Concerns about claiming, post-claim support, and return to work planning: the workplace's impact on return to work

Running title: Impact of employer support on return to work

Shannon E. Gray[1] (PhD), Luke R. Sheehan[1] (MSc Biostatistics), Tyler J. Lane[1] (PhD), Arif Jetha[2,3] (PhD), Alex Collie[1] (PhD)

[1]Insurance Work and Health Group, School of Public Health and Preventive Medicine, Monash University, Australia
[2]Institute for Work and Health, Canada
[3]Dalla Lana School of Public Health, University of Toronto, Canada

Corresponding author:
Dr Shannon Gray
553 St Kilda Rd
Melbourne 3004
Australia
shannon.gray@monash.edu
+61 3 9903 0660

Authors' contributions: SG, LS, TL and AC participated in the conception of the work and acquired the data; LS conducted the analysis; SG drafted the work and was responsible for subsequent revisions; all authors (SG, LS, TL, AJ, AC) interpreted the results and provided important intellectual content for the draft manuscripts. Furthermore, all authors approve the submitted version and agree to be accountable for all aspects of the work and take public responsibility for it.

Acknowledgements: Data for the project is provided with the support of the following organisations: SafeWork Australia, WorkSafe Victoria, State Insurance Regulatory Authority of NSW, ReturntoWorkSA, WorkCover Tasmania, WorkSafe NT, Office of Industrial Relations QLD Government, WorkCover WA, Comcare, ACT Government. These organisations are all represented on the project advisory group, in addition to the Australian Council of Trade Unions and the AIGroup. The views expressed in this document are those of the authors and do not necessarily represent those of the project funders, data providers or members of the project advisory group.

Funding: The COMPARE (COMpensation Policy And Return to work Effectiveness) project is supported financially by SafeWork Australia and WorkSafe Victoria.

Institution and Ethics approval and informed consent: This study was completed at Monash University. Ethics approval was granted by Monash University Human Research Ethics Committee (8 October 2014, project number CF14/2995-2014001663).

Conflict of interest: The authors declare no conflicts of interest.

Concerns about claiming, post-claim support, and return to work planning: the workplace's impact on return to work

Running title: Impact of employer support on return to work

Abstract

Objective: To determine how injured Australian workers perceived employer emotional (e.g., empathy) and instrumental (e.g., RTW planning) support during the return-to-work (RTW) process and examine associations between support and RTW.

Methods: Using data from the 2014 National Return to Work Survey of injured workers with a workers' compensation claim, multinomial regression models examined relationships between support and RTW.

Results: Receiving support and developing RTW plans were significantly associated with greater likelihood of RTW. When controlled for one another in a single model, post-claim support had the strongest association with RTW with RTW planning also significantly and positively associated with RTW.

Conclusions: Provision of both emotional and instrumental support are important employer-led work disability management interventions. Research is required to develop strategies for increasing employer support to lead to improved RTW outcomes for injured workers.

Key terms

Return to work; workers' compensation; employer support; workplace support; injury; return to work plan

Introduction

It is estimated that 4.3% of Australia's labour force of 12.5 million experience work-related injury each year (1). The vast majority of these workers are covered by compulsory workers' compensation (WC) insurance, which provides income replacement and medical treatment benefits in the event of a work-related injury or illness (2). Work-related injury can further impair a worker's physical and mental health, resulting in reduced long-term health, quality of life, and ability to interact within society and engage in future employment (3, 4). It is now widely recognised that interventions which promote return to work (RTW) following injury represent a critical approach to rehabilitation and reduce the chance of long-term disability (4). Furthermore, work is an important marker for function (5). Re-engagement in the workforce allows for restoration of pre-injury skills and can increase the workers' sense of confidence and self-efficacy (6). This, along with improved health outcomes, can reduce the burden on healthcare and social support systems (6), give structure to a day/week and provide financial security (7).

Employers (both the supervisor and organisation) are central to organisational work disability management and their emotional (e.g. empathy, encouragement to claim) and instrumental (e.g. helping with tasks, planning for RTW) support can enable a more positive recovery (8). Employers are often the first to be notified of an injury or illness and can be responsible for the development and implementation of RTW plans. Some research indicates that a portion of workers with a work-related injury do not file for WC as they may be precariously employed (e.g., small business owners, contractors, casual workers) or feel a claim may impact current or future employment (9, 10). One study of employers found that some were not supportive of their workers making a WC claim despite being eligible, due to late notification of injury, lack of a specific incident or concerns around whether the injury actually occurred at work and was not a result of a pre-existing condition (11).

A number of studies have demonstrated a link between the level and type of support offered by the employer to the injured worker and RTW. The majority of these have noted that

greater employer support is associated with better RTW outcomes (12-17). Awang et al (2017) found that of 9,850 injured workers enrolled in a RTW programme, 94% of those with an employer with a high interest in re-employing them had a successful RTW compared to only 35% with a disinterested employer (18). In a study of 551 Victorian workers who were surveyed about their support from supervisors and co-workers during the RTW process, there was a positive association between strong supervisor support and sustained RTW (12). At the same time, some studies suggest that messages relayed by an employer to an injured worker could also be perceived as pressure to re-enter work and act as an RTW deterrent (19). There exists a growing body of evidence about the importance of post-claim support (recovery period once covered by WC) on RTW, however the role of support at the time of claim is less understood.

