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Feature Article

Workplace Injury Compensation and Mental Health and Self-Harm Outcomes: A Systematic Review

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Abstract

Workers' compensation systems aim to financially support injured workers. However, seeking compensation often leads to poorer physical and mental health outcomes. This review examines previous studies to investigate the relationship between workers' compensation and mental health and self-harm outcomes. A three-tiered search strategy across five databases identified studies that examined workers' compensation claims as an exposure or risk factor, with outcomes related to mental health, self-harm and suicidality. Nine full-text studies were included; however, heterogeneity limited generalizability. Most studies supported an association between pursuing compensation and poorer mental health and self-harm outcomes. Some studies attributed this to specific aspects of the system such as justice perception and navigation of the claims system. Findings suggest an association between workers' compensation and mental health or self-harm outcomes. Inconclusive findings highlight the need for further research. Understanding the psychiatric impacts of pursuing compensation is crucial to help formulate a more accessible compensation system.

Keywords

mental health, suicidality, occupational injury, workers compensation, self-harm

Introduction

According to the International Labour Organisation, an occupational injury is 'any personal injury, disease or death resulting from an occupational accident' and the accident must have been 'unexpected and unplanned'.[1] In Australia, between 2012 and 2013, over 500,000 individuals were injured at work, at a direct and indirect cost to the economy of over $60 billion.[2] In the United States, in 2019, the incidence rate for recordable occupational injuries was 2.8 cases per 100 full-time equivalent workers. In 2021, occupational injuries in the United States resulted in a total cost of $167 billion.[3,4] In 2020, a reported total of 253,397 occupational injuries across Canadian provinces required injured workers to take time off from work.[5]

For individual workers, occupational injuries are associated with substantial financial burdens affecting many domains of their lives. An injury acquired in the workplace can impair one's ability to work, subsequently limiting the duties that can be completed or taking them out of occupation. Some workers also develop permanent disability, hindering their return to work.[6]

Work-related injuries often have ramifications extending far beyond the immediate injury to the affected worker. Depending on the nature of the injury, individuals may struggle completing common everyday activities, lose their sense of independence and consequential to restriction or loss of their employment experience financial distress. This may then strain family relationships or even adversely affect the health of other family members.[7,8] Moreover, some individuals may experience anxiety regarding whether their social supports, healthcare providers or claims providers perceive their occupational injury to be genuine,[9] or experience stigma by pursuing claims for their injuries.[10] Additional negative experiences associated with compensation systems relate to claimants not receiving or experiencing delays in receiving of payments,[10] often resulting in them needing to pay out of pocket for injury-related medical expenses.[11]

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Many countries have injury compensation systems that enable eligible individuals to claim monetary benefits following an occupational injury. Such compensation schemes have been designed to help facilitate and optimise recovery and rehabilitation of injured workers, assisting return to work; this is partially achieved by covering medical costs and providing income replacement. In some countries, compensation systems distinguish between injuries resulting in time off work (i.e. 'lost time') and injuries that have not required taking time off work thus not eligible for wage replacements (also known as 'medical only' claims). There are also significant variations in payments, assessment processes, eligibility criteria, duration of claim and duration of injury before one is eligible. In Australia, there are some differences across the various schemes for different states and territories; however, under one of the major schemes, Work Cover in Victoria, injured workers are able to make claims for time off work as well as any treatment-associated costs.[12]

Despite the well-intended aims of compensation systems, studies have demonstrated that pursuing injury compensation can have detrimental impacts on workers' physical health.[13] These include poorer recovery outcomes and reduced pain tolerance among compensation claimants, compared to those not making claims.[14,15] This may particularly be the case for individuals who have a greater vulnerability to experiencing stress.[16] While no-fault compensation systems are generally associated with better health outcomes,[17] individuals may still find the process stressful.

Despite indications that workers' compensation systems may be associated with worse outcomes among claimants, significant knowledge gaps persist. While the impacts of compensation on physical health outcomes are well understood, the effects on mental health outcomes are less clear. For instance, it has been widely acknowledged that many injured workers experience a deterioration in their mental health after an occupational injury,[18] with depression and post-traumatic stress being commonly well-documented long-term mental health sequelae.[19] There is evidence of increased levels of depression among workers who have experienced an occupational injury, compared to those not injured[20] or injured outside of work.[21] Some studies have also found that individuals who have experienced an occupational injury feel more anxious,[22] particularly those receiving compensation.[15] Some claimants have also reported finding the compensation process to be quite stressful[16] and associations between injured workers pursuing compensation and suicide have also been posited.[23,24] Despite these findings, it is often difficult to assess the extent to which the decline in workers' mental health is related to the injury itself, or the compensation process.

