE. Of the 88 trauma participants in this study, the mean age of the cohort was 44 years and 80.7% were male (Table 2). Over a third (30) of participants were in full time employment, one sixth (14) in part time or casual work and a similar proportion (15) unemployed. Almost half of the cohort (43) were either married or living in a de facto relationship and less than a third (28) had never been married. Three quarters of the cohort reported an income less than $60,000/year. In the injury and acute care characteristics (Table 3), participants remained in hospital approximately 18 days with less than 3 days being in ICU. The median ISS was 17 with the most common injuries being to the head, face and neck or thorax regions.

SE for managing recovery did not change over time (Table 4). Participants in this cohort displayed moderate symptoms of PTSD and reported a moderate perception of the threat their illness posed based on the Brief IPQ. Overall participants had a high perception of social support with the highest from family and significant others. Based on the K10 a medium risk of psychological distress was evident in this cohort. This is evident in the categorical variables with almost half of the participants at a medium risk of psychological distress and a further 12.5% at a high risk of anxiety and depressive symptoms post injury.

At the univariate level of analysis, SE for managing recovery was assessed against all explanatory variables with significant relationships ($p < 0.10$) found with employment, income, hospital LOS, PTSD Score, Brief IPQ Score, SE 1 month, MSPSS (family, friends and significant others) and the K10 score (Table 5). Using a backwards elimination process, a multiple linear regression model was built, with 1 month SE, K10 and Brief IPQ Scores remaining significantly associated with 6 month SE in the final model (Table 5). The final regression equation produced a good fit with the data indicating that the combined influence of SE for managing recovery at 1 month, K-10 Score and illness perception score accounted for 68.4% (adjusted R2) of the variance in 6 month SE ($_{F3,75}$) = 57.17, $p < 0.001$).

There was a significant positive relationship between SE for managing recovery at 1 month and 6 month SE ($t = 2.59$, $p = 0.011$), indicating an increase of 1 unit in 1 month SE lead to a 0.22 increase in the predicted 6 month SE for managing recovery. Both K-10 Score and Brief IPQ Score were significantly

associated with 6 month SE ($t = -2.92$, $p = 0.005$ and $t = -5.67$, $p<0.001$, correspondingly) with a unit change in K-10 and Brief IPQ scores leading to a 0.068 and 0.067 decrease in the predicted 6 month SE, respectively.

The results indicate that amongst the explanatory variables entered into the final model, illness perception score was the strongest contributor to 6 month SE for managing recovery (beta = -0.516), followed by K10 (beta = - 0.243) and SE at 1 month (beta = 0.205). Analysis of the residuals did not reveal any departure from normality and illustrated constant and independent variance. Both univariate analysis and post regression diagnostics suggested collinearity between K10 and PTSD, as the less significant of the two variables PTSD was removed during the modeling process. All VIF values for the final regression model were below 2.5, indicating minimal multicollinearity.

**Discussion**

This prospective cohort sub-study was conducted with acute trauma ICU patients. A number of demographic, injury, acute care characteristics and psychosocial factors associated with SE for managing recovery have been identified. The most important finding of this study was that at 1 month SE for managing recovery, illness perception and psychological distress were the significant factors associated with SE for managing recovery at 6 months in the trauma intensive care patient. The findings may have important clinical implications, as some psychosocial factors may be potentially modifiable by delivering interventions to improve patients' psychosocial response.

In this cohort, a patient's SE for managing recovery at 1 month independently predicts SE at 6 months in the trauma ICU population. In studies of people suffering chronic illness, high SE has been strongly associated with better QOL and lower healthcare utilization.[25, 36] In the acute injury population, SE has been found to influence various health outcomes including pain-related disability, compliance with discharge instructions, locomotion recovery and QOL.[12, 15-18] The significant relationship between 1 with 6 months SE for managing recovery suggests that screening patients at 1 month could be beneficial to identify patients at risk of poor outcomes.

Illness perceptions are the organised cognitive representation or beliefs that patients have about their illness or injury.[34, 37] A patient's illness perception has been found to influence behaviour that impacts on outcomes such as functional recovery and treatment adherence.[37, 38] Participants in the current study cohort had an overall moderate perception of the threat their illness posed at 6 months post injury and illness perception was the strongest contributor to SE for managing recovery at 6 months. This is consistent with the concept of SE where persons' belief about their illness and how they interpret their symptoms influences their SE.[39] Studies relating to SE and illness perception were not identified in the literature but a similar cohort found, illness perception was a stronger predictor of health related QOL than demographic and clinical factors 6 months post hospital discharge.[40] In contrast, a hand injury cohort was optimistic about treatment and recovery, suggesting illness perception was not influenced by the recent trauma experience.[41] Although this study had a small sample size, it used the Chinese IPQ-R (Trauma) scale, which is more detailed in patient analysis.

