

Mental Health Outcomes Following Workplace Injury

Project details

Completed Work:

-Project Overview

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Goal: The goal of this study is to evaluate mental health outcomes in individuals with work-related injury to non-work-related injury.

Background: Workplace related injury (WPI) can result in the development of post-injury mental health outcomes (MHO). However, the literature describing post injury MHO compares individuals with WPI to the general population. It is known that injury that is not work related can result in development of MHO, however it is not clear if WPI has worse outcome compared to non-WPI. The research question is if WPI results in increased MHO as compared to non-WPI.

Objectives: Compared to a matched control cohort and a non-work-related injury cohort, we will examine mental health outcomes in a longitudinal population-based sample of adults who survived a work-related injury.

Hypotheses:

1. We hypothesize that the prevalence of treated post-injury mental health outcomes will be greater among the 'Workers' cohort than a matched 'Non-Workers' cohort.

Results and Evaluation

This study included 7,908 patients with a first-time work-related injury leading to treatment with a procedure requiring general anesthetic. 348 were excluded due to having carpal tunnel release surgery, which treats a chronic condition. 4 had incomplete claim information. The final study population was 7,556 patients with WPI matched to 28,901 non-WPI patients (Figure 1).

The average age of the WPI cohort was 44.8 years old. 75.5% were male and 61.2% were from an urban geographic region. **61.1% of the WPI cohort were low-income.** The average duration of available follow up was 7.06 years.

The majority of injury locations (50.4%) were at the upper extremity. 20.5% of claims were from the service industry sector. The median cost per claim was \$16,404, and the total sum cost of claims was \$262,435,434 CAD. The median length of claim was 78 days, and the sum of days lost to claims was 1,542,989. This underestimates the actual number of days lost to WPI. Many claims had a cost listed with zero days lost. This is due to workers possibly using up their sick days beforehand, or taking holidays during the claim period.

Relative rates of mental disorders including anxiety, depression, substance use disorder and any mental health outcome (the combined amount of these three disorders) were measured in the WPI and non-WPI cohorts. From 2 years pre to 2 years post-index, anxiety in the WPI cohort increased from a rate of 14.9% to 17.0%, while it decreased in the non-WPI cohort from 17.8% to 16.5%. This indicates a relative rate change from 0.81 to 1.04 for anxiety in the WPI cohort. When adjusting for sex, geography, and income, the adjusted rate ratio of anxiety moved from 0.82 to 1.00, with a p value of less than 0.0001.

From 2 years pre to 2 years post-index, depression in the WPI cohort increased from a rate of 10.1% to 10.9%, while it decreased in the non-WPI cohort from 5.1% to 4.4%. This indicates a relative rate increase from 0.76 to 0.89 for depression in the WPI cohort. When adjusting for sex, geography, and income, the adjusted rate ratio of depression moved from 0.78 to 0.89, with a p value of 0.0009.

From 2 years pre to 2 years post-index, substance use disorder in the WPI cohort increased from a rate of 3.4% to 3.8%, while it decreased in the non-WPI cohort from 5.1% to 4.4%. This indicates a relative rate increase from 0.65 to 0.87 for substance use disorder in the WPI cohort. When adjusting for sex, geography, and income, the adjusted rate ratio of substance use disorder moved from 0.63 to 0.83, with a p-value of 0.0010.

From 2 years pre to 2 years post-index, any mental disorder, which is a measure of the general prevalence of any of the aforementioned conditions, in the WPI cohort increased from a rate of 22.9% to 25.2%, while it decreased in the non-WPI cohort from 27.2% to 25.5%. This indicates a relative rate increase from 0.79 to 0.99 for any mental health outcome in the WPI cohort. When adjusting for sex, geography, and income, the adjusted rate ratio of any mental health outcome moved from 0.82 to 0.96, with a p value of less than 0.0001.

These results demonstrate that mental disorder rates post-WPI significantly increased compared to mental disorder rates post-non-WPI.

Discussion

When considering only post-WPI mental disorder rates, it appears that the “worker” cohort had lower rates and overall better outcomes, and that the workplace might even have a “protective” effect. However, the “worker” cohort had far lower pre-WPI mental disorder rates, though. Therefore, this study’s findings support the hypothesis that WPI has a higher impact on mental disorder rates, when the increase from pre to post-WPI is considered.

Strengths and weaknesses

The breadth of data this study uses is unique. It is a whole-population, administrative data based longitudinal study. This study’s interpretation shows that WPI has worse mental disorder rates than non-WPI. Prior attempts to assess factors that mediate mental disorders have been limited by small sample size, short follow up, and self-reporting. This study’s data could address these limitations within risk factor literature. Future investigation of individuals with WPI within specific industrial sectors, or within demographic groups, could determine which groups have unique rates of mental disorders and if there are workplace or demographic factors that mediate disorders. This could be followed by qualitative studies of WCB claimants, to obtain more detailed information related to factors that mediate mental disorders post-WPI. In terms of current issues, this study can be continued to assess how COVID-related surgical wait times

affect post-WPI mental health. Finally, this study and database can be leveraged in the future to design and implement workplace interventions to improve mental disorders and return to work.

Conclusion and recommendations

Injuries exact a significant physical and mental toll on workers and non-workers alike, leading to individual, financial, and systemic costs. This study demonstrates that post-WPI mental disorder rates are measurably worse than non-WPI mental disorder rates. In doing so, it addresses a literature gap. This study is strongly supported by whole-population administrative data and sound statistical analysis. Future directions for research include further examining lower pre-WPI mental disorder rates, assessing the data set for outcomes among specific occupational sectors, studying factors that mediate mental disorders, and tailoring interventions to improve post-WPI mental disorder rates and return to work.

Executive Summary

By comparing workplace injury with similar non-workplace injury we have found that workers start with less depression, anxiety and substance use, however the consequence of the injury results in an increase in all the mental disorders in workers compared to non-workers. This suggests that further work is needed to identify those at highest risk and to develop programs to prevent these mental health consequences.