Claimants' psychological distress or poorer mental health have been linked to various aspects of the compensation system.[25] These include stigmatisation, lack of social supports, the presence of a power imbalance between workers and compensation schemes, procedural processes entailing extensive use of jargon and legal terminology and poor communication.[26]

It has been suggested that engagement with the compensation system is not conducive to injured workers' recovery process and may in fact be damaging to recovery.[27] Impacts on the recovery process have been observed for both physical and mental health injuries. Furthermore, it has been documented that pursuing workers' compensation claims can influence an individual's return to work and their ability to effectively perform their work duties.[28] There is also some evidence that workers' compensation claimants may be at greater risk of hospitalisation due to self-harm than the general population.[25]

The specific populations under investigation have varied considerably between studies, due to using different combinations of comparison groups. This has created difficulty in making overall assessments about the extent to which workers' compensation causes deleterious mental health outcomes among claimants. Elucidating this relationship is vital; such research is necessary to help make relevant adjustments to the claims process, allowing for easier navigation and this may help in alleviating claimants' mental health problems.

This Study

No study has previously reviewed and synthesised associations between workers' compensation schemes and mental health outcomes. This narrative review aimed to review and synthesise previous studies examining the association between workers' compensation and mental health and self-harm outcomes.

Methods

This review adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA),[29] as seen in Figure 1.

The review was registered with Prospero (registration number CRD42021274899).

Search Strategy

This narrative review incorporated a systematic search, utilising the following online databases: PubMed, MEDLINE, PsycINFO, Web of Science and Scopus. The databases were searched during August 2021. This search was updated on 8 September 2022.

A tiered search strategy was used, covering three main topics: workers' compensation systems, employment and mental health outcomes. For the first tier, keywords related to workers compensation were used (e.g. 'injury compensation', 'workers compensation', 'work cover'). For the second tier, common search terms related to employment (e.g. 'employ*', 'occupation') were used. Keywords related to mental health and self-harm were included for the third