Illness perception in the Brief IPQ can be divided into categories including cognitive illness representations: consequences (Item 1), timeline (Item 2), personal control (Item 3), treatment control (Item 4), and identity (Item 5).[34] Two of the items assess emotional representations: concern (Item 6) and emotions (Item 8). One item assesses illness comprehensibility (Item 7).[34] In a previous study the Brief IPQ personal control item was significantly correlated with individuals SE in diabetes and asthma however this was related to the chronic disease population.[34] Due to the small sample size and other competing factors in the current study, separating the Brief IPQ into categories for analysis would not allow for a robust multiple linear regression model.

Further research in the injury cohort is recommended to determine if the Brief IPQ were more significant with the personal control item which relates to perceived control and SE. This analysis was not able to be undertaken in the current study due to the small sample size. By understanding patients' illness perceptions and implementing interventions to improve or reframe patients' perceptions this may lead to increased recovery, decreased length of stay and better QOL post acute injury.

The Psychological Distress Scale (K10) has been used to identify people in the general population experiencing non-specific psychological distress.[30] The scale is well recognised and used widely in psychiatric epidemiological studies and organisations such as the World Health Organization (WHO).[30] Participants in the current study experienced moderate levels of distress consistent with a diagnosis of moderate depression and/or anxiety. Studies related to SE and

psychological distress scale (K10) were not identified in the literature, but an acute trauma cohort identified a significant relationship between SE immediately following trauma and the development of post traumatic stress symptoms [42]. Whilst not intensive care patients, the results showed patients post acute injury suffer distress and emotional turmoil, which may decrease SE and affect patient recovery. Previous studies suggest individuals who experience low SE have an increased risk of experiencing depression, anxiety, helplessness and pessimistic thoughts about personal accomplishment and development, although most of these studies were conducted in the chronic disease population.[1, 14, 43, 44]

Educational, physical or psychological interventions designed to enhance SE have emerged in the acute injury population, but the results have been inconsistent.[11, 13, 19-21, 23] While there has been some exploration of psychological interventions there has been no exploration of the connection between physical and psychological factors including emotional status. Interventional studies that have incorporated this connection including education on coping strategies, pain and breathing relaxation exercises have significantly improved SE.[13]

Given the findings that psychological distress, illness perception and SE for managing recovery at 1 month significantly predicts SE at 6 months; research into the effectiveness of interventions that might alleviate distress, influence recovery and improve QOL is warranted. Understanding what influences SE for managing recovery, opens opportunities for clinicians to investigate potential

interventions to decrease psychological distress and depression post acute trauma, with the potential to increase SE and improve patient recovery.

There are several limitations in this study. Although, the sample size was small the cohort represents a unique subgroup of the injured population. Second, the sample was notably homogeneous in gender with males representing over 80% of the sample. However, globally injury mortality among men is twice that among women.[45] Third, missing data in both explanatory and response variables including 1 month SE for managing recovery may bias the results and has decreased the sample size in the final model. Fourth, the attrition rate in this study was high, thus limiting the extent to which results can be generalised to the trauma ICU population. Fifth, this was a single centre study therefore limiting the generalisability of the study. Finally, specific data collection methods using phone interview or self-questionnaire were not recorded and therefore may be a cause for bias in the study results.

**Role of funding source**

The parent study received funding from the Princess Alexandra Foundation, which is a charitable organisation. No specific funding was received for this sub-study.

**Conclusion**

A number of psychosocial factors including SE for managing recovery at 1 month post discharge, and illness perception and psychological distress were associated with SE for managing recovery at 6 months post acute injury in the trauma ICU population. Results were consistent with the body of literature that

relates to relationships between various psychological factors and SE. The findings suggest that development of interventions to improve SE for managing recovery have the potential to improve psychosocial health and recovery in post trauma ICU patients.

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**TABLE 1.** Exclusion criteria

| **Exclusion criteria** |
| --- |
| 1. Spinal cord injuries with sensory and/or motor loss |
| 2. Burn injuries to >20% body surface area |
| 3. Traumatic brain injuries with a Glasgow Coma Score <14 after 24 h or on extubation |
| 4. History of psychosis or self-inflicted injury |
| 5. Inability to communicate in English |
| 6. Where follow up would be problematic. e.g. prisoners, no telephone access |
| 7. Palliative care / patients expected to die |