One form of instrumental support is the development of a RTW plan. Employers can assist the development of a RTW plan, and in many jurisdictions have obligations to actively participate in or lead planning. A RTW plan can be verbal or written and in its ideal form, is a tailored description of the steps taken by the worker, the employer, healthcare providers and any other parties involved in the RTW process, in order to achieve RTW. Planning allows for preparation and coordination of job modifications that may assist the injured worker to RTW (20, 21). A RTW plan has been acknowledged as being important for those with long-term absence (22), however workers may RTW more quickly if provided with a RTW plan earlier (17). Lane et al (2017) found that among those four months post-injury, having a RTW plan doubled the odds of RTW, however it was not significant at ten months when adjusting for other demographic and workplace factors (17).

There have been few studies that have examined the role of emotional support received at the time of claim and how this is associated with RTW. Previous studies have tended to focus on employer support during injury recovery, in particular RTW planning. Furthermore, previous studies have been from a single jurisdiction, and therefore based on regulated employer requirements between jurisdictions there are likely differences in support. This

study, however, presents novel findings from a large sample of injured Australian workers from different WC jurisdictions on how multiple types of support contribute to RTW. Thus, this study aims to i) determine how injured Australian workers perceive their emotional support at the time of claim and once a claim has been processed; and ii) examine the associations between emotional and instrumental support and RTW planning on RTW whilst controlling for a number of worker-related factors.

Methods

Setting

Of Australia's labour force, almost 95% are covered by WC (2). Those typically exempt are self-employed workers, sole traders or independent contractors. Despite there being an estimated 532,000 work-related injuries in 2013/14, only around half of these become a WC claim (2). Workers' compensation systems in Australia are generally organised geographically, with each state and territory having a single compulsory system. Additionally there are three Commonwealth systems, Comcare, which covers federal government employees and regulates large national organisations that qualify as self-insurers, Seacare, which covers maritime workers and seafarers, as well as a compensation scheme for Defence personnel. The scheme for Defence personnel, however, was not included in this study. These systems provide income support whilst a worker is unable to work and pay for healthcare for workers with a work-related injury or disease. Musculoskeletal conditions, fractures, traumatic injury, mental health conditions and occupational diseases are some examples of conditions experienced by workers covered by these systems.

Whilst WC policies vary between systems, all have legislative obligations to help an injured worker RTW through the provision of services, such as RTW programs. Case management provided through either private sector insurers or directly by government authorities offers additional support. Healthcare and treatment is provided either through Australia's public

health care system (Medicare) or private healthcare providers, but is funded by the relevant WC system.

Data source

The National Return to Work Survey (NRTWS) is commissioned by Safe Work Australia, a commonwealth government coordinating agency, on behalf of the WC jurisdictions. The NRTWS was conducted annually from 1999 and then biennially since 2014, and provides a benchmark of both jurisdictional and national performance in RTW. The NRTWS measures have been described in previous research and include measures of RTW, workplace characteristics, employer and co-worker interactions, experience of the compensation process, medical care, as well as demographics (23).

Data were collected via computer assisted telephone interview (23). Workers meeting eligibility criteria (injured worker with an accepted WC claim requiring at least one day off work and whose claim was submitted in the 24 months prior to the survey) were identified by the WC authorities using claims data. Contact details were provided to an independent survey company, which sent a letter to potential participants describing the survey and provided options to opt-out. Workers who did not opt-out were then contacted via telephone and informed consent was sought. If consent was obtained, the survey was administered immediately or at a later time nominated by the participant. The survey completion rate for the 2014 survey, the focus of this study, once telephone contact was made was 80% (23). Given the variations in covered workers in each major WC jurisdiction, some smaller jurisdictions were oversampled to ensure sufficient counts. There were 4,679 workers who completed the survey in 2014.

Covariates and independent variables

Factors previously associated with RTW were extracted from the NRTWS for analysis. These included age, sex, injury type, self-rated health and WC jurisdiction (24, 25). Age was categorised into three age bands of 18 to 34 years, 35 to 49 years, and 50+ years. Injury

type was based on a modified version of the Type of Occurrence Classification System (TOOCS) to account for coding differences within and between the jurisdictions and has been used previously (26, 27). Self-rated health was collected on a 1 (poor) to 5 (excellent) scale and dichotomised into poor/fair/good and very good/excellent categories. Jurisdiction of claim was recorded as the WC scheme in which the claim was accepted.