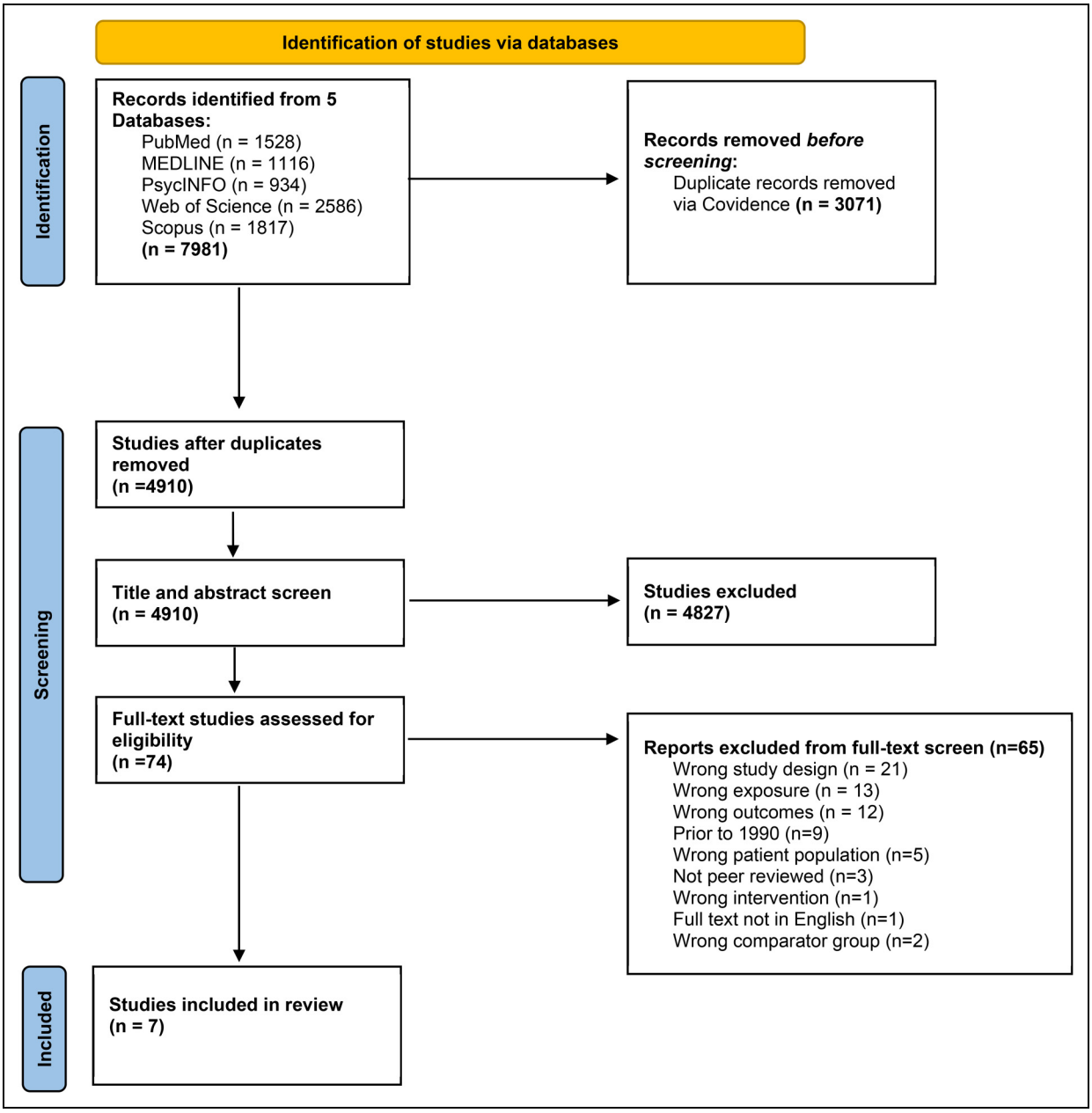

Figure 1. PRISMA flow diagram. PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analysis.

tier (e.g. 'mental health', 'distress', 'self-harm*'). A full list of keywords can be seen in Table 1.

The Boolean operator 'AND' was used to combine the three topics; the Boolean operator 'OR' was used to combine similar search terms within topics (Supplementary Material S1). Furthermore, truncation was utilised to increase search sensitivity (performed by SW).

Study Selection Process

After conducting the search, studies were imported into, and screened in Covidence (web-based tool for reviews); Covidence removed duplicate results, providing a final list of studies for review. Two reviewers (SW and YT) independently screened titles and abstracts; any disagreements were resolved by a third reviewer (TK). After this, a full-text screen was done independently by two reviewers (SW and TK), identifying articles for inclusion.

Inclusion Criteria

This review included full-text articles published in peer-review journals. To meet inclusion criteria, studies must have included: workers' compensation claims as an exposure or risk factor and must have contained any outcome of mental health, deliberate self-harm or thoughts and actions relating

Table 1. Search Terminology.

Tier 1	Tier 2	Tier 3
Search terms related to workers' compensation	Search terms related to employment	Search terms related to mental health
work cover	employ* OR job OR occupation* OR vocation* OR work*	mental health
litig*		suicid*
injury compensation		self-harm*
work compensation		wellbeing or welfare
workers compensation		anxiet* or anxious*
		stress*
		depress*
		distress*

to suicidality; these could be either primary or secondary outcomes. Studies must have been conducted among individuals employed at time of injury.

Articles were not restricted based on country of publication or language of study. Studies were included regardless of whether claimants' injuries resulted in time off work or were medical only; studies were also included even if this distinction had not been clearly mentioned.

Exclusion Criteria

Articles were excluded if they were not of quantitative study design or lacked quantitative data; this included case reports, descriptive works, reviews or study protocols. To ensure temporal relevance of studies, inclusion was restricted to studies conducted after 1990.

Given the focus on understanding associations between the workers' compensation process and mental health outcomes, studies where the precipitating injury was work-related stress or work-induced mental health were excluded. We therefore excluded studies focusing on the following:

- Investigation of compensations related to injuries acquired outside the workplace (e.g. medical negligence or malpractice, traffic accidents)
- Claims for malingering or feigning claims
- Predictors of whether one would later apply for injury compensation
- How companies or courts decide whether an injury is claimable or not
- Solely looking at the impact of pursuing injury compensation on physical health outcomes (e.g. injury healing or requiring procedures), without obvious consideration of mental health outcomes

Data Extraction and Analysis

For each included study, information was extracted and put into a pre-determined excel spreadsheet. Information extracted included: location and time period of study, authors' names, sample description, study design used, definitions for exposure and outcome and the effect estimates. Data extraction was checked for accuracy between reviewers.