**TABLE 2.** Demographic characteristics (n = 88)

| Variable | Mean (SD) |
|---|---|
| Age (years) | 43.7 (17.4) |
| | **Frequency (%)** |
| **Gender** | |
| Male | 71 (80.7) |
| Female | 17 (19.3) |
| **Employment** | |
| Full time work | 30 (34.1) |
| Part time and casual work | 14 (15.9) |
| Retired | 12 (13.6) |
| Disability pension | 7 (8.0) |
| Unemployed | 15 (17.0) |
| Other | 10 (11.4) |
| **Marital status** | |
| Married/de facto | 43 (48.9) |
| Never married | 28 (31.8) |
| Separated | 7 (8.0) |
| Divorced | 8 (9.0) |
| Widowed | 2 (2.3) |
| **Income ($AUD)** | |
| $0-29,999 | 40 (46.0) |
| $30,000-59 999 | 26 (29.9) |
| $60,000-89 999 | 10 (11.5) |
| $90,000 or more | 11 (12.6) |

$AUD - Australian dollars

**TABLE 3.** Injury and acute care characteristics (n = 88)

| Variable | Median (IQR) |
|---|---|
| **Hospital LOS (days)** | 18.2 (9.7 – 39.5) |
| **ICU LOS (days)** | 2.8 (1.1 – 7.9) |
| **ISS**[a] | 17 (12 – 29) |
| | **Frequency (%)** |
| **Body Region Location**[a] | |
| Head, Face & Neck | 27 (31.0) |
| Thorax | 23 (26.4) |
| Abdomen | 13 (14.9) |
| Spine | 2 (2.3) |
| Upper Extremity | 2 (2.3) |
| Lower Extremity | 20 (22.9) |

LOS - length of stay; ISS - Injury Severity Score; SD - standard deviation

[a] Data not available for 1 participant due to poisoning being coded as injury but not assigned an ISS and Body Region.

**TABLE 4.** Psychosocial characteristics post acute injury (n=88)

| Variable | Median (IQR) |
|---|---|
| ***Post traumatic stress*** | |
| PTSD symptoms | 31.0 (24.0-46.0)[a] |
| ***Illness perception*** | |
| IPQ Score | 42.5 (25.0-51.0) |
| | **Mean (SD)** |
| ***Self-efficacy*** | |
| 1 month (n=79[b)] | 6.8 (2.2) |
| 6 months | 6.9 (2.4) |
| ***Social Support*** | |
| MSPSS Score | 5.3 (1.3)[a] |
| Family | 5.4 (1.5) |
| Friends | 5.1 (1.3) |
| Significant other | 5.5 (1.5)[a] |
| ***Psychological distress*** | |
| K10 Score | 19.8 (8.3) |
| | **Frequency (%)** |
| Low or no risk | 35 (39.8) |
| Medium risk | 42 (47.7) |
| High risk | 11 (12.5) |

PTSD - post traumatic stress disorder symptoms; SE - self efficacy: IPQ - Brief illness Perception Score; K10 - Kessler Psychological Distress Scale; MSPSS - Multidimensional Scale of Perceived Social Support; SD – standard deviation

[a] Unable to calculate summary score for 1 participant

[b] Nine participants did not provide 1 month self-efficacy data (not available)

**TABLE 5.** Univariate and multivariable analysis identifying factors associated with 6 month self-efficacy (n=88)

| Variables | Univariate models<br>B (95% CI, p-value) | Full model[a]<br>B (95% CI, p-valu |
|---|---|---|
| **Age (years)** | -0.007 (-0.04 to 0.02, 0.7) | ^ |
| **Gender** | | |
| Male | Reference | ^ |
| Female | 0.4 (-0.9 to 1.7, 0.6) | |
| **Employment** | | |
| Full time work | Reference | Reference |
| Part time and casual | 1.03 (-0.3–2.4, 0.1) | 0.9 (-0.04 to 1.9, 0.06) |
| Retired | -0.5 (-1.9 to 0.9, 0.5) | -0.7 (-1.8 to 0.4, 0.2) |
| Disability pension | -2.5 (-4.3 to -0.7, 0.006)** | -0.7 (-2.1 to 0.6, 0.3) |
| Unemployed | -2.2 (-3.5 to -0.9, 0.002)** | 0.2 (-0.9 to 1.2, 0.8) |
| Other | 0.5 (-1.0 to 2.0, 0.5) | 0.6 (-0.5 to 1.6, 0.3) |
| **Marital Status** | | |
| Married/De facto | Reference | ^ |
| Never married | -0.3 (-1.4 to 0.9, 0.7) | |
| Separated | -1.0 (-3.0 to 0.9, 0.3) | |
| Divorced | -0.4 (-2.2 to 1.4, 0.7) | |
| Widowed | -2.6 (-6.0 to 0.8, 0.1) | |
| **Income** | | |
| $0 – 29,999 | Reference | Reference |
| $30 000 - 59 999 | 0.3 (-0.9 to 1.4, 0.6) | -0.4 (-1.3 to 0.5, 0.4) |
| $60 000 - 89 999 | 1.7 (0.04 to 3.3,0.05) | 0.6 (-0.5 to 1.7, 0.3) |
| $90 000 or more | 1.8 (0.2 to 3.4,0.03)** | 0.6 (-0.4 to 1.6, 0.3) |
| **Body region location** | | |