Worker's perception of the emotional support they received at the time of submitting a WC claim (herein referred to as 'pre-claim support') and during their recovery after a claim had been made ('post-claim support') was captured. Pre-claim support was assessed via three questions and answered on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree) and are as follows:

"Thinking back to when you were considering putting in a workers' compensation claim, would you agree or disagree that:

a) You thought you would be treated differently by people at work

b) You felt your supervisor thought you were exaggerating or faking your injury

c) You were concerned that you would be fired if you submitted a claim".

Post-claim support was assessed via a set of six Likert-response questions and were as follows:

"Thinking about the role of your employer following your workplace injury or illness, do you agree or disagree with the following statements:

a) Your employer did what they could to support you

b) Your employer provided enough information on both your rights and responsibilities

c) Your employer made an effort to find suitable employment for you

d) Your employer helped you with your recovery

e) Your employer treated you fairly during the claims process

f) Your employer treated you fairly after the claims process".

To enable consistent direction of responses between pre- and post-claim support statements, responses to pre-claim support questions were reversed and the wording of the question rephrased to reflect this (see Figure 1).

For each worker in the sample, the mean response to these statements (each for pre-claim and post-claim support) was calculated and then categorised as neutral/disagree (mean score of <3.5), agree (mean score 3.5-4.5), and strongly agree (mean score of ≥4.5). These cut points were chosen to best capture the bimodal distribution of the data, which had peaks at mean scores of 4 and 5.

Specific instrumental support was assessed by asking workers whether they were aware of having a RTW plan (defined as an agreement setting out the steps to achieve a RTW, usually developed with their employer and/or insurer) answered as yes or no. Those who stated they had a RTW plan were asked whether it was written or unwritten.

Outcomes

The main outcomes were whether the worker had returned to work (in paid employment at the time of the interview) and if so, the speed at which this RTW occurred, resulting in three outcomes: 'no RTW'; 'rapid RTW' (<30 days) or; 'slow RTW' (30+ days). This cut-point was chosen as the first 30-days of disability has previously been classified as "acute" and beyond 30 days as "subacute/chronic" (15).

Data Analysis

Cases were excluded from analysis if there was less than six months between the claim and interview (to allow a more accurate estimation of whether a RTW had been sustained), if the respondent was not asked (n=1,528) or did not respond to the question on RTW planning, or if the respondent did not answer at least two-thirds of support questions (two for pre-claim

support and four for post-claim support) (Supplementary figure). Also, cases missing RTW status, self-rated health and injury type were excluded. After exclusions a total of 2,699 cases were included in analysis.

Frequencies and percentages were used to describe the responding cohort, and their responses to support questions were tabulated and presented in graphical format. The Variance Inflation Factor was used to assess multicollinearity. The impact of pre-claim support, post-claim support and having a RTW plan on RTW after controlling for gender, age, self-rated health, jurisdiction, and injury type were calculated in separate models using multinomial logistic regression. No RTW was the reference category with results expressed as an adjusted relative risk ratio (ARRR), which represents the risk of a worker belonging to a particular RTW group (relative to the no RTW group) compared with the reference category of each predictor.

To assess the impact of pre-claim support, post-claim support and RTW planning whilst accounting for each of these, all predictor variables were included in a multinomial logistic regression model. All analyses were undertaken using STATA Version 15.1 (28), with statistical significance set as $p<0.05$.

Results

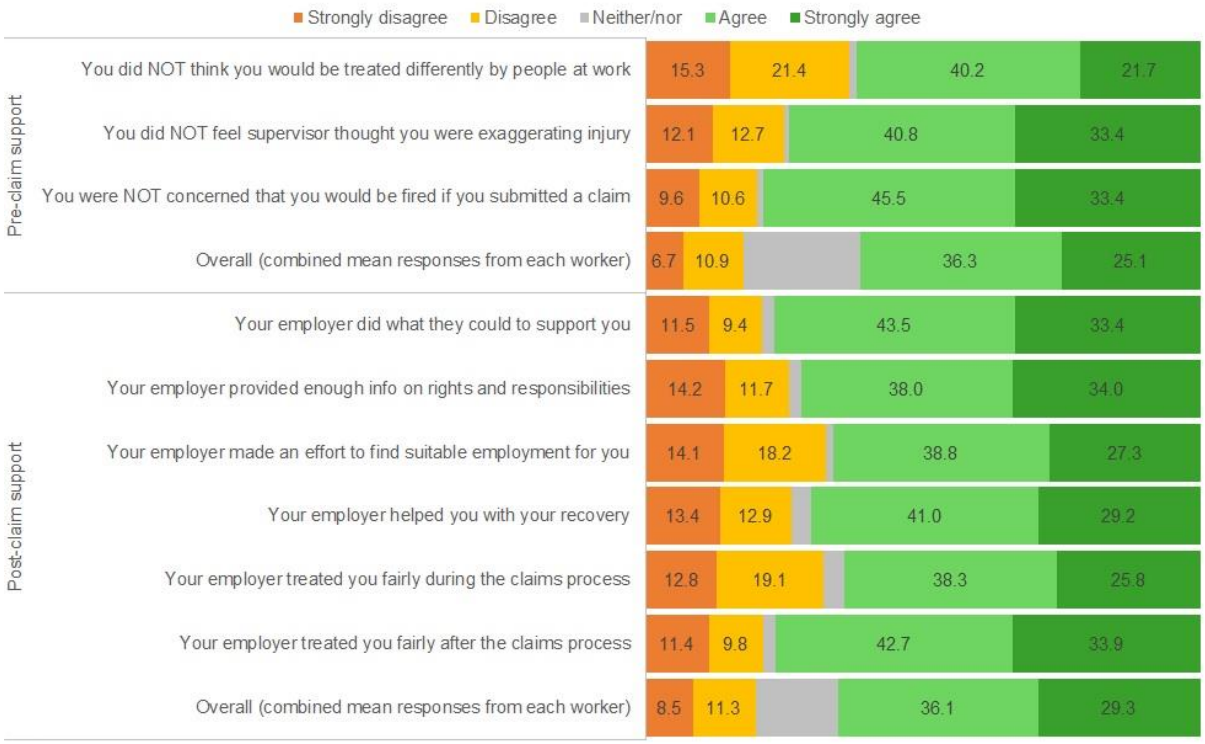
There were 2,699 surveyed workers included in the study. The majority of surveyed workers were male (63.9%) and had musculoskeletal conditions (57.8%) (Table 1). Less than half rated their health as very good or excellent (39.8%). Sixty-one percent felt supported at the time of claiming, with post-claim support slightly higher (65.4%). Fifty-eight percent of workers recalled having a RTW plan.