Risk of Bias Assessment

Risk of Bias was assessed using the Newcastle-Ottawa Scale.[16] This tool assesses the quality of non-randomised studies (the focus of this review). Each study was evaluated across eight Risk of Bias items in three broad domains pertaining to: participant selection, comparability of the groups, and ascertainment, measurement of the exposure and outcome. Using a star system, a final score was given to each study (with a maximum possible score of 9 points). A lower Newcastle-Ottawa Scale score indicates poorer study assessment.

Results

Utilising a tiered search strategy, 7981 articles across five databases (1528 PubMed, 1116 MEDLINE, 934 PsycINFO, 2586 Web of Science and 1817 Scopus) were identified (see Table 2). After removing duplicates, 4910 remained for title and abstract screening. Excluding studies not meeting inclusion criteria narrowed the studies to 74. Full-text review of these studies resulted in seven studies included for review. Reasons for excluding all but seven papers were that the others were not quantitative studies or otherwise did not meet the inclusion criteria as outlined in the methods section. No further studies were included for review from the updated search. There was great heterogeneity in the comparators across the included studies in this review; the comparators included injured workers who solely received medical compensation, workers involved in litigation, workers not receiving any financial compensation or not making a claim through the compensation system and individuals without work-related injuries or sustaining injuries external to the workplace.

Table 2. Summary of Studies.

First Author, Year, Country	Type of Study	Participants	Dataset	Exposure / Intervention	Outcome Measure and Analysis	Covariates	Results
Applebaum, 2019; USA	Cross-sectional study	n = 100,806; injured workers aged 15–80	New Mexico Workers' Compensation Data for injuries 1994–2000 dataset linked to Social Security Administration earnings and National Death Index	Exposure: Lost-time injuries - workers with injuries involving >7 calendar days off work or permanent disability benefits ('lost-time' injuries) i.e. received benefits to cover medical expenses and replace lost wages (on top of workers' compensation) Comparator: Workers who lost 7 or fewer days from work and received only workers' compensation medical benefits i.e., *no lost-time benefits/ medical-only compensation*	Measure: Suicide mortality. Analysis: Mortality hazard ratios	Sex, age, pre-injury earnings, industry	For men and women, experiencing a lost-time injury was associated with elevated suicide risk: Men: HR = 1.72, 95% CI = 1.23–240; Women: HR = 1.92, 95% CI = 1.21, 3.06.
Betters, 2009, USA	Cross-sectional study	n = 111; injured workers aged 19–62	Florida Workers' Compensation System;	Satisfaction with Workers' Compensation Carrier (high satisfaction relative to low)	Measures: Depression; anxiety – assessed by the P-3 (Pain Patient Profile) Analysis: Backward elimination multiple regression analysis	Demographic variables: Gender; Ethnicity; Age; Marital status Forensic variables: Amount of time out of work due to injury; Level of social support; Level of perceived pain interference; Level of satisfaction with employer at time of injury onset; Satisfaction with Workers' Compensation insurance carrier; Whether or not an attorney was retained; Satisfaction with attorney	WC carrier satisfaction not significantly predictive in either analysis for either depression or anxiety. Having an attorney – significantly predictive for depression on final analysis but not anxiety. Attorney satisfaction – not significantly predictive for either depression or anxiety in final analysis. Gender not significantly predictive of anxiety but a trend was noted ($p = 0.053$).
Collie, 2020, Australia	Cross-sectional study	n = 3755; workers aged 18 or older with accepted workers' compensation claims and at least 1 day off work	Safe Work Australia – National Return to Work Survey	1. Main source of income (worker's compensation scheme and 'other' compared to wages/salary); 2. Concerns about submitting claim (high and moderate concern compared to low concerns)	Measure: Psychological distress using the Kessler-6 scale (categorised as low, moderate or severe). Analysis: Multivariable ordinal logistic regression	Gender, age, nature of compensable injury/disease, financial stress, working status, general health, pain in last week, job stressfulness, interactions with return-to-work coordinator, diagnosis with depression/ anxiety, interactions with healthcare provider, ability to work, support needed to navigate claims system	Those workers reporting a high level of concern about their workplace's response to their claim submission had higher levels of psychological distress than those with low concerns (AOR 2.31, 95% CI 1.88–2.83). Workers whose main source of income was worker's compensation had significantly higher levels of psychological distress compared to wages/salaries (AOR 1.58, 95%CI 1.19–2.11). The requirement of support to navigate through the claims system had higher levels of psychological distress than those not requiring support (AOR 1.29, 95%CI 1.11–1.51).