| | | |
|---|---|---|
| Head, face & neck | Reference | ^ |
| Thorax | 0.7 (-0.6 to 2.0, 0.3) | |
| Abdomen | -1.1 (-2.7 to 0.4, 0.2) | |
| Spine | 1.8 (-1.6 to 5.1, 0.3) | |
| Upper extremity | 0.2 (-3.2 to 3.6, 0.9) | |
| Lower extremity | -0.9 (-2.3 to 0.4, 0.2) | |
| **Hospital LOS (days)** | -0.04 (-0.06 to -0.01, 0.003)** | -0.006 (-0.02 to 0.01, 0.5 |
| **ISS** | -0.02 (-0.07 to 0.03, 0.4) | ^ |
| **PTSD Score** | -0.09 (-0.1 to -0.07, <0.001)*** | -0.02 (-0.05 to 0.02,0.4) |
| **IPQ Score** | -0.1 (-0.1 to -0.09, <0.001)*** | -0.05 (-0.08 to -0.02, <0. |
| **SE Score (1 month)** | 0.7 (0.5 to 0.9, <0.001)*** | 0.2 (0.04 to 0.4, 0.02)* |
| **Social support** | | |
| Family | 0.5 (0.2 to 0.8, 0.002)** | 0.06 (-0.3 to 0.4, 0.7) |
| Friends | 0.6 (0.2 to 0.9, 0.005)** | 0.2 (-0.1 to 0.6, 0.2) |
| Significant other | 0.4 (0.09 to 0.8, 0.014)* | -0.2 (-0.5 to 0.2, 0.4) |
| **K10 Score** | -0.2 (-0.2 to -0.1, <0.001)*** | -0.05 (-0.1 to 0.4, 0.3) |
| **Constant** | - | 8.3 (5.6 to 10.9) |
| **Adjusted $R^2$** | - | 0.715*** |

Note: CI = 95% confidence interval; B = unstandardized regression coefficient; Beta = standardized regression coefficient.

[a] Full multivariable linear regression model (includes 10 variables significant at the 90% level on univariate regression).

[b] Final multivariable linear regression model (includes 3 variables significant at the 95% level following backwards elimination).

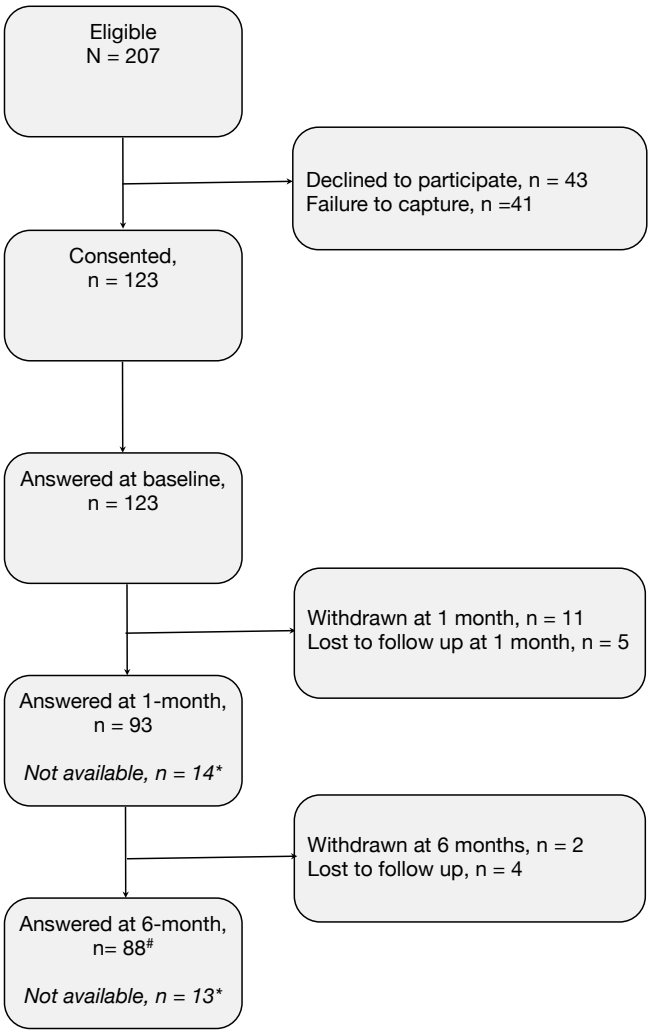
* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

^ Not significant (p > 0.10) on univariate regression.

~ Not significant (p > 0.05) in full multivariable model.




*Participant indicated they were unable to provide data for this time point but happy to be contacted at subsequent data collection points.

# Of the 88 participants followed up at 6 month 10% (n=9) did not provide data at 1 month (indicated they were not available).

**Figure. 1.** Patient flow through study