Table 1: Descriptive characteristics of cohort

	N	Col %
Gender		
Male	1726	63.9
Female	973	36.1
Age group		
15-35 years	755	28.0
36-50 years	982	36.4
51+ years	962	35.6
Injury type		
Fractures	324	12.0
Musculoskeletal conditions	1561	57.8
Neurological injury and disease	44	1.6
Mental health conditions	162	6.0
Other traumatic	510	18.9
Other diseases	92	3.4
Other claims	6	0.2
Self-rated health		
Poor/fair/good	1624	60.2
Very good/excellent	1075	39.8
Jurisdiction		
Queensland	512	19.0
Tasmania	287	10.6
Western Australia	412	15.3
Victoria	445	16.5
Seacare	24	0.9
New South Wales	482	17.9
South Australia	294	10.9
Comcare	149	5.5
Northern Territory	94	3.5
Pre-claim support		
Neutral/disagree (<3.5)	1042	38.6
Agree (3.5-4.5)	979	36.3
Strongly agree (>=4.5)	678	25.1
Post-claim support		
Neutral/disagree (<3.5)	934	34.6
Agree (3.5-4.5)	975	36.1
Strongly agree (>=4.5)	790	29.3
RTW plan		
None	1128	41.8
Unwritten	257	9.5
Written	1314	48.7

Figure 1 shows the responses to each of the pre-claim support and post-claim support statements, and the overall combined responses.

Figure 1: Responses to pre- and post-claim support questions



The likelihood of any RTW was significantly higher if the worker received pre- or post-claim support, or if they had any type of RTW plan in independent models (unadjusted for each other) (Table 2). The effect of having a supportive workplace increased the likelihood of both rapid and slow RTW, and this increased with the amount of perceived support (i.e. those who strongly agreed with support questions had higher RRRs than those who agreed). Having a RTW plan increased the likelihood of any RTW. For those with a slow RTW, the likelihood of RTW was more than two times greater with an unwritten plan and more than three times greater with a written RTW plan.

Table 2: Results from three independent multinomial logistic regression models

	Rapid RTW (<30 days)			Slow RTW (30+ days)		
	ARRR	**95% CI**	**p-value**	**ARRR**	**95% CI**	**p-value**
Pre-claim support						
Neutral/Disagree (<3.5)	Reference			Reference		
Agree (3.5-4.5)	2.44	(1.89, 3.16)	<0.001	1.78	(1.38, 2.30)	<0.001
Strongly Agree (>=4.5)	2.81	(2.06, 3.82)	<0.001	1.97	(1.45, 2.69)	<0.001
Post-claim support						
Neutral/Disagree (<3.5)	Reference			Reference		
Agree (3.5-4.5)	3.48	(2.68, 4.53)	<0.001	2.91	(2.24, 3.79)	<0.001
Strongly Agree (>=4.5)	6.02	(4.34, 8.37)	<0.001	4.80	(3.45, 6.66)	<0.001
RTW plan						
No RTW Plan	Reference			Reference		
Unwritten RTW Plan	1.67	(1.12, 2.51)	0.01	2.29	(1.51, 3.48)	<0.001
Written RTW Plan	1.43	(1.13, 1.80)	<0.001	3.22	(2.54, 4.08)	<0.001
** Note: In all models, no RTW was the reference category. ARRR - adjusted relative risk ratio. Each model has been adjusted for sex, age group, jurisdiction, injury type and self-rated health.*						

When carried forward in multivariable models (table 3), only post-claim support remained significant in all areas after accounting for pre-claim support and RTW planning (Table 3). The greater the perceived post-claim support the greater the likelihood of any RTW. Those who agreed with pre-claim support questions were around 50% more likely to rapidly RTW than those without support. Both written and unwritten RTW plans remained significant predictors of RTW among those with absences of longer than 30 days.