Fishbain, 2009, USA	Cross-sectional study	N = 777 patients undergoing rehabilitation for pain/injury n = 158 community patient sample n = 1487 community controls Patients aged 18–65 who could read at grade 6 level or higher	Data obtained from the sample of the study; Rehabilitation participants were recruited by posters or flyers provided to them by rehabilitation providers. Community participants (healthy and patients) were recruited by newspaper advertisements and posters.	1. Patients in rehabilitation with workers compensation compared to healthy community non-patients. 2. Patients in rehabilitation with worker's compensation litigation compared to healthy community non-patients.	Measures: Suicidal ideation, suicidal plan and suicide attempt assessed using a modified Battery for Health Improvement 217-item inventory (BHI 2) Analysis: Relative Risk ratios	Age, gender, education, personal injury, injury type, insurance type, medical setting.	• Suicidal intent
							  • Rehab with WC: RR 2.64 (95% CI 1.6, 4.34).
							  • Rehab with litigation: RR 3.50 (95% CI 2.14, 5.74).
							• Suicidal plan
							  • Rehab with WC: RR 5.95 (95% CI 3.42, 10.3).
							  • Rehab with litigation RR 6.37 (95% CI 3.56, 11.34).
							• Suicide attempt history
							  • Rehab with WC RR 2.88 (95% CI 2.07, 4.0).
							  • Rehab with litigation RR 3.29 (95% CI 2.34, 4.63).

(continued)

Table 2. Continued.

First Author, Year, Country	Type of Study	Participants	Dataset	Exposure / Intervention	Outcome Measure and Analysis	Covariates	Results
Hee, 2001, USA	Cross-sectional study	n = 18,389; patients with back/neck pain aged 18–98	Data from National Spine Network	Exposure: Receiving workers compensation Comparator: Not receiving workers compensation	Measures: Mental Health and Emotional role assessed using SF-36 scores Analysis: ANOVA F test (before and after adjusting for confounders) and non-parametric WilCoxon test (for any non-normal results)	Gender, ethnicity, age, smoking status, BMI, educational level, marital status, litigation status, current working status, presence of nonorganic signs, previous spinal surgery.	Mean and SD for variables across groups: *Non-adjusted scores:* **Mental health $p(F) = 0.0001$.** • Non-WC: 64.5 ± 21.3. • WC: 54.0 ± 22.5. **Emotional role $p(F) = 0.0001$.** • Non-WC: 58.5 ± 44.5. • WC: 39.1 ± 42.7. *Adjusted Scores:* **Mental health $p(F) = 0.05$.** • Non-WC: 64.2 ± 0.2. • WC: 62.8 ± 0.6. **Emotional role $p(F)$=NS.** • Non-WC: 57.9 ± 0.4. • WC: 55.3 ± 1.5.
Kim, 2013, USA	Longitudinal study	n = 35,155; workers aged 18–64, employed at baseline without a history of depression or depression at baseline	Medical Expenditure Panel Survey – pooled panel data; Combined with data from 5 sets of in-person interviews	Exposure: Occupational injury (and receiving Workers' Compensation) Comparator: non-occupational injury or no injury	Measures: Depression at rounds 3–5 of survey Analysis: Odds Ratio	Gender, ethnicity, education, insurance status, access to healthcare, injury severity, duration of treatment, type of occupation, disability or comorbidity	Effect of occupational injury on depression increased with time. Depression 1 round after injury: • WC YES (c.f. NO WC OR 1.0). • Occupational injury OR 1.33 (95% CI 1.01, 1.74) *33% higher odds of developing depression if WC as a source of medical payment.* Final model (after controlling for covariates) occupational injury increased risk of depression by 72% (OR = 1.72; 95% CI: 1.27–2.32) c.f. uninjured workers (OR 1.36; 1.07–1.65).

Wall, 2008, Australia	Cross-sectional study	n = 89; invited participants, aged 22–67
		41 males, 48 females
			Own data from interviews + questionnaires	1. Current Workers Compensation Claim
				2. Previous Workers Compensation Claim
				Comparator: non-claimants
					Measures:
					Psychological symptoms of:
					- Depression
					As assessed by GHQ-28 scale
					Analysis: mean and SD; *p*-value
						Gender, education level, employment, occupation, income	PSYCHOLOGICAL
							• Previous WC
							  • Depression (mean 3, SD 4.1).
							• Current WC
							  • Depression (mean 4.5, SD 5.6).
							• Non WC
							  • Depression (mean 1, SD 2.5)
							significant difference to current WC $p < 0.01$.

Study Characteristics

Of the seven studies included, five were from the United States and two from Australia, as shown in Table 2. Six studies were cross-sectional and one was longitudinal. Regarding outcomes, five studies were related to mental health and two were related to suicidality.

Various sampling techniques were used to recruit study populations, including the use of registries and convenience sampling. All studies were conducted between 2001 and 2021.

Risk of Bias Assessment

Supplementary Material S2 presents the item-level and study-level Risk of Bias assessment. Using Newcastle-Ottawa Scale,[30] the included studies varied in quality, with ranked scores ranging from two to nine. Two studies received a score of nine.[21,23] For ascertainment of the exposure, all studies were considered to be at low risk of bias. Representativeness of the exposed cohort and the selection of the non-exposed were considered acceptable for six studies. Most studies were at higher risk of bias on items regarding outcomes (determined by assessing adequacy of follow-up and robustness of assessing outcomes). Eight studies were judged to have acceptable comparability of cohorts.

Qualitative Synthesis

Two studies reported outcomes related to suicidality; this included suicidal ideation, having a suicide plan and attempted suicide.

Applebaum[23] investigated mortality from various causes among workers incurring lost-time injuries and acquiring benefits alongside workers' compensation, compared to workers only receiving workers' compensation. They reported that experiencing a lost-time injury was associated with an increased risk of suicide for both men (HR = 1.73; 95%CI 1.23–2.40) and women (HR = 1.92; 95%CI 1.21–3.06).

Fishbain[31] compared suicidality in patients with workers' compensation undergoing a period of rehabilitation in a facility or those undergoing litigation, in comparison to healthy community non-patients (in this study, the healthy, pain-free controls). Rehabilitation patients receiving workers' compensation had a greater risk of suicidal intent (RR = 2.64; 95%CI 1.60–4.34) were more likely to have a suicide plan (RR = 5.95; 95%CI 3.42–10.30) and more likely to have previously attempted suicide (RR = 2.88; 95%CI 2.07–4.00) compared to community non-patients.

For rehabilitation patients undergoing litigation, the risks of suicidal intent (RR = 3.50; 95%CI 2.14–5.74), having a suicide plan (RR = 6.37; 95%CI 3.56–11.34) and previous suicide attempt (RR = 3.29; 95%CI 2.34–4.63) were all higher than for healthy community non-patients.

Furthermore, among community patients risks for suicidal intent (RR = 2.20; 95%CI 1.16–4.19), having a suicide plan (RR = 4.21; 95%CI 2.07–8.48) and history of attempted suicide (RR = 1.40; 95%CI 0.82–2.41) were greater than for healthy, community non-patients.

Betters and Shaw[32] considered whether clinical depression and or anxiety could be predicted by specific demographic and forensic variables. For this review, we focused on variables relating to workers' compensation. It was noted that workers' compensation carrier satisfaction was not significantly predictive of the presence of depression or anxiety in any of the analyses.

Collie[18] investigated whether workers' compensation as an income source or concern regarding claim submission influenced the level of psychological distress experienced among claimants. Workers reporting a high level of concern or moderate level of concern about the response of their workplace to a claim submission were found to have higher levels of psychological distress (OR = 2.31, 95%CI 1.88–2.83, $p < 0.001$ and OR = 1.74, 95%CI 1.42–2.13, $p < 0.001$ respectively) than those with low concerns. Workers whose main source of income was workers' compensation had significantly higher levels of psychological distress compared to those receiving wages (OR = 1.58, 95%CI 1.19–2.11, $p = 0.002$). This study also found that workers requiring support to navigate through the claims system had higher levels of psychological distress than those not requiring support (OR = 1.29, 95%CI 1.11–1.51, $p = 0.001$).

Hee[33] assessed the difference in mental health assessment scores (calculated using the Short Form Health Survey–SF36) between spinal disorder patients receiving and not receiving workers' compensation. After adjusting for covariates, patients not receiving compensation had significantly higher mental health scores (adjusted mean ± SE = 64.2 ± 0.2), suggesting better wellbeing, than those receiving compensation (adjusted mean ± SE = 62.8 ± 0.6). The test for difference in adjusted means was significant ($p(F) = 0.05$).