Table 3: Results from combined multinomial regression model

	Rapid RTW (<30 days)			Slow RTW (30+ days)		
	ARRR	**95% CI**	**p-value**	**ARRR**	**95% CI**	**p-value**
Pre-claim support						
Neutral/Disagree (<3.5)	Reference			Reference		
Agree (3.5-4.5)	1.48	(1.12, 1.96)	0.01	1.17	(0.88, 1.56)	0.28
Strongly Agree (>=4.5)	1.28	(0.90, 1.84)	0.17	1.02	(0.71, 1.46)	0.93
Post-claim support						
Neutral/Disagree (<3.5)	Reference			Reference		
Agree (3.5-4.5)	2.96	(2.22, 3.93)	<0.001	2.47	(1.85, 3.29)	<0.001
Strongly Agree (>=4.5)	5.05	(3.48, 7.33)	<0.001	4.10	(2.81, 5.97)	<0.001
RTW plan						
No RTW Plan	Reference			Reference		
Unwritten RTW Plan	1.22	(0.80, 1.86)	0.36	1.76	(1.15, 2.70)	0.01
Written RTW Plan	1.23	(0.97, 1.57)	0.09	2.83	(2.21, 3.61)	<0.001
Gender						
Male	Reference			Reference		
Female	1.71	(1.34, 2.19)	<0.001	1.25	(0.98, 1.61)	0.07
Age group						
15 to 35 years	1.12	(0.84, 1.49)	0.46	0.91	(0.68, 1.22)	0.53
36 to 50 years	Reference			Reference		
51 + years	1.08	(0.83, 1.41)	0.58	0.96	(0.73, 1.25)	0.75
Jurisdiction						
Queensland	Reference			Reference		
Tasmania	0.95	(0.62, 1.46)	0.83	0.74	(0.47, 1.15)	0.18
Western Australia	0.93	(0.63, 1.37)	0.70	1.33	(0.89, 1.97)	0.16
Victoria	0.90	(0.62, 1.32)	0.60	1.13	(0.77, 1.66)	0.53
Seacare	0.10	(0.02, 0.52)	0.01	1.47	(0.54, 4.05)	0.45
New South Wales	0.78	(0.53, 1.13)	0.18	1.37	(0.94, 1.99)	0.10
South Australia	0.90	(0.59, 1.36)	0.61	1.14	(0.74, 1.75)	0.55
Comcare	1.40	(0.79, 2.48)	0.26	1.68	(0.94, 3.01)	0.08
Northern Territory	1.96	(1.03, 3.73)	0.04	1.33	(0.66, 2.67)	0.43
Injury type						
Musculoskeletal Conditions	Reference			Reference		
Fractures	0.68	(0.46, 0.99)	0.04	1.32	(0.92, 1.91)	0.14
Neurological Injury & Disease	0.57	(0.24, 1.33)	0.20	0.87	(0.38, 1.95)	0.73
Mental Health Conditions	0.57	(0.36, 0.90)	0.02	0.82	(0.53, 1.27)	0.37
Other traumatic	1.57	(1.14, 2.16)	0.01	1.15	(0.82, 1.61)	0.42
Other diseases	1.44	(0.75, 2.79)	0.28	1.24	(0.62, 2.45)	0.55
Other claims	1.01	(0.14, 7.19)	0.99	0.00	,	0.99
Self-rated health						
Poor / Fair / Good	Reference			Reference		
Very Good / Excellent	2.80	(2.16, 3.63)	<0.001	1.88	(1.44, 2.45)	<0.001
** Note: No RTW is the base outcome. ARRR – Adjusted relative risk ratio. CI – Confidence interval.*						

Discussion

The degree of support provided by workplaces is known to impact on an injured worker's RTW (15-17). This study extends knowledge of this relationship and presents novel findings from an Australia-wide survey of injured workers' receiving WC. We examined injured workers perception of employer emotional support around making a WC claim and during injury recovery, as well as workers perception of employer involvement in RTW planning, and how these concepts are related to RTW. Few studies have looked beyond the support received after a claim, and to our knowledge none have explored how the combination of pre and post-claim emotional support, as well as instrumental support contribute to RTW. Findings indicated that post-claim support for all injured workers and RTW planning for those with longer durations of time away from work, were significantly associated with better RTW outcomes. These results offer important insights that can help optimise the work environment to support RTW and can inform the design of workplace-based work disability management policy and practices.

Results of our study align with previous research that a supportive work environment, including emotional and instrumental support from colleagues and supervisors, is associated with better RTW outcomes following injury or illness (13, 17). These previous studies indicate that workplaces characterised by greater support are also more likely to offer an injured worker job accommodations (29), graduated RTW (13), and more likely to engage in regular and constructive communication (30) to minimize the length of sickness absence and reduce associated costs (14, 22, 31).