Kim[21] considered differences in the incidence of depression among individuals receiving workers' compensation for an occupational injury compared to those with either a non-occupational injury or no injury. Individuals receiving workers' compensation as a source of medical payment had 33% higher odds (95%CI 1.01–1.74) of developing depression in latter interviews, compared to individuals not receiving compensation.

Wall[34] compared psychological symptoms of depression (assessed by the GHQ-28 scale) between workers who either currently were pursuing or had previously pursued a claim through the compensation system, in comparison to those not making claims for occupational injury. A significant difference in depression symptoms ($p < 0.01$) was noted between non-claimants (mean = 1, SD = 2.5) and current claimants (mean = 4.5, SD = 5.6). Depression scores for previous claimants (mean = 3, SD = 4.1) were not significantly different from either current claimants or those not making a claim.

Discussion

This is the first study to systematically review and synthesise associations between workers' compensation schemes and mental health outcomes. The findings suggest some evidence of an association between being in receipt of workers' compensation for an occupational injury and subsequent poor mental health and suicidal behaviours. This review highlights a paucity of literature on workplace injuries and subsequent mental health outcomes, including self-harm and suicidality in persons seeking compensation, with only seven studies included.

Adverse associations with workers' compensation were found for both studies examining suicidality (assessed by suicide rates, suicidal intent and having a suicide plan). It is possible that reduced capacity to participate in occupational duties and stressors associated with the compensation process may underpin this association.[23] The presence of chronic pain associated with the injury may also contribute to suicide outcomes, as identified by Fishbain.[31] Specific aspects of the compensation process, such as medical assessments may also contribute to claimant distress and could be an important factor in subsequent suicidality.[24]

Studies have found that individuals receiving compensation are more likely to suffer greater disability and subsequently be less likely to return to work compared to non-compensated individuals.[35,36] There is evidence that long-term unemployment is associated with an increased incidence of suicide[37] so unemployment induced by a workplace injury may be an important factor in this relationship. This highlights the difficulty in determining precisely the extent to which suicidality is attributable to the compensation process itself, or injury-induced unemployment, or something else.

The association between pursuing workers' compensation and subsequent poor psychological health, as assessed by diagnoses or symptoms of depression and or anxiety, was noted in most studies. However, small sample sizes and the recruitment of subjects through convenience sampling in some studies created difficulty in establishing definitive conclusions regarding the relationship with other factors.

As noted above, we note that causality between workers' compensation and mental health outcome cannot be established from this review. A major challenge in research of this kind is the difficulty in determining whether outcomes of mental health and or self-harm are related to the injury itself or the compensation system. A further possibility is that of reverse causation. For example, poor work environments may have an impact on the mental health of workers and heighten their risk of occupational injury and becoming a workers' compensation claimant. This highlights a key need for further research.

While further research is necessary to elucidate the precise impacts of pursuing workers' compensation on subsequent development of mental health conditions, the compensation system itself has already been suggested to be the greatest source of stress.[38] Our findings support the notion that some of the mental health impacts are attributable to various elements of a complex and protracted compensation process. The extent to which psychological conditions are attributable to compensation is further complicated by the concurrent presence of idiosyncrasies across individuals' emotional responses and the recovery process following workplace injury.[39]

The pursuit of compensation following occupational injury however may have a noteworthy contribution towards the development of psychological symptoms and diagnoses. In 2013, Kim[21] found that workers' compensation recipients had higher odds of developing depression compared to workers not injured or who acquired their injury outside of occupation. These findings are likely to be more robust given the larger sample size that was also more representative of the general workers' compensation population.

Many claimants find the compensation process extremely stressful, with many aspects of the system being a potential source of, or contributor to stress levels. These could include the adversarial nature of compensation in some jurisdictions[40] and encountering delays or disagreements with case managers.[41,42] Claimants have also reported finding the system to be bureaucratic, causing them to feel invisible and de-personalised.[43,44] While some deterioration in mental health may be pre-existing and not solely due to their injury,[45] the compensation process may exacerbate this.

Strengths and Limitations

This review followed a rigorous, systematic approach adhering to PRISMA guidelines. A Risk of Bias assessment was conducted, utilising the Newcastle-Ottawa Scale; this helped identify studies at higher risk of bias, assisting with interpretation of findings. To our knowledge, this is the first review to consider both mental health outcomes and suicidality with the pursuing of workers' compensation. This allows for considering the broader picture and appreciating the complex nature of the associations identified.

There are some limitations in this review. There was considerable heterogeneity in study design, sampling, study population and types of injuries, making generalisation of findings difficult. Most studies were cross-sectional in design, limiting the inference of any causal relationships. Variability in outcomes was noted between the two studies examining suicidality, with one investigating cases of death by suicide[23] and the other considering previous attempts and suicidal ideation.[31] Multiple factors including demographics, nature of injury, recovery and degree of support provided by the workplace are also influential, and this review cannot isolate the effect of workers' compensation from these factors. Finally, given the variations in compensation systems across the world, there was little consistency of comparators across the included studies in this systematic

review. Given the paucity of studies in this area, we were unable to impose a tighter comparator; however, we note that this heterogeneity limits conclusions drawn from this review.

There was heterogeneity in studies examining mental health outcomes, potentially leading to measurement error and misclassification of mental health outcomes. Different measures (e.g. K-6, BHI-2, SF-36) or variations of such were utilised, with some studies involving participants self-reporting their data and others incorporated the scale in their interviews.

Finally, for assessing Risk of Bias, the Newcastle-Ottawa Scale was used. While included studies received ratings indicating varying quality, all were included in the qualitative synthesis because the Newcastle-Ottawa Scale does not include any recommended cut-off scores for study quality.

Implications of Findings

Despite the limitations, this review highlighted some evidence of an association between workers' compensation and subsequent mental health problems and suicidality that warrants further investigation. While there should continue to be a focus on prevention of occupational injuries, management and assistance for the sizeable number of injured workers is crucial. In Australia, for instance, more than 100,000 workers file compensation claims for serious cases per year.[45] In Canada, where each province operates its own compensation system, there were 277, 217 accepted claims for occupational injuries resulting in time off work across all jurisdictions in 2021.[46] It is crucial then that compensation processes do not compound the stress experienced by injured workers.

To improve outcomes for claimants, efforts should focus on enhancing not only the accessibility and efficiency of compensation systems but also the quality of interactions between claimants and their managers. Claimants who feel their case managers lack transparency or treat them unfairly often report poorer mental health outcomes and a higher likelihood of serious mental illness compared to those who perceive just treatment.[47,48] For example, reducing adversarial experiences may be achieved through implementing measures such as the fostering of positive relationships between claimants and case managers through open, fair and regular communication, while ensuring respectful treatment and offering avenues for changing case managers if necessary. Additional support for claimants navigating the claims system could include mediation services to help understand legal terms,[49] or a third-party advocate with medical expertise to assist without bias, thus addressing power imbalances.[50] Limitation of legal jargon use where possible may also be beneficial. It has been proposed that integrating access to mental health supports into the compensation process may not only assist with recovery but could also expedite the claims process and reduce long-term costs.[19] These benefits need to be further explored, particularly among individuals with pre-existing psychiatric conditions.[22] Identifying at-risk individuals earlier together with ongoing efforts to reduce stigma and mitigate power imbalances is essential for a more equitable and supportive compensation system.[51] This is imperative for ensuring that individuals who are injured at work and pursue a workers' compensation claim receive just and timely treatment without being adversely affected by this process.

Further research is required to identify specific pathways by which the pursuit of workers' compensation can lead to poor outcomes for claimants. Future studies should also investigate the impact of administrative factors in more depth to better ascertain their impact on claimants' mental health. A clearer understanding on the precise aspects of the compensation process claimants find most difficult will contribute to more streamlined and less stressful workers' compensation systems. As a final note, researchers should consider claimants' lived experiences to inform understanding of the impacts of claim systems on individual experiences.

Conclusion

These findings suggest that pursuing a workers' compensation claim may be associated with adverse mental health and self-harm outcomes. However, there is insufficient evidence to conclude any causality. Further research is required to clearly define the factors associated with pursuing workers' compensation and mental health and self-harm outcomes. Additionally, further research can help elucidate the extent to which psychological distress is directly attributable to the compensation process, as safer access to a more efficient and supportive compensation system may provide substantial benefits to claimants and society through a reduction in the burden of mental health issues and suicidality.

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Author Contributions

Manuscript author – SW; reviewing – SW, YT, TK.

Data Availability

Data sharing not applicable to this article as no datasets were generated or analysed during the current study given the study is a systematic review. However, relevant information are included in the supplementary information files.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical Approval

No ethical approval was required for this study as this was a systematic review.

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Supplemental Material

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