While employer support is important for RTW, there are factors that may influence the amount and type of support that can be provided. Employers may be unsure of how to deal with particular situations or how much support they should provide, for example putting more or less pressure on an injured worker to RTW (30). Studies have found that the amount of perceived employer support for those suffering work-related low back pain and cancer can be more important for RTW than a worker's emotional distress or activity limitations (20, 32).

A positive dialogue between the injured worker, their family and the employer was found to improve the likelihood of successful RTW. Furthermore, employers face business pressures, such as decisions regarding staffing and work disability management that may limit the amount of support they can provide. There is evidence that employer support can vary due to the needs and interests of the business, and whether an injured worker is in a low or high-paying position (33).

Previous research has found that instrumental support in the form of RTW plans were associated with greater likelihood of RTW up to four months post-injury (17). Planning for RTW may be most effective for workers who can RTW in the subacute window between one and four months post-injury. In the current study, 58% of respondents reported having a RTW plan. In most Australian WC jurisdictions a RTW plan is compulsory, although the time at which this must be in place, if a time is specified, varies between jurisdictions (5 to 28 days). Return to work plans are sometimes only required when a rehabilitation authority or treating doctor orders it (34). It is also possible that whilst RTW plans are likely more effective when developed in conjunction with the insurer, employer and worker (and treating rehabilitation provider and/or treating doctor where required) (35), some workers may have been unaware of their plan due to lack of involvement. Nevertheless, there may be potential to improve RTW outcomes in Australia by ensuring a greater proportion of workers receive RTW plans.

Workplace emotional and instrumental support for RTW are modifiable. Therefore, attention to these areas could result in improved RTW outcomes which have positive flow-on effects to worker health and costs. Whilst the majority of injured workers stated they received emotional support at the time of claim and once the claim was processed, there was still a large number that felt unsupported. Changes to organisational culture could greatly improve a worker's perception of support and improve their recovery should an injury occur (36). Examples include encouraging reporting of incidents (whether an injury occurred or not), ensuring the workers' rights and responsibilities are well-known and honoured, and

improving communication channels to better coordinate injury response. Furthermore, educating employers on the benefits of RTW should be enhanced and delivered in a way that is both worker-centred and that appeals to their business interests (33). Benefits to the employer include reduced insurance premiums and sickness absence, meaning that they do not need to find and fund replacements or expect other employees to carry the load of the absent worker, which likely reduces productivity (13, 35).

Strengths of this study include that it is a nationwide survey of a large cohort of injured workers from all major Australian WC jurisdictions. Additionally, this survey included a number of claim, injury and psychosocial factors that could be used as predictors in analyses. Limitations of this study are that the data are cross-sectional in nature, therefore limiting our ability to make causal inferences. Additionally, eligibility criteria resulted in a sample that was biased towards longer duration claims, and some cases were removed due to missing demographic data. Furthermore, given that this study utilised survey data, responses were subject to recall bias.

Conclusion

To our knowledge, this is the first study to investigate the association between emotional support at time of claim and during the claim, and RTW planning on likelihood and speed of RTW. Previous studies had independently examined these factors but had not accounted for them all in the same analysis. We found that most workers felt supported in their workplace both prior to submitting a claim and during their recovery. In a combined regression model that controlled for support, RTW planning and other worker-related factors, the significance of some factors changed from independent models. RTW planning for longer term claims (30+ days) was associated with greater likelihood of RTW, and strong emotional support during an injured worker's recovery was the most important factor for RTW in all claims. Given these factors are all modifiable, findings suggest that increasing employer emotional and instrumental support, through education, incentives or other interventions, should be a focus for policy makers to improve RTW outcomes for injured workers.

References

1. Australian Bureau of Statistics. 6324.0 Work-related injuries, Australia, JUL 2013 TO JUN 2014. Canberra: Australian Bureau of Statistics; 2014.

2. Lane T, Collie A, Hassani-Mahmooei B. Work-related injury and illness in Australia, 2004 to 2014. What is the incidence of work-related conditions and their impact on time lost from work by state and territory, age, gender and injury type? Melbourne (AU): Monash University, ISCRR; 2016.

3. Newnam S, Collie A, Vogel AP, Keleher H. The impacts of injury at the individual, community and societal levels: A systematic meta-review. *Public Health*. 2014;128:587-618.

4. Waddell G, Burton K. *Is work good for your health and well-being?* London: The Stationary Office; 2006.

5. Pransky G, Gatchel R, Linton SJ, Loisel P. Improving return to work research. *Journal of occupational rehabilitation*. 2005;15:453-457.

6. Canadian Medical Association. The treating physician's role in helping patients return to work after an illness or injury. 2013.

7. Australasian Faculty of Occupational and Environmental Medicine. Realising the Health Benefits of Work. Wellington, New Zealand: Royal Australasian College of Physicians; 2011.

8. McLaren CF, Reville RT, Seabury SA. How effective are employer return to work programs? *International Review of Law and Economics*. 2017;52:58-73.

9. Safe Work Australia. Work-related injuries in Australia, 2005-06. Factors affecting applications for workers' compensation. Canberra, Australia: Safe Work Australia; 2009.

10. Quinlan M, Mayhew C. Precarious Employment and Workers' Compensation. *International Journal of Law and Psychiatry*. 1999;22:491-520.

11. Rappin CL, Wuellner SE, Bonauto DK. Employer reasons for failing to report eligible workers’ compensation claims in the BLS survey of occupational injuries and illnesses. *American journal of industrial medicine*. 2016;59:343-356.

12. Jetha A, LaMontagne AD, Lilley R, Hogg-Johnson S, Sim M, Smith P. Workplace Social System and Sustained Return-to-Work: A Study of Supervisor and Co-worker Supportiveness and Injury Reaction. *Journal of occupational rehabilitation*. 2017.

13. van Velzen JM, van Bennekom CAM, van Dormolen M, Sluiter JK, Frings-Dresen MHW. Factors influencing return to work experienced by people with acquired brain injury: a qualitative research study. *Disability and rehabilitation*. 2011;33:2237-2246.

14. Feuerstein M, Berkowitz SM, Haufler AJ, Lopez MS, Huang GD. Working with low back pain: workplace and individual psychosocial determinants of limited duty and lost time. *American journal of industrial medicine*. 2001;40:627-638.

15. Krause N, Dasinger LK, Deegan LJ, Rudolph L, Brand RJ. Psychosocial job factors and return-to-work after compensated low back injury: a disability phase-specific analysis. *American journal of industrial medicine*. 2001;40:374-392.

16. Labriola M, Christensen KB, Lund T, Nielsen ML, Diderichsen F. Multilevel analysis of workplace and individual risk factors for long-term sickness absence. *Journal of Occupational and Environmental Medicine*. 2006;48:923-929.

17. Lane TJ, Lilley R, Hogg-Johnson S, LaMontagne AD, Sim MR, Smith PM. A Prospective Cohort Study of the Impact of Return-to-Work Coordinators in Getting Injured Workers Back on the Job. *Journal of occupational rehabilitation*. 2017.

18. Awang H, Tan LY, Mansor N, Tongkumchum P, Eso M. Factors related to successful return to work following multidisciplinary rehabilitation. *Journal of Rehabilitation Medicine*. 2017;49:520.

19. Post M, Krol B, Groothoff JW. Work-related determinants of return to work of employees on long-term sickness absence. *Disability and rehabilitation*. 2005;27:481-488.

20. Reme SE, Shaw WS, Steenstra IA, Woiszwillo MJ, Pransky G, Linton SJ. Distressed, immobilized, or lacking employer support? A sub-classification of acute work-related low back pain. *Journal of occupational rehabilitation*. 2012;22:541-552.

21. Tjulin A, MacEachen E, Stiwne EE, Ekberg K. The social interaction of return to work explored from co-workers experiences. *Disability and rehabilitation*. 2011;33:1979-1989.

22. Schreuder JA, Groothoff JW, Jongsma D, van Zweeden NF, van der Klink JJ, Roelen CA. Leadership effectiveness: a supervisor's approach to manage return to work. *Journal of occupational rehabilitation*. 2013;23:428-437.

23. The Social Research Centre. Return to work survey: 2013/14 Summary research report (Australia and New Zealand). North Melbourne: The Social Research Centre; 2014.

24. Collie A, Lane TJ, Hassani-Mahmooei B, Thompson J, McLeod C. Does time off work after injury vary by jurisdiction? A comparative study of eight Australian workers' compensation systems. *BMJ Open*. 2016;6.

25. Murgatroyd D, Harris IA, Tran Y, Cameron ID. Predictors of return to work following motor vehicle related orthopaedic trauma. *BMC Musculoskeletal Disorders*; 2016.

26. Gray SE, Collie A. The nature and burden of occupational injury among first responder occupations: a retrospective cohort study in Australian workers. *Injury*. 2017;48:2470-2477.

27. Gray SE, Collie A. Comparing time off work after work-related mental health conditions across Australian workers' compensation systems: a retrospective cohort study. *Psychiatry, Psychology and Law*: Routledge; 2018.

28. StataCorp. Stata Statistical Software: Release 15.1. College Station, TX: StataCorp LLC; 2017.

29. Culler KH, Wang Y-C, Byers K, Trierweiler R. Barriers and facilitators of return to work for individuals with strokes: Perspectives of the stroke survivor, vocational specialist, and employer. *Topics in Stroke Rehabiliation*. 2011;18:325-340.

30. Jakobsen K, Lillefjell M. Factors promoting a successful return to work: from an employer and employee perspective. *Scandinavian Journal of Occupational Therapy*. 2014;21:48-57.

31. Kuoppala J, Lamminpaa A, Liira J, Vainio H. Leadership, job well-being, and health effects--a systematic review and a meta-analysis. *Journal of Occupational and Environmental Medicine*. 2008;50:904-915.

32. Yarker J, Munir F, Bains M, Kalawsky K, Haslam C. The role of communication and support in return to work following cancer-related absence. *Psycho-oncology*. 2010;19:1078-1085.

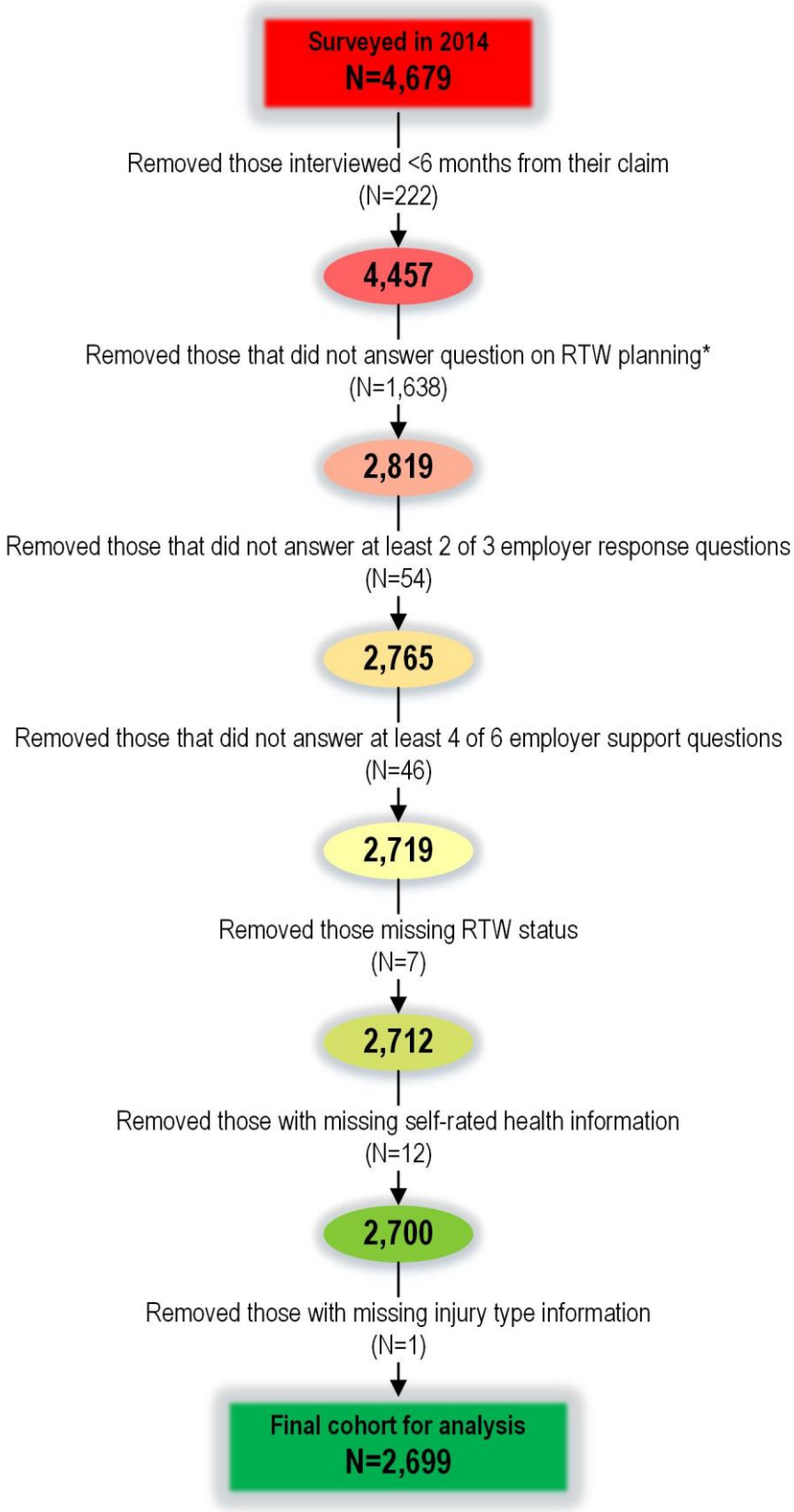
33. Seing I, MacEachen E, Ekberg K, Stahl C. Return to work or job transition? Employer dilemmas in taking social responsibility for return to work in local workplace practice. *Disability and rehabilitation*. 2015;37:1760-1769.

34. Safe Work Australia. Comparison of workers' compensation arrangements in Australia and New Zealand. Canberra: Safe Work Australia; 2016.

35. Fenner P. Returning to work after an injury. *Aust Fam Physician*. 2013;42:182-185.

36. Safe Work Australia. Perceived levels of management safety empoyerment and justice among Australian employers. Canberra: Safe Work Australia; 2016.

Supplementary figure: Cohort selection process



*1,528 were not asked the question, 3 refused to answer, 107 